



Public Works and Transportation Committee

**Council Chambers, City Hall
6911 No. 3 Road**

**Tuesday, September 21, 2021
Immediately following the Community Safety Committee meeting**

Pg. # ITEM

MINUTES

PWT-5 *Motion to adopt the **minutes** of the meeting of the Public Works and Transportation Committee held on July 20, 2021.*



NEXT COMMITTEE MEETING DATE

October 19, 2021, (tentative date) at 4:00 p.m. in the Council Chambers

DELEGATION

1. Marko Dekovic, Vice President Public Affairs, GCT Global Container Terminals, to present on the Deltaport Berth Four Expansion Project.

PLANNING AND DEVELOPMENT DIVISION

2. **RECOMMENDATION TO AWARD CONTRACT 7181Q- SUPPLY AND INSTALLATION OF CONDUITS AND WATER SERVICE PIPES USING TRENCHLESS TECHNOLOGY AND OTHER RELATED CIVIL WORKS**
(FILE REF. NO. 02-0775-50-7181) (REDMS NO. 6713641)

PWT-10

See Page PWT-10 for full report

Designated Speaker: Bill Johal

STAFF RECOMMENDATION

- (1) *That Contract 7181Q – “Supply and Installation of Conduits and Water Service Pipes using Trenchless Technology and Other Related Civil Works” for an initial three year term estimated at \$4,548,000 exclusive of taxes, with an option to renew for one further two-year term for a maximum of five years, be awarded to Ulmer Contracting Limited;*
- (2) *That staff be authorized to extend the contract for the final two years of the five year contract; and*
- (3) *That the Chief Administrative Officer and General Manager, Planning and Development, be authorized to execute the above contract.*



3. **E-SCOOTER PILOT PROJECT-RECOMMENDATION TO AWARD CONTRACT FOR SHARED SYSTEM**

(FILE REF. NO. 02-0775-50-7204) (REDMS NO. 6678187)

PWT-13

See Page PWT-13 for full report

Designated Speaker: Sonali Hingorani

STAFF RECOMMENDATION

- (1) *That Contract 7204P - Provision of Public E-Scooter Share Pilot Project be awarded to Lime Technology, Inc.;*
- (2) *That the City enter into an agreement up to three years in length with Lime Technology, Inc. based on the terms as outlined in the staff report titled “E-Scooter Pilot Project –Recommendation to Award Contract for Shared System” dated July 27, 2021 from the Director, Transportation; and*
- (3) *That the Chief Administrative Officer and General Manager, Planning and Development, be authorized to negotiate and execute the above agreement on behalf of the City.*



4. **APPLICATIONS TO 2021/22 BC ACTIVE TRANSPORTATION INFRASTRUCTURE GRANT PROGRAM**

(File Ref. No. 01-0150-20-THIG1) (REDMS No. 6711538)

PWT-26

See Page PWT-26 for full report

Designated Speaker: Fred Lin

STAFF RECOMMENDATION

- (1) *That the submissions for cost-sharing to the 2021/22 BC Active Transportation Infrastructure Grant Program as described in the staff report titled “Applications to 2021/22 BC Active Transportation Infrastructure Grant Program” dated July 16, 2021, from the Director, Transportation be endorsed;*
- (2) *That, should the above application be successful, the Chief Administrative Officer and the General Manager, Planning and Development, be authorized on behalf of the City to execute the funding agreement; and*
- (3) *That the Consolidated 5 Year Financial Plan (2021-2025) be amended accordingly.*



ENGINEERING AND PUBLIC WORKS DIVISION

5. **SANITARY SEWER REPAIRS – 8000 BLOCK CAPSTAN WAY**
(File Ref. No.) (REDMS No. 6676069)

PWT-32

See Page PWT-32 for full report

Designated Speaker: Eric Sparolin

STAFF RECOMMENDATION

That funding of \$800,000 from the Sanitary Sewer Reserve Fund for the sanitary sewer repairs in the 8000 Block of Capstan Way be approved and that the Consolidated 5 Year Financial Plan (2021-2025) be amended accordingly.



6. **GREEN FLEET ACTION PLAN - 2020 PROGRESS REPORT**
(File Ref. No. 01-0340-03-01) (REDMS No. 6710838)

PWT-35

See Page PWT-35 for full report

Designated Speaker: Suzanne Bycraft

STAFF RECOMMENDATION

- (1) *That the staff report titled “Green Fleet Action Plan-2020 Progress Report” dated August 19, 2021, from the Interim Director, Public Works Operations, be endorsed; and*

Public Works & Transportation Committee Agenda – Tuesday, September 21, 2021

Pg. #

ITEM

- (2) *That the City join the West Coast Electric Fleets Diamond Lane pledge, thereby allowing application for additional funding opportunities from the Province of British Columbia's Go Electric Fleets program.*

☐

7. MANAGER'S REPORT

ADJOURNMENT

☐



Public Works and Transportation Committee

Date: Tuesday, July 20, 2021

Place: Council Chambers
Richmond City Hall

Present: Councillor Chak Au, Chair
Councillor Alexa Loo
Councillor Andy Hobbs (by teleconference)
Councillor Linda McPhail (by teleconference)
Councillor Michael Wolfe (by teleconference)

Also Present: Councillor Carol Day
Councillor Bill McNulty
Councillor Harold Steves (by teleconference)

Call to Order: The Chair called the meeting to order at 4:00 p.m.

MINUTES

It was moved and seconded

That the minutes of the meeting of the Public Works and Transportation Committee held on June 22, 2021, be adopted as circulated.

CARRIED

NEXT COMMITTEE MEETING DATE

September 21, 2021, (tentative date) at 4:00 p.m. in Council Chambers.

Public Works & Transportation Committee
Tuesday, July 20, 2021

PLANNING AND DEVELOPMENT DIVISION

1. CAPSTAN CANADA LINE STATION - STATUS UPDATE
(File Ref. No. 10-6525-01) (REDMS No. 6686724)

In response to queries from Committee, staff noted that (i) discussions with TransLink around Capstan Station are specifically about the construction of Capstan Station, (ii) other Canada Line stations may be able to accommodate 3-car trains, (iii) City Centre Community Centre North will tentatively be completed in early 2024, (iv) the City has provided TransLink with all of the funds obligated in the contract, (v) developer contributions can be used for all transit improvements in Richmond, (vi) the City has fulfilled the contractual obligations by providing TransLink with \$34 million, (vii) the delay is due to a change in procurement and delivery processes with InTransitBC, and (viii) TransLink is currently working with the City on their public engagement plan.

It was moved and seconded

That the report titled “Capstan Canada Line Station – Status Update” dated June 15, 2021 from the Director, Transportation be received for information.

CARRIED

2. FUNDY DRIVE – TRAFFIC CALMING UPDATE
(File Ref. No. 10-6450-09-01) (REDMS No. 6700875)

In response to queries from Committee, staff noted that (i) less than 6% of total residents surveyed indicated non-support, (ii) the parking restriction is proposed to be 24/7, (iii) there was no indication of opposition for the parking restrictions, (iv) a few other neighbourhoods are undergoing traffic improvements, (v) the traffic speed study was tracked over 24 hours, (vi) the speed humps will be designed and built to industry standards, (vii) the majority of the construction work should be done before the start of the school year.

It was moved and seconded

That the staff report titled “Fundy Drive – Traffic Calming Update” dated June 24, 2021, from the Director, Transportation, be received for information.

CARRIED

ENGINEERING AND PUBLIC WORKS DIVISION

3. LOWER MAINLAND FLOOD MANAGEMENT STRATEGY COMMUNICATIONS PLAN

(File Ref. No. 10-6060-01) (REDMS No. 6696234)

In response to queries from Committee, staff noted that (i) the lunar precession is on an 18-year cycle and the risk is relatively small, (ii) the letter communicating Richmond's position on regional flood protection management will be sent to industry members, (iii) the City's drainage system handles significant rainfall events very well, (iv) the seepage at Britannia Shipyard was relatively minor and repaired, (v) the letters will be reflective of Council-endorsed directions, and (vi) the Fraser Basin Council has been trying to develop a lower mainland flood management strategy for quite some time.

It was moved and seconded

- (1) *That the staff report titled "Lower Mainland Flood Management Strategy Communications Plan", dated June 23, 2021, from the Director, Engineering, be endorsed; and*
- (2) *That letters be sent to the Lower Mainland Flood Management Strategy Leadership Committee members, local MPs and MLAs, appropriate ministers, deputy ministers and assistant deputy ministers to communicate Richmond's position on regional flood protection management*

CARRIED

4. FRASER RIVER FRESHET AND FLOOD PROTECTION UPDATE 2021

(File Ref. No. 10-6060-01) (REDMS No. 6697680)

In response to queries from Committee, staff noted that (i) a return period event indicates the probability of a specific event occurring, (ii) they are not aware of other methods the province uses to trap debris, (iii) Queens Road is an unidentified minor road, (iv) access to existing trails will be maintained, (v) they are in contact with permitting authorities to expedite the permit process, (vi) they will be reviewing the utility rate category of farm properties further, and (vii) staff are able to handle drainage system service requests in a timely manner.

It was moved and seconded

That the staff report titled "Fraser River Freshet and Flood Protection Update 2021", dated June 18, 2021, from the Director, Engineering be received for information.

CARRIED

Public Works & Transportation Committee
Tuesday, July 20, 2021

5. **2020 ANNUAL WATER QUALITY REPORT**
(File Ref. No. 10-6000-01) (REDMS No. 6676124)

In response to queries from Committee, staff noted that (i) there was a request for a new water fountain in the last year, (ii) the vehicle accident involving a fire hydrant at Alderbridge Way at Hazelbridge Way was a minor leak, (iii) Richmond's tap water is identical to bottled water in terms of the City's water quality parameters, (iv) information about Richmond's tap water quality can be included in educational packages for students, and (v) noise loggers are set up by section maps to regularly detect non-visible underground leaks.

