



Public Works and Transportation Committee

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

**Wednesday, July 18, 2018
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 June 20, 2018.*



NEXT COMMITTEE MEETING DATE

September 19, 2018, (tentative date) at 4:00 p.m. in the Anderson Room

PLANNING AND DEVELOPMENT DIVISION

1. **PUBLIC BIKE SHARE PILOT PROGRAM - RECOMMENDATION TO AWARD CONTRACT**
(File Ref. No. 02-0775-50-6286) (REDMS No. 5867201 v. 4)

PWT-12

See Page PWT-12 for full report

Designated Speaker: Sonali Hingorani

STAFF RECOMMENDATION

- (1) *That the City establish a service of a public bike share system as a pilot project;*

- (2) *That a contract up to 18 months in length with U-bicycle North America Inc. (U-bicycle), based on the terms as outlined in the staff report titled “Public Bike Share Pilot Program – Recommendation to Award Contract” dated June 28, 2018 from the Director, Transportation, be endorsed;*
- (3) *That the Chief Administrative Officer and General Manager, Planning and Development, be authorized to execute the above contract; and*
- (4) *That staff be directed to report back on the outcome of the pilot program following its completion.*



2. **PROPOSED AMENDMENT TO THE OFFICIAL COMMUNITY PLAN – REMOVAL OF HIGHWAY 99 INTERCHANGE AT BLUNDELL ROAD AND EXTENSION OF BLUNDELL ROAD**

(File Ref. No. 08-4050-08) (REDMS No. 5788251)

PWT-21

See Page PWT-21 for full report

Designated Speaker: Donna Chan

STAFF RECOMMENDATION

- (1) *That Richmond Official Community Plan Bylaw 9000, Amendment Bylaw 9901, to remove reference to a new interchange at Highway 99 and Blundell Road and the extension of Blundell Road west of Savage Road, be introduced and given first, second and third readings;*
- (2) *That Official Community Plan Bylaw 9000, Amendment Bylaw 9901, having been considered in accordance with Official Community Plan Bylaw Preparation Consultation Policy 5043 is hereby found not to require further consultation; and*
- (3) *That the City request the Port of Vancouver to undertake at its sole cost the timely implementation of proposed interim road improvements within the Fraser Richmond Port Lands to support continued growth in the area, as outlined in Table 1 of the report, regardless of the outcome of its application for cost-share funding to the Government of Canada’s National Trade Corridors Fund*



ENGINEERING AND PUBLIC WORKS DIVISION

3. **STURGEON BANKS ASSESSMENT AND ENHANCEMENT UPDATE**
(File Ref. No. 10-6160-01) (REDMS No. 5885241 v. 2)

PWT-35

See Page PWT-35 for full report

Designated Speaker: Peter Russell

STAFF RECOMMENDATION

That the staff report titled “Sturgeon Banks Assessment and Enhancement Update” dated June 21, 2018, from the Senior Manager, Sustainability & District Energy, be received for information.



4. **FRASER RIVER FRESHET AND FLOOD PROTECTION UPDATE 2018**
(File Ref. No. 10-6060-01) (REDMS No. 5863056)

PWT-44

See Page PWT-44 for full report

Designated Speaker: Lloyd Bie

STAFF RECOMMENDATION

That the report titled “Fraser River Freshet and Flood Protection Update 2018” dated July 9, 2018 from the Acting Director, Engineering be received for information.



5. **RIPARIAN RESPONSE STRATEGY PHASE ONE**
(File Ref. No. 10-6160-08; 12-8060-20-009871/9882/9883/9884/9885/9881) (REDMS No. 5842647 v. 10; 5838315; 5842645; 5842646; 5843567; 5843328; 5842641)

PWT-54

See Page PWT-54 for full report

Designated Speaker: Chad Paulin

STAFF RECOMMENDATION

- (1) *That Richmond Zoning Bylaw No. 8500, Amendment Bylaw No. 9871, which adds Riparian Management Area setbacks as adopted by Council in 2006, be introduced and given first reading;*

- (2) *That Watercourse Protection and Crossing Bylaw No. 8441, Amendment Bylaw No. 9882, which establishes a riparian review fee for the single family building permit process, and inspection and ticketing authority, be introduced and given first, second, and third readings;*
- (3) *That Consolidated Fees Bylaw No. 8636, Amendment Bylaw No. 9883, which quantifies the riparian permit review and inspection fees established in the Watercourse Protection and Crossing Bylaw No. 8441, be introduced and given first, second, and third readings;*
- (4) *That Municipal Ticket Information Authorization Bylaw No. 7321, Amendment Bylaw No. 9884, which defines fines for non-compliance with the Watercourse Protection and Crossing Bylaw, be introduced and given first, second, and third readings;*
- (5) *That Notice of Bylaw Violation Dispute Adjudication Bylaw No. 8122, Amendment Bylaw No. 9885, which defines fines for non-compliance with the Watercourse Protection and Crossing Bylaw, be introduced and given first, second, and third readings;*
- (6) *That Boulevard Maintenance Regulation Bylaw No. 7174, Amendment Bylaw No. 9881, which amends content to authorize enhancement of a riparian management area, be introduced and given first, second, and third readings; and*
- (7) *That the 5 Year Financial Plan (2018-2022) be amended to include the costs for the new Environmental Coordinator position, which will be recovered through the collection of permit fees.*



6. **MANAGER'S REPORT**

ADJOURNMENT





Public Works and Transportation Committee

Date: Wednesday, June 20, 2018

Place: Anderson Room
Richmond City Hall

Present: Councillor Chak Au, Chair
Councillor Harold Steves
Councillor Derek Dang
Councillor Carol Day
Councillor Alexa Loo

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 May 24, 2018, be adopted as circulated.

CARRIED

NEXT COMMITTEE MEETING DATE

July 18, 2018, (tentative date) at 4:00 p.m. in the Anderson Room

PLANNING AND DEVELOPMENT DIVISION

1. **EXPANSION OF RESERVED ON-STREET PARKING FOR CAR-SHARE VEHICLES**
(File Ref. No. 10-6455-00) (REDMS No. 5782549 v. 2)

Discussion ensued with regard to (i) potential interest from Richmond School District No. 38 to include reserved car-share parking stalls on their lots, (ii) expansion of the reserved car-share parking stalls in new developments in the city centre area, and (iii) the growth and usage of car-share vehicles.

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It was moved and seconded

That the staff report titled "Expansion of Reserved On-Street Parking for Car-Share Vehicles", dated June 8, 2018 from the Director, Transportation, to support enhanced car-share services in Richmond, be received for information.

CARRIED

ENGINEERING AND PUBLIC WORKS DIVISION

2. 2018 CORPORATE ENERGY MANAGEMENT PROGRAM UPDATE
(File Ref. No. 10-6125-05-01) (REDMS No. 5846481 v. 10)

Levi Higgs, Corporate Energy Manager, and Jim Nelson, BC Hydro, reviewed the Corporate Energy Management Program, highlighting that the City saves approximately \$1 million annually on electricity costs and that energy saving features such as LED lighting, improved glazing, and heat recovery have been incorporated in new City facilities.

It was suggested that staff present the 2018 Corporate Energy Management Program at an upcoming Council meeting, and that the report be distributed to Metro Vancouver.

It was moved and seconded

That the staff report titled "2018 Corporate Energy Management Program Update" from the Senior Manager of Sustainability and District Energy, dated May 25, 2018, be received for information.

CARRIED

3. PUBLIC ELECTRIC VEHICLE CHARGING INFRASTRUCTURE EXPANSION
(File Ref. No. 10-6125-07-02) (REDMS No. 5843707 v. 14)

In reply to queries from Committee, staff noted that (i) different charging station types vary in cost, (ii) a total of six new charging stations are proposed for City Hall and the Richmond Olympic Oval, (iii) the implementation of parking fees for charging stations are proposed, (iv) staff can explore opportunities to receive Greenhouse Gas (GHG) credits, (v) staff can examine options to make the proposed parking spaces accessible-friendly, and (vi) staff will prepare a communication strategy should the proposed bylaw proceed.

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It was moved and seconded

That, as described in the staff report titled, "Public Electric Vehicle Charging Infrastructure Expansion" dated May 18th 2018 from the Senior Manager, Sustainability & District Energy:

- (1) publicly accessible electric vehicle charging infrastructure be installed at City Hall and Richmond Olympic Oval, with funding from the 2017 Capital Budget;*
- (2) pending the successful award of the City's application to Natural Resources Canada's Electric Vehicle and Alternative Fuel Infrastructure Deployment Initiative grant, staff be directed to report back with any additional capital budget approval for further expansion of charging infrastructure; and*
- (3) a cost recovery approach to impose user fees and time limits for publicly accessible electric vehicle charging stations be endorsed as outlined in the report, and that staff be directed to bring forward amendments to the Consolidated Fees Bylaw No. 8636, the Traffic Bylaw No. 5870, Parking (Off-Street) Regulation Bylaw No. 7403, and the Notice of Bylaw Violation Dispute Adjudication Bylaw No. 8122 to implement this cost recovery approach.*

CARRIED

4. WOODWARDS SLOUGH HABITAT COMPENSATION

(File Ref. No. 10-6050-01) (REDMS No. 5852990 v. 12)

Discussion ensued with regard to (i) Department of Fisheries and Oceans (DFO) requirements to provide habitat compensation for the infilling of drainage canals as part of the Westminster Highway and Nelson Road widening projects, (ii) the proposed design and location of the habitat compensation in the Woodward's Slough, (iii) the estimated costs of the proposed habitat compensation, (iv) the minimal impact of filling inland drainage canals on fish habitat, (v) the Provincial regulations related to Riparian Management Area compensation and the impact of the regulations to farming, and (vi) advocating senior levels of government to review regulations related to habitat compensation.

In reply to queries from Committee, staff noted that costs related to the proposed habitat compensation have been factored in the Westminster Highway and Nelson Road project and that the City can continue engaging with the Province to review current regulations. It was added that the proposed habitat compensation will provide positive environmental enhancements in the Woodward's Slough area.

3.

Public Works & Transportation Committee
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It was moved and seconded

That the staff report titled "Woodwards Slough Habitat Compensation," dated May 25, 2018, from the Acting Director, Engineering, be received for information.

CARRIED

Discussion ensued with regard to the Terra Nova project and requesting a Provincial review of the regulations related to habitat compensation.

As a result of the discussion, the following **referral motion** was introduced:

It was moved and seconded

That staff use the Terra Nova model to explore opportunities to receive credits towards releasing of habitat compensation requirements on future projects, and report back.

CARRIED

5. SOUTH ARM DIKE UPGRADE BETWEEN GILBERT ROAD AND NO. 3 ROAD

(File Ref. No. 10-6340-20-P.17302) (REDMS No. 5796103 v. 5)

Discussion ensued with regard to (i) options to widen the dike for a bicycle path, (ii) the proposed design of the dike, and (iii) the materials and types of soil used to upgrade the dike.

It was moved and seconded

That the staff report titled "South Arm Dike Upgrade Between Gilbert Road and No. 3 Road," dated April 27, 2018, from the Acting Director, Engineering, be received for information.

CARRIED

6. BOUNDARY ROAD DRAINAGE MEMORANDUM OF UNDERSTANDING

(File Ref. No. 10-6000-01) (REDMS No. 5804141 v. 6)

It was moved and seconded

(1) That the Chief Administrative Officer and the General Manager, Engineering be authorized to execute, on behalf of the City, a Memorandum of Understanding between the City and the City of New Westminster containing the material terms and conditions set out in the staff report titled, "Boundary Road Drainage Memorandum of Understanding" dated May 25, 2018 from the Acting Director, Engineering;

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- (2) *That the 5 Year Financial Plan (2018-2022) be amended to fund the City's share of fronting costs for the Boundary Road Pump Station upgrade of \$960,000 from the Drainage Improvement Reserve and the estimated annual operating cost of \$4,475 be incorporated into the 2019 Budget; and*
- (3) *That staff bring forward updates to the Works and Services Cost Recovery Bylaw No. 8752 to include recovery of the fronting costs for the Boundary Road Pump Station upgrade from benefiting developments in the Thompson Boundary Area.*

CARRIED

7. MANAGER'S REPORT

(i) Maintenance of Dike

Tom Stewart, Acting General Manager, Public Works, presented a photograph of a section of dike in East Richmond (attached to and forming part of these minutes as Schedule 1), noting that City crews have conducted maintenance work on the dike to prepare for freshet.

(ii) Brighthouse Fire Hall No. 1

Robert Gonzalez, Deputy CAO and Interim General Manager, Richmond Olympic Oval Corporation, noted that the opening ceremony of Fire Hall No. 1 has been postponed and will be rescheduled when Richmond Fire-Rescue staff occupies the building.

(iii) Solar Rooftops

Discussion ensued with regard to solar roof requirements in the city centre area and as a result, the following **referral motion** was introduced:

It was moved and seconded

That staff:

- (1) provide an update on the District Energy Program;***
- (2) explore initiatives for a Solar District Energy in the city centre area; and***
- (3) explore initiatives for rainwater harvesting; and report back.***

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ADJOURNMENT

It was moved and seconded

That the meeting adjourn (5:02 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, June 20, 2018.

Councillor Chak Au
Chair

Evangel Biason
Legislative Services Coordinator






City of Richmond

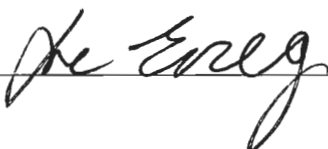
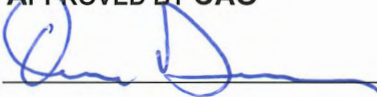
Report to Committee

To: Public Works and Transportation Committee
From: Victor Wei, P. Eng.
Director, Transportation
Date: July 10, 2018
File: 02-0775-50-6286/Vol
01
Re: **Public Bike Share Pilot Program - Recommendation to Award Contract**

Staff Recommendation

1. That the City establish a service of a public bike share system as a pilot project;
2. That a contract up to 18 months in length with U-bicycle North America Inc. (U-bicycle), based on the terms as outlined in the staff report titled "Public Bike Share Pilot Program – Recommendation to Award Contract" dated June 28, 2018 from the Director, Transportation, be endorsed;
3. That the Chief Administrative Officer and General Manager, Planning and Development, be authorized to execute the above contract; and
4. That staff be directed to report back on the outcome of the pilot program following its completion.


Victor Wei, P. Eng.
Director, Transportation
(604-276-4131)
Att. 1

REPORT CONCURRENCE		
ROUTED TO:	CONCURRENCE	CONCURRENCE OF GENERAL MANAGER
Administration & Compliance	<input checked="" type="checkbox"/>	
Economic Development	<input checked="" type="checkbox"/>	
Purchasing	<input checked="" type="checkbox"/>	
Engineering	<input checked="" type="checkbox"/>	
Parks	<input checked="" type="checkbox"/>	
Business Licences	<input checked="" type="checkbox"/>	
Law	<input checked="" type="checkbox"/>	
Community Bylaws	<input checked="" type="checkbox"/>	
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	INITIALS: CJ	APPROVED BY CAO 

Staff Report

Origin

At its March 26, 2018 meeting, Council directed staff to issue a Request for Proposals (RFP) for the development and operation of a public bike share system as a pilot project, and report back on the responses to the RFP with a recommendation. This report recommends the award of a contract up to 18 months in length to U-bicycle North America (U-bicycle).

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

Adhere to effective planning and growth management practices to maintain and enhance the livability, sustainability and desirability of our City and its neighbourhoods, and to ensure the results match the intentions of our policies and bylaws.

3.3. *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.

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

Analysis

Procurement Process

An RFP for the development and operation of a pilot public bike share program was issued by the City on May 9, 2018 with a closing date of May 28, 2018. Three proposals were received and all of the proponents have a demonstrated ability to operate a public bike share system, including experience in Canada.

Evaluation of Proposals

The proposals were evaluated by a staff team from Transportation and Community Bylaws in accordance with the following evaluation criteria identified in the RFP:

- project methodology and timeline;
- form of bicycle parking and use of public realm;
- safety and quality of equipment;
- operations, customer service, maintenance, and rebalancing of bicycles;
- user experience and affordability;
- data security, sharing and reporting;
- risk management;
- financial projections;
- proponent qualifications; and
- proposal quality.

Recommended Operator

Following the proposal evaluation process, staff have selected U-bicycle North America (U-bicycle) and recommend that the company be awarded a contract to serve as the public bike share system owner and operator operating at arm's length from the City for a pilot project term of up to 18 months. In this owner/operator role, U-bicycle would:

- manage, fund and maintain the operations;
- assume the financial, operational and liability risks associated with the system;
- install and maintain any infrastructure associated with geo-fenced “virtual” docking stations (e.g., bike racks, helmet kiosks);
- operate and optimize bicycle and helmet redistribution; and
- be responsible for sales, education, marketing, and customer service.

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

- access to City lands including streets and open spaces for the installation of any bike racks and related signage and wayfinding;
- in-kind support primarily comprised of staff support for the station siting process; and
- monitoring system performance during the pilot period.

Staff time and resources can be accommodated within existing divisional operating budgets.

System Description

The system recommended for Richmond would be a balance between a free-floating dockless system and a station-based docked system that features geo-fenced virtual stations as designated bike parking areas to help avoid potential obstructions in the public realm by improperly parked bicycles. Virtual parking stations have the advantage of easy modification if there is a need to adjust the size and location of stations to address changes in system demand or to accommodate special events or construction work.

Bikes, Helmets and Infrastructure

System users will be able to rent bicycles at one location and end their trip at another location through a self-service process available 24/7 during the pilot period. Each self-locking bicycle has a helmet that locks to the frame of the bike and helmet liners will be available via a kiosk at stations. Additional bicycle features include automatic front and rear lights, an adjustable seat height, front cargo basket and cup holder, bell, and three gears (Figure 1). Instructions on how to use the U-bicycle system and customer service hotline number are provided on the rear-wheel guard and the basket.



Figure 1: Proposed U-bicycle Model

Communications, including payment transactions, are completed wirelessly via a smartphone app. Selected stations along the Canada Line will have beacons to convert them to free WiFi zones. U-bicycle will also seek to partner with local retailers, malls, restaurants, and hotels to leverage their WiFi.

