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## Public Works and Transportation Committee

Anderson Room, City Hall  
6911 No. 3 Road

Wednesday, June 22, 2016  
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 May 18, 2016.*



### NEXT COMMITTEE MEETING DATE

July 20, 2016, (tentative date) at 4:00 p.m. in the Anderson Room

### ENGINEERING AND PUBLIC WORKS DIVISION

#### 1. **GREASE MANAGEMENT PROGRAM UPDATE**

(File Ref. No. 10-6060-03-01) (REDMS No. 5016091 v. 4)

**PWT-8**

**See Page PWT-8 for full report**

*Designated Speaker: Lloyd Bie*

### STAFF RECOMMENDATION

*That the report titled "Grease Management Program Update" from the Director, Engineering dated May 30, 2016, be received for information.*



Pg. #      ITEM

2.      **AMENDMENT TO WATERWORKS AND WATER RATES BYLAW NO 5637**

(File Ref. No. 12-8060-20-009570) (REDMS No. 5013055 v. 2)

PWT-17

See Page PWT-17 for full report

*Designated Speaker: Lloyd Bie*

STAFF RECOMMENDATION

*That Waterworks and Water Rates Bylaw No. 5637, Amendment Bylaw No. 9570, be introduced and given first, second and third readings.*



3.      **FRASER RIVER FRESHET AND FLOOD PROTECTION UPDATE 2016**

(File Ref. No. 10-6060-01) (REDMS No. 5028559 v. 6)

PWT-21

See Page PWT-21 for full report

*Designated Speaker: Lloyd Bie*

STAFF RECOMMENDATION

*That the staff report titled, “Fraser River Freshet and Flood Protection Update 2016,” dated May 31, 2016, from the Director, Engineering, be received for information.*



4.      **2016 FLOOD PROTECTION PROGRAM FUNDING**

(File Ref. No. 10-6000-01) (REDMS No. 5022444 v. 6)

PWT-26

See Page PWT-26 for full report

*Designated Speaker: Milton Chan*

STAFF RECOMMENDATION

- (1)      *That the Horseshoe Slough and No. 7 Road South Drainage Pump Station Upgrade capital projects be consolidated into a new 2016 Capital Project with the remainder of projects included in the provincial Flood Protection Program Contribution Agreement, as per the staff report titled “2016 Flood Protection Program Funding,” from the Director, Engineering, dated May 25, 2016;*

- (2) *That \$2,710,249 of Drainage Development Cost Charges and a \$16,633,332 contribution from the Province of British Columbia be added to the 2016 Capital Budget; and*
- (3) *That the 5 Year Consolidated Financial Plan (2016-2020) Bylaw be amended to reflect the above recommendations.*

☐

5. **NATIONAL PUBLIC WORKS WEEK - UPDATE**

(File Ref. No.) (REDMS No. 5026658 v. 3)

PWT-30

See Page PWT-30 for full report

*Designated Speaker: Tom Stewart*

STAFF RECOMMENDATION

*That the Staff report titled “National Public Works Week – Update,” dated May 30, 2016 from the Director, Public Works, be received for information.*

☐

PLANNING AND DEVELOPMENT DIVISION

6. **TRANSLINK TRANSIT FARE REVIEW**

(File Ref. No. 01-0154-04) (REDMS No. 5014984 v. 2)

PWT-34

See Page PWT-34 for full report

*Designated Speaker: Victor Wei*

STAFF RECOMMENDATION

*That the staff report titled “TransLink Transit Fare Review,” dated May 24, 2016, from the Director, Transportation, be received for information.*

☐

7. **MANAGER’S REPORT**

ADJOURNMENT

☐



## Public Works and Transportation Committee

Date: Wednesday, May 18, 2016

Place: Anderson Room  
Richmond City Hall

Present: Councillor Chak Au, Chair  
Councillor Harold Steves, Vice-Chair  
Councillor Derek Dang  
Councillor Ken Johnston  
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 April 20, 2016, be adopted as circulated.*

**CARRIED**

### NEXT COMMITTEE MEETING DATE

June 22, 2016, (tentative date) at 4:00 p.m. in the Anderson Room

## ENGINEERING AND PUBLIC WORKS DIVISION

### 1. **INTEGRATED RAINWATER RESOURCE MANAGEMENT STRATEGY**

(File Ref. No. 10-6060-04-01) (REDMS No. 4506764 v. 9; 4999054)

Lloyd Bie, Manager, Engineering Planning, confirmed that the City is considering many strategies for water detention and these locations are being determined based on how they fit with the current ecological strategy. He also noted that it is very unlikely that the number of ditches in residential areas would increase as a result of the strategy.

The Committee expressed support for the report and also offered suggestions for future improvements, which included:

- Connecting the day lighting of the Terra Nova slough to the river, which is currently blocked by the City pump stations.
- Adjusting the frequency of the pumping system to allow the farmers to use the excess rainwater for irrigation instead of pumping the water out.
- Placing restrictions on the development of landfills on farmlands anywhere in Richmond.
- Finding other locations for irrigation systems while taking into account the protection of environmentally sensitive areas.

In reply to queries from the Committee, Mr. Bie noted that redevelopment in areas is assisting in rerouting the drainage of rainwater from one lot to another. He also commented that the City of Richmond assists in situations where this problem is occurring by putting a connection in to the lot to help offset drainage of water.

The Committee then noted that it would be useful to have the report available on the City's website in a location aside from the agenda.

It was moved and seconded

*That the "Integrated Rainwater Resource Management Strategy" as attached to the staff report titled "Integrated Rainwater Resource Management Strategy," dated April 29, 2016, from the Director, Engineering be endorsed for the purpose of public consultation.*

**CARRIED**

**Public Works & Transportation Committee**  
**Wednesday, May 18, 2016**

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**2. 2015 WATER QUALITY REPORT**

(File Ref. No. 10-6375-01) (REDMS No. 4986542 v. 3)

Bryan Shepherd, Manager, Waterworks, confirmed that there has been a decrease in water consumption in Richmond even though we have experienced an increase in population. He attributes the reduction in per capita water consumption to education, conservation, toilet rebates, and the washing machine rebate.

It was moved and seconded

*That the staff report titled "2015 Annual Water Quality Report" dated April 19, 2016 from the Director, Public Works Operations, be endorsed and made available to the community through the City's website and through various communication tools including social media and as part of community outreach activities.*

**CARRIED**

**3. ALEXANDRA DISTRICT ENERGY UTILITY BYLAW NO. 8641 AMENDMENT BYLAW 9555**

(File Ref. No. 10-6600-10-02) (REDMS No. 4981005 v. 10)

It was moved and seconded

*That the Alexandra District Energy Utility Bylaw No. 8641, Amendment Bylaw No. 9555 be introduced and given first, second and third readings.*

**CARRIED**

**PLANNING AND DEVELOPMENT DIVISION**

**4. ENDORSEMENT OF BIKE RIGHT INITIATIVE**

(File Ref. No. 10-6460-01) (REDMS No. 4984231)

It was moved and seconded

(1) *That the proposed Bike Right Provincial Framework for Cycling Education as outlined in the staff report titled "Endorsement of Bike Right Initiative" dated April 20, 2016 from the Director, Transportation, be endorsed;*

(2) *That a letter indicating the City's support of the Bike Right Provincial Framework for the Cycling Education Initiative be sent to the Premier of British Columbia and the Ministers of Children & Family Development, Environment, Health, and Transportation & Infrastructure; and*

(3) *That a copy of above report be forwarded to the Richmond Council-School Board Liaison Committee for information.*

**CARRIED**

**Public Works & Transportation Committee**  
**Wednesday, May 18, 2016**

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5. **MANAGER'S REPORT**

*(i) Public Works Open House*

Tom Stewart, Director, Public Works Operations, advised that the Public Works Open House was a success and that a report on the event will be brought forward to the Committee.

