



## Public Works and Transportation Committee

Anderson Room, City Hall  
6911 No. 3 Road

Wednesday, September 20, 2017  
4:00 p.m.

Pg. #      ITEM

### MINUTES

**PWT-4**      *Motion to adopt the [minutes](#) of the meeting of the Public Works and Transportation Committee held on July 19, 2017.*



### NEXT COMMITTEE MEETING DATE

October 18, 2017, (tentative date) at 4:00 p.m. in the Anderson Room

### PLANNING AND DEVELOPMENT DIVISION

1. **RIVER ROAD – PROPOSED ADDITIONAL ROAD SAFETY ENHANCEMENT MEASURES**

(File Ref. No. 10-6450-09-01) (REDMS No. 5488824 v. 3)

**PWT-8**

[See Page PWT-8 for full report](#)

*Designated Speaker: Victor Wei*

STAFF RECOMMENDATION

- (1) *That Option 2 as described in the staff report titled “River Road – Proposed Additional Road Safety Enhancement Measures” dated August 22, 2017 from the Director, Transportation, be endorsed for implementation as part of on-going city-wide efforts to improve safety for road users; and*
- (2) *That Richmond RCMP be requested to establish regular speed and vehicle weight enforcement on River Road between No. 6 Road and Westminster Highway as a complementary road safety enhancement measure to Recommendation 1.*



ENGINEERING AND PUBLIC WORKS DIVISION

2. **METRO VANCOUVER CAPITAL CONSTRUCTION UPDATE 2017**  
(File Ref. No. 10-6060-03-01) (REDMS No. 5488473 v. 2)

PWT-17

See Page PWT-17 for full report

*Designated Speaker: Lloyd Bie*

STAFF RECOMMENDATION

*That the report titled “Metro Vancouver Capital Construction Update 2017,” dated August 25, 2017 from the Director, Engineering be received for information.*



3. **RESTRICTION OF GROUNDWATER DISCHARGE TO CITY DRAINAGE AND SANITARY SYSTEMS**  
(File Ref. No. 10-6060-05-01) (REDMS No. 5489017 v. 3)

PWT-22

See Page PWT-22 for full report

*Designated Speaker: Lloyd Bie*

STAFF RECOMMENDATION

*That the Drainage, Dyke, and Sanitary Sewer System Bylaw No. 7551, Amendment Bylaw No. 9751 be introduced and given first, second and third readings.*



4.      **SHELL ROAD NORTH DRAINAGE PUMP STATION**

(File Ref. No. 10-6340-20-P.16308) (REDMS No. 5495802 v. 2)

**PWT-26**

[See Page PWT-26 for full report](#)

*Designated Speaker: Milton Chan*

STAFF RECOMMENDATION

*That the design concept for the Shell Road North Drainage Pump Station as detailed in Attachment 1 of the staff report titled “Shell Road North Drainage Pump Station” dated August 9, 2017 from the Director, Engineering be approved.*

☐

5.      **RIPARIAN RESPONSE STRATEGY COMPLIANCE UPDATE**

(File Ref. No.: 10-6160-00) (REDMS No. 5542675 v. 5)

**PWT-32**

[See Page PWT-32 for full report](#)

*Designated Speaker: Chad Paulin*

STAFF RECOMMENDATION

*That the report titled “Riparian Response Strategy Compliance Update” from the Director, Engineering, dated September 11, 2017 be received for information.*

☐

6.      **MANAGER’S REPORT**

ADJOURNMENT

☐



## Public Works and Transportation Committee

Date: Wednesday, July 19, 2017

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 June 21, 2017, be adopted as circulated.*

**CARRIED**

### NEXT COMMITTEE MEETING DATE

September 20, 2017, (tentative date) at 4:00 p.m. in the Anderson Room

### PLANNING AND DEVELOPMENT DIVISION

#### 1. **JOINT TRANSLINK-METRO VANCOUVER REGIONAL PARKING STUDY**

(File Ref. No. 01-0157-30-01) (REDMS No. 5434072 v.2)

## **Public Works & Transportation Committee**

### **Wednesday, July 19, 2017**

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In reply to queries from Committee, Victor Wei, Director, Transportation advised that often parking spots in highrise residential buildings are unused therefore, staff supported a regional study in regards to parking needs in residential developments adjacent to rapid transit hubs. Mr. Wei noted that a staff report on the topic is forthcoming.

It was moved and seconded

***That the staff report titled "Joint TransLink-Metro Vancouver Regional Parking Study" dated June 21, 2017, from the Director, Transportation, regarding data collection to document vehicle parking supply and demand at residential and mixed use developments across the region, be received for information.***

**CARRIED**

## **ENGINEERING AND PUBLIC WORKS DIVISION**

### **2. AGEING UTILITY AND ROAD INFRASTRUCTURE PLANNING – 2017 UPDATE**

(File Ref. No. 10-6060-03-01) (REDMS No. 5333959 v.10)

In reply to queries from Committee, Jason Ho, Project Engineer, advised that (i) staff regularly monitor for leaks in pipes, (ii) inspectors monitor certain catchments more closely and educate the public on proper protocols for grease disposal, and (iii) pressure sensors pinpoint where grease is accumulating for closer monitoring.

Discussion ensued in regards to infrastructure costs as per the Dyke Master Plan phases and in reply to queries from Committee, John Irving, Director, Engineering, advised that approximately \$55 million will be used for improvements to address anticipated sea level rise.

In reply to queries from Committee, Mr. Ho advised that failure of box culverts could result in sinkholes due to soils seeping into the culverts thereby making the ground unstable.

Discussion ensued in regards to sea level rise and various methods in which the City can address it, and in particular along the Steveston Waterfront. Mr. Irving advised that all possible solutions and their costs will be thoroughly examined and considered.

In reply to queries from Committee, Mr. Irving informed that the Steveston Harbour Authority is moving forward with their marsh project and that staff are engaging with the Steveston Harbour Authority on continuing the dredging solution for the harbour.

2.

**Public Works & Transportation Committee**  
**Wednesday, July 19, 2017**

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It was moved and seconded

*That staff utilize the report "Ageing Utility and Road Infrastructure Planning – 2017 Update" report dated June 23, 2017 from the Director, Engineering as input in the annual utility rate review, capital program process and operating budget process.*

**CARRIED**

**3. MULTI-FAMILY WATER METER PROGRAM**

(File Ref. No. 10-6650-02) (REDMS No. 5376613 v.10)

It was moved and seconded

*That the Advanced Volunteer Multi-Family Water Meter Program, as outlined in Option 2 in the staff report titled "Multi-Family Water Meter Program" from the Director of Engineering, dated June 26, 2017, be included in the 2018 to 2022 Capital Program for Council's Consideration.*

**CARRIED**

**4. FRASER RIVER FRESHET AND FLOOD PROTECTION UPDATE 2017**

(File Ref. No. 10-6060-03-01) (REDMS No. 5402822 v.3)

It was moved and seconded

*That the report titled "Fraser River Freshet and Flood Protection Update 2017" dated June 23, 2017 from the Director, Engineering be received for information.*

The question on the motion was not called as discussion ensued and in reply to a query from Committee, Mr. Ho advised that the City's robust dyking system would adequately address any changes in water level due to the freshet runoff.

The question on the motion was then called and it was **CARRIED**.

**5. AMENDMENT TO BOULEVARD AND ROADWAY PROTECTION AND REGULATION BYLAW NO. 6366**

(File Ref. No. 10-6000-01) (REDMS No. 5433691)

It was moved and seconded

*That Boulevard and Roadway Protection and Regulation Bylaw No. 6366, Amendment Bylaw No. 9736 be introduced and given first, second and third readings.*

**CARRIED**

**6. MANAGER'S REPORT**

None.

**Public Works & Transportation Committee**  
**Wednesday, July 19, 2017**

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**ADJOURNMENT**

It was moved and seconded

*That the meeting adjourn (4:18 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, July 19, 2017.