It was moved and seconded

That the annual report titled, "2020 Annual Water Quality Report" dated June 1, 2021, from the Interim Director, Public Works Operations, be endorsed and be made available to the community on the City's website and through various communication tools including social media channels and as part of community outreach initiatives.

CARRIED

6. **SINGLE-USE BYLAW NO. 10000 COMMUNITY ENGAGEMENT
SUMMARY REPORT AND IMPLEMENTATION PLAN**
(File Ref. No. 10-6370-01) (REDMS No. 6655398)

In response to queries from Committee, staff noted that (i) the City suggests implementing the bylaw as-is and proposing additional restrictions at a later date if necessary, (ii) two auxiliary staff will be required to support the bylaw launch, (iii) provincial and federal enforcement staff have not yet been identified at this stage, (iv) staff is looking into the possibility of hosting a trade show, and (v) the target group for communication at this stage is the business community.

It was moved and seconded

(1) *That the Community Engagement Summary Report as presented in the staff report dated June 16, 2021, titled "Single-Use Bylaw No. 10000 Community Engagement Summary Report and Implementation Plan", from the Interim Director, Public Works Operations, be received for information; and*

(2) *That the Proposed Implementation Plan, which presents the Community Engagement Summary Report to the businesses and residents and initiates next steps to prepare the community for implementation of the City's Single-Use Plastic and Other Items Bylaw No. 10000 as presented in the staff report dated June 16, 2021, titled "Single-Use Bylaw No. 10000 Community Engagement Summary report and Implementation Plan" from the Interim Director, Public Works Operations, be approved.*

CARRIED

Public Works & Transportation Committee

Tuesday, July 20, 2021

7. **MANAGER'S REPORT**

(i) *Fire at Richmond Nature Park*

Staff noted that they are looking into the water supply system in the area to see what can be done to improve the ability of Richmond Fire-Rescue to respond to any future fires in the Richmond Nature Park and Richmond Nature Park East.

(ii) *Van Accessible Parking Stalls in Steveston Village*

Staff highlighted that (i) the implementation of three van accessible parking stalls in Steveston Village was completed on July 14, 2021, (ii) the work included upgrading two existing on-street accessible stalls to make them wider, and (iii) a new van accessible stall was introduced by converting two regular stalls into a wider stall for vans.

(iii) *BC State of Emergency Over Wildfires*

In response to queries from Committee, staff noted that the standard process is to have staff on call regularly to respond to issues as required.

(iv) *Signage Along Fraser River*

In response to queries from Committee, staff noted that Engineering and Public Works supports Community Services with the installation of barriers if required.

ADJOURNMENT

It was moved and seconded

That the meeting adjourn (5:07 p.m.).

CARRIED

Certified a true and correct copy of the Minutes of the meeting of the Public Works and Transportation Committee of the Council of the City of Richmond held on Tuesday, July 20, 2021.

Councillor Chak Au
Chair

Shannon Unrau
Legislative Services Associate



City of Richmond

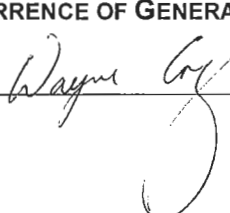


Report to Committee

To: Public Works and Transportation Committee
From: Lloyd Bie, P. Eng.
Director, Transportation
Date: July 20, 2021
File: 02-0775-50-7181/Vol
01
Re: **Recommendation to Award Contract 7181Q - Supply and Installation of
Conduits and Water Service Pipes using Trenchless Technology and Other
Related Civil Works**

Staff Recommendation

1. That Contract 7181Q – “Supply and Installation of Conduits and Water Service Pipes using Trenchless Technology and Other Related Civil Works” for an initial three year term estimated at \$4,548,000 exclusive of taxes, with an option to renew for one further two-year term for a maximum of five years, be awarded to Ulmer Contracting Limited;
2. That staff be authorized to extend the contract for the final two years of the five year contract; and
3. That the Chief Administrative Officer and General Manager, Planning and Development, be authorized to execute the above contract.

Lloyd Bie P. Eng.
Director, Transportation
(604-276-4131)

REPORT CONCURRENCE		
ROUTED TO:	CONCURRENCE	CONCURRENCE OF GENERAL MANAGER
Finance	<input checked="" type="checkbox"/>	 Acting GM
Purchasing	<input checked="" type="checkbox"/>	
Parks Services	<input checked="" type="checkbox"/>	
Engineering	<input checked="" type="checkbox"/>	
Roads & Construction	<input checked="" type="checkbox"/>	
Water Services	<input checked="" type="checkbox"/>	
SENIOR STAFF REPORT REVIEW	INITIALS: 	APPROVED BY CAO 

Staff Report

Origin

Contract 7181Q (*Supply and Installation of Conduit & Water Service Pipes Using Trenchless Technology and Other Related Civil Works*) uses horizontal directional drilling methods (trenchless technology) to install conduits and water service pipes in various configurations on an as-needed basis. The current contract between the City and Ulmer Contracting Limited expired on August 9, 2021 and is currently being extended on a month-to-month basis.

Following the completion of a Request for Quotations process to identify a qualified civil contractor, staff recommend that Ulmer Contracting Limited be awarded the new contract.

This report supports Council's Strategic Plan 2018-2022 Strategy #1 A Safe and Resilient City:

Enhance and protect the safety and well-being of Richmond.

1.2 Future-proof and maintain city infrastructure to keep the community safe.

This report supports Council's Strategic Plan 2018-2022 Strategy #5 Sound Financial Management:

Accountable, transparent, and responsible financial management that supports the need of the community into the future

5.3 Decision-making focuses on sustainability and considers circular economic principles.

This report supports Council's Strategic Plan 2018-2022 Strategy #6 Strategic and Well-Planned Growth:

Leadership in effective and sustainable growth that supports Richmond's physical and social needs.

6.3 Build on transportation and active mobility networks

Analysis

The City has been using trenchless technology to install City infrastructure since 2000. In some applications, trenchless technology is more efficient, safer and cost-effective when compared to open cut or trench digging. It also has less impact to the environment and the general public compared to open cut or trench digging.

Procurement Process

A competitive procurement process was undertaken to identify the most qualified and experienced contractor to supply and install conduits and water service pipes using trenchless technology and other related civil works. The contract term will be for three years with the option to renew for an additional two years to a maximum of five years total.

A Request for Quotations (RFQ) was posted on BC Bid by the City on June 3, 2021. One submission was received from Ulmer Contracting Limited.

Transportation staff have evaluated the submission and have determined Ulmer Contracting offers good value and has the experience and equipment required to meet the needs of multiple City departments who utilize these services.

The proposed rates for the new contract represent good value when compared against previous contract rates. Pricing for the initial three year term of the contract will remain unchanged. Any proposed changes to the rates for the fourth and fifth year will be communicated by the contractor to the City for consideration. Pricing adjustments beyond the initial term of the contract will require justification and be supported by cost data based on industry price indices.

The scope of the contract includes the supply and installation of electrical and communications conduit, junction boxes, vaults, concrete pole bases, concrete controller and UPS bases, water service pipes, and other related civil and electrical works.

Financial Impact

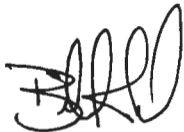
The proposed contract will be funded from multiple Council approved budgets. The amount of \$1,516,000 is an estimate for Year 1 or \$4,548,000 for the initial three year term. The actual work will be defined and issued on an "as required" basis. Table 1 provides the estimated value of the contract by City department for Year 1.

Table 1: Estimated Value of Contract by Department for Year 1

Department	Value	%
Transportation	\$725,000	47.8%
Roads & Construction	\$362,500	23.9%
Water Services	\$362,500	23.9%
Parks	\$66,000	4.4%
Total	\$1,516,000	100%

Conclusion

Ulmer Contracting Limited, has been the City's drilling contractor since 2004 and has provided the City with quality and cost-effective services over this period of time. Staff recommend that Contract 7181Q be awarded to Ulmer Contracting Limited and that staff be authorized to extend the contract for the final two years of the five year contract. Staff further recommend that the Chief Administrative Officer and General Manager, Planning and Development, be authorized to execute the above contract.



Bill Johal
Supervisor, Traffic Signal Systems
(604-276-4298)
BJ:jc



City of Richmond

Report to Committee

To: Public Works and Transportation Committee
From: Lloyd Bie, P.Eng.
Director, Transportation
Date: July 27, 2021
File: 02-0775-50-7204/Vol
01
Re: **E-Scooter Pilot Project – Recommendation to Award Contract for Shared System**

Staff Recommendation

1. That Contract 7204P - Provision of Public E-Scooter Share Pilot Project be awarded to Lime Technology, Inc.;
2. That the City enter into an agreement up to three years in length with Lime Technology, Inc. based on the terms as outlined in the staff report titled “E-Scooter Pilot Project – Recommendation to Award Contract for Shared System” dated July 27, 2021 from the Director, Transportation; and
3. That the Chief Administrative Officer and General Manager, Planning and Development, be authorized to negotiate and execute the above agreement on behalf of the City.

Lloyd Bie, P.Eng.
Director, Transportation
(604-276-4131)
Att. 4

REPORT CONCURRENCE		
ROUTED TO:	CONCURRENCE	CONCURRENCE OF GENERAL MANAGER
Parks Services	<input checked="" type="checkbox"/>	 Acting GM
Recreation and Sport Services	<input checked="" type="checkbox"/>	
Business Licences	<input checked="" type="checkbox"/>	
Law	<input checked="" type="checkbox"/>	
Purchasing	<input checked="" type="checkbox"/>	
Sustainability	<input checked="" type="checkbox"/>	
Risk Management	<input checked="" type="checkbox"/>	
Engineering	<input checked="" type="checkbox"/>	
SENIOR STAFF REPORT REVIEW	INITIALS: 	APPROVED BY CAO

Staff Report

Origin

At its June 28, 2021 meeting, Council endorsed the implementation of an e-scooter pilot program for a period of up to three years that will allow the operation of privately-owned and shared e-scooters on selected roadways and cycling facilities in the city. On July 12, 2021, provincial Cabinet approved an Order in Council designating Richmond as a pilot community within the Province of BC's Electric Kick Scooter Pilot Project. On July 26, 2021, amendments to Traffic Bylaw No. 5870 and Public Parks and School Grounds Regulation Bylaw No. 8771 received adoption thereby permitting the legal operation of e-scooters in Richmond per the parameters of the bylaws.

