City of Richmond

# Agenda

## Public Works and Transportation Committee

**Anderson Room, City Hall**
**6911 No. 3 Road**

**Wednesday, November 23, 2016**
**4:00 p.m.**

Pg. # ITEM

### MINUTES

**PWT-5** ***Motion to adopt the minutes of the meeting of the Public Works and Transportation Committee held on October 19, 2016.***

### NEXT COMMITTEE MEETING DATE

December 21, 2016, (tentative date) at 4:00 p.m. in the Anderson Room.

### DELEGATIONS

1. Erich Harvey, cycling coach and local resident, to speak on cycling safety.

### PLANNING AND DEVELOPMENT DIVISION

2. **PROVINCIAL 2017/18 BIKEBC PROGRAM SUBMISSION**
(File Ref. No. 01-0150-20-THIG1) (REDMS No. 5200523)

**PWT-11** See Page **PWT-11** for full report

***Designated Speaker: Victor Wei***

STAFF RECOMMENDATION

***(1) That the submission for cost-sharing to the Province's 2017/2018 BikeBC Program for the River Drive multi-use pathway, as described in the report, titled "Provincial 2017/2018 BikeBC Program Submission" dated October 21, 2016, from the Director, Transportation, be endorsed; and***

***(2) That, should the above application be successful and the project receive Council's approval via the annual capital budget process, the Chief Administrative Officer and the General Manager, Planning and Development, be authorized to execute the funding agreement and that the 2017 Capital Plan and the 5-Year Financial Plan (2017-2021) be updated accordingly.***

3. **TRANSLINK DRAFT REGIONAL GOODS MOVEMENT STRATEGY**
(File Ref. No. 01-0154-04) (REDMS No. 5201462 v. 3)

**PWT-17**

See Page **PWT-17** for full report

***Designated Speaker: Victor Wei***

STAFF RECOMMENDATION

***(1) That TransLink be advised that the City supports the draft Regional Goods Movement Strategy in principle, subject to continued dialogue with the City on key items as described in the staff report, titled "TransLink Draft Regional Goods Movement Strategy" dated October 26, 2016, from the Director, Transportation, to ensure that urban freight movement and associated economic benefits are enhanced without diminishing the City's authority over local roadways or resulting in negative impacts to the community;***

***(2) That the City continue to work with TransLink and relevant stakeholders to finalize the draft Regional Goods Movement Strategy; and***

***(3) That staff be directed to report back on the detailed action plans when completed.***

## ENGINEERING AND PUBLIC WORKS DIVISION

4. **HORSESHOE SLOUGH PUMP STATION**
(File Ref. No. 10-6340-20-P.15305) (REDMS No. 5209602)

**PWT-26** See Page **PWT-26** for full report

***Designated Speaker: Peter Brennert***

STAFF RECOMMENDATION

***That the design concept for the Horseshoe Slough Drainage Pump Station Upgrade as detailed in Attachment 1 of the staff report titled, "Horseshoe Slough Pump Station," be approved.***

5. **ELECTRIC VEHICLE FLEET AND CHARGING STATION INFRASTRUCTURE**
(File Ref. No. 02-0780-01) (REDMS No. 5201896 v. 5)

**PWT-31** See Page **PWT-31** for full report

***Designated Speaker: Suzanne Bycraft***

STAFF RECOMMENDATION

***(1) That the tiered approach and key considerations for acquiring electric vehicles within the City's vehicle fleet, as outlined in the staff report titled "Electric Vehicle Fleet and Charging Station Infrastructure," dated October 22, 2016 from the Director, Public Works Operations, be endorsed; and***

***(2) That staff report back regarding the potential installation of community Level 3 charge stations, including an energy cost recovery approach, as part of advancing greenhouse gas emissions under the City's Community Energy and Emissions Plan.***

6. **UPDATE ON 2016/2017 SNOW AND ICE RESPONSE PREPARATIONS**
(File Ref. No. <#> ) (REDMS No. 5195272 v. 2)

**PWT-42** See Page **PWT-42** for full report

***Designated Speaker: Ben Dias***

STAFF RECOMMENDATION

***That the staff report titled "Update on 2016/2017 Snow and Ice Response Preparations," dated October 20, 2016, from the Director, Public Works Operations be received for information.***

7. **MANAGER'S REPORT**

ADJOURNMENT

City of Richmond

Minutes

# Public Works and Transportation Committee

| | |
|---|---|
| Date: | Wednesday, October 19, 2016 |
| Place: | Anderson Room<br>Richmond City Hall |
| Present: | Councillor Chak Au, Chair<br>Councillor Derek Dang<br>Councillor Ken Johnston<br>Councillor Alexa Loo |
| Absent: | Councillor Harold Steves |
| Also Present: | Councillor Carol Day (entered at 4:07 p.m.) |
| Call to Order: | The Chair called the meeting to order at 4:01 p.m. |

## MINUTES

It was moved and seconded
***That the minutes of the meeting of the Public Works and Transportation Committee held on September 21, 2016, be adopted as circulated.***

**CARRIED**

## AGENDA ADDITION

It was moved and seconded
***That "Light Rail Transit in Shenyang City (China)" be added to the agenda as Item No. 7.***

**CARRIED**

1. **LETTER OF SUPPORT FOR TRACKING VEHICLE KILOMETRES TRAVELLED DATA**
(File Ref. No. 10-6125-07-02) (REDMS No. 5178451 v. 7)

It was moved and seconded
***That a letter be sent to the BC Minister of Transportation and Infrastructure indicating the City's support for the collection of annual vehicle kilometres travelled data by the Insurance Corporation of British Columbia as identified in the report titled "Letter of Support for Tracking Vehicle Kilometres Travelled Data" from the Director, Engineering, dated September 26, 2016.***

**CARRIED**

2. **2017 PAVING PROGRAM**
(File Ref. No. 10-6000-01) (REDMS No. 5175476)

In reply to questions, Milton Chan, Manager, Engineering Design and Construction, noted that the primary paving locations are comprised of areas with the greatest needs for improvement and were compiled after looking at the amount of funding received for the project. Projects can be moved from the secondary list onto the primary list should they fit the criteria in the future.

It was moved and seconded
***That the staff report titled, "2017 Paving Program," dated September 22, 2016, from the Director, Engineering be received for information.***

**CARRIED**

3. **OVAL VILLAGE DISTRICT ENERGY UTILITY BYLAW NO. 9134, AMENDMENT BYLAW NO. 9622**
(File Ref. No. 10-6125-01) (REDMS No. 5166661 v. 4)

It was moved and seconded
***That the Oval Village District Energy Utility Bylaw No. 9134, Amendment Bylaw No. 9622 be introduced and given first, second and third readings.***

**CARRIED**

4. **ALEXANDRA DISTRICT ENERGY UTILITY BYLAW NO. 8641, AMENDMENT BYLAW NO. 9617**
(File Ref. No. 10-6600-10-02) (REDMS No. 5167819 v. 7)

It was moved and seconded
***That the Alexandra District Energy Utility Bylaw No. 8641, Amendment Bylaw No. 9617 be introduced and given first, second and third readings.***

**CARRIED**

5. **2016 SUBMISSION TO THE NATIONAL DISASTER MITIGATION PROGRAM: STEVESTON ISLAND FLOOD MITIGATION PLANNING PROJECT AND THE FLOOD MITIGATION STRATEGY UPDATE**
(File Ref. No. 10-6060-01) (REDMS No. 5183569)

It was moved and seconded

*(1) That the submission to the National Disaster Mitigation Program requesting funding for up to 100 % of the $2,120,000 cost for Steveston Island Flood Mitigation Planning Project and the Flood Mitigation Strategy Update be endorsed;*

*(2) That the Chief Administrative Officer and the General Manager of Engineering and Public Works be authorized to enter into funding agreements with the Government of Canada and/or the Province of BC for the above mentioned projects should they be approved for funding by the Government of Canada; and*

*(3) That, should the above mentioned projects be approved for funding by the Government of Canada, the 2017 Capital Plan and the 5-Year Financial Plan (2017-2021) be updated accordingly.*

**CARRIED**

## PLANNING AND DEVELOPMENT DIVISION

*Cllr. Day entered the meeting (4:07 p.m.).*

6. **PROPOSED AMENDMENTS TO TRAFFIC BYLAW NO. 5870**
(File Ref. No. 10-6450-00; 12-6450-01; ) (REDMS No. 4977064 v. 5; 4986963 v. 10 )

In reply to queries, Victor Wei, Director, Transportation, confirmed that jaywalking, prior to the proposed amendment, was not being monitored by the City.

It was moved and seconded

*(1) That Traffic Bylaw No. 5870, Amendment Bylaw No. 9539 be introduced and given first, second and third reading;*

*(2) That Municipal Ticket Information Authorization Bylaw No.7321, Amendment Bylaw No. 9550 be introduced and given first, second and third reading; and*

*(3) That Notice of Bylaw Violation Dispute Adjudication Bylaw No.8122, Amendment Bylaw No.9554 be introduced and given first, second and third reading.*

**CARRIED**

7. **LIGHT RAIL TRANSIT IN SHENYANG CITY (CHINA)**

Councillor Au passed out a handout, attached to and forming part of the minutes as Schedule 1, containing pictures of the Light Rail Transit (LRT) system in Shenyang City which was built in 2013, with an average speed running of 20-30 km. Victor Wei, noted that the addition of LRT is useful in utilizing any road not being walked, driven, and cycled on.

In reply to questions from the Committee, Mr. Wei explained that the proposal of a LRT line along any particular area in Richmond would (i) involve reconsideration of the current land use plan, (ii) need to meet a certain population density in order to be cost effective, and (iii) requires a tremendous amount of input from the community.

8. **MANAGER'S REPORT**

***(i) Fall Storm Safety***

Tom Stewart, Director, Public Works Operations, discussed the multiple storms from the prior weekend while noting the effects of these storms on local trails, the sanitary drainage stations, and local trees. Mr. Stewart recognized the timely response from the Public Works Team at the City Hall Works Yard and comments were made by the Committee expressing gratitude with the work completed by staff.

## ADJOURNMENT

It was moved and seconded
***That the meeting adjourn (4:20 p.m.).***

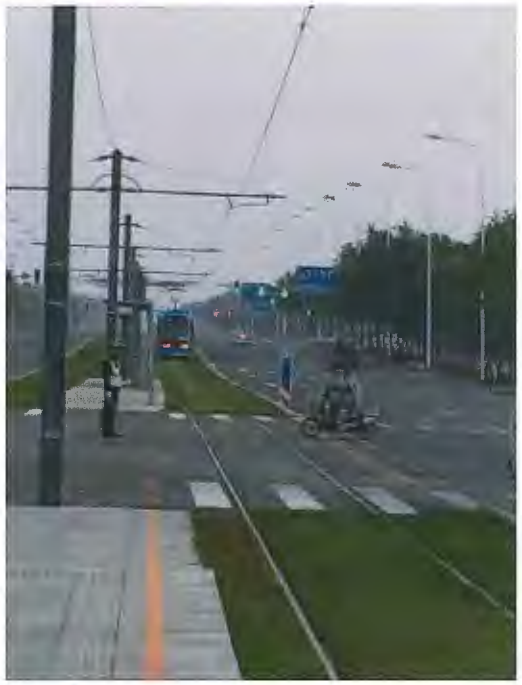
**CARRIED**

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 Wednesday, October 19, 2016.