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Councillor Chak Au  
Chair

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Sarah Kurian  
Legislative Services Coordinator



# City of Richmond

## Report to Committee

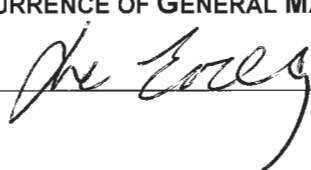


**To:** Public Works and Transportation Committee  
**From:** Victor Wei, P. Eng.  
Director, Transportation  
**Date:** August 22, 2017  
**File:** 10-6450-09-01/2017-  
Vol 01  
**Re:** River Road - Proposed Additional Road Safety Enhancement Measures

### Staff Recommendation

1. That Option 2 as described in the staff report titled "River Road – Proposed Additional Road Safety Enhancement Measures" dated August 22, 2017 from the Director, Transportation, be endorsed for implementation as part of on-going city-wide efforts to improve safety for road users.
2. That Richmond RCMP be requested to establish regular speed and vehicle weight enforcement on River Road between No. 6 Road and Westminster Highway as a complementary road safety enhancement measure to Recommendation 1.

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

Att. 2

REPORT CONCURRENCE		
<b>ROUTED TO:</b>	<b>CONCURRENCE</b>	<b>CONCURRENCE OF GENERAL MANAGER</b>
Finance	<input checked="" type="checkbox"/>	
Engineering	<input checked="" type="checkbox"/>	
Fire Rescue	<input checked="" type="checkbox"/>	
RCMP	<input checked="" type="checkbox"/>	
<b>REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE</b>	<b>INITIALS:</b> 	<b>APPROVED BY CAO</b> 



## Staff Report

### Origin

At the June 26, 2017 Council meeting, Council considered a report on proposed road safety enhancement measures for River Road east of No. 6 Road and directed staff to “*consult with the area residents and businesses on River Road between No. 6 Road and Westminster Highway on the proposed installation of speed humps and report back with the outcome.*” This report responds to the referral and recommends the implementation of speed humps and increased enforcement to improve traffic safety in this location.

This report supports Council’s 2014-2018 Term Goal #1 A Safe Community:

*Maintain emphasis on community safety to ensure Richmond continues to be a safe community.*

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

*3.3. Effective transportation and mobility networks.*

### Analysis

#### Road Safety Measures Currently being Implemented

At the June 26, 2017 Council meeting, Council endorsed the immediate implementation of the following road safety measures on River Road between No. 6 Road and Westminster Highway:

- New “Single File” signage along with complementary “sharrow” pavement markings;
- Conversion of the existing solid double yellow centreline to a dashed single yellow centreline at select locations where it is safe for motorists to change lanes safely to pass;
- Installation of new “Caution” signs to advise motorists to expect large volumes of cyclists on the roadway during weekends; and
- Removal of remaining raised pavement markers (cat’s eyes) and replacement with reflective delineator posts mounted in the gravel shoulder.

Implementation of these measures has commenced and is anticipated to be completed in Fall 2017.

#### Consultation on Proposed Installation of Speed Humps

In July 2017, letters were mailed to area owners, occupants and businesses to seek their feedback regarding the proposed installation of a total of 20 additional speed humps at a spacing of 300 metres on River Road between No. 7 Road and Westminster Highway (Attachment 1). The section of River Road between No. 6 Road and No. 7 Road was not considered for the placement of speed humps due to the relatively high volume of truck traffic along that segment of the roadway.

A total of 47 responses were received within the survey deadline, which is a 49% response rate based on 96 unique property addresses. Of the 47 respondents, 28 (60%) oppose and 19 (40%) support the installation of speed humps.

Of the respondents who are in favour of the installation of the speed humps, virtually all cite a desire to slow speeding motorists and increase safety for all road users as their primary reasons for support.

Of the respondents who are not in favour of the installation of speed humps, commonly cited reasons include inconvenience to residents, perceived increased noise and wear to residents' vehicles, concerns with the safety of speed humps, and the ineffectiveness of speed humps to reduce motorists' speeds. Some respondents suggested that preferred solutions were widening the roadway to accommodate cycling and pedestrian facilities and/or increased enforcement with truck traffic in particular to be targeted for both speed and vehicle weight violations as drivers are perceived to be disobeying the existing 30 km/h speed limit and nine tonne weight limit for commercial vehicles in place on River Road between No. 7 Road and Westminster Highway.

#### Concerns of Residents Opposed to Installation of Speed Humps

Staff offer the following information and comments in response to the common concerns cited by residents not in favour of the installation of the speed humps.

- Inconvenience, Noise and Wear to Vehicles: While there may be a perception of these potential impacts, in fact the proposed additional speed humps would be designed to accommodate the safe operation of a vehicle at a speed up to 50 km/h (or 30 km/h for trucks). Thus, motorists travelling at the posted speed of 50 km/h (or 30 km/h for trucks) would be able to maintain their speed when traversing the speed hump without causing noise, wear to their vehicles or damage to any contents of their vehicles (e.g., farm produce).
- Safety: The design of the proposed speed humps is the same as those currently in place on Gilbert Road south of Steveston Highway, which is also a two lane rural road with open watercourses on both sides. These latter speed humps have been in place since 2011 and staff are not aware of any road safety issues arising from their installation nor at other locations with similar speed humps. Test runs using a fire truck also confirmed that the Gilbert Road speed humps would not negatively impact emergency response time.
- Effectiveness: There are a number of roadways in Richmond where speed humps have been installed to address concerns of speeding. Pre and post traffic surveys of vehicle speeds on these roadways have consistently shown that speed humps are an effective means of ensuring motorists travel at the posted speed limits.
- Road Widening: As noted in the previous staff report, staff will review the feasibility of widening River Road between No. 6 Road and Westminster Highway with a view to further enhancing road safety as part of the long-term concept for the phased Dike Master Plan process. Widening of this roadway in the interim is not feasible due to existing physical constraints.

- *Truck Traffic:* While there is a nine tonne weight limit for commercial vehicles in place on River Road between No. 7 Road and Westminster Highway, such truck activity is permitted when generated by local businesses located on this section of River Road, which may account for respondents' perceptions that trucks are disobeying the weight limit.

In addition, crash statistics from Richmond RCMP for the period 2011 to 2016 indicate a total of 45 crashes involving 84 vehicles and seven cyclists that resulted in 24 injuries and two fatalities. Of these, the cause of over one-half of the collisions was attributed to human factors including speed, inattentiveness and fatigue. With respect to enforcement, nearly 100 violations have been issued since 2015 with over one-third related to speed and nearly 20% related to excessive speed (i.e., more than 40 km/h over the posted speed limit). For 2017 to date, 13 speed-related violations have been issued with one-half of those for excessive speed.

#### Proposed Additional Road Safety Enhancement Measures

Based on the survey results and comments received, staff propose the following two options.

##### *Option 1: Status Quo*

No additional speed humps would be installed. Richmond RCMP would be requested to provide increased speed and vehicle weight enforcement on River Road between No. 6 Road and Westminster Highway as resources and other priorities allow.

##### *Option 2: Install Additional Speed Humps (Recommended)*

Given the physical constraints of the roadway, speed humps are the only practical traffic calming measure. Therefore, notwithstanding the survey results, 20 additional speed humps would be installed on River Road between No. 7 Road and Westminster Highway based on the following rationale:

- Consistent feedback from cyclists and area residents (even those opposed to the installation of speed humps) that car and truck speeds are a primary concern;
- Demonstrated effectiveness of speed humps to safely manage motorists' speeds without damage to vehicles or their contents;
- Historical crash and enforcement statistics from Richmond RCMP that indicate an on-going issue with speeding motorists that cannot be resolved solely through enforcement; and
- The proposed speed humps have been proven to be safe and comfortable for all road users including cars, trucks and cyclists provided that road users adhere to the existing speed limits of 50 km/h for cars and 30 km/h for trucks.

Similar to Option 1, Richmond RCMP would be requested to provide speed and vehicle weight enforcement on River Road between No. 6 Road and Westminster Highway as a complementary measure as resources and other priorities allow.