This report recommends the award of a contract up to three years in length to Lime Technology, Inc. (Lime) to operate a public shared e-scooter and e-bike system as a pilot project.

This report supports Council's Strategic Plan 2018-2022 Strategy #2 A Sustainable and Environmentally Conscious City:

Environmentally conscious decision-making that demonstrates leadership in implementing innovative, sustainable practices and supports the City's unique biodiversity and island ecology.

2.2 Policies and practices support Richmond's sustainability goals.

This report supports Council's Strategic Plan 2018-2022 Strategy #4 An Active and Thriving Richmond:

An active and thriving community characterized by diverse social and wellness programs, services and spaces that foster health and well-being for all.

4.1 Robust, affordable, and accessible sport, recreation, wellness and social programs for people of all ages and abilities.

This report supports Council's Strategic Plan 2018-2022 Strategy #6 Strategic and Well-Planned Growth:

Leadership in effective and sustainable growth that supports Richmond's physical and social needs.

6.3 Build on transportation and active mobility networks.

Analysis

Request for Proposals (RFP) to Operate Shared E-Scooter System

An RFP for the development and operation of a pilot public e-scooter share program was issued by the City on April 29, 2021 with a closing date of May 26, 2021. Seven proposals were received. The proposals were evaluated by a staff team from Transportation and Parks per the following evaluation criteria identified in the RFP:

- compliance with provincial requirements,
- proponent qualifications and past projects,
- implementation and operations plan,
- device specifications, maintenance and security plans,
- parking and right-of-way management,
- user experience and safety,
- marketing and communications plan,
- technology and data sharing,
- consumer protection plan,
- circular economy and sustainability practices, and
- value added services offered to the City.

Award of Contract

Following the proposal evaluation process (Table 1), staff recommend that Lime be awarded a contract to serve as the public e-scooter system owner and operator for a pilot project term of 18 months with an option to renew, upon mutual agreement of both parties, for an additional 18 months (i.e., the maximum allowable term of the provincial pilot program). As Lime's proposal includes the provision of e-bikes as a value added service, staff further recommend that the contract also permit Lime as the owner and operator of a public e-bike system for the same pilot project term. In this owner/operator role, Lime will:

- manage, fund and maintain the operations;
- assume the financial, operational and liability risks associated with the system;
- establish and maintain any infrastructure associated with geo-fenced parking stations;
- operate and optimize e-scooter and e-bike redistribution; and
- be responsible for sales, education, marketing, and customer service.

Table 1: Summary of RFP Evaluation Results

Score	Bird Canada Inc.	Lime Technology, Inc.	Neuron Mobility (Canada) Limited	Roll Technologies Inc.	Superpedestrian Canada Ltd.	ZIP Dockless Inc.
Total	73.5%	89.1%	76.5%	57.0%	54.6%	38.5%

Note: A proposal from Boaz Bikes was not evaluated as the proposal was non-compliant with the Province of BC e-scooter device requirements.

The City will provide support to the pilot program in the forms of:

- access to City lands including streets and paved pathways for the operation of the devices;
- in-kind support primarily comprised of staff support for the station siting process; and
- monitoring system performance during the pilot period.

Staff recommend that the Chief Administrative Officer and General Manager, Planning and Development, be authorized to negotiate and execute the agreement on behalf of the City.

Proposed Shared E-Scooter and E-Bike System

Lime is the largest and most experienced provider of micromobility services in the world and operates in more than 170 cities worldwide. Lime was the first dockless shared micromobility

company in Canada, launching in 2018. Within Canada, the company currently operates in Kelowna, North Vancouver (e-bikes only), Edmonton, and Ottawa. For Richmond, Lime proposes a comprehensive pilot program designed to safely introduce new sustainable mobility options for the community to encourage reduced private vehicle use and complement transit, cycling and walking trips.

The proposed pilot program will run without any capital or operating funding required from the City. Consistent with shared e-scooter and e-bike systems in other North American cities, the operator will pay an annual licensing fee plus a per device administrative fee. The funds generated will be used to compensate for staff time and any materials required (e.g., signage). The operator will also provide a security deposit and obtain general commercial liability insurance.

Fleet Size and Deployment Areas

Based on Lime's experience operating in similarly sized markets in Canada and the USA, Lime proposes a two-phase deployment plan. An initial test area will focus on the City Centre bounded by the Middle Arm of the Fraser River, Alderbridge Way, Garden City Road, Blundell Road, and No. 2 Road with a total proposed deployment of 153 e-scooters and 63 e-bikes (Attachment 1). This test area will enable Lime and the City to confirm system use, safety, and assess any operational issues. Starting in City Centre will allow for access to community services and transit, and first/last mile connections.

If operations within the test area are deemed successful, expansion will occur to cover the majority of Richmond's population and key points of interest including but not limited to waterfronts, community centres, and shopping centres (Attachment 2). The deployed fleet will expand up to 500 e-scooters and 200 e-bikes. Overall, 32% of the fleet is anticipated to be focused in the City Centre, 13% allocated to Steveston and the remainder allocated relative to population and area size to provide an equitable fleet distribution across the city. If demand warrants, the distribution can be adjusted and the fleet could ultimately expand up to 1,000 e-scooters and 500 e-bikes.

Parking Locations and Rebalancing

To enable easy access to devices and maintain a tidy fleet, Lime proposes parking corrals in areas of high density and a "lock to" requirement throughout the rest of the city. Around Canada Line stations, in the City Centre, Steveston, and other areas of high ride concentration, Lime will create designated parking corrals typically located within the boulevard or on-street that are equipped with U-shaped bike racks (Attachment 3). In the rest of the service area, riders will be required to lock their e-scooters to a bike rack. Staff will require Lime to provide its own branded bike racks to ensure that public bike racks remain available for all other users. Each Lime vehicle is equipped with a LimeLock, which enables the vehicle to be tethered to fixed structures.

All parking corrals and bike racks in the designated areas will be geo-fenced and riders will only be able to end their rides in a parking corral or at a bike rack. Before riders are able to end a trip, riders are shown guidance regarding proper parking and must actively document that they have parked correctly with a photograph showing the parked vehicle.

Lime will set minimum and maximum quantities of devices to be deployed per zone and continually monitor the distribution of the devices throughout the day. When concentrations exceed the maximum or fall below the minimum, a notification is automatically triggered to rebalance the vehicles. When the maximum number of vehicles has been deployed, the zone disappears from the app and no additional vehicles can be deployed in that zone to avoid overcrowding and clutter.

Lime pledges to resolve a report of a damaged vehicle or one that is parked in a non-compliant manner within 15 minutes and no more than one hour of notification by the public or the City. User incentives within the app encourage riders to move vehicles from less desirable to more desirable locations to reduce an oversupply in certain places, move improperly parked vehicles, or return devices that are outside the service area.

Lime Patrol teams will be deployed as on-the-ground ambassadors in the community, educating the public, proactively responding to parking and rebalancing issues, and providing customer support. Lime Patrol will circulate through dense areas and those with high utilization to rebalance or repark vehicles before they impede pedestrian or vehicle movements.

The City will have the contact details for the Operations Manager, who is the first point of contact and on-call 24/7. A local base of operations will be established to store, repair and recharge devices, and to respond to public concerns.

Devices to be Deployed

The e-scooters meet the Province's legislated requirements. The e-scooters and e-bikes are equipped with GPS, which provides the ability to track the real-time locations of the devices (Attachment 4). The e-scooters feature a seven cm (2.8") colour LCD screen with a speedometer display and can be used to improve rider awareness and behaviour such as notifying riders when they have entered geo-fenced no parking zones. The devices will be deployed between 5:00 am and 7:00 am, and picked between 9:00 pm and midnight to be charged overnight. Ten percent of the fleet will remain on the street for overnight usage.

A helmet will be provided with each vehicle using Lime's on-vehicle helmet lock mechanism. Free helmets will also be distributed at in-person promotional events when permitted. Safety messages will be affixed to the devices to remind riders to wear a helmet, park appropriately and to not ride on the sidewalk. Operations will include COVID-19 protocols (e.g., daily sanitization of devices) that will remain in place until updated guidance is received from B.C.'s Provincial Health Officer.

The GPS capability of the devices will enable geo-fence technology to provide effective low-speed zones consistent with the parameters of the City's bylaws (maximum speed of 20 km/h on roadways and 15 km/h on shared paved pathways). The e-scooter speed can be automatically reduced to a walking speed when the e-scooter is taken into a no-ride zone.

The e-scooters have technology to help determine if a rider is riding on a sidewalk instead of the street based on the vibration of the underlying riding surface. At the end of the ride, the user will be sent an email and/or in-app message that provides educational materials and an image outlining when and where the sidewalk riding occurred. Lime will also implement a progressive

discipline program for those who continually ride on sidewalks, beginning with mandated education and progressing to fines and account deactivation.

Pricing and User Experience

Price will be consistent across Lime's operations in Canada: a \$1.15 unlocking fee to start the trip and then \$0.35 per minute. Daily and monthly passes will be available as well as discounted fares for people enrolled in any federal, provincial, or local subsidy program. The minimum age for users is 18 years old and the app can accommodate multiple rentals of up to four additional devices. Users without smartphones can text a dedicated phone number to access devices and those without credit cards can pay with PayPal or via a prepaid card.

In addition to English and French, Lime's customizable user application is also available in more than 20 languages, including Richmond's top languages of English, Mandarin, Cantonese, and Tagalog. The application automatically adjusts to the language of the user's phone. Lime's 24/7 customer service is available in 39 languages through phone, text, email, social media, and website. Lime reports that the majority of customer issues are responded to within 15 minutes and all issues are addressed in no more than one hour.