Councillor Chak Au
Chair

Shaun Divecha
Legislative Services Coordinator

# LRT in Shenyang City, China



**PWT - 10**

City of Richmond

# Report to Committee

| | | | |
|---|---|---|---|
| **To:** | Public Works and Transportation Committee | **Date:** | October 21, 2016 |
| **From:** | Victor Wei, P. Eng.<br>Director, Transportation | **File:** | 01-0150-20-<br>THIG1/2016-Vol 01 |
| **Re:** | **Provincial 2017/2018 BikeBC Program Submission** | | |

## Staff Recommendation

1. That the submission for cost-sharing to the Province's 2017/2018 BikeBC Program for the River Drive multi-use pathway, as described in the report, titled "Provincial 2017/2018 BikeBC Program Submission" dated October 21, 2016, from the Director, Transportation, be endorsed; and

2. That, should the above application be successful and the project receive Council's approval via the annual capital budget process, the Chief Administrative Officer and the General Manager, Planning and Development, be authorized to execute the funding agreement and that the 2017 Capital Plan and the 5-Year Financial Plan (2017-2021) be updated accordingly.

Victor Wei, P. Eng.
Director, Transportation
(604-276-4131)

Att. 2

| REPORT CONCURRENCE | | |
|---|---|---|
| **ROUTED TO:** | **CONCURRENCE** | **CONCURRENCE OF GENERAL MANAGER** |
| Finance<br>Parks<br>Engineering | ☑<br>☑<br>☑ | for Joe Erceg |
| **REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE** | **INITIALS:** DW | **APPROVED BY CAO** for Joe Erceg |

## Staff Report

### Origin

The Province of BC's BikeBC Program is a 50-50 cost-share program between the Province and local governments to support the construction of new bike lanes, trails and pathways to promote cycling as a means of reducing traffic congestion and greenhouse gas emissions. As part of the Government of B.C.'s 10-year transportation plan (B.C. on the Move) released in March 2015, the Ministry of Transportation and Infrastructure (the Ministry) committed $6 million annually in BikeBC funding for a three-year (2015/2016-2017/2018) period. In September 2016, the Ministry announced an additional $2 million in BikeBC funding for 2017/2018 for a total of $8 million.

This report presents the proposed submission from the City for consideration of cost-share funding under BikeBC program for the 2017/2018 funding cycle.

This report supports Council's 2014-2018 Term Goal #3 A Well-Planned Community:

*3.3. Effective transportation and mobility networks.*

This report supports Council's 2014-2018 Term Goal #5 Partnerships and Collaboration:

*5.2. Strengthened strategic partnerships that help advance City priorities.*

### Analysis

River Drive Multi-Use Pathway (No. 4 Road-Van Horne Way)

River Drive in this section is a narrow (6.0 m wide) two-lane roadway with gravel shoulders and an open watercourse on both sides. There are currently no pedestrian facilities on this section of River Drive, however, pedestrian and cycling facilities exist at either end of this section. The roadway also carries relatively higher volumes of truck traffic due to the adjacent industrial land uses. The City has received requests from residents of the Tait neighbourhood for a pedestrian connection to the Bridgeport Canada Line Station.

The project would comprise construction of a two-way paved 3.0 m wide asphalt pathway for pedestrians and cyclists on the south side of River Drive between No. 4 Road and Van Horne Way including pedestrian lighting (Attachments 1 and 2). The project would address a gap and provide an improved pedestrian connection plus enhance access to the Canada Line Bridge for cyclists.

The City previously submitted this same project for cost-share consideration as part of the previous BikeBC 2016/2017 funding cycle. While that the submission was not successful, Ministry staff subsequently advised that the project remains worthy and encouraged its re-submission for the current BikeBC 2017/2018 funding cycle with further description such as how the project is aligned with the mobility and wellness goals of the City's Official Community Plan and the project's potential to increase cycle tourism given its proximity to the Canada Line Bridge, the Bridgeport Canada Line Station and the Bridgeport transit exchange.

In September 2016, Council approved the submission of the River Drive multi-use pathway for submission to TransLink for consideration of cost-share funding as part of its 2017 Bicycle Infrastructure Capital Cost-Sharing (BICCS) Regional Needs Program. That application was the second of a two-year accrual process over the 2016 and 2017 periods with up to $250,000 being requested each year towards the project. The total cost of this project is currently estimated at $1,344,000.

TransLink has confirmed funding of $171,500 under the 2016 BICCS Regional Needs Program but has not yet confirmed the funding the City may receive under the 2017 Program, which may be less than $250,000. The project will proceed in 2017 only if the City is successful in securing at least a further $484,000 combined external cost-share funding from both of the current applications to TransLink and BikeBC; otherwise, the project will be deferred to 2018 for further consideration.

Requested External Funding and Estimated Project Costs

Table 1 below summarizes the estimated project cost, the proposed internal funding sources and the requested external funding sources. Should the submission be successful, the City would enter into a funding agreement with the Province. The agreement is a standard form agreement provided by the Province and includes an 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.

Table 1: Project to be Submitted to 2017/2018 BikeBC Program

| Project Name/Scope | Proposed City's Portion & Funding Source for 2017[1] | TransLink Funding | Proposed BikeBC 2017/2018 Funding[2] | Estimated Total Project Cost |
|---|---|---|---|---|
| River Drive (No. 4 Road-Van Horne Way): new multi-use pathway on south side including pedestrian lighting | Roads DCC: $688,500 | 2016: $171,500 (Confirmed)<br>2017: $250,000 (Proposed) | $586,250 | $1,344,000 |

(1) The City's portion shown is based on available Roads DCC funding over the next five years, confirmed funding from TransLink ($171,500) and at least $484,000 to be secured from combined current external cost-share applications. 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 50% funding contribution to be received from the external agency based on the City's cost estimate for the project less the confirmed 2016 funding from TransLink ($171,500). The actual approved amount may be lower than requested. The actual invoiced amount follows project completion and is based on incurred costs.

## Financial Impact

Should this 2017/2018 BikeBC application be successful, the TransLink funding amount for 2017 would be reduced accordingly as TransLink cost-share funding guidelines require the deduction of any senior government funding with the balance then cost-shared between the City and TransLink on a 50-50 basis. Thus, based on successful cost-share applications to both the 2017/2018 BikeBC program and TransLink, the proposed cost to the City for the multi-use pathway on River Drive is anticipated to be $378,875 (i.e., $1,344,000 total cost less $586,250 from BikeBC less two-year accrual of up to $378,875 from TransLink), which will be considered during the 2017 capital budget process. The project would have an operating budget impact that

would be incorporated as part of the annual budget process.

**Conclusion**

The pedestrian and bicycle facility improvement project proposed for submission to the provincial 2017/2018 BikeBC cost-sharing program would support the goals of the Official Community Plan to improve community mobility and reduce greenhouse gas emissions by encouraging more cycling trips rather than driving. The potential receipt of external funding would enable the City to expedite the provision of sustainable transportation infrastructure and improve healthy and active travel options for the community.

Joan Caravan
Transportation Planner
(604-276-4035)

Att. 1: Proposed River Drive Multi-Use Pathway: Context Map
Att. 2: Proposed River Drive Multi-Use Pathway

## Proposed River Drive Multi-Use Pathway: Context Map

Proposed River Drive Multi-Use Pathway

Before: Existing River Drive looking west (west of No. 4 Road)

Conceptual Rendering of Pathway: River Dr looking west (west of No. 4 Road)

City of Richmond

# Report to Committee

| | | | |
|---|---|---|---|
| **To:** | Public Works and Transportation Committee | **Date:** | October 26, 2016 |
| **From:** | Victor Wei, P. Eng.<br>Director, Transportation | **File:** | 01-0154-04/2016-Vol 01 |
| **Re:** | **TransLink Draft Regional Goods Movement Strategy** | | |

## Staff Recommendation

1. That TransLink be advised that the City supports the draft Regional Goods Movement Strategy in principle, subject to continued dialogue with the City on key items as described in the staff report, titled "TransLink Draft Regional Goods Movement Strategy" dated October 26, 2016, from the Director, Transportation, to ensure that urban freight movement and associated economic benefits are enhanced without diminishing the City's authority over local roadways or resulting in negative impacts to the community;

2. That the City continue to work with TransLink and relevant stakeholders to finalize the draft Regional Goods Movement Strategy; and

3. That staff be directed to report back on the detailed action plans when completed.

Victor Wei, P. Eng.
Director, Transportation
(604-276-4131)

Att. 2

| REPORT CONCURRENCE | | |
|---|---|---|
| **ROUTED TO:** | **CONCURRENCE** | **CONCURRENCE OF GENERAL MANAGER** |
| Economic Development<br>Engineering<br>Policy Planning | ☑<br>☑<br>☑ | |
| **REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE** | **INITIALS:** DW | **APPROVED BY CAO** for |

## Staff Report

### Origin

Following approval in July 2013 by the Mayors' Council and TransLink Board of the *Regional Transportation Strategy: Strategic Framework*, which constitutes the long-term (30-year) plan for the regional transportation system, TransLink initiated work in November 2013 on the development of a Regional Goods Movement Strategy (the Strategy) as part of the Implementation Plan for the Strategic Framework. The Strategy is one of several modal or thematic strategies nested below the Strategic Framework and intended to provide more focused strategies and actions on a particular subject. This report provides an overview of the draft Strategy and its potential interface with the City.

This report supports Council's 2014-2018 Term Goal #3 A Well-Planned Community:

> *Effective transportation and mobility networks.*

This report supports Council's 2014-2018 Term Goal #5 Partnerships and Collaboration:

> *Continue development and utilization of collaborative approaches and partnerships with intergovernmental and other agencies to help meet the needs of the Richmond community.*

This report supports Council's 2014-2018 Term Goal #8 Supportive Economic Development Environment:

> *Review, develop and implement plans, policies, programs and practices to increase business and visitor appeal and promote local economic growth and resiliency.*

### Analysis

Development of Draft Regional Goods Movement Strategy

TransLink's mandate is to provide a regional transportation system to move people and goods. In the years since TransLink was created in 1999, much attention has been given to personal and passenger travel with relatively inadequate attention given to goods movement. The development of the Strategy grew out of the recognized need for a coherent and collaborative multi-agency regional strategy to improve urban freight movement that primarily uses regional and local roadways as distinct from Gateway-oriented freight that is focused on trips to/from port facilities. The document is meant to provide a regional framework for action for all partners with TransLink playing a co-ordination/facilitation role.

TransLink engaged with local governments, including the City, and stakeholders[1] during the development of the draft Strategy. TransLink produced a Goods Movement Strategy Discussion Guide in November 2013 to guide engagement with stakeholders and government partners in

[1] Stakeholders included Metro Vancouver, Ministry of Transportation & Infrastructure, Transport Canada, Port of Vancouver, Vancouver Airport Authority, ICBC, BC Trucking Association, Greater Vancouver Gateway Council, Vancouver Board of Trade, Surrey Board of Trade, Vancouver Transportation Club, and Western Transportation Advisory Council.

preparing a policy framework for the region's goods movement system and to present a set of strategies for potential implementation by TransLink and others. Staff provided feedback on the high level policy directions and strategies identified around the three Strategic Framework themes of invest, manage and partner.

The first draft of the Strategy was produced in January 2015 and staff again provided input on the document that outlined the current state and challenges, identified a vision, goals and targets, and proposed strategies and actions to achieve the vision. The second (and current) draft Strategy was produced in June 2016 for further consultation and is available on the TransLink website.[2]

Highlights of the Draft Regional Goods Movement Strategy

The draft Strategy focuses largely on the roadway network as the region's railway, marine and air transport systems are not within TransLink's regulatory oversight. Within this context, the challenges for goods movement in the region have been distilled into four key issues for, respectively, the private sector and local communities (Table 1).

Table 1: Key Challenges for Regional Goods Movement

| | Key Challenges for Private Sector | | Key Challenges for Local Communities |
|---|---|---|---|
| 1 | Lack of incentives and options for passenger car drivers to reduce their vehicle use leading to roadway congestion and reduced travel time reliability | 1 | Competition for scarce space on the roads and at the curbside |
| 2 | A lack of co-ordination and consistency in regulations between jurisdictions | 2 | Safety and perceptions of safety |
| 3 | Limited availability of accessible industrial land | 3 | Vibrations and noise, especially adjacent to residential areas |
| 4 | A lack of public awareness of the value of goods movement | 4 | Emissions of visible smoke, criteria air contaminants and greenhouse gases |

*Strategies and Actions*

The need to address these challenges forms the basis for the goals of the Strategy (Table 2). Specific targets for each goal have not yet been defined but, over time, the intent is for partners to collaboratively identify measurable targets.

The strategies and actions to achieve the goals fall within three key tasks:

(1) Advance urban freight priorities
(2) Coordinate with provincial and national partners on their priorities to improve Gateway-oriented freight
(3) Advance regional sustainability and livability goals

[2] The draft Strategy is available at: http://www.translink.ca/-/media/Documents/plans_and_projects/roads_bridges/2016_06_rgms_draft_strategy_for_consultation.pdf. A companion primer document is at available at: http://www.translink.ca/-/media/Documents/plans_and_projects/roads_bridges/2016_06_primer_goods_movement_for_consultation.pdf.

Attachment 1 summarizes the strategies and actions of the draft Strategy under the three themes of invest, manage and partner.

Table 2: Strategy Goals

| Goal 1: More efficient and reliable goods movement |
|---|
| • Reduce the amount that commercial vehicles drive in congested conditions<br>• Reduce variability in daytime travel times on the Regional Truck Route Network |
| **Goal 2: Cleaner, safer and quieter goods movement** |
| • Reduce collisions that cause injury or fatality involving commercial vehicles<br>• Reduce goods movement-related noise and vibrations that residents experience<br>• Reduce criteria air contaminants and greenhouse gas emissions from goods movement vehicles |

*Regional Goods Movement Forum*

The draft Strategy also suggests the formation of a regional goods movement forum (i.e., the Greater Vancouver Urban Freight Council) that would:

- Champion and help facilitate priorities identified in the Regional Goods Movement Strategy;
- Coordinate initiatives between partners; and
- Exchange knowledge and information on urban freight issues.

The Council would emulate the existing Greater Vancouver Gateway Council in its structure and approach but be complementary as it would focus on urban freight movement on regional and local roads rather than Gateway priorities that emphasize provincial highways and roads connecting to port facilities. Representation would include senior executive level representation from private and public sector partners to help address stakeholders' perception of a current lack of private and public sector coordination at the regional level (i.e., use of local and regional roads) relative to the Greater Vancouver Gateway Council, which is more focused on provincial highways.

*Implementation and Monitoring*

The implementation and monitoring elements of the Strategy are yet to be defined in the current draft. The following items are intended to be determined following further stakeholder consultation:

- A process to develop a measuring and monitoring program to define appropriate metrics and establish baseline performance on progress towards the above goals;
- Assigning which partners have a lead role and which partners have a supporting role for implementing each of the actions advanced in the Strategy; and
- Identifying the first priority actions and strategies.

Interaction of the Strategy with the City

The goals of the Strategy are supportable as are the strategies and actions, subject to continued dialogue with the City on key items as discussed below.

*Strategic Investments in the Major Road Network*

Action 1.2.7 states "Update the composition of the Major Road Network to ensure that the network is best serving the goods movement mobility needs of the region." There are several corridors in Richmond that are used for goods movement that are not currently part of the Major Road Network (e.g., roads to key industrial areas such as Nelson Road and Blundell Road in the

Fraserport area). The City has provided TransLink with a list of potential local roadways to be added to the network, which would materially benefit the City by enabling access to on-going maintenance funding as well as eligibility for potential future cost-share funding for capital improvements.[3]

Action 1.2.8 proposes that "capital investment to address issues identified by municipalities" be considered where "pricing and other management measures have not been adequate to improve safety, local connectivity and goods movement reliability on the Major Road Network." The intent is to develop a list of regional road segments that would be prioritized for implementation based on criteria such as traffic volumes (including trucks and buses), congestion levels, safety, and connectivity. The City has provided TransLink with a list of planned upgrades of existing roads (e.g., No. 2 Road south of Steveston Highway) and construction of new roads (e.g., River Parkway). The City could benefit from this action by potentially being able to access capital and maintenance funding support for local roadways.

Action 1.2.9 recognizes the need to address any deficiencies at road-rail grade crossings to meet new federal regulations such as installing automatic warning devices or considering grade-separation where high-traffic rail lines cross a road that carries high goods movement volumes or high volumes of walking, cycling or transit trips. As there are over 30 public road-rail crossings in Richmond, the City could benefit from any potential funding available from TransLink to support this action.

*Designate a Regional Truck Route Network*

Strategy 2.3 proposes to "Coordinate with regional partners to clearly designate, manage, and regularly update the Regional Truck Route Network" with supporting actions of:

- Action 2.3.1: Increase the consistency by which truck routes are designated across the region through collaboratively developed design guidance.
- Action 2.3.2: Develop a clear, transparent and systematic process to approve changes or amendments to the Regional Truck Route Network.
- Action 2.3.3: To improve travel time reliability, explore opportunities to implement freight priority measures, both physical and through pricing, on key corridors and at key bottlenecks.

Currently, the City does not have designated truck routes[4] as such routes are typically defined to control or restrict truck movements. Goods movement is naturally confined to arterials (except for local deliveries) as there are limited local minor roads within Richmond's road grid that are being used by trucks as parallel routes to the arterials (which may result in undesirable conditions to adjacent land use). Given this road network configuration, staff have indicated to TransLink that any designation of truck routes in Richmond would not be necessary nor warranted. Further discussion with TransLink is required regarding potential equivalent options (e.g., Richmond's segments of an updated Major Road Network and the provincial highway system could coincide and be connected with the Regional Truck Route Network in the adjoining

[3] Phase One of TransLink's proposed 10-Year Vision, which is pending Mayors' Council and TransLink Board approval in Fall 2016, includes provision of a one-time increase to the length of the Major Road Network of 10% as well as annual 1% increases plus full reinstatement of dedicated 50% funding for minor capital improvements.
[4] Traffic Bylaw 5870 designates routes for the transportation of dangerous goods through the city.

municipalities) to achieve the same intent of enhancing goods movement while minimizing negative impacts to the local community.

*Truck Definition, Regulations and Permitting Harmonization*

Strategy 2.5 seeks to "Harmonize truck permitting and regulations to improve clarity, certainty, and efficiency." Commercial truck regulations, enforcement and permitting currently vary across the 23 members of Metro Vancouver and the provincial highway system, which can create confusion and administrative burdens for those applying for and granting permits. Streamlining and harmonizing these regulations and processes could reduce administration, increase certainty that decisions will be applied the same way at all times and create a more competitive business environment in Metro Vancouver.

As such, there is some parallel of these objectives with the Council-supported Inter-Municipal Business Licence Program, which has the primary goal of improving economic development by reducing costs and administration for construction-related businesses operating in multiple partnering communities. Under that Program, participating municipalities have agreed to allow non-resident (mobile) trade contractor businesses from within the participating municipalities to operate in their municipality on the basis of one Inter-Municipal Business Licence purchased from their home municipality.

Similarly, the supporting actions of Strategy 2.5 include the development of a centralized permit system:

- Action 2.5.1: Work to harmonize regulations concerning truck size, weight and noise across the region, allowing adequate flexibility and mobility for truck operators while managing potential negative community impacts.
- Action 2.5.2: Develop a centralized regional permit system that is coordinated with the provincial permit system providing a single point of contact for trucking companies operating within Metro Vancouver to obtain needed permits, including for oversize/overweight trucks.

Work on this item was initiated in January 2016 with the formation of the Commercial Vehicle Staff Working Group under TransLink's Regional Transportation Advisory Committee.[5] The Working Group, of which the City is a member, intends to provide its recommendations to the Committee by the end of 2017.

The intent of this strategy is supportable subject to inclusion of the following principles:

- no decrease in permit revenue to the City (e.g., for oversize/overweight vehicle trips),
- streamlining of administrative efforts for individual municipalities,
- positive economic development benefits,
- safety is not compromised, and
- a consistent standard of regional enforcement is established.

[5] The Regional Transportation Advisory Committee is a forum for Metro Vancouver municipalities and other major public agencies with significant responsibilities or influence on regional mobility to discuss, collaborate and provide senior-level input on strategic-level multi-modal regional transportation issues.

Next Steps

TransLink staff intend to seek approval of the Strategy by the TransLink Board in Fall-Winter 2016 following the incorporation of the latest round of stakeholder feedback received during Summer 2016, including comments from staff via participation at workshops and meetings. Attachment 2 summarizes the feedback provided at one of a series of multi-agency workshops held in June 2016 on the elements of the current draft Strategy and the top three priority actions to be implemented. Participants indicated that all components of the Strategy were nearly or ready to be brought forward for approval. The top three priority actions identified to be initiated in the next year were:

(1) Develop a regional road usage charging scheme (20%)
(2) Designate and manage a Regional Truck Route Network (20%)
(3) Develop Major Road Network performance guidelines (15%)

On-going and near-term work includes:

- Of the 72 actions proposed in the Strategy, confirmation of the top three priorities to be initiated in the next year (around 30 actions are already underway).
- Development of the terms of reference for the Greater Vancouver Urban Freight Council.
- Development of a prioritized list of regional road segments for capital improvement.
- Formulation of recommendations of the Commercial Vehicle Staff Working Group regarding the harmonization of truck definition, regulations and permitting.

Staff would report back upon finalization of the Regional Goods Movement Strategy and the detailed priority action plans to be implemented.

## Financial Impact

None.

## Conclusion

TransLink's draft Regional Goods Movement Strategy attempts to address how to deliver goods and services more efficiently to more people and more businesses within a shared and increasingly limited space in a cleaner, quieter, safer, and more cost-effective way. Staff continue to regularly participate in its development and refinement to advance urban freight and economic development both locally and regionally. The intent of the goals and actions of the Strategy are supportable subject to further discussion with the City to ensure that urban freight movement and economic development are enhanced without diminishing the City's authority over local roadways or increasing negative impacts to the community.

J Caravan

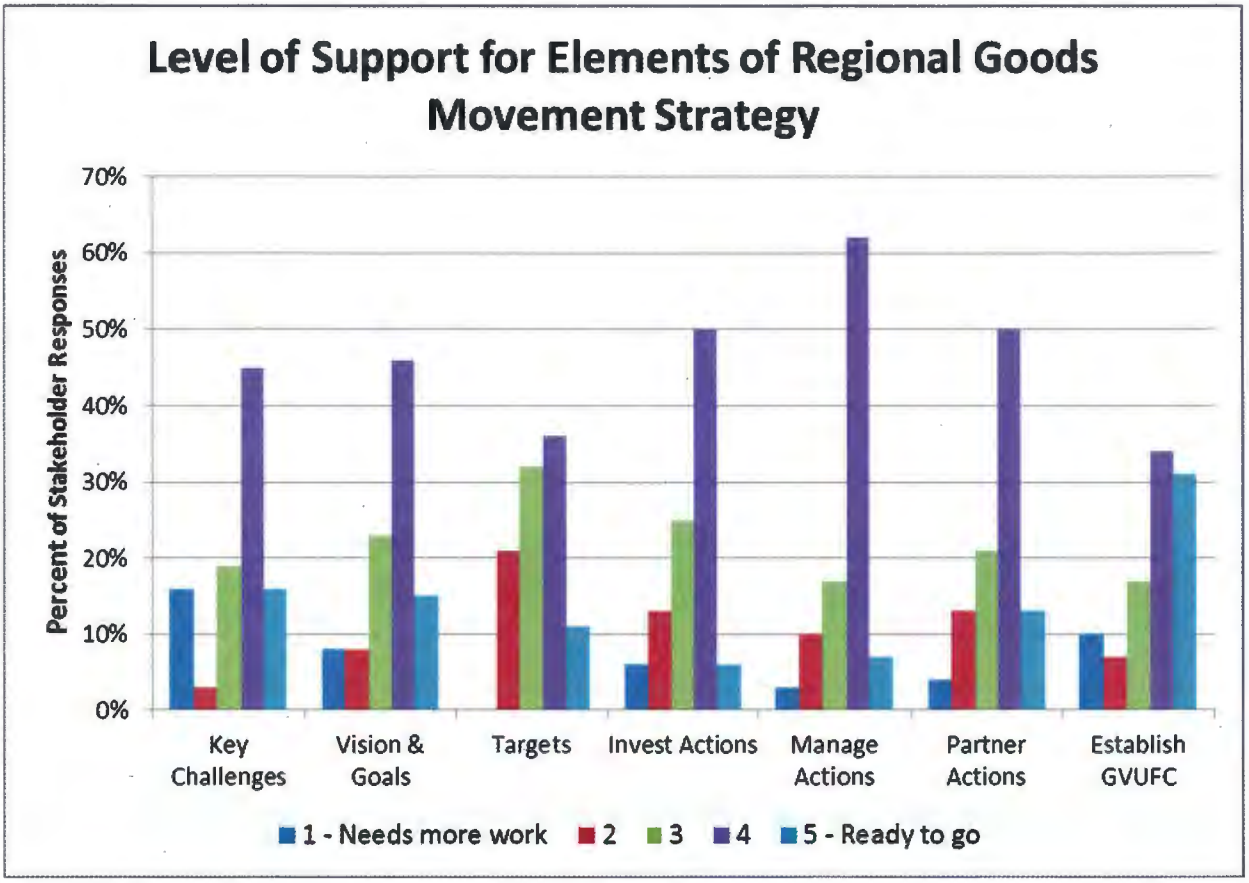
Joan Caravan
Transportation Planner
(604-276-4035)

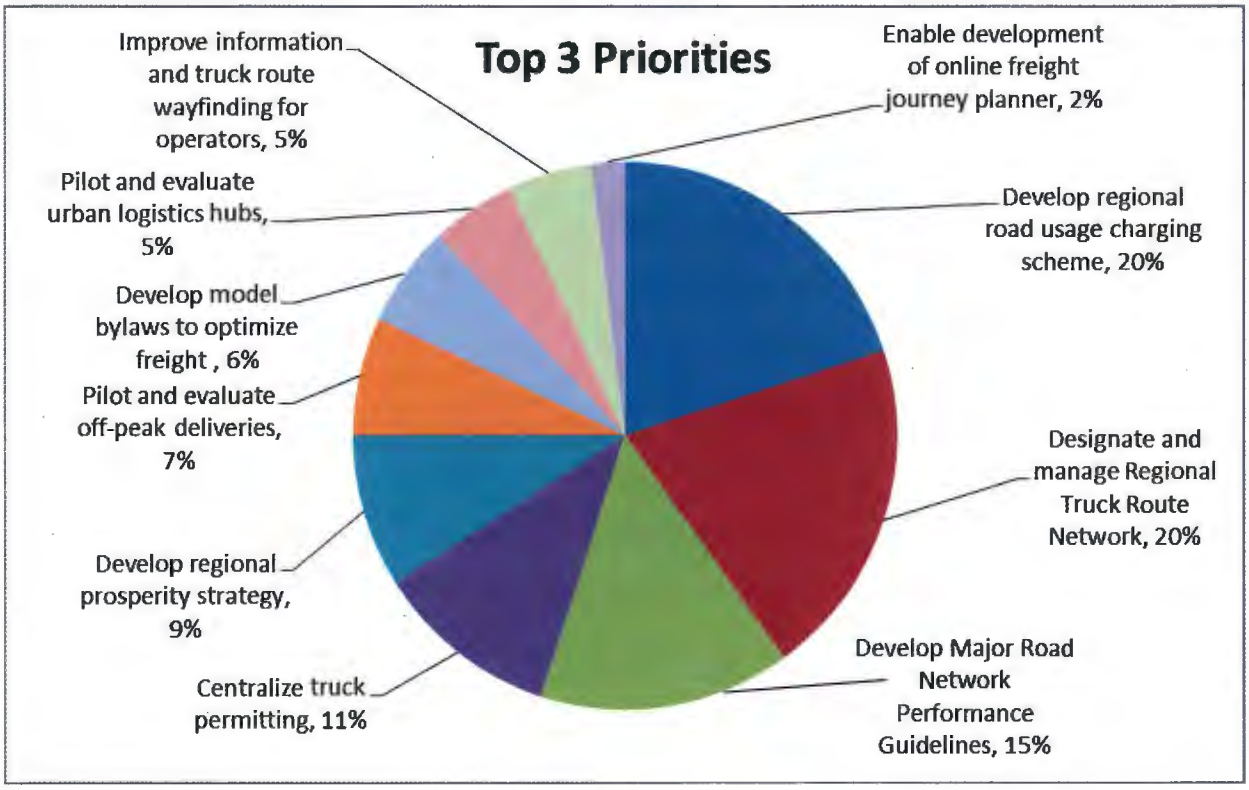
Att. 1: Draft Regional Goods Movement Strategy: Summary of Proposed Strategies and Actions
Att. 2: Summary of Feedback on Key Items of Draft Regional Goods Movement Strategy: Stakeholder Workshop held June 16, 2016

# Draft Regional Goods Movement Strategy: Summary of Proposed Strategies and Actions

| | |
|---|---|
| **1.0** | **INVEST Strategically to Maintain and Grow the System** |
| 1.1 | Maintain roads and bridges in good repair |
| 1.2 | Invest in regional road network<br>• Make concurrent commitments to optimization, pricing and land use measures<br>• Coordinate with Gateway partners on priority infrastructure investments<br>• Coordinate with partners to replace the Massey Tunnel, Pattullo Bridge and connect Highways 1 and 91 north of the Fraser River<br>• Establish performance guidelines for the Major Road Network to guide management and investment actions<br>• Invest to address goods movement issues on key segments of the Major Road Network (projects to be determined)<br>• Improve safety and travel time reliability at road/rail crossings |
| 1.3 | Shift driving trips to walking, cycling and transit<br>• Safety improvements where major pedestrian corridors cross truck and rail corridors<br>• Complete regional bikeway network; emphasis on separation from motor vehicle traffic<br>• Investments in transit network to reduce congestion on road network |
| **2.0** | **MANAGE the System to be Efficient and User-Focused** |
| 2.1 | Make travel safer for all users |
| 2.2 | Make it easy to navigate<br>• Integrated regional information, wayfinding and journey planning |
| 2.3 | Designate a Regional Truck Route Network<br>• Increase consistency across the region and a process for changes or amendments |
| 2.4 | Implement system management and ITS solutions to improve reliability<br>• Implement ITS solutions, active curbside management guidelines, create a policy environment that encourages flexible freight delivery times |
| 2.5 | Harmonize truck permitting and regulations |
| 2.6 | Encourage lower-impact community-serving goods movement<br>• Encourage vehicle right-sizing and delivery guidelines |
| 2.7 | Support quieter, cleaner and lower-carbon goods movement |
| 2.8 | Support private sector innovation towards greater fleet efficiency |
| 2.9 | Optimize Port drayage to minimize negative impacts |
| 2.10 | Price the transportation system more effectively to reduce congestion |
| **3.0** | **PARTNER to Make it Happen** |
| 3.1 | Plan for land use and transport needs of business and industry<br>• Support the Regional Growth Strategy (protect industrial land, protect access points)<br>• Protect rail rights-of-way and access points to navigable waterways<br>• Explore opportunities to co-locate import and export facilities |
| 3.2 | Integrate goods movement considerations into all planning stages<br>• Prepare Freight-Supportive Community Design Guidelines<br>• Encourage the use of mitigation measures in new development near goods movement corridors |
| 3.3 | Ensure effective coordination through strong partnerships<br>• Better coordinate among all levels of government and private sector<br>• Develop a Regional Prosperity Strategy |
| 3.4 | Collect and share data for monitoring and decision-making<br>• Central data warehouse; expanded data collection and research collaboration<br>• Performance-based evaluation of goods movement projects |

**Draft Regional Goods Movement Strategy:**
**Summary of Feedback at Stakeholder Workshop held June 16, 2016**



City of Richmond

# Report to Committee

| | | | |
|---|---|---|---|
| **To:** | Public Works and Transportation Committee | **Date:** | November 1, 2016 |
| **From:** | John Irving, P.Eng. MPA<br>Director, Engineering | **File:** | 10-6340-20-<br>P.15305/Vol 01 |
| **Re:** | **Horseshoe Slough Pump Station** | | |

## Staff Recommendation

That the design concept for the Horseshoe Slough Drainage Pump Station Upgrade as detailed in Attachment 1 of the staff report titled, "Horseshoe Slough Pump Station", be approved.

John Irving, P.Eng. MPA
Director, Engineering
(604-276-4140)

Att. 1

| REPORT CONCURRENCE | |
|---|---|
| CONCURRENCE OF GENERAL MANAGER | |
| REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE | INITIALS: CJ |
| APPROVED BY CAO for | |

## Staff Report

### Origin

The Horseshoe Slough Drainage Pump Station was constructed in the late 1970's. Council approved an upgrade to this drainage pump station as part of the 2016 Capital Program. Staff have advanced the design to the point whereby the general layout and architectural features have been identified.

The purpose of this report is to provide Council information regarding the intended pump station layout, including potential architectural and artistic features.

This report supports Council's 2014-2018 Term Goal #6 Quality Infrastructure Networks:

> *Continue diligence towards the development of infrastructure networks that are safe, sustainable, and address the challenges associated with aging systems, population growth, and environmental impact.*

### Analysis

The City's extensive flood protection and drainage system includes 49 kilometres of dikes, a series of ditches/canals, underground pipe and 41 drainage pump stations. The drainage system is designed to prevent the City from flooding during up to a 1:10 year rainfall event.

The existing Horseshoe Slough Drainage Pump Station services areas adjacent to No. 5 Road, roughly bounded by the south dike, Blundell Road and Shell Road. This station was constructed in the late 1970's, contains old, antiquated equipment and is in need of a pumping capacity increase to adequately meet current flood protection standards.

Design of the upgraded Horseshoe Slough Drainage Pump Station commenced earlier in 2016 and has advanced to a point whereby the general layout and architectural features have been identified (Attachment 1).

In general, the architectural character is responding to the utilitarian aspects of the building functions and the backdrops of the adjacent green space of Woodwards Landing and surrounding trails on Dyke Road, while the architectural expression is designed to respond to the various scales and views. The conceptual design allows for low maintenance in response to potential vandalism and additionally takes advantage of the opportunity to be perceived as an amenity for local recreational users in the area.

Artistic elements of this pump station will celebrate the history of dikes and drainage within the City of Richmond using old infrastructure as display items and informational murals on the side of the building. The murals provide an opportunity for education and graphical symbolism to be integrated within the infrastructure, along with an opportunity to tie into the upcoming Canada 150 celebrations. As the detailed design progresses, these features will continue to be refined and integrated into the overall project.

This station is also incorporated into the dike trail system along the south dike. Accordingly, the pump station maintenance accesses will be appealing and complimentary to the existing trails while at the same time providing the necessary means for pump station operations and maintenance activities. It is also proposed that short sections of the adjacent dike be raised to 4.7 metres geodetic, which is consistent with the City's Long Term Flood Management Strategy to address sea level rise. The current elevation of the dike is approximately 3.3 metres geodetic.

It is anticipated that design will be completed by Spring 2017, with construction to follow immediately thereafter. It is anticipated that construction will take place over a period of approximately six months.

**Financial Impact**

Funding to complete the Horseshoe Slough Drainage Pump Station upgrades has been approved by Council as part of the 2016 Capital Program.

**Conclusion**

The Horseshoe Slough Drainage Pump Station has been approved in the 2016 Capital Program. Design has progressed to the point where the general layout and architectural features/opportunities have been identified. Subject to Council's support, work will continue on advancing the design concept to a full detailed design.

Peter Brennert
Project Manager
(604-247-4925)

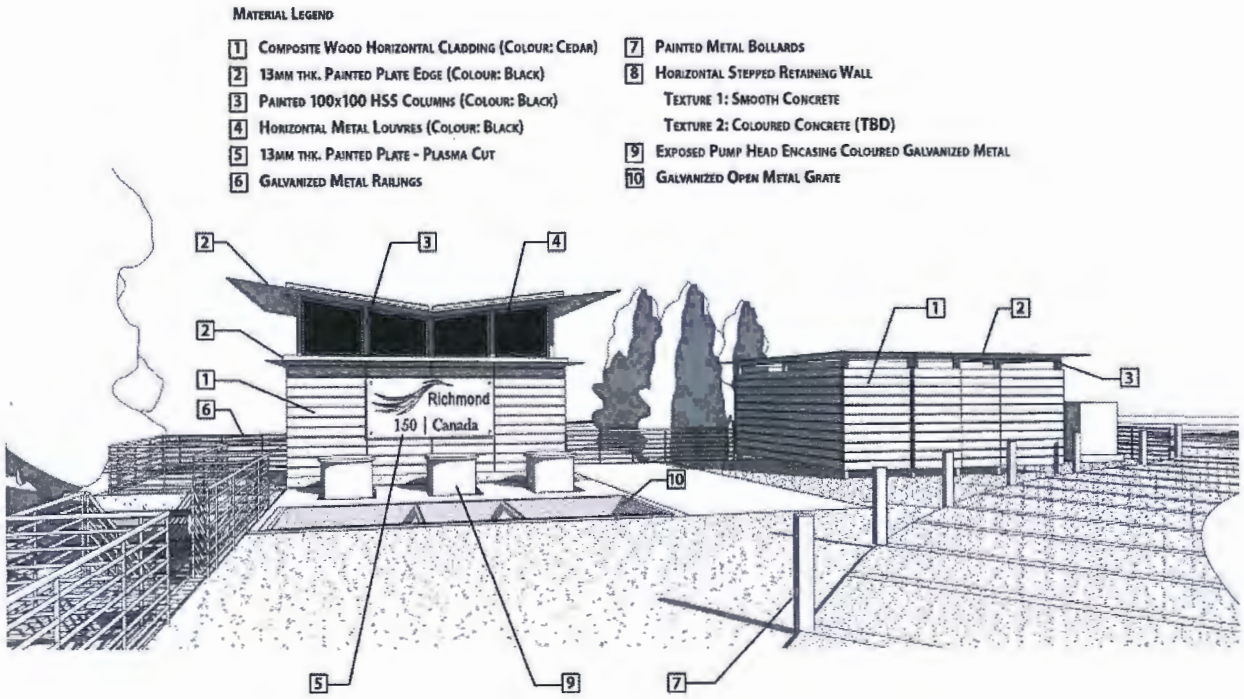
PB:pb

Att. 1: Horseshoe Slough Drainage Pump Station – Design Images

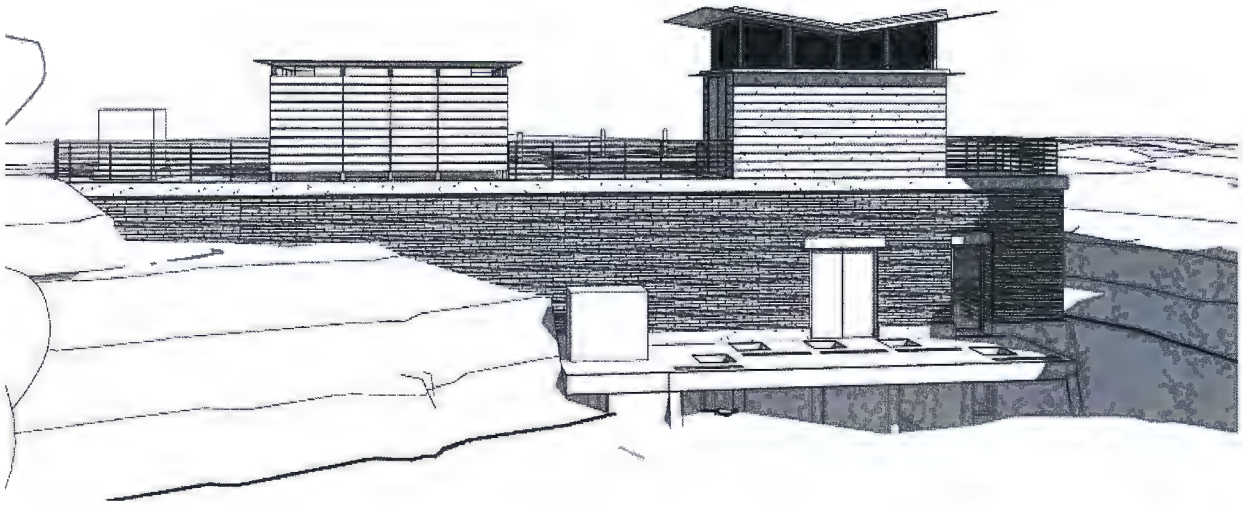
## Attachment 1: Horseshoe Slough Drainage Pump Station – Design Images

1. Street Level View


2. Dike View with Preliminary Material Choices



3. Slough View



4. Aerial View

City of Richmond

# Report to Committee

| | | | |
|---|---|---|---|
| **To:** | Public Works and Transportation Committee | **Date:** | October 22, 2016 |
| **From:** | Tom Stewart, AScT.<br>Director, Public Works Operations | **File:** | 02-0780-01/2016-Vol 01 |
| **Re:** | **Electric Vehicle Fleet and Charging Station Infrastructure** | | |

## Staff Recommendation

1. That the tiered approach and key considerations for acquiring electric vehicles within the City's vehicle fleet, as outlined in the staff report titled "Electric Vehicle Fleet and Charging Station Infrastructure", dated October 22, 2016 from the Director, Public Works Operations, be endorsed; and

2. That staff report back regarding the potential installation of community Level 3 charge stations, including an energy cost recovery approach, as part of advancing greenhouse gas emissions under the City's Community Energy and Emissions Plan.

Tom Stewart, AScT.
Director, Public Works Operations
(604-233-3301)

Att. 1

| REPORT CONCURRENCE | | |
|---|---|---|
| **ROUTED TO:** | **CONCURRENCE** | **CONCURRENCE OF GENERAL MANAGER** |
| Sustainability | ☑ | |
| **REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE** | **INITIALS:** CJ | **APPROVED BY CAO** for |

## Staff Report

### Origin

At the regular Council meeting held on April 25, 2016, Council endorsed the Green Fleet Action Plan – 2015 Progress Report. This report highlighted numerous actions being undertaken to reduce vehicle emissions, highlighting 7% reduction since 2011. This is slightly below desired trending (should be at minimum 8%) to meet 20% reduction by 2020.

This report focuses on the electric vehicle component of the City's Green Fleet Action Plan and explores potential expansion of electric vehicles as part of accelerating targeted emissions reduction. In addition, City and community electric vehicle charging infrastructure is discussed.

This report supports Council's 2014-2018 Term Goal #4 Leadership in Sustainability:

> *Continue advancement of the City's sustainability framework and initiatives to improve the short and long term livability of our City, and that maintain Richmond's position as a leader in sustainable programs, practices and innovations.*
>
> *4.1. Continued implementation of the sustainability framework.*

This report supports Council's 2014-2018 Term Goal #6 Quality Infrastructure Networks:

> *Continue diligence towards the development of infrastructure networks that are safe, sustainable, and address the challenges associated with aging systems, population growth, and environmental impact.*
>
> *6.2. Infrastructure is reflective of and keeping pace with community need.*

### Analysis

#### Background

Corporately, the City has adopted the Green Fleet Action Plan, which establishes a target to reduce greenhouse gas (GHG) emissions by 20% by 2020 (using 2011 as the baseline year). Ensuring fuel-efficient vehicles are a component of the City's fleet is one of many strategies outlined in the Green Fleet Action Plan that will be necessary to meet this target.

At the community level, the City's Official Community Plan includes targets to reduce community GHG emissions 33% below 2007 levels by 2020 and 80% below 2007 levels by 2050. The City's Community Energy and Emissions Plan (CEEP) outlines strategies and actions to reduce community energy use and GHG emissions. The CEEP states that zero carbon transportation systems (including plug-in electrics) will be needed at the community level to meet these targets.

Electric vehicles are near-zero GHG on the British Columbia grid due to the method in which electric power is produced, therefore, are a necessary option to consider moving forward in reducing corporate and community emissions.

City's Electric Vehicle Fleet

The City's electric vehicle fleet is currently composed of nine electric vehicles, including one Nissan Leaf, three Chevrolet Volts, and five Olympia Ice Bears (ice resurfacers). There are an additional 44 hybrid or high fuel-efficiency units.

Electric vehicles offer considerable environmental benefits in relation to reducing fuel emissions. As highlighted in the Green Fleet Action Plan – 2015 Progress Report, annual emissions savings for electric or hybrid units versus a conventional gasoline vehicles are considerable:

- Gasoline vehicle: 4.83 tonnes $CO_{2e}$
- Hybrid vehicle: 2.64 tonnes $CO_{2e}$
- Full electric vehicle: 0.0225 tonnes $CO_{2e}$

While electric vehicles and hybrids have higher capital costs, the total cost of ownership is comparable when fuel is taken into consideration, as outlined below. Note this does not factor in maintenance costs. Typically, electric vehicles have lower maintenance costs than their gasoline counterparts, however, electric vehicle battery life is approximately 10 years, after which battery capacity is diminished (to approximately 60%-70%). Gasoline vehicles could have longer life spans than electric vehicles, depending on use.

**Table 1: Total Cost Ownership Comparison – Gasoline, Hybrid and Full Electric Vehicles**

| | 2011 Chevrolet Cruze Unit 1450 | 2016 Ford Fusion Hybrid Unit 1775 | 2012 Nissan LEAF Electric Unit 1621 |
|---|---|---|---|
| **City of Richmond Purchase Price (not including tax)** | $17,945 | $27,191 | $35,720 |
| **Actual Fuel economy L/100KM** | 10.6 L/100 KM | 5.8 L/100 KM | 2.1 Le/100 KM |
| **Fuel/Energy Used Per Year Based on 15,000 KM Driven** | 1,590 Litres | 870 Litres | 2,343 kWh |
| **GHG Emissions/Year** | 4.83 tonnes $CO_{2e}$ | 2.64 tonnes $CO_{2e}$ | 0.0225 tonnes $CO_{2e}$ |
| **GHG Emissions For 10 Years** | 48.3 tonnes $CO_{2e}$ | 26.4 tonnes $CO_{2e}$ | 0.225 tonnes $CO_{2e}$ |
| **Cost of Fuel/Electricity for 10 Years Based on $1.08/L for Gasoline** | $17,172 | $9,396 | $2,343 |
| **Total Cost of Ownership Excluding Maintenance for 10 Years** | $35,117 | $36,587 | $38,063 |

One of the challenges with incorporating electric vehicles into the City's fleet is its dynamic nature. There are a wide variety of functions City vehicles must perform that require power or range requirements beyond the current capability of the electric vehicle market. For example, service vehicles, crane trucks, dump trucks, backhoes and related equipment require traditional fuel sources to generate the power needed to support vehicle operation as well as ancillary equipment. Other units may need to travel or operate beyond the range capability of current electric vehicles.