The bicycles have a chip and are GPS-ready; however, initially, the device will not be enabled, which limits the ability to track the real-time locations of bicycles between trips. U-bicycle is currently pursuing the certification process to enable the GPS device (estimated to take six months as of June 2018). U-bicycle will monitor the usage of the bikes in the initial weeks after the launch and commits to activating the GPS in all bikes by the beginning of January 2019 if issues are demonstrated to arise (e.g., incorrectly parked bikes, theft of bikes).



Figure 2: Proposed Kiosk



Figure 3: Proposed Bike Racks

The majority of stations will feature signage that contains instructions for use, the nearest bike route and nearby attractions and destinations (Figure 2). At high density locations where usage is expected to be higher and space constraints may be present, U-bicycle would provide its own bicycle racks to better identify its bicycles and ensure unrented bikes are parked in an orderly and space-efficient manner (Figure 3). The use of existing public bicycle racks is not encouraged in order to maximize availability for cyclists not using the bike share system.

Deployment Areas and Station Siting

Should demand warrant, the system will have the capacity at its full launch to consist of up to 470 bikes at 110 stations located within the City Centre core and Steveston area (see Attachment 1 for system coverage areas). An initial launch will deploy a much smaller number of bicycles and stations with increases to the system being phased in subject to a monitoring period. The boundaries of the City Centre area will be generally similar to those of the City Centre planning area: No. 2 Road to the west, Blundell Road to the south, No. 4 Road-Shell Road to the east and the Fraser River to the north. The Steveston Village area will be bounded by the water to the west and south, Williams Road-Steveston Highway to the north, and No. 2 Road to the east.

The exact number of bikes and stations will be determined via U-bicycle's three-step approach to determine the locations of the virtual parking stations:

- (1) Feasibility Study: identify and recommend proposed locations for initial deployment.
- (2) Consultation: Share the first draft of the virtual station plan for public consultation via U-bicycle's and the City's channels. Adjust the number of stations proposed based on the feedback.
- (3) Finalization: Prepare a final draft for the City's review and approval.

The virtual parking zones are intended to be within a 50 m radius from the following locations: community centres, Canada Line stations, bus stops, and commercial centres. The distance between each virtual parking station would be between 300-500 m. Station locations are anticipated to be a mix of on-street (e.g., at corner clearances), off-street (e.g., boulevard or other City-owned property) and privately owned lands. The proximity of a proposed station to an existing cycling facility will be a consideration as part of the station siting process. It is the responsibility of U-bicycle to secure all station locations.

After determination of the locations of the virtual parking stations, a small-scale launch of 10 stations with 50 bikes will be deployed along the Canada Line and major bus stops. The trial deployment will allow evaluation of users' feedback on the signage and user-friendliness of the interface. The trial will last for a minimum of one week and minor adjustments will be undertaken as necessary prior to implementation of the rest of the proposed stations.

System usage operations will be monitored and, if warranted, a second phase with deployment of up to a further 250 bicycles may be considered in Spring 2019.

Pricing

U-bicycle intends to offer three rental plans:

- *Pay-as-You-Go Rental*: users pick-up and return a smart bike at any virtual dock station. Rental will be charged at \$1.00 per 30 minutes. Trips will not end unless the user returns the bike to a virtual dock. However, the user can temporarily park at any public bike rack during the rental.
- *Membership Rental*: members can enroll in an annual pass program at \$150 per year. The membership would provide unlimited trips.
- *Tourist Rental*: offered at \$14 per day, this pass provides unlimited 24-hour rental. During the 24-hour period, the bikes can be parked temporarily outside of geo-fenced boundaries and virtual dock locations but bikes must be returned to the virtual dock for the trip to end.

Multiple payments can be processed per one app so that one person could pay for all bike rentals in his/her group. As a theft-protection mechanism, each person in the group will need the U-bicycle app in order to unlock his/her own bike.

Operations

Rebalancing (e.g., from low to high demand areas) will be done on a daily basis with one operations staff for every 100 bikes. Operations staff will track bike usage, observe weekly changes, and adjust rebalancing attention accordingly. Priority will be given to moving bikes left unused for seven days, in low-demand residential or industrial zones, or in areas with high theft and vandalism risk. Maintenance checks are performed on all bikes at least once every seven days and bikes in high-usage zones are checked more frequently.

Customer support coverage will be available 8:00 am to 8:00 pm during the week and 9:00 am to 6:00 pm on weekends. Users can access customer support in-app or via the customer service hotline number, also highlighted in the app. The City and Richmond RCMP 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 bikes and parts, to recycle and repair bikes, and to respond to public concerns.

Promotion and Community Engagement

U-bicycle plans to undertake a two-phase (pre- and post-launch) marketing plan to:

- raise awareness of the bike share pilot program among residents and visitors, and
- inform and educate the public on how to use the system, how to ride safely and where to find Richmond's bike routes.

Avenues to raise awareness include U-bicycle's use of its social media, website and blog, sponsorship of community events, local media advertising, marketing partnerships with local businesses, and free weekend bike tours hosted by U-bicycle staff.

Monitoring and Performance Measurement

The City will be provided with weekly and monthly reports to assist in understanding system use including data such as number of registered and active users, number rides and bikes being used, trip start and end points, trip distance and time, and system usage by time of day and day of week. A set of key performance indicators will be developed to track and evaluate U-bicycle's overall performance. Potential indicators include minimum performance levels in bike, helmet and station availability, customer service response times, and bicycle parking management.

The pilot program will include a provision for the City to terminate service should the system features not be kept in a condition acceptable to the City. Upon written notice from the City, U-bicycle anticipates a three week timeframe to allow for deactivation of their service in Richmond, including removal of all program equipment.

Timelines

Should Council approve the staff recommendation, U-bicycle anticipates being able to launch the system approximately eight weeks after contract finalization and execution.

Financial Impact

None.

Conclusion

Based on staff's evaluation, the U-bicycle proposal would provide the community and the City with the following benefits:

- provision, management, operation, and maintenance of a public 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 U-bicycle's proposal would enable the City to explore and evaluate the potential of a public bike share system to advance the objective of providing expanded travel choices in support of the City's mobility goals and targets in the most cost-effective manner.



Joan Caravan
Transportation Planner
(604-276-4035)



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

JC:jc

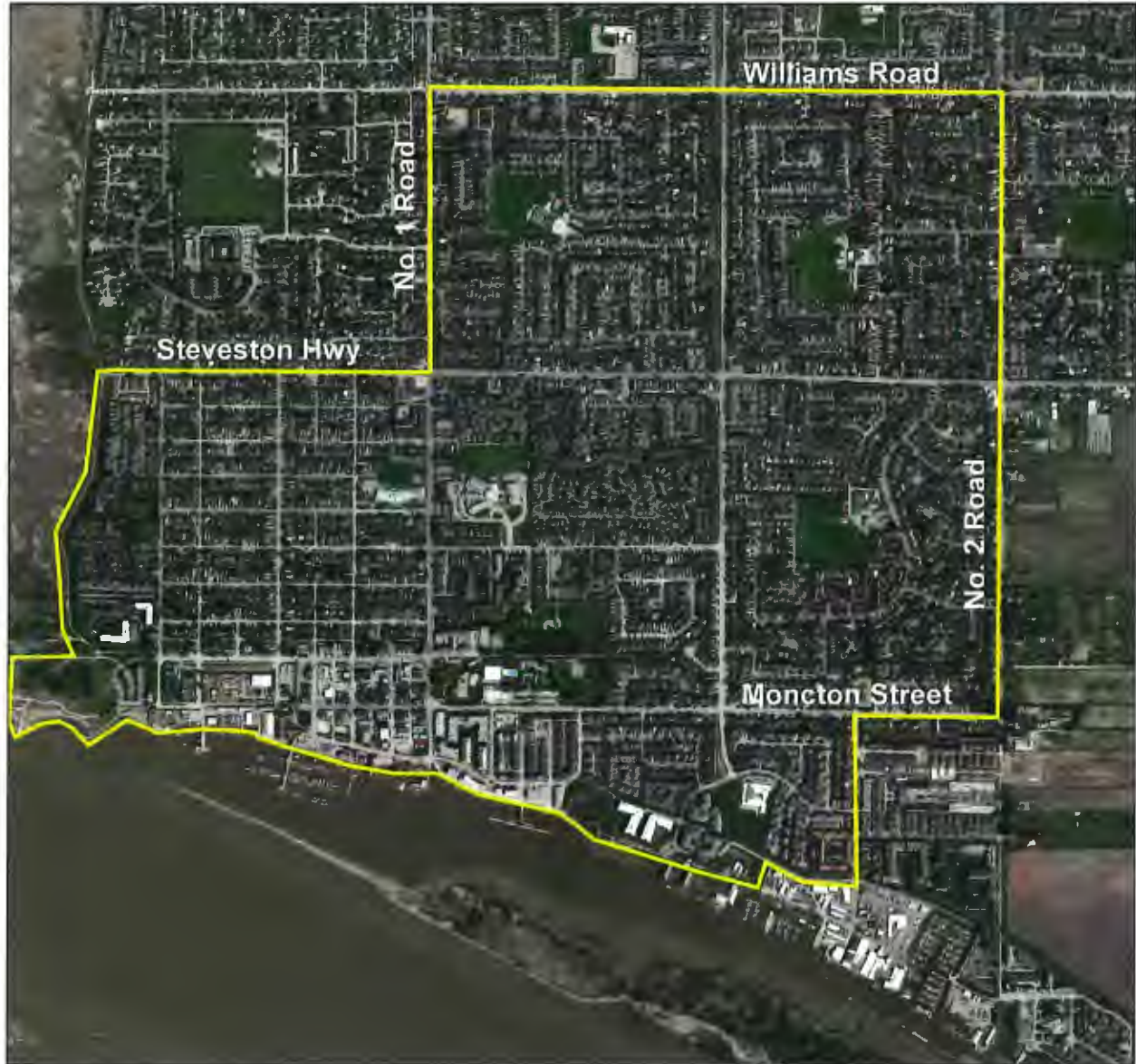
Att. 1: Proposed Deployment Areas – City Centre and Steveston

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Proposed City Centre Deployment Area



Proposed Steveston Deployment Area





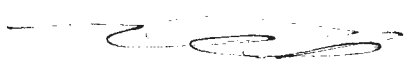
City of Richmond

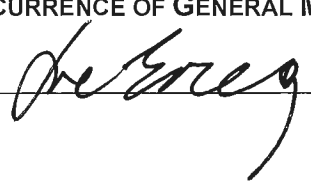


Report to Committee

To: Public Works and Transportation Committee **Date:** July 10, 2018
From: Victor Wei, P. Eng.
Director, Transportation **File:** 08-4050-08/2018-Vol
01
Re: **Proposed Amendment to the Official Community Plan – Removal of Highway 99 Interchange at Blundell Road and Extension of Blundell Road**

Staff Recommendation

1. That Richmond Official Community Plan Bylaw 9000, Amendment Bylaw 9901, to remove reference to a new interchange at Highway 99 and Blundell Road and the extension of Blundell Road west of Savage Road, be introduced and given first, second and third readings;
2. That Official Community Plan Bylaw 9000, Amendment Bylaw 9901, having been considered in accordance with Official Community Plan Bylaw Preparation Consultation Policy 5043 is hereby found not to require further consultation; and
3. That the City request the Port of Vancouver to undertake at its sole cost the timely implementation of proposed interim road improvements within the Fraser Richmond Port Lands to support continued growth in the area, as outlined in Table 1 of the report, regardless of the outcome of its application for cost-share funding to the Government of Canada's National Trade Corridors Fund.


Victor Wei, P. Eng.
Director, Transportation
(604-276-4131)
Att. 3

REPORT CONCURRENCE		
ROUTED TO:	CONCURRENCE	CONCURRENCE OF GENERAL MANAGER
Engineering	<input checked="" type="checkbox"/>	
Policy Planning	<input checked="" type="checkbox"/>	
Law	<input checked="" type="checkbox"/>	
Intergovernmental Relations & Protocol	<input checked="" type="checkbox"/>	
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	INITIALS: 	APPROVED BY CAO 

Staff Report

Origin

A future Highway 99-Blundell Road Interchange along with associated road improvements to Blundell Road between No. 4 Road and Savage Road are identified as part of the City's long-term transportation network in the *Official Community Plan* (OCP), which was adopted in November 2012. As recent studies have revealed that a new interchange at Blundell Road is predicted to create community disbenefits, this report recommends that the OCP be amended to remove reference to the future implementation of these road network elements.

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

Adhere to effective planning and growth management practices to maintain and enhance the livability, sustainability and desirability of our City and its neighbourhoods, and to ensure the results match the intentions of our policies and bylaws.

3.3. *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.

5.1. *Advancement of City priorities through strong intergovernmental relationships.*

Analysis

Current Policy in Official Community Plan

The Mobility and Access section of the *Official Community Plan* (OCP) identifies the following policy with respect to Highway 99:

- d) *support the implementation of improvements along Highway 99, including an upgraded interchange at Steveston Highway and a new interchange at Blundell Road, to enhance local circulation and connectivity, increase safety and improve goods movement;*

The OCP further states that these improvements would be undertaken through:

initiatives of senior governments (e.g., external grants, improvements to the Highway 99 corridor).

Further, the Road Classification Map within the OCP (Attachment 1) identifies the extension of Blundell Road between No. 6 Road and No. 7 Road and the classification of the road segment of Blundell Road between No. 5 Road and Savage Road as a proposed major arterial. The existing segment of Blundell Road between No. 5 Road and No. 6 Road is currently

classified as a minor arterial. Note that Blundell Road does not physically exist as a road between No. 6 Road and just east of the Savage Road right-of-way.

George Massey Tunnel Replacement Project

As stated in the report titled “Update on George Massey Tunnel Replacement Project” adopted at the July 27, 2015 regular Council meeting, the George Massey Tunnel Replacement (GMTR) team modelled the effect on traffic patterns of a new interchange at Highway 99 and Blundell Road. The GMTR team subsequently concluded that a new interchange at Blundell Road was not required to support the project objectives and thus the project scope as outlined in the Project Definition Report released in December 2015 did not include this element.

Further, the modelled effect on traffic patterns of a new interchange at Blundell Road indicates there are more disbenefits than benefits to Richmond from such an interchange. As shown in Attachment 2, traffic would be diverted to several roads that would experience higher vehicle volumes including rural roads through existing lands that are being actively farmed (e.g., cranberry and blueberry farms):

- Blundell Road east and west of Highway 99 in both the AM and PM peak;
- Sidaway Road to and from Knight Street, particularly in the AM peak;
- Granville Avenue west of No. 5 Road, particularly in the AM peak; and
- Williams Road west of No. 5 Road.

These negative community impacts arising from a new interchange at Blundell Road-Highway 99 would be expected regardless of the outcome of the current independent technical review of the Massey Tunnel crossing or any future improvements to the crossing. Further, as there would be significant impacts on existing residents along the two-lane rural roads in this area, strong opposition to the road network changes from Blundell Road residents has been expressed in the past and would also be expected to continue should implementation of this road extension be pursued. Removal of the interchange would provide certainty for residents, land owners and the City regarding future road network elements based on recent studies and findings.

Development Cost Charges Bylaw 9499

At the regular Council meeting of September 26, 2016, Council endorsed proposed updated city-wide Development Cost Charges (DCC) rates as the basis for further public consultation in establishing an updated DCC Rates Bylaw. The staff report identified projects on the Master DCC Program to be deleted or deferred due to changes in program requirements including the following:

- Upgrade and extension of Blundell Road from No. 4 Road to Savage Road (\$17.3M), and
- Highway 99 Interchange at Blundell Road (\$13.0M).

The report provided the following rationale for deletion of these two projects from the Master DCC Program:

The George Massey Tunnel Replacement (GMTR) Project Definition Report (PDR) released by the Ministry of Transportation & Infrastructure (MoTI) identifies a new interchange at Steveston Highway rather than an upgrade to the existing interchange (as noted in the

existing DCC program), as well as a new overpass at Blundell Road rather than an interchange (also noted in the existing DCC program).

The updated Development Cost Charges Imposition Bylaw No. 9499 was adopted at the regular Council meeting of May 8, 2017.

Planned and Proposed Road Improvements in Fraser Richmond Port Lands

A primary reason for the inclusion of the proposed interchange and the westward extension of Blundell Road from No. 7 Road in the OCP was to serve goods movement generated by the Fraser Richmond Port Lands (the Port Lands). Since that time, a number of road improvements in the area have been implemented such as the Highway 91-Nelson Road interchange and the widening of Westminster Highway east of Nelson Road. Moreover, a traffic impact study conducted for the recently approved Ecowaste development in east Richmond concluded that the combined existing and planned road improvements associated with the ultimate build-out of the area (including Ecowaste) would provide adequate area road network capacity to accommodate traffic growth without having to extend Blundell Road to Highway 99. Hence, the widening of Blundell Road east of No. 7 Road within the Port Lands would not be required for capacity reasons but rather for improving truck turning movements at driveways serving various distribution centres east of No. 7 Road within the Port lands as well as a storage area for traffic that may queue due to railway activity at the Blundell Road-Portside Road railway crossing.

Planned and proposed interim road improvements within the Port Lands (shown in Attachment 3) are summarized in Table 1. Road improvements in this area are the responsibility of the Port of Vancouver (the Port), not the City, as the Port does not pay any Development Cost Charges (DCCs) including Roads DCCs, which is the City's funding source for transportation capital projects. Further, the City is responsible for the maintenance of the roadways within the Port Lands with the exception of Portside Road, which is a private road.

Table 1: Planned and Proposed Road Improvements in Fraser Richmond Port Lands

Road Segment	Road Improvement	Planned or Proposed?	Within Port Lands?	Funding Agency
Blundell Road: No. 7 Road-No. 8 Road	Widen from two to four lanes with left-turn lanes to improve truck turning movements	Planned: Ultimate	Yes	Port of Vancouver (100%)
Blundell Road-Portside Road/No. 8 Road Overpass and Upgrade	Widen and provide grade separation at Blundell Road-Portside Road/No. 8 Road intersection			
Blundell Road-No. 8 Road Intersection	Widening of southbound No. 8 Road to create right-turn lane at Blundell Road	Proposed: Interim (Recommended)		
Blundell Road-No. 8 Road Intersection	Widening of eastbound Blundell Road to create right-turn lane at No. 8 Road			
Blundell Road: No. 7 Road-No. 8 Road	Widening to three lanes at select locations to accommodate truck turning			
Nelson Road-Blundell Road Intersection	Signalization of intersection and upgrade of CN Rail crossing	Planned: Ultimate	No	Port of Vancouver (52%) City of Richmond (48%)

Road Segment	Road Improvement	Planned or Proposed?	Within Port Lands?	Funding Agency
New Roadway through Ecowaste Site	New access for emergency services at the south end of Ecowaste site to connect to Williams Road-Triangle Road-No. 6 Road	Planned: Ultimate	No	Ecowaste (100%)

Note: per the 2007 Nelson Road Contribution Agreement between the City and the Port, the cost of signaling the Nelson Road-Blundell Road intersection is shared between the Port (52%) and the City (48%) as not all of the properties at the south end of Nelson Road are within the Port Lands.