Lime or the rider can choose "Training Mode," which allows the rider to reduce their maximum speed to 11 km/h while they become more confident riders. Lime has implemented mandatory first ride Training Mode in Seattle and Rio de Janeiro, and staff recommend that it be implemented in Richmond, as studies have indicated that over one-third of e-scooter crashes happen on a first ride. As impaired riding is also a documented source of crashes, the app can discourage or prevent this behaviour by requiring riders to perform a cognitive task and see advisory messages before unlocking a vehicle between, for example, 10:00 pm and 5:00 am.

When COVID-19 protocols permit, Lime will offer in-person First Ride events, which are recurring, interactive hour-long safety sessions to educate riders on best practices to safely ride and properly park an e-scooter. Lime proposes to partner with local stakeholders to host these events around the city. Lime will offer also monthly First Ride training in partnership with HUB Cycling for users seeking a supervised first trip.

Promotion and Community Engagement

Lime will provide a multi-channel, multilingual marketing campaign during the pilot program. The company proposes to partner with local community groups to identify culturally-appropriate and effective ways of reaching ethnic populations, and business groups to deliver the service in a way that supports local business and reduces potential issues. Incentive partnerships to cross-promote local businesses and connections via Lime will include rider credits if they visit local business districts, discounts and/or special experiences at local businesses if they used Lime to get there, or if they parked correctly in a nearby parking corral. Lime also proposes to partner with Tourism Richmond to create a tourist-focused website that will include safety information and self-guided tours to destinations in Richmond.

Lime will work with TransLink to integrate the services through initiatives such as offering TransLink riders a free connection via Lime e-bike or e-scooter, integrating journey planning and fare payment, and offering a unified low-income pass.

Launch communications and media will include “how to” and key safety and regulatory guidance such as prohibition on riding on sidewalks, how to park, and potential repercussions for non-compliance. The launch will also be used as an opportunity to highlight Richmond regionally as a city where people should consider visiting to explore on an e-bike or e-scooter. Lime will use ride discounts and incentive programs to both increase ridership while simultaneously supporting other community priorities, such as tourism, transit ridership, sustainability and safety. Lime will leverage sustainability-focused events such as Earth Day to provide free rides to new riders to discover the service as part of a pledge to reduce car use.

Monitoring and Performance Measurement

The City will be provided with regular reports to assist in understanding system use and meet provincial monitoring and reporting requirements including data such as:

- number of registered and active users,
- number of rides and devices being used,
- trip start and end points and the route used,
- trip distance and time,
- system usage by time of day and day of week,
- parking corral capacity and number of available devices,
- reported injuries by severity and conflict areas, and
- quarterly user surveys.

A set of key performance indicators will track and evaluate Lime’s overall performance. Staff will meet with Lime regularly to discuss and resolve any operational issues. Indicators include safety information or training offered, share of trips that would otherwise be a car or walking trip, customer service response times, and degree of user compliance with regulations. Lime will conduct quarterly customer surveys to assess user satisfaction.

Circular Economy

Lime anticipates that the e-scooters will have a lifespan of at least five years. As the devices are modular and every component replaceable, the devices typically are not decommissioned due to wear, tear, or standard usage. As vehicles reach the end of their lifespan, Lime states that nearly 100% landfill diversion is achieved with its end of life partners. Globally, Lime reports that more than 96% of the material is recycled.

A fleet management system optimizes field tasks to reduce vehicle kilometres travelled (VKT). The devices are charged with 100% renewable energy and Lime will use e-vans and a fleet of e-cargo bikes to collect, rebalance, and redeploy e-scooters in the more dense areas of the city.

Timeline

Should Council approve the staff recommendation, Lime anticipates being able to launch the system approximately four weeks after contract finalization and execution.

Financial Impact

None. Staff time and resources can be accommodated within existing departmental operating budgets.

Conclusion

The City's participation in the Province's Electric Kick Scooter Pilot Program will support mobility targets and GHG emission and carbon reduction goals consistent with the Official Community Plan and the Community Energy and Emission Plan 2020-2050 Directions. E-scooters and e-bikes can provide an additional travel option that support first/last mile connections to transit and help make it easier for people to leave their car at home more of the time.

Staff recommend that a shared e-scooter and e-bike system be permitted to operate in Richmond on selected roadways and off-street paved pathways as a pilot project with the shared system to be provided by Lime Technology, Inc. at no cost to the City. Overall, the pilot project provides an opportunity for the City and the Province to research, test and evaluate the safety and efficiency of e-scooters and e-bikes to support cleaner and more sustainable transportation. This proposed shared system will replace the City's public bike-share pilot project that ended in March 2020.

Based on staff's evaluation, Lime's proposal will provide the community and the City with the following benefits:

- provision, management, operation, and maintenance of a public e-scooter and e-bike share system at no cost to the City;
- an engaging, easy to use and affordable user model; and
- an adaptable and responsive operations plan.

Acceptance of Lime's proposal will enable the City to explore and evaluate the potential of a public e-scooter and e-bike share system to advance the objective of providing expanded travel choices in support of the City's mobility goals and targets in a cost-effective manner.



Joan Caravan
Transportation Planner
(604-276-4035)



Sonali Hingorani, P.Eng.
Transportation Engineer
(604-276-4049)

JC:jc

Att. 1: Initial Test Deployment Area

Att. 2: Expanded Deployment Areas

Att. 3: Proposed Parkade Locations and Typical Parking Corral Layout

Att. 4: Typical E-Scooter and E-Bike to be Deployed

Initial Test Deployment Area

Image 1.2 - Initial Test Area



Lime's initial test area (green) and recommended parking corrals (blue dots).

Expanded Deployment Areas

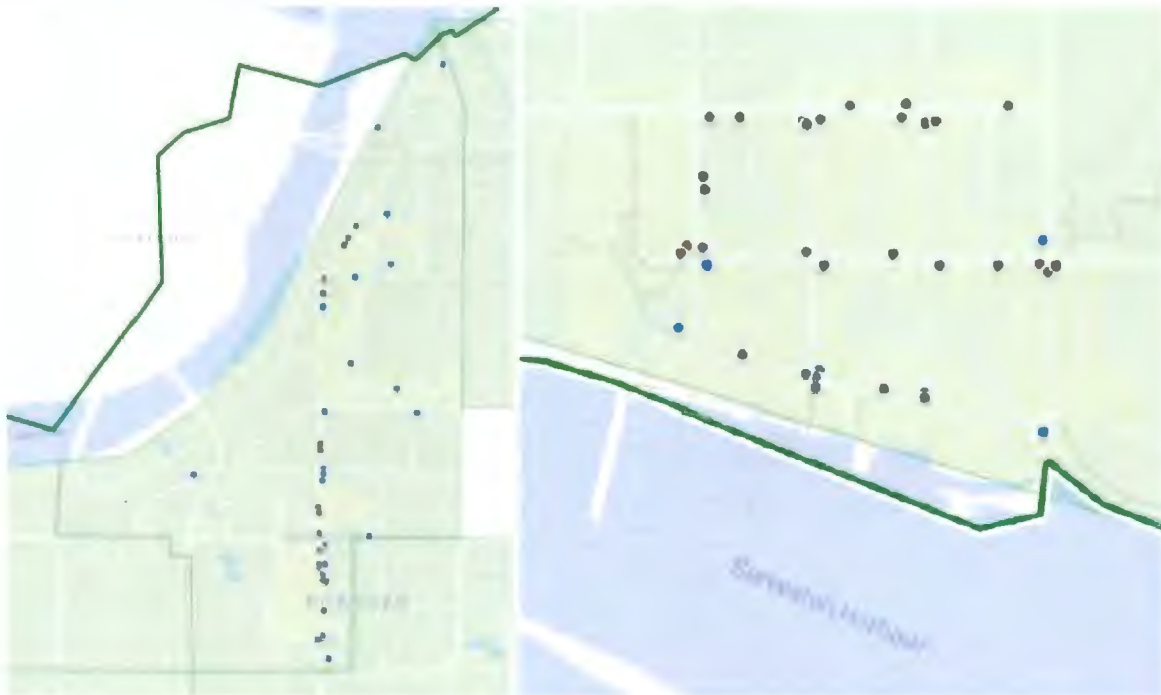
Image I.3 - Deployment Zones



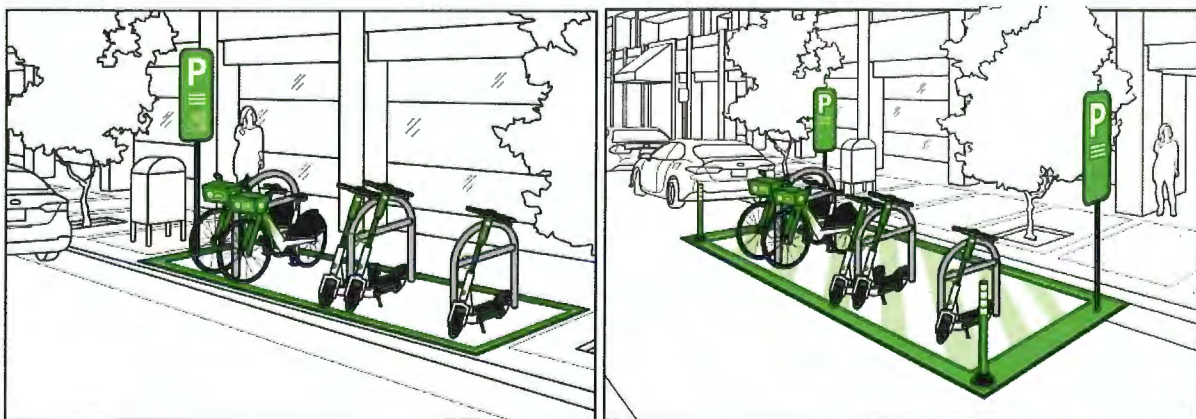
Lime's nine deployment zones ensure coverage of vehicles across Richmond.

Proposed Parkade Locations and Typical Parking Corral Layout

Image I.5 - Suggested Parkade Locations



Lime recommends 2 areas of designated parking corrals. The above maps illustrate both existing bike racks (grey dots) and suggested supplemental corrals (blue dots) which Lime will install.