A recommended approach, and one which is designed to support leadership in creating demand in the electric vehicle market, would be to apply the following approach to vehicle replacements within the City's passenger vehicle fleet (not including minivans, trucks, etc.):

1. *Apply a Tiered Approach to Vehicle Replacements:*

    a. Full electric vehicle – as a first/priority consideration
    b. Electric vehicle with gasoline back up – as a second priority consideration
    c. Hybrid vehicle – as a third priority consideration
    d. Most fuel-efficient gasoline vehicle – where an electric or hybrid unit is not feasible

2. *Key Considerations in Evaluating Replacements:*

    a. Operational considerations need to remain the key driver in determining the suitability of various fuel-efficient vehicles. These include:
        i. Distance travel requirements versus vehicle range available
        ii. Travel distances in relation to environmental benefits (i.e. is there a sufficient amount of driving required to achieve the emissions savings versus the vehicle replacement cost)
    b. Availability of existing electric vehicle charging infrastructure and/or the cost of installation
    c. Availability of suitable vehicles in the marketplace
    d. Life-cycle costing and available capital budget allocations for vehicle replacements
    e. Other considerations such as carpool limitations and range anxiety (fear of running out of battery power which leads to hesitation purchasing full electric vehicles in case sufficient access to charging infrastructure is unavailable)

    Currently, approximately 50% of the City's passenger vehicle fleet is electric vehicle or hybrid (32 out of 67 units). If the remaining gasoline fueled units were converted (as a minimum to hybrid technology), the estimated annual emissions savings would be approximately 35 tonnes or 1% toward our 20% reduction target by 2020.

    It is important to note that within the present marketplace, many passenger cars are available as hybrids or full electric. The robustness of the electric vehicle/hybrid marketplace is primarily limited to the passenger car category. Industry is, however, starting to ramp up plans to produce a greater selection of vehicles with larger passenger vehicles in mind, i.e. minivans. As the marketplace expands to these styles of units, broader adoption of electric vehicles into the City's fleet can be pursued.

In summary, and as part of the Green Fleet Action Plan, staff suggest applying the tiered approach and key considerations listed above as passenger cars become eligible for replacement. As the marketplace for additional units expands, electric vehicles for these vehicle replacements will also be considered under the tiered approach outlined above. The additional capital cost associated with electric vehicle/hybrid replacements will be reflected in the annual capital budget

submission for City fleet vehicle replacements. Similarly, anticipated fuel savings will be reflected in annual operating budgets.

Electric Vehicle Charging Infrastructure

There are two categories of electric vehicle charging infrastructure discussed in this report: 1) City Vehicle Fleet Charging Stations, and 2) Community Electric Vehicle Charging Stations.

1. *City Vehicle Fleet Charging Stations:*

   The City has installed infrastructure to ensure charging capacity is available for electric vehicles in the City's fleet at the Works Yard and City Hall facilities:

   a. Works Yard – Level 2 charging infrastructure for charging City fleet vehicles includes one unit with two charge points within the Works Yard operations site, and one unit with two charge points in the Works Yard general parking lot (this can be used for City electric vehicles or staff's personal vehicles)
   b. City Hall – Level 2 charging infrastructure is located in the underground parkade and includes two charge points for electric vehicles stationed at this location
   c. City Hall Annex – Level 2 charging infrastructure includes one unit with two charge points for electric vehicles stationed at this location

2. *Community Electric Vehicle Charging Stations:*

   In March, 2013, as part of a funding opportunity through the Provincial Government, the City also installed four public Level 2 charge stations (total of eight charging ports) at the following locations:

   a. Steveston Community Centre
   b. Thompson Community Centre
   c. Cambie Community Centre
   d. City Hall

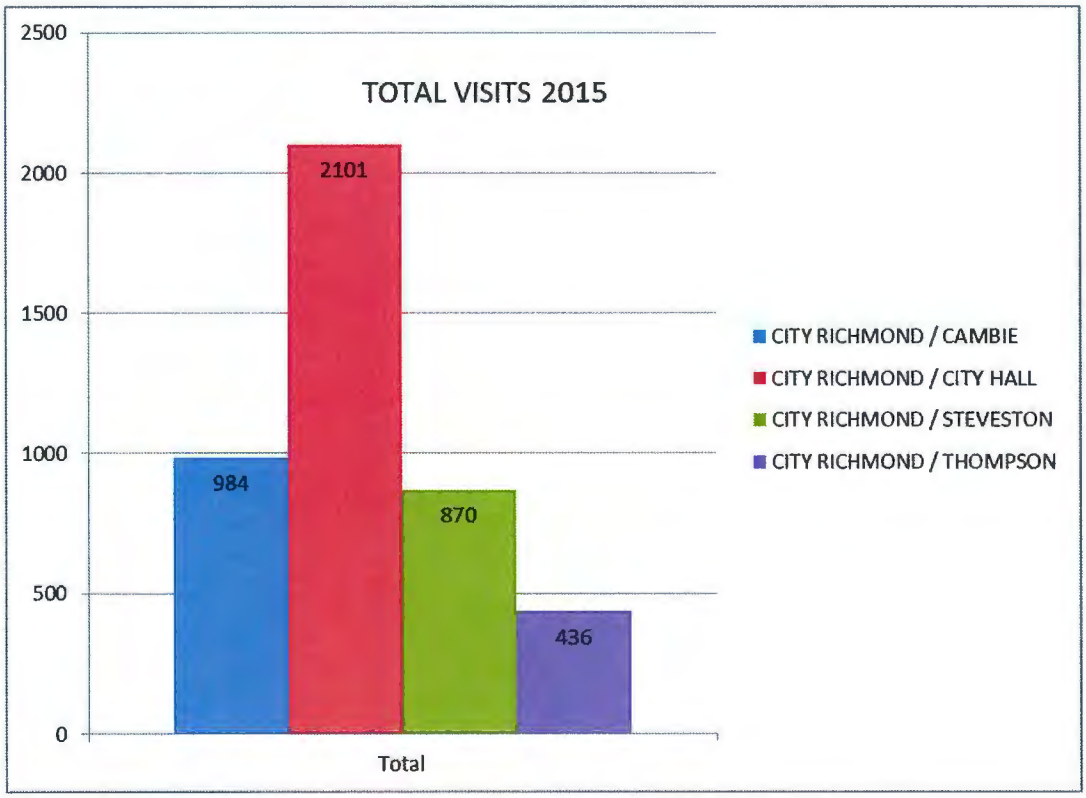
   As noted in the Green Fleet Action Plan Update report, usage of these stations has tripled year over year from 2013 – 2015. The following table outlines the increased usage. In 2016 alone, until September 30, these stations have helped reduce community emissions by 16.3 tonnes.

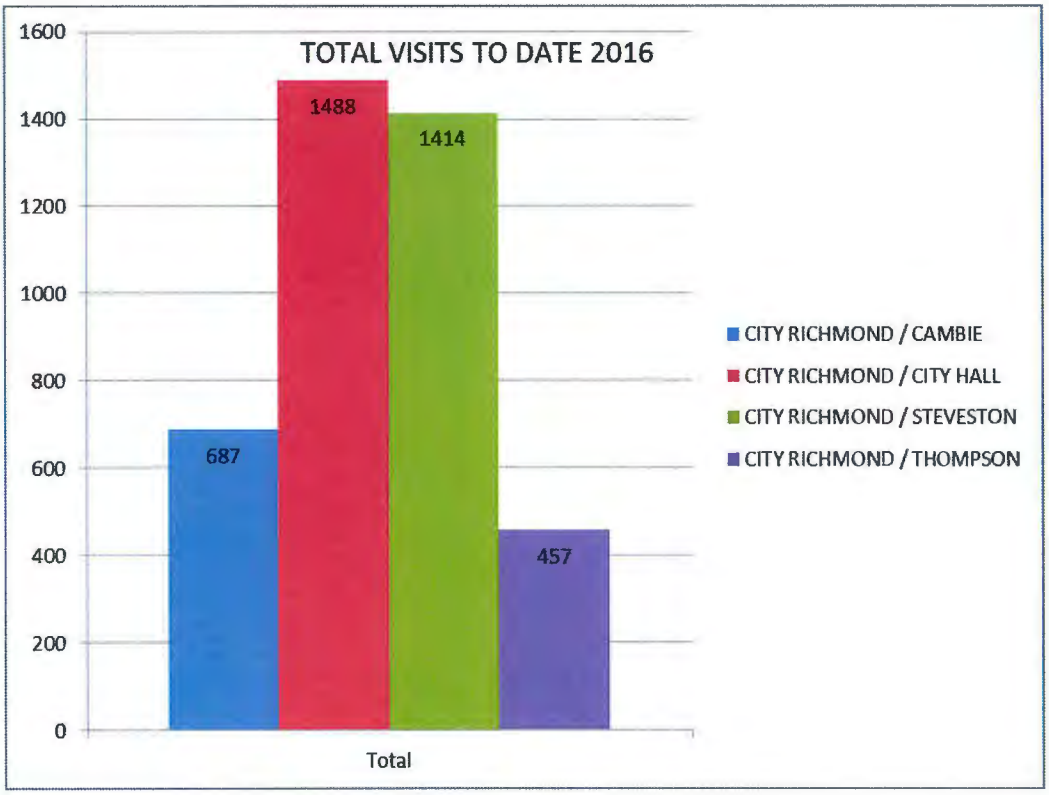
**Table 2: Charging Stations March, 2013 – September 30, 2016**

| | 2013 Mar-Dec | 2014 | 2015 | 2016 Jan-Sept |
|---|---|---|---|---|
| **Times Used (all stations)** | 776 | 1,974 | 4,597 | 5,326 |
| **Charging Time (all stations)** | 975.3 hours | 2,609.4 hours | 8,376.9 hours | 8,861.0 hours |
| **Energy Used (all stations)** | 4,345.05 kWh | 11,809.75 kWh | 35,904.32 kWh | 38,806.75 kWh |
| **Energy Cost** | At $0.10 Per kWh energy cost | At $0.10 Per kWh energy cost | At $0.10 Per kWh energy cost was | At $0.10 Per kWh energy cost was |

| | 2013 Mar-Dec | 2014 | 2015 | 2016 Jan-Sept |
|---|---|---|---|---|
| | was $434.50 | was $1,180.97 | $3,590.43 | $3,880.66 |
| **GHG Savings (all stations)** | 1.8 tonnes $CO_2e$ | 5.0 tonnes $CO_2e$ | 15.1 tonnes $CO_2e$ | 16.3 tonnes $CO_2e$ |
| **Gasoline Savings (all stations)** | 545.3 U.S. gallons | 1,482.1 U.S. gallons | 4,506.0 U.S. gallons | 4,506.0 U.S. gallons |
| | 2,064.0 L | 5,609.8 L | 17,055.2 L | 18,344.9 L |
| **Fuel Cost Savings** | At $1.30 per L, fuel cost savings was $2,661.97 | At $1.25 per L, fuel cost savings was $7,180.54 | At $1.08 per L, fuel cost savings was $18,419.61 | At $1.03 per L, fuel cost savings was $18,895.25 |

In 2016, the station with the highest number of visits is City Hall, followed by Steveston Community Centre, Cambie Community Centre, and Thompson Community Centre, as shown in the following graphs.






It is interesting to note that users of these stations charge mostly during weekdays – 71% in comparison to 29% on weekends. A graph depicting usage during the average weekday and weekends by station and overall is shown below:

**Table 3: Number of Visits from January to September 2016**

| | Monday – Friday Visits | | Weekend Visits | |
|---|---|---|---|---|
| **City Hall** | 1488 | 37.45% | 190 | 1.98% |
| **Cambie Community Centre** | 687 | 17.30% | 640 | 40.35% |
| **Steveston Community Centre** | 884 | 22.25% | 530 | 33.42% |
| **Thompson Community Centre** | 914 | 23% | 226 | 14.25% |
| **Total** | 3973 | 71% | 1586 | 29% |

On average, vehicles plugged in at these locations are actively charging 75% of the total time parked. This is a good indicator that visitors are not abusing the parking privilege these stations provide for electric vehicles given the high percentage of time they are actively charging.

The continued and increasing usage of these stations is a strong indication that community adoption of electric vehicles is trending up. In addition, there has also been an increase in the number of charging stations available for public use provided by others within the private sector. According to information from Plug-In BC's website, there are 16 other private sector locations in Richmond (including the Richmond Olympic Oval) where electric vehicle adopters can charge their vehicles. The locations are listed below. A map showing all public charging stations in Richmond is included as Attachment 1.

**Table 4: Locations of Private Charging Stations**

| Station Name | Address | Level 2 Stations | Level 3 Stations |
|---|---|---|---|
| 1. Richmond Olympic Oval | 6111 River Road, Richmond, BC, V7C 0A2 | 2 | |
| 2. YVR | 3211 Grant McConcachie Way, Richmond, BC, V7B | 2 | |
| 3. Park n' Fly | 6380 Miller Road, Richmond, BC | 1 | |
| 4. Pacific Gateway Hotel | 3500 Cessna Drive, Richmond, BC, V7B 1C7 | 2 | |
| 5. Nature's Path | 9100 Van Horne Way, Richmond, BC, V6X 1W3 | 1 | |
| 6. Best Western Abercorn Inn | 9260 Bridgeport Road, Richmond, BC, V6X 1S1 | 2 | |
| 7. Auto West BMW | 10780 Cambie Road, Richmond, BC, V6X 3K9 | 1 | 1 |
| 8. IKEA | 3320 Jacombs Road, Richmond, BC, V6V 1Z6 | 2 | |
| 9. NEDCO | 4455 No. 6 Road, Richmond, BC, V6V 1P6 | 4 | |
| 10. Mercedes Benz Richmond | 5691 Parkwood Way, Richmond, BC | 1 | |
| 11. Pan Pacific Nissan | 31220 Smallwood Place, Richmond, BC | 1 | |
| 12. ADESA | 16179 Blundell Road, Richmond, BC, V6W 0A3 | 1 | |
| 13. Ironwood Plaza East | 11662 Steveson Highway, Richmond, BC, V7A | 2 | |
| 14. Ironwood Plaza West | 11320 Steveston Highway, Richmond, BC, V7A | 2 | |
| 15. River Green | 5271 Brighouse Way, Richmond, BC, V7C 4V4 | 1 | |
| 16. Aberdeen Centre | 4151 Hazelbridge Way, Richmond, BC, V6X 0A4 | 2 | |
| Total | | 27 | 1 |

Even with increasing amounts of available charging capacity in Richmond, it would be prudent for the City to consider expanding and advancing available electric vehicle infrastructure in keeping with CEEP strategies and actions. The following section explores options for added charging capacity.

Proposed Approach to Expanding Community Electric Vehicle Infrastructure

Options for expanding electric vehicle infrastructure include adding Level 2 charge stations and/or the introduction of Level 3 charge stations. The difference relates to charge time required to reach a full charge, i.e. a Level 3 charge can take 15-30 minutes versus a Level 2 charge which takes 4-6 hours. Level 3 charging addresses range anxiety – concern over running out of battery power – which leads to hesitation purchasing full electric vehicles if sufficient access to charging infrastructure is not available. Level 3 stations provide a quick charge for riders who are travelling longer distances and/or require a fast charge as part of carrying out daily routines.

In order to foster continued growth in community electric vehicles, the addition of Level 2 infrastructure and the introduction of Level 3 infrastructure could be considered as follows:

a. Level 2 charging infrastructure could be included as part of new or major facility and/or park upgrades and be made available for public use

b. Level 3 charging infrastructure could be installed at strategic locations, particularly those that align with high-use transportation corridors (i.e. Highway 91, Highway 99, Knight Street)

Overarching principals such as cost considerations, proximity to other charging infrastructure, and operational feasibility will need to be evaluated on a project-specific basis as part of this approach.

In relation to Level 3 charge stations, there may be sponsorship opportunities available to support installation. For example, staff were approached by BMW/Auto West Group in August, 2016 with a proposal to provide a number of Level 3 charge units at no cost, where the City installs, provides and maintains the infrastructure. BMW proposes to include company advertising on the Level 3 charge units. This would need to be reviewed in greater detail in relation to the hardware offered by BMW as compared with emerging plug-in standards as well as the value offered in relation to the City's costs for providing the infrastructure. There may also be other industry sponsors who would be interested in similar opportunities.

Staff recommend reviewing the installation of Level 3 charge stations in further detail, and reporting back to Council. Conceptually, four locations could be considered to introduce Level 3 charging infrastructure. Upon Council endorsement, staff will include a capital submission for consideration as part of the 2017 budget process. As part of this, staff will also be able to review funding and sponsorship opportunities and include this information in a subsequent report.

*Review of Limitations/Energy Cost Recovery*

The City's Level 2 community charging infrastructure is provided at no cost to users. There are no time limits on the duration electric vehicles can be parked in designated electric vehicle stalls. The only existing limitation is that use of these stalls is limited to electric vehicles only. While consideration could be given to implementing parking restrictions and/or charging a fee for parking/charging, this is not recommended at this time for the following reasons:

a. the accumulated cost of the electricity use to the City is approximately $9,100

b. other public charging infrastructure (provided by the private sector) remains free

c. it is important to encourage broader adoption of electric vehicle technology by continuing to provide free and convenient access

d. existing users of City-provided electric vehicle charge stations are charging 75% of the time they are actively parked and plugged into the station, meaning they are not overextending or taking unfair advantage of the parking opportunity electric vehicle stalls provide

e. there have been minimal complaints regarding use of the electric vehicle parking stalls, therefore corrective action is not required at this time

Staff will continue, however, to review potential introduction of a fee for Level 2 charging as industry trends develop and the electric vehicle market matures.

In relation to Level 3 charge stations, these are projected to be more costly to install and present a considerable convenience for electric vehicle owners due to shorter charge times. For these reasons, staff would expect to recommend a fee be charged for access to Level 3 charging. This

consideration and projected revenue will be included and discussed in a subsequent report on Level 3 charge stations.

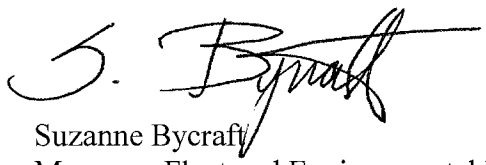
### Financial Impact

Added capital costs associated with the purchase of electric vehicles as a component of the City's fleet are included in annual capital submissions for fleet vehicle replacements.

### Conclusion

The expansion of electric vehicles and/or other fuel-efficient vehicles into the City's fleet will be a necessary aspect of the City's replacement program in order to reduce emissions 20% by 2020. Electric or hybrid vehicles should be given priority consideration for passenger cars as existing vehicles are due for replacement. A tiered approach, with guideline considerations, is recommended.

Use of City-provided community electric vehicle charging infrastructure has tripled year over year for the last 3 years and as of September 2016 has exceeded total 2015 usage. There have been a number of private sector public charging stations added in Richmond as well. These are indications that uptake in electric vehicle ownership is increasing. It is recommended the City take additional actions to further promote community electric vehicles as part of the actions outlined in the City's CEEP strategy. This report suggests expanding Level 2 charging infrastructure in association with new construction or major upgrades of City facilities and parks. In addition, staff recommend reporting back on consideration to introduce City-provided Level 3 charging infrastructure at strategic locations that align with high-use transportation corridors.

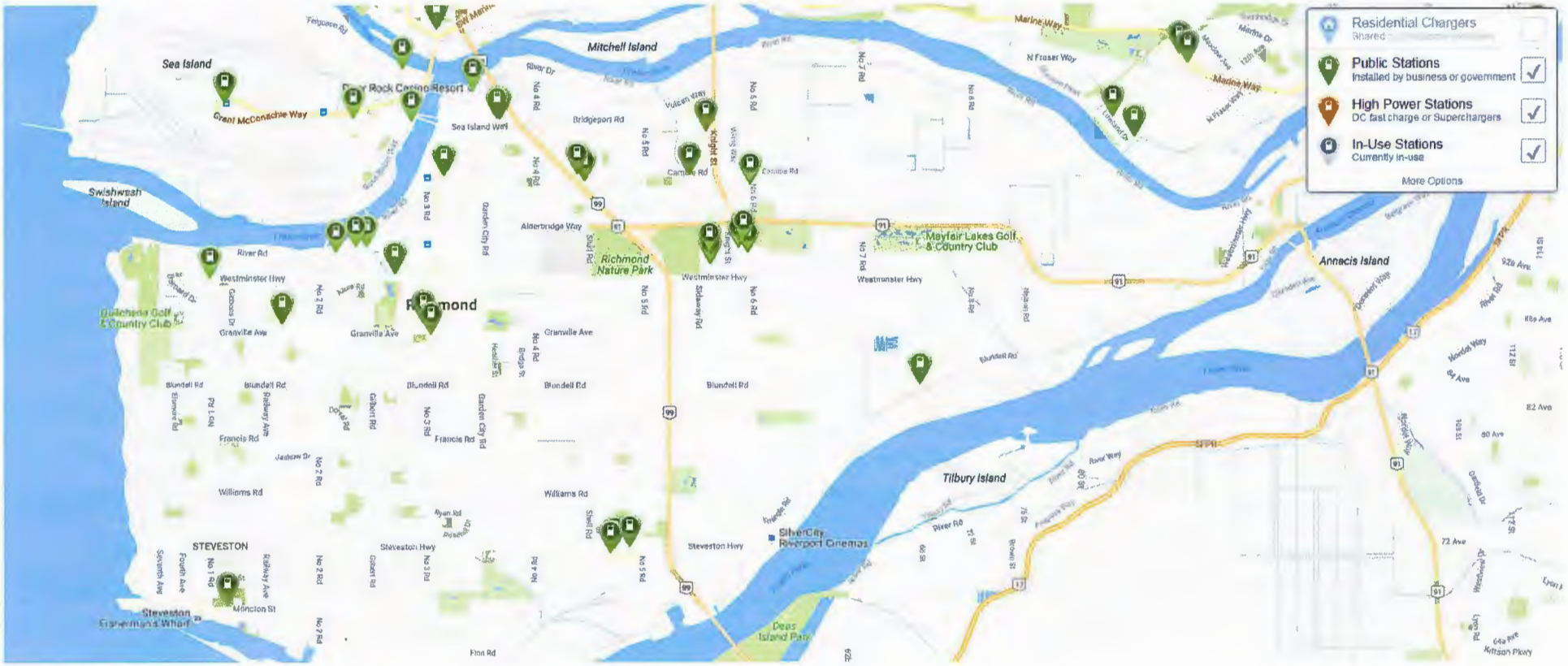


Suzanne Bycraft
Manager, Fleet and Environmental Programs
(604-233-3338)

SJB:

Att. 1: Publicly Available Electric Vehicle Charging Locations in Richmond

**Attachment 1** – Publicly Available Electric Vehicle Charging Locations in Richmond



City of Richmond

# Report to Committee

| | | | |
|---|---|---|---|
| **To:** | Public Works and Transportation Committee | **Date:** | October 20, 2016 |
| **From:** | Tom Stewart, AScT.<br>Director, Public Works Operations | **File:** | |
| **Re:** | **Update on 2016/2017 Snow and Ice Response Preparations** | | |

## Staff Recommendation

That the staff report titled "Update on 2016/2017 Snow and Ice Response Preparations", dated October 20, 2016, from the Director, Public Works Operations be received for information.

Tom Stewart
Director, Public Works Operations
(604-233-3301)

Att. 2

| REPORT CONCURRENCE | | |
|---|---|---|
| **ROUTED TO:** | **CONCURRENCE** | **CONCURRENCE OF GENERAL MANAGER** |
| Communications<br>Parks Services | ☑<br>☑ | |
| **REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE** | **INITIALS:** CJ | **APPROVED BY CAO** for |



5195272

## Staff Report

### Origin

This report provides information about the City's 2016/2017 snow and ice preparations.

### Analysis

Public Works has implemented numerous changes over the past several years to enhance the City's readiness and response efforts. These changes include: policy amendments, equipment review and upgrades, enhancement to public communications/public involvement, record keeping and overall response planning.

#### Overview of Existing Initiatives

##### Policy Amendments

Traffic Bylaw 5870 was amended by Council on December 14, 2009, to require commercial, industrial and multi-family property owners or occupiers to clear snow and ice from sidewalks adjacent to their property. Staff remind the public of Bylaw 5870 through news releases, as well as social media, such as Facebook, YouTube and Twitter. The Bylaw was amended to encourage the use of public transit with improved convenience for pedestrians. Section 6.1 of the amended Bylaw reads:

> *The owner or occupier of any parcel of real property which is developed for, or used in whole or in part for, commercial, industrial or multi-family dwelling use other than a two-family dwelling shall remove all snow and ice from any sidewalk adjacent to such parcel for a distance that coincides with the property line of his real property, not later than 10:00 a.m. of everyday, including Sunday.*

In response to public concerns about the lack of salting and ploughing on residential streets, Council approved an amendment to Bylaw 7013 (Roadways – Ice and Snow Removal) to identify and add third priority routes. These routes include the designated collector roads and roads of local significance in residential subdivisions. This initiative will help improve vehicle access from within subdivisions to the major collector roads. However, it should be noted that third priority routes will only be cleared if first and secondary routes have been fully attended to and resources permit.

##### Equipment

The City has six road temperature sensors. These sensors are monitored 24 hours a day by the City's Public Works Dispatcher and provide early indications of potential road frost or freezing conditions. Each sensor is strategically located under roadway asphalt throughout the City to provide real time information concerning road conditions. Sensor locations are illustrated in Attachment 1 and a complete list of equipment dedicated for snow response is provided in Attachment 2.

In July 2016, a pilot program for global positioning system (GPS) was installed on 64 vehicles and pieces of equipment, including the City's dump trucks that are used for sanding/salting and plowing activities. This will be of significant benefit in this year's snow and ice response as truck locations will be available in real time and can be monitored regularly. This will assist not only in operations management and planning, but also with providing valuable information in relation to any claims made against the City relative to the City's operational response.

## Public Outreach

Public involvement within the community is vital during the winter season. The City participates in the following programs, working jointly with the public and participating community associations:

- Snow Angels Program: This program was introduced in 2010 and connects local volunteer organizations with elderly citizens and residents with mobility/health challenges during a snowfall event. Assistance involves shovelling snow from sidewalks, driveways and/or walkways. A Snow Angels registry is accessible on the City's website and can also be obtained by calling the Community Services department, Public Works Dispatch, City Hall, or any of the community centres. The program is activated in the event of a significant snow fall (defined as an accumulation of 5+ centimetres of snow) and is dependent on the severity of the storm and volunteer resources. The City plays a role in coordinating and promoting the Snow Angels program, but the volunteers are recruited, screened and managed by each association participating in the registry.

- Good Neighbour Program: This program encourages everyone to clear the walkways around their property and help others who may face challenges. This neighbour-helping-neighbour campaign simply encourages residents to watch for people in their neighbourhood that could use help removing snow from their sidewalks and driveways and offer them a helping hand.

## Communications Strategy

A comprehensive communication strategy has proven to be valuable in delivering accurate, timely and relevant information to the public. By using a cross-functional approach, each division's important messages are delivered in a coordinated fashion over a variety of pre-determined mediums in both a proactive, planned manner as well as reactive when extreme weather occurs and circumstances require it. The communications strategy includes, but is not limited to, using the following mediums:

- Social media (the City's Twitter, Facebook, YouTube; tweeting, retweeting, sharing information from credible sources, i.e., weather warnings)
- Media relations (news releases, media interviews, local newspaper ads)
- City's website (dedicated web pages, news pages)
- City's intranet for employees

- Social Media: Social media is incorporated into the overall communication strategy to reach out to the community through Facebook, Twitter and YouTube. Social media provides timely updates during snow and ice events. This includes use of the @RichmondBCAlert Twitter account which is used only to provide emergency-related messages to residents (which include snow or other weather events). These updates include weather forecasts, what preparations are underway for current and upcoming events, current conditions and the status of any road closures due to debris, etc. This 2016/2017 season staff will again incorporate the use of photos and videos through its social media channels. During the 2013/2014 snow season staff created a number of short videos to visually inform residents of a variety of snow topics (tips on how they can prepare for snow and snow removal preparation done at the Works Yard for any predicted snow events). These videos were shared to the public through the City's Facebook, Twitter and YouTube pages in advance of and during snow and ice events.

- News Releases: News releases have been prepared to address common extreme weather/snow and ice topics and will be released to the media as events occur. Some examples include clearing leaves from storm drains, personal winter preparedness, and how the City is preparing for extreme weather events.

- Website: The City's website provides considerable information about snow response including news releases, snow response route map and frequently asked questions. This information can be found at the following location: http://www.richmond.ca/services/rdws/weather/cityprepares.htm.

- Coordinated Response: The City's various departments have established communications protocols and key messaging which will reinforce the snow response communications program. Participating departments include Public Works, Parks, Emergency Programs, Corporate Communications and Richmond Fire-Rescue.

## 2016/2017 Weather Forecast

Richmond's geography often results in specific and variable weather patterns that differ considerably from other Lower Mainland cities. Richmond-specific weather information and long range forecasts are received and monitored daily. According to NorthWest Weathernet the 2016/2017 winter forecast is as follows:

> *There is uncertainty regarding the formation of an El Nino or a La Nina, however, forecasts are leaning towards a La Nina. This will mean that generally speaking, this winter will be cooler than last year, though probably not exceptionally cold. In addition, precipitation is expected to be higher than annual averages.*

## Operational Preparations

Operational preparations are underway which include equipment overhauls, meetings to coordinate efforts amongst departments, and training for staff. Training is crucial for preparation and is always an integral part of the groundwork for each winter season. This training is to ensure a sufficient number of personnel are available to respond to inclement weather events.

The City of Richmond's salt supplies have been secured for the upcoming winter season. There are currently 960 metric tonnes available under contract and an additional 500 metric tonnes on reserve. In addition to the Public Works Yard, a second location (Sidaway site) will be stocked with salt for the reloading of trucks during snow events. This secondary location will reduce travel times and increase efficiencies for equipment working on the east side of Richmond.

Through a centralized control centre, staff closely monitor and record equipment locations, route start and completion times, and salt distribution. The addition of GPS monitoring to City vehicles involved in response operations will enable improved tracking and operations management. Overall, this will allow staff to respond accurately to enquiries and to better track expenditures that can be used to forecast costs for future events.

### Financials – Snow and Ice Non-MRN and MRN

| Year | Annual Budget | Actuals 3rd Quarter | Variance |
|---|---|---|---|
| 2016 | $ 492,800 | $ 140,998 | $ 351,802 |
| 2015 | $ 480,700 | $ 188,714 | $ 291,986 |
| 2016 MRN | $ 118,900 | $ 26,473 | $ 92,427 |
| 2015 MRN | $ 117,900 | $ 22,834 | $ 95,066 |

2015/2016 Winter Season Summary

During the past winter season we experienced zero snow events and 28 ice/frost events of varying duration and severity. The City pre-treated and/or de-iced 13,232 lane kilometres of 1st and 2nd priority roads.

## Conclusion

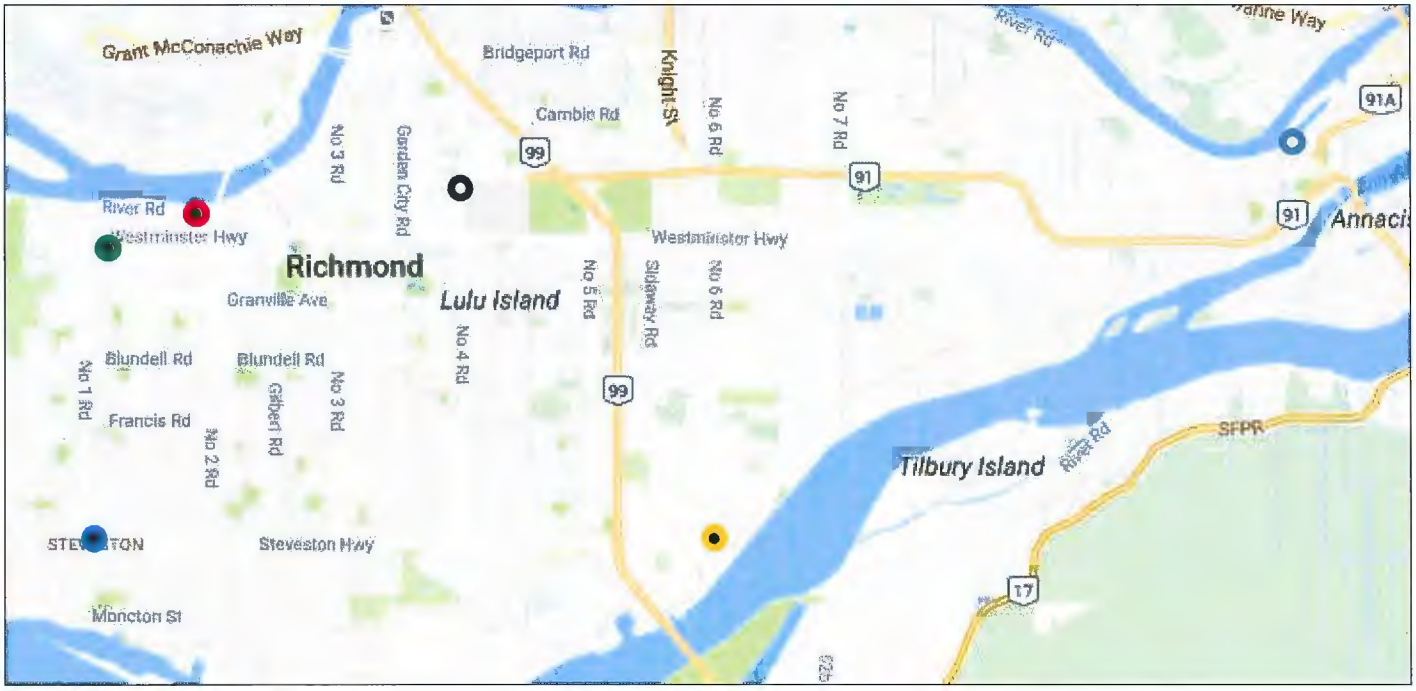
Preparations for the 2016/2017 snow and ice season by all required departments are well underway and will be completed in time for the upcoming winter.

Ben Dias
Manager, Roads & Construction Services
(604-244-1207)

Att. 1: City of Richmond – Road Temperature Sensor Locations
Att. 2: City of Richmond – Snow Response Equipment

**Attachment 1**

## City of Richmond - Road Temperature Sensor Locations




**Road Temperature Sensors:**

- Armoury
- No. 6 Road South
- Oval
- Queensborough
- Steveston
- Forsyth

## City of Richmond - Snow Response Equipment

| Number of Units | Description |
|---|---|
| 4 | Single-axle dump trucks with flinks and belly plows |
| 1 | 1-tonne flat deck truck with insert/brine tank |
| 6 | Tandem dump trucks with insert and plough attachments |
| 1 | Crane truck with insert |
| 5 | F550S with snow plows |
| 1 | Flusher truck (brine) |
| 4 | Mobile snow blowers |
| 4 | Backhoes |
| 1 | Front-end wheel loader |
| 2 | Bobcat skid steers |
| 3 | Hydro excavators |
| 1 | Brine production and handling system |
| 2 | Brine applicator inserts |
| 960 tonnes | Salt |