**ADJOURNMENT**

It was moved and seconded

*That the meeting adjourn (4:13 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, May 18, 2016.

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Councillor Chak Au  
Chair

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Shaun Divecha  
Legislative Services Coordinator



# City of Richmond

## Report to Committee

**To:** Public Works and Transportation Committee

**Date:** May 30, 2016

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

**File:** 10-6060-03-01/2016-  
Vol 01

**Re:** Grease Management Program Update

### Staff Recommendation

That the report titled "Grease Management Program Update" from the Director, Engineering dated May 30, 2016 be received for information.

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>
Sewerage & Drainage Community Bylaws	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	
<b>REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE</b>	<b>INITIALS:</b> DW	<b>APPROVED BY SAO</b> 



## **Staff Report**

### **Origin**

At the May 18, 2011 Public Works and Transportation Committee, Committee introduced the following referral:

*That staff further investigate initiatives around the elimination of grease in sewer pipes.*

At the September 26, 2011 Regular Council Meeting, Council adopted the following motion:

*That the five year Sanitary Pump Station and Forcemain Assessment and Upgrading Program (2012 to 2016) which includes forcemain pressure monitoring, forcemain access installation, forcemain inspection and FOG remediation, be endorsed for submission in the 2012 to 2016 Capital Plan for consideration.*

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.*

FOG, or Fat, Oil, and Grease, is better understood by the public and more commonly referred to as grease. This report provides an overview of the grease management initiatives implemented to date, initiatives currently being explored, as well as potential opportunities to further manage grease as the program continues to develop and expand.

### **Analysis**

The impacts of grease on municipal sanitary sewer systems are a significant concern for the City and Metro Vancouver. Grease issues are primarily attributed to food establishments and residential properties that dispose of food waste into the sewer system either directly or as part of cleaning waste, such as dishwater.

The City's most significant grease issues occur in City Centre and various residential areas (see Attachment 1). In particular, the Lansdowne sanitary forcemain has had multiple failures mainly due to excessive pressures caused by grease build-up. The City spends approximately \$380,000 annually on inspecting and cleaning sanitary sewers and pump stations identified as problematic. Metro Vancouver has also observed grease issues and is currently twinning the Gilbert Road Trunk Sewer to provide capacity for growth and facilitate future maintenance as a result of grease build-up. The cost to upgrade and twin the Gilbert Road Trunk Sewer is estimated at \$100 million.

### Grease Management Initiatives Implemented

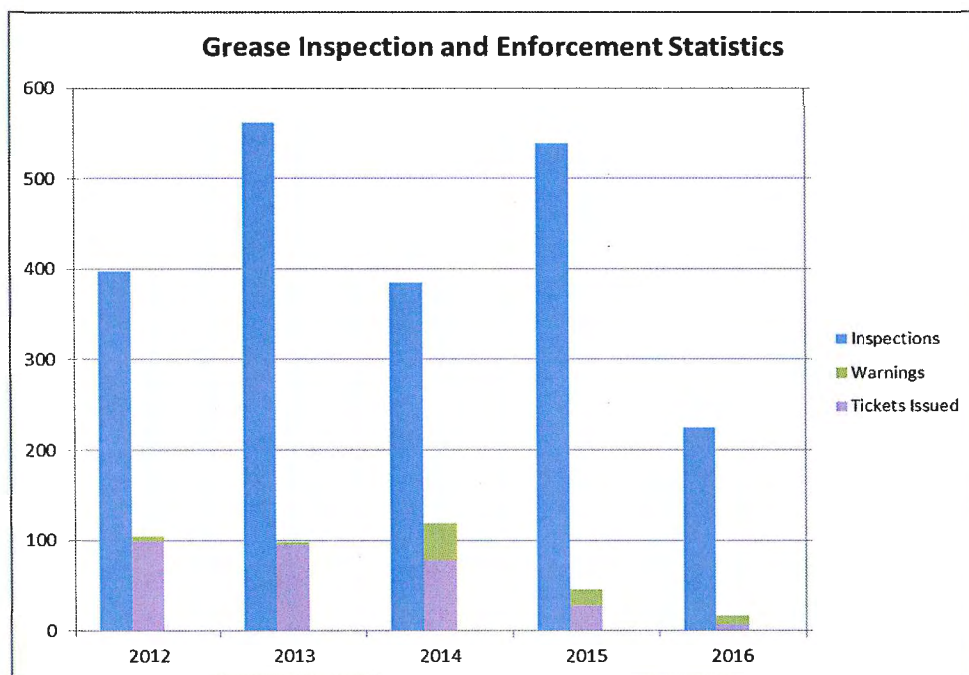
The City's Grease Management Program includes initiatives such as grease source control, public communication, sanitary sewer system monitoring and inspection, and on-going maintenance.

#### *Grease Source Control*

Controlling grease at the source is the most effective way to reduce grease build-up in the municipal sanitary sewer system. Drainage, Dyke and Sanitary Sewer System Bylaw No. 7551, in conjunction with the Greater Vancouver Sewerage and Drainage District (GVS&DD) Food Sector Grease Interceptor Bylaw No. 268 requires food establishments to install and maintain grease traps.

Figure 1 illustrates the inspection and enforcement activities performed since enforcement started in 2011. While there is a high level of compliance with the bylaw, inspection and enforcement remains an important tool for grease management. Staff will continue to monitor compliance and report any significant changes should they be identified.

Figure 1. Grease Inspection and Enforcement Statistics



The City's Green Cart Program also contributes to preventing grease from entering sanitary sewers by collecting food scraps for composting and discouraging the use of garburators. The Green Cart Program is available to both single-family and multi-family properties. In addition, residents can dispose of cooking oil and animal grease at the City's Recycling Depot.

### *Public Education and Communication*

The GVS&DD bylaw and City bylaw do not directly address grease mitigation for residential properties; therefore, the City uses public education and communication to target the residential sector. Grease education and communication is delivered through utility bill inserts, information pamphlets in English and Chinese, social media, and public events such as the Public Works Open House.

### *Sanitary Sewer System Monitoring and Inspection*

Pressure monitoring is conducted at every pump station in order to identify constrictions due to grease build-up in sanitary forcemains. Monitoring allows the City to be proactive and to prepare a planned response to grease issues while minimizing remediation cost and public disruption. In order to facilitate inspections of forcemains that are under abnormally high pressures, valves and inspection chambers are being installed on new forcemains in order to easily isolate sections of the system for inspection.

For gravity sanitary sewers, the City has a closed-circuit television (CCTV) inspection program. The City recently completed the CCTV inspection and condition assessment for the final section of sanitary sewers in the City, fulfilling its commitment to the Integrated Liquid Waste Resource Management Plan six years ahead of schedule. In addition, staff perform visual inspections for sections known to have grease issues, as part of the program to maintain gravity system capacity and prevent sanitary sewer overflows.

### *On-Going Maintenance*

The City performs scheduled flushing of gravity sanitary sewers throughout the City with the primary focus on City Centre, which is on a 12-month cycle. Sanitary pump stations are also cleaned on a regular basis (approximately once every two weeks).