Typical E-Scooter and E-bike to be Deployed

Designed from the ground up with safety, comfort and sustainability in mind

Lime Gen 4 Integrated E-Scooter

Gross weight: 23.7 kg
Dimensions: 116.4 cm L x 48.6 cm W x 120.5 cm H
Top speed: 24 km/h

Intuitive Handlebar and Display

Throttle, handbrake, warning bell and 7.1 cm digital color display showing vehicle speed and geofencing information, ensuring riders are informed without their phones in hand

Helmet Attachment

On Every Scooter

Wider Footboard

Lower center of gravity and wider footboard for increased rider stability and balance

Reflectors and Lights

Visible from 150 m

Wheels

25.4 cm solid tires tackle the toughest road conditions

Long-Range Battery

Lithium ion battery with 40 km range

Durable kickstand

Redesigned for increased vehicle stability when parked

On-Board Sensors

To detect tip overs and accurate geofencing

LimeLock

For securing vehicles to racks and approved images

Strong Aluminum Frame

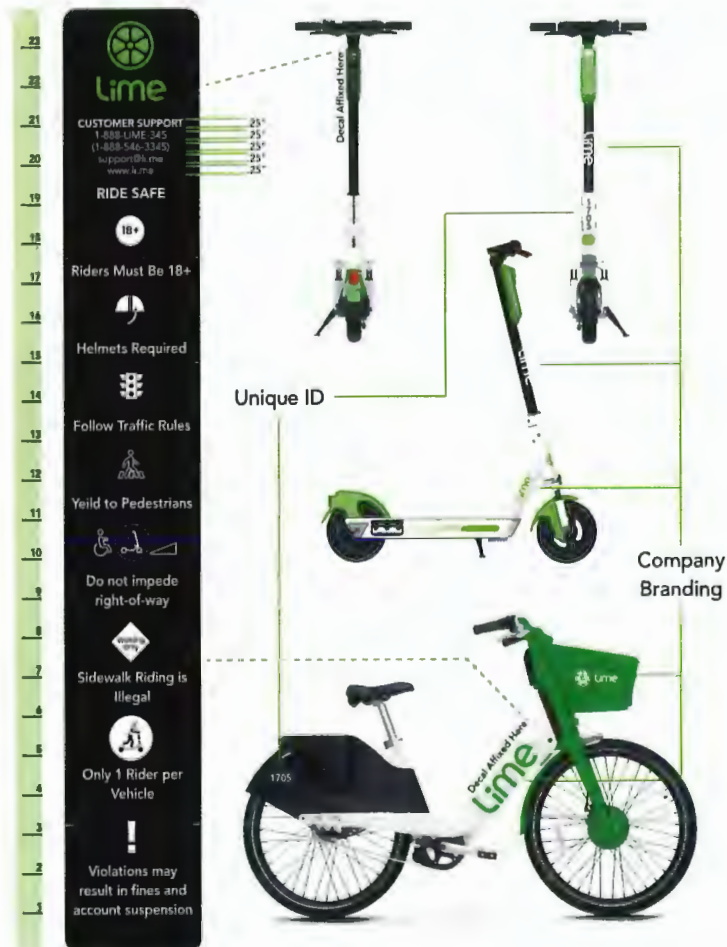
With IP67 waterproofing against rain or snow

Suspension

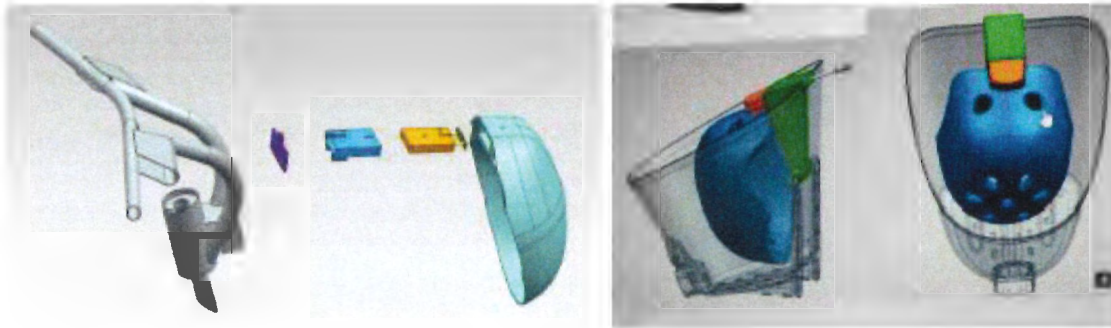
Mountain bike inspired front suspension for a more comfortable ride

Redundant Braking

Front mechanical drum brake, rear electric regenerative brake and step brake to ensure that riders can effectively stop the vehicle, even on steep slopes



Typical E-Scooter and E-bike to be Deployed



On-Device Helmet Mechanism



City of Richmond

Report to Committee

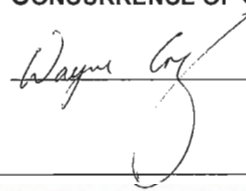

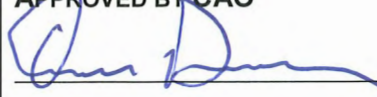
To: Public Works and Transportation Committee
From: Lloyd Bie, P.Eng.
Director, Transportation
Date: July 16, 2021
File: 01-0150-20-
THIG1/2021-Vol 01
Re: Applications to 2021/22 BC Active Transportation Infrastructure Grant Program

Staff Recommendation

1. That the submissions for cost-sharing to the 2021/22 BC Active Transportation Infrastructure Grant Program as described in the staff report titled "Applications to 2021/22 BC Active Transportation Infrastructure Grant Program" dated July 16, 2021, from the Director, Transportation be endorsed;
2. That, should the above application be successful, the Chief Administrative Officer and the General Manager, Planning and Development, be authorized on behalf of the City to execute the funding agreement; and
3. That the Consolidated 5 Year Financial Plan (2021-2025) be amended accordingly.

Lloyd Bie, P.Eng.
Director, Transportation
(604-276-4131)

Att. 2

REPORT CONCURRENCE		
ROUTED TO:	CONCURRENCE	CONCURRENCE OF GENERAL MANAGER
Parks Services	<input checked="" type="checkbox"/>	 Acting GM
Finance	<input checked="" type="checkbox"/>	
Engineering	<input checked="" type="checkbox"/>	
SENIOR STAFF REPORT REVIEW	INITIALS: 	APPROVED BY CAO 

Staff Report

Origin

The Province of BC's Active Transportation Infrastructure Grant Program (the Program) is a cost-share program between the Province and local governments to support the construction of new facilities to make it easier and safer for people to walk, ride or roll using active transportation modes. This report presents the proposed submissions from the City for consideration of cost-share funding under the Program for the 2021/22 funding cycle.

This report supports Council's Strategic Plan 2018-2022 Strategy #4 An Active and Thriving Richmond:

An active and thriving community characterized by diverse social and wellness programs, services and spaces that foster health and well-being for all.

4.2 Ensure infrastructure meets changing community needs, current trends and best practices.

This report supports Council's Strategic Plan 2018-2022 Strategy #5 Sound Financial Management:

Accountable, transparent, and responsible financial management that supports the needs of the community into the future.

5.4 Work cooperatively and respectfully with all levels of government and stakeholders while advocating for the best interests of Richmond.

This report supports Council's Strategic Plan 2018-2022 Strategy #6 Strategic and Well-Planned Growth:

Leadership in effective and sustainable growth that supports Richmond's physical and social needs.

6.3 Build on transportation and active mobility networks.

Analysis

BC Active Transportation Infrastructure Grant Program

The City is eligible for 50% cost-share funding up to a maximum of \$500,000 per project and is permitted to submit two applications. The two applications that staff are proposing for the Province's annual 2021/22 funding cycle meet the Province's eligibility requirements that include:

- City portion of funding secured
- Design completed or in progress
- Can be constructed within the required timeline of March 2024

Steveston Highway Multi-Use Pathway: Shell Road-No. 2 Road

This project comprises the construction of a two-way off-street paved 2.5-3.0 m wide shared pathway for pedestrians and cyclists on the south side of Steveston Highway between Shell Road and No. 2 Road (Attachment 1). Construction of the pathway will include 40% recycled asphalt. Phase 1 (Shell Road-Mortfield Gate) and Phase 2 (Mortfield Gate-No. 2 Road) are approved capital projects (2019 and 2020 Capital Budgets, respectively) with a combined total cost of \$8.0 million. The City has secured \$5.01 million in grant funding from TransLink with the City funding the balance of \$2.99 million. This application will seek a further \$500,000 in grant funding for the project.

No. 2 Road Multi-Use Pathway: Steveston Highway-Williams Road

This project includes the construction of a two-way off-street paved 2.5-3.0 m wide shared pathway for pedestrians and cyclists on the east side of No. 2 Road between Steveston Highway and Williams Road (Attachment 2). Construction of the pathway will include 40% recycled asphalt. The project will extend the existing shared pathway further north to connect to the existing bike lanes on Williams Road as well as connect to the planned Steveston Highway shared pathway thereby enhancing connectivity of the active transportation network in this area.

The project was approved as part of the 2021 Capital Budget and has a total estimated cost of \$2.4 million. The City has secured \$772,500 in grant funding from TransLink towards the project and will be applying again in fall 2021 as part of TransLink's 2022 cost-share funding cycle to accrue a minimum of 50% cost-share funding, subject to Council approval. This application will seek an additional \$500,000 in grant funding.

Proposed Funding

Table 1 below summarizes the estimated project cost, the internal funding sources and the requested external funding sources.