In September 2017, Council considered a staff report regarding the Greater Vancouver Gateway 2030 strategy for transportation infrastructure investments to enhance gateway-related trade movements. Council endorsed the City's collaboration with the Port to facilitate the Blundell Road widening and Portside Road overpass improvements. The City has provided a letter of support for the Vancouver Fraser Port Authority's two-phase submission for consideration of cost-share funding from the Government of Canada's National Trade Corridors Fund.

The recent funding announcements did not include these two projects and no further announcements are anticipated; the next call for proposals in Fall 2018 will target the Territorial North. Notwithstanding, the Port maintains that federal funding is necessary to support a business case for the improvements and remains hopeful that the funding will be secured in the future, possibly as part of the next intake of applications anticipated in 2019.

Consultation with the Port and Stakeholders within Fraser Richmond Port Lands

In April 2018, staff met with the Blundell Road Business Consortium (the Consortium), a group of stakeholders representing businesses in the Port Lands, to discuss the need for road improvements and other traffic safety concerns in the area. The Consortium acknowledged the potential negative impacts of extending Blundell Road to Highway 99 and indicated support for the planned road improvements to address traffic growth.

Staff met again with the Consortium in June 2018 to discuss the results of a traffic count survey on Blundell Road, which verified that the widening of the roadway is required to accommodate truck turning movements rather than increased capacity. Following further discussion of road improvement options, staff and the Consortium agreed to collaborate to request the Port to implement the timely widening of Blundell Road and the No. 8 Road-Blundell intersection improvements.

A follow-up meeting with the Consortium, staff and the Port was held in July 2018 to discuss road improvements and the means to advance the projects to construction. Of the five road improvements listed in Table 1 that are the Port's sole responsibility for funding, the three proposed interim projects (i.e., selected widening of Blundell Road to three lanes and No. 8 Road-Blundell intersection improvements) could be feasibly implemented in the near-term. The parties collectively agreed that the projects would provide an interim solution until the long-term planned improvements are implemented, as the projects would materially improve truck turning movements and accommodate continued growth in the area. Port staff, with assistance from City staff, will undertake further technical analyses to confirm the scope of each of the proposed interim projects including the preparation of cost estimates.

Accordingly, regardless of whether or not the ultimate Blundell Road widening project east of No. 7 Road within the Port Lands is included in the next federal government funding announcement, staff recommend that the City formally request the Port to undertake the timely implementation of these three interim projects solely with its funding, as occurred with the construction of the eastern one-half of the existing Blundell Road within the Port Lands in 2002-2003.

Removal of Highway 99-Blundell Road Interchange and Associated Road Improvements

In light of the recent provincial study and its conclusion of the potential Blundell interchange as part of the tunnel improvement project as noted earlier, staff recommend that the *Official Community Plan* be amended to remove reference to a new interchange at Highway 99 and Blundell Road along with the extension of Blundell Road west of Savage Road based on:

- the transportation modelling analyses undertaken as part of the George Massey Tunnel Replacement Project;
- consistency with the current Master DCC Program and the updated DCC Rates Bylaw;
- the planned road improvements and capacity of the ultimate area road network for the Fraser Richmond Port Lands including a future new access for emergency services via the Ecowaste site;
- the transit and cycling routes being planned and/or secured as part of the Ecowaste development off-site works; and
- the adverse impacts of the road extension through existing active farm lands and residential neighbourhood.

The proposed specific amendments to the Mobility and Access chapter of the OCP comprise:

- Section 8.1 Road Network: deletion of text regarding a new interchange at Blundell Road from Objective 3, Policy d);
- Road Classification Map: deletion of proposed new Blundell Road interchange and the Blundell Road segment between No. 6 Road and Savage Road, and revision of the Blundell Road segment between No. 5 Road and No. 6 Road from Proposed Major Arterial to Minor Arterial (i.e., the existing road classification);
- Transit Network Map: deletion of a Local Transit Route on the Blundell Road segment between No. 6 Road and Savage Road, and addition of a new Local Transit Route through the Ecowaste site to Williams Road-Triangle Road-No. 6 Road, as described in TransLink's Southwest Area Transport Plan, which was endorsed by Council in March 2018; and
- Cycling Network Map: deletion of a Major Street Route on the Blundell Road segment between No. 6 Road and Savage Road, and addition of a new Major Street Route through the Ecowaste site to Williams Road-Triangle Road-No. 6 Road-Steveston Highway.

Staff have reviewed the proposed OCP Amendment Bylaw with respect to the *Local Government Act* and the City's OCP Bylaw Preparation Consultation Policy 5043 and no further consultation is required. The public will have an opportunity to comment on the proposed amendment at the Public Hearing. Public notification of the Public Hearing will be provided as per the *Local Government Act*.

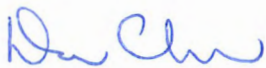
Financial Impact

None.

Conclusion

The future Highway 99-Blundell Road Interchange as well as the upgrade and extension of Blundell Road from No. 6 Road to No. 7 Road are both proposed to be removed as elements of the City's long-term transportation network as recent transportation modelling studies indicate more disbenefits than benefits to Richmond. Deletion of these elements in the *Official Community Plan* would reflect the land use and transportation changes that have occurred since 1999 when the Blundell Road improvements were incorporated into the OCP. The proposed amendment would ensure existing active farm lands (e.g., cranberry and blueberry farms on Sidaway Road and Granville Avenue) and residential neighbourhoods in Richmond would not be adversely impacted by unnecessary road network expansion and provide clarity and certainty for residents, land owners and the City regarding future road network elements based on recent studies and findings.

Staff further recommend that the City formally request the Port of Vancouver to undertake the timely implementation of three interim road improvement projects solely with its funding regardless of whether or not the ultimate Blundell Road widening project east of No. 7 Road within the Port Lands is included in the next federal government funding announcement. The interim road projects would address the immediate need to facilitate truck turning movements and accommodate continued growth in the area while opportunities for federal funding may still exist for the Port to pursue the planned major road improvements in 2019.



Donna Chan, P. Eng., PTOE
Manager, Transportation Planning
(604-276-4126)

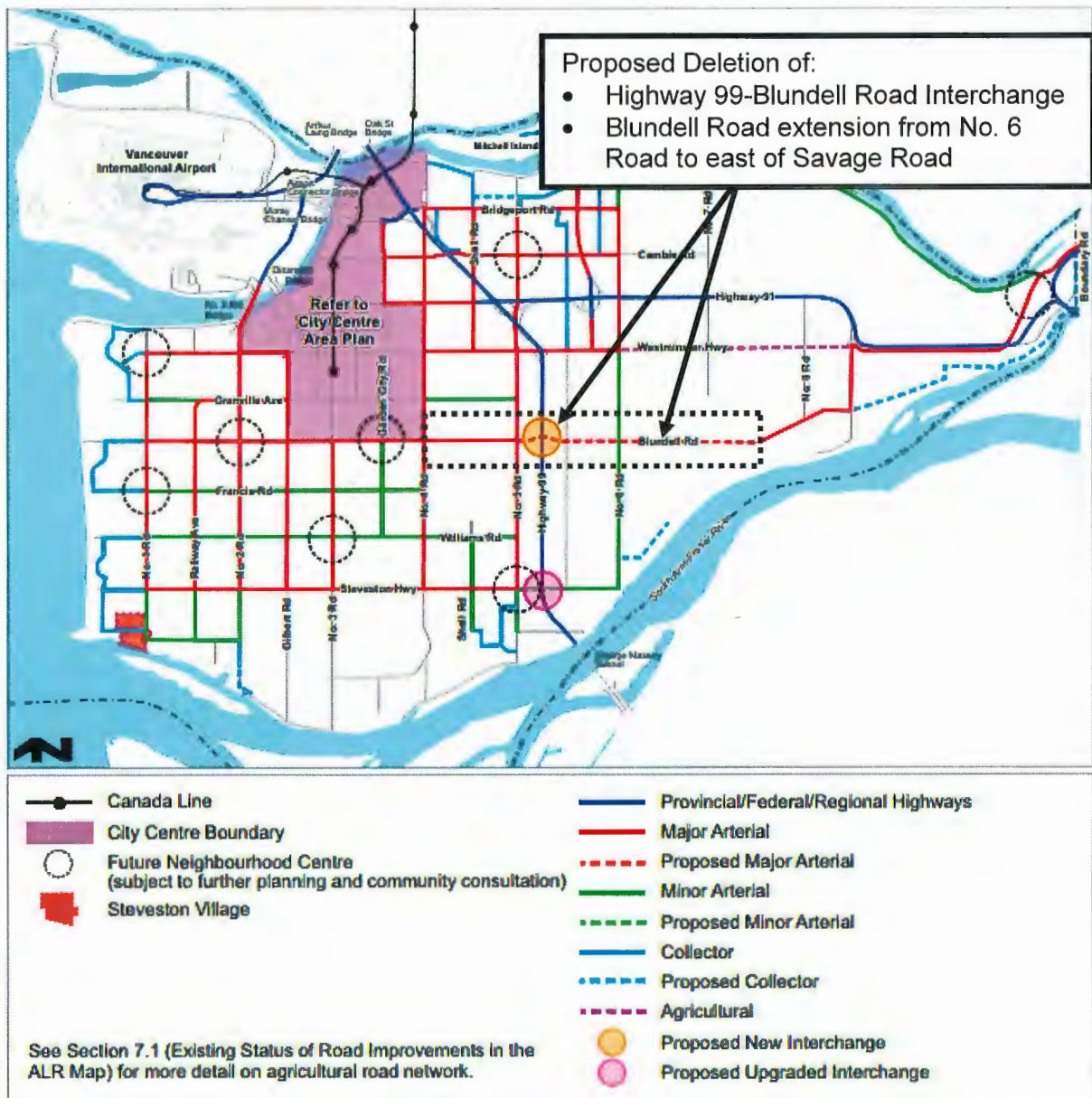


Joan Caravan
Transportation Planner
(604-276-4035)

DC:dc

- Att. 1: Official Community Plan – Road Classification Map
- Att. 2: Model Results of Highway 99-Blundell Road Interchange: Increased Traffic Volume Diversion
- Att. 3: Planned and Proposed Interim Road Improvements in Fraser Richmond Port Lands

Road Classification Map



**Model Results of Highway 99-Blundell Road Interchange:
Increased Traffic Volume Diversion**



Planned and Proposed Interim Road Improvements in Fraser Richmond Port Lands





**Richmond Official Community Plan Bylaw 9000
Amendment Bylaw 9901**

The Council of the City of Richmond enacts as follows:

1. **Richmond Official Community Plan Bylaw 9000**, as amended, is amended further by replacing Chapter 8.0 Mobility and Access, Section 8.1 Road Network, Objective 3, Policy d) with the following:
 - d) support the implementation of improvements along Highway 99, including an upgraded interchange at Steveston Highway, to enhance local circulation and connectivity, increase safety and improve goods movement;
2. **Richmond Official Community Plan Bylaw 9000**, as amended, is amended further by deleting the Road Classification Map and replacing it with Schedule A attached hereto as the new Road Classification Map to Bylaw 9000;
3. **Richmond Official Community Plan Bylaw 9000**, as amended, is amended further by deleting the Transit Map and replacing it with Schedule B attached hereto as the new Transit Map to Bylaw 9000;
4. **Richmond Official Community Plan Bylaw 9000**, as amended, is amended further by deleting the Cycling Network Map and replacing it with Schedule C attached hereto as the new Cycling Network Map to Bylaw 9000.
5. This Bylaw is cited as “**Richmond Official Community Plan Bylaw 9000, Amendment Bylaw 9901**”.

FIRST READING

SECOND READING

THIRD READING

ADOPTED

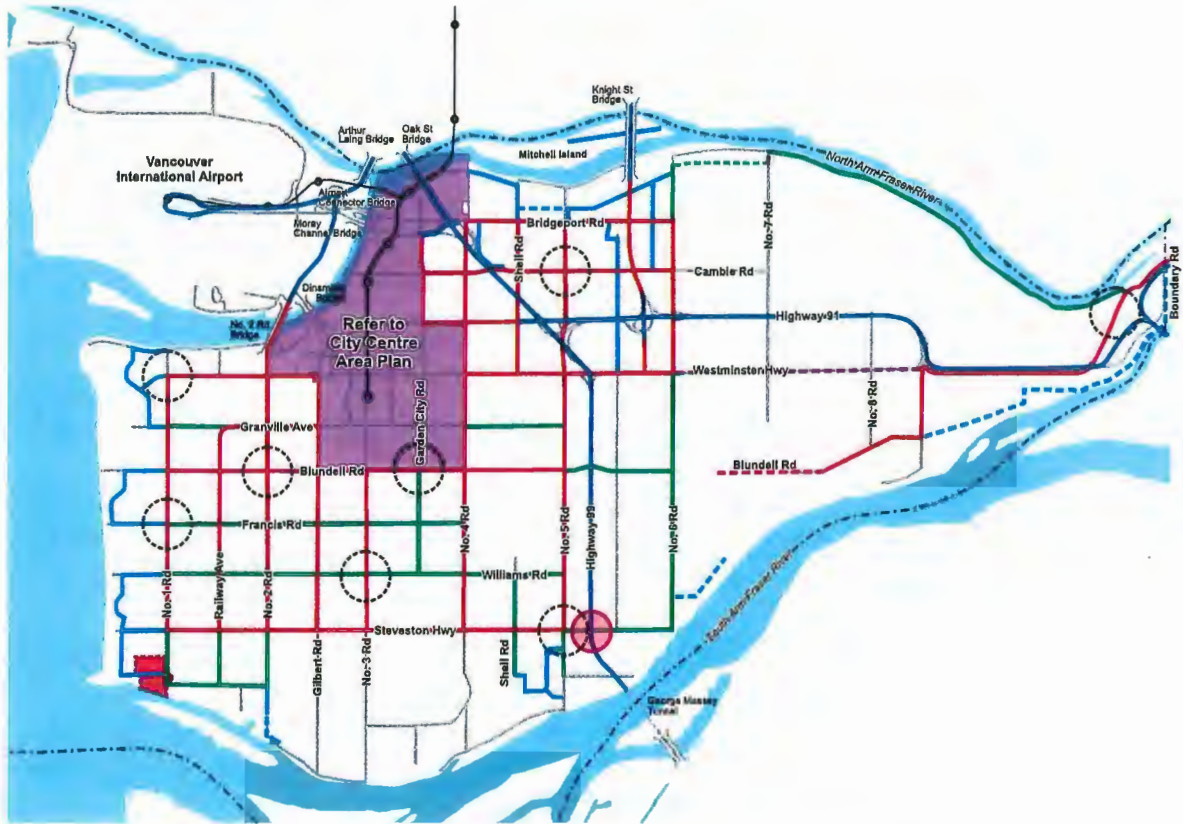
MAYOR

CORPORATE OFFICER

CITY OF RICHMOND
APPROVED for content by originating dept. <i>VW</i>
APPROVED for legality by Solicitor <i>ROS</i>

SCHEDULE A to AMENDMENT BYLAW 9901

Road Classification

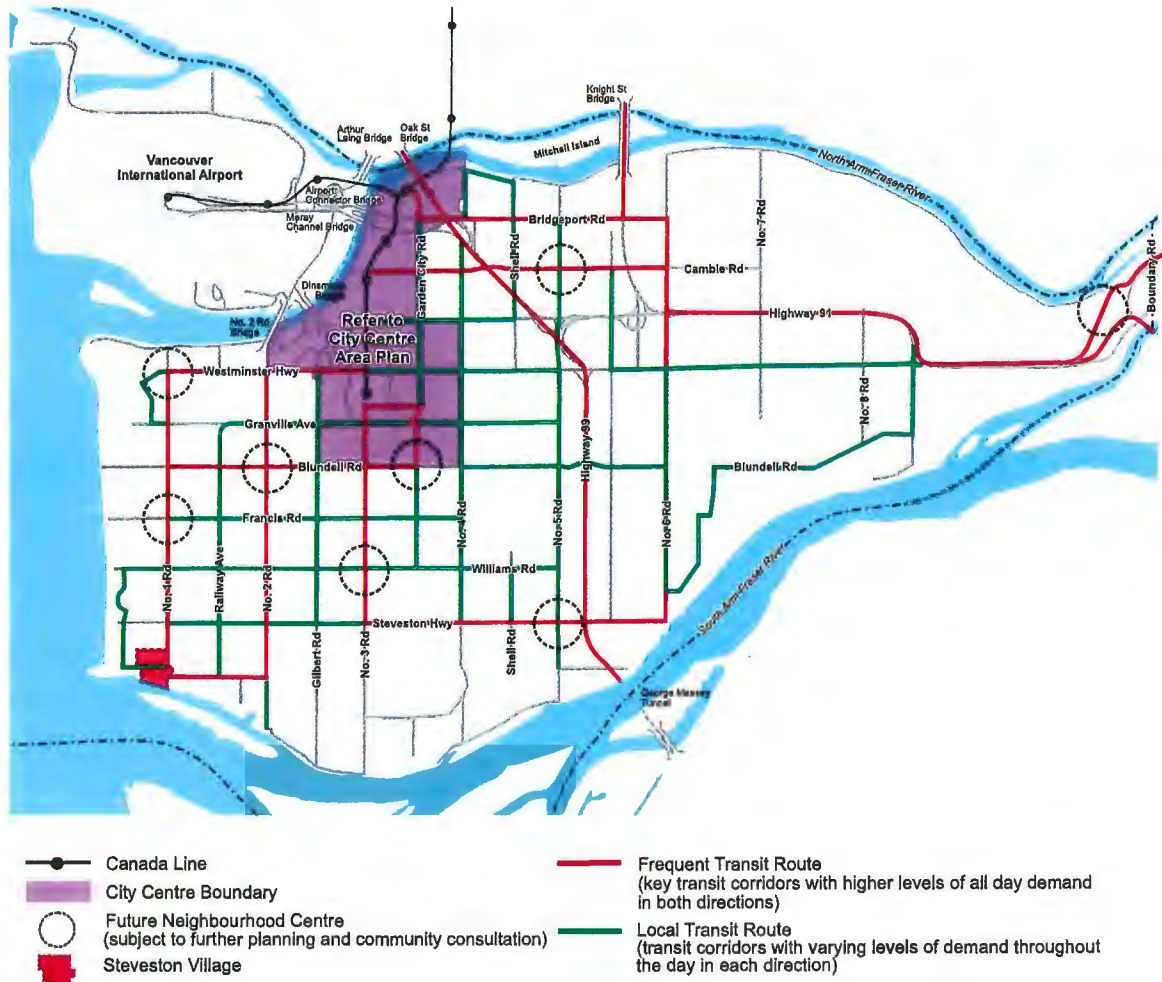


- | | |
|---|--|
| —●— Canada Line | — Provincial/Federal/Regional Highways |
| ■ City Centre Boundary | — Major Arterial |
| ○ Future Neighbourhood Centre
(subject to further planning and community consultation) | - - - Proposed Major Arterial |
| ■ Steveston Village | — Minor Arterial |
| | - - - Proposed Minor Arterial |
| | — Collector |
| | - - - Proposed Collector |
| | - - - Agricultural |
| | ● Proposed Upgraded Interchange |

See Section 7.1 (Existing Status of Road Improvements in the ALR Map) for more detail on agricultural road network.

SCHEDULE B to AMENDMENT BYLAW 9901

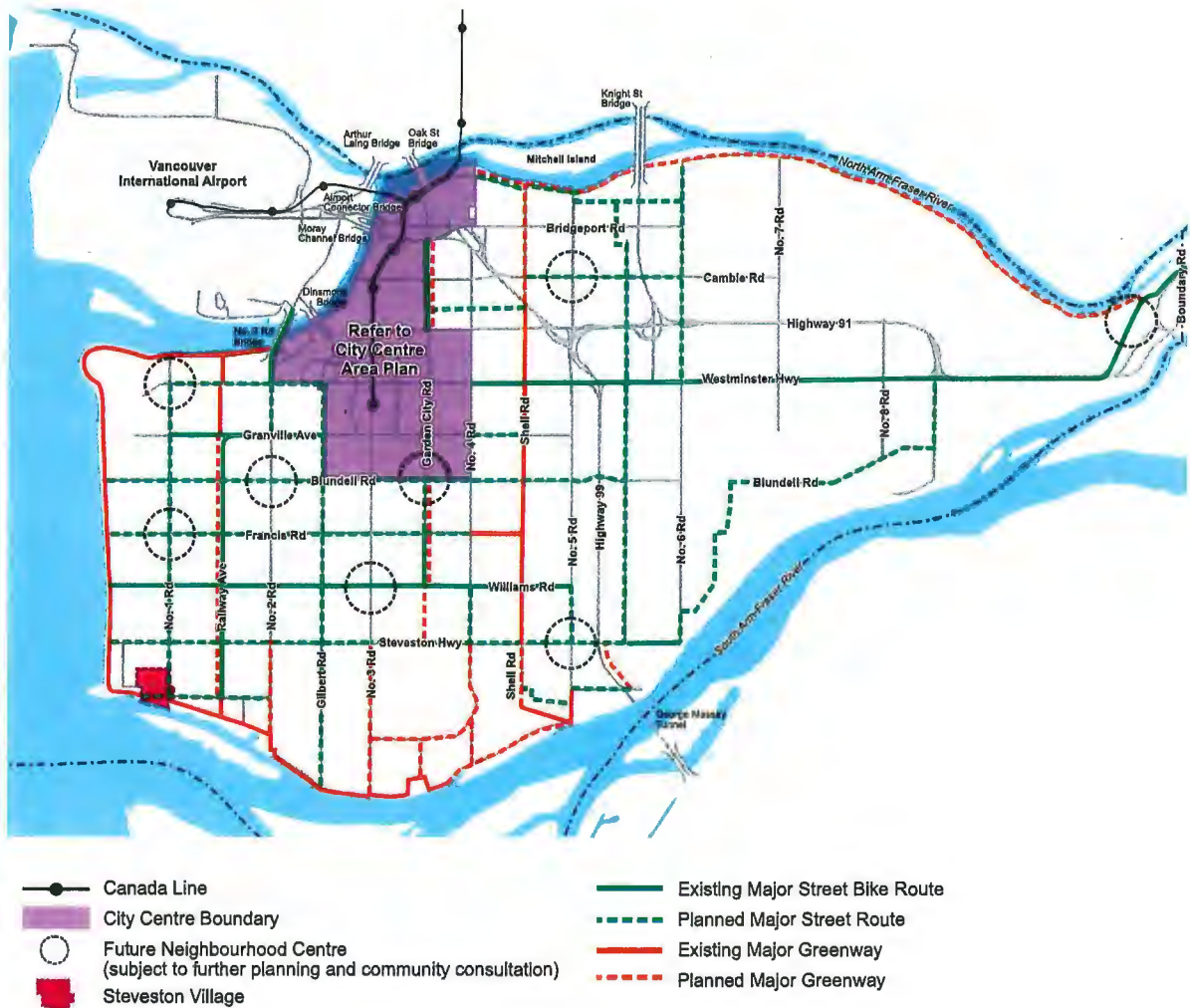
Transit Network



Note: the transit network is a long-term concept that will be refined in collaboration with TransLink through successive Richmond Area Transit Plan updates.

SCHEDULE C to AMENDMENT BYLAW 9901

Cycling Network



See Section 3.5 (Specific Richmond Neighbourhoods) for more detail on planned cycling and rolling routes, including Neighbourhood Links.



City of Richmond

Report to Committee

To: Public Works and Transportation Committee **Date:** June 21, 2018
From: Peter Russell
Senior Manager, Sustainability and District Energy **File:** 10-6160-01/CL Vol. 02
Re: **Sturgeon Banks Assessment and Enhancement Update**

Staff Recommendation

That the staff report titled "Sturgeon Banks Assessment and Enhancement Update" dated June 21, 2018, from the Senior Manager, Sustainability & District Energy, be received for information.

Peter Russell
Senior Manager, Sustainability and District Energy
(604-276-4130)

Att. 3

REPORT CONCURRENCE		
ROUTED TO: Parks Services	CONCURRENCE <input checked="" type="checkbox"/>	CONCURRENCE OF GENERAL MANAGER
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	INITIALS: 	APPROVED BY CAO

Staff Report

Origin

The purpose of this report is to inform Council of the provincial assessment activities ongoing at Sturgeon Bank as it relates to city-led enhancement initiatives such as the Grauer Lands, the Flood Management Strategy and other key guiding documents.

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.

Background

Sturgeon Bank encompasses the intertidal, and near shore subtidal lands on the western portions of Sea Island, Lulu Island and a portion of Iona Island. A large portion of this area is owned by the province and is a designated Wildlife Management Area (WMA), pursuant to the provincial *Wildlife Act*. Other landowners in the area include private land (limited), federal land, joint federal-provincial land, Metro Vancouver land, and City land. The City-owned portion of land includes the area commonly referred to as the Grauer Lands that was purchased in partnership with Ducks Unlimited Canada (DUC).

Sturgeon Bank provides critical habitat for shorebirds, migrating and wintering waterfowl, and raptors. It is part of a major migration staging area known as the Pacific Flyway, which supports the largest wintering waterbird concentrations in Canada. The area is recognized as a part of the Shorebird Reserve Network for the western hemisphere, an international Important Birding Area and finally a major Hub (>10 ha) within the City's Ecological Network Management Strategy. In addition, all five species of Pacific salmon utilize marsh habitat in Sturgeon Bank at some point in their life cycle, as well an abundance of non-salmonid fish species, invertebrates and other flora and fauna common to estuary ecosystems.

Sturgeon Bank is comprised of a salt marsh and a hydrologic bench of sand and mud that extends approximately 6 km from the leading edge of the salt marsh. The leading edge of salt marsh was mapped in the late 1970s, and recent mapping information has identified significant marsh vegetation recession. In recent years, the province has been examining vegetation recession within the marsh to identify any contributing factors that may be responsible for the observable changes in vegetation patterns in the area. Variables such as erosion, sea-level rise, salinity, nutrient input and herbivory activities (by geese) have all been included in the provincial assessment. To date, provincial study results indicate no discernible correlation between the variables measured and marsh vegetation decline.

A healthy and enhanced Sturgeon Bank is critical to the City's flood protection program. The City's Flood Management Strategy and Dike Master Plans (1 & 2) recognize the important wave attenuation benefits the natural area provides to the City. The plans recommend key actions to mitigate sea-level rise including breakwater islands as the West Dike becomes more inundated.

The City has also made significant efforts to protect and enhance the Grauer Lands. These efforts, as well as, additional provincial and federal assessment initiatives regarding Sturgeon Bank are further discussed below.

Analysis

The Grauer Lands

In 2012, the City purchased the Grauer Lands in partnership with DUC. The property is the largest remaining section of privately-owned land along Sturgeon Bank that has been dedicated for the preservation of fish and wildlife habitat in the region (Attachment 1). A portion of the sale was donated by the Grauer Family, through Environment Canada's Ecological Gift Program. The remainder of the investment was shared between the City (two-third venture) and DUC (one-third venture). Contractually, DUC's interest was leased to the City and in return, the City will assume the responsibility of the day to day maintenance of the property. Additionally, the City also holds a contractual right to lease the Grauer Lands to the province to be managed as a part of the WMA if it is ever decided to be in both parties interest to do so.

A portion of the property was targeted for enhancement in 2013 as the accumulation of log debris, particularly in the northern portion, was thought to be limiting ecological productivity. The accumulation of woody debris can also limit site drainage, which can result in the densification of (freshwater) cattail stands that can out-compete native intertidal plant communities (Attachment 1). The 2013 enhancement works at the Grauer Lands included establishing:

- 1350 m² of new fish channels that connect to existing channels in the area,
- Three (3) acres of open water habitat at medium tide; and
- 500 m of wetland trench area.

In addition, woody debris within an area spanning approximately 14 acres was collected and corralled into piles onsite, and approximately 2 ha of cattail stands were removed. The material was side-cast on top of the piles to stabilize the logs, and support upland marsh habitat in proximity to the shoreline. The disturbed areas were revegetated with intertidal plant communities to promote a return to the natural habitat that can support birds and fish (Attachment 1).

The restoration works and success monitoring over the past five years has been led by DUC and Fisheries and Oceans Canada (DFO). To date, site monitoring indicates improvements with water flow, fish access and the establishment of natural (salt marsh) plant communities, which indicates that the restoration works have been largely successful. As the project now moves into the operational management phase, City staff are working with DUC and DFO to develop an operational maintenance plan that clearly identifies and guides the City's maintenance requirements.

Fraser River Estuary Connectivity Project

This year, the Raincoast Conservation Foundation (Raincoast) was awarded funding from the Coastal Restoration Fund to manage the Lower Fraser River Estuary Connectivity Project (Attachment 2). The Coastal Restoration Fund is a \$75 million initiative under the federal Ocean Protection Plan that was launched in November 2016 to address threats to oceans and coastal areas. To date, the fund has awarded 32 projects throughout the country (including three in BC) approximately \$50 million. The City considered an Expression of Interest in 2017 however, an eligible project was not identified.

Raincoast is a charitable non-profit that follows a science-based approach to conservation in B.C., and has been monitoring the out-migration of juvenile salmon in the area for the last two years. Raincoast is working in partnership with DFO's Resource Restoration Unit, and through the project, are looking to increase fish access, freshwater, nutrient loading and sediment flow from the Fraser River to Sturgeon Bank through a series of breach points. The project is currently in the planning stage, however, Raincoast is completing modeling to support the following restoration initiatives:

- A 50 metre linear breach in the Steveston Jetty.
- An intertidal channel with barrier island and marsh complex on the south side of the North Arm Jetty.
- A >10m wide intertidal box culverts connecting McDonald Slough to foreshore south of Iona outfall at the Iona Causeway.
- Three Way Iona intertidal connection between North Arm flats (north and south of Iona Outfall via waterfowl pond west of sludge ponds).

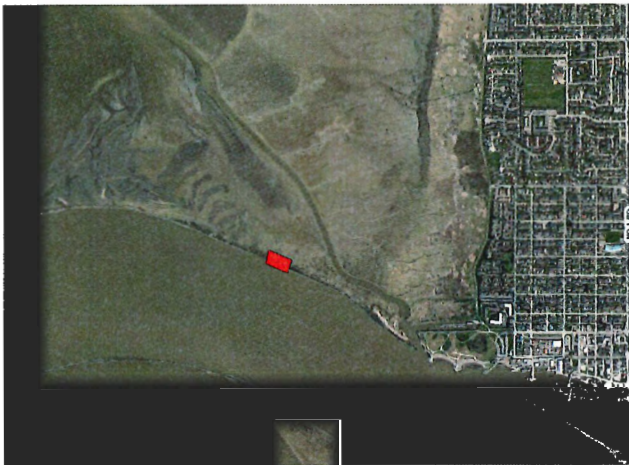


Image 1: Potential breach location on the South Arm Jetty area



Image 2: Potential breach locations along the North Arm and Iona Beach area

The City is committed to working with Raincoast to ensure that the City's goals in the flood protection and environmental strategies are addressed. This project presents an excellent opportunity for the City to engage in a coordinated manner to achieve sustainable flood management and environmental objectives. Staff recently met with the project's team to share City interest in flood and habitat management, and requested further stakeholder meetings when detailed modeling is available for review in the Fall 2018. Further, integrating modeling data with City information and provincial results may identify additional solutions to support flood mitigation planning along the West Dike.

South Arm Jetty Tidal Marsh Project

The proposed South Arm Jetty Tidal Marsh Project is a potential project still under consideration by the Vancouver Fraser Port Authority's (the Port) Habitat Enhancement Program. The proposed site is an unvegetated intertidal sand flat with shallow sub-tidal areas, and is immediately adjacent to the Sturgeon Bank WMA. If successful, the proposed project would increase the vegetated marsh area on Sturgeon Bank by approximately 30-40 ha (Attachment 4).

The project is proposed on provincial land and was issued an exemption under the BC *Environmental Assessment Act* from requiring a BC Environmental Assessment Certificate in 2016. The Port is anticipating a provincial land tenure application submission in July 2018. If accepted at that time, the Port anticipates that stakeholder consultation will be carried out until at least December 2019. Port staff have been meeting regularly with the City and stakeholders in the region to discuss the project, and are aware of the City's flood and ecological management priorities in the area. Port staff have committed to continuing to work with City staff on the project's ongoing design to ensure that any City concerns and/or opportunities are addressed.

Financial Impact

None.

Conclusion

Sturgeon Bank provides critical habitat in the region and offers invaluable flood mitigation protection to the City's western most boundaries. Recognition of these key functions are also noted by several inter-jurisdictional stakeholders and assessments are underway to better understand the factors contributing to the observable changes on Sturgeon Bank.

Staff will continue to work with provincial and federal stakeholders to ensure that any proposed projects at Sturgeon Bank continue to support City interests as it relates to the Flood Management and ecological protection.

June 21, 2018

- 6 -



Peter Russell
Senior Manager, Sustainability and District Energy
(604-276-4130)

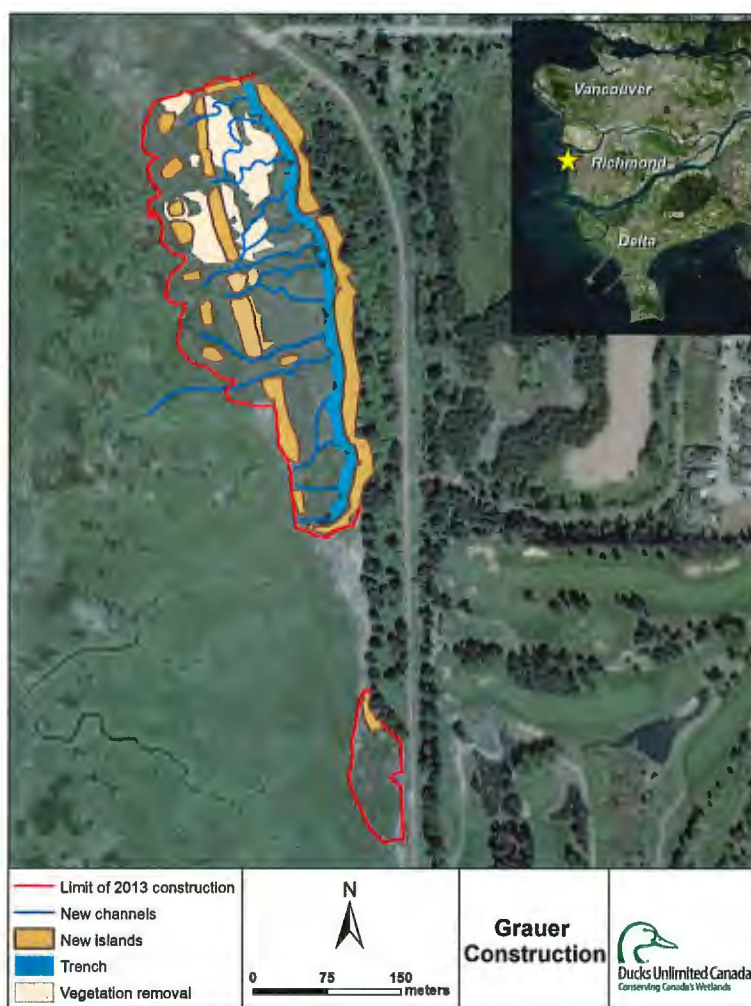
- Att. 1: Grauer Land Enhancements Works
2: Fisheries and Oceans Canada Lower Fraser Estuary Connectivity Project news release
3: Proposed Port of Metro Vancouver South Arm Jetty Tidal Marsh Project

June 21, 2018

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Attachment 1. Grauer Land Enhancements Works

Large woody debris dispersion and log corrals on Grauer Lands



Summary of enhancement work completed in 2013

June 21, 2018

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Attachment 2. Fisheries and Oceans Canada Fraser River Estuary Funding Announcement

Government makes a significant coastal restoration fund investment in Fraser River Estuary in British Columbia through the Oceans Protection Plan

The protection and restoration of the environment is a top priority of the Government of Canada, which is providing resources through the Oceans Protection Plan that will make our oceans and coasts safer, cleaner and healthier for the benefit of all Canadians and future generations.

The Honourable Carla Qualtrough, Member of Parliament for Delta and Minister of Public Services and Procurement, on behalf of the Honourable Dominic LeBlanc, Minister of Fisheries, Oceans and the Canadian Coast Guard, announced on June 8 that the Raincoast Conservation Foundation will receive \$2,658,217 over five years for a project to help restore coastal habitats in the Fraser River Estuary of British Columbia.

The Raincoast Conservation Foundation's estuary connectivity project will improve connectivity and natural processes on the banks of the Fraser River Estuary for the benefit of juvenile chinook, pink and chum salmon, as well as other fish species, and the species which rely on them. The work will involve the collaborative efforts of many people working and living on the lower Fraser River.

In May 2017, the Government of Canada announced the \$75 million Coastal Restoration Fund to help rehabilitate some of our most vulnerable coastlines and protect marine life and ecosystems. The Coastal Restoration Fund, under the responsibility of Fisheries and Oceans Canada, supports projects that contribute to coastal restoration on all of Canada's coasts, with preference given to projects that are multiyear and involve a broad number of partners, including Indigenous groups.

The Coastal Restoration Fund is part of the \$1.5-billion Oceans Protection Plan the largest investment ever made to protect Canada's coasts and waterways. In collaboration with Indigenous peoples, local stakeholders and coastal communities, the Government of Canada is creating a world-leading marine safety system that provides economic opportunities for Canadians today, while protecting our coasts and waterways for generations to come.

(Source: Fisheries and Oceans Canada, May 24, 2018)

June 21, 2018

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Attachment 3. Proposed Port of Metro Vancouver South Arm Jetty Tidal Marsh Project*Current state at low tide.**Rendering of proposed new habitat at low tide*

(Source: Port of Metro Vancouver)



To: Public Works and Transportation Committee **Date:** July 9, 2018
From: Milton Chan, P.Eng.
Acting Director, Engineering **File:** 10-6060-01/2018-Vol
01
Re: Fraser River Freshet and Flood Protection Update 2018



Staff Recommendation

That the report titled "Fraser River Freshet and Flood Protection Update 2018" dated July 9, 2018 from the Acting Director, Engineering be received for information.



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

Att. 3

REPORT CONCURRENCE		
ROUTED TO: Roads and Construction Sewerage and Drainage	CONCURRENCE <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	CONCURRENCE OF GENERAL MANAGER 
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	INITIALS: CS	APPROVED BY CAO 

Staff Report

Origin

The City of Richmond is approximately 1 m above sea level and is protected from the Fraser River and the Strait of Georgia by a system that includes 49 km of dikes. Storm water is drained off Lulu Island through 581 km of drainage pipes, 61 km of culverts, 165 km of watercourses and 39 storm drainage pump stations.

This annual report updates Council on 2017's rainfall, 2018's Fraser River freshet, ongoing works regarding the City's Flood Protection Management Strategy, incidents involving the City's flood protection system and completed or upcoming infrastructure improvement works.

This report also addresses the Public Works and Transportation Committee's request for information on the City's flood protection efforts and programs.

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

2017 Rainfall

Attachment 1 shows the total annual rainfall over the past 10 years. Rainfall highlights for 2017 include the following:

- Approximately 1,360 mm of rain fell on the City in 2017, which is 14% higher than the average annual rainfall and 2% less than 2016.
- March was the wettest month of the year with 237 mm of rainfall.
- The rainiest day in 2017 was December 19, with 47 mm of rain over a 24-hour period.
- The most intense storm of 2017 was February 9 when sensors at Richmond City Hall recorded a rainfall intensity of 23 mm/hr for a 1 hour period, which has a statistical return period exceeding 100 years.
- A total of five significant storm events with statistical return periods of two years or more were recorded in 2017.

The City experienced higher than average rainfalls in 2017. The drainage system performed well and no capacity-related flooding issues were identified. While the drainage system provides a high level of flood protection today, ongoing planning and upgrading are required to accommodate impacts of climate change and growth and to maintain current service levels.

2018 Fraser River Freshet

High snowpack in the Lower Fraser region, 125% of normal, combined with extreme spring temperatures led to high freshet flows in 2018. Flows in the Fraser River were approximately a ten year return period event, with a peak flow of 11,000 m³/s measured at Hope (peaks in 2016 and 2017 were 9,000 m³ and 9,800 m³, respectively). Fraser River water levels began receding on May 21, 2018 and have attenuated since.

The City's diking system is built to withstand a 500-year return period freshet event and there was no danger of flooding in Richmond during the 2018 freshet. The river's highest level remained at a minimum of 1.7 m below the dike crest at Boundary Road and 1.4 m below the dike crests at Bath Slough and No. 6 Road.

Drainage System Performance

355 service requests related to drainage issues were recorded by Public Works in 2017, approximately 10% below the annual average over the past 10 years, despite higher than average rainfalls in 2017. Attachment 2 shows the total number of service requests related to drainage over the past 10 years.

Drainage and Diking Utility

In 2003, Council endorsed the Drainage and Diking Utility and has annually increased funding levels from \$0.6 million to its current level of \$11.9 million. This dedicated source of funding is critical for supporting medium to long term drainage and diking infrastructure upgrades.

Flood Protection Strategy Update

The City's efforts in the continual upgrade and improvement of the City's flood protection system are guided by the 2008-2031 Richmond Flood Protection Strategy. Staff have commenced the Council approved comprehensive update of the Flood Protection Strategy and will bring forward a draft update for Council's consideration this fall.

A key action in this strategy is preparing and implementing a comprehensive perimeter dike improvement program. Phase 1 and Phase 2 of the Dike Master Plan have been completed and adopted by Council. Staff are currently working on the pre-design geotechnical investigation of Steveston Island for future dike construction. Additionally, Dike Master Plan Phases 3, 4 and 5 are scheduled for completion in early 2019.

Infrastructure Improvements

The City's drainage and flood protection system is currently valued at an estimated \$1.5 billion, comprising 581 km of drainage pipes, 61 km of culverts, 165 km of watercourses, 39 pump stations and 49 km of dikes. Staff are continuously upgrading and improving the City's flood protection system to accommodate the impacts of infrastructure age, growth and climate change.

Box Culvert Repair and Preventative Maintenance

The City has approximately 61 km of box culverts, the majority of which are 40 to 50 years in age. Although the box culverts have a design life of 100 years, premature failure of some joints has been

observed in recent years. Staff are proactively managing the condition of box culverts by identifying and repairing deteriorating joints before they cause significant damage, including sink holes.

Since 2015, Council has supported a number of capital projects related to box culvert repairs. The most significant repairs include:

- 2015: \$2,150,000 for the rehabilitation of a section of box culvert along No. 1 Road between Westminster Highway and River Road using a Glass Reinforced Plastic liner. The project was successfully completed in October 2016 and the lining effectively sealed all detached joints and maintained the structural integrity of the box culvert.
- 2016: \$2,000,000 for the replacement of approximately 50 m of settled box culvert at No. 2 Road near Walton Road that caused ground settlement in the vehicle lanes along No. 2 Road. Replacement of the damaged section of culvert was completed in February 2017.
- 2017: Inspection work conducted through 2016 and 2017 identified deterioration of the box culvert under No. 2 Road south of Steveston Highway. Council approved a \$3,700,000 budget for the City to undertake these repairs which will be completed concurrently with the No. 2 Road Widening project. Repair work is expected to be completed by the end of this year.
- 2018: Council approved a \$1,500,000 budget for the repair of approximately 1600 m of deteriorated box culvert causing sink holes along No. 4 Road from Alderbridge Way to Granville Avenue. Repair work is expected to be completed by the end of 2019.

The Council supported box culvert preventative maintenance program that began in 2017 and received increased funding in 2018, inspects the condition of the box culverts and identifies sections that require significant repair or replacement. Maintaining a well-managed preventative maintenance program enables more efficient repairs, fewer service and public disruptions, lower life cycle costs, and extension of the box culverts' life span. The program inspects the City's culvert network on a 7-year cycle and identifies and repairs minor defects. Repair of significant defects identified through the program will be presented to Council for consideration as part of future capital programs.

Inspection work commenced in 2017 in the Horseshoe Slough, No. 1 Road North and No. 1 Road South drainage catchment areas. Results of each inspection are documented through written reports, photographs and video records, allowing staff to monitor changes to the condition of the culverts which will better inform long-term decision making. Minor defects have been identified and remediated, with no significant defects encountered to date. The No. 4 Road North and McCallan Road North drainage catchment areas are scheduled next for inspection.

Pump Station Upgrades

Significant progress has been made upgrading the City's drainage pump stations to accommodate growth and climate change. Attachment 3 identifies the total capacity of the City's drainage pump stations over the last 10 years which has increased by 22% since 2008. Over the last eighteen years, since the City introduced the Drainage and Diking Utility, the City has rebuilt eleven of its thirty nine drainage pump stations and has performed significant upgrades on a further four.

Re-construction of the No. 2 Road North Drainage Pump Station upgrade was completed earlier this year. Re-construction of Horseshoe Slough Pump Station has commenced. No. 7 Road South, Shell Road North and No. 2 Road South will all begin construction late 2018.

Based on ageing infrastructure and capacity analysis, major upgrades on six pump stations and minor upgrades on twelve pump stations are recommended over the next ten years to improve the City's high level of flood protection. Pump station upgrades will be included in the 5 Year Capital Plan for Council's consideration.

Diking Improvements

Climate change scientists estimate that sea level will rise approximately 1.0 m by 2100 and 0.2 metres of subsidence is expected in that same time period. The 2008-2031 Richmond Flood Protection Strategy guides the City to raise dike crest elevations to 4.7 m geodetic (approximately 1.2 m above the current dike height) with the ability to further increase to 5.5 m in the future. As identified in the report to Council titled "Ageing Utility and Road Infrastructure Planning – 2017 Update", dike raising efforts should be completed within the next 75 years to stay ahead of sea level rise.

The City is actively completing dike upgrades through capital programs and is partnering with development for additional dike upgrades. Figure 1 identifies current and upcoming dike improvement work for 2018 and 2019. Additional dike improvements will be included in the 5 Year Capital Plan for Council's consideration.

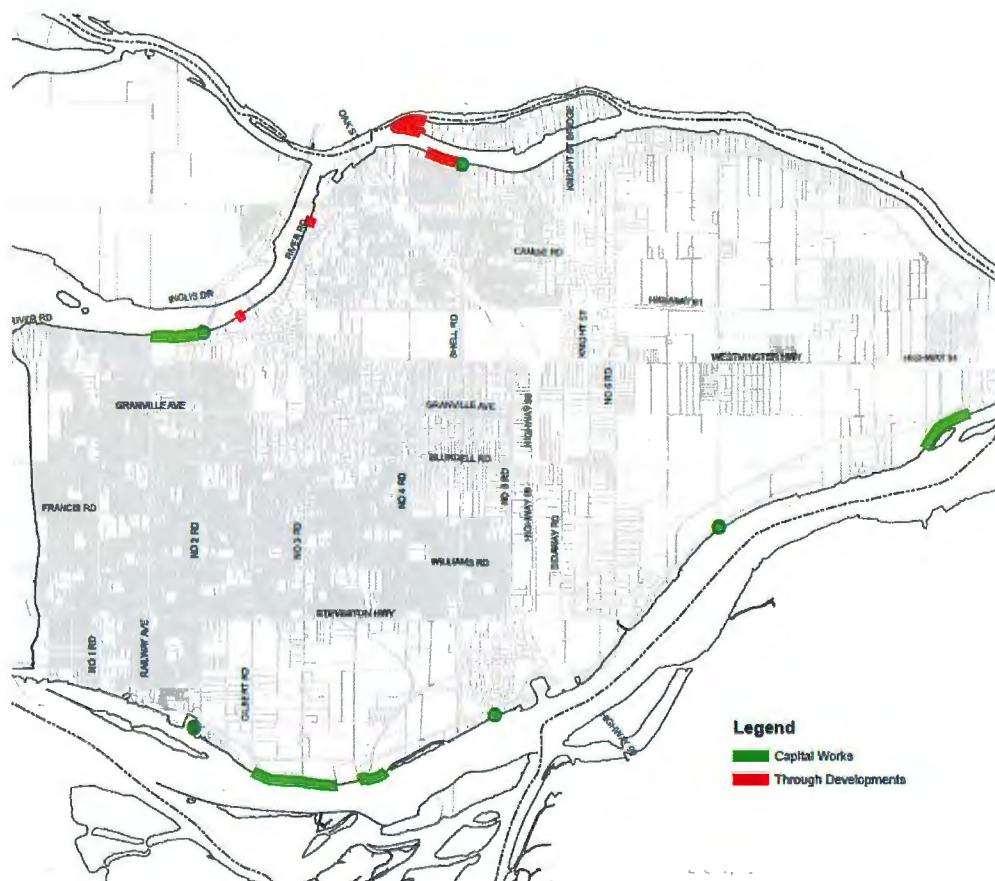


Figure 1 - Current and Upcoming Dike Improvements

The currently funded dike improvement projects include over 2.5 km and \$11 million in upgrades. These projects include:

- North Dike Upgrade from No. 2 Road to McCallan Road – Design is underway and construction is expected to be complete by the end of 2019.
- South Dike Upgrade between Gilbert Road and No. 3 Road – Design is nearly complete and construction is expected to begin late 2018 or early 2019.
- South Dike Upgrade between No. 3 Road and Finn Slough – Design is underway and construction is expected to be complete by the end of 2019.
- South Dike Upgrade between No. 9 Road and west of McMillian Way – Design is underway and construction is expected to be complete by the end of 2019.
- Horseshoe Slough Drainage Pump Station and sections of dike adjacent – Design is complete, construction began in Spring 2018 and is expected to be completed by Fall 2019.
- Shell Road North Drainage Pump Station and sections of dike adjacent to – Design complete and construction is expected to begin by the end of this year.
- No. 7 Road South Drainage Pump Station and sections of dike adjacent - Design is expected to be complete by fall of this year and construction to begin late 2018 or early 2019.

In addition to dike upgrades through the capital program, the City actively partners with developments adjacent to the dike to synergize dike improvement work with development activities. In particular, the City is actively pursuing opportunities to construct superdikes, where land supporting development behind the dike is filled to the same elevation as the dike crest. This eliminates visual impacts of a raised dike structure on waterfront views while providing an enhanced flood protection structure for the City. Construction of a section of superdike east of the Richmond Olympic Oval was recently completed, and a section of superdike will be constructed through development by 2021 between Capstan Way and Sea Island Way.

Staff maintain annual inspection and maintenance programs to ensure that the City's dikes are well protected against issues such as erosion and seepage. Significant maintenance issues addressed in 2017/2018 include:

- Staff identified sloughing in a section of south dike between the No. 9 Road right-of-way and the Ewen Road Drainage Pump Station. Vegetation removal, dike re-armouring and improved scour protection was implemented to reinforce and protect the dike at this location.
- Staff identified sloughing in a section of north dike between No. 4 Road North drainage pump station to 330 metres west. Dike re-armouring was implemented to reinforce and protect the dike at this location.
- Staff identified minor sloughing in a section of north dike near Terra Nova for 130 metres. Dike re-armouring was implemented to reinforce and protect the dike at this location.

- Staff identified minor sloughing in a section of south dike from Shell Road to 30m west. Dike re-armouring was implemented to reinforce and protect the dike at this location.
- Staff identified sloughing and deterioration of rip rap in a section of north dike for 500 metres in the 22,000 blk of River Road. Dike re-armouring was implemented to reinforce and protect the dike at this location.

Britannia Flood Protection System Improvement

The Britannia Shipyards National Historic Site is located outside of the City's diking system and is not protected by Richmond's dikes. The site was surrounded by an ageing timber bulkhead built below high water levels created by king tides combined with storm surge events, which made it susceptible to occasional flooding. The City constructed a plastic sheet pile flood wall clad in wood to match the existing timber bulkhead to preserve the important historic character of Britannia. The new wall was built to an elevation of 2.9 m earlier this year to protect the area from flooding.


Financial Impact

None.


Conclusion

The City experienced higher than average rainfalls in 2017 and high freshet flows in the early spring of 2018. The City's drainage and flood protection system performed well, with a below average number of drainage-related service requests and river levels remained at a minimum of 1.7 m below the dike crest at Boundary Road and 1.4 m below the dike crests at Bath Slough and No. 6 Road under freshet flows.

Demands on the City's flood protection system will continue to increase with pressures from climate change and development. The Flood Protection Strategy Update proactively guides the City to forecast, plan and improve the City's flood protection system to meet long-term requirements. Richmond's drainage infrastructure is well developed, with computer based hydraulic models to forecast future capacity requirements. Long-range planning of the City's diking needs are addressed through the ongoing Dike Master Planning efforts. Through the capital improvements and investment in preventative maintenance programs, the City has developed the ability to proactively prepare and respond to flood related concerns. Significant progress has been made in the last few years in progressing the City's dike planning efforts and implementing infrastructure improvements to the City's flood protection system.



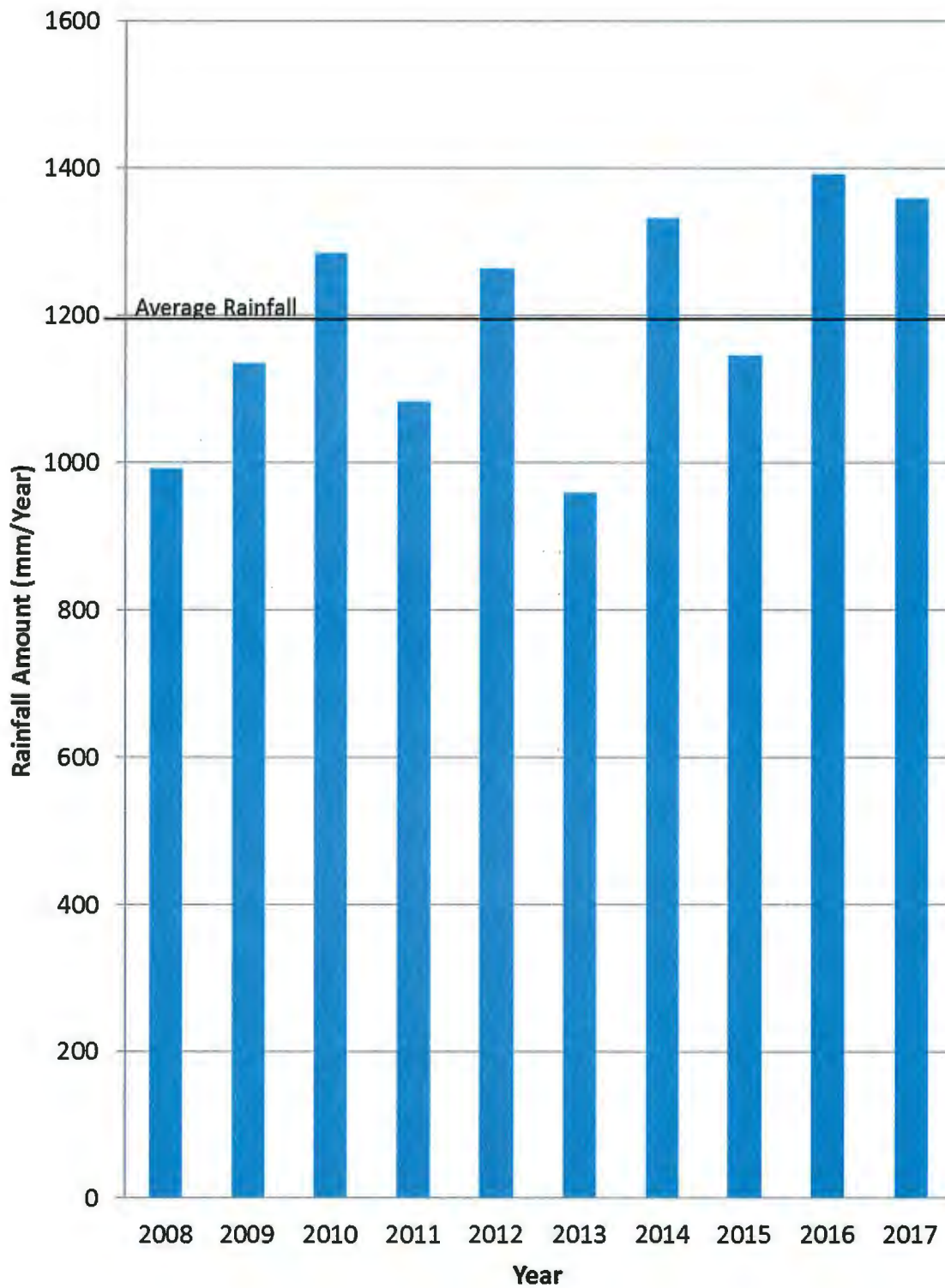
Lloyd Bie, P. Eng.
Manager, Engineering Planning
(4075)



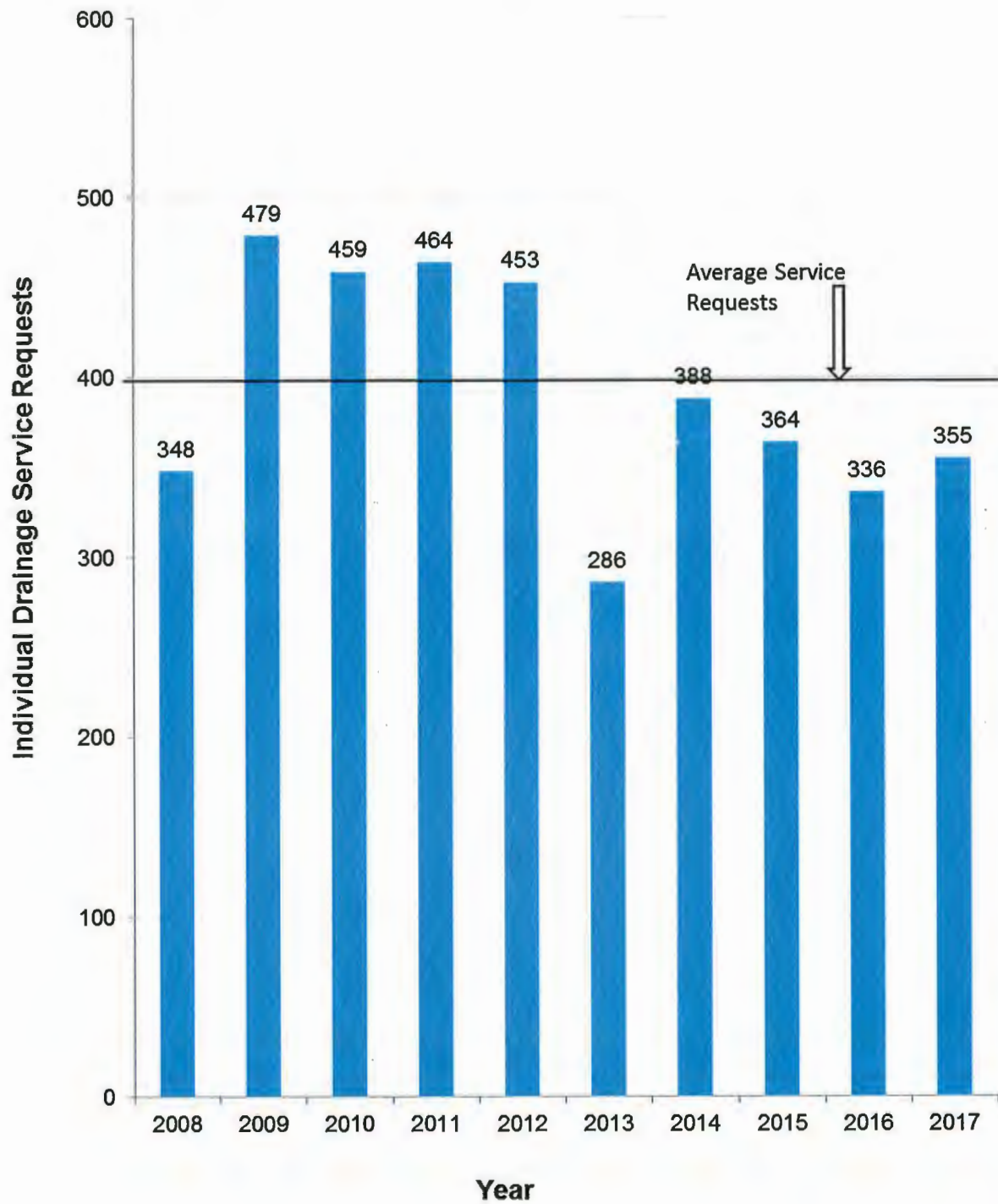
Corrine Haer, P.Eng.
Project Engineer, Engineering Planning
(4026)

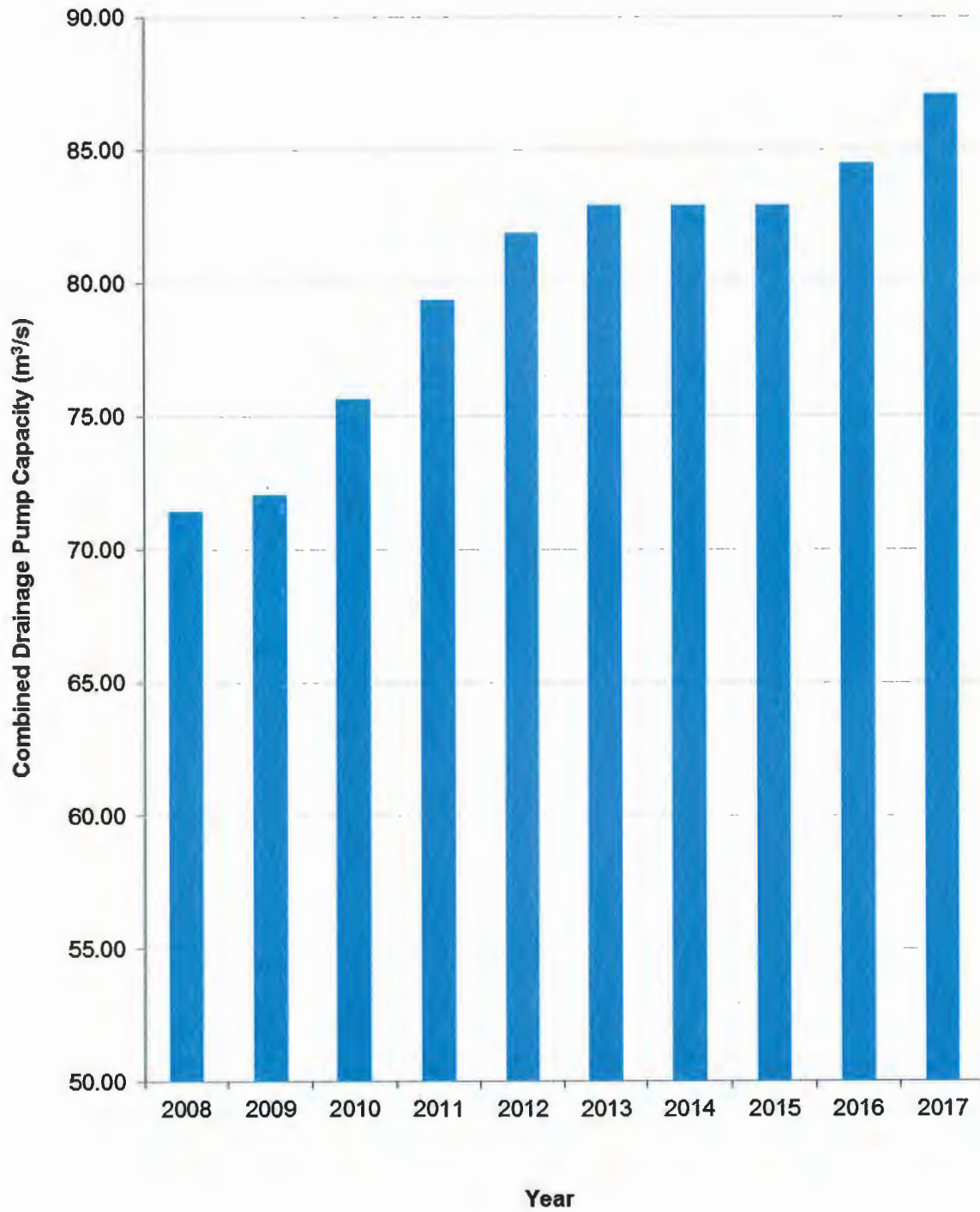
Att. 1: Annual Rainfall Data
Att. 2: Annual Drainage Service Requests
Att. 3: Drainage Pump Station Capacity

Annual Rainfall Data



Annual Drainage Service Requests



Total Drainage Pump Station Pumping Capacity 2008-2017



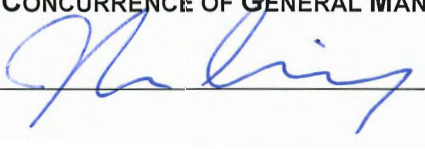

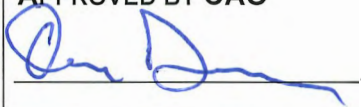
To:	Public Works and Transportation Committee	Date:	May 30, 2018
From:	Peter Russell Senior Manager, Sustainability and District Energy	File:	10-6160-08/2018-Vol 01
Re:	Riparian Response Strategy Phase One		

Staff Recommendation

1. That Richmond Zoning Bylaw No. 8500, Amendment Bylaw No. 9871, which adds Riparian Management Area setbacks as adopted by Council in 2006, be introduced and given first reading;
2. That Watercourse Protection and Crossing Bylaw No. 8441, Amendment Bylaw No. 9882, which establishes a riparian review fee for the single family building permit process, and inspection and ticketing authority, be introduced and given first, second, and third readings;
3. That Consolidated Fees Bylaw No. 8636, Amendment Bylaw No. 9883, which quantifies the riparian permit review and inspection fees established in the Watercourse Protection and Crossing Bylaw No. 8441, be introduced and given first, second, and third readings;
4. That Municipal Ticket Information Authorization Bylaw No. 7321, Amendment Bylaw No. 9884, which defines fines for non-compliance with the Watercourse Protection and Crossing Bylaw, be introduced and given first, second, and third readings;
5. That Notice of Bylaw Violation Dispute Adjudication Bylaw No. 8122, Amendment Bylaw No. 9885, which defines fines for non-compliance with the Watercourse Protection and Crossing Bylaw, be introduced and given first, second, and third readings;
6. That Boulevard Maintenance Regulation Bylaw No. 7174, Amendment Bylaw No. 9881, which amends content to authorize enhancement of a riparian management area, be introduced and given first, second, and third readings;
7. That the 5 Year Financial Plan (2018-2022) be amended to include the costs for the new Environmental Coordinator position, which will be recovered through the collection of permit fees.



Peter Russell
Senior Manager, Sustainability and District Energy
(604-276-4130)

REPORT CONCURRENCE		
ROUTED TO:	CONCURRENCE	CONCURRENCE OF GENERAL MANAGER
Finance Department	<input checked="" type="checkbox"/>	
Law	<input checked="" type="checkbox"/>	
Building Approvals	<input checked="" type="checkbox"/>	
Development Applications	<input checked="" type="checkbox"/>	
Policy Planning	<input checked="" type="checkbox"/>	
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	INITIALS: 	APPROVED BY CAO 

Staff Report

Origin

At the July 25, 2016 Council meeting staff presented a review of regulatory options to achieve compliance under the *Riparian Area Protection Act* (formally *Fish Protection Act*), and *Riparian Areas Regulation* (formally *Streamside Protection Regulation*). Council endorsed a stakeholder consultation program outcomes of which, were summarized in a report received at the September 25, 2017 Public Works and Transportation Committee. Additional stakeholder consultation was carried out in the spring of 2018. The purpose of this report is to summarize the outcomes of public consultation and seek Council endorsement for the first phase of proposed regulatory updates.

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

Adhere to effective planning and growth management practices to maintain and enhance the livability, sustainability and desirability of our City and its neighbourhoods, and to ensure the results match the intentions of our policies and bylaws.

3.1. *Growth and development that reflects the OCP, and related policies and bylaws.*

3.2. *A strong emphasis on physical and urban design.*

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.

6.1. *Safe and sustainable infrastructure*

Background

The City's Riparian Response Strategy, originally developed in consultation with the Province and the Department of Fisheries and Oceans (DFO), was adopted by Council in 2006. It is a modified *Riparian Area Regulation* (RAR) approach that protects fish habitat and meets the unique floodplain ecology within the City and is considered a grandfathered approach under the RAR. Riparian Management Area (RMA) setbacks were assigned on minor (5m) and major (15m) designated watercourses that are wetted the majority of the time, have a source of ground and surface water, and flow into and support fish life in the Fraser River Estuary (Attachment 1).

The Riparian Response Strategy outlined that industrial, residential and commercial development proposed:

- In riparian habitat on the Fraser River foreshore, should continue to be reviewed by the Fraser River Estuary Management Program;
- Adjacent to an RMA is permitted;
- Within an RMA would require further assessment in accordance with RAR.

Within RMA designated watercourses, there has been recorded presence of various fish species including pumpkin seed fish, three-spine stickleback, northern pike minnow, brassy minnow and prickly sculpin. These watercourses are nutrient providing fish habitat under the RAR that provide downstream nutrients to fish in the Fraser River Estuary, which supports all species of Pacific salmon, sturgeon, and an abundance of other game, forage and other fish species. Vegetated riparian setbacks shade and cool water for aquatic organisms, provide nutrients, stabilize banks, control stormwater runoff and can improve water quality. The City's RMA network is part of the City's open drainage network. This green infrastructure acts as a corridor connecting hubs and sites within the City's Ecological Network to allow for the passage of fish and wildlife across the island (Attachment 2).

The City did not enact regulatory triggers as a part of the original Riparian Response Strategy. In the past, development proposed in an RMA was approved by DFO through the City's Environmental Review Committee. Following changes to the *Federal Fisheries Act* in 2012, DFO no longer engaged with local governments through Environmental Review Committees. In addition, the Fraser River Estuary Management Program, who led an inter-agency development reviews in the Fraser River foreshore, ceased to exist following regulatory changes. In a 2015 Provincial review of local government approaches to RAR, the City's approach was identified as non-compliant as it lacked regulatory triggers, and was based on a historical DFO supported approach. Based on a review of potential regulatory frameworks and informed by stakeholder input, staff propose updating the Riparian Response Strategy in two phases to achieve compliance as outlined in the analysis section.

Analysis

Updating the City's Riparian Response Strategy is expected to be completed in two phases. Phase 1 focuses on achieving compliance with RAR, formalizing a review process for single family development proposals on lots with RMAs and introducing tools to better respond to non-compliant activity in RMAs. Phase 2 focuses on integrating RMA and Environmentally Sensitive Area designations for protection of the natural environment, and aligning this with the goals and objectives of the Ecological Network Management Strategy (2015). The first phase is the focus of this report, and phase 2 is summarized below.

Riparian Response Strategy Update – Phase 1

Information collected from the development community and landowners suggests that there is opportunity to improve customer service, and communication of the requirements for riparian protection and enhancement. In addition, a more rigorous monitoring program was identified as a solution to improve compliance with RAR requirements on single family development sites with RMAs, see Attachment 3 for examples of typical non-compliance on single family sites that a more rigorous monitoring program would look to address. Concerns are also noted on larger development sites with riparian habitat that require oversight of construction monitoring schedules, and environmental enhancements established as conditions of approval. Proposed bylaw amendments in this report, summarized in Table 1, include:

- Formally define RMA setbacks, and permitted activity established in the 2006 Riparian Response Strategy within City bylaw, thereby fulfilling requirements under the *Riparian Areas Protection Act*, and RAR;
- Streamline the building permit approval process for single family development proposals on sites with an RMA, and provide a lower cost, staff led stewardship approach to protect and enhance the City's RMAs;
- Promote enhancement of the City's RMAs to support pollinators, nesting birds and fish and frogs within the network, while maintaining drainage functionality and supporting agricultural needs on adjacent lands; and
- Introduce tools to address non-compliance on sites following an inspection based enforcement model which allows for ticketing should remediation orders not be met.

Currently, applicants proposing development of industrial, residential and commercial activity on properties with an RMA setback are required to retain a qualified environmental professional. The qualified environmental professional prepares a construction environmental management plan that outlines the necessary measures to protect the RMA during development (for review by staff). Stakeholder feedback has indicated that the cost to prepare a construction environmental management plan, and undertake construction monitoring on a single family development site with an RMA can be approximately \$5,000 per site, which can be cost prohibitive, and can discourage habitat enhancements that would further increase costs.

Staff propose to replace the construction environmental management plan requirement on single family development sites with an RMA, with a permit review fee to facilitate a streamlined, stewardship approach to riparian protection and enhancement that is supported by staff. Based on feedback from the small builder community and land owners, a staff supported stewardship based approach to RMA protection and enhancement on single family development sites is expected to improve customer service through a collaborative, hands on approach to RMA management. Consistent with current practices, development proposals on larger residential, commercial and industrial sites with RMAs will continue to require a construction environmental

management plan prepared by a qualified environmental professional – this practice will be assessed in phase 2 (outlined below).

Proposed permit review fees for single family development proposals on properties with RMAs account for staff time to review applications, and undertake site inspections to monitor and support the protection and enhancement of RMAs throughout construction. Should additional site inspections be required due to non-compliant activity within the RMA, additional inspection fees and enforcement fines are also part of proposed phase 1 bylaw amendments. To support stewardship efforts, planting guidelines that support riparian habitat with a focus on fish and frogs, pollinators and nesting bird habitats are being developed. The second phase of proposed updates are summarized in the next section and will be presented for Council's consideration at a later date.

If endorsed, the changes are expected to reduce the number of non-compliant sites, and decrease the overall cost for single family building permit applicants on properties with an RMA, and enhance the City's Ecological Network. Permit forms, info-bulletins and permit processing procedures will be updated to fully integrate RMA requirements into the City's systems and public communication. Consistent with current practice, farming activities are not subject to requirements under the RAR however, residential, commercial and industrial activity on farm lots need to adhere to setback requirements. While RMA setbacks do not apply to farm activity, the Environmental Farm Plan program's drainage maintenance guide recognizes the role that these buffer areas play in managing stormwater, stabilizing banks and limiting nutrients and sediments from impacting water quality in designated watercourses used for irrigation purposes.

Table 1: Summary of Proposed Bylaw Amendments

Update Zoning Bylaw No. 8500 to fulfill regulatory obligations under the *Riparian Area Protection Act* to protect and enhance Riparian Management Areas

Amendment Bylaw No 9871 is procedural in nature and it formalizes the 2006 Riparian Response Strategy to more effectively communicate requirements to the development community.

In keeping with current process, RMA setbacks are defined and industrial, residential and commercial development within a setback is not permitted unless authorized by City permit, or if for the purposes of environmental enhancement.

The bylaw amendment also permits a variance to RMA setbacks, with City approval in accordance with the *Riparian Area Regulation*. This allows the proponent to accept the City's grandfathered RAR approach, that considers Richmond's unique flood plain ecology; or to follow a professional reliance model defined through the Provincial RAR process.

Update Watercourse Protection and Crossing Bylaw No. 8441 facilitate a stewardship based approach to RMA protection and enhancement for single family development, and introduce enforcement measures to address ongoing non-compliance

Amendment Bylaw No. 9882 formalizes application submission and review requirements for single family building, demolition and service permits for sites with an RMA.

The current requirement for a construction environmental management plan is proposed to be replaced with a set application review fee on building permits to facilitate staff led support onsite to protect and enhance RMAs.

To address non-compliance on all active and non-active development sites, amendments will provide staff with authority to enforce RMA requirements, with the support of a qualified environmental professional, and/or defined inspection fees and fines to address remediation requirements

Update Consolidated Fees Bylaw No. 8636 to define the RMA application review fee and inspection fees to address non-compliance

Amendment Bylaw No. 9883 defines the RMA building permit review and inspection fees established in the Watercourse Protection and Crossing Bylaw No. 8441 as described above.

Update Municipal Ticket Information Authorization Bylaw No. 7321, and Notice of Bylaw Violation Dispute Adjudication Bylaw No. 8122 to define fine amounts for unauthorized development in an RMA, and failure to comply with a restoration order

Amendment Bylaw No. 9884 and No. 9885 define fine amounts for unpermitted development within an RMA, and fines for where, through inspection, it is determined that restoration orders for unauthorized impact to RMAs are not being adhered to.

**Update Boulevard
Maintenance Regulation
Bylaw No. 7141 to authorize
enhancement of a riparian
management area that
supports fish and wildlife life
processes, and limit plantings
in the boulevard that may not
support fish and wildlife life
processes**

Amendment Bylaw No. 9881 formalizes current practice to facilitate landowner stewardship of RMAs in accordance with riparian planting guidelines and best management practices.

Stakeholder Consultation

Staff engaged stakeholders and the public on the outcomes of the Riparian Response Strategy review in 2016, highlighting issues and opportunities for improvement. Presentations and discussions occurred with the Agricultural Advisory Committee, Advisory Committee on the Environment, Urban Development Institute, Richmond Home Building Group (formally Small Builders Group), and Ministry of Forest Lands Natural Resource Operations to generate preliminary feedback. As summarized in a 2017 report to Council, both the City's Agricultural Advisory Committee and Advisory Committee on the Environment supported the updates in principle. Members of the Urban Development Institute welcomed the development of guidelines to clearly define the riparian development approval process (as proposed in phase two updates) and all stakeholders acknowledged the need to achieve compliance with Provincial requirements.

Preliminary feedback informed the first phase of regulatory amendments presented herein, and staff have since re-engaged all of the stakeholders in 2018 to receive additional feedback in advance of this report. The Agricultural Advisory Committee endorsed the updates as presented and provided feedback on the RMA planting guidelines to support the needs of adjacent crops. The Advisory Committee on the Environment also endorsed the updates as presented, and demonstrated interest in the stewardship based approach to riparian enhancement. Feedback from the Richmond Home Builders Group and Urban Development Institute was also generally supportive. All stakeholders requested staff re-engage to provide feedback under phase 2 updates.

Staff hosted two public open houses in 2018 at City Center and East Richmond public facilities to share information, and responded to any public comments or concerns. The public open houses were advertised in the Richmond News and Sentinel newspapers, and promoted through the City's website, a news release, and social media. There was limited turnout to the public open houses, although feedback was supportive. Where there was concern, through conversation with attendees it was determined that measures to protect and enhance RMAs as proposed in this report would not limit landowners from undertaking required works in the area.

Development Permit Area Strategy – Phase 2

As noted in the 2016 Riparian Response Strategy Review report to Council, designation of development permit area in the Official Community Plan Bylaw No. 9000 is a useful tool to identify environmental areas and define development guidelines for protection of the natural environment. The City currently has an Environmentally Sensitive Area (ESA) development permit area. Rather than developing an additional environmental development permit area for RMAs, staff will review opportunities to integrate and streamline the existing environmental development permit area with RMA requirements and consider additional riparian protection and enhancement measures for the Fraser River foreshore in the absence of the Fraser River Estuary Management Plan review process in phase 2.

ESA types under the current designation include freshwater wetland, shoreline, intertidal, old field and shrub land, and upland forest. These ESA habitat types were assessed in 2012 following a network based approach to connect, protect and enhance semi-natural and natural areas within the City. ESA habitat types hold environmental value beyond RMA habitat value established for the protection of fish habitat. Prior to the implementation of phase 2, and consistent with current practice, properties with both RMA and ESA designations will continue to require an RMA review process and ESA development permit if development proposes to disturb the ESA.

While phase 1 updates propose a staff supported process for RMA protection and enhancement, the ESA development permit process will continue to require assessment by a qualified environmental professional on single family development sites with both RMA and ESA designations. If a qualified environmental professional assessment on single family properties with RMA and ESA determines that habitat values for the ESA is consistent with RMA values, an exemption from ESA development permit may be considered on a site by site basis. In the interim, the ESA development permit review process will remain unchanged, as will RMA review on larger residential, commercial and industrial proposals wherein protection and enhancement measures will be supported by qualified environmental professionals.

Implementation

The bylaw amendments attached to this report specify that applicable building, demolition and service permits for single family sites with RMAs filed on or after November 5, 2018, will need to follow the new RMA building permit review process. Staff will update forms, info-bulletins and permit review processes to reflect the proposed updates. All other aspects of proposed amendments under this phase are consistent with the existing RMA review process established in 2006 under the Riparian Response Strategy. The second phase of updates focused on designations for protection of the natural environment will be presented to Council at a later date for consideration.

Staff Resources

Amendments to the single family building permit process for sites with RMAs will introduce a new stewardship approach whereby planting guidelines and construction inspections will be carried out by staff. Endorsement of the proposed amendments will result in additional workload for staff at both the plan review and inspection stages, which are currently carried out by a qualified environmental professional at a cost to the proponent.

As proposed, the permit review fees defined in the amendments to the Watercourse Protection and Crossing Bylaw No. 8441 and Consolidated Fees Bylaw No. 8636, are intended to replace qualified environmental professional fees for RMA protection and enhancement on single family sites. It is recommended with this revenue source that a new Environmental Coordinator position be created to support timely reviews, onsite inspections and stewardship support. A new Environmental Coordinator position will result in approximately \$100,000 in additional salary annually and any transitional deficits experienced to recover cost for a new Environmental Coordinator position through RMA permit review fees for single family sites will be funded through the Sanitation & Recycling Utility budget.

Next Steps

Pending Council's approval of the proposed amendments in this report, staff will finalize RMA planting guidelines, update info-bulletins, forms, and building permit review and application fee processes for single family development on properties with RMAs for implementation effective November 5, 2018. In addition, and consistent with current practice, staff will update the existing RMA info-bulletin to better guide larger residential, commercial and industrial development applications, and single family properties with both ESA and RMA designations. This info bulletin will provide clarity to proponents in the interim, while opportunities to integrate and streamline the existing environmental development permit area with RMA requirements in phase 2 are reviewed.

Financial Impact

The costs for the new Environmental Coordinator position will be approximately \$100,000 which will be funded through RMA permit review fees. The position and the associated costs and funding will be included in the amended 5 Year financial Plan (2018-2022).

Conclusion

RMAs support fish and wildlife, and act as corridors connecting hubs and sites within the City's Ecological Network. Designated watercourses flow into the Fraser River providing nutrients to the diverse abundance of fish and other organisms in the estuary. Healthy riparian setbacks support the form and function of the City's open drainage network, providing green infrastructure ecosystem services. Phase 1 of regulatory updates proposed in this report, fulfills City requirements under the *Riparian Areas Protection Act* and RAR. Building permit application requirements for single family building permits on properties with RMAs, and staff led stewardship based approach to RMA protection and enhancement are also defined in phase 1. Phase 1 proposes new tools to address non-compliant activities that impact RMAs following an inspection based enforcement model. Staff will report back with a strategy to align environmental protection and enhancement measures more fully with the Ecological Network goal to connect, protect and enhance natural and semi-natural areas throughout the City.

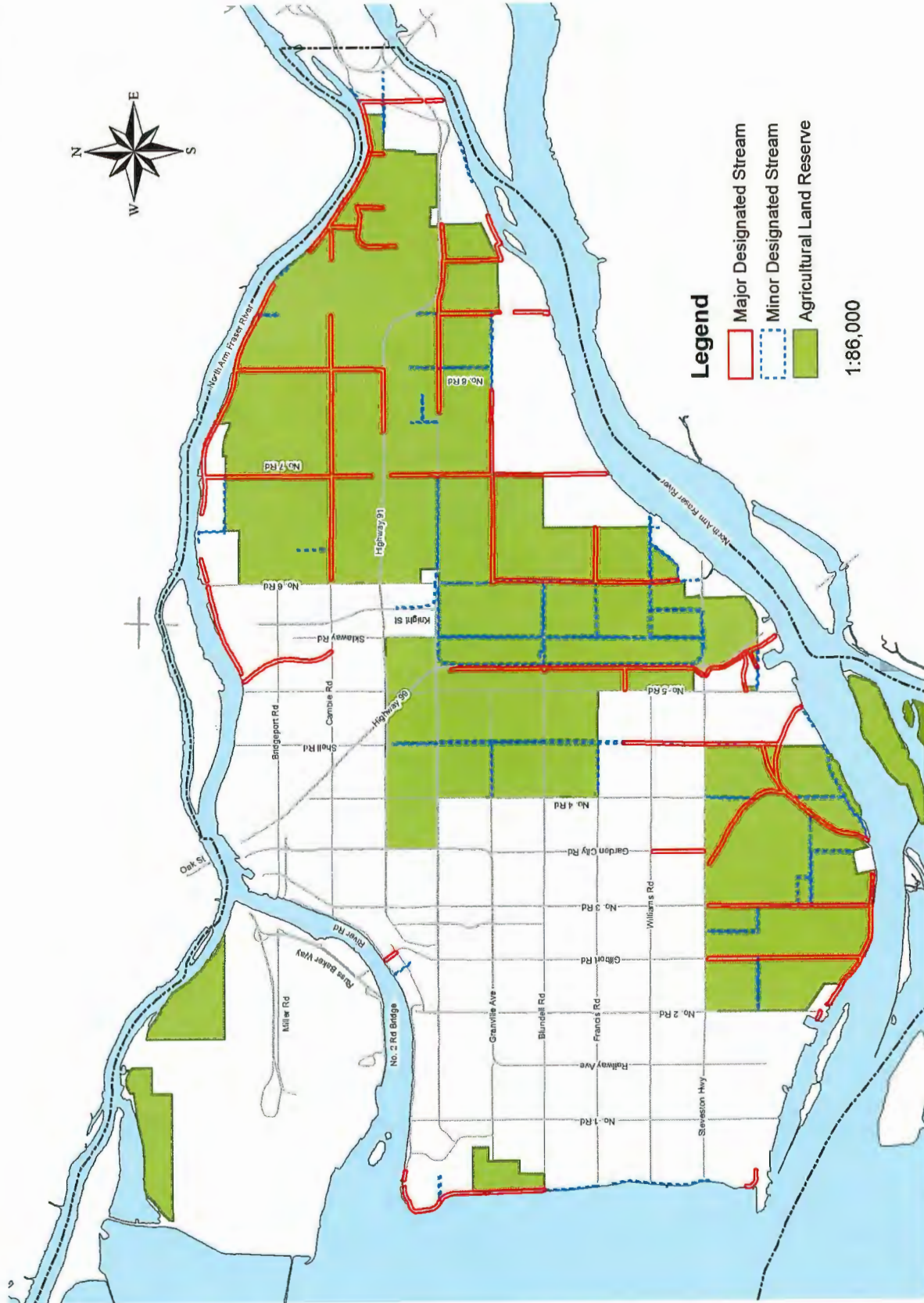


Chad Paulin
Manager, Environment
(604-247-4672)



Kimberly Armour
Environmental Coordinator
(604-247-4672)

- Att. 1 Riparian Management Area Map
- Att. 2 Illustrated example of an enhanced RMA
- Att. 3 Examples of non-compliance on single family development sites



Illustrative example of an enhanced RMA

RIPARIAN MANAGEMENT AREAS

Healthy riparian habitat

stabilizes banks and manages storm water runoff in the City's open drainage network, while providing habitat for fish, frogs, birds, pollinators and more!



Example of non-compliance on single family development sites

	<p>RMA with stored construction material</p>
	<p>RMA with retaining wall and compromised bank stabilized with cement grout</p>
	<p>Excavated RMA</p>
	<p>RMA with failed protection measures and stored materials</p>



**Richmond Zoning Bylaw No. 8500
Amendment Bylaw No. 9871
(Riparian Management Area Setbacks)**

The Council of the City of Richmond, in open meeting assembled, enacts as follows:

1. Richmond Zoning Bylaw No. 8500, as amended, is further amended at Section 3.4 by adding the following definitions in alphabetical order:

“ACTIVE FLOOD PLAIN

means an area of land that supports **floodplain plant species** and is:

- a) adjacent to a **watercourse** that may be subject to temporary, frequent or seasonal inundation by water; or
- b) within a boundary that is indicated by the visible **high water mark**.

ENHANCEMENT

means the establishing of natural native vegetation to help restore the natural features, functions and conditions that support fish and wildlife life processes in **riparian management areas** that have been recently or historically disturbed by human activity.

FLOODPLAIN PLANT SPECIES

means plant species that are typical of an area of inundated or saturated soil conditions and that are distinct from plant species on freely drained, adjacent upland areas.

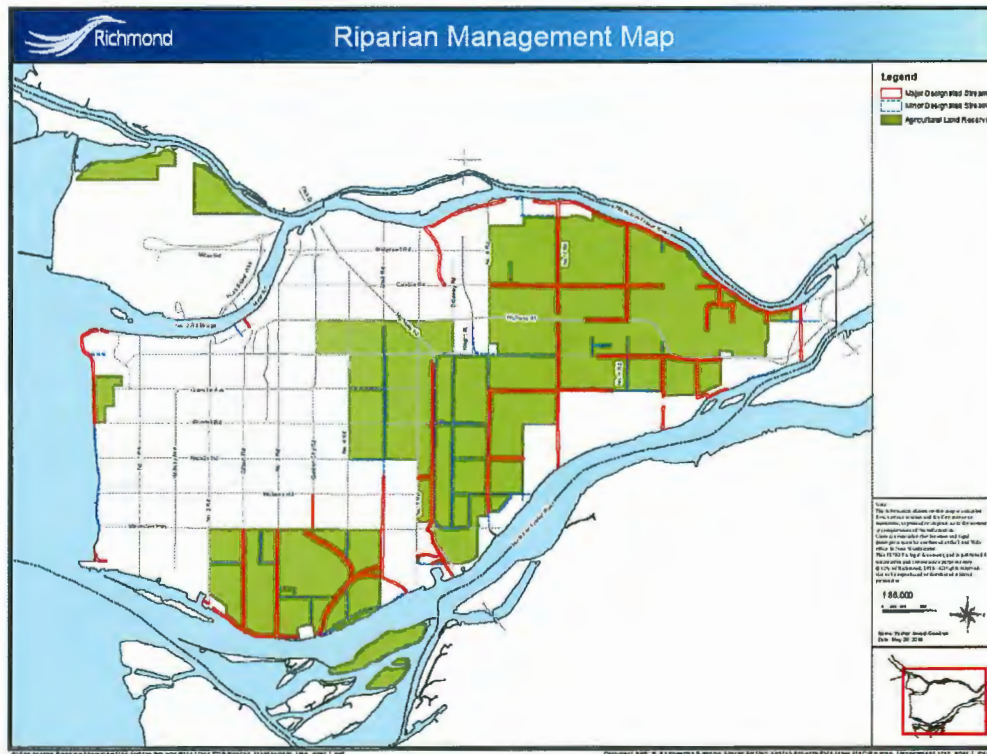
HIGH WATER MARK

means the visible high water mark of a **watercourse**, where the presence and action of the water are so common and usual, and so long continued in all ordinary years, as to mark on the soil of the bed of the **watercourse** a character distinct from that of its banks, in vegetation, as well as in the nature of the soil itself; and includes the **active floodplain**.

DESIGNATED STREAM

means a major or minor **watercourse**, that may or may not contain fish, as shown in the following map. Where this bylaw refers to a minor **designated stream** or a major **designated stream**, the

following map shall be used for reference purposes, and may be revised and updated from time to time by the Director of Engineering or his designate.



RIPARIAN MANAGEMENT AREA

means:

- a) the area on either side of a **designated stream** from **high water mark** to **top of bank**; and
- b) the area measured perpendicular 5 m from **top of bank** of a **minor designated stream** or 15 m from **top of bank** of a **major designated stream**.

However, where a **designated stream** is adjacent to a **road**, on the **road** side of the **designated stream** the **riparian management area** shall only extend to the crown of **road**.

RIPARIAN AREA REGULATION TOP OF BANK

means *Riparian Area Regulation*, B.C. Reg. 376/2004, as may be amended or replaced.

means:

- a) for a **designated stream** with an **active flood plain** contained in a ravine, the point closest to the boundary of the **active flood plain** of the **designated stream** where a break in the slope

of the land occurs such that the grade beyond the break is flatter than 3:1 at any point for a minimum distance of 15 m measured perpendicularly from the break; and

- b) for a **designated stream** with an **active flood plain** not contained in a ravine, the edge of the **active flood plain** of the **designated stream** where the slope of the land beyond the edge is flatter than 3:1 at any point for a minimum distance of 15 m measured perpendicularly from the edge.”.

- 2. Richmond Zoning Bylaw No. 8500, as amended, is further at Section 4.1 by adding the following to the end of section 4.1.2:

“For **sites** containing **riparian management areas**, variance to the related to **the riparian management area setbacks** may be permitted in accordance with the **Riparian Area Regulation** and by a City issued permit.”

- 3. Richmond Zoning Bylaw No. 8500, as amended, is further at Part 4 [General Development Regulations] by adding the following as a new section 4.20:

“4.20 Riparian Management Area Protection

4.20.1 All lands, **lots** and **sites** containing all or a portion of a **riparian management area**, are subject to the regulations set out in this Section 4.20, except for:

- a) those lands and uses permitted in the **Agricultural Land Reserve** that are exempt from the **Riparian Area Regulation**;
- b) those lands within **City rights-of-way** and unopened **roads** used for the construction, maintenance or operation of municipal works and services that are not ancillary to commercial, industrial or residential **development** activity.

4.20.2 For the purposes of this Section 4.20, “**development**” is defined to mean any of the following activities associated with or resulting from residential, commercial or industrial activities or ancillary activities:

- a) removal, alteration, disruption or destruction of vegetation;
- b) disturbance of soils;
- c) construction, erection, modification, conversion, enlargement, reconstruction, **alteration**, placement, or addition of **buildings** and **structures**;
- d) creation of non-structural impervious or semi-impervious surfaces, including **hardsurfacing**;
- e) flood protection works;

- f) construction of **roads**, trails, docks, wharves and bridges;
- g) provision and maintenance of sewer and water services;
- h) development of drainage systems;
- i) development of utility corridors (including **urban services, major utilities, and minor utilities**); and/or
- j) **subdivision.**

4.20.3 No **development** is permitted within a **riparian management area**, unless:

- a) it is for the purposes of **enhancement**; or
- b) is authorized by a **City** permit and is in accordance with the **Riparian Area Regulation**, and any other applicable Federal or Provincial legislation and **City** bylaw, and

is in accordance with any applicable best management practices.

4.20.4 Notwithstanding the **setbacks** specified elsewhere in this bylaw, including any **zone**:

- a) for a **lot** containing or adjacent to a minor **designated stream**, the **setback** is 5.0 m measured perpendicular from the **top of bank**;
- b) for a **lot** containing or adjacent to a major **designated stream**, the **setback** is 15.0 m measured perpendicular from the **top of bank**; and
- c) for a **lot abutting** a **road** where a minor or major **designated stream** is adjacent to the far side of the **abutting road**, the **setback** is measured perpendicular from the crown of the **road** rather than the **top of bank**,

unless the **setbacks** applicable to that **lot** from any **lot line** would result in a larger **setback**, in which case the **zone's lot line setbacks** would apply.

- 4. This Bylaw is cited as "**Richmond Zoning Bylaw No. 8500, Amendment Bylaw No. 9871**" and is effective November 5, 2018.

FIRST READING

PUBLIC HEARING

SECOND READING

THIRD READING

ADOPTED

CITY OF RICHMOND
APPROVED by
<i>mu</i>
APPROVED by Director or Solicitor
<i>RS</i>

MAYOR

CORPORATE OFFICER



**Watercourse Protection and Crossing Bylaw No. 8441,
Amendment Bylaw No. 9882**

The Council of the City of Richmond enacts as follows:

1. Watercourse Protection and Crossing Bylaw No. 8441, as amended, is further amended by:
 - a) deleting the definition of **RIPARIAN MANAGEMENT AREA** from Section 1.1 and replacing it with the following:

**“RIPARIAN
MANAGEMENT
AREA**

means “riparian management area” as defined in the Zoning Bylaw.”

- b) adding the following definitions to section 1.1 in alphabetical order:

“DEVELOPMENT

means “development” as defined in section 4.20 of the Zoning Bylaw.

ENHANCEMENT

means “enhancement” as defined in the Zoning Bylaw.

**QUALIFIED
ENVIRONMENTAL
PROFESSIONAL**

means a registered professional biologist, geoscientist, engineer, forester and/or agrologist registered in British Columbia, with demonstrated education, expertise, accreditation, and knowledge relevant to sensitive environments, ecosystems and/or riparian management.

**RIPARIAN AREA
REGULATION**

means *Riparian Area Regulation*, B.C. Reg. 376/2004, as may be amended or replaced.

**RIPARIAN
VEGETATION
GUIDELINES**

means the **Riparian Area Regulation** re-vegetation guidelines, as amended and replaced from time to time.

ZONING BYLAW

means *Richmond Zoning Bylaw 8900*, as may be amended or replaced.”

- c) deleting subsection 4.1(f) and replacing it with the following:

“(f) only after receiving all other regulatory permits and approvals required to undertake the work, including wildlife salvage for aquatic species performed by a **Qualified Environmental Professional**.”

- d) inserting the following as a new Part 8 and renumbering subsequent sections accordingly:

“PART 8: PROTECTION OF RIPARIAN MANAGEMENT AREAS

8.0 Riparian Management Areas

8.1 No person shall commence or conduct, or cause to be commenced or conducted, any **development** on land situated in a **riparian management area**, unless:

- (a) it is for the purposes of **enhancement**, satisfactory to the **City representative**; or
- (b) is authorized by a **City** permit and is in accordance with the **Riparian Area Regulation**, and any other applicable Federal or Provincial legislation and **City** bylaw.

8.2 A person who applies, under the **City’s Building Regulation Bylaw No. 7230**, for a permit to authorize the construction of, demolition of, or addition to a single or two family dwelling, accessory building and/or structure, and/or any ancillary **development** (such as services permitted by the City) on property that contains all or a portion of a **riparian management area**, must include in, or submit with, the application:

- (a) a survey of the property and delineation of the **riparian management area** on all site plans and site surveys;
- (b) a description of how fill will be contained outside of the **riparian management area**, including but not limited to, showing the location of a retaining wall on the building site plan, and/or providing a site level grading plan showing proposed and existing elevations;
- (c) inclusion of the following **riparian management area** site note on all site plans and site surveys:

“City of Richmond Riparian Management Area (RMA)

- *The RMA must not be altered except in accordance with a City approved permit, or authorized enhancement. No tree, shrub or ground cover removal; no storage of materials; no building, structure or surface construction including retaining walls can occur in an RMA.*

- *A brightly coloured, temporary fence of a minimum height of 1.2 m must be erected at least 2 m outside of the RMA. An erosion and sediment control fence must be installed on the property side of the brightly coloured fence. All additional RMA protection measures, as defined by the City must also be installed/completed.*
 - *All protective fencing and erosion and sediment control measures must be in place before development begins, and remain in place until development is complete and final approval received.*
 - *The landowner is responsible to restore to the satisfaction of the City any unauthorized development within the RMA.”;*
- (d) a **riparian management area** building permit application review fee above in the amount set out from time to time in the *Consolidated Fees Bylaw No. 8636*.

8.3 The **City representative** is authorized to enter on property at any time to:

- (a) determine whether or requirements of this or any applicable **City** bylaw, or Federal and Provincial statutes or regulations, are being met and
- (b) undertake an inspection to determine the work and measures required to restore the **riparian management area** affected by such contravention, in accordance with **riparian vegetation guidelines** and all applicable best management practices;

8.4 If **development** occurs in a **riparian management area** in contravention of Section 8.1 above, the **City representative**:

- (a) may order in writing the owner and/or occupant of the property to, at their sole expense, restore any portion of **riparian management area** on or adjacent to the property affected by such contravention, and may require such restoration work and measures to be overseen by a **Qualified Environmental Professional**, and may require such restoration work and measures to be completed within a specified period of time. Upon receipt, the owner and/or occupant shall take whatever action is specified in the order within the time period specified therein; and
- (b) may require additional inspections to confirm the undertaking and completion of restoration work and measures ordered pursuant to subsection (a) above, and compliance with **City** bylaws, and Federal and Provincial statutes and regulations.

8.5 The owner of the property must pay the non-refundable **riparian management area** inspection fees for the inspections referred to in sections 8.3 and 8.4 above in the amount set out from time to time in the *Consolidated Fees Bylaw No. 8636*.

2. This Bylaw is cited as **“Watercourse Protection and Crossing Bylaw No. 8441, Amendment Bylaw No. 9882”**, and is effective November 5, 2018.

FIRST READING

SECOND READING

THIRD READING

ADOPTED

CITY OF RICHMOND
APPROVED for content by originating dept. 
APPROVED for legality by Solicitor 

MAYOR

CORPORATE OFFICER



**CONSOLIDATED FEES BYLAW NO. 8636,
AMENDMENT BYLAW NO. 9883**

The Council of the City of Richmond enacts as follows:

1. The **Consolidated Fees Bylaw No. 8636**, as amended, is further amended by deleting “SCHEDULE – WATERCOURSE PROTECTION AND CROSSING” and replacing it with Schedule A attached to and forming part of this bylaw as a schedule to Consolidated Fees Bylaw No. 8636, in alphabetical order.
2. This Bylaw is cited as “**Consolidated Fees Bylaw No. 8636, Amendment Bylaw No. 9883**”, and is effective November 5, 2018.

FIRST READING

SECOND READING

THIRD READING

ADOPTED

MAYOR

CORPORATE OFFICER

CITY OF RICHMOND
APPROVED for content by originating dept. 
APPROVED for legality by Solicitor 

SCHEDULE – WATERCOURSE PROTECTION AND CROSSING**Watercourse Protection and Crossing Bylaw No. 8441****Application**

Sections 1.1 and 3.2

Fees

Description	Fee
<u>Culvert</u>	
Application Fee	\$350.00
City Design Option	\$1,154.00
Inspection Fee	\$23.50
*Per linear metre of culvert	
<u>Bridge</u>	
Application Fee	\$119.00
Inspection Fee	\$233.00

Note: There is no City Design Option for bridges.

Watercourse Protection and Crossing Bylaw No. 8441**Riparian Management Area Building Permit – Application Review Fees**

Section 8.2

Description	Fee
<u>Application Review Fees</u>	
(a) Single or two family dwelling construction	\$750.00
(b) Single or two family dwelling demolition	\$350.00
(c) Addition to and/or accessory building over 10 m ² (for single or two family dwellings) construction	\$350.00
(d) Addition to and/or accessory building over 10 m ² (for single or two family dwellings) demolition	\$350.00
(e) Retaining wall over 1.2 m in height, for single or two family dwelling	\$350.00
(f) Site services for single or two family dwelling	\$350.00
(g) Combination of three (3) or more of the following: single or two family dwelling construction and/or demolition, addition to and/or accessory building over 10m ² for single or two family dwellings construction and/or demolition, retaining wall over 1.2m in height, for single or two family dwelling, and/or site services for single or two family dwelling.	\$1,500.00

Note: Other than as set out above there are no Building Permit application review fees for activities in or adjacent to riparian management areas

Watercourse Protection and Crossing Bylaw No. 8441
Development in Riparian Management Area Inspection Fees
 Section 8.5

Description	Fee
<u>Initial Inspection Fee</u>	\$75.00
<u>Re-inspection Fees</u>	
(a) first additional inspection	\$75.00
(b) second additional inspection	\$150.00
(c) third additional inspection	\$300.00
<i>Note: the fee for each additional inspection after the third additional inspection, required as a result of prior inspection showing deficiencies, will be at double the cost of each immediately previous inspection</i>	



**Municipal Ticket Information Authorization Bylaw No. 7321,
Amendment Bylaw No. 9884**

The Council of the City of Richmond enacts as follows:

1. **Municipal Ticket Information Authorization Bylaw No. 7321**, as amended, is further amended by:
 - (a) inserting the following as new section 15A to Schedule A in numerical order:

“15A. Watercourse Protection and Crossing Bylaw No. 8441 - **Bylaw Enforcement Officer**”
 - (b) inserting Schedule A attached hereto as new Schedule B 15A.
2. This Bylaw is cited as “**Municipal Ticket Information Authorization Bylaw No. 7321, Amendment Bylaw No. 9884**”, and is effective November 5, 2018.

FIRST READING

SECOND READING

THIRD READING

ADOPTED

MAYOR

CORPORATE OFFICER

CITY OF RICHMOND
APPROVED for content by originating dept. 
APPROVED for legality by Solicitor 

SCHEDULE B 15A**WATERCOURSE PROTECTION AND CROSSING BYLAW NO. 8441**

Column 1	Column 2	Column 3
Offence	Bylaw Section	Fine
Failure to obtain permit	2.1(d)	\$500
Failure to maintain watercourse crossing		
First Offence	6.1	\$500
Subsequent Offences	6.1	\$1000
Failure to construct as approved	4.1	\$500
Failure to restore City Land	4.2	\$500
Unauthorized development in a riparian management area	8.1	\$500
Failure to comply with restoration order	8.4(a)	\$500



**Notice of Bylaw Violation Dispute Adjudication Bylaw No. 8122,
Amendment Bylaw No. 9885**

The Council of the City of Richmond enacts as follows:

1. Notice of Bylaw Violation Dispute Adjudication Bylaw No. 8122, as amended, is further amended by deleting the Schedule – Watercourse Protection and Crossing Bylaw No. 8441 and replacing it with the table in Schedule A attached to and forming part of this Bylaw.
2. This Bylaw is cited as “**Notice of Bylaw Violation Dispute Adjudication Bylaw No. 8122, Amendment Bylaw No. 9885**”, and is effective November 5, 2018.

FIRST READING

SECOND READING

THIRD READING

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CORPORATE OFFICER

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APPROVED for legality by Solicitor


Schedule - Watercourse Protection and Crossing Bylaw No. 8441 Designated Bylaw Contraventions and Corresponding Penalties							
A1 Bylaw	A2 Description of Contravention	A3 Section	A4 Compliance Agreement Available	A5 Penalty	A6 Early Payment Option	A7 Late Payment Amount	A8 Compliance Agreement Discount
Watercourse Protection and Crossing Bylaw No. 8441	Period of Time from Receipt (inclusive)		n/a	29 to 60 days	1 to 28 days	61 days or more	n/a
	Failure to obtain permit	2.1(d)	No	\$ 500.00	\$ 450.00	\$ 525.00	n/a
	Failure to maintain watercourse crossing	6.1	No	\$ 250.00	\$ 200.00	\$ 300.00	n/a
	First Offence			\$500.00	\$450.00	\$525.00	
	Subsequent Offences						
	Failure to construct as approved	4.1	No	\$ 500.00	\$ 450.00	\$ 525.00	n/a
	Failure to restore City land	4.2	No	\$ 500.00	\$ 450.00	\$ 525.00	n/a
	Unauthorized development in a riparian management area	8.1	No	\$ 500.00	\$ 450.00	\$ 525.00	n/a
	Failure to comply with restoration order	8.4(a)	No	\$ 500.00	\$ 450.00	\$ 525.00	n/a



**Boulevard Maintenance Regulation Bylaw No.7174,
Amendment Bylaw No. 9881**

The Council of the City of Richmond enacts as follows:

1. Boulevard Maintenance Bylaw No.7174, as amended, is further amended by:

a) adding the following definitions to Section 3.1 in alphabetical order:

“ENHANCEMENT means “enhancement” as defined in the Richmond Zoning Bylaw 8900, as may be amended or replaced.

**RIPARIAN
MANAGEMENT
AREA** means “riparian management area” as defined in the Richmond Zoning Bylaw 8900, as may be amended or replaced.”

b) adding the following as a new Section 1.3.2:

“1.3.2 Notwithstanding Section 1.2.1 above, if a **boulevard** is situated in a **riparian management area**, a property owner may not add flower beds, plant shrubbery, and ground cover in a **boulevard** unless such work is for the purposes of **enhancement** satisfactory to the **General Manager of Engineering & Public Works** or his designate.”

2. This Bylaw is cited as “**Boulevard Maintenance Regulation Bylaw 7174, Amendment Bylaw 9881**”, and is effective November 5, 2018.

FIRST READING

SECOND READING

THIRD READING

ADOPTED

MAYOR

CORPORATE OFFICER

CITY OF RICHMOND
APPROVED for content by originating dept.
APPROVED for legality by Solicitor