Due to the length of roadway segment (approximately 6.7 kms) and the resulting number of speed humps (total of 26), the traditional speed hump design (i.e., that in place on Gilbert Road) would be modified to a "speed cushion" that has two channels of flat asphalt spaced at the inner track width of a fire vehicle to allow passage of the truck through the device without having to

go over the hump (Attachment 2), which would ensure that response times for Richmond Fire-Rescue are not impacted by the traffic calming measure. This modified design would also mitigate concerns from residents that the proposed speed humps would be an inconvenience and/or cause damage to vehicles.

In August 2017, follow up letters were mailed to the same area owners, occupants and businesses on River Road that received the July 2017 survey to advise of the results of the survey and that staff would be presenting a report on the outcome to Council for consideration.

### **Financial Impact**

For Option 2, the proposed 20 additional speed humps and associated signage have a total estimated cost of \$100,000 and would be funded from the Council-approved 2015 Traffic Calming Program.

### **Conclusion**

Upon careful review of the comments provided by the survey respondents, staff recommend the installation of 20 additional speed humps on River Road as an effective traffic safety measure to address on-going concerns of motorist speeding.

Although 60% of the survey responses indicated non-support for the proposed speed humps, the reasons cited for the opposition were found by staff to be primarily based on personal perceptions. Staff assessment was based on technical analysis prior to developing the recommendation.

As speeding continues to be a continuing potential safety issue and concern of the area residents and businesses, the only effective means to minimize this undesirable driver behaviour would be to install physical deterrents such as speed humps as a long term measure, along with the regular presence of complementary speed enforcement.

  
For: Joan Caravan  
Transportation Planner  
(604-276-4035)

Att. 1: City Letter re Traffic Calming Survey sent to River Road Owners/Occupants  
Att. 2: Functional Design of Proposed Speed Cushion



City of  
Richmond

6911 No. 3 Road,  
Richmond, BC V6Y 2C1  
[www.richmond.ca](http://www.richmond.ca)

**COPY**

July 17, 2017  
File: 10-6450-09-01/2017-Vol 01

Planning and Development Division  
Transportation  
Fax: 604-276-4132

**To: Owner / Occupant – River Road (No. 7 Road to Westminster Highway)**

**Re: Proposed Traffic Calming Measure (Speed Humps) on River Road (No. 7 Road to Westminster Highway)**

In November 2016, Richmond City Council directed staff to review the traffic conditions on River Road in the area of a fatal crash involving a cyclist. Although the RCMP reported that roadway design was not a contributing factor to the incident, City Council subsequently approved the implementation of enhanced traffic signage and roadway pavement markings as on-going improvements to enhance traffic safety on River Road. City Council also directed staff to consult with area residents and businesses on River Road, between No. 7 Road and Westminster Highway, regarding the proposed installation of vehicle speed humps to address concerns expressed regarding speeding motorists.

Transportation staff conducted and have now completed traffic reviews of the subject location of River Road to determine the extent of any traffic problem. The results of the traffic reviews indicate that there are incidences of motorists speeding on River Road. Staff have advised the Richmond RCMP – Traffic Section of the study results and the RCMP have added this location to their traffic enforcement schedule for times when vehicle speeding is prevalent.

Since the vehicle speed enforcement by the Richmond RCMP cannot be continuous, the City proposes the installation of vehicle speed humps along River Road, between No. 7 Road and Westminster Highway. These speed humps will be in addition to the existing 6 speed humps in the 18,000 block of River Road. The speed humps (Attachment 1) would be spaced at 300 metre intervals along River Road to allow for the timely response times for emergency services. The proposed additional speed humps are designed to accommodate the safe operation of a vehicle of a speed up to 50-km/h. Similar speed humps can be found on Gilbert Road south of Steveston Highway, as also shown in Attachment 1. The installation of additional speed humps on River Road would reduce vehicle speeds in the area as well as slow traffic in general - enhancing traffic safety for drivers, pedestrians and cyclists.

Prior to the installation of the proposed speed humps on River Road, the City would like to determine if there is support for the proposed speed humps and receive any comments from residents and businesses in the affected area. Should there be support for the installation of the proposed speed humps, the City will proceed with the installation of the vehicle speed humps as per the aerial sketch shown in Attachment 1.

Please review and complete the enclosed survey form and return it to the City in the enclosed postage paid envelope by the deadline of: **Monday July 31, 2017**. The survey results will be shared with you in a follow-up letter once all comments have been compiled.

If you have any questions regarding the survey, please contact me at 604-276-4388.

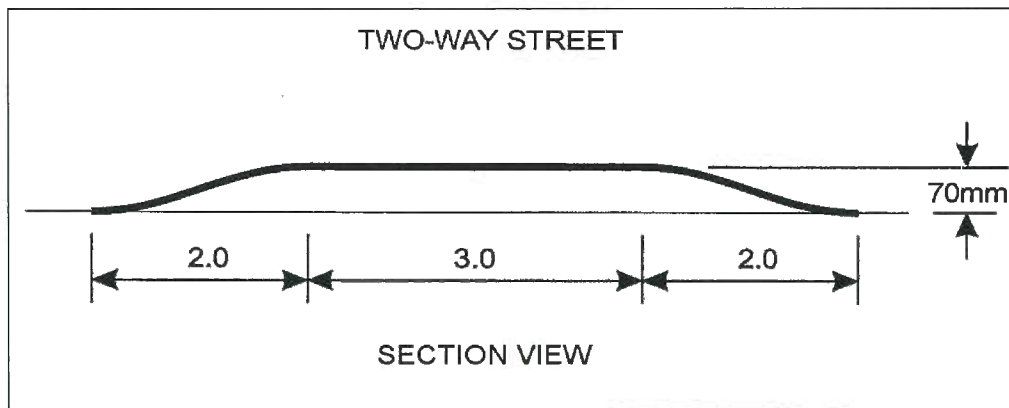
Yours truly,

Cameron Robertson  
Traffic Technician 1

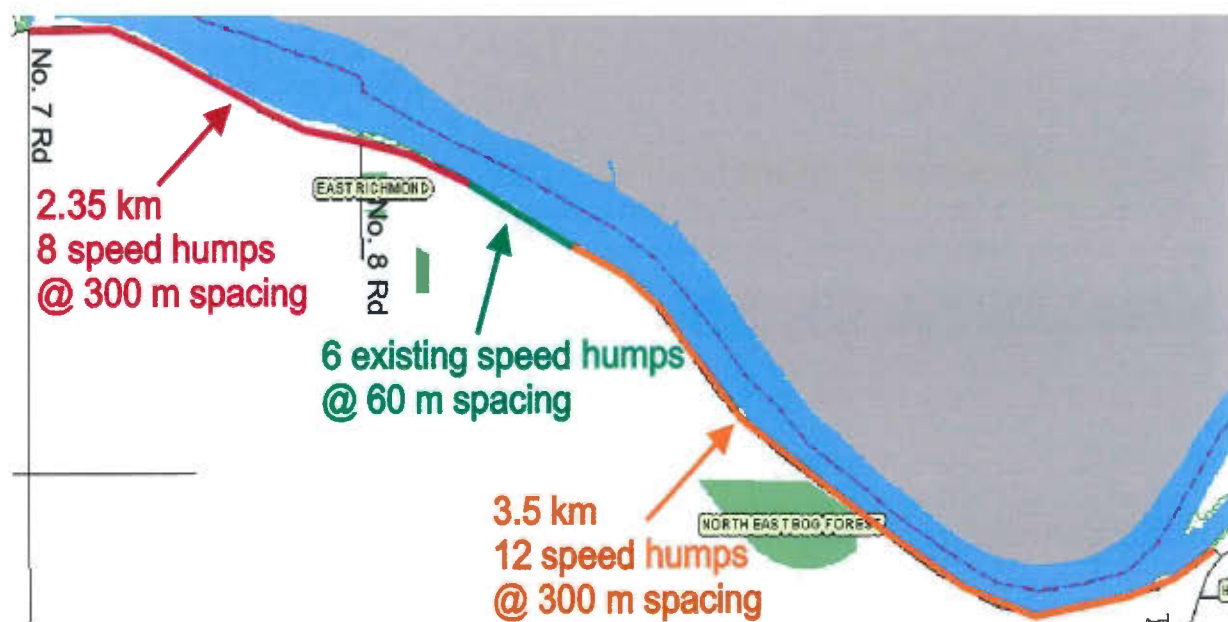
Att. 2

5465197





Example of Existing Speed Hump (as proposed) on Gilbert Road (south of Steveston Highway)



River Road (No. 7 Road - Westminster Highway) – Proposed Locations of Speed Humps

**NEIGHBOURHOOD SURVEY**  
**Proposed Traffic Calming Measure (Speed Humps)**  
**River Road (No. 7 Road to Westminster Highway)**

**Name:**

\_\_\_\_\_  
(Please Print)

**Address:**

\_\_\_\_\_

**Telephone Number:**

\_\_\_\_\_

Please mark one of the following:

☐

I am **in favour** of installing speed humps on River Road (No. 7 Road to Westminster Highway)

Reason: \_\_\_\_\_

\_\_\_\_\_

☐

I am **not in favour** of installing speed humps on River Road (No. 7 Road to Westminster

Reason: \_\_\_\_\_

\_\_\_\_\_

**Other Comments:**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

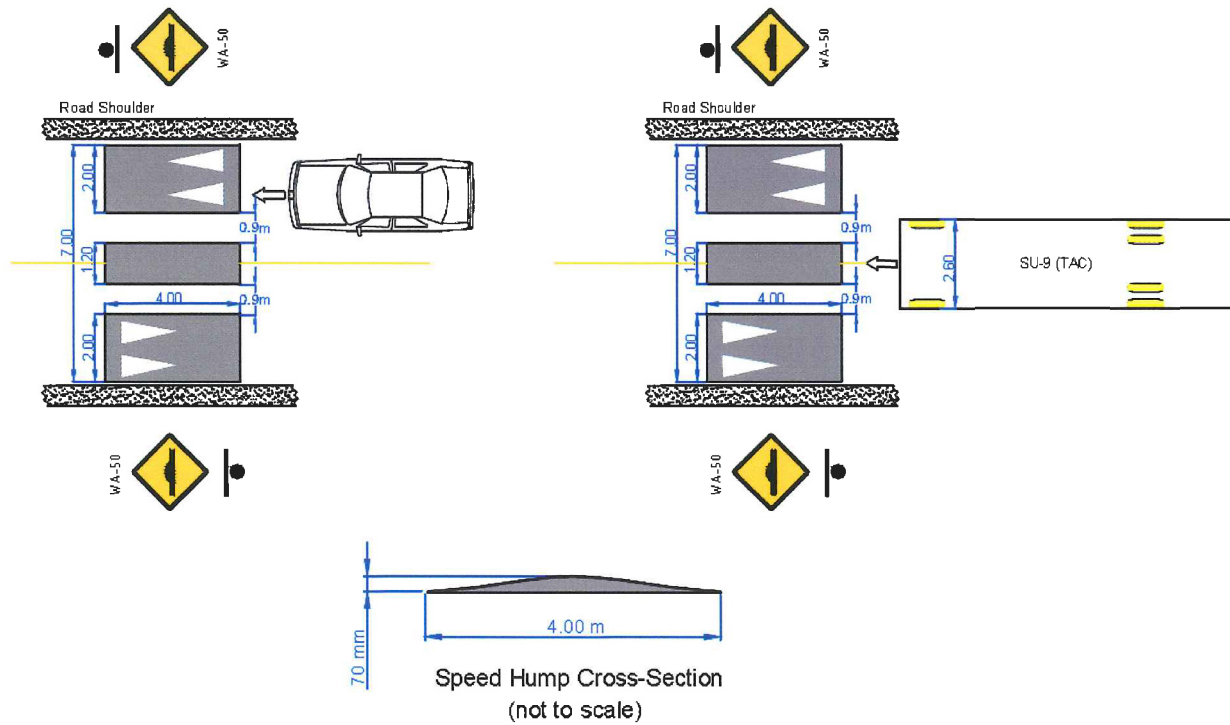
Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Please enclose the completed survey form in the postage paid, addressed envelope provided and return to the City by: **Monday July 31, 2017.**

Thank you for your participation in this survey.

City of Richmond  
Cameron Robertson, Traffic Technician  
Transportation Department  
July 17, 2017

## Functional Design of Proposed Speed Cushion







# City of Richmond

## Report to Committee

**To:** Public Works and Transportation Committee  
**From:** John Irving, P.Eng. MPA  
Director, Engineering  
**Date:** August 25, 2017  
**File:** 10-6060-03-01/2017-  
Vol 01  
**Re:** **Metro Vancouver Capital Construction Update 2017**

### Staff Recommendation

That the report titled "Metro Vancouver Capital Construction Update 2017," dated August 25, 2017 from the Director, Engineering be received for information.

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

REPORT CONCURRENCE		
<b>ROUTED TO:</b> Corporate Communications Sewerage and Drainage Water Services	<b>CONCURRENCE</b> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<b>CONCURRENCE OF GENERAL MANAGER</b> 
<b>REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE</b>	<b>INITIALS:</b> 	<b>APPROVED BY CAO</b> 

## Staff Report

### Origin

Metro Vancouver is a regional authority operating under provincial legislation to deliver regional services such as drinking water and wastewater treatment on behalf of 23 member municipalities, including the City of Richmond. This report updates Council on current and upcoming capital construction projects by Metro Vancouver that supports or impacts the City of Richmond.

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

6.1 *Safe and sustainable infrastructure.*

6.2 *Infrastructure is reflective of and keeping pace with community needs.*

### Analysis

#### Capital Construction Projects

Metro Vancouver's work on the Gilbert Road Sewer Project and the Annacis Island Wastewater Treatment Plant Upgrade is underway, and a number of capital construction projects impacting the City of Richmond have been proposed by Metro Vancouver for the coming decade. Attachment 1 illustrates Metro Vancouver's current and proposed capital projects.

#### *Gilbert Road Sewer Project*

Metro Vancouver's Gilbert Road Sewer conveys the majority of Richmond's sanitary sewage to the Lulu Island Wastewater Treatment Plant. The existing sewer is showing signs of deterioration due to age and grease build-up, and is currently nearing its full capacity as demands increase due to population growth. In 2013, Metro Vancouver began construction of the Gilbert Road Sewer Project, which involves twinning of the existing pipe to provide increased capacity, improve system redundancy and better facilitate future maintenance.

The first section of the project extends from Metro Vancouver's Bridgeport pump station to the intersection of Gilbert Road and Elmbridge Way. Construction of this section began in spring 2013 and is complete. The remaining works involve the construction of approximately 6.2 kilometers of trunk sewer along Gilbert Road from Elmbridge Way to the Lulu Island Wastewater Treatment Plant. Metro Vancouver anticipates construction to be complete in 2020. Staff are working with Metro Vancouver to establish a design, construction schedule and traffic management plan that minimizes impacts to property owners and other stakeholders.

#### *Annacis Island Wastewater Treatment Plant Upgrade Project*

The Annacis Island Wastewater Treatment Plant is located on Annacis Island in Delta and provides secondary wastewater treatment for the Fraser Sewerage Area which includes East Richmond. Upgrade of the plant is currently underway to increase treatment capacity to accommodate growth, improve seismic resilience and adapt to climate change. Planned upgrade works include construction of a new outfall pipe to discharge into the Fraser River, expansion of

the existing plant, replacement and of ageing infrastructure, strengthening of the plant to improve seismic resilience and improving odour control and power source back-up.

In spring 2017, Metro Vancouver awarded a \$252 million contract for construction of the first phase of the project. Construction completion for the first phase is targeted for 2021, with the second phase to follow in 2022.

#### *Iona Island Secondary Wastewater Treatment Plant Project*

The existing Iona Island Wastewater Treatment Plant, located on Sea Island, provides primary wastewater treatment for the Vancouver Sewerage Area which includes Mitchell Island and portions of Sea Island. The plant was originally commissioned in 1963 and has since undergone a number of upgrades. Approved by the Minister of Environment in May 2011 and consistent with the Federal Wastewater Systems Effluent Regulation established in 2012, Metro Vancouver's Integrated Liquid Waste and Resource Management Plan requires that the Iona Island Wastewater Treatment Plant be upgraded to a secondary treatment facility by 2030.

The Iona Island Secondary Wastewater Treatment Plant Project will replace the existing primary treatment plant to process secondary level treatment and improve resource recovery and integration with the surrounding park and community. Metro Vancouver estimates that the project will cost approximately \$1.9 billion. The proposed schedule for delivery of the project is as follows:

- Project Definition: 2017 – 2019
- Design and Construction: 2020 – 2029
- Commissioning: 2030 – 2032

The Project Definition Phase is currently underway and will define the scope of the project, deliver a conceptual design, outline a project schedule and cost estimate, assess potential procurement methods and explore opportunities for Provincial and Federal funding. In addition to the construction of the new secondary treatment facility, Metro Vancouver will also be completing a series of upgrades at the existing plant over the next few years to maintain service levels until construction of the new plant is complete. These upgrades are estimated to total approximately \$80 million.

#### *Lulu Island Wastewater Treatment Plant Upgrades*

The Lulu Island Wastewater Treatment Plant provides secondary wastewater treatment for the majority of Richmond. A number of upgrades to the plant totalling approximately \$70 million have been proposed for the next decade. Projects include power reliability upgrade, wastewater meter upgrades, installation of a new digester and biogas clean-up.

### *Water Services Capital Construction Projects*

A number of water services capital construction projects within Richmond have been proposed as part of Metro Vancouver's long-range capital plan:

- Cambie-Richmond Main Marine Crossing (\$370 million): This project involves the replacement of the Lulu Island-Delta Main marine under the Oak Street Bridge to improve seismic resilience of the main. Design work is scheduled to commence in 2019, with construction to follow in 2025.
- Lulu Island-Delta Main Scour Protection (\$5.25 million): This project involves improving scour protection of the Lulu Island-Delta Main at the Fraser River crossing between Richmond and Delta. Construction is scheduled to take place between 2018 and 2021.

### **Financial Impact**

Costs associated with Metro Vancouver's water and liquid waste capital program will be transferred to municipalities through annual water rates and sewer levies. Metro Vancouver anticipates that a five-year projection of water and sewer rates will be provided to municipalities by October 2017. Staff will utilize these projections to inform future budget planning.

### **Conclusion**

Metro Vancouver anticipates that a number of significant infrastructure upgrade projects will be required over the next decade to accommodate ageing infrastructure and growth within the region. Staff are actively engaged with Metro Vancouver in coordinating necessary upgrades to ensure that high levels of service are maintained for Richmond's residents and business owners and that construction impacts are minimized.



Lloyd Bie, P.Eng.  
Manager, Engineering Planning  
(604-276-4075)

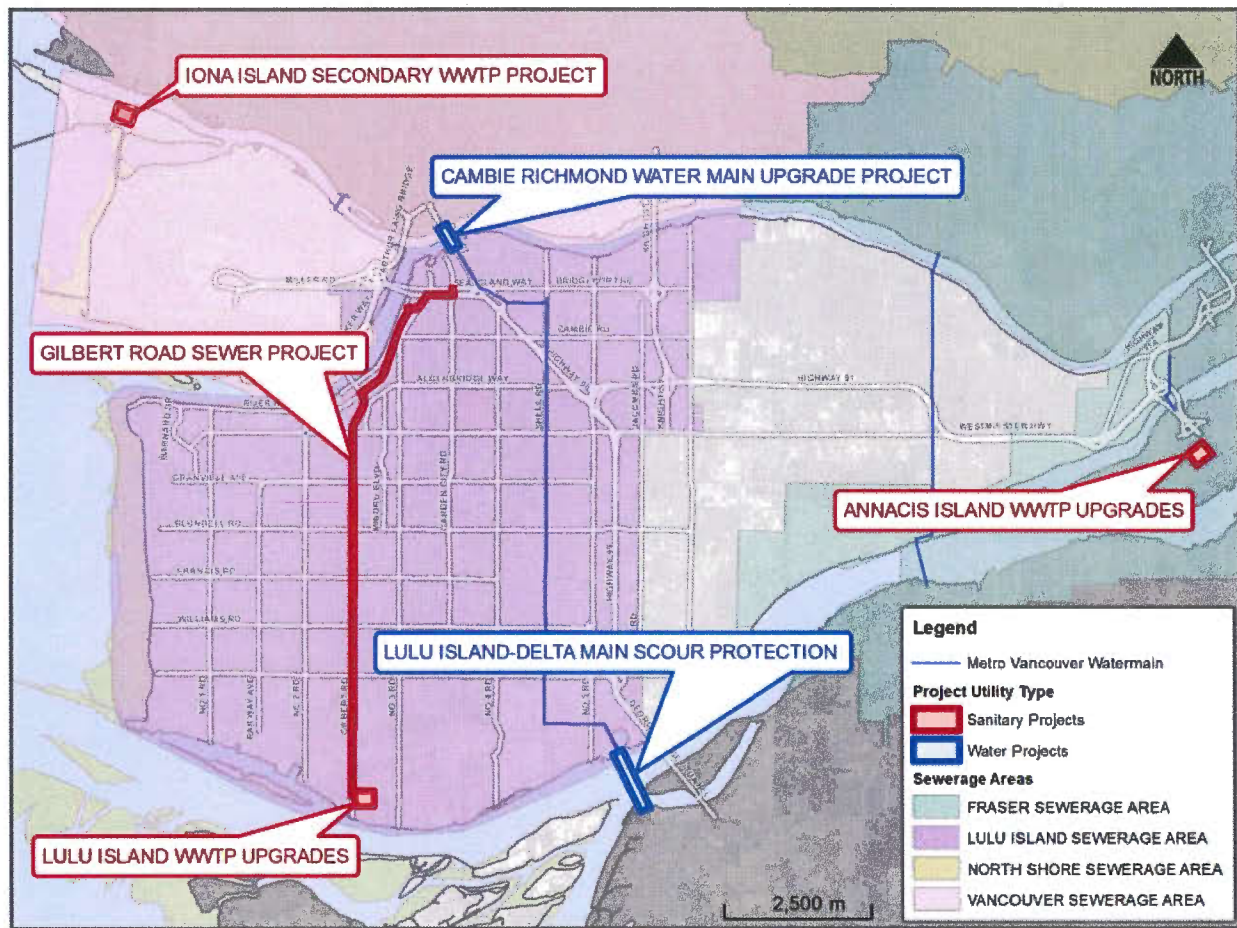


Beata Ng, P.Eng.  
Project Engineer  
(604-276-4257)

LB: bn

Att 1: Current and Upcoming Metro Vancouver Capital Construction Projects

## Attachment 1 – Current and Upcoming Metro Vancouver Capital Construction Projects






# City of Richmond

## Report to Committee

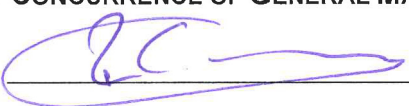


**To:** Public Works and Transportation Committee  
**From:** John Irving, P.Eng. MPA  
Director, Engineering  
**Date:** August 24, 2017  
**File:** 10-6060-05-01/2017-  
Vol 01  
**Re:** **Restriction of Groundwater Discharge to City Drainage and Sanitary Systems**

### Staff Recommendation

That the Drainage, Dyke, and Sanitary Sewer System Bylaw No. 7551, Amendment Bylaw No. 9751 be introduced and given first, second and third readings.

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

Att. 1

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

## Staff Report

### Origin

The City's drainage system capacity is designed to convey stormwater, which is defined as surface water due to rainfall or other precipitation. It has been a City practice to restrict groundwater, defined as water found beneath the surface of the ground, from discharging into the City drainage system except for construction dewatering. Amending bylaw No. 7551 – Drainage, Dyke, and Sanitary Sewer System will place clear limitations on what are allowable discharges into City drainage and sanitary systems. 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.*

*6.2. Infrastructure is reflective of and keeping pace with community need.*

Introducing groundwater into the City drainage or sanitary systems increases City costs and the risk of overloading infrastructure. Eliminating the excess input from groundwater sources will allow the City to plan according to actual demand and reduce the rate of wear on City assets.

### Analysis

The following is a summary of the proposed changes for Drainage, Dyke and Sanitary Sewer System Bylaw No. 7551:

- Changes to make clear the discharge restriction of groundwater from private properties into the City drainage or sanitary systems. No groundwater shall be caused to or be allowed to enter into City ditches, pipes, catch basins and so forth unless if approved by the General Manager, Engineering & Public Works.
- Include the definition of "groundwater".

### Financial Impact

None

### Conclusion

It has long been a City practice to restrict groundwater discharge into City owned drainage and sanitary systems except for construction dewatering. Eliminating groundwater discharges into City infrastructure will result in right-sized designs and lower replacement costs due to reduced loading. Amending bylaw No. 7551 will further promote Council's 2014-2018 term goal #6 for safe, sustainable infrastructure that keeps up with community needs.

August 24, 2017

- 3 -

Engineering endorses this amendment and recommends that it is adopted into bylaw No. 7551–  
Drainage, Dyke, and Sanitary Sewer System.

A handwritten signature in black ink, appearing to read 'L. Bie'.

Lloyd Bie, P.Eng.  
Manager, Engineering Planning  
(604-276-4075)

LB:cc

Att. 1: Drainage, Dyke, and Sanitary Sewer System Bylaw No. 7551, Amendment Bylaw  
No. 9751





# City of Richmond

## Bylaw 9751

### Drainage, Dyke and Sanitary Sewer System Bylaw No. 7551, Amendment Bylaw No. 9751

The Council of the City of Richmond enacts as follows:

1. Drainage, Dyke and Sanitary Sewer System Bylaw No. 7551, as amended, is further amended at Section 1.1.1 by inserting the following and new subsection 1.1.1(c) and renumbering the remaining subsections:

“(c) ensure that no **groundwater** originating from such **property owner’s** property is discharged into the **City drainage system** or the **City sanitary sewer** system, unless otherwise permitted by the **General Manager of Engineering & Public Works**; and”.

2. Drainage, Dyke and Sanitary Sewer System Bylaw No. 7551, as amended, is further amended at Section 5.1 by inserting the following definition in alphabetical order:

“**GROUNDWATER** means water found beneath the surface of the ground.”.

3. This Bylaw is cited as “**Drainage, Dyke and Sanitary Sewer System Bylaw No. 7551, Amendment Bylaw No. 9751**”.

FIRST READING



SECOND READING

THIRD READING

ADOPTED

\_\_\_\_\_  
MAYOR

\_\_\_\_\_  
CORPORATE OFFICER

CITY OF RICHMOND
APPROVED for content by originating Division 
APPROVED for legality by Solicitor 



# City of Richmond

## Report to Committee

**To:** Public Works and Transportation Committee

**Date:** August 9, 2017

**From:** John Irving, P.Eng. MPA  
Director, Engineering

**File:** 10-6340-20-  
P.16308/Vol 01

**Re:** Shell Road North Drainage Pump Station

### Staff Recommendation

That the design concept for the Shell Road North Drainage Pump Station as detailed in Attachment 1 of the staff report titled "Shell Road North Drainage Pump Station" dated August 9, 2017 from the Director, Engineering be approved.

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

Att. 1

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

## Staff Report

### Origin

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

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

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

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

### Analysis

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

The existing Shell Road North Drainage Pump Station services the area approximately bounded by the midpoint between Shell Road and No.4 Road, the midpoint between Shell Road and No. 5 Road, and Granville Avenue to the south. This station was constructed in the 1970's, contains old, antiquated equipment and is in need of a pumping capacity increase to adequately meet current flood protection standards.

Design of the upgraded Shell Road North Drainage Pump Station commenced earlier in 2017 and has advanced to a point whereby the general layout and architectural features have been identified (Attachment 1).

In general, the architectural character is responding to the utilitarian aspects of the building functions and the backdrop of the south shore of the North Arm of the Fraser River. The design includes two structures, one is the modified existing wet well/flood box structure, and the other is the proposed new Motor Control Center (MCC)/Generator building with stairs for access between both buildings. The conceptual design allows for low maintenance in response to potential vandalism and additionally takes advantage of the opportunity to be perceived as an amenity for local recreational users of the Bridgeport recreational trail that ends on the west side of the site.

Architectural landscape elements of this pump station will celebrate the stories of water and land using the watercourse mapping cast in concrete façade of the MCC/Genset building, and the geologic map of sediment deposits formed by the course of the river delta in concrete façade of the modified wet well/flood box structure. Both mapping casts provide an opportunity for education and graphical symbolism to be integrated within the infrastructure, along with an

opportunity to encourage an understanding of the river and surrounding land. As the detailed design progresses, these features will continue to be refined and integrated into the overall project.

This station is also incorporated into the existing and future dike trail system along the north dike. Accordingly, the pump station maintenance accesses will be appealing and complimentary to the existing and future trails while at the same time providing the necessary means for pump station operations and maintenance activities. It is also proposed that short sections of the adjacent dike be raised to 4.7 metres geodetic, which is consistent with the City's Long Term Flood Management Strategy to address sea level rise. The pump station components will be designed to accommodate future dike raising to 5.5 metres geodetic if required. The current elevation of the dike is approximately 3.3 metres geodetic.

It is anticipated that design will be completed by Fall 2017, with construction to follow thereafter.

### **Financial Impact**

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

This project is included in the 2016 Flood Protection Program. The Province of British Columbia is providing the City with \$16.63M for the replacement of 4 drainage pump stations and approximately 1.2km of dike upgrades. The provincial funding is based on a 2/3 to 1/3 provincial to municipal share of eligible costs.

### **Conclusion**

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



Elena Paller, P.Eng.  
Project Engineer  
(604-276-4023)

EP:ep

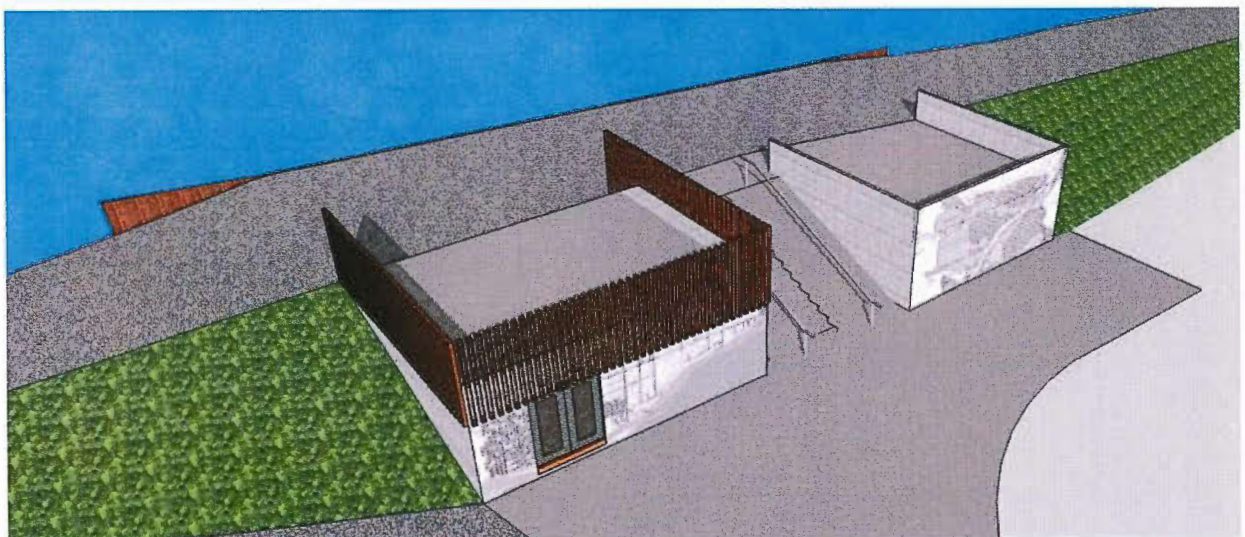
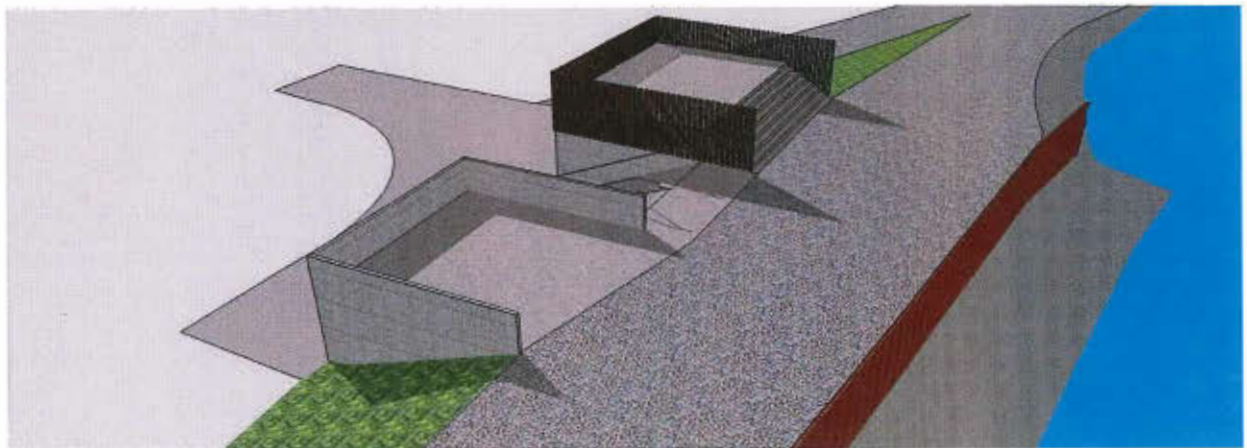
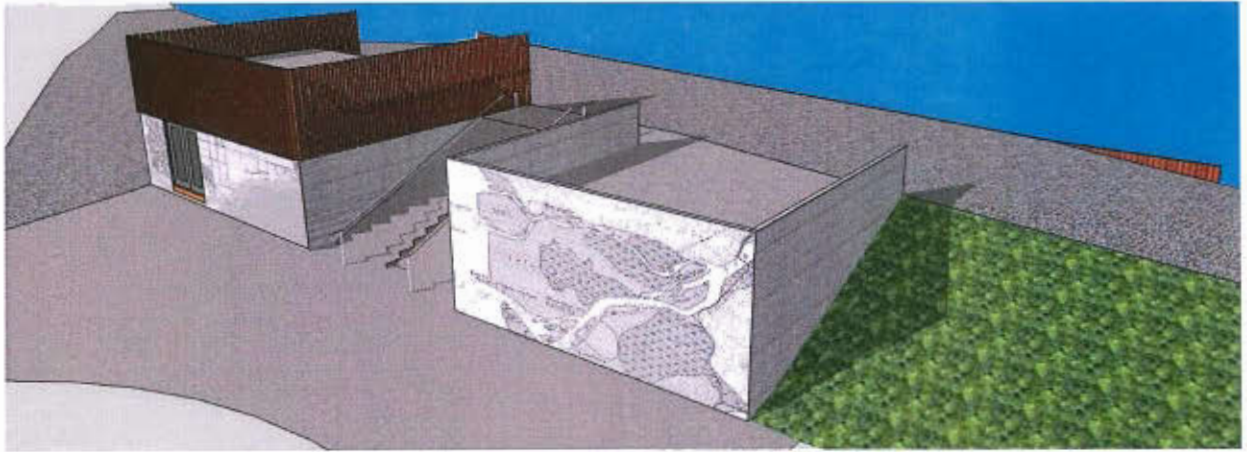


Milton Chan, P.Eng.  
Manager, Engineering Design and Construction  
(604-276-4377)

Att. 1: Shell Road North Pump Station

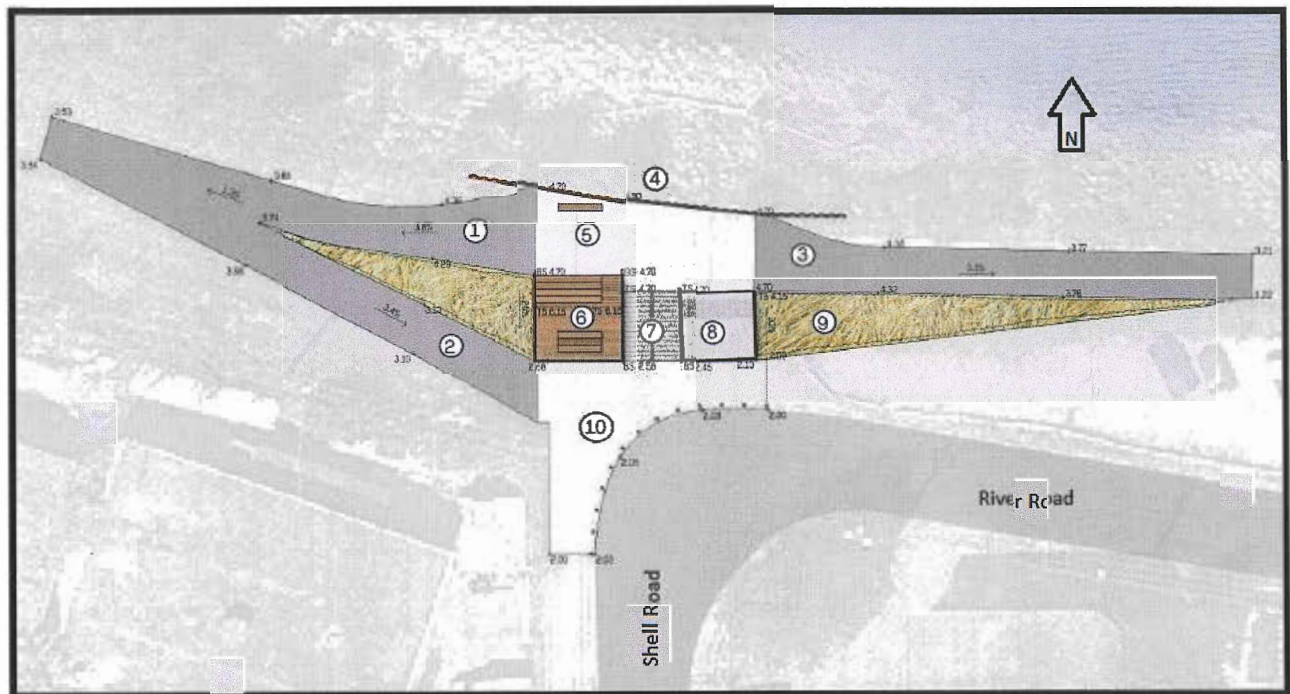
**Attachment 1 - Shell Road North Pump Station Preliminary Design Images**

1. 3D Renderings – Multiple views



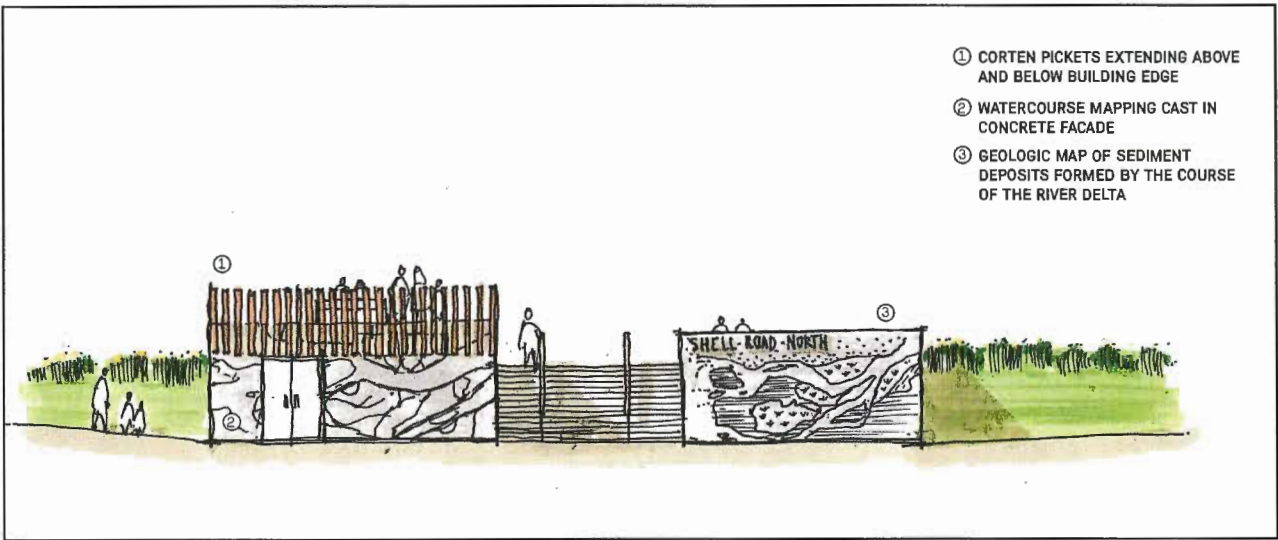


## 2. General Site Location

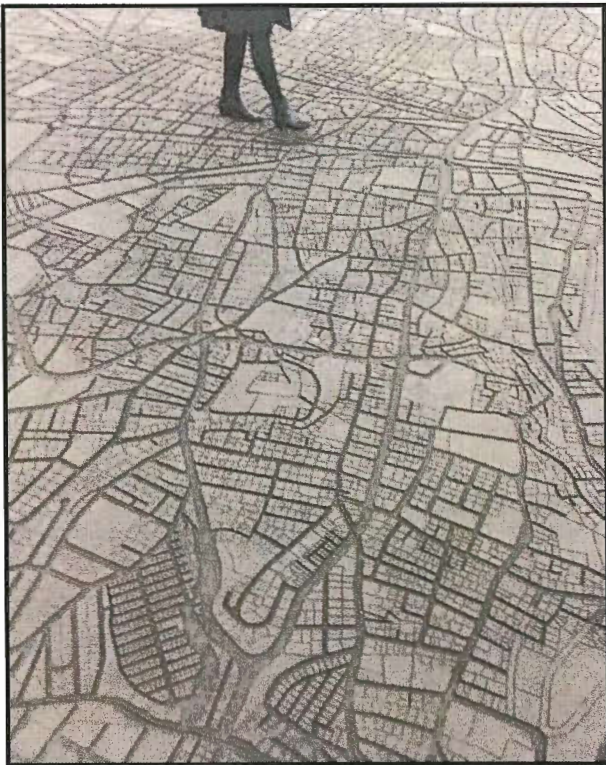


- 1) ASPHALT DIKE TRAIL / ACCESS
- 2) ASPHALT DIKE TRAIL / ACCESS
- 3) ASPHALT DIKE TRAIL / ACCESS
- 4) NEW SHEET PILE RETAINING WALL
- 5) CIP CONCRETE PAVING WITH HEAVY TIMBER SEATING FOR VIEWING ON DIKE
- 6) WOOD DECKING ON TOP OF GENSET WITH HEAVY TIMBER SEATING
- 7) FOLDED STEEL, WOOD, OR CONCRETE STAIR WITH BIKE RAMP AND HANDRAIL CONTINUOUS WITH GUARDRAILS
- 8) CIP CONCRETE PAVING ON TOP OF GENSET
- 9) NATIVE GRASS PLANTING
- 10) CIP CONCRETE PAVING WITH BOLLARDS TO RESTRICT VEHICULAR ACCESS AND DISCOURAGE PEDESTRIAN CROSSING OF SHELL ROAD

3. View of Shell Road North Pump Station (looking North)



4. Sample Map Image in Concrete



5. Sample Corten Picket Railing





# City of Richmond

## Report to Committee

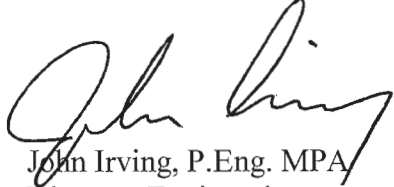
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**To:** Public Works and Transportation Committee      **Date:** September 11, 2017  
**From:** John Irving, P.Eng. MPA      **File:** 10-6160-00/Vol 01  
Director, Engineering  
**Re:** Riparian Response Strategy Compliance Update

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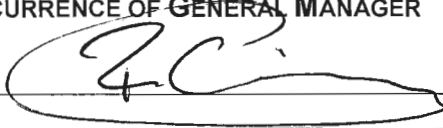


### Staff Recommendation

That the report titled "Riparian Response Strategy Compliance Update" from the Director, Engineering, dated September 11, 2017 be received for information.



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

Att. 1

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



## **Staff Report**

### **Origin**

At the July 25, 2016 Council meeting, Council endorsed the staff recommendation:

*That the stakeholder consultation program outlined in the report titled Riparian Response Strategy Review from the Director, Engineering, dated June 27, 2016, be endorsed.*

The purpose of this report is to summarize outcomes of the stakeholder consultation program and inform Council of an upcoming public consultation program.

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

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

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

*6.1. Safe and sustainable infrastructure.*

### **Background**

Council adopted the Riparian Response Strategy in 2006 to address local requirements to protect and enhance watercourses designated under BC's Riparian Areas Protection Act. The Strategy established Riparian Management Area (RMA) setbacks from applicable watercourses and currently controls activity in these areas that are triggered by residential, commercial and industrial development applications. Under the current approach the review and approval process is cumbersome and lengthy if the applicant is not familiar with typical development requirements. Furthermore there have been frequent encroachments into RMAs during construction that have been raised as a concern by the Province. The City is now proposing to update the current process by introducing a regulatory approach that will provide a clear, concise and streamlined riparian protection process for developers and landowners early in the development application process.

### **Analysis**

The Riparian Response Strategy Review report reviewed by Council in July 2016 highlighted that inclusion of riparian protection measures in the Zoning Bylaw No. 8500, and designation of a riparian development permit area under the Official Community Plan Bylaw No. 9000 were the most appropriate tools to achieve compliance with the Riparian Area Protection Act. Zoning provisions can establish setbacks and development permit area would include site specific protection measures.

Staff's approach is to translate the current approach into the regulatory tools outlined above. This change can be viewed as a 'housekeeping' matter as minimal new requirements will be implemented as a result of the change, with the exception of the cost of a development permit fee (under review). Under the current approach, riparian protection measures are established with

each development activity (e.g. demolition, building, watercourse crossings, etc.). Under the proposed amendments, protection measures will be assessed at the site level under a single permit, effectively streamlining the approval process with clearly defined measures that support the form and function of Richmond's major and minor watercourses.

#### Stakeholder Consultation Summary

Staff engaged stakeholders on the proposed Zoning Bylaw (No. 8500) and Official Community Plan Bylaw (No. 9000) amendments. Presentations and discussions with the Agricultural Advisory Committee, Advisory Committee on the Environment, Urban Development Institute, Small Builders Group, and Ministry of Forest Lands Natural Resource Operations took place in 2016. Through stakeholder consultation, both the 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 RMA development approval process; all stakeholders understood the need for the update to achieve compliance with provincial requirements.

#### Public Consultation

With stakeholder engagement now complete, staff have tentatively scheduled two public open houses on October 17th and October 19th, 2017. In addition, staff intend to notify 1,614 affected property owners with letters per the City's OCP amendment Policy (No. 5403) inviting them to the open houses. Following public consultation, staff will bring the proposed bylaw amendments to Council for consideration. Should the amendments receive a first reading from Council and be referred to a Public Hearing, affected property owners will have the opportunity to provide feedback on the proposed amendments.

As is the case now, land owners are only affected by the RMA designations for specific development triggers. Under the proposed approach, landowners with designated RMAs on their property who propose residential, industrial or commercial development will require a development permit, or development permit exemption based on a review of proposed activity. The letters aim to educate and explicitly outline the terms and conditions with which they will be impacted, or not. Staff believe this approach to public consultation will proactively address any concerns that property owners might have with the new regulation changes.

#### **Financial Impact**

None.

## Conclusion

Staff have engaged critical stakeholders for input on how the revised regulatory tools could be used to address the City's need to comply with the Riparian Area Areas Protection Act. Staff intend to carry out public consultation in October 2017 and will report back to Council with an updated Riparian Response Strategy later in the fall.



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



Kimberly Armour  
Environmental Coordinator  
(604-276-4230)

Riparian Management Map