Table 1: Funding for Applications to
2021/2022 BC Active Transportation Infrastructure Grant Program

Project & Scope	City Portion & Funding Sources ⁽¹⁾	Secured TransLink Funding	Proposed Province of BC 2021/22 Funding ⁽²⁾	Est. Total Project Cost
Steveston Hwy (Shell Road-No. 2 Road): multi-use path	2019 Roads DCC Steveston Hwy Multi-Use Pathway: Shell Road-Mortfield Gate 2020 Roads DCC Steveston Hwy Multi-Use Pathway: Mortfield Gate-No. 2 Road \$2,490,000	\$5,010,000	\$500,000	\$8,000,000
No. 2 Road (Steveston Hwy-Williams Road): multi-use path	2021 Roads DCC No. 2 Road Multi-Use Pathway: Steveston Hwy-Williams Road \$1,127,500	\$772,500	\$500,000	\$2,400,000

(1) The City's actual portion (i.e., balance of remaining estimated cost after external grants) will be determined upon confirmation of the approved amounts to be received from external agencies.

(2) The amount shown represents the maximum funding contribution available in the grant process. The actual approved amount may be lower than requested. The actual invoiced amount follows project completion and is based on incurred costs.

Should the Program applications be successful, the City's funding will be reduced from \$2.99 million to \$2.49 million for the Steveston Highway project and from \$1,627,500 to \$1,127,500 for the No. 2 Road project. Any surplus funding would be returned to the Roads Development Cost Charge and be available for use in future capital projects. The City would also enter into a funding agreement with the Province that includes indemnity and release in favour of the Province. Staff recommend that the Chief Administrative Officer and General Manager, Planning and Development be authorized to execute the agreement on behalf of the City.

Financial Impact

Should the Program applications be successful, the City's cost will be reduced from \$2.99 million to \$2.49 million for the Steveston Highway multi-use pathway project and from \$1,627,500 to \$1,127,500 for the No. 2 Road multi-use pathway project.

Conclusion

The pedestrian and bicycle facility improvement projects proposed for submission to the 2021/22 BC Active Transportation Infrastructure Grant Program support numerous goals of the City to improve community mobility, reduce greenhouse gas emissions and increase physical activity by encouraging more walking, cycling and rolling trips rather than driving. The potential receipt of external funding will enable the City to enhance and expedite the provision of sustainable transportation infrastructure and improve healthy and active travel options for the community.



Joan Caravan
Transportation Planner
(604-276-4035)



Fred Lin, P.Eng., PTOE
Senior Transportation Engineer
(604-247-4627)

JC:jc

Att. 1: Steveston Highway Multi-Use Pathway (Shell Road-No. 2 Road)

Att. 2: No. 2 Road Multi-Use Pathway (Steveston Highway-Williams Road)

Steveston Highway Multi-Use Pathway: Shell Road-No. 2 Road



Steveston Highway (Shell Road-Mortfield Gate): Phase 1 - Multi-Use Pathway (MUP)



Steveston Highway (No. 2 Road-Mortfield Gate): Phase 2 - Multi-Use Pathway (MUP)

No. 2 Road Multi-Use Pathway: Steveston Highway-Williams Road





City of Richmond

Report to Committee

To: Public Works and Transportation Committee
From: Milton Chan, P.Eng
Director, Engineering
Date: August 20, 2021
File: 10-6050-01/2021-Vol
01
Re: Sanitary Sewer Repairs – 8000 Block Capstan Way

Staff Recommendation

That funding of \$800,000 from the Sanitary Sewer Reserve Fund for the sanitary sewer repairs in the 8000 Block of Capstan Way, be approved and that the Consolidated 5 Year Financial Plan (2021-2025) be amended accordingly.

Milton Chan, P.Eng
Director, Engineering
(604-276-4377)

REPORT CONCURRENCE		
ROUTED TO:	CONCURRENCE	CONCURRENCE OF GENERAL MANAGER
Finance Department	<input checked="" type="checkbox"/>	
Sewer & Drainage	<input checked="" type="checkbox"/>	
SENIOR STAFF REPORT REVIEW	INITIALS: 	APPROVED BY CAO

Staff Report

Origin

In May 2021, staff observed ground settlement in the westbound vehicle curb lane on Capstan Way just west of No. 3 Road. Investigation indicated that the settlement was due to a failing gravity sanitary sewer pipe.

The failed section of sanitary sewer was isolated and a temporary bypass system was installed by City forces to provide continuous sewer service to the surrounding properties. A new pipe has been installed that allows regular sewer service to resume.

Staff recommend that funding for the repairs be provided from the Sanitary Sewer Reserve Fund.

This report supports Council's Strategic Plan 2018-2022 Strategy #1 A Safe and Resilient City:

Enhance and protect the safety and well-being of Richmond.

1.2 Future-proof and maintain city infrastructure to keep the community safe.

Analysis

The City has a failed 350 millimeter diameter gravity sanitary sewer constructed around 1970 that is located under the road in Capstan Way and is approximately 5 metres below ground level.

City forces installed a temporary sanitary sewer bypass system to maintain sewer service to nearby properties. Repair of the sanitary sewer was initiated as there was a high risk of a blockage occurring in the bypass system and a high risk of further failures in the surrounding sanitary sewer system.

In accordance with the City's Procurement Policy (Policy 3104), a contractor was engaged for the repair work and procurement was excluded from normal purchasing practices under an unforeseeable urgent situation or emergency. An engineering consultant and a geotechnical consultant were retained to provide technical support and recommendations to minimise any further settlement and potential impacts to the surrounding area and nearby utilities.

The repair utilized trenchless technologies in order to restore regular sanitary service in a timely manner and to minimize the potential risk of settling and damage to the adjacent large diameter Metro Vancouver sanitary trunk sewers. While the repair was successful, the new pipe is smaller than the original due to the tight physical constraints of the work area. Staff will monitor and inspect the repair to determine its effectiveness and operational impact to the sanitary system. If a larger pipe is required, a Capital Submission will be prepared for Council's consideration as part of the Capital Budget process.

The repair work has been substantially completed and remaining works include final surface restoration and monitoring.

Financial Impact

The total estimated capital cost for the repair of the failed sanitary sewer in the 8000 Block of Capstan Way is \$800,000.

A temporary funding source has been utilized to fund the emergency repair until the Consolidated 5 Year Financial Plan (2021-2025) can be amended with this additional \$800,000 to be funded by the Sanitary Sewer Reserve Fund.

Conclusion

The sanitary sewer system in the 8000 Block Capstan Way failed and a new section of pipe was installed under an emergency situation. Staff are monitoring the effectiveness of the repair to assess if a future capital project is required for the upgrade and replacement of this section of sanitary sewer. Staff recommend that funding for the repair work be provided from the Sanitary Sewer Reserve Fund.



Eric Sparolin, P.Eng.
Manager, Engineering Design and Construction
(604-247-4915)

ES:es



City of Richmond

Report to Committee

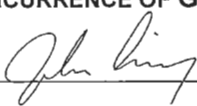


To: Public Works and Transportation Committee
From: Suzanne Bycraft
Interim Director, Public Works Operations
Date: August 19, 2021
File: 01-0340-03-01/2021-
Vol 01
Re: **Green Fleet Action Plan - 2020 Progress Report**

Staff Recommendation

1. That the staff report titled "Green Fleet Action Plan – 2020 Progress Report", dated August 19, 2021, from the Interim Director, Public Works Operations, be endorsed.
2. That the City join the West Coast Electric Fleets Diamond Lane pledge, thereby allowing application for additional funding opportunities from the Province of British Columbia's Go Electric Fleets program.

Suzanne Bycraft
Interim Director, Public Works Operations
(604-233-3338)

Att. 2

REPORT CONCURRENCE		
ROUTED TO: Sustainability & District Energy	CONCURRENCE <input checked="" type="checkbox"/>	CONCURRENCE OF GENERAL MANAGER 
SENIOR STAFF REPORT REVIEW	INITIALS: 	APPROVED BY CAO 

Staff Report

Origin

The City's 2013 Green Fleet Action Plan (GFAP) established a target to reduce greenhouse gas (GHG) emissions from the City's corporate fleet by 20% by 2020. The GFAP outlines 24 action steps in four broad categories of vehicle downsizing and right-sizing, best-in-class replacement, electric vehicle and hybrid vehicle procurement, and maintenance strategies including anti-idling and smart driving techniques. The reduction target of 20% is based on an annual reduction of 2% per year, using 2011 as the baseline year.

This report presents a progress report of actions and results to date; highlighting the City met and exceeded its target by achieving a 28% reduction in fleet GHG related emissions. This is despite an 11% growth in population during 2011-2020. The report provides highlights of the key actions taken to date, as well as outlines next steps to establish a new GHG fleet emissions reduction target.

This report supports Council's Strategic Plan 2018-2022 Strategy #2 A Sustainable and Environmentally Conscious City:

2.1 Continued leadership in addressing climate change and promoting circular economic principles.

2.2 Policies and practices support Richmond's sustainability goals.

Analysis

Background

Corporately, the GFAP is a component of the Corporate Energy and GHG Reduction Program identified in the City's Sustainability Framework. This framework addresses all greenhouse gas emissions and energy use from City operations. Fleet and building related emissions account for the vast majority of corporate GHG emissions, and the reduction of fossil fuel use aligns with broader community targets relating to greenhouse gas reduction, i.e. 33% by 2020 and 80% by 2050, below 2007 levels.

In addition to the GFAP, the City has shown progressive leadership through its Sustainable Green Fleet Policy (Policy 2020). This policy outlines commitments to overall best value vehicle replacement strategies, alternative fuels, high emission standards for equipment and idling reduction alternatives. These plan and policy commitments make the City a leader in its approach to overall corporate fleet management.

The dynamic nature of the City's fleet makes pursuing green technologies challenging given current market limitations on alternative fuel vehicles, particularly of the type needed to support operations. This is due to a large portion of the City's fleet being comprised of non-traditional units such as grass cutting equipment, street sweepers, snow plowing equipment, excavating equipment and trucks with specialized outfitting and supplemental power requirements to meet

operational demands. Reducing GHG emissions, therefore, requires a suite of approaches. The availability of electric vehicle options is expected to expand over time, particularly in light of the BC Zero-Emission Vehicles (ZEV) Act, which mandates automakers meet an escalating percentage of new light-duty ZEV sales and leases, reaching 10% of light-duty vehicle sales by 2025; 30% by 2030 and 100% by 2040. The government of Canada has also announced that it intends to mandate passenger and light duty vehicles sales be 100% ZEV's by 2035, which is an accelerated target from 2040 previously.

Progress on Key Actions

Fleet Size:

The City has reduced its core fleet assets by 2% since 2011, or from 470 units in 2011 to 459 units in 2020. The City also has a complement of non-fuelling assets such as trailers, which has increased from 102 assets in 2011 to 155 in 2020. The City experienced an 11% population growth during 2011 – 2020. Table 1 provides a summary of the City's fleet asset count in relation to its population over the same period.

Table 1 – Asset Count Corporate Fleet Fuelling & Non-Fuelling



Additionally, temporary rental of assets is applied as a practical option used to meet fleet demands over the short term for project-based work without unnecessarily increasing the size of the core fleet.

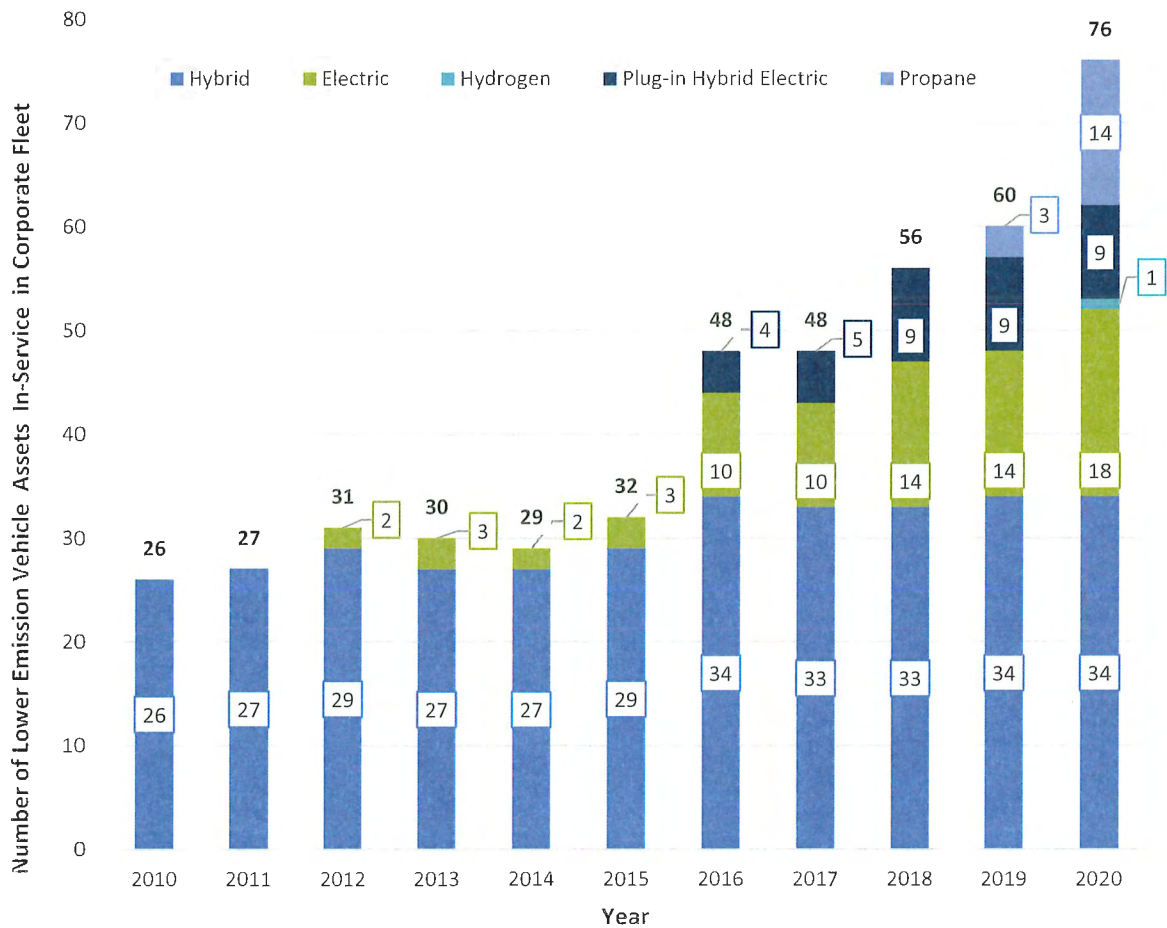
Vehicle Replacements:

At their November 28, 2016 meeting, Council approved a tiered approach to vehicle replacements, as follows:

1. Full electric vehicle
2. Electric vehicle with gasoline backup
3. Hybrid vehicle
4. Most fuel-efficient gasoline vehicle (where electric or hybrid units are not feasible)

Despite marketplace limitations for green technologies, for a large part of the City's fleet, the number of alternative fuel units in the fleet has grown considerably, or nearly triple that of 2010, as shown in Table 2.

Table 2 – Number of Lower Emissions Vehicle Assets



Staff note that the initial purchase cost of electric vehicles remains higher than their gasoline counterparts, however, the total cost of ownership over the vehicle lifecycle is comparable. Attachment 1 provides a lifecycle comparison of six fleet units with details of purchase price, fuel economy, costs and emissions profile data. Total cost of ownership for electric vehicles is expected to improve over time as these vehicles become more mainstream and cost-comparable in the vehicle market.

Alternative Fuels:

The City actively evaluates and pursues alternative fuel options where feasible pending development of the electric vehicle market and as part of fuel diversification:

- **Propane Pilot** - A propane pilot program was initiated in 2020, where fourteen high use light duty pick up trucks were outfitted with propane systems, running 90% on propane and 10% on gasoline. A propane filling station was also installed at the Works Yard. This initiative resulted in an average 12% reduction in GHG emissions per kilometre travelled, and saved an estimated 50 tonnes of CO₂e. Staff will continue to look for opportunities to expand the program for high use vehicles where the return on investment and savings in GHG are advantageous.
- **Hydrogen** – Supported by grant funding through the Clean BC Heavy-Duty Vehicle Efficiency Program, the City outfitted three heavy-duty diesel-fueled units with hydrogen fuel cell enhancements. The system works by converting distilled water to hydrogen. No currently observable improvements in fuel efficiency or a reduction in GHG emissions has been noted to date. Staff will, however, continue to evaluate hydrogen for broader application in the City's medium and heavy duty fleet in alignment with provincial and federal actions in this regard where there are demonstrated emissions and/or fuel efficiency gains.

In 2021, the City purchased its first Hydrogen Fuel Cell Vehicle, a 2020 Toyota Mirai. The vehicle fuel cell converts compressed liquid hydrogen to electricity to power the vehicle. The by-product is water or H₂O, therefore is zero emissions. The lack of fuelling infrastructure remains a barrier to expansion of hydrogen fuel options at this time.

- **Biodiesel** – diesel fuel purchased by the City contains 5% biodiesel content. While renewable fuels and compressed natural gas are also evaluated periodically, neither are being considered further at this time due to a lack of cost benefit and/or lack of alignment with circular economy principles. Instead, other emerging fuel technologies including electric and hydrogen are being evaluated.

Maintenance/Management Strategies:

The City incorporates a number of strategies to manage and maintain its fleet in an effective manner. Proper vehicle maintenance, fleet training/education programs and robust systems are used to track information as part of effective fleet management. Driving and optimum maintenance

practices have been shown to save up to 25%¹ of emissions. Example key programs, initiatives and systems currently in place and actively applied include:

- Vehicle asset management system
- Fleet training program
- Idle reduction and awareness programs (includes retrofits/anti-idling technology)
- Automatic vehicle location units (GPS) on 72 units
- Robust fuel management system (fuel security and consumption/idling data)
- Continuous improvement, including actively reviewing emerging technologies

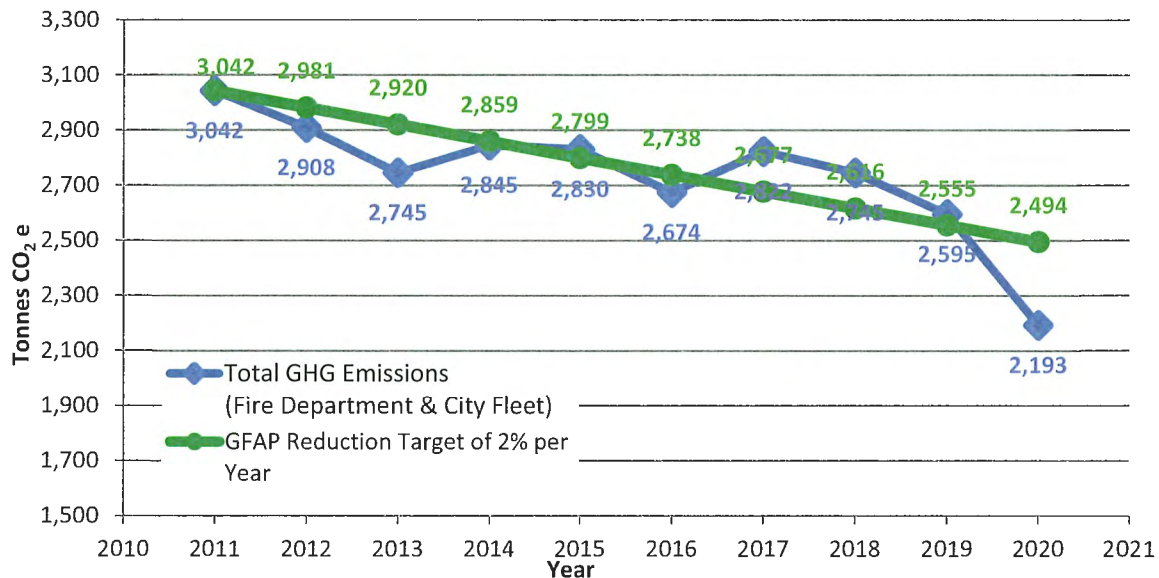
The City's progressive approach to management of its fleet and policy/plan commitments led to the City obtaining a platinum rating in 2016 from E3 Fleet (Energy, Environment and Excellence). This program, operated by the Fraser Basin Council, monitors and measures fleet efficiency against best practise criteria, including policy commitments. Richmond was the first City in Canada to achieve platinum rating, noting it as the "highest mark of achievement for fleet management in Canada".

Results to Date

These actions have led to the City meeting and exceeding its GHG emissions reduction target by achieving a 28% reduction in emissions as shown in Figure 2 below. Staff note that to achieve consistency in GHG inventories under the Climate Action Rebate Incentive Program, only maintenance-related emissions are considered.

The decline in emissions, particularly in the 2020 year, was likely impacted by COVID-19. While in some cases there was less driving of the corporate fleet due to staff working from home and attending meetings virtually, there were other circumstances leading to greater use of fleet assets, such as the launch of the community ambassador program and policies limiting staff to two people per vehicle. These impacts are not directly quantifiable, however, the overall outcome was a reduction in fuel consumption and emissions output from the City's Fleet.

¹Source: Natural Resources Canada Fuel Efficient Driving Techniques: <https://www.nrcan.gc.ca/energy-efficiency/transportation-alternative-fuels/personal-vehicles/fuel-efficient-driving-techniques/21038>

Figure 2: City of Richmond GHGs Percentage from 2011 Baseline Year

Funding Opportunities via BC Clean Energy Go Electric Program for EV Infrastructure

The City has invested in installing electric vehicle infrastructure for both the community and corporate fleet. The number of public and corporate charging ports has grown to 36 in 2020 (18 for each). A detailed list of the current and planned public and corporate stations is shown in Attachment 2.

Continued investment in both public and corporate charging infrastructure will be needed to meet future charging needs. The City will continue to take advantage of funding opportunities through provincial and federal grants, where feasible to increase the EV charging network overall. To date, the City has received funding commitments totalling \$860,000 from Natural Resources Canada (NRCan) to support public and corporate electric vehicle infrastructure installation projects.

To qualify for additional funding opportunities for zero emission vehicles and charging infrastructure, the BC Clean Energy Go Electric Program requires organizations to participate in the West Coast Electric Fleets pledge. There are four levels to this program:

1. On-Ramp (commitment to evaluate zero emission vehicles).
2. Highway (commitment to 3% zero emission vehicles annually).
3. Express Lane (commitment to 10% zero emission vehicles annually).
4. Diamond Lane (commitment to above 10% zero emissions vehicles annually).

Staff recommend adopting the Diamond Lane pledge, with the commitment to replace above 10% zero emission vehicles for all new corporate passenger fleet vehicle procurements. This is considered achievable with new ZEV's being introduced into the marketplace in the passenger vehicle category. In 2020, three passenger vehicles were replaced, with one ZEV unit (or 33%). In 2021, one of eight passenger fleet vehicle replacements will be ZEV (or 12.5%). This pledge can be revisited annually to consider a higher ZEV procurement goal and potential expansion

into other vehicle categories (e.g. light duty pickups) as the ZEV market expands. The pledge is non-binding but demonstrates the City's commitment to emissions reduction. Through this program, the City can continue to leverage further grant opportunities that are not available to those that do not take the pledge.

Next Steps

To align with the City's Community Energy and Emissions Plan, staff will begin work on preparing an updated GFAP to achieve the 2030 target of reducing emissions by 50% from 2007 levels. This will include continuation of existing green fleet actions (i.e. idle reduction strategies, fleet training program, expanding GPS on additional units, vehicle procurement strategies, alternative fuel vehicles, etc.) as well as new actions designed to help ensure the City remains a leader in overall greening of its corporate vehicle fleet.

Staff will report to Council for appropriate approvals on a new, proposed Green Fleet Action Plan once prepared.

Financial Impact

None

Conclusion

This report presents a progress report on the City's 2013 Green Fleet Action Plan, which set a target to reduce its corporate fleet greenhouse gas emissions by 20% by 2020. Through the implementation of numerous strategies outlined in the GFAP, the City achieved a 28% decrease in total fleet emissions. While COVID-19 impacts may have contributed to the more significant emissions reduction in 2020, the City's actions have nonetheless had a positive impact on fleet vehicle emissions reduction, leading to achieving and exceeding the City's 2020 target.

Installation of electric vehicle charging infrastructure, for both public and corporate vehicle charging, is underway and will continue in accordance with Council funding approvals, with funding opportunities pursued from senior levels of government, where available. To maximize the City's ability to apply for these funding opportunities, it is recommended that the City join the West Coast Electric Fleets Diamond Lane pledge. This is a non-binding commitment for the City to replace above 10% zero emission vehicles for all new corporate passenger fleet vehicle procurements annually.

Staff will begin work on an updated Green Fleet Action Plan with the goal of achieving the 2030 target of reducing emissions by 50% from 2007 levels in alignment with the City's Community Energy and Emissions Plan. This updated plan will be presented to Council for consideration and approvals upon completion.



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DR:dr

Att. 1: Gasoline vs. Electric Vehicle Total Cost of Ownership Comparison

Att. 2: Current and Planned Public and Corporate EV Charging Station Locations Owned and
Operated by the City

Gasoline vs. Electric Vehicle Total Cost of Ownership Comparison

	2002 Chevrolet Cavalier	2004 Dodge Neon	2008 Honda Civic Hybrid	2012 Chrysler 200	2018 Chevrolet Bolt BEV ¹	2018 Chevrolet Volt PHEV ¹
Purchase Price	\$17,647	\$18,094	\$27,296	\$19,529	\$44,919	\$37,559
Actual Fuel Economy	11.05 L/ 100 km	11.85 L/ 100 km	8.17 L/ 100 km	11.44 L/ 100 km	20.1 kWh/ 100 km	1.71 L/ 100 km
Fuel/Energy Used Per Year based on 15,000 km Driven	1,675.5 L	1,777.5 L	1,225.5 L	1,716 L	3,015 kWh	256 L
GHG Emissions/Year	4.77 T CO ₂ e	5.06 T CO ₂ e	3.49 T CO ₂ e	4.88 T CO ₂ e	0.0901 T CO ₂ e	0.73 T CO ₂ e
GHG Emissions for 10 Years	47.73 T CO ₂ e	50.63 T CO ₂ e	34.91 T CO ₂ e	48.88 T CO ₂ e	0.901 T CO ₂ e	7.3 T CO ₂ e
Fuel Cost²	\$21,548	\$23,108	\$19,463	\$22,308	\$3,015	\$3,334
Cost of Maintenance for 10 Years	\$15,031	\$16,638	\$15,931	\$16,150	\$7,492	\$13,456
Total Cost of Ownership for 10 Years	\$54,226	\$57,840	\$62,690	\$58,078	\$55,426	\$51,015

¹Cost net of \$5,000 rebate from the BC Clean Energy Vehicles (CEV) Point of Sale Incentive Program

²Cost of Fuel/Electricity for 10 years based on \$1.30/L for gasoline and \$0.10/kWh for electricity

Current and Planned Public and Corporate EV Charging Station Locations Owned and Operated by the City

Public Stations:

Station Location	Address	No. of Ports (Parking Stalls)	Type of Station	
			Level 2	Level 3
Existing Public EV Charging Stations				
City Hall	6911 No. 3 Rd	2	✓	
City Works Yard	5599 Lynas Ln	2	✓	
Firehall 1	6960 Gilbert Rd	2	✓	
Firehall 3	9660 Cambie Rd	2	✓	
Thompson Community Centre	5151 Granville Ave	2	✓	
Steveston Community Centre	4111 Moncton St	2	✓	
Cambie Community Centre	12800 Cambie Rd	2	✓	
Minoru Centre for Active Living	7191 Granville Ave	4	✓	
SUBTOTAL		18		
Planned Public EV Charging Stations				
City Hall	6911 No. 3 Rd	1		✓
City Hall	6911 No. 3 Rd	2	✓	
Richmond Oval	6111 River Rd	1		✓
Richmond Oval	6111 River Rd	2	✓	
King George Park	4100 No. 5 Rd	1		✓
King George Park	4100 No. 5 Rd	2	✓	
Richmond Ice Centre	14140 Triangle Rd	1		✓
Richmond Ice Centre	14140 Triangle Rd	2	✓	
Steveston Tennis Courts	4151 Chatham St	2	✓	
West Richmond Community Centre	9180 No. 1 Rd	4	✓	
Britannia Heritage Ship Yards	5180 Westwater Dr	2	✓	
Garden City Park	6620 Garden City Rd	2	✓	
Minoru Park (Arenas)	7551 Minoru Gate	4	✓	
South Arm Community Centre	8880 Williams Rd	2	✓	
Blundell Park	6468 Blundell Rd	2	✓	
Hamilton Community Centre	5140 Smith Dr	2	✓	
RCMP City Centre Community Police Office	6931 Granville Ave	2	✓	
SUBTOTAL		34		
TOTAL CURRENT & PLANNED		52		

Corporate Stations:

Station Location	Address	No. of Ports (Parking Stalls)	Type of Station	
			Level 2	Level 3
Existing Corporate EV Charging Stations				
City Hall	6911 No. 3 Rd	2	✓	
City Works Yard	5599 Lynas Ln	6	✓	
City Hall Annex	6900 Minoru Blvd	8	✓	
RCMP Headquarters	11411 No. 5 Rd	2	✓	
SUBTOTAL		18		
Planned Corporate EV Charging Stations				
City Hall	6911 No. 3 Rd	1		✓
City Works Yard	5599 Lynas Ln	2		✓
City Works Yard	5599 Lynas Ln	20	✓	
City Hall Annex	6900 Minoru Blvd	22	✓	
Firehall 1	6960 Gilbert Rd	2	✓	
Firehall 2	11011 No. 2 Rd	4	✓	
Firehall 3	9660 Cambie Rd	4	✓	
RCMP Headquarters	11411 No. 5 Rd	2	✓	
RCMP City Centre Community Police Office	6931 Granville Ave	2	✓	
SUBTOTAL		59		
TOTAL CURRENT & PLANNED		77		