### Grease Management Initiatives Currently Being Explored and Potential Future Opportunities

Staff are investigating additional initiatives to manage grease as well as potentially harvesting grease as a resource, and will report back to Council if there are any opportunities to be pursued further. These initiatives include biofuel conversion, district energy utility (DEU) integration, additional sanitary system monitoring, regulatory policy review, and a proposed grease management capital project.

### *Biofuel Production*

The City is actively pursuing opportunities to partner with renewable energy companies to extract grease from the sanitary sewer system and produce sustainable biofuels. Most recently, the City collaborated with Earth Renu Energy Corp on a sewer grease collection and biodiesel production trial. Grease was collected from several pump stations, purified, analyzed, and used to produce biodiesel. Staff are currently working with Earth Renu to investigate options to improve the feasibility for grease extraction and processing, with the ideal outcome of developing a favourable business case to offset grease removal costs.

### *Additional Sanitary System Monitoring*

Temperature is one of the variables that affect the solubility of grease. As temperature decreases, grease comes out of solution and solidifies. Staff will be conducting temperature monitoring and grease sampling at pump stations in order to determine the conditions in which grease is most prevalent as well as to identify catchments to target for maintenance and future initiatives.

### *DEU Integration*

The DEU utilizes sustainable energy solutions, such as using thermal energy from the ground and waste heat to provide heating and cooling to residential and commercial buildings. Raw sewage has heat energy that can be extracted and used by the DEU. Extracting heat from sewage will decrease its temperature and potentially improve grease harvesting. Staff are currently investigating potential synergies with integrating the DEU with grease management/harvesting technologies and practices in City Centre.

### *Green Carts and Review of Regulatory Policies*

Vegetables and other organic matter, which contain significant grease, enter the sanitary sewer system when garburators are used. However, the sanitary sewer system is not the best means to gather and dispose of food waste. The Green Cart Program is the most suitable option for disposal of food waste and has the potential to reduce the use of garburators and make them obsolete. To supplement the Green Cart Program, staff will investigate the possibility of providing residents with biodegradable grease containers that are acceptable in green carts.

In addition, staff will review regulatory policies with respect to garburators and grease traps. As the BC Plumbing Code does not prohibit garburators from being installed, staff will investigate the impact of garburators towards grease and review the effectiveness and feasibility of prohibiting garburators for new construction and major renovations. Furthermore, the BC Plumbing Code does not require grease traps for residential properties. Staff will investigate the feasibility and perform a cost-benefit analysis on a grease trap program for multi-family properties.

Staff will bring forward a grease management capital program to a future capital budget process for Council's consideration.

### **Financial Impact**

None.

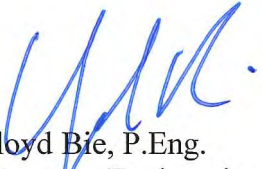
### **Conclusion**

The City's Grease Management Program currently includes initiatives such as grease source control, public communication, sanitary sewer system monitoring and inspection, and on-going maintenance. Staff are investigating additional initiatives to manage grease as well as potentially harvesting grease as a resource, and will report back to Council if there are any opportunities to be pursued further. These initiatives include biofuel conversion, DEU integration, additional


May 30, 2016

- 6 -

sanitary system monitoring, regulatory policy review and a proposed grease management capital project.



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

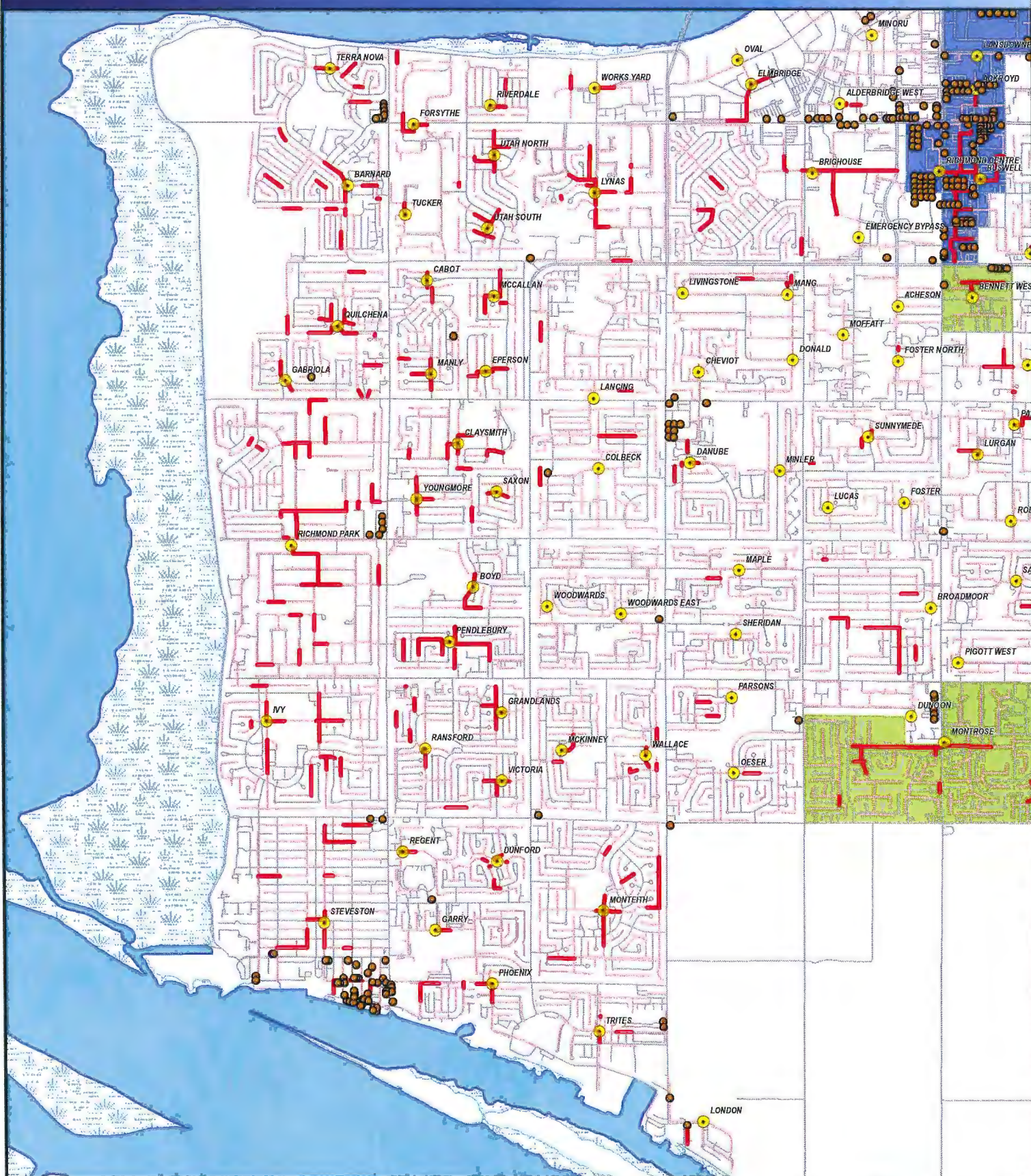


Jason Ho, P.Eng.  
Project Engineer  
(1281)

LB:jh

Att. 1: Grease in City of Richmond Sanitary Sewers





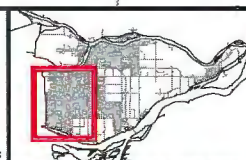
### Legend

-  Food Establishments      **Catchments with Grease Problems**  
 Sewer Pumps       Highest Level of Grease  
 Gravity Mains with Grease       Second Highest Level of Grease  
 Gravity Mains

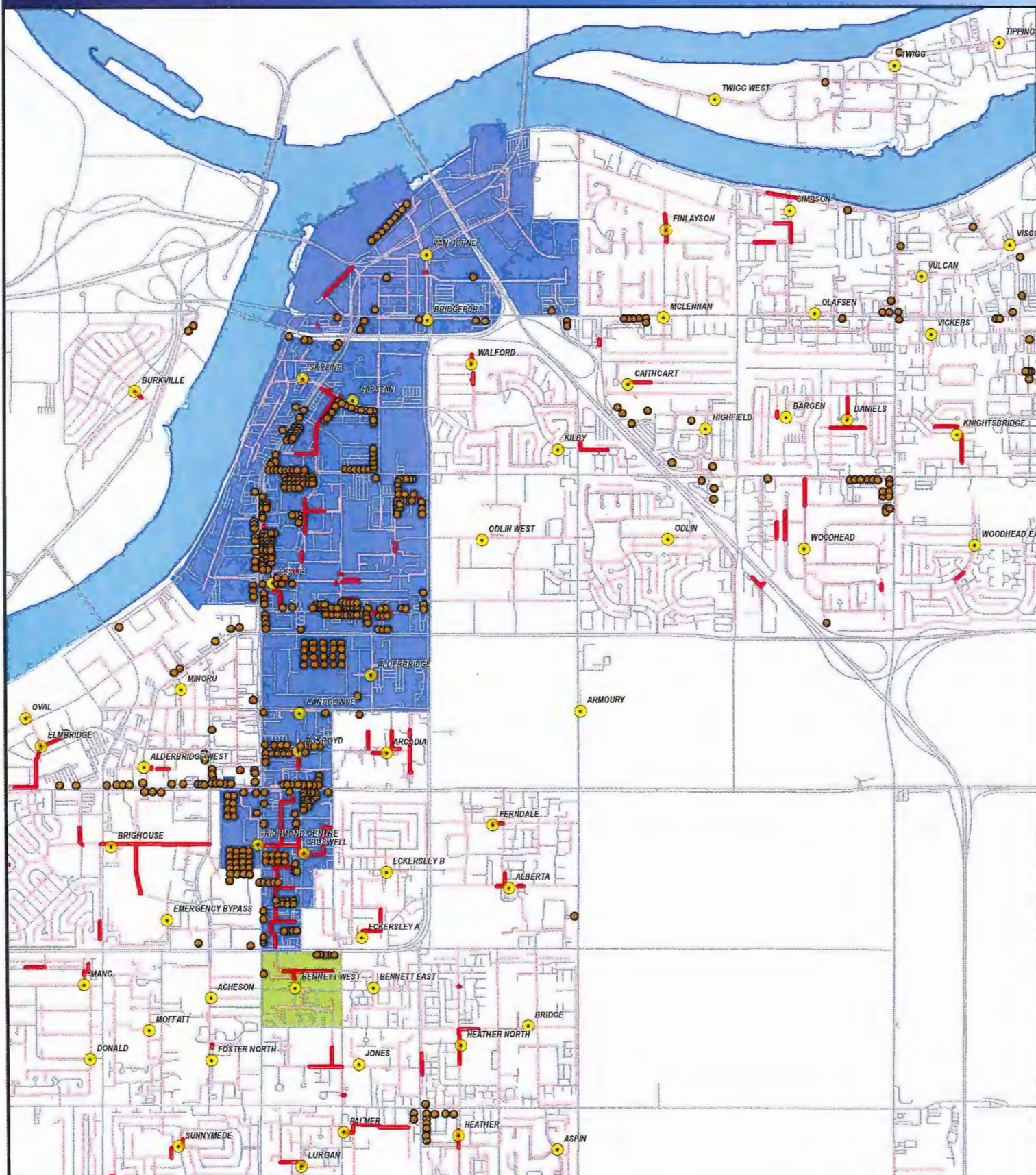
Note:  
The information shown on this map is compiled from various sources and the City makes no warranties, expressed or implied, as to the accuracy or completeness of the information. Users are reminded that lot sizes and legal description must be confirmed at the Land Title office in New Westminster.  
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Map By: Jhannan  
Map Date: May, 2016







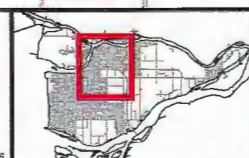
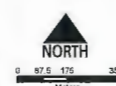
### Legend

- Catchments with Grease Problems**
- Food Establishments
  - Sewer Pumps
  - Gravity Mains with Grease
  - Gravity Mains
- Highest Level of Grease
- Second Highest Level of Grease

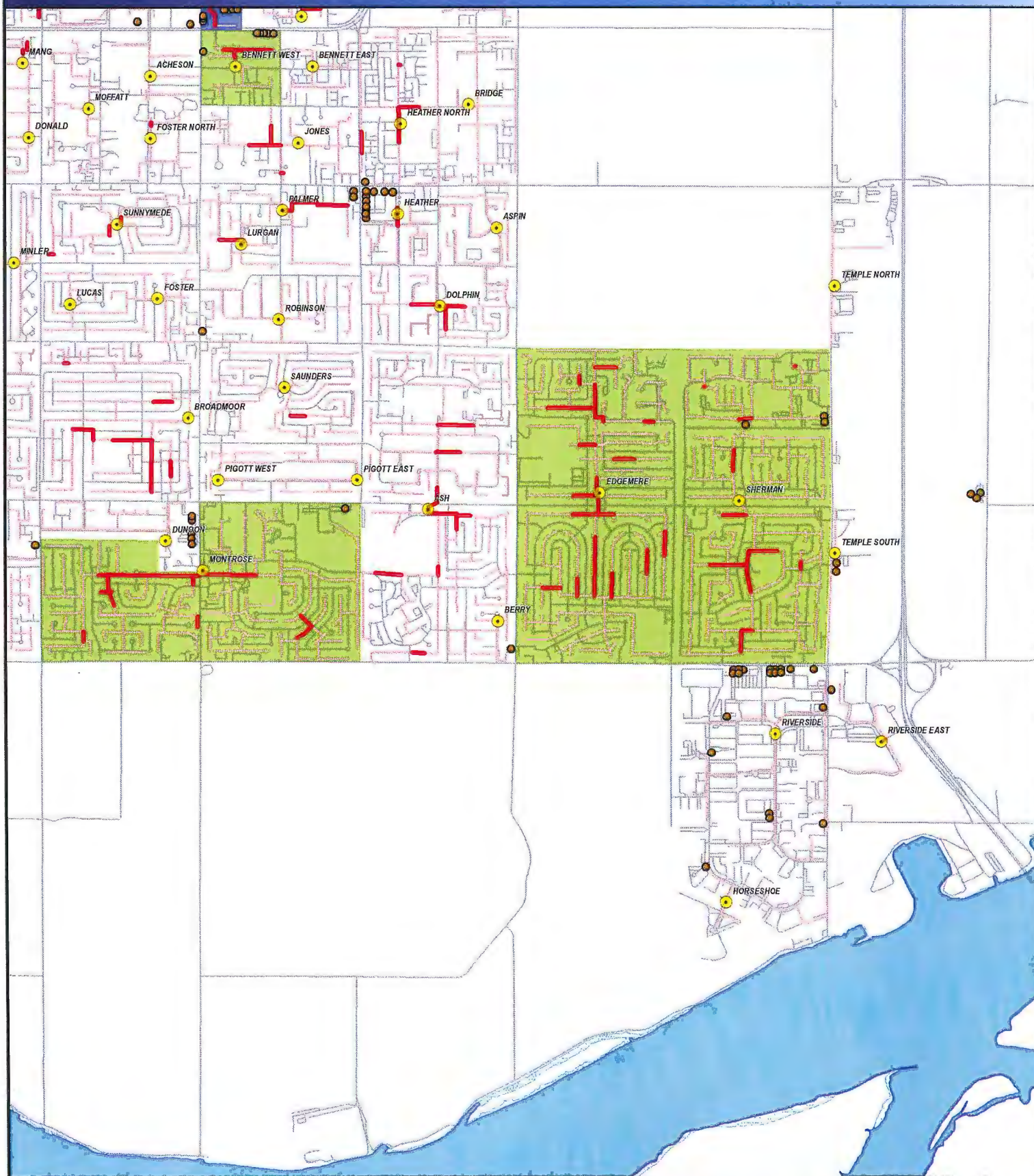
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### Legend

-  Food Establishments      **Catchments with Grease Problems**  
 Sewer Pumps       Highest Level of Grease  
 Gravity Mains with Grease       Second Highest Level of Grease  
 Gravity Mains

**PWT - 16**

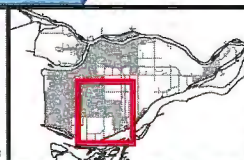
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Map By: Jhannan  
Map Date: May, 2016







# City of Richmond

## Report to Committee

**To:** Public Works and Transportation Committee

**Date:** May 18, 2016

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

**File:** 12-8060-20-  
009570/Vol 01

**Re:** Amendment to Waterworks and Water Rates Bylaw No. 5637

### Staff Recommendation

That Waterworks and Water Rates Bylaw No. 5637, Amendment Bylaw No. 9570, 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>
Water Services Law	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	
<b>REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE</b>	<b>INITIALS:</b> DW	<b>APPROVED BY CAO</b> 

## Staff Report

### Origin

Waterworks and Water Rates Bylaw No. 5637 ("Water Bylaw") governs the use of and access to the City's water distribution system. Updates to the bylaw are periodically required to address new and emerging issues.

This report outlines a recommended change to the Water Bylaw, as proposed with Amendment Bylaw No. 9570 (Attachment 1).

### Analysis

The Water Bylaw has provisions to allow water service connection work to be constructed by the City at a fixed fee. The fixed fees, which vary with connection size, are applicable to connections up to eight inches in diameter.

The fixed fees provide full cost recovery for a typical installation, but do not account for installations that require additional work, such as deep excavation, dewatering and extensive restoration. Small service connections (less than four inches) are relatively straightforward and typically do not require additional work; however, large service connections (four inches and above) often involve additional work and higher costs. As a result, the fixed fees do not allow the City to fully recover the cost of installation for large service connections.

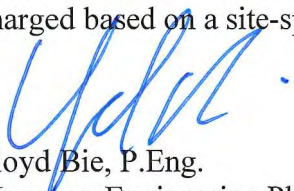
In order to improve cost recovery and for property owners to pay a fee that is more accurate and relevant to their property, Staff recommend that the installation of service connections four inches and above be charged based on a site-specific firm price estimate, as proposed with Amendment Bylaw No. 9570 (Attachment 1).

### Financial Impact


None.

### Conclusion

Amendment Bylaw No. 9570 proposes changes to Waterworks and Water Rates Bylaw No. 5637 in order to improve cost recovery for large service connection work. Staff recommend that the Water Bylaw be amended for service connection installations four inches and above to be charged based on a site-specific firm price estimate.



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



Jason Ho, P.Eng.  
Project Engineer  
(1281)

LB;jh

Att. 1: Waterworks and Water Rates Bylaw No. 5637, Amendment Bylaw No. 9570



# City of Richmond

## Bylaw 9570

### Waterworks and Water Rates Bylaw No. 5637 Amendment Bylaw No. 9570

The Council of the City of Richmond enacts as follows:

1. The **Waterworks and Water Rates Bylaw No. 5637**, as amended, is further amended:
  - (a) by deleting Schedule D in its entirety and substituting Schedule A attached to and forming part of this Bylaw.
2. This Bylaw is cited as **"Waterworks And Water Rates Bylaw No. 5637, Amendment Bylaw No. 9570"**.

FIRST READING

SECOND READING

THIRD READING

ADOPTED

\_\_\_\_\_  
MAYOR

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

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

**SCHEDULE A to AMENDMENT BYLAW No. 9570****SCHEDULE "D" to BYLAW 5637****1. WATER CONNECTION CHARGE**

<b>One-Family, Two-Family, Multi-Family, Industrial, Commercial Water Connection Size</b>	<b>Connection Charge</b>	
	<b>Tie In Charge</b>	<b>Price Per Metre of Service Pipe</b>
25mm (1") diameter	\$2,550	\$175.00
40mm (1 ½") diameter	\$3,500	\$175.00
50mm (2") diameter	\$3,650	\$175.00
100mm (4") diameter or larger	in accordance with Section 38	in accordance with Section 38

**2. DESIGN PLAN PREPARED BY CITY**

Design plan prepared by City for one-family dwelling or two-family dwelling \$1,000 each

Design plan for all other buildings \$2,000

**3. WATER METER INSTALLATION FEE**

Install water meter [s. 3A(a)] \$1,000 each



# City of Richmond

## Report to Committee

**To:** Public Works and Transportation Committee      **Date:** May 31, 2016  
**From:** John Irving, P.Eng. MPA      **File:** 10-6060-01/2016-Vol 01  
Director, Engineering  
**Re:** Fraser River Freshet and Flood Protection Update 2016

### Staff Recommendation

That the staff report titled, "Fraser River Freshet and Flood Protection Update 2016", dated May 31, 2016, from the Director, Engineering, be received for information.

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

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

## Staff Report

### Origin

The staff report titled, “Annual Flood Protection Report 2015” dated March 1, 2016, from the Director, Engineering, identified below average snow packs in BC and the potential for increased flood risk in early spring on the Fraser River due to the warmer than normal temperature impact of the El Nino cycle. Furthermore, Phase I results of the Lower Mainland Flood Management Strategy was presented by the Fraser Basin Council on May 30, 2016 and is intended to provide a better understanding of flood hazards, flood vulnerabilities and the state of flood protection infrastructure, policies and practices across the region. The purpose of this memo is to update Council on the 2016 Fraser River freshet and Phase I results of the Lower Mainland Flood Management Strategy.

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.*

### Findings of Fact

#### Fraser River Freshet

Snow pack is a significant element that is used to predict extreme river conditions. The snow basin index for the middle of May 2016 was a new record low. This reflects the accelerated melt of the snow pack due to the extremely warm spring weather consistent with an El Nino cycle. This year’s late-May snow melt conditions are more typical of snow pack that is observed in late-June, indicating that snow melt and freshet runoff are progressing four weeks ahead of normal.

Rainfall has also been below average, which has contributed to lower than normal freshet flows. Most rivers have experienced the peak of the freshet season and are now experiencing declining flows as snow packs become depleted. The forecasted Fraser River peak flow for the 2016 freshet was 7,000 m<sup>3</sup>/s and withdrew to below normal flows by mid-May (the actual peak in 2015 and 2014 was 7,950 m<sup>3</sup>/s and 10,083 m<sup>3</sup>/s, respectively).

As a result, seasonal flood risk due to snow melt has declined and there has been negligible freshet flood risk to date with no significant impacts on the City’s dike and drainage system. Emergency Management BC issued the final Provincial River Outlook of the season on May 27, 2016 and will not provide any future updates this year unless a significant change in weather warrants one.

City staff will continue to monitor Fraser River water levels until the end of the 2016 freshet and will report any significant changes to Council.

#### Lower Mainland Flood Management Strategy

The Fraser Basin Council presented Phase I results for the Lower Mainland Flood Management Strategy on May 30, 2016. The strategy is intended to provide a better understanding of regional flood hazards, flood vulnerabilities and the state of flood protection infrastructure, policies and practices across the region.

Phase 1 of the strategy consisted of three projects:

- Project 1 - Analysis of Future Flood Scenarios
- Project 2 - Regional Assessment of Flood Vulnerabilities
- Project 3 - Assessment of Flood Infrastructure, Policies & Practices

While Fraser Basin Council's work is scoped at a regional scale, the City largely completed this scope of work at a higher level of accuracy and detail for Richmond with the adoption of the 2008-2031 Richmond Flood Protection Strategy in 2008.

#### Project 1 - Analysis of Future Flood Scenarios

Project 1 estimated current and future flood water levels in the Lower Mainland for utilization in Project 2's conservative analysis of flooding and flood related damage.

The current provincial standard (2008) is based on a 1 in 200 year return period high water event and the City's current flood protection systems are more than capable of withstanding this event. Fraser Basin Council has arbitrarily selected a 1 in 500 year return period event plus an additional 0.6 m for "uncertainties and site variation" that is well beyond the current provincial standard. Based on the 1 in 500 year event and the conservative 0.6 m increase, the coastal flood water levels estimated in the study are 3.4 m in the present day scenario and 4.4 m in the year 2100 scenario. Current City flood protection improvements target a dike crest of 4.7 m, which exceeds the 4.4 m identified for the year 2100 scenario.

#### Project 2 – Regional Assessment of Flood Vulnerabilities

Project 2 is a vulnerability assessment to estimate regional losses based on the floods estimated by Project 1. The assessment assumed all dikes fail and that flood waters would inundate all low-lying areas for a two to four week period. Both of these assumptions are highly conservative. Richmond's flood protection infrastructure will not universally fail and it is not possible for Richmond to be inundated for a long duration under existing sea level conditions. These issues will become more important as sea level rises. This is the focus of Richmond's dike master planning efforts and long-term dike improvement program.

#### Project 3 - Assessment of Flood Infrastructure, Policies & Practices

Project 3 is focussed on the effectiveness of flood protection in the Lower Mainland including a dike assessment. Fraser Basin Council reported that few Lower Mainland dikes met current provincial standards and none fully met or exceeded the standards.

Richmond's dikes exceed the 1 in 200 year flood elevations identified by the provincial standard. As identified in Fraser Basin Council's report, all Richmond dikes have at least 0.3 m of freeboard beyond the provincial standard. As such, there is no short or medium range risk that Richmond dikes will be overtopped by forecast events. Long term sea level rise will require that Richmond dike elevations be improved and this work is the focus of the Dike Master Plan and long term improvement program.

Project 3 was a desktop study with no field verification and includes disclaimers that further work must be done to determine actual dike condition. Fraser Basin Council did not provide the Project 3

report or results to Richmond staff prior to its release. Staff will work with the Fraser Basin Council to update the Project 3 work to represent Richmond's actual dike elevations and conditions.

### Flood Protection Strategy Update

Since the establishment of the 2008 – 2031 Flood Protection Strategy, the City's guiding framework for continuing upgrade and improvement of the City's flood protection system, there's been progress this year on numerous initiatives.

In December 2015, the City received approval from the Province to begin survey and investigation for the construction of a dike on Steveston Island. The investigation is required to further develop the feasibility, impact and cost associated with building the Steveston Island Dike recommended in the Lulu Island Dike Master Plan – Phase 1.

Dike Master Plan – Phase 2 began in 2015. This phase of the plan includes the North West Dike and the Middle Arm Dike west of No. 6 Road. Staff will update Council with the findings of the Dike Master Plan – Phase 2 later this year.

In addition, the City has performed a large number of dike improvements through capital programs and partnering with development adjacent to the dikes. The following is a list of key improvements that have been made in the last few years:

- Bath Slough Drainage Pump Station Rebuild (completed in 2016)
- No. 1 Road North Drainage Pump Station Rebuild (completed in 2014)
- Williams Road Drainage Pump Station Rebuild (completed in 2013)

The following dike improvement projects are currently underway:

- No. 2 Road North Drainage Pump Station Rebuild (design and construction to be completed in 2016)
- Horseshoe Slough Drainage Pump Station Rebuild (design work to be completed in 2016 and construction completed in 2017)
- No. 7 Road South Drainage Pump Station Rebuild (design work to be completed in 2016 and construction completed in 2017)

The following projects are included in the approved 5 Year Financial Plan (5YFP):

- Shell Road North Drainage Pump Station Rebuild (2017)
- No. 2 Road South Drainage Pump Station Rebuild (2018)
- Dike Upgrades – 1.2 km in Various Locations (2017-2020)

The City's annual inspection and maintenance program ensures that the City's dikes are well protected against other diking issues such as bank erosion and excessive seepage, which crews monitor along with water levels during high tides throughout the freshet period. Furthermore, 500 linear meters of rip rap maintenance and upgrades have been completed this year. Crews will continue to perform regular dike maintenance work as well as other seasonal improvements and repairs this fall.



City of Richmond flood protection is better than identified in the Lower Mainland Flood Management Strategy by the Fraser Basin Council. Staff look forward to helping the Fraser Basin Council improve on the work they have completed to date.

### Seismic Upgrading

A number of geotechnical analyses to date have indicated that Richmond's dike system will experience some deformation due to liquefaction during a 1 in 475 year return period seismic event. The expected subsidence is not excessive and the dike is expected to remain largely intact, requiring some local repair. The long term dike improvement program will improve the dikes resistance to seismic events as climate change induced sea level rise becomes a factor.

### **Financial Impact**

None.

### **Conclusion**

This year's late-May snow melt conditions are more typical of snow pack that is observed in late-June, indicating that snow melt and freshet runoff are progressing four weeks ahead of normal. Most rivers have experienced the peak of the freshet season and are now experiencing declining flows as snow packs become depleted. Staff will continue to monitor Fraser River water levels until the end of the 2016 freshet and will report any significant changes to Council.

Fraser Basin Council presented Phase I results for the Lower Mainland Flood Management Strategy on May 30, 2016 and the reports are intended to provide a better understanding of regional flood hazards, flood vulnerabilities and the state of flood protection infrastructure, policies and practices across the region. The three projects included in Phase I are highly conservative and do not represent a likely event in Richmond. Staff will continue to work with the Fraser Basin Council and other stakeholders to improve forecasting and address regional flood protection issues.



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

LB:ch



# City of Richmond

## Report to Committee

**To:** Public Works and Transportation Committee  
**From:** John Irving, P.Eng. MPA  
Director, Engineering  
**Re:** 2016 Flood Protection Program Funding

**Date:** May 25, 2016  
**File:** 10-6000-01/2016-Vol  
01

### Staff Recommendation

1. That the Horseshoe Slough and No. 7 Road South Drainage Pump Station Upgrade capital projects be consolidated into a new 2016 Capital Project with the remainder of projects included in the provincial Flood Protection Program Contribution Agreement, as per the staff report titled "2016 Flood Protection Program Funding," from the Director, Engineering, dated May 25, 2016;
2. That \$2,710,249 of Drainage Development Cost Charges and a \$16,633,332 contribution from the Province of British Columbia be added to the 2016 Capital Budget; and
3. That the 5 Year Consolidated Financial Plan (2016-2020) Bylaw be amended to reflect the above recommendations.

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

Att.1

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

## Staff Report

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.*

### Origin

In April 2016, the City received \$16.63M of funding from the Province of British Columbia to rebuild four drainage pump stations and upgrade various sections of the dike. This amount was based on a 2/3 to 1/3 provincial/municipal split of the estimated capital cost.

The funding agreement requires that the project's construction must be completed by September 30, 2019. The purpose of this report is to seek Council's approval to utilize the City portion of funding for these projects, and to add the Province's funding contribution to the 2016 Capital Program.

### Analysis

The projects included in the funding agreement with the Province are currently part of the Council approved 5 Year Financial Plan. The projects and planned funding are:

- Horseshoe Slough Drainage Pump Station Rebuild (2015, \$4.2M)
- No. 7 Road South Drainage Pump Station Rebuild (2016, \$4.5M)
- Shell Road North Drainage Pump Station Rebuild (2017, \$4.68M)
- No. 2 Road South Drainage Pump Station Rebuild (2018, \$7.4M)
- Dike Upgrades – 1.2km in Various Locations (2017-2020, \$6M)

A map showing the project locations is attached as Attachment 1.

The Horseshoe Slough and No. 7 Road South Drainage Pump Stations are currently included in the Capital Budget with \$8.7M of Council approved funding. The rest of the projects are not currently funded given that they are in future years of the 5 Year Financial Plan.

\$2,710,249 of Drainage Development Cost Charges (DCCs) are available for the No. 2 Road South and Shell Road North Drainage Pump Stations. These funds are in the 5 Year Financial Plan for 2017 and 2018, but have not yet been approved by Council in a Capital Budget.

The \$16.63M of provincial funding will replace an equal amount of City funding that would have otherwise been required to construct these projects. This funding alleviates budget pressure and advances projects in a more timely manner.

Although the grant funding is based on a 2/3 to 1/3 split (\$16.6M/\$8.3M based on project estimates at the time of grant application), the Contribution Agreement with the Province lists a number of items that are not eligible for Provincial funding. This includes land acquisition, costs

for any City employees or City owned equipment, costs incurred prior to March 23, 2016 and legal fees. In order for the City to maximize the grant funding and account for the ineligible costs, the total City funding must be increased.

Staff recommend that the existing Horseshoe Slough and No. 7 Road South Drainage Pump Station capital projects (CD00010 and CD00018) be consolidated into one project along with the remainder of the provincially funded projects. Having one overall project will simplify the preparation of the reports and audits required by the Province. Total funding for this project would be \$28.04M (\$16.63M Provincial and \$11.41M City, see Table 1).

Table 1 – Financial Summary

<b>Funding Source</b>	<b>Funding</b>
Horseshoe Slough and No. 7 Road South Pump Stations (Council Approved)	\$ 8,700,000
Drainage DCC (Recommended Funding Source)	\$ 2,710,249
Provincial Grant	\$ 16,633,332
<b>Total Required Funding</b>	<b>\$ 28,043,581</b>

### **Financial Impact**

The total capital cost is \$28.04M. A total of \$8.7M of funding was previously approved by Council. Funding of \$2.71M is available from the Drainage DCC Reserve. \$16.63M of funding has been provided from the Province of British Columbia.

The 5 Year Consolidated Financial Plan (2016-2020) Bylaw will be amended to reflect these changes if approved.

### **Conclusion**

The Province of British Columbia has agreed to provide the City with \$16.63M of Flood Protection Program funding to rebuild four drainage pump stations and upgrade various sections of the perimeter dike. Including these projects in the 2016 Capital Program will help ensure that the projects are completed within the deadlines set by the Province.

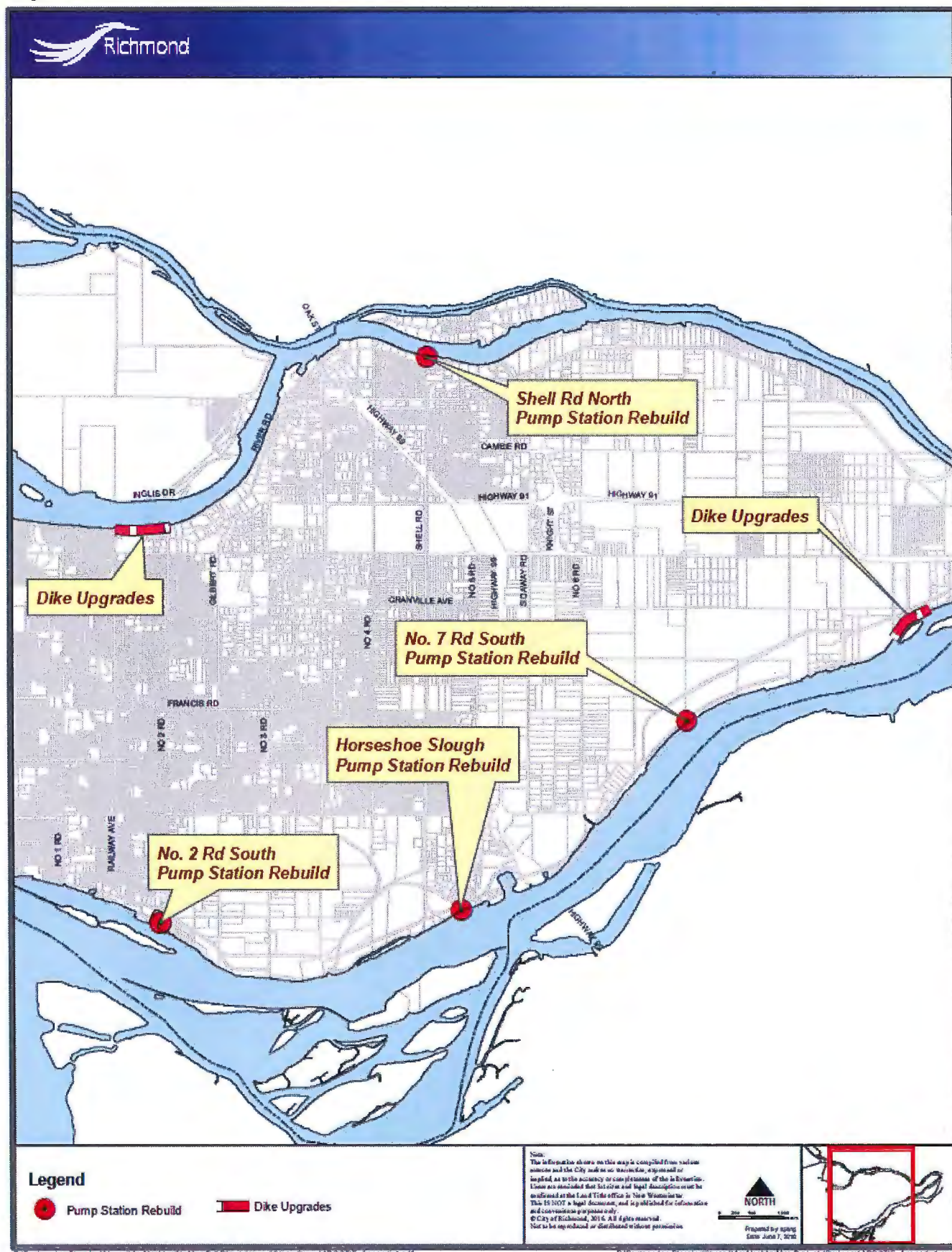


Milton Chan, P.Eng  
Manager, Engineering Design and Construction  
(604-276-4377)

MC:mc  
Att.1 - Project Locations

## Project Locations

## Attachment 1





# City of Richmond

## Report to Committee

**To:** Public Works and Transportation Committee  
**From:** Tom Stewart, ASCT.  
Director, Public Works Operations  
**Re:** National Public Works Week - Update

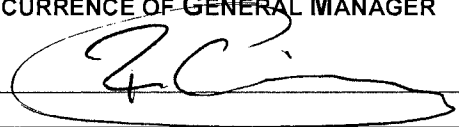
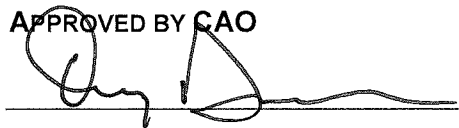
**Date:** May 30, 2016

**File:**

### Staff Recommendation

That the Staff report titled "National Public Works Week - Update", dated May 30, 2016 from the Director, Public Works, be received for information.

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

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



## Staff Report

### Origin

The Canadian Public Works Association's annual National Public Works Week was from May 15-21, 2016 and to celebrate the City hosted three events that were well attended by the community. This report summarizes results of the events held during that time.

This report supports Council's 2014-2018 Term Goal #9 A Well-Informed Citizenry:

*Continue to develop and provide programs and services that ensure the Richmond community is well-informed and engaged on City business and decision making.*

*9.2. Effective engagement strategies and tools.*

### Analysis

Municipalities celebrate National Public Works Week with open houses, tours, school and educational events and displays of public works equipment. The City recognized National Public Works Week through a proclamation outlining the following areas:

- Public Works services provided in the community are an integral part of Richmond residents' everyday lives.
- The support of an understanding and informed citizenry is vital to the efficient operation of Public Works systems and programs such as water, sewers, streets and highways, public buildings and solid waste collection.
- The health, safety and comfort of this community greatly depends on these facilities and services.
- The quality and effectiveness of these facilities, as well as their planning, design and construction, is vitally dependent upon the efforts and skill of Public Works staff.
- The efficiency of the qualified and dedicated personnel who staff the Public Works Department is materially influenced by people's attitude and understanding of the importance of the work they perform.

The City recognized National Public Works Week by hosting three significant events:

#### *1. Project WET*

In 2016, National Public Works week started with Project WET, an interactive program aimed at educating Richmond elementary students about the importance of water. This event was held from May 10-12 at the Works Yard. Staff worked with the Richmond School Board to promote the event within the district, and hosted over 300 students from six elementary schools. The interactive and fun displays taught students about water distribution,

water metering, storm and sanitary services, Closed Circuit Television (CCTV) inspection program, leak detection, pump stations and environmental programs.

## *2. Public Works Open House*

The main event was the annual Public Works Open House held on Saturday, May 14, 2016 at the Works Yard, and was attended by 8,000 residents. Some highlights at this year's event included:

- Three ride-on mini excavators
- Various pieces of fleet equipment
- Play construction zone
- Lafarge cement display
- Face-painting and seed planting
- Carpentry project using reclaimed wood from fallen trees
- Playground and sand pile area
- Hay ride touring the operating yard
- CUPE 394 sponsored car show
- Gardening, lawn care and pesticide awareness information
- Interactive emergency preparedness, police, fire and ambulance displays
- Live entertainment, including two bands and dance performances
- Food vendors

Educational areas included the interactive, "Taste it, don't waste it" water conservation booth, Supervisory Control and Data Acquisition (SCADA) and pump display, CCTV camera truck, Community Bylaws, Emergency Services, capital programs and YourMinoru.ca display, recycling and pesticide awareness, and Neptune water meters.

Residents also had an opportunity to tour three work sites in the community through the Works on Wheels (WOW) bus tour. The hour and a half bus tour included stops at the Alexandra District Energy Utility, Bath Slough Pump Station and Fire Hall No. 3. Engineers in Training (EITs) were stationed at each location to answer project and site questions.

## *3. National Public Works Week Breakfast and Scholarships*

National Public Works Week ended with staff hosting a breakfast on May 18, 2016 for Public Works and Parks operations staff. Two grade 12 ACE IT (apprenticeship) program students and their families were invited to attend the breakfast, and in partnership with CUPE 394, the students were awarded scholarships valued at \$500 each.

The success of the Engineering and Public Works Open House is due to the hard work of the organizing committee, which is made up of staff from a number of departments as well as volunteers. This year's volunteers included over 200 staff, 75 community volunteers and 68 McMath High School students.



### **Financial Impact**

None.

### **Conclusion**

The City's Engineering and Public Works Division together with Community Services and Community Safety play an active role in celebrating the annual National Public Works Week. This week recognizes the men and women who provide and maintain the infrastructure services known as public works. Cities across Canada participate by raising awareness of public works issues, and encourage community support for these dedicated employees who consistently improve the quality of life for residents.



Jatinder Johal, CPA, CGA  
Manager, Public Works Administration  
(604-233-3330)

JJ:jj



# City of Richmond

## Report to Committee

**To:** Public Works and Transportation Committee

**Date:** May 24, 2016

**From:** Victor Wei, P. Eng.  
Director, Transportation

**File:** 01-0154-04/2016-Vol  
01

**Re:** TransLink Transit Fare Review

### Staff Recommendation

That the staff report titled "TransLink Transit Fare Review," dated May 24, 2016, from the Director, Transportation, be received for information.

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

Att. 1

REPORT CONCURRENCE		
<b>ROUTED TO:</b>	<b>CONCURRENCE</b>	<b>CONCURRENCE OF GENERAL MANAGER</b>
Community Social Development	<input checked="" type="checkbox"/>	
<b>REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE</b>	<b>INITIALS:</b> DW	<b>APPROVED BY CAO</b> 

## Staff Report

### Origin

In late April 2016, TransLink advised the City that it would be initiating a review of its transit fare policy in May 2016, which will span an 18 to 24 month period and include four phases of public consultation. This report outlines the process and objectives of the review and proposes priorities and issues to be considered by TransLink in the review.

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

*3.3. Effective transportation and mobility networks.*

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

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

### Analysis

#### Current Transit Fare System

The existing three-zone fare structure (Figure 1) was originally adopted in 1984 and has remained unchanged in the ensuing 30+ years. There are six core components that currently determine how much customers pay to use transit in Metro Vancouver.

- Distance Travelled: Customers pay more for each zone boundary they cross. All bus and HandyDART travel temporarily operate under one-zone, SkyTrain and SeaBus under three zones, and West Coast Express operates under its own five-zone structure.
- Type of Transit Service: There is one set of prices for bus, SkