TO: Board of Directors

FROM: Kevin Desmond, Chief Executive Officer

DATE: November 6, 2019

SUBJECT: Public Delegation at the September 25, 2019 Board of Directors Meeting

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EXECUTIVE SUMMARY

The Board received one public delegation at its September 25, 2019 open Board meeting. Management followed up in writing with the delegation after the meeting.

On September 25, 2019, the TransLink Board of Directors received one public delegation on the following topics:

- **Rapid Bus on Hastings Street**
  - The speaker spoke of the reduction of vehicular traffic in the Burnaby Heights area of Hastings Street, and raised concerns relating to the use of curb-side lanes for rapid buses on Hastings Street.
  - Management responded with information about traffic congestion on Hastings Street, its impact on bus service and planning efforts relating to the proposed Hastings RapidBus route planned to begin service in January 2020. Management noted that, at a local level, there would be no street changes made as part of the launch of the Hastings RapidBus service, and identified plans for local stakeholder engagement on congestion and transit delay issues.

PRESIDENT & GENERAL MANAGER 2019 Q3 REPORT
December 2019 TRANSLINK BOARD MEETING

TransLink Strategic Priority: Implement the Mayors' Vision

Expand Capacity and Modernize Fleet

Phase 2 Mark III status update:

- Trains 1-7 are now in revenue service. Trains 1-6 are fully tested and commissioned. Train 7 is in stage 3 commissioning and conducting revenue service trips with passengers.
  - With the successful testing and commission of these new Mark IIIs, SkyTrain service increases on the Expo and Millennium Lines were implemented in September 2019, which included more trains added into service during our peak periods. 72 trains in the morning and 70 in afternoon rush hour periods.
- Train 8 has been shipped from Bombardier's Kingston facility and arrived in October.
- Trains 9, 10 & 11 are at various stages of manufacturing at Plattsburgh, New York.
- Current available fleet is 314 train cars.
- The delivery is on track for the service expansion in September 2020

Expo-Millennium Upgrade Program Fleet Expansion:

- The RFP to procure 205 new SkyTrain cars for the Expo and Millenniums Lines was issued on July 31. An information session was hosted for potential suppliers in September.

TransLink Strategic Priority: Maintain a State of Good Repair

Safety

- A Safety, Environment and Emergency Management five year strategic plan has been developed focussing on six key areas. Detailed tactical plans are being developed to support initiatives identified in the first year. The three top priorities are:
  1. safety engagement to support a zero harm culture
  2. conducting a safety survey to inform the implementation of an integrated safety management system
  3. developing Prime Contractor obligations and associated program
- Safety is working with the President and the different departments to introduce a Zero Harm campaign to people and the environment.
- Safety marketing campaign was introduced onto the greater transit system to raise awareness about slip, trips and falls on SkyTrain and bus. BCRTC assisted by installing the marketing signage on SkyTrain cars. Further actions, such as HyperSpike campaigns and hot spot deployment of STAs, will be rolled out throughout Q4.

Maintenance

- 12 MKII trucks have been completed to date as part of the mid-life refurbishment program for MKII trucks. This year we will refurbish 18 out of 24, six less than planned, with no impact on safety or expected performance.
- LORAM grinder arrived in Q3 to begin grinding work on the Expo and Millennium Lines. BCRTC's annual grinding program covers 130 kilometres of rail per year of which the LORAM grinder supports approximately 70 kilometres of the 130. The LORAM grinder is used for addressing poor rail areas in need of re-profiling and defect removal. By grinding rail we prolong the life of the rail, improve ride quality and lessen noise for customers and our neighbours. In Q3, it ground 14.7 km in 9 shifts. We are on-schedule with the grinding program.

- Station roof upgrade work is being performed at Edmonds SkyTrain Station as part of SoGR program.

Railway infrastructure maintenance activities this quarter:

Replacements:

- Three full turnout change outs (switches and component rail)
- One switch component change out
- 13 planned switch machine replacements
- 21 running rail plugs

Grinding:

- 14.7 km of mainline track
- 22 switches

Other:

- Linear Induction Motor Rails Lowered: 23 track sections
- 17 sections of clip replacements

Rolling Stock maintenance activities this quarter:

Replacements:

- 135 wheelsets lathed/turned
- 56 door operators
- 33 wheelsets changed out
- Eight trucks changed out

Inspections:

- 650 train cars inspected. Inspections are performed every 20,000 kilometres.

MK I Refurbishment:

- Six MKI cars (floors/seats/stanchions). 99 out of 114 have been completed, trending ahead of schedule.

Implement formal asset management plan

- An Asset Management tool has been selected for implementation at BCRTC. The selected tool is Infor EAM, a component within the ERP (Enterprise Resource Planning) Program, including the enterprise financial system replacement project.
- Design for the Asset Management tool will kick-off in 2020, with implementation planned to start in 2021.
- Audits of Canada Line and West Coast Express' maintenance plans have been completed. Reports to be issued in Q4, but no immediate concerns identified.

Training

Develop formal training plans and curriculum

- Continue to drive toward completing all required training and refresher training; any training at risk of not being completed by year end is being addressed and will be prioritized accordingly. We will adhere to safety standards.

Capital & Major Business

Space optimization

- Preliminary design work continues; location for new OCC has been selected.
- OMC1 space requirements for the remainder of 2019 have been identified and accommodations will be made for all new employees.

TransLink Strategic Priority: Enhance Customer Experience

Service Delivery

- Q3 on-time performance of 96.87% exceeded the target of 96.5%. July (97.22%) and August (97.38%) continued the trend of higher than target OTP numbers while September (95.95%) was below for the first time since February.
- Carried a quarter of a million extra customers to multiple events in Q3 (Canada Day, Pride Parade, Celebrations of Lights, Climate Strike).
- September service expansion was successfully implemented with 9% more service on the Expo Line and 5% more service on the Millennium Line during peak service with the successful introduction of the new Mark III trains.

Customer Experience

- A new customer service walk up centre opened in October. The SkyTrain Assistance Centre at Commercial-Broadway station will enhance the customer experience to the tens of thousands of passengers that pass through this major transit hub on a daily basis by giving customers easier access to transit advice and services with our STAs being at the counter during operating hours.
- The fare gate monitoring centre was moved from Brentwood Station to Commercial Station.
- STA refresher training continued in Q3 with a focus on troubleshooting train faults, assisting blind and partially sighted passengers, and rapid risk assessment.
- The PIDS/CCTV/PA project work is substantially complete at five stations: Lougheed, Production Way, Joyce-Collingwood, Edmonds & Columbia and actively working at 14 other stations. Public feedback continues to be positive about the enhancements.
- In Q3 the noise mitigation study evaluated consultants and equipment suppliers for the next part of the study, which includes data collection for the phase 1 draft report.

Key Performance Indicators – as of September 30, 2019	SkyTrain (excluding Canada Line)				West Coast Express		
	Sept YTD Target	Sept YTD Actual	Sept YTD Last Year		Sept YTD Target	Sept YTD Actual	Sept YTD Last Year
Customer Experience					Customer Experience		
Customer Service Performance Survey – SkyTrain Service Overall (Q3 Results)[1]	8.3	8.2	8.3		8.6	9.2	8.9
Boarded Passengers (in thousands)[2]	87,819	86,046	83,190		1,863	1,966	1,858
Customer Complaints (per million boarded passengers)[3]	15	14.7	15.2		98.5	93.1	104.9
Safety					Safety		
Major Passenger Injuries (per million boarded passengers)[4]	0.95	0.96	1		0.4	0.51	1.61
Employee Lost Time Frequency (per 200,000 hours worked)[5]	4.11	6.13	5.52		0	0	0
Lost Time Incidents	29	39	33		0	0	0
Total Recordable Incident Frequency	34.80	32.20	39.30				
Workplace Inspections Completed	100%	92%	61%				
Operations					Operations		
On-Time Performance[6]	96.50%	96.18%	96.32%		97.80%	96.02%	96.94%
Percentage of Scheduled Service Delivered[6]	99.70%	99.30%	99.69%		99.90%	99.71%	99.93%
Service Delays 16 – 30 Minutes[6]	36	49	34		-	-	-
Service Delays 30 Minutes or more[6]	14	12	11		-	-	-
Finance					Finance		
Operating Cost per Vehicle km[7]	$ 3.45	$3.40	$3.18		$14.65	$13.42	$13.62
Operating Cost per Capacity km[7]	$0.034	$0.034	$0.033		$0.099	$0.091	$0.096

1 The TransLink Customer Service Performance survey is completed quarterly for Expo/Millennium Lines and bi-annually for West Coast Express. Q3 results for BCRTC were in-line with the previous quarters. The only category with a significant difference was 'Delays Announced' (-0.3).

WCE's Overall score was down 0.1 compared to the March survey. Categories that saw a decrease in their score were: 'Frequency of Service' and 'Enough Parking at WCE lots' (down 0.3 each) and 'Value for Money' (down 0.4).

2 EM Ridership continues to increase (+3.4%, +2.9M riders) over last year. July's 10.2M boarded passengers is the highest monthly total on record.

WCE also continues to experience a healthy increase in ridership: +5.8% (+107K passengers).

3 EM Complaints rate is slightly 3.0% below 2018. Actual complaints received are the same (1264 vs. 1268). The difference in the rate is mostly due to the increase in ridership.

WCE complaints rate is down 11.3% to last year. This translates to 12 complaints less received so far this year.

4 EM passenger injuries are trending down, as the number of reported injuries has decreased each quarter. (From 37 in Q1 to 20 in Q3). There was only one serious injury reported so far this year, in January, compared to 3 last year for WCE.

5 Q3 has seen the lowest number of LTI claims accepted so far this year (10). However, LTIF YTD is still trending well above last year (-11.1%), and target (-49.1%). There were no Lost Time Incident claims for WCE in 2019.

6 Both OTP and Service Delivery have rebounded after a difficult February due to the weather. Service Delivery has been above target for every month since then, and OTP was over target from March to August.

WCE OTP has been impacted by numerous CP related delays this year, but has been improving slowly. Q3 however was the best quarter so far this year. Service Delivery for WCE has been perfect in 2019, except for May, when a train was pulled due to procedural issues.

Delays 16-30 min are trending above last year, and are in line with 2017 totals. Delays of 30 minutes YTD were mostly due to train time-outs, switch issues and passenger related incidents.

7 Includes Allocated Costs; excludes 3rd Party Revenues and Depreciation. For the nine months ended September 30, 2019 Expo and Millennium operations was favourable primarily due to lower labour costs driven by temporary vacancies and lower benefit costs offset by higher overtime, deferral of train condition assessments, lower property taxes and hydro costs, partly offset by higher maintenance activities and snow and ice removal costs. For the nine months ended September 30, 2019 West Coast Express was favourable to budget largely due to higher contractual performance discounts and the timing of conditional assessments partially offset by higher snow and ice removal costs.

Coast Mountain Bus Company

PRESIDENT & GENERAL MANAGER REPORT
December 6, 2019 TRANSLINK BOARD MEETING

TransLink Strategic Priority: CUSTOMER EXPERIENCE AND PUBLIC SUPPORT

CUSTOMER EXPERIENCE

On-time Performance

- On-time performance for Q3 2019 followed standard seasonal changes and is lower than Q2 for both punctuality and regularity. This is due to the usual increase of traffic as school began in September and construction increased over the summer months. Bus Punctuality was 80.9% for Q3 (0.4% lower than Q2) and Bus Regularity was 78.4% for Q3 (0.4% lower than Q2).

Global Climate and Extinction Rebellion Protests

- Approximately 80,000 people took to the streets of Downtown Vancouver on September 27 to participate in the Global Climate Strike. Of those attendees, about 2,000 were from the University of British Columbia. CMBC used additional shuttles to supplement Routes 9 and 99 to effectively handle the volume of customers. The shuttles ran directly from the university to Broadway and Cambie. Transit Communications (TComm), Transit Supervisors, and Transit Security mobilized to key locations to assist with crowds.

Transit Security Presence and Visibility

- To increase safety and security, Transit Security remains focused on system visibility. Transit Security Officers continue to engage with customers and stakeholders at loops and exchanges.

Transit Security Community Officers Engage with the Community and Enterprise

- Transit Security Officer Leigh Bates presented at the TransLink Enterprise Town Hall on September 30 alongside Transit Police Sergeant Cheryl Simpkin, showcasing the collaborative working relationship of their two departments.
- Transit Security Community Liaison Officers continue to build positive working relationships with internal and external stakeholders by attending special events, schools, and community groups.

Trip Planner Update

- The Trapeze suite of products underwent a scheduled upgrade in late October. The update included a new mobile-friendly, responsive Trip Planner with clickable maps. CMBC's Customer Information team updates transit schedules and bus stop information in Trapeze, enabling customers to easily access transit information.

Wheelchair-accessible Bus Stops

- As of the end of September, CMBC reached 79.0% for bus stop wheelchair accessibility with 6,606 accessible stops across the system.

Access Transit Service Delivery (ATSD) Update

- *Ridership* – The trend of delivering more HandyDART trips than budget continues in Q3, including almost 2,600 trips over budget in the month of September. ATSD expects to end the year slightly below the annual target due to significant trip cancellations caused by HandyDART's "essential service" periods during inclement weather in February and March.
- *On-time performance* – Decreases in on-time performance were observed in Q3 in part because of increased demand, but also because of congestion and construction delays. To improve performance, a speed review was completed in Q3 and ATSD made successful adjustments to North Shore trips. ATSD then applied the same approach to Vancouver, Richmond, and South of Fraser trips in the first week of October.
- *Trip denials* – At the end of Q2, taxi utilization was approximately 14.3%. Denials continue to be at an all-time low (0.06% YTD).
- *System* – The Trapeze system has been stabilized through the implementation of a series of patches and server work, and an upgrade is expected to take place in Q4.
- *Customer Engagement* – ATSD continues to have monthly meetings with the HandyDART Riders' Alliance and is soliciting their input on developing a more robust customer communication strategy. In addition, ATSD held two customer engagement sessions in Tsawwassen and Burnaby in Q2 and two more are planned in Maple Ridge and Surrey for Q4.
- *Lean process improvements* – Projects dealing with registration and complaint handling are almost complete. The complaint handling project is showing an 8.7% improvement in the number of complaints resolved within three days (from 83.3% to 92%).

SAFETY

Transit Operator Protection Barriers

- As of October 1, there were 365 conventional buses outfitted with Operator Protection Barriers. All new buses now arrive equipped with factory-installed barriers and the retrofit project is expected to be complete in 2027.
- Installation of barriers on 42 Xcelsior buses is on schedule for completion in Q4 and the project scope has expanded to include 22 Xcelsior buses at West Vancouver Blue Bus.
- The trolleybus barrier trial is complete, the manufacturer is proceeding with production, and CMBC expects the first shipment of trolley barriers to arrive in late November.

Safe Driving Refresher Program

- The design and development of the new Safe Driving Refresher Program for Conventional and Community Shuttle Transit Operators is complete. The program consists of a series of videos and e-learning modules and will be made available to Operators as self-directed online learning via the new Learning Management System, MyLearn, in 2020. In the interim, a majority of the content will be made available on the MyCMBC intranet.

Operator Refresher Training Program

- The scope of the new one-day refresher training program for Transit Operators in 2020 has been determined and syllabuses are being developed. There will be separate syllabuses for Conventional Operators and Community Shuttle Operators with both involving instructor-led refreshers on safe driving skills, customer relations, and violent incident prevention. The Conventional refresher program will also include the new bus simulator. The program is scheduled to launch in late Q1 2020 and approximately 600 Conventional Transit Operators and nearly 100 Community Shuttle Operators will go through the training per year.

Safety Campaigns

- The CMBC Safety team, working with partners at BCRTC and TransLink, launched a customer safety campaign "Safety starts with you" on September 30. The campaign aims to provide safety reminders related to three key areas: not holding on while on the bus and SkyTrain; getting out of the seat too early; and slips, trips and falls on escalators and stairs at SkyTrain Stations. The campaign included Lamar ads, five experiential buses, four RapidBus wraps, and SkyTrain glass decals.
- CMBC, in partnership with TransLink, participated in an ICBC-led pedestrian safety campaign, including providing messaging and handing out reflectors to bus and SkyTrain customers at Commercial–Broadway SkyTrain Station in September.
- The annual winter safety campaign began in November, including messaging on vehicles, at loops and exchanges, and on television.

Winter Weather Readiness

- On October 10, the Annual Winter Weather Readiness exercise was conducted with TransLink, BCRTC, CMBC, and other service providers. This year's exercise was designed as a tabletop event whereby service providers reviewed their priority actions during a mock connectivity call.

ENVIRONMENTAL STEWARDSHIP

Low Carbon Fleet Strategy (LCFS)

- The LCFS Phase II report, outlining fleet transition and implementation plans into low carbon technology, is being finalized for presentation to the Executive Capital Oversight Group (ECOG) in November. The report will provide roadmap options to electrification by 2050.

Facilities Renewable Energy Plan

- A draft report on transitioning to 100% renewable energy by 2050 is currently being reviewed and the final report is expected in late November. It will include elements of energy efficiency improvements (consistent with CMBC's existing program), switching from natural gas fuel to electricity for heat, and future on-site electrical generation in the form of solar photovoltaics (conversion of light into electricity using semiconducting materials).

Battery-electric Bus Pilot

- The battery-electric bus pilot began on Route 100 (22nd Street Station–Marpole Loop) on September 11. The battery-electric buses are doing AM/PM tripper work. Data collected during the pilot period of 2.5 years will be utilized to further advance electrification of the fleet.

Battery-electric Non-Revenue Vehicles

- Two Nissan Leaf battery-electric non-revenue vehicles for Sapperton have been ordered and are due to arrive in Q1 2020 (delay due to limited production capacity and high market demand). Two new charging stations have been installed and are operational at Hamilton Transit Centre. A corporate policy on employee use of vehicle chargers is under development.

Spills KPI Target

- Targeted spill reduction campaigns developed by Maintenance Engineering continue to be successful. As of October 11, the year-to-date spill rate was 2.37% spills per million kilometres which is well below the target of 5.9%.

TransLink Strategic Priority: ENSURE STATE OF GOOD REPAIR

OUR PEOPLE

Great BC ShakeOut

- CMBC participated in the provincial Great BC ShakeOut exercise on October 17. CMBC activities included information and a survey shared with employees via the MyCMBC intranet, work site TV screens, and email. In addition, a TMAC announcement was issued to Transit Operators on the road and an audit of the Emergency Operation Center Activation Protocols took place. This exercise increased employees' earthquake preparedness knowledge and confirmed response activities.

Emergency Preparedness for Major Events

- To prepare for scheduled major events, enterprise connectivity calls were initiated for the Sawmill Shut-down Protest and the Global Climate and Extinction Rebellion protests. Thanks to pre-planning additional service, re-routes and quickly responding to ever-changing traffic and pedestrian patterns, CMBC kept service running with minimal disruptions or cancellations despite the closure of two major Metro Vancouver bridges.

Transit Supervisor Mobile Apps Pilot

- A pilot of new mobile phone apps for Transit Supervisors took place between July and October. The apps streamline work processes on the frontlines, improve incident investigations, ease sharing of documents, and enable information-gathering for customers. The pilot was successful, and Business Technology Services is now in the process of procuring new phones. The phones loaded with the apps will be rolled out to Transit Supervisors in waves beginning in Q1 2020.

Mental Health First Aid (MHFA)

- As of the end of October, MHFA training has been delivered to 175 employees in 2019. A total of 374 have been trained since the program's implementation in mid-2018. MHFA is now available to all employees with manager approval. Courses are currently offered monthly.

Defuser Training

- Defusers are CMBC employees who act in a volunteer capacity to assist colleagues who have been involved in a critical incident. There are currently 28 active Defusers in the system and the Occupational Health team is currently filling a training class of 30. Additional Defusers will improve response times and ensure CMBC accounts for attrition.

Video-based Route Training

- Video-based route training was successfully implemented during Summer Consolidated Sign-up at Hamilton and Richmond Transit Centres. The training familiarized Transit Operators with three routes relocated for the September sheet. Similar instructor-hosted training sessions will be held in November and December at Richmond and Port Coquitlam Transit Centres to support the move of Route 555 (Carvolth Exchange–Lougheed Station) and the introduction of the Lougheed RapidBus in January 2020.

Resource Planning – Operations

- CMBC is on-target to deliver the required Transit Operators for the launch of RapidBus in January 2020. Throughout the year, Operator Training has had full classes of 24 students.
- Building on the success of the 2018 Transit Operator recruitment fairs, the first event of 2019 took place on September 28. More than 1,200 candidates were invited to attend and about 490 moved on to the next step of the hiring process. Those hired will begin training between winter 2019 and spring 2020.
- A Training Task Force has been convened and resulted in the development of a new syllabus for Conventional New Operator Training. The new syllabus took effect on November 18 and provides increased, and more value-added, drive time for trainees. These changes should assist in increasing graduation rates, reducing road test failures, improving trolley-driving skills, and generally better preparing Operators for the demands of the job.

Resource Planning – Maintenance

- Forty-one apprentices are currently at various levels of the Maintenance Apprenticeship Program. In Q4 2019, ten apprentices will begin attending regular sessions at CMBC's training partners, British Columbia Institute of Technology and Vancouver Community College. Approximately 20 apprentices are expected to graduate in 2020.
- Maintenance continues to work through industry-wide recruitment challenges. A Lean review of the recruitment process resulted in a 55% improvement in the New Hire Job Opening Approval and Recruitment Process, and opportunities to shorten the time further have also been identified. In addition, timing to extend conditional offers of employment to promising candidates has been reduced dramatically (86 days to 20). Conditional offers are dependent on a reference check, obtaining a Class 2 Learner's Permit, and medical clearance, but allow CMBC to catch good candidates before losing to competition.
- Also, by the end of the year, the team expects to re-evaluate the screening process including qualifications and testing, update interview guides, and develop recommendations for a Talent Management Program.

OUR ASSETS

Onboard Technology Assets Program (OTAP)

- The OTAP pilot includes four main projects, including replacing radio systems for improved connection and better coverage; replacing onboard computers and touchscreens with a larger screen and better visuals; adding new routers to improve data communication with TComm; and installing new hardware to improve camera feeds to Security.
- The fleet pilot began in May with 67 new expansion buses out of Hamilton Transit Centre and subsequently expanded to include 30 retrofit buses, as well. As of the end of October, there were 75 OTAP buses in-service and fully operational across the six depots.
- The full fleet roll-out is expected to start in Q2 2020 and finish in 2022.

Commissioning of New Nova and New Flyer Hybrid Buses

- As of the end of September, 197 new conventional buses were commissioned and placed into revenue service, including 91 New Flyer 60' hybrids (including 28 for expansion), 84 Nova 40' hybrids, and 22 Nova 40' highway coaches.

SeaBus Accessibility and Seismic Upgrades

- Construction upgrades to the SeaBus Waterfront terminal were completed in August. Shortly thereafter, installation of the new east set of escalators ("down") began and work is expected to finish by the end of the year. The west set of escalators ("up") is expected to be installed in early 2020.

Preventive Maintenance Program (PMP)

- Implementation of the 8,000 km PMP inspection at all garages was completed in September and Commercial Vehicle Safety Enforcement was notified.

HandyDART Real Estate Strategy

- A real estate study has been commissioned to address both an interim and long-term real estate strategy for HandyDART service.

TransLink Strategic Priority: MOBILIZE THE MAYORS' COUNCIL'S 10-YEAR VISION

FLEET AND INFRASTRUCTURE

Bus Deliveries: Replacements and Service Expansion

Buses	Expansion	Replacement	Total	Notes
CNG 40'	0	47	**47**	Arriving Q3/Q4 2019
Community Shuttle (2019)	5	49	**54**	Arriving Q3/Q4 2019
Double-decker	5	27	**32**	Arriving Q3/Q4 2019
Diesel Electric Hybrid Artic	58	52	**110**	Arriving Q4 2018-Q4 2019
Battery-electric	4	0	**4**	Delivered May 2019
HandyDART (2019)	10	40	**50**	Delivered Q2 2019
Nova (2018)	94	10	**104**	Delivered Q4 2018-Q1 2019
Highway Coach	0	23	**23**	Delivered Q4 2018

Double-decker Buses

- CMBC's first double-decker bus went into revenue service on October 30 on Route 620 (Bridgeport–Tsawwassen Ferry Terminal). The next route to be serviced by double-deckers will be Route 301 (Newton Exchange/Richmond–Brighouse Station) and Route 555 (Carvolth Exchange–Lougheed Station) which will be added in January 2020.
- As of the end of October, there was one bus in service, two in commissioning at Richmond Transit Centre, and eight in post-delivery inspection. Delivery of the remaining double-deckers will take place between November and January 2020 at a rate of seven buses per month.

Farebox Replacement Conventional Bus

- As the conventional fleet's electronic fareboxes approach end-of-life, initial meetings are taking place to decide on a manual or electronic replacement option. TransLink's Compass Operations team has narrowed the choice to five potential fareboxes and a cost analysis is in progress.

Farebox Replacement for Community Shuttles

- Farebox replacement on all 193 Community Shuttles is complete. Community Shuttles now have TAG manual fareboxes and paper fare transfers.

2019 Low-Floor Community Shuttles

- Forty-nine replacement ARBOC low-floor Community Shuttles have begun arriving, 47 of which will replace the existing fleet of high-floor shuttles at Hamilton Transit Centre. The new shuttles are expected to go into service in Q4. Two of the low-floor shuttles will be allocated to West Vancouver Transit Centre, completing their transition to low-floor shuttles.
- As of the end of October, 50% of Hamilton Community Shuttle Operators have been trained on the new shuttles and all will be trained before they go into service.

Facility Capacity Analysis Study

- A study is in progress to assess the capacity of CMBC's transit centres and determine the effect of corporate priorities and initiatives on future facility requirements. The first section of the study was presented on October 9 to the Bus and Facilities Steering Committee. Recommendations were approved to prioritize facility improvements at a couple of transit centres based on existing conditions, overall capacity for expansion, forecasted levels of service, and funding requirements.

Marpole Transit Centre (MTC)

- In September, the design and consultant service contract was executed for the planned Marpole Transit Centre in South Vancouver. Shortly thereafter, WSP Canada began the design work, including initial functional programming interviews with stakeholder groups. Interviews were completed in October, and conceptual design work is expected to be complete by year-end.

KEY PERFORMANCE INDICATORS AS OF SEPTEMBER 30, 2019

KEY PERFORMANCE INDICATORS[1]	2019 ANNUAL TARGET	SEPT. YTD TARGET	SEPT. YTD ACTUAL	SEPT. YTD LAST YEAR
TransLink Customer Survey – Bus service overall	8.0	8.0	7.9	7.9
Scheduled Service Delivered	98.5%	98.5%	98.3%	98.8%
Customer complaints per million boarded passengers	105	101	101	102
Customer commendations per million boarded passengers	16	16	16	16
HandyDART denial as a % of trips requested as defined in agreement	0.12%	0.12%	0.06%	0.06%
On-time Performance				
Bus Regularity – frequent service	76.0%	76.0%	78.4%	77.7%
Bus Punctuality – infrequent service	79.0%	79.0%	81.0%	80.6%
Spills per million Kms	5.9	5.9	2.2	5.0
Preventable collisions per million Kms[2]	9.9	9.9	10.8	10.4
Operator assaults (CUTA 1-4) per million boarded passengers	0.31	0.31	0.32	0.33
Employee lost time claims per 200,000 hours worked	7.6	7.6	7.9	7.4
Pedestrian incidents with verified bus contact per million service hours[3]	-	-	12.5	11.2
Onboard injury claims per million boarded passengers	3.9	3.9	4.0	4.2
CMBC operating cost per service hour[4]	$123.22	$123.22	$120.63	$117.34
Access Transit operating cost per trip[5]	$42.23	$42.23	$40.14	$40.82
METRICS				
Access Transit trips provided (thousands)				
HandyDART	1,271	954	895	874
Supplemental taxi service	102	77	130	106
Total Trips	1,373	1,031	1,025	980

[1] *Performance measures are for CMBC business operations (Conventional Bus, Community Shuttle and SeaBus) and exclude contracted conventional transit and contracted Community Shuttle.*

[2] *As of September 30, 2019; this data is subject to change, due to timing of adjudications. For the first nine months of 2019, CMBC has recorded 800 preventable collisions which indicates a slight increase from the same period in 2018 (758). Operator Training continues with initiatives (e.g. Improving Driver Performance (IDP) program) to reduce preventable collisions.*

[3] *In Q3 2019 YTD, 48 pedestrian verified bus contact incidents were recorded showing a small increase over the same period last year (42). Operator Training, Corporate Safety and Operations continue to monitor the incident rate and employ mitigation strategies including remedial training, a distracted driving campaign, and a policy change to forbid the use of electronic devices (including ear buds and smartwatches), among others. The target for this metric is unavailable as this metric specifically refers to pedestrian incidents with bus contact that have been verified, as opposed to all types of pedestrian incidents (comprising incidents with verified bus contact, alleged bus contact, and no bus contact). A target at the corporate level is available only for the overall pedestrian incident rate, which is 19.4 pedestrian incidents per million service hours for 2019.*

[4] [5] *Excludes TransLink allocated costs.*

METRO VANCOUVER TRANSIT POLICE REPORT FOR DECEMBER 2019 TRANSLINK BOARD MEETING

TransLink Strategic Priority: Customer First

- **Anti-Theft Winter Campaign**
  During the month of July 2019, there was a significant increase in thefts reported to Transit Police. Specifically, 'Theft Under $5,000' rose to 31 incidents from 21 the previous month; theft of electronic devices rose from 3 incidents to 9, and bicycle theft rose to 19 incidents from 12. As this trend appeared to be continuing, Transit Police will develop a public campaign that will include:
  - A social media campaign (November 2019 through January 2020) to raise public awareness of theft on and around transit, and what the public can do to protect themselves and their belongings;
  - Distribution of the existing Transit Police "Device Advice" and "Slash 'N' Snatch" info cards at public engagement events, and creation of a new card;
  - Writing/posting of an anti-theft-focused blog and possible creation of an anti-theft awareness video highlighting common offences.

- **Incident Highlights**
  Transit Police perform a variety of policing duties on and around the transit system. Transit Police Officers receive a broad range of mandatory and specialized training in order to respond to diverse calls for service, to protect vulnerable persons, and to prevent crime and public disorder. Some examples of incidents follow which demonstrate how Transit Police works in close collaboration with partners to assist vulnerable persons and protect the public and transit system.

  Arrest for Voyeurism – In October 2019, a female transit customer confronted a male suspect she believed had taken inappropriate photos of her. The male fled and the incident was reported to Transit Police. Two days later, the investigating Transit Police Officers located the suspect, who fled on foot when they approached him. After a brief chase, the suspected was captured and taken into custody. After being interviewed, the suspect was released on a Promise to Appear in Court on one count of voyeurism. The investigation is ongoing.

  Missing Person – On October 8, 2019 at 3:20 pm, New Westminster Police informed Transit Police of a situation where a 27 year-old male became separated from his care worker at New Westminster Station. The male has autism and, for the most part, was non-verbal. There was a concern that the male would not be able to make it home on his own and he had no compass card or cell phone to track. The Transit Police Communications Operation Centre made numerous broadcasts to Transit Police Officers, SkyTrain staff and bus operators, and a photo of the missing person was distributed. Transit Police reviewed video at the SkyTrain operating control centre and determined what train the male had boarded. The train was checked but the male was no longer on board. Later in the evening, the vulnerable male had still not been located

so further steps were initiated. The SkyTrain field supervisor was requested to have station attendants check every train coming through their stations, and they were given a detailed description from the video review. At approx. 11:30 pm, a SkyTrain Attendant spotted the missing person on a train leaving Stadium Station. Transit Police were able to intercept the train at Broadway Station and locate the missing male. He was accompanied to the New Westminster Station and placed in the care of a family member. Through diligence and interagency cooperation between police agencies and transit operating companies, there was a successful conclusion for this vulnerable missing person incident.

Violent Robberies – In September 2019, Transit Police appealed to the public for help in identifying a male suspect who allegedly committed two separate robberies, choking the victim in each of the incidents until they became unconscious. As a result, Transit Police received information that led to the identity of the suspect. The suspect has now been charged with two counts of Robbery and two counts of Attempting to Choke to Overcome Resistance. An arrest warrant has been issued for his arrest.

Sexual Assault – In September 2019, a female bus passenger was sleeping on a bus in Surrey. A male seated beside the female passenger touched her inappropriately. This incident was reported to Transit Police and investigated by the General Investigation Unit ("GIU"). A suspect description and travel information was obtained and provided to Patrol to assist with locating, identifying and arresting of the suspect. In the early morning of October 10th, Transit Police Officers located a male matching the description of the suspect as he walked over to the bus stop. His identity was confirmed and the suspect was arrested for sexual assault. Given that most transit related sexual assaults are 'stranger on stranger', it causes challenges for investigation and solving of the crime. Fortunately, in this case, the investigation was successful and the suspect arrested.

Theft on Bus – In September 2019, a man with physical disabilities, requiring the use of a wheelchair, was on board a bus. As the bus stopped around 80th Avenue and King George Boulevard in Surrey, a woman approached the man and quickly grabbed his mobile phone, which he was holding in front of him. After a brief struggle, the victim, who is paralyzed in one hand, could no longer hold on and the suspect was able to rip the phone from his grip and step off the bus. He attempted to yell for help, but unfortunately, the bus operator was unable to hear him. The victim was on his way to a program at Kwantlen Polytechnic University, where he is working toward improving his independence and job skills. His mobile phone meant a great deal to him as the large screen of the particular phone helped make texting and reading easier. Transit Police launched an investigation into the theft. Given the circumstances, the investigating Transit Police Officers decided to help pay off the outstanding debt on the phone, in order for the victim to acquire a new phone. On September 25, 2019, Transit Police appealed to the public for help in identifying the suspect. Tips were received that led to Transit Police being able to identify, locate and arrest the 32-year-old female suspect (of no fixed address and known to police). The suspect's first court appearance was scheduled for October 22nd. Through media attention of the theft (in particular broadcaster Linda Steele/980 CKNW) and impact to the victim, a new phone was donated by Telus and delivered to the victim by the investigating police officers.

Property Theft – In October 2019, Transit Police were notified by Transit Security that they had an unidentified male stopped at Granville Street and Georgia Street, in Vancouver, who was in possession of an allegedly stolen laptop from UBC. Transit Police Officers attended and witnessed the male in possession of a grey laptop and case, stating it was his. Transit Security advised that the owner of the laptop reported it stolen to UBC security and upon CCTV review, the male had gotten on a bus. The description was provided to Coast Mountain Bus Company, following which a bus operator located the male suspect with the laptop and called Transit Security. When Transit Security arrived on scene, they took the male off the bus and stayed with him until Transit Police arrived. The owner of the laptop then arrived and was able to describe the stolen laptop. Transit Police arrested the male for theft and possession of stolen property, and his custody was transferred to UBC RCMP for continuation of the investigation.

Life Saving Measure – On October 12, 2019 at 2:40 pm, Cst. Randhawa and Cst. Heywood were returning to Transit Police Headquarters. In the area of Braid Street and Brunette Avenue, they observed a BMW with flames emanating from the hood and windshield area of the vehicle. Upon closer examination, they noted a driver and passenger inside the vehicle. The Officers ran toward the vehicle, as the male driver exited the car. The female passenger attempted to exit the vehicle through the passenger side; however, could not open the door. Cst. Randhawa then removed the passenger from the vehicle and carried her to a safe area. Directly after, Cst. Heywood utilized a fire extinguisher to extinguish the flames. New Westminster Police attended and took conduct of the file. The Transit Police Officers suffered some smoke inhalation and were assessed at Royal Columbian Hospital.

TransLink Strategic Priority: State of Good Repair

- **Active Assailant Live Exercises –** As part of officer cycle training in September and October 2019, Transit Police conducted eight days of a live 'Active Assailant' exercise, simulating an active assailant at the Sapperton building. The exercise ran from 4 pm to midnight each day and it required Transit Police Officers to be in full gear, including carrying of safe training weapons. All ranks of officers were involved. The exercise included some screaming, running, hiding and

simulated shooting over a number of floors within the building, with Transit Police Officers and actors participating. Further, the training exercise included injured individuals who had to be tended and removed from the active crime scene. A new Transit Police 'Threat Response' standard operating procedure was developed earlier this year, in preparation for the training exercise.

Live exercise training is a component of Transit Police professional development and operational readiness for critical incidents; thereby supporting protection of the transit passengers, employees and infrastructure.

- **Arrest for Wire Theft**

  Transit Police previously informed the TransLink Board of the ongoing issue of transit wire theft and its impact to public and employee safety, as well as to TransLink costs. The incident below highlights a positive outcome through interagency collaboration.

On July 11, 2019, at approx. 3:57 am, Transit Security received a call from the Transit Communications Center in regards to a Trolley overhead power issue near the Stanley Park bus loop. Transit Security members were dispatched to patrol the surrounding area of Stanley Park due to this issue. At approx. 4:04 am, Transit Security entered the Stanley Park bus loop area to which they immediately noticed that dangling overhead wires were almost touching the ground. A male sitting in the bus loop got their attention and he stated to them that he had observed two males cut the wire and run into the pathway with the wire. Transit Security then entered the park in the same direction where the males were last seen. At approx. 200 meters into the park, the Transit Security members could hear the sound of metal dragging on concrete. Once the males were located, Transit Security placed a call to the Vancouver Police Department for assistance. Transit Security then approached the two males and were able to observe the stolen wire on the ground between the two males. Both males where then placed into handcuffs by Transit Security members.

Vancouver Police attended and arrested/chartered both males for a number of offences. Both males were transported to Vancouver Police cells and Transit Police were notified so they could assist with the investigation. An investigative interview was conducted on one of the males by Transit Police Officers in the General Investigation Unit. Due to the cost of repairs for the cut wire, charges of Theft Under $5000 and Mischief Over $5000 were proceeded with. The males

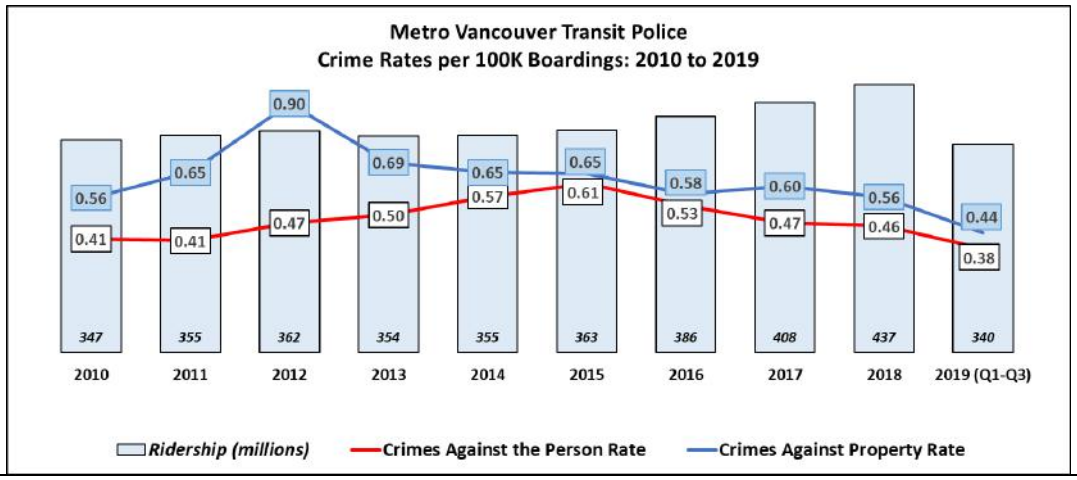
were released on a Promise To Appear in Court. It should be noted that since July 11, 2019, there have been no other overhead Trolley wire thefts reported to the Metro Vancouver Transit Police.

- **Performance Measurement Culture**

  Transit Police is an intelligence-led and data-driven police agency, and gathers comprehensive statistics in relation to crime and organizational performance. Transit Police shares statistical and performance information with the public, TransLink and stakeholders through a variety of tools. A snapshot of key statistics for 2019 Q1 – Q3, as compared to 2018 Q1 – Q3, follows:

Transit Crime and Safety Statistics	2019 Q1 – Q3	2018 Q1 – Q3	% Change
Crimes Against Persons/100,000 Boarded Passengers *(primary and assists)*	.378	.475	-21%
Crimes Against Property/100,000 Boarded Passengers *(primary and assists)*	.436	.588	-26%
Other Criminal Code Violations/100,000 Boarded Passengers *(primary and assists)*	.169	.301	-44%
Provincial Violation Tickets ("VT")	12,224	12,727	-4%
Arrests - Warrants Executed (All)	783	702	12%
Arrests - New Charges[1]	585	581	1%
Total S. 28 Mental Health Act Apprehension Files	167	149	12%
Sexual Offences *(primary and assists)*	172	206	-17%
SCBCTA Fare Bylaw Infractions	12,843	10,920	18%

When comparing 2019 Q1/Q3 to 2018 Q1/Q3, both Crimes Against Persons per 100,000 Boarded Passengers and Crimes Against Property per 100,000 Boarded Passengers have decreased. The chart below shows the historical trending for rates of Crimes Against Persons and Crimes Against Property in relation to the rate of ridership.



[1] Arrest means an actual arrest and all other cases where charges were recommended to Crown Counsel.

Criminal Warrant Arrests

Reducing crime and disorder on transit and the surrounding community is Strategic Objective #1 of the Transit Police Strategic Plan. In 2018, Transit Police Officers made 989 arrests for outstanding criminal warrants, which included RCMP, Municipal Police and Transit Police issued warrants from BC and elsewhere. The number of warrant arrests for the 2019 Q1/Q3 period is 12% higher than the same period in 2018. (The volume of warrant arrests continues to be significant when comparing to the 591 criminal warrant arrests made by Transit Police in 2015.)

Many warrant arrests arise from on-view work of Transit Police Officers in their Community Service Areas (assigned patrol area), calls for service, confirming identity incidental to criminal arrest or during enforcement of a provincial statute offence (such as misuse of a fare gates). However, Transit Police Officers also familiarize themselves with offenders and criminals of concern or offenders wanted through law enforcement intelligence sharing, regional BOLFs (Be on the Look Out For), and the Transit Police Offender Management Program.

Misuse of Fare Gates and Provincial Violation Tickets ("VTs")

There was an 18% increase in Fare Infraction Notices ("FINs"), a TransLink bylaw, issued by the Transit Police in 2019 Q1/Q3 as compared to 2018 Q1/Q3. The number of Violation Tickets (VTs) decreased by 4% when comparing 2019 Q1/Q3 to 2018 Q1/Q3. The volume of VTs is associated to Transit Police Officers' active observations and enforcement of the provincial offences regarding the misuse of fare gates[2], which was new legislation in 2017. The enforcement of the relatively new *Regulation* positively contributes to TransLink's efforts to strengthen public confidence in the transit system and transit passengers' feelings of safety and security.

Of critical importance to the safety of transit customers and staff, and the general public, is how the process of confirming an offender's identity allows Transit Police to learn whether there is a criminal record or conditions of release, and if there are any outstanding warrants to be executed. Executing outstanding warrants contributes positively to the work of our Jurisdictional Police partners and their offender management and community safety and crime reduction efforts.

Example of Arrest for Outstanding Warrants – At 5:55 pm on October 12, 2019, Transit Police were conducting fare enforcement at Metrotown Station in Burnaby when they checked a female who failed to produce fare. Confirmation of identity occurred and a CPIC query revealed three outstanding warrants for Theft and Breach of Probation out of New Westminster, Richmond and Vancouver. The female was arrested and searched, which revealed a large tinfoil bag with stolen clothing (then seized for further investigation). The offender was transported to Burnaby RCMP cells for the warrants.

[2] The amended *Transit Conduct and Safety Regulation* came into effect March 2017. A person who commits an offence under the *Regulation* can be issued a violation ticket in the amount of $173. The new offences are intended to focus on "disorderly behavior", instead of the loss of fare revenue. Neither the Transit Police Officer nor the offender needs to be inside the ***fare paid zone*** to issue a ticket to a person who commits an offence under s. 8(4) of the *Regulation*. Because the person has committed an "offence", the Officer has lawful authority to briefly detain the person outside of the fare paid zone. Persons who do not "tap in/tap out" will contravene section 8(4)(d) – "*going through a fare gate that was not opened by that person.*" Accordingly, Transit Police can issue a ticket on that basis.

TO: Board of Directors

FROM: Simon Tang, Vice President, Major Project Division

DATE: November 11, 2019

SUBJECT: Broadway Subway Project Update

EXECUTIVE SUMMARY

Request for Proposal (RFP) for the Province's Broadway Subway Project (BSP) was issued by the Province in June 2019 as scheduled. Canada Line Concession Agreement Amendment (CAA #14) negotiations with InTransit BC led by TransLink to confirm acceptability of the BSP RFP technical requirements have concluded and the amendment has been executed. Negotiations of the commercial terms for the corresponding Design Build and Operation and Maintenance (O&M) changes are in progress. The terms will be addressed in a forthcoming Concession Agreement Amendment (CAA #16), and the draft has been provided to the Province for review. BSP Support Agreement (SA) finalization is pending on Province's review of comments provided by TransLink. Advance works to support the BSP, including the trolley overhead line relocation to accommodate bus route changes in support of bus operations during construction, BC Hydro early works and the fibre optic design for system connectivity are progressing on course.

PURPOSE

The purpose of this report is to provide an update of the current progress and upcoming milestones relating to BSP.

BACKGROUND

The BSP will be an approximately six-kilometre extension to the Millennium Line SkyTrain from VCC-Clark Station to Arbutus Street via a primarily underground alignment beneath the Broadway corridor. The Project will include six new stations. A future phase of investment is required to further extend rapid transit to the University of British Columbia.

Full capital funding confirmation for the BSP was announced on September 4, 2018 by the Federal and Provincial governments. The Province was announced as the delivery agency for the $2.83 billion project and will own the assets upon completion. TransLink will operate and maintain the extension similar to the rest of the SkyTrain system. The Province as the delivery agency assumes all responsibility for delivery risks, including cost and schedule overrun. A Memorandum of Understanding and Transfer Agreement was signed effective October 31, 2018 to formally transfer the Project to the Province and outline TransLink's future role.

ONGOING WORK

The Province issued the RFP for the BSP in June 2019. It is expected that the Preferred Proponent will be announced by mid 2020.

InTransit BC

Canada Line Concession Agreement Amendment (CAA #14) with InTransit BC to confirm acceptability of BSP RFP technical requirements has been executed. Negotiations of the commercial terms for the corresponding Design Build and O&M changes are in progress, which will be addressed in a forthcoming Concession Agreement Amendment (CAA #16). The draft has been completed and provided to Province for review.

BSP Support Agreement

TransLink's scope on BSP includes the successful and seamless system integration with the region's SkyTrain service, safe and reliable service launch, operations and maintenance, provision of bus service during construction, customer access and notification including smart card and faregate installation, system wayfinding, and coordination with InTransit BC for the Canada Line integration at the Broadway-City Hall Station. The Province and TransLink intend to enter into a Support Agreement (SA) which will include provisions documenting the detailed roles and responsibilities of the Province and TransLink and relevant funding details.

Advanced Work

Trolley Overhead Infrastructure relocation to accommodate bus route change in support of bus operations during BSP construction is on course. After the relocation, overhead lines that affect BSP will be decommissioned progressively from July to September 2020. Early works are currently being carried at Route 16 (12th Avenue – Arbutus to Granville), Route 17 (12th Avenue – Oak to Cambie) and Route 14 (MacDonald - 4th Avenue to Broadway).

Funding for the design of the fiber optic cable from Operation Maintenance Centre 1 to Lougheed Town Centre Station to complete the systemwide infrastructure for the Millennium Line extension to BSP has been approved by the Capital Management Committee. The design consultant has been selected and user requirement meetings have commenced. The design is expected to be complete by Q2 2020.

BC Hydro installation of power supplies for tunnel boring machine and traction power at three locations (Arbutus, Oak and Main) along the proposed alignment are progressing on course.

UPCOMING MILESTONES

The following milestones are scheduled for the next quarter:

i. BSP SA negotiation between TransLink and Province is expected to be substantially complete.

ii. Trolley overhead (TOH) Infrastructure relocation:
   a. Route 16 – Completion of CMBC TOH Hardware Installation and Testing & Commissioning
   b. Route 17 – Completion of CMBC TOH Hardware Installation and Testing & Commissioning
   c. Route 14 – Completion of CMBC TOH Hardware Installation

iii. BSP - Fiber Optic Cables from OMC1 to LH
   a. User requirement gathering
   b. Design Commence
   c. 30% design report

iv. BC Hydro Early Works
Complete Traction Power Installation work

Stakeholder Engagement

Community meetings and multiple pop-up events have been arranged by the Province between October 28 and November 07, 2019, to share information about the BSP. TransLink is providing support to these events.

Customer Impact

TransLink is working closely with the Ministry of Transportation and Infrastructure and the City of Vancouver to execute a robust communications strategy to support early works activities, including the installation of new trolley wires along three bus routes to maintain access to transit along the Broadway Corridor during construction. The plan includes notifying neighbours and keeping our customers aware of the progress through our website, social medial channels and Customer Information. There is no significant impact to the community for the reporting period.

TO: Board of Directors

FROM: Sany Zein, Vice President, Infrastructure Management & Engineering

DATE: November 4, 2019

SUBJECT: Pattullo Bridge Condition Monitoring Report

EXECUTIVE SUMMARY

This report provides an update on condition monitoring activities on the Pattullo Bridge. TransLink continues to closely monitor and inspect the condition of the Bridge and take corrective action where appropriate. The installation of the wind and seismic monitoring system is close to completion. Recent and on-going activities include:

- *Condition Inspection* by the Ministry of Transportation and Infrastructure and WSP Global Inc.;
- *Pattullo Bridge Railing Inspection* by COWI North America Ltd, Mott MacDonald Canada Ltd., and Mainroad Contracting Ltd;
- *Deck Condition Monitoring and Repairs* by Mainroad Contracting Ltd. and WSP;
- *2019 Winter Monitoring and Survey* by Northwest Hydraulic Consultants; and,
- *Wind and Seismic Warning System* project by PBX (Design) and Mainroad Contracting Ltd. (Construction).

PURPOSE

This recurring status report provides an update on condition monitoring activities on the Pattullo Bridge. The previous report was issued in August 2019.

BACKGROUND

The Pattullo Bridge is 81 years old. Most of the structural components have passed the predicted design life, and some are reaching the end of their useful life. Temperature fluctuation, rainfall, wind, river action, live traffic loads and the aging of the steel and concrete components all contribute to the condition of the bridge. The Province is leading the Patullo Bridge Replacement Project, which will construct a new bridge as well as decommission the existing bridge.

With responsibility for the safety and operations of the existing bridge, TransLink monitors the condition of the structure closely through regular inspections, and regularly consults with experienced bridge engineers. Management then performs the necessary maintenance and repairs in response to the inspection findings.

DISCUSSION

Recent and on-going inspection activities are listed in Table 1.

Table 1: September 2019 to November 2019 Pattullo Bridge Ongoing Inspections and Monitoring

REFERENCE	ACTIVITY	CONSULTANTS / PARTNERS	STATUS
1	Condition Inspection	Ministry of Transportation and Infrastructure (Ministry) WSP Global Inc. (WSP) – deck consultant	2019 inspection completed
2	Pattullo Bridge Railing Inspection	COWI North America Ltd. (COWI) – inspection consultant Mott MacDonald Canada Limited (Mott) – design consultant Mainroad Contracting Ltd. (Mainroad)	2018 inspection - completed in Q3. Railing repairs – completion in Q4 2019/Q1 2020.
3	Deck Condition Monitoring	Mainroad Contracting Ltd. WSP Global Inc. (WSP) – deck consultant	Ongoing deck monitoring
4	2019 Winter Monitoring Survey	Northwest Hydraulic Consultants	Monthly monitoring – ongoing Freshet Survey - completed June/July 2019. Winter Survey – to be completed December 2019.
5	Wind and Seismic Warning System Implementation	PBX Engineering Ltd. (PBX) Mainroad Contracting Ltd. (Mainroad)	In Service: Q4 2019

A summary of each of these activities is provided as follows:

1. Condition Inspection

Each year, the BC Ministry of Transportation and Infrastructure performs a condition inspection of the Pattullo Bridge with the aid of a snooper truck. The 2019 inspection was completed in July 2019. To take advantage of the snooper truck, TransLink also retained deck consultants from WSP to complete inspections of selected areas below the deck.

No new areas of concern have been reported so far as a result of the July 2019 inspections from the WSP's report. Condition inspection reports from the Ministry can be expected in Q4 2019. Given the expectation that the Bridge will be replaced by 2023, TransLink will continue to perform annual monitoring as well as any additional investigations and repairs as required if any areas of concern or accelerated deteriorations are detected.

2. Railing Inspection

In Q3 2018, COWI North America Ltd. (COWI) completed an inspection of the railings on both sides of the Bridge. A total of 606 railing posts were inspected and assigned deficiency ratings based on their observed conditions. Of the 606 posts inspected, 128 posts were classified as needing immediate repair or replacement.

Based on the findings of the inspection, documented in the *Pattullo Bridge Railing Inspection* report, TransLink is currently working with Mott MacDonald and Mainroad to design and repair all railings requiring immediate attention. The work varies from addressing individual posts to replacing nuts and bolts at connections. Railing repairs began in Q2 2019 and subject to weather, all repairs are expected to be completed by Q4 2019/Q1 2020.

TransLink will continue to monitor and repair or replace the railing posts as needed. An inspection of all bridge railings, as part of the annual program, will be scheduled once all repairs have been completed. A tracking spreadsheet is used to track the condition of each railing post on the structure.

3. Deck Condition Monitoring and Repairs

The reinforced concrete deck of the Pattullo Bridge is in an active and advanced state of deterioration, primarily due to corrosion of the reinforcing steel. While repairs to the north portion of the deck between Pier 0 and Pier 9 were completed in the summer of 2016, the risk of pothole formation still exists, particularly for the south approach of the Bridge (Pier 9 to Pier 29).

To ensure the entire deck remains functional and safe for operations, bridge deck experts from WSP conduct bi-weekly walk-through inspections from the deck, ground and catwalk levels. Signs of pothole formation are monitored and flagged for future interventions during overnight lane closures or during full bridge closures. No new significant repairs are currently anticipated in 2019 and 2020.

In addition to the top surface of the deck, extensive corrosion-related damage is also occurring to the bottom surface (soffit). Debris netting is currently in place to protect the public and other infrastructure, including the railway tracks, from concrete falling from the deck soffit. A close proximity inspection was conducted on the Main Span by WSP using the Ministry's snooper truck on July 31, 2019 (see Item 1). Overall, it was found that the bridge deck of the Main Span remains in sound and serviceable condition.

4. 2019 Winter Monitoring and Survey

The Pattullo Bridge is situated in the narrowest part of the river, which experiences large tidal fluctuations. This elevates the risk to the Bridge from scour and erosion. To proactively address risks arising from changing river hydraulics, Northwest Hydraulic Consultants Ltd (NHC) conducts bi-annual surveys, once after peak of freshet and once during the winter, to monitor the condition of the pier protection and to identify whether any repairs are required. In 2019, the winter monitoring survey was conducted in January, and the freshet monitoring survey was conducted in June and July 2019.

Due to upcoming in-river works required for building the new Pattullo Bridge, NHC previously recommended more frequent pier protection surveys. Monthly bathymetric survey began in February 2019 to support the Pattullo Bridge Replacement Project and CN Rail Bridge Improvements adjacent to the Pattullo Bridge. As of February 2019, the survey extents also increased from 200m upstream and downstream of the Pattullo Bridge to 1.5 km upstream and 2.3 km downstream of Pattullo Bridge. The additional coverage captures conditions in the Sapperton Channel and Queens Reach upstream of the Rail Bridge, between the two bridges, the protection around the Pattullo Bridge piers and bed conditions downstream of Pattullo Bridge.

Based on results of the freshet survey, NHC considers the pier protection currently in place at the Pattullo Bridge to be effective and recommends on-going monitoring. TransLink will also continue working with the Pattullo Bridge Replacement team and with CN Rail to monitor and manage the impacts of the planned projects on the existing Pattullo Bridge. NHC will continue to provide monthly monitoring, and the 2020 winter monitoring will be done in December 2019, coinciding with the lowest winter tides, and the monitoring report is expected in Q1 2020.

5. Wind and Seismic Warning Systems

The Pattullo Bridge is more than 80 years old and was not designed to meet current wind and seismic loading standards that would apply to a new bridge constructed today, and as a result, may be vulnerable in a seismic or hurricane-level wind event.

To improve safety for Bridge users, an advance warning and monitoring system is being designed and implemented. The wind warning system will monitor and measure wind speeds at the bridge, and a seismic warning system will sense an earthquake in progress and provide alerts up to one minute prior to damaging ground waves reaching the bridge. Both systems will provide opportunities to reduce risks to bridge users through warnings and closures. PBX Engineering has completed the detailed design and construction by the contractor Mainroad is well advanced. The team has largely resolved issues related to site constraints and archeological permit requirements, and the system is expected to be under testing by December and in-service by the end of the year.

Customer Impact and Communications

To minimize impacts on the public, the required directional closure for Seismic and Wind Warning System and other maintenance activities will be scheduled between 10:00 pm and 5:00 am, when volumes on the bridge are lowest. Other than upcoming construction work for the Seismic and Wind Warning System, no other planned work is expected to substantively impact the public in 2019.

A robust communications plan has been developed to utilize all available channels in support of major milestones, including any ongoing inspection and maintenance work, testing and launching that is expected to have an impact on the public.

Financial Impacts

All monitoring, inspection, and repair work is being performed under existing approved operating and capital funds.

TO: Board of Directors

FROM: Sany Zein, Vice President, Infrastructure Management and Engineering

DATE: November 15, 2019

SUBJECT: Surrey Langley SkyTrain Project Update

EXECUTIVE SUMMARY

In December 2018, the Mayors' Council and TransLink Board directed Management to proceed with development work for a SkyTrain on Fraser Highway project and to initiate a planning process to refresh the South of Fraser Rapid Transit Plan. The available budget for this scope is $30 million, with target completion in spring 2020. The Surrey Langley SkyTrain (SLS) project development work is progressing on-schedule and on-budget. Progress was made since the Mayors' Council provided direction to proceed with preparation of the full business case at an interim update in July 2019.

The most recent technical work included analyzing procurement and delivery model options for the project. A round of public engagement to consult on the alignment, station facilities and environmental issues launched in November 2019. The Business Case is on target to be submitted to the Mayors' Council for endorsement in January 2020 and will subsequently be submitted to the Provincial and Federal governments to secure funding approval.

The Business Case will describe the entire Surrey to Langley project, estimated to cost $3.12 billion as per the July 2019 update. With the currently available funding of $1.63 billion, the first construction stage will extend SkyTrain from King George Station to 166 Street in Fleetwood. The procurement will be structured to anticipate the project extending to Clayton and Langley once funding is secured. The target to launch the Request for Qualifications is around June 2020, subject to securing the required funding approvals and an enabling Investment Plan.

PURPOSE

This report provides an update on the project development work for the Surrey Langley SkyTrain (SLS) Project.

BACKGROUND

In December 2018, the Mayors' Council and Board directed Management to proceed with development work for a Surrey Langley SkyTrain project, and to initiate a planning process to refresh the overall South of Fraser Rapid Transit Plan. A budget of $30 million was approved for this purpose in January 2019.

The project development work continues to progress on-schedule and on-budget. Current activities include completing the reference case design and defining the guideway alignment within the Fraser Highway corridor, confirming design requirements and technical specifications, ridership forecasting, costing, public engagement, First Nations engagement, an environmental review, negotiating a municipal access agreement with the City of Surrey, and drafting a business case for senior government approval.

The full scope for a SkyTrain project along Fraser Highway between King George Station and Langley City Centre consists of approximately 14.3 kilometres in Surrey and 1.7 kilometres in Langley with a total of 8 stations.

The technical work completed to date included an updated cost estimate for the full project of $3.12 billion. At its July 25, 2019 meeting, the Mayors' Council directed TransLink to limit the project to the approximately $1.6 billion available for delivering rail transit expansion south of the Fraser through TransLink's approved 2018-2027 Phase 2 Investment Plan. As a result, the scope of the potential initial project stage is a 7-kilometre extension to 166 Street in Fleetwood Town Centre with a total of four stations.

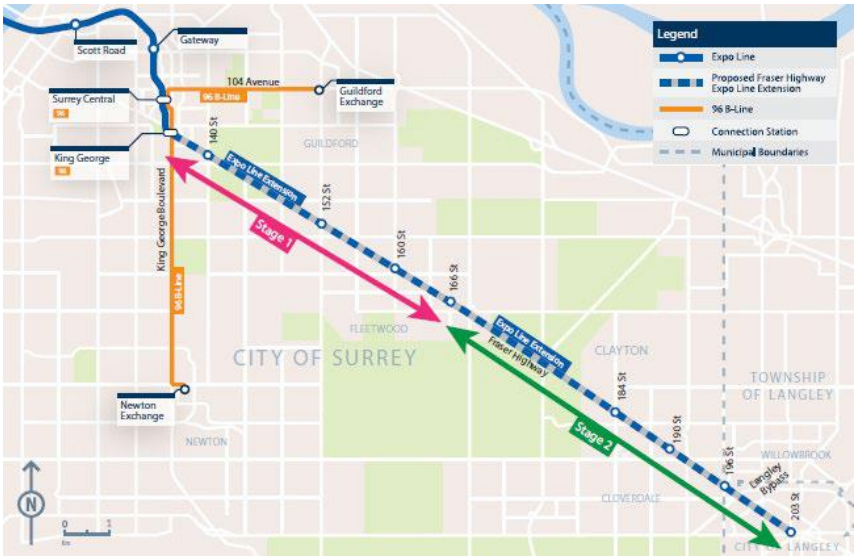


Figure 1 – Fraser Highway Corridor with proposed station locations

Key project metrics are summarized in the table below:

	Full Scenario: Single Stage from King George to Langley City Centre	Fleetwood Scenario : Stage 1 from King George to 166 St in Fleetwood*
Scope	16 km 8 stations 55 vehicles	7 km 4 stations 25 vehicles
Ridership	62,000 in 2035 71,200 in 2050	39,900 in 2035 44,200 in 2050
New transit trips	24,000 in 2035 30,000 in 2050	12,000 in 2035 14,000 in 2050
Benefit cost ratio	1.24	1.12
Capital cost (YOE)	**$3.12 billion****	**$1.63 billion**
Annual O&M cost (2019$)	$32.4 million	$17.0 million
Annual fare revenue in 2035 (2019$)	$21.3 million	$10.2 million
In-service date	5.5 years from project approval	5.5 years from project approval

** Subsequent Stage 2 from Fleetwood to Langley City will follow when funding is secured.*
*** Stage 2 costs for project completion to Langley will increase with time.*

The outcomes of the project development phase will be documented in the project Business Case scheduled for completion in January 2020. Upon securing approval by the federal and provincial governments as well as the TransLink Board and Mayors' Council through a project-enabling Investment Plan, a procurement process (approximately 18 months in duration) would be launched, followed by construction then testing and commissioning (approximately 4 years in duration).

DISCUSSION

At the July 25 2019 meeting the Mayors' Council directed Management to complete the Surrey Langley SkyTrain (SLS) project business case to be ready for submission to senior government by January 2020 and limit funding available for the first stage of the SLS project to the $1.63B already secured.

Management is advancing the project consistent with this direction. Activities since the previous update include:

- Completing a corridor geotechnical investigation program
- Completing a reference case design
- Completing studies to support the project environmental screening review
- Completing risk workshops, risk analysis and industry market sounding to support assessment of procurement options
- Initiated briefings with senior government on elements of the draft business case
- Advanced negotiation of agreements with Surrey, Langley City, and Township of Langley
- Advanced Operations and Maintenance Centre (OMC) programming and site assessment analysis
- A second round of public engagement

Procurement Options Assessment

Management retained Partnerships BC to support the assessment of procurement options for the SLS project. Objectives of the procurement model are:

- Be attainable within fiscal constraints
- Promote timely project delivery
- Accommodate multi-stage delivery
- Promote cost effective implementation
- Integrate the project with the existing transportation network
- Ensure an attractive, marketable and bankable transaction
- Provide best value to taxpayers

Following the process employed on similar transportation projects, various procurement models were qualitatively assessed to arrive at a shortlist.

City of Surrey Contribution

The Mayors' Council requested the City of Surrey contribute to the SLS project in acknowledgement of cost expended on the Surrey Newton Guildford LRT project with little residual value. The agreed-upon the value of this contribution is approximately $39 million, with a further $5 million contingent on other future projects.

Business Case Overview

Management is preparing a business case that conforms to the provincial *Capital Asset Management Framework* and the requirements of the federal *Investing in Canada Infrastructure Program*. The business case sets out the strategic rationale including scope, benefits, costs, and project management approach, and concludes with a funding request of senior government. The Business Case will encompass the complete project from Surrey Centre to Langley Centre with an implementation plan and an initial funding request for the first stage from King George Station to 166 Street in Fleetwood.

PUBLIC AFFAIRS

The project public affairs plan includes elected official briefings, meetings with key stakeholders, and opportunities for public input and involvement.

A second round of public engagement between November 1-17 is providing opportunities for input on the reference design, environmental study results, and other matters. In addition to an online survey, the project team is hosting five open houses in Surrey and Langley to provide opportunities for in-person communication with the public. Engagement with First Nations is ongoing. The project team continues to brief elected officials and meet with stakeholder groups representing the business community, neighbourhood associations, and environmental interests.

TO: Board of Directors

FROM: Maria Su, Director, Research and Analytics

DATE: November 4, 2019

SUBJECT: Early Insights from the 2017 Regional Trip Diary

EXECUTIVE SUMMARY
Staff will present some early insights from the 2017 Regional Trip Diary which would serve to facilitate a discussion on potential policy and strategy implications to inform the development of Transport 2050 as well as the Investment Plan and other key policy and planning initiatives underway.

PURPOSE

The purpose of this report is to present key, more in-depth trip diary findings which would serve to facilitate a conversation about potential planning implications.

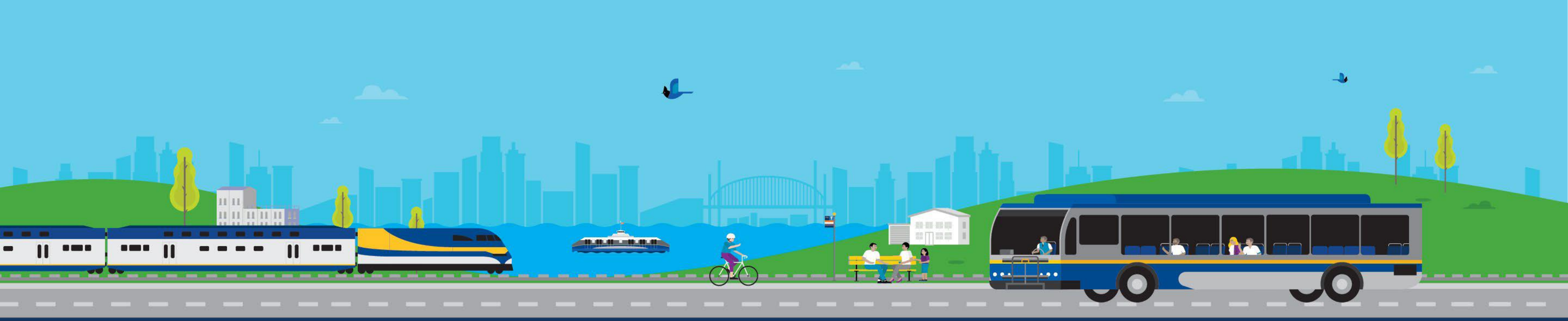
BACKGROUND

At the last Planning and Stakeholder Relations committee meeting, staff presented a summary video of the 2017 trip diary which provided a high-level overview of the results. At the committee's November 26, 2019 meeting, staff will delve further into the results to highlight key findings that are relevant to the policy and strategy discussions that are occurring in the region as part of the process to develop Transport 2050, the next Investment Plan as well as other key policy and planning initiatives.

DISCUSSION

Staff will present several early insights on transportation behaviour patterns and trends in the region, based on the 2017 Regional Trip Diary. As detailed in the attached presentation, the key themes which will be presented are findings related to the region's propensity for making trips, use of different transportation modes, sub-regional differences in travel patterns as well as progress towards stated transportation performance targets. The strategic topic for the committee's discussion is the planning and policy approach needed for dealing with uncertainty in future conditions, shaping and managing transport demand, choosing appropriate performance metrics for target setting, and customizing solutions to meet the need of a diverse region.

Attachment 1: 2017 Metro Vancouver Trip Diary, Key Findings for Transport 2050



2017 Metro Vancouver Trip Diary Key Findings for Transport 2050

Research & Analytics

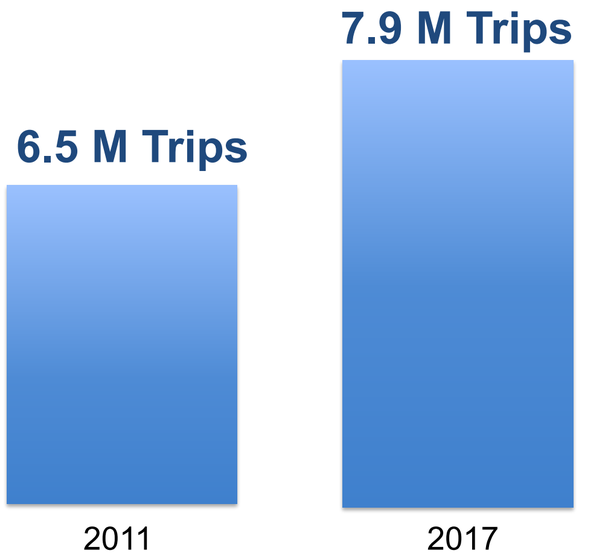
Together all the way

TRANSLINK

Travel demand grew faster than population

Trips ↑ 21%

VKT ↑ 13%



Planning Implications

- Strength of the economy influences travel demand
- Need to consider a wide-range of possible external conditions such as the economy, demographics and technology
- The transportation system is struggling to keep up with increasing demand
- Investment alone unlikely to bridge gap between transport supply and demand in the long term
- Policies and investments need to be resilient and flexible

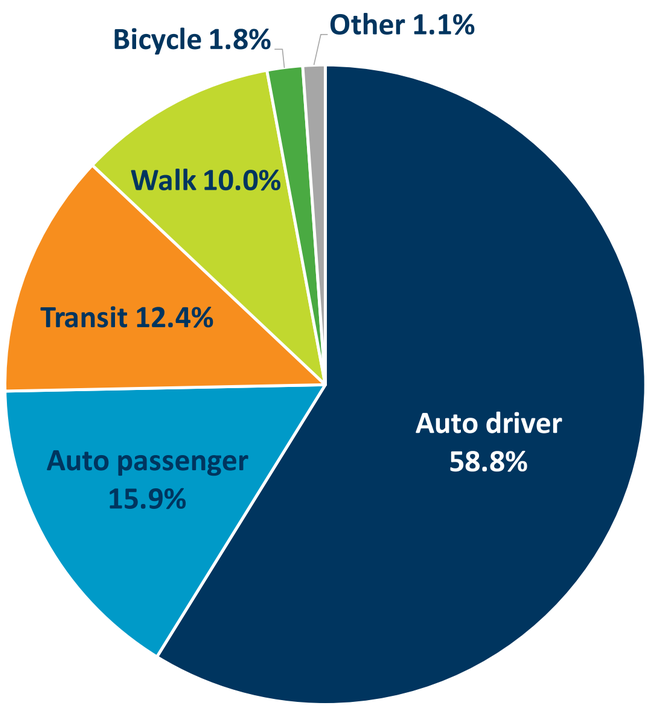
Current trip rate is in line with historical levels

Planning Implications

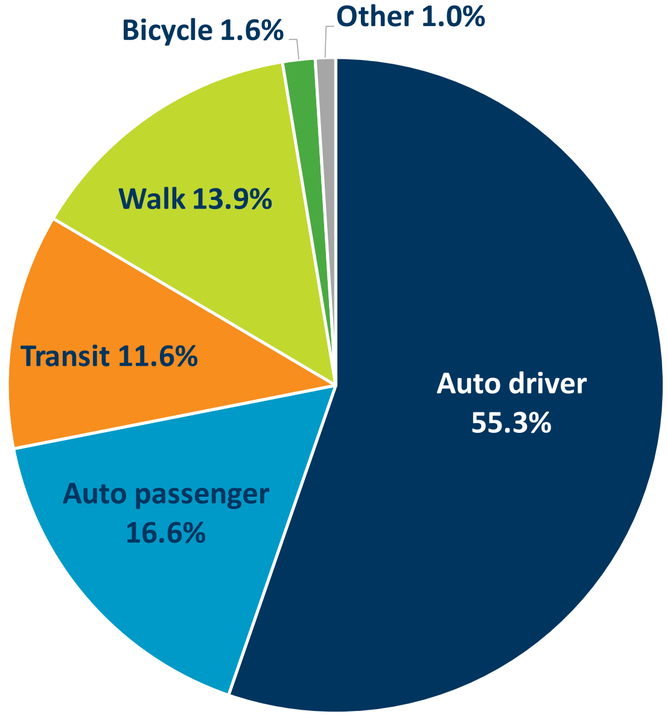
- The future is unknowable, however, the transportation experience of the last decades is that key behaviours ebb and flow but don’t change dramatically
- Challenges some past notions that trends such as on-line shopping and tele-work will substantially decrease trip making
- Not all trips are created equal – when, where and how a person makes a trip make a big difference on its impact
- Demand management isn’t just about influencing number of trips but the nature of travel

Travel is proportionately more sustainable

2011

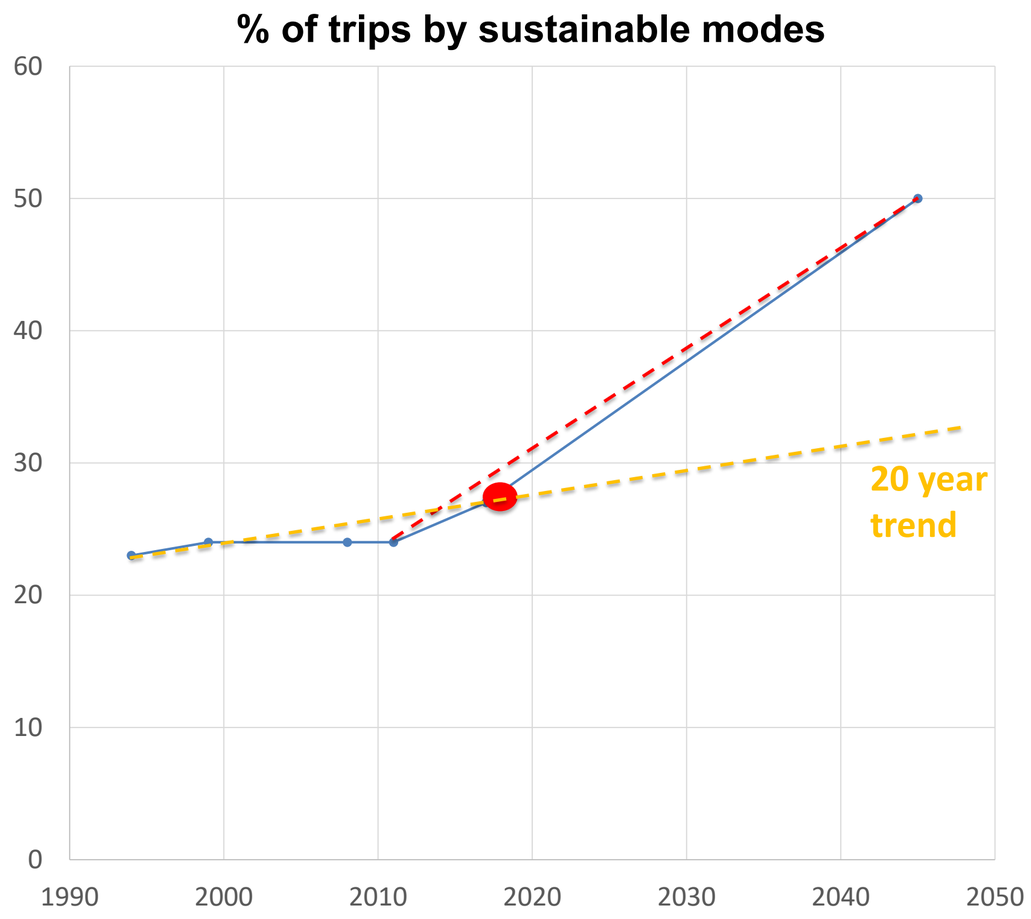


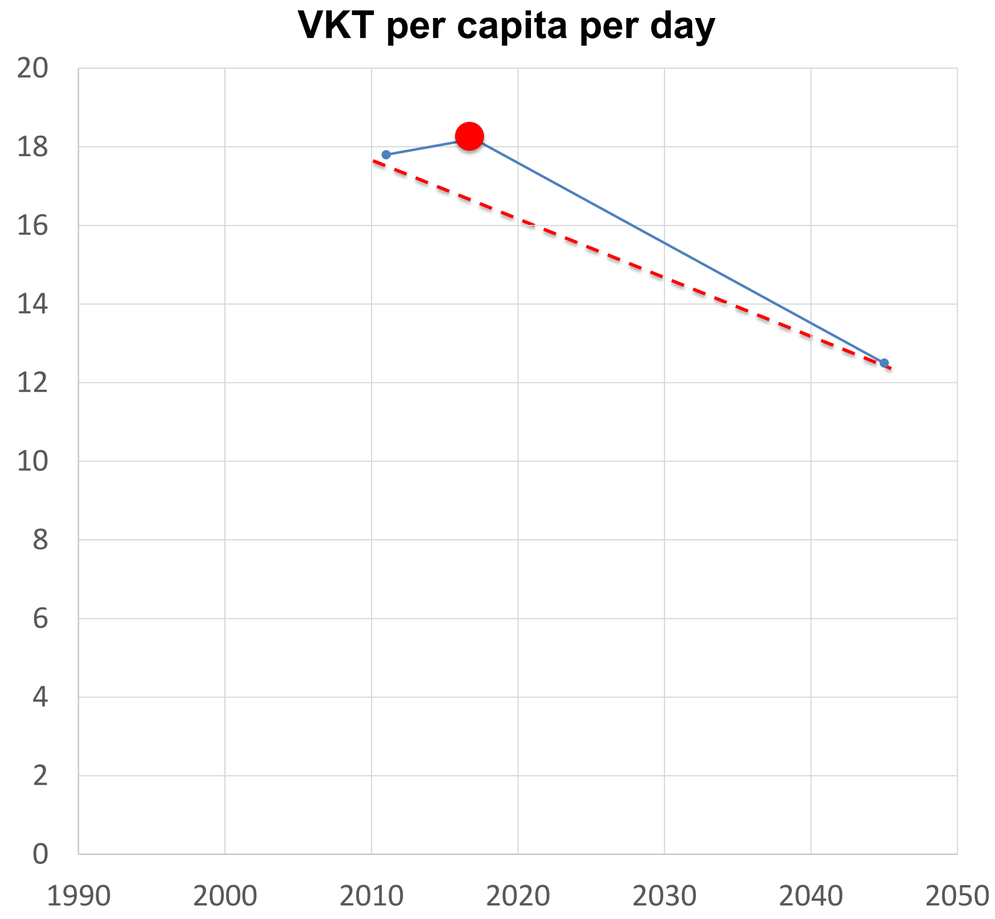
2017



Sustainable Mode Share: **24.2%** **27.1%**

Need more progress to meet RTS targets

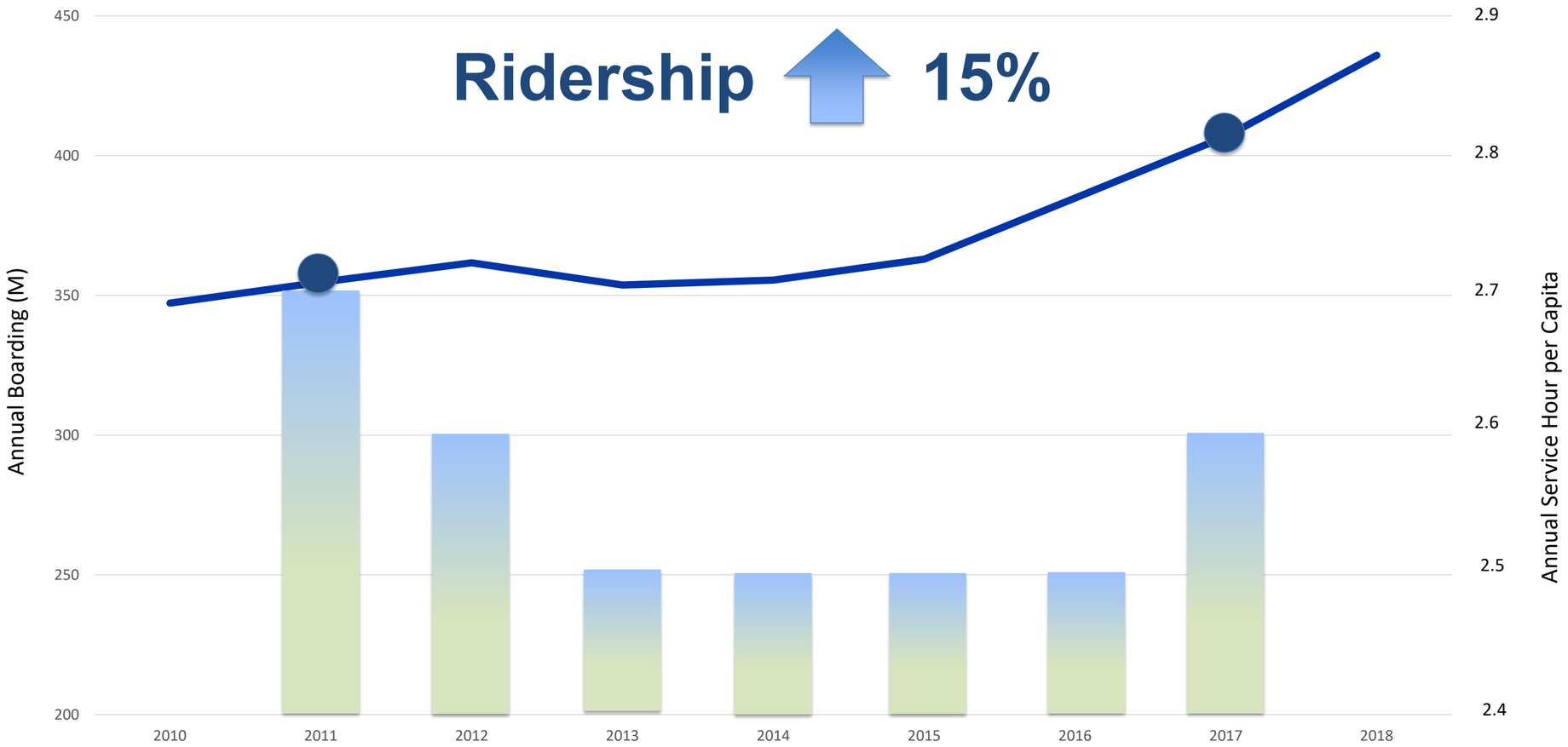




Planning Implications

- The legacy nature of past policy and investment decisions mean that some transportation outcomes are hard and/or slow to change
- Getting people to reduce their amount of driving is a big challenge, our forecasts indicate that transit investment alone will not do it
- While there was an exceptional increase in sustainable mode share, there is no evidence this is a new trend
- T2050 will either have to include extraordinary efforts to achieve targets or consider setting new ones

Transit ridership outperformed growth in population, jobs and service supply



Population +11%

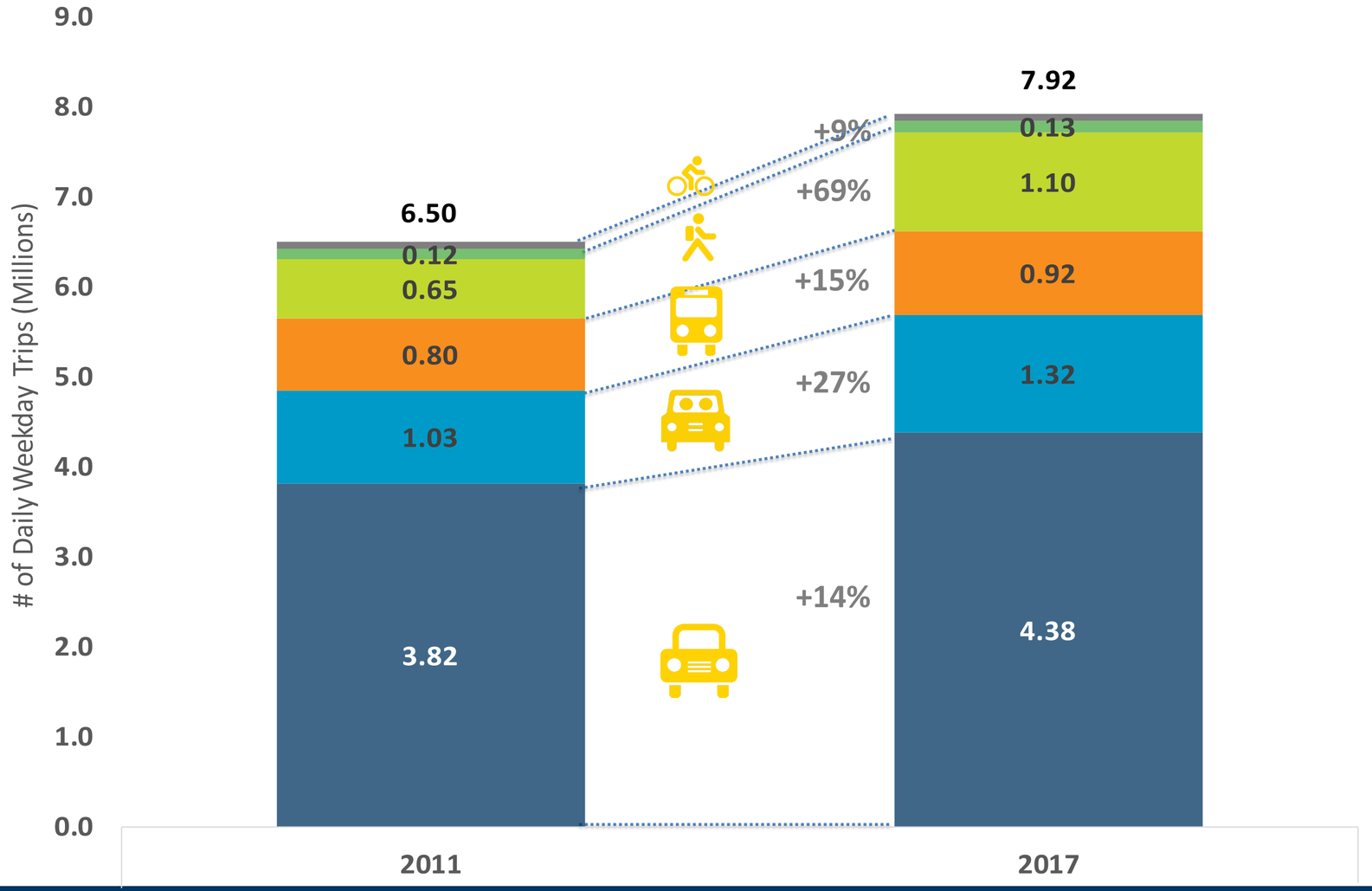
Jobs +12%

Services added in 2017:

Bus/Seabus service hours + 8%

Skytrain service car hours +14%

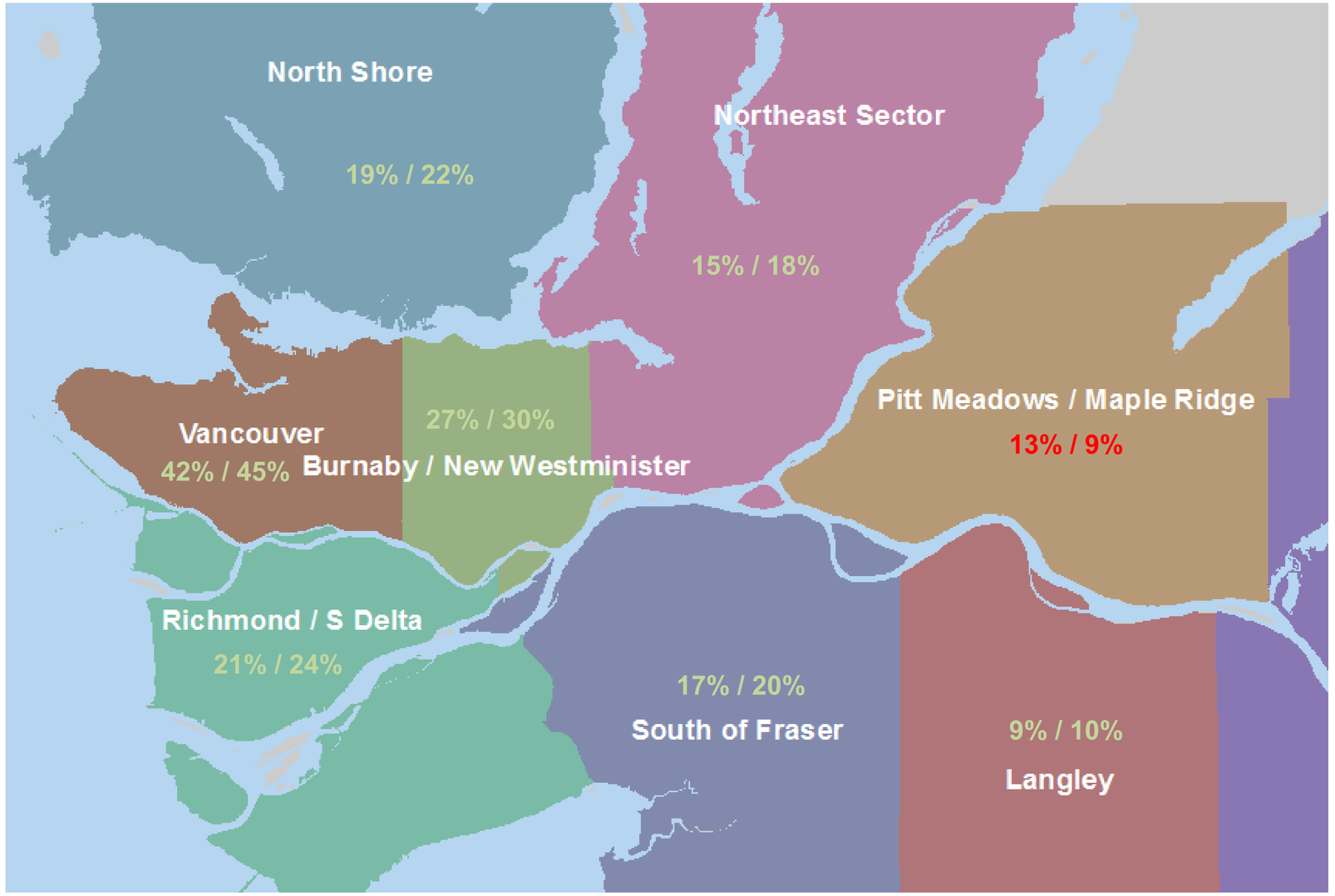
However, higher growth in other modes resulted in a lower mode share



Planning Implications

- The increase in the absolute number of transit trips is an achievement considering less transit supply per capita
- Achieving transit growth and maintaining it require continued investment, otherwise the quality of the transit experience will deteriorate
- T2050 is looking at using more meaningful metrics of transportation outcomes as targets

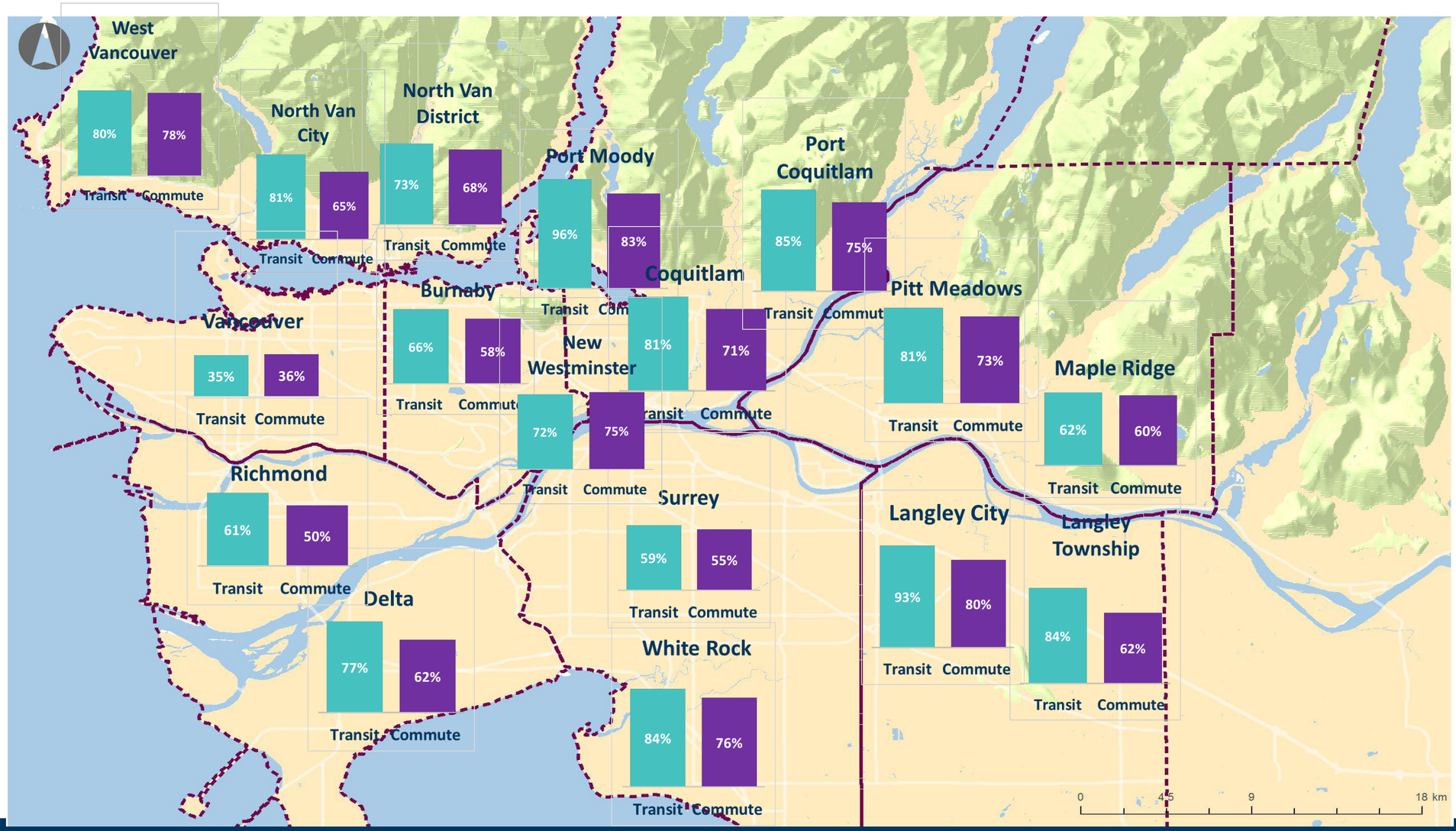
Sustainable mode share went up almost everywhere



Planning Implications

- Travel behaviour varies significantly between different parts of the region
- Land use is a key determinant of travel behaviour so how future growth unfolds will affect transportation outcomes
- T2050 will have to customize solutions that are right for each sub-area of the region while keeping in mind the overall regional objectives
- The regional strategy will have to consider a wide range of potential land use scenarios – including different development patterns and rates (i.e. sensitivity tests)

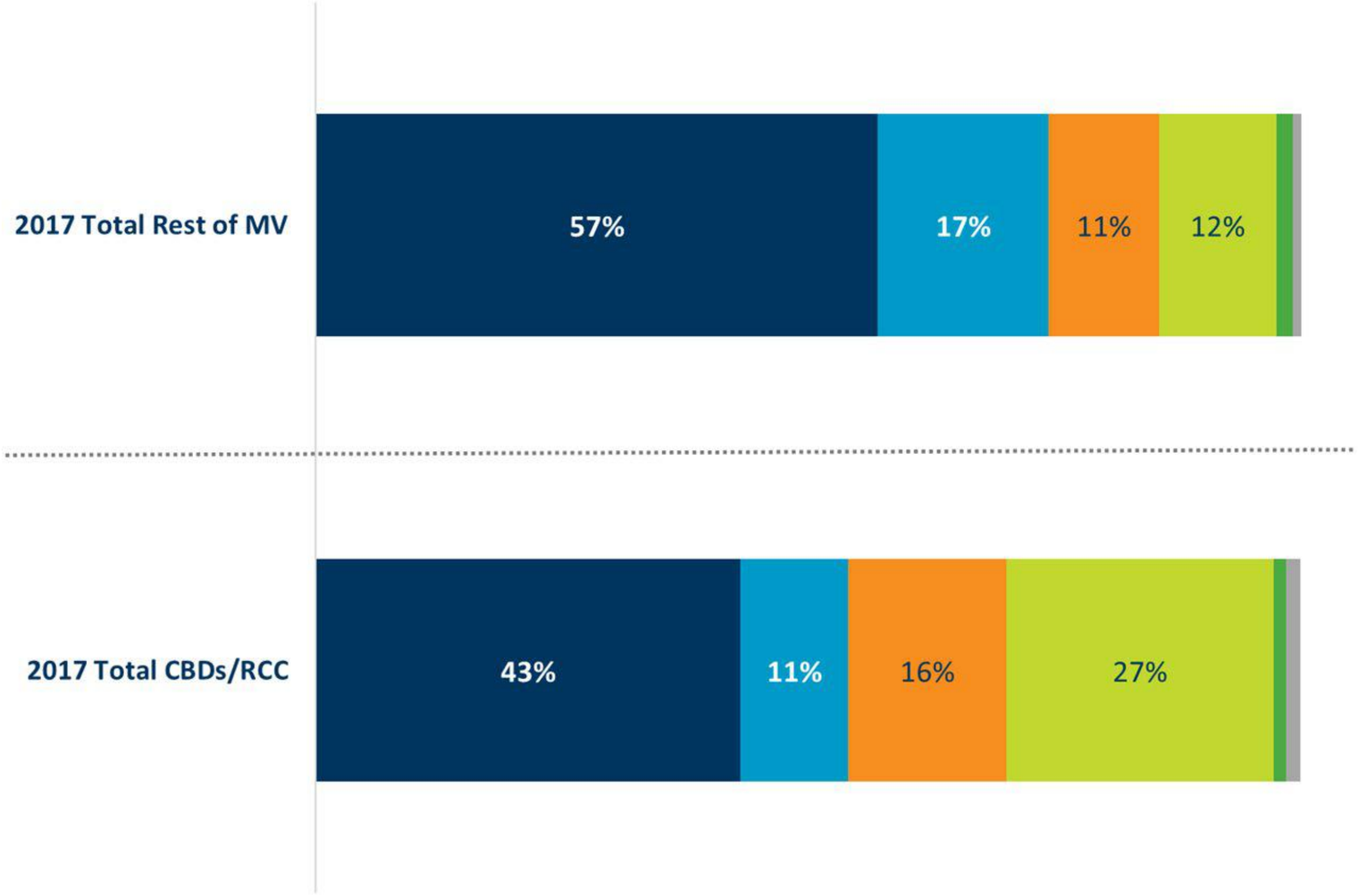
Commuter and transit trips are inter-municipal in nature



Planning Implications

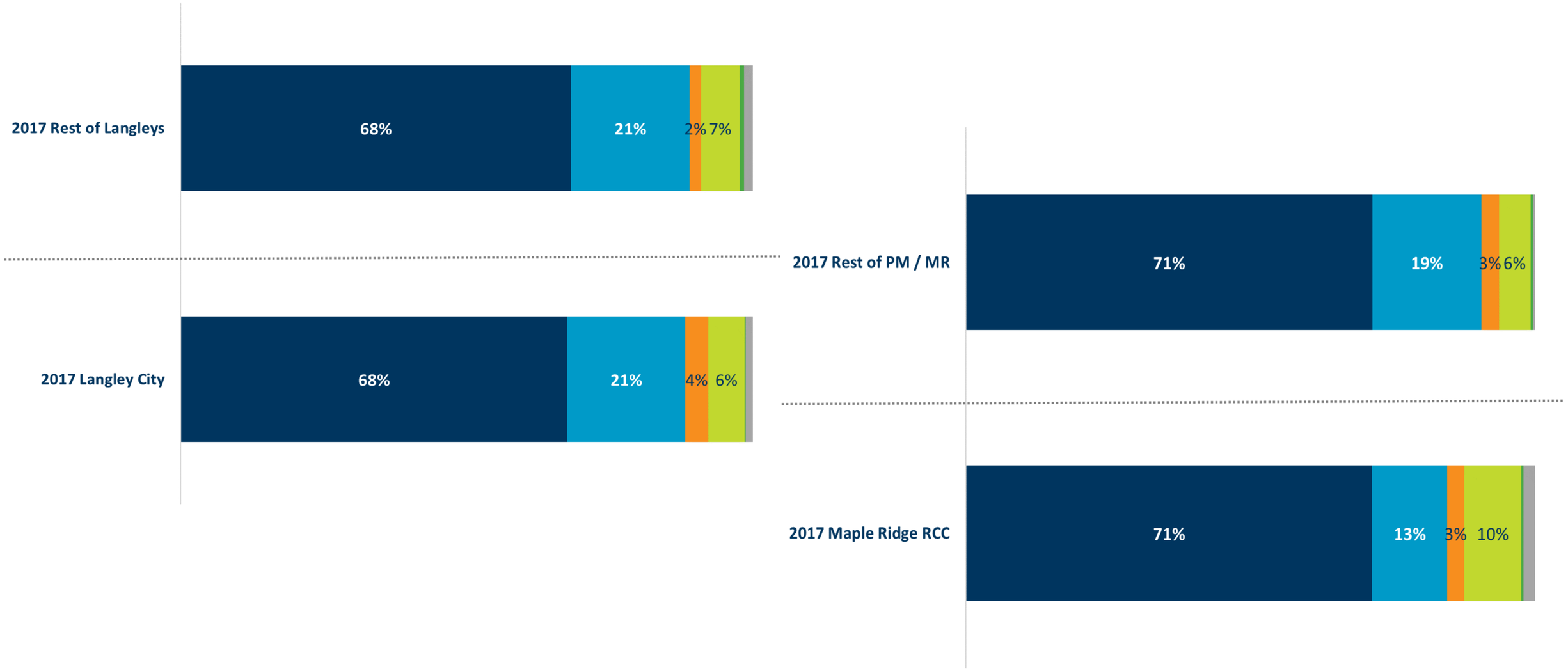
- Investment in the regional transit system benefits residents in all municipalities, not just in transit rich sub-regions
- How can the region improve the match between where people live and work to reduce commuting distance?
- Future service options enabled by technology (e.g. CAV, micro-mobility, on-demand transit) could provide opportunities to improve transit service for local trips

Town centers usually have much higher sustainable mode shares than other places



Auto driver | Auto passenger | Transit | Walk | Bicycle | Other

There are exceptions



Planning Implications

- For urban centres to help achieving the regional transportation goals, each needs to be sufficiently large, dense and diverse
- Designating numerous urban centres dilutes the centres' size and the level of transportation services that can be provided to each
- This could have a negative impact on the region's ability to meet its transportation targets
- Some designated urban centres do not perform as such – could the region ensure they perform according to their designation or should their status be revisited?

TO: Board of Directors

FROM: Geoff Cross, VP Transportation Planning and Policy

DATE: November 6, 2019

SUBJECT: Independent Transit Service Policy Review: Considerations

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EXECUTIVE SUMMARY
Approved by the TransLink Board of Directors in 2012, the Independent Transit Services Policy outlines the process by which TransLink identifies and evaluates bus or rail transportation provided within the service region by anyone other than TransLink. Developments in transit – including new and emerging forms of transportation – are increasingly challenging the intent of the policy and the process through which TransLink identifies and evaluates Independent Transit Services. Subject to consideration of the challenges outlined in this report, the Board may request that staff revisit and potentially update the Independent Transit Services Policy.

PURPOSE
The intent of this report is to provide information regarding the challenges currently facing the Independent Transit Services policy (ITS), attached to this report as Appendix A, as well as to seek direction from the Board relating to a potential future review and potential update to the policy. This includes a summary of the ITS policy, current challenges and emerging considerations.

This report also provides a description of the relationship between the ITS policy and the *South Coast British Columbia Transportation Authority Act*, TransLink's ability to make changes to the former but not the latter, and with that the possibility that TransLink may be required to engage the Province regarding potential amendments to the Act. The timing of this report relates to several recent Independent Transit Service applications and responds to questions raised by the Planning & Stakeholder Relations Committee at their June meeting.

BACKGROUND

The South Coast British Columbia Transportation Authority Act establishes the framework for defining, evaluating, and approving Independent Transit Services

The *South Coast British Columbia Transportation Authority Act* (Act), TransLink's enabling legislation, includes provisions requiring TransLink approval of any ITS, which is defined as any bus or rail transportation service provided in the transportation service region by a person or municipality other than TransLink, its subsidiaries, or contractors.

Under Section 5 of the Act, no person or municipality may establish, operate or approve the operation of an ITS without TransLink's approval. In accordance with the Act, TransLink may give approval only if the ITS "*does not reduce the effectiveness or financial viability of the regional transportation system"*.
In addition to these requirements, the Act stipulates that TransLink not provide financial support to any approved ITS.

The Act allows TransLink to apply terms and conditions to its approval of an ITS prior to a service commencing operation. Standard terms and conditions were developed by TransLink and are outlined in the ITS Policy; in addition to these, the TransLink Board has the ability to apply at their discretion other terms and conditions.

TransLink Board approval does not supersede or exempt but is in addition to the operator's need to acquire all other relevant safety and operating approvals as required by other regulatory bodies, such as the Passenger Transportation Board.

Once an ITS is approved, TransLink's only ongoing interest is adherence by the operator to the requirements of the Act and stipulated terms and conditions, if any, with TransLink. The Act enables TransLink, after consultation with a person or municipality, to withdraw ITS approval if terms and conditions are not adhered to.

TransLink's Independent Transit Services Policy provides further detail to the evaluation process

In 2012, TransLink adopted the Independent Transit Service Policy. The intent of this policy was to provide more definition than what was outlined in the Act, as well as to establish a consistent and transparent process by which TransLink would identify, evaluate and approve an ITS. For example, while the Act provides a definition of rail transportation, it does not include a definition of bus transportation. As such, the ITS policy included the following definition of bus transportation: *"one or more motor vehicles providing regularly scheduled vehicle trips, open to the general public, with the capacity to carry multiple passengers whose trips may have different origins, destinations and purposes"*.

As mentioned, while the Act allows TransLink to apply unspecified terms and conditions to an ITS, it is through the ITS Policy that standard terms and conditions were developed. Among others, these include:

- That TransLink reserves the right to re-evaluate an approved ITS at any time, and revoke approval if deemed appropriate.
- Use of TransLink-owned or operated, including transit exchanges or TransLink bus stops, must be negotiated and approved.
- Approved ITS must notify TransLink of any substantive, planned changes in service provision (including, but not limited to, changes in route, frequency, stops, operating times, passenger access and/or revenue structure) at least 60 days in advance of a planned change.

Since the implementation of the Act, the TransLink Board has considered 17 (and approved 16) different ITS applications (see Appendix B: Summary of Approved ITS Applications). These have come from a variety of different applicants including local government, the private sector, non-profits, and different provincial organizations (e.g. regional health authorities).

DISCUSSION

ITS exist within a "spectrum" of transportation services available across the region. This includes conventional TransLink service and HandyDart, TransLink-approved ITS, and then passenger services exempt from the ITS policy (e.g. inter-regional buses, carpools, or employee-only shuttles). In addition to the non-ITS transportation services listed above being exempt from TransLink's ITS policy, the Act also

exempts regional connections that extend beyond TransLink's transportation service area, such as service from Squamish to West Vancouver or from Chilliwack to Langley.

Key Considerations for a Future Policy Review

Since the ITS policy was developed in 2012, the transportation landscape within Metro Vancouver has undergone considerable change and emerging technologies are likely to accelerate that process. Developed as a means to identify, evaluate and approve those ITS which would complement the regional transportation network, the ITS policy was not intended to be the channel through which TransLink would respond to new and potentially disruptive approaches to transportation, nor was the policy designed with the flexibility to do so. In addition, TransLink's approval rights for ITS are intended to be supplemental to permitting and other approval requirements of other regulators, including the Passenger Transportation Board. The TransLink Board may determine that the following considerations warrant a review and potential revision of the Independent Transit Services Policy, and possibly the Act.

Transit Service Partnerships as a potential new model for providing transit service

TransLink is currently exploring the operational and policy implications of Transit Service Partnerships policy (TSP), defined as TransLink-provided transit service that is funded wholly or in part by a third-party partner. A future TSP policy would be for new or enhanced service outside an Investment Plan that would otherwise not be possible without the support of third parties. Potential third-party partners could include developers, business associations, municipalities, large employers, tourist attractions, or others.

Since both TSP and ITS relate to transportation service outside TransLink's conventional approach to delivering service, it's likely that consideration will need to be given to how they would co-exist within TransLink's existing policy and planning landscape. As noted, the Act is clear in that TransLink is not to provide any financial support to an approved ITS. As such, it's likely that a potential future TSP program with some level of financial support from TransLink would lead to a decrease in the number of ITS applications received.

Emerging Technology and Transportation Network Services are challenging the definitions of conventional transportation

Emerging technology, including on-demand service and autonomous vehicles, is already having an impact on mobility within the region. A number of recent ITS applications incorporating autonomous vehicles and or elements of on-demand service have challenged the policy's ability to identify and evaluate potential ITS services. While these new forms of technology support the provision of transportation in a general sense, they often have characteristics distinct from the standard definitions outlined in the ITS policy and its ability to identify and evaluate potential ITS services.

For example, the ITS policy includes in its definition of bus transportation that service be provided along a fixed route, where as on-demand technology is characterized by variable routing as determined by the origin and destination of each customer. As these technologies develop and become more commonplace, it's likely that these inconsistencies – in which new and innovative approaches do not conform to the standard definitions of transportation as defined in the ITS policy – will become increasingly common. The existing ITS policy currently does not have the flexibility to adapt to these emerging forms of technology.

In early July the Province announced that the Passenger Transportation Board (PTB) would begin processing applications for Transportation Network Services (TNS) starting September 2019. Established under the *Passenger Transportation Act* (2004), PTB is an independent tribunal comprised of six order-in-council appointed members. Under the recent BC Passenger Transportation Amendment Act, PTB now has sole authority for setting operating areas, fleet sizes and rates for Passenger Directed Vehicles (PDVs) including taxis and TNS authorizations. This amendment also enables PTB to determine fares for TNS, as well as the number of licenced vehicles in each region.

Under this new legislation TNS are defined as a new class of Passenger Directed Vehicle, which – similar to conventional taxis – exempts them from the ITS policy. The challenge is that there are emerging forms of TNS, such as Uberpool or Lyft Line, that operate differently and, in some cases, meet the criteria used to determine if a transportation model fits the definition of an ITS; specifically, the definition of bus transportation as *"open to the general public, with the capacity to carry multiple passengers whose trips may have different origins, destinations, and purposes."*

Since the ITS policy does not currently include a definition of TNS or make the distinction between single-occupancy TNS and TNS models that serve multiple passengers, TransLink's ability to identify new and unconventional transportation models as potential ITS is becoming increasingly limited. Compounding this challenge is that the Act does not provide guidance on how TransLink or the ITS policy should interact with emerging transportation technology and services within the evolving transportation landscape.

ITS and Regional Land Use Planning

Several recent ITS applications have related to ongoing planning processes in which a local government has required a developer to provide a certain level of transit service to a specific development area. In general, these potential developments have been located in undeveloped areas of the region where there is typically no existing TransLink service, or it is at a level below what the local government has requested of the developer.

These types of ITS applications place TransLink in a difficult position. At a high level, TransLink has the mandate to support the goals outlined in Metro Vancouver's *Regional Growth Strategy* (RGS), especially as they relate to the coordination of land use and transportation. In support of these goals, TransLink's planning process for identifying new or enhanced service is guided by a range of policy documents that focus on sustainable growth and the various land use elements necessary to support an efficient and effective regional transportation network.

However, neither the Act nor the current ITS policy include evaluative criteria *specific* to land use. As mentioned, the only evaluative criteria outlined in the Act are the potential impacts of a proposed ITS on the effectiveness and financial viability of the regional transportation network; defined within the ITS policy as *"the impact an ITS has on TransLink's ability to move towards the strategic goals specified in the long-range strategic plan of the time of application (currently Transport 2040)"* and *"the degree to which an ITS increases TransLink costs or decreases TransLink revenues",* respectively.
Given this narrow evaluative scope, the Board may approve a proposed ITS despite inconsistencies between the land use characteristics of a proposed development and TransLink's legislated mandate to support sustainable growth. Moreover, Board approval of an ITS could be *implicitly* understood as TransLink endorsement of a development that is contrary to regional planning objectives.

As a general "transit" requirement within the development approval process, resolved either by ITS approval or TransLink expansion, the local government does not make the distinction between ITS service and TransLink service, despite significant differences in service delivery, customer expectations, funding certainty, operational standards, and general accountability.

CONCLUSION

The transportation landscape within Metro Vancouver has changed considerably since the introduction of the ITS policy in 2012. Developed to address potential ITS within the transportation network at that time, the policy was not created with the capacity to adapt to the emergence of new and potentially disruptive technology. As these new forms of technology develop and become more common place, it may become increasingly difficult to identify and evaluate potential ITS services.

The ITS policy, approved by the Board in 2012, can be understood as an extension of Section 5 of the Act, the legislation that enables TransLink to identify, evaluate and approve potential independent transit services. While the ITS policy and the Act both address Independent Transit Services, they are distinctly different documents, administered separately and with minimal ongoing interaction.

In terms of the challenges outlined earlier, the table below provides a brief summary of policy implications for each and at a high level their ability to be addressed by potential changes to either the ITS policy and or the Act.

Consideration	Implication	ITS Policy	SCBCTA Act
New Transit Service Partnerships policy	Potential overlap between ITS and TSP policies may conflict with the Act and restrictions on TransLink providing any funding to ITS services.		✓
Emerging Technology	Emerging technology, including shared TNS such as Uberpool, are increasingly challenging the definitions of conventional transit outlined in the ITS policy.	✓	
ITS and Regional Planning	Neither the Act nor the ITS policy include evaluative criteria related to land-use, resulting in situations where the Board may approve an ITS that does not align with TransLink's organizational mandate to support regional growth management goals.	✓	✓

Given that the above considerations are already impacting TransLink's ability to identify and evaluate potential independent transit services, as well as the likelihood that these impacts will only increase, it is appropriate for TransLink to revisit and potentially update the Independent Transit Services Policy. This review should occur in the context of a potential new TransLink Transit Service Partnership Policy as well as other forward-looking policy documents, such as TransLink's Transport 2050 strategic plan.

If the Board endorses a review similar to what is proposed above, an updated ITS policy has the potential to be better equip TransLink to adapt to evolving technology and the emergence of new and unconventional mobility options. Moreover, the introduction of different evaluation criteria (such as alignment with the Regional Growth Strategy) would improve TransLink's ability to support regional planning objectives. It's likely that a comprehensive policy review would inform other possible amendments to the ITS policy.

Given available staff resources and existing priorities, staff anticipates it would be appropriate to initiate review of the ITS policy in the latter half of 2020.

APPENDIX A: Independent Transit Services Policy (2012)
APPENDIX B: Summary of Approved ITS Applications

APPENDIX A: Independent Transit Services Policy (2012)

TRANSLINK

INDEPENDENT TRANSIT SERVICE POLICY

- TRANSLINK POLICY –

Issued By	**SERVICE PLANNING**
Approved By:	**Board of Directors**
Meeting Date:	**December 7, 2012**
Corporate Secretary Signature :	

1. PURPOSE

This policy guides the identification, evaluation and approval of independent transit services (ITS), under the authority provided in Section 5 of the *South Coast British Columbia Transportation Authority* (SCBCTA) Act. The policy provides a consistent and transparent approach to interpret and apply the Act for future decisions on the role of ITS within the regional transportation system.

2. POLICY

Independent transit services can improve transportation options for markets not served by TransLink's transit network. Application of the provisions within the SCBCTA Act involves three primary steps:

I. defining if a service is an ITS;
II. application of evaluation criteria to inform recommendations; and
III. TransLink Board approval or denial, including terms and conditions required for an approved service to operate.

TRANSLINK

I. Identifying Independent Transit Services

The following criteria are used to determine if a transportation model fits the definition of an independent transit service.

Definitional Criteria	Defined as ITS if:
Service is either bus or rail transportation*	Yes
Provided primarily within the transportation service region	Yes
Provided by a person or municipality other than the authority or its subsidiaries or contractors	Yes
Does not meet any of the following definitions: carpool vehicle, passenger transportation pool vehicle (e.g., employer-sponsored carpool/vanpool), inter-regional bus (connecting outside service area), passenger directed vehicle (e.g., taxis), school bus, emergency vehicle	Yes
The primary purpose of the service is to provide general mobility	Yes

*Rail transportation systems are defined within the Act as a, "system using one or more fixed rails for the transportation of passengers and includes the system's ancillary works". For the purposes of this policy, a bus transportation system is defined as "one or more motor vehicles providing regularly scheduled vehicle trips, open to the general public, with the capacity to carry multiple passengers whose trips may have different origins, destinations and purposes".

II. Evaluation for Approval

Section 5 of the SCBCTA Act outlines criteria by which ITS should be evaluated when determining service approval. As outlined in the Act, TransLink may grant approval to establish or operate an ITS if:

1. the ITS does not reduce the effectiveness of the regional transportation system, and
2. the ITS does not reduce the financial viability of the regional transportation system.

TRANSLINK

For the purposes of this policy, "effectiveness of the regional transportation system" is defined as the impact an ITS has on TransLink's ability to move towards the strategic goals specified in the long range strategic plan of the time of application (currently Transport 2040), while "financial viability of the regional transportation system" is defined as the degree to which an ITS increases TransLink costs or decreases TransLink revenues.

Evaluation will involve both qualitative and quantitative analysis by management. Evaluation considers the potential impact of the ITS on the financial viability (e.g. increase costs, decrease revenues) and effectiveness (e.g. impact on long-term goals and objectives) of the regional transportation system.

III. Terms and conditions

The Act allows TransLink to apply terms and conditions prior to a service commencing operation. The following conditions would be applied to all ITS:

- TransLink reserves the right to review and/or re-evaluate approved services at any point in the future, and revoke approval if deemed appropriate.
- No financial support will be provided by TransLink or any of its subsidiaries.
- Approval to operate as an Independent Transit Service does not constitute approval with respect to any other federal, provincial and local transportation regulations, including safety.
- TransLink may request changes in service provision (including, but not limited to, changes in route, frequency, stops, operating times, passenger access and/or revenue structure). Approval will only be granted if TransLink and the ITS provider agree to service terms.
- Approved ITS must notify TransLink of any substantive, planned changes in service provision (including, but not limited to, changes in route, frequency, stops, operating times, passenger access and/or revenue structure) at least 60 days in advance of a planned change.
- Each approved ITS must report annually to TransLink to confirm its service plan and report changes.
- Use of TransLink-owned or operated infrastructure, including transit exchanges or TransLink bus stops, must be negotiated and approved in advance of use by ITS
- Use of TransLink or subsidiaries branding, language, or symbols, must be negotiated and approved in advance of use by ITS.
- Approved ITS may be recognized or communicated by TransLink to improve the effectiveness of the regional transportation system as appropriate, and at TransLink's discretion.
- Any additional terms and conditions specific to individual ITS.

TRANSLINK

An ITS will not be authorized to operate unless all terms and conditions are met.

As per Section 190 of the SCBCTA Act, the TransLink Board must approve any identified ITS to operate, and cannot delegate this authority to staff.

APPENDIX B: Summary of Approved ITS Applications

Name	Year of Approval	Type of Applicant	Location	Service Type	Status
Fraser Mills	-	Private	City of Coquitlam	Shuttle service, Monday-Saturday	TBD
Cypress Village	2019	Private	District of West Vancouver	Shuttle service, Weekday peak-only	Pre-approved
Steveston Shuttle	2019	Tourism	Lansdowne Station-Central Richmond-Steveston	Weekend-only shuttle service	Active
B-Shuttle	2018	Private	Surrey-UBC	Commuter service, 12 round-trips daily	Inactive
White Rock Waterfront Shuttle	2018	Municipality	White Rock Waterfront	7-day shuttle service, 20 min. frequency	Active
Port Moody Shuttle	2018	Municipality	Moody Centre Station-Rocky Point Park	Weekend-only shuttle service, 30 min. frequency	Inactive
White Rock Trolley	2017, 2014	Municipality	Waterfront-Ruth Johnson Park-City Centre	Weekend-only, 60 min. frequency	Active
New West River Market Shuttle	2016	Private	River Market-Downtown New West-Uptown New West	Shuttle service, 30 min. frequency	Inactive
Fraser Health Central Surrey Shuttle	2015	Provincial	King George Station-Surrey Memorial-Pattison Outpatient-Fraser Health Head Office	Shuttle service, 30 min. frequency	Inactive
Bowen Island Express	2014	Private	Horseshoe Bay-Vancouver	Weekday peak-only, 6 round trips daily	Active
Harbourside	2014	Private	Lonsdale Quay-Harbourside	Shuttle service, 30 min. frequency	Inactive
West End Shopper's Trolley	2013	Private	Davie-Denman-Robson-Burrard	Saturday only shuttle service,	Inactive
Surrey Health Shuttle	2012	Provincial	Fraser Health Head Office-King George Station-Surrey Memorial	Weekday shuttle service	Inactive
Aldergrove Trolley	2012	Private	Gloucester Estates-Aldergrove	60 min. frequency	Inactive
Pacific Commuter	2012	Private	Langley-Cloverdale-Vancouver	Weekday service, 1 daily roundtrip	Inactive
West Vancouver Seniors Shuttle*	2010	Private	Ambleside-Park Royal	Weekday	Active
Vancouver Demonstration Streetcar	2009	Municipality	Granville Island-Olympic Village Station	Temporary streetcar (rail) demonstration service	Inactive
New West Uptown Shuttle	2007	Tourism	New West Quay-Downtown New West-Uptown New West	Weekend service, 30 min. frequency	Inactive

*The West Vancouver Seniors Shuttle was approved as an ITS in 2010 prior to the adoption of the ITS Policy in 2012, which included criteria that would have omitted the Seniors Shuttle from ITS consideration.

TO: Board of Directors

FROM: Geoff Cross, Vice President, Transportation Planning and Policy

DATE: November 15, 2019

SUBJECT: Bus Stop Accessibility for Customers with Vision Loss

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PROPOSED RESOLUTION:

That the TransLink Board of Directors direct staff to:

A. implement tactile walking surface indicators (TWSI) at all in-service bus stops, bays and unloading stations on properties TransLink owns, leases or licences, as permitted;
B. implement braille and tactile signage at all in-service bus stops in TransLink's service region, as described in this report; and,
C. develop a pilot to test wayfinding technology.

EXECUTIVE SUMMARY

The accessibility of information at bus stops for customers who are blind or partially sighted has been a longstanding concern for stakeholders in the vision loss community. Many members of this community rely on taking the bus and they want to be able to independently locate a bus stop and know it's the correct bus stop. Although TransLink identified potential elements of accessible bus stops in 2007 and a pilot was undertaken in 2012, installation of accessibility elements for people with vision loss has been limited to Tactile Walking Surface Indicators (TWSI) on our facilities and provision of cost-share funding for municipalities to install these at bus stops on their facilities. Since 2017 we have been actively working to determine what accessibility elements to provide information for people with vision loss would be implemented, where and on what timeline. We have developed options and evaluation criteria; engaged with the Access Transit User's Advisory Committee (UAC), key stakeholders and organizations; and undertaken broader engagement with the vision loss community.

Based on this information, staff have now developed a three-pronged approach to providing information at bus stops for customers with vision loss. This includes TWSI, braille and tactile signage and a wayfinding technology pilot. $7M will be included in the capital program of the 2020 Budget to enable us to begin implementation in 2020. We anticipate that substantial completion would be achieved with three years.

PURPOSE

To seek direction on making bus stops accessible for customers with vision loss through the implementation of TWSI, signage in braille and tactile lettering, and a pilot to test wayfinding technology solutions.

BACKGROUND

Accessible information at bus stops enables people with vision loss to take transit independently

Many people with vision loss rely on taking the bus and they want to be able to independently locate a bus stop and know it's the correct bus stop. The accessibility of information at bus stops for customers

who are blind or partially sighted has been a longstanding concern for stakeholders in the vision loss community. There is presently no accessibility legislation at the Provincial or Federal level to guide a solution for information at bus stops for customers with vision loss.

A pilot project to test Universally Accessible Bus Stops was undertaken in 2012

In 2007 TransLink undertook work to identify elements of Universally Accessible Bus Stops and a consultant team prepared draft design guidelines. These were never formally adopted. In 2012 a pilot was undertaken which included the installation of TWSI at several locations and tactile and braille signage at one location. This information included:

- Bus route number
- Bus route name
- Bus route direction
- Stop ID # (or Bay # at exchanges)
- Customer service telephone number

While this pilot was positively received by customers, further internal analysis found that the amount of information contained on the pilot signage would be problematic to implement because many bus stops serve multiple routes which would expand the required characters beyond an acceptable tactile area. As a result, implementing braille/tactile signage system-wide with the information contained in the pilot would:

- Introduce complexity in maintenance processes by requiring TransLink to monitor quarterly sheet changes to assess which signs have enough space to accommodate multiple bus route names and route direction; and
- Introduce inconsistency for customers by having different levels of information at different locations, with the potential for that that level of information to change with quarterly sheet changes.

Following the success of the TWSI element of the pilot, TransLink has been installing TWSI at bus stops on our facilities, generally when other upgrades are being undertaken, and we have been encouraging and providing cost-share funding to municipalities for installation of TWSI at stops on their sidewalks.

DISCUSSION

The Phase One Investment Plan, which was approved by the Board in 2016, included a project to develop an implementation plan for Universally Accessible Bus Stops. Work began in 2017 to identify what accessibility elements would be implemented, where and on what timeline. This work included investigating how other cities were approaching providing information to customers with vision loss.

Very few peer agencies provide tactile and braille information

To inform development of the implementation plan, we researched practices for braille and tactile information at bus stops nationally and internationally. It was found that no Canadian peer agency currently provides braille or tactile signage at bus stops beyond small-scale pilots and the information provided is limited to bus stop ID and route number, or just bay number.

Internationally, the provision of braille and tactile signage at bus stops is rare. Those agencies that that do provide braille and tactile information commonly offer only a bus stop identifier (i.e. the word “STOP”) and the bus stop ID number. Some systems do provide the bus route number, but none provide the route

name or route direction. (See Attachment 1: Review of Tactile and Braille Signage Provided by other Transit Agencies)

Wayfinding technologies can complement static information

In addition to signage and TWSI, we have been investigating technology solutions to provide wayfinding information for customers with vision loss. Such technologies typically require a mobile phone or tablet. There are three primary types of technology-based wayfinding solutions currently available. These include:

Bluetooth Beacons

- Physical beacons affixed to structures provide positioning information.

Virtual Beacons

- A newer technology that does not require physical beacons and relies on a cloud-based storage system to provide positioning information with exceptional accuracy.

Live Agent Video Service

- Utilizes agents to assist people with tasks such as wayfinding by using a smartphone camera to provide an agent with a live view. This is a fee-based service that requires a subscription.

In other jurisdictions including Toronto, Boston, Los Angeles and New York City, pilots are underway to evaluate the effectiveness of wayfinding technologies.

Four options were developed, evaluated and presented to the UAC in 2018

An evaluation framework was created based on customer needs and cost of implementation. Four options to provide information at bus stops were developed, these included:

- Braille and tactile signage with the information provided at the Joyce-Collingwood Pilot;
- Braille and tactile signage with “STOP” identifier and stop ID number;
- Audible stops with real-time information; and
- Bluetooth beacon technology.

The evaluation framework and options were presented to the UAC in April 2018. The results of this evaluation found that installing the word “STOP” and the bus stop ID number in tactile and braille at all stops performed best overall and would enable customers with vision loss to locate a bus stop and know they were at the right bus stop.

At a June 2018 TransLink UAC meeting, staff presented an approach to braille and tactile signage at bus stops that addressed the implementation considerations that arose from the pilot and took into consideration feedback received based on the earlier discussion about the options and evaluation framework. The approach included signage at all bus stops that indicated “STOP” and provided the stop ID number. In addition, in recognition that some stations and exchanges are particularly complex to navigate, we proposed that tactile maps be installed at three SkyTrain stations that were in the process of being upgraded. We also proposed that we undertake a Bluetooth beacon pilot to explore the role of technology as a wayfinding solution.

This approach was not supported by committee members because needing to rely on the stop ID number to identify if the stop was the correct one was not desirable.

Broader engagement found that customers with vision loss want to know they're at a bus stop and that it's the correct one

Following this, we undertook broader engagement with the vision loss community. This included meeting with key organizations and distributing a survey to 6,400 individuals in the vision loss community. The purpose of the survey was to understand how people with vision loss use TransLink's transit services, acquire information about these services, and identify bus stops and bays. It was made available online, in both large-print and braille formats, and conducted over the phone, as requested. As a result of this distribution, TransLink received 394 responses.

The results of the survey echoed what we've heard from those with vision loss on TransLink's UAC and advocates in the vision loss community. That the two most difficult parts of a bus trip are identifying that they are at a bus stop and knowing that it is the correct stop. For many respondents (67%) the most common way to address these two difficulties was to ask an operator or a member of the public for information.

We have heard from stakeholders that a stand-alone technology solution that relies on a smartphone or other device is not desirable at this time as it could exclude customers who do not own phones or have data packages for such devices. The survey found that amongst those over 45 years old, 48% of respondents own and use smartphones, which is significantly below that of the general population. However, 90% of respondents under the age of 45 reported owning or using a smartphone. This suggests that there are customers that may prefer a technology option and that this customer group will likely grow over the coming years when rates of smart phone usage increase as the younger cohort ages.

Recommended solution to delivering braille and tactile information addresses customer needs and implementation constraints

Management are recommending an approach to delivering information at bus stops for customers with vision loss based on the work done to understand customer needs and implementation constraints. This approach includes:

Enable customers with vision loss to find a bus stop and know they are at the right bus stop by:

1. *TWSI*
   Installing TWSI at all in-service bus stops, bays and unloading stations on properties TransLink owns, leases or licenses, subject to permission being granted by the relevant property owner.

2. *Braille and Tactile Signage*
   Installing braille and tactile signage at all approximately 8500 in-service bus stops in the service region that include:
   - "STOP" or "BAY #" identifier
   - Stop ID number
   - Route number
   - Customer service telephone number

3. *Wayfinding Technology Pilot*
   Developing a pilot to test wayfinding technology by establishing a project to:
   - evaluate the wayfinding technology options
   - determine when, how, and where the pilot will be conducted

   Customers and stakeholders will be engaged in the pilot design and evaluation.

Work on this three-pronged approach would begin in early 2020 with substantial completion expected to take three years.

Approach was presented to the UAC and was enthusiastically received
On November 13, we presented the approach for implementing tactile and braille signage and TWSI at bus stops, and the development of a wayfinding technology pilot to the UAC. The proposal was enthusiastically received by the committee who applauded TransLink's work to identify a solution that meets the needs of customers with vision loss.

Approach positions TransLink as an industry leader in providing information for customers with vision loss
No other transit agency that staff have identified currently offers the level of braille and tactile signage at all bus stops that is included in this approach. This project would make TransLink a leader in providing information for customers who are blind or partially sighted.

Capital funding of $7M
$7M will be included in the capital plan component of the 2020 Budget, with the expectation that the expenditures will be spread over three years. Upon direction from the Board, we would move to immediately engage a project manager to undertake project design and begin implementation in 2020.

Attachments:
Attachment 1: Review of Tactile and Braille Signage Provided by other Transit Agencies

Attachment 1: Review of Tactile and Braille Signage Provided by other Transit Agencies

City	Country	Braille Lettering	Tactile Lettering	System Wide	Stop Identifier ('BUS')	Stop ID #	Route #	Route Name	Route Direction	Phone #
LA Metro	United States	Yes	Yes	No	Yes	Yes	No	No	No	No
Atlanta	United States	Yes	Yes	Yes	Yes	No	No	No	No	No
Tallahassee	United States	Yes	No	Yes	No	Yes	No	No	No	No
Austin	United States	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
Santa Clara	United States	Yes	Yes	Yes	Yes	No	Yes	No	No	No
Albuquerque	United States	Yes	Yes	Yes	Yes	Yes	No	No	No	No
St. Louis	United States	Yes	Yes	Yes	Yes	No	No	No	No	No
Richmond	United States	Yes	Yes	Yes	Yes	No	No	No	No	No
Hamilton	United States	Yes	Yes	Yes	Yes	No	Yes	No	No	Yes
Regina	Canada	Yes	Yes	No	No	Yes	Yes	No	No	No
Halifax	Canada	Yes	Yes	No	No	Yes	No	No	No	No

TO: Board of Directors

FROM: Geoff Cross, Vice President, Transportation Planning and Policy

DATE: November 6, 2019

SUBJECT: New Mobility Program Update

EXECUTIVE SUMMARY

This report provides an update on key initiatives within the New Mobility program. The 2018 Open Innovation Call, which issued a challenge around *making multi-modal travel more seamless*, is now bearing fruit with two different partnerships.

- The first, with Modo, Evo, and Mobi, has been focused on prototyping a **Shared Mobility Compass Card** which will soon be released for a six-month trial period with 200 employees from 12 employers.
- The second partnership, with local ride-matching app Poparide, launched on October 28th and involves marketing **app-assisted carpooling** to long-distance car commuters including incentives for passengers to complete the final legs of their journeys on transit.

The 2019 Open Innovation Call, which closed in Spring 2019, issued a challenge around *making the customer experience at transit stops, stations, and exchanges more enjoyable.* It received a strong response and three proponents have been short-listed for further negotiations.

In addition, two TransLink-initiated experiments enabled by funding in the Phase Two Investment Plan have been proceeding well through the prototyping phase: Vanpooling and On-Demand Transit.

- The **vanpooling prototype**, in partnership with Modo, and with maintenance staff at UBC is now operating at full capacity with 10 vanpools. After much preliminary tweaking of the concept, we now appear to have a product offering that is an attractive and realistic alternative for long-distance car commuters. Management is now going back to market to find a supplier capable of partnering with TransLink on the piloting phase (i.e. testing at scale). This phase will require resolution of a key operational challenge: managing customer payments at scale.
- The **on-demand transit prototype**, with delivery partners TapRide and First Transit, operated over summer 2019 on Bowen Island. Through the prototyping phase, we were able to refine a product that was attractive to most customers but identified some key areas that need to be addressed in the next phase of piloting: app with better user experience; opportunities for cost-efficiencies; back-up service options when wait times are too long.

PURPOSE

The purpose of this report is to provide the TransLink Board of Directors with an update on key active initiatives within the New Mobility portfolio.

BACKGROUND

To stay relevant and competitive in a rapidly changing mobility landscape, it is critical for TransLink to be constantly generating and considering new ideas for better ways to do business. For this reason, the Mayor's Council 10-Year Vision provided funding to support:

- A New Mobility program, which was established in the Phase One Plan to leverage new technologies and business models for providing people with more mobility options.
- A new functional group within TransLink to develop new programs, products, and services.
- Core technology investments required to enable the development and delivery of the above products and services.

DISCUSSION

Open Innovation Call

The Open Call for Innovation seeks innovative ideas that respond to a regional or TransLink need. For each Call, TransLink issues a challenge statement and solicits project proposals that respond to that challenge. Participation is open to individuals, established companies, start-ups, entrepreneurs, consultants and academics. The Open Call is a cost-effective way to conduct market scans and bring innovation and new partnerships into TransLink.

Successful participants may be offered:
- co-funding and other support to help further develop ideas (for pre-commercialized ideas);
- access to TransLink assets to test or demonstrate ideas (for near-commercialized ideas); or
- opportunity to pilot ideas on a larger scale in partnership with TransLink (for market-ready ideas).

2019 Open Innovation Call

The 2019 Open Call for Innovation closed on April 30, 2019. The challenge statement for this call was: *How can we make the customer experience at TransLink's stops, stations and exchanges more enjoyable?* More specifically, the 2019 Call welcomed ideas on how innovative technologies, solutions, processes, business models and partnerships can enhance the customer experience at transit stops, stations and exchanges.

TransLink received 45 submissions to this Call and an evaluation panel comprised of staff from across the enterprise has narrowed this pool down to a short-list of several promising partnerships.

Over the coming months, staff will conduct internal due diligence on the project proposals and negotiate contract terms with proponents before announcing any successful new partnerships.

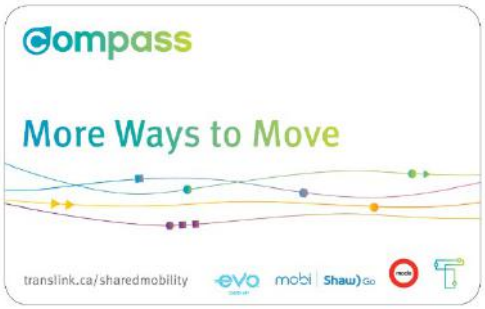
2018 Open Innovation Call

The 2018 Open Innovation Call, which issued a challenge around *making multi-modal travel more seamless*, is now bearing fruit with two different partnerships – one around a Shared Mobility Compass Card and the second around app-assisted carpooling.

Shared Mobility Compass Card (prototype phase)

One outcome of the 2018 Open Call for Innovation was a partnership between TransLink, Modo Car Share, Evo Car Share, and bike-share provider Mobi by Shaw Go. These partners have been working to develop a basic and partial Mobility-as-a-Service prototype focusing on an integrated registration, vehicle access, invoicing and payment solution for all four transportation services with a single Compass Card. In the absence of account-based processing which would be required to deliver this solution at scale, this prototype has been developed using labour-intensive manual back-office processes and employers' accounting offices in order to simulate for the end user the effect of seamless payment across modes.

In October 2019, the prototype card was released to a select group of 200 employees from 12 participating businesses in Vancouver who will, over a six-month period, use the card to access all four transportation services for work travel. Overall, 12 companies including micro, medium-sized and large enterprises, non-profits, and academic institutions joined the initiative.



A single registration form for all four services was developed to simplify the registration process. Once completed, every employee received a special Compass Card. Employees can track their trip data on a regular basis using a web-based dashboard and no filing of individual expense receipts is needed. Participating companies will receive one single monthly invoice combining all trip costs. In addition, an online, web-based, visual reporting tool is available to the company's administrative and accounting staff. The dashboard displays all trips along with their associated costs.

TransLink will be collecting user feedback and assessing changes in travel behaviour throughout the prototype phase to determine if the increased ease and seamlessness results in increased usage of the four services. These insights will help staff understand the user's experience, conceptualize how an improved solution could be scaled up in the future, and provide data to feed into a business case around potentially accelerating our fare payment system upgrade to account-based processing.

App-based ride-matching for carpooling (pilot phase)

A carpooling campaign partnering with local company Poparide is the second partnership to emerge from the 2018 Open Innovation Call. The campaign was launched on Oct. 28th to encourage people who commuter by car to consider using the Poparide app to find a carpool partner. This campaign will continue until Jan. 2020 with more targeted ads and cooperation with local partners.

Carpooling, also known as ride-sharing, is an easy way to reduce commuting costs and cut personal greenhouse gas emissions without making any significant changes to travel behaviour. Ideal for people travelling longer distances by car with compatible destinations and schedules interested in decreasing travel costs, and travel time (by taking advantage of HOV lanes).

Past experience from Poparide has shown that shorter distance commuters are much less likely to carpool as the hassle associated with coordinating a shared ride generally outweighs the benefits until the time and cost savings are substantial – which is most easily achievable when travelling over longer distances. This finding is the main reason we are targeting this campaign at the more than 80,000 long-distance car commuters travelling between Abbotsford and Metro Vancouver each day – a number that makes up 14% of total Metro Vancouver traffic.

The goal of this project is to increase awareness and usage of carpooling solutions on select travel corridors which are highly congested within Metro Vancouver's road network in order to reduce the number of single-occupant vehicle trips. Leveraging behavioural insights and tactics including nudging, gamification and incentives will be central to the pilot.

Shared-use vanpooling (prototype phase)

In February 2019, TransLink launched a Vanpool prototype in partnership with Modo as the supplier of the shared vehicles. The target employee group for this preliminary limited scale prototype is maintenance staff at University of British Columbia. The number of vehicles in the current prototyping phase is capped to a maximum of 10 and is currently operating at capacity with 53 participants.

After much preliminary tweaking of the concept, we now appear to have a product offering that is an attractive, lower cost, and more social alternative for long-distance car commuters. It is suited to groups of employees (3-8 persons per vehicle) commuting longer distances from areas with poorer transit options into a common employer or an area with concentrations of several employers.

Participants report high levels of satisfaction with the program, with 100% rating their overall experience as either excellent or good. All participants say they will stay with the program if it continues. They view the current pricing scheme as attractive and good value and a major reason for signing up. The current pricing levels are aligned with the 1, 2, 3, 4, and 5 zone monthly transit pass prices and based on the distances traveled and the number of passengers per vanpool.

To pay for the monthly membership in the vanpool, participants actually purchase and validate (on a monthly basis) the associated Compass monthly pass, which entitles them to also travel freely on the conventional transit system. Projected cost recovery for TransLink with the current service design, fleet supplier, and pricing model is approximately 40% - which compares favourably to existing fixed-route transit serving lower density areas.

The main point of friction for participants in this prototyping phase is the process of paying for their monthly vanpool membership – which involves purchasing a Compass monthly pass. In the absence of an account-based fare payment system, we have devised a manual work-around that requires participants to physically activate their pass on a monthly basis by finding a Compass validator (on a bus or at a station) and tapping their card. Participants who fail to activate their passes are manually notified each month with phone call reminders.

There is ample bus service on UBC Campus to make this requirement only a minor annoyance for the prototype participants. However, this solution is not scalable to a larger pilot or permanent program given that a key market for vanpooling is made up of commuters who live in areas with poor bus service

and far from SkyTrain service. They may also work in business or industrial parks with limited or non-existent bus service. Accordingly, in advance of transitioning our fare payment system from card-based to account-based processing some investment in an interim technology and payment administration solution will be required to scale the current vanpooling model into a larger pilot. Management will be investigating possible solutions as part of the procurement for the larger pilot phase at multiple employers across the region, which we anticipate advancing in early 2020.

On-Demand Transit Prototype

From July to September, we opened our on-demand transit prototype to the public on Bowen Island – alongside the existing fixed-route services. The primary objectives of the prototype phase were to:

- develop and refine an on-demand transit service that functioned in the real-world and that was useful and attractive to customers;
- gain insights on key operational and user experience issues from the perspectives of the customer, the driver, and the administrator / fleet manager.

Bowen Island was selected as the location for this first phase of product development and testing primarily because it is a well-defined geography in peoples' minds and there would be no confusion about operating area (which is one of the biggest challenges for on-demand transit service). In addition, the community shuttles there do not have Automatic Vehicle Locators (AVLs) and so the introduction of the app, with real-time location information, would offer added incentive to Bowen transit users to download the app and help us test the service.

Through October and November, Management has been analyzing the prototype data including collecting qualitative rider and driver feedback in follow-up interviews. Key early findings include:

- Raising awareness of a new service that requires new user behaviour is difficult: local engagement, local champions, and legible service areas are key to communication success;
- While customer satisfaction was generally high, the app interface itself scored lower and was identified as a key barrier to using the service more often. The quality of our technology partner is a key determinant of usability and overall customer satisfaction;
- One-third of the requested trips were cancelled, causing unnecessary driving and delays to others. In future, we should test some type of cancellation fee to disincentivize this behavior.
- Reliability and wait times for completed trips were generally good, with an average wait time of 8 minutes and with 90% of completed trips being picked up within 30 minutes of the request. However, 10% of completed trips had wait times of over 30 minutes, with a handful of customers waiting over an hour. A portion of the cancelled trips were also due to long wait times. In future, we should test partnerships with taxis and TNCs to fill in gaps where we cannot pick up a passenger within a guaranteed maximum window.
- Cost-per-boarded passenger is generally higher than for fixed route services. To bring costs down further, smaller vehicles (up to 7 passengers) are likely better suited to these contexts than larger 24 passenger community shuttles. Opportunities to combine this type of service with HandyDART service in low density areas could help realize further cost savings.

Overall, Management feels that the prototyping experience has sufficiently prepared us to move into the larger scale piloting phase and we are now preparing for the next phase of procurement, where we

would seek technology and service provider partners to help us test this service delivery concept for longer periods of time and in multiple use cases and geographies.

The pilot phase objective is to: *understand which use cases have the best potential to improve customer experience and reduce wait times for about the same or lower cost* as compared to fixed-route, fixed-schedule service and should therefore be considered for incorporation into our ongoing service offering.

Given limited piloting resources, it is important to select the use cases and geographies for this pilot phase that are most likely to deliver positive results (in terms of lower wait times for the same or lower cost). Final confirmation of these use cases will be undertaken in collaboration with the selected vendors. The use cases currently under consideration include:

- *Low density areas*: replacing fixed-route service with deviated fixed route or entirely on-demand (e.g. Anmore/Belcarra, Bowen Island, Burke Mountain, Cypress Village, Langley Township, Lion's Bay, eastern Maple Ridge);
- *New service areas*: including business and industrial parks, either as a precursor to fixed route service or as a permanent on-demand circulator service.
- *Late Night Service*: at times where transit demand is low but some coverage is still warranted.
- *Seasonal routes*: overlay service for seasonal routes such as summer service to regional parks;
- *School rush*: supplementing routes that experience surges during school rush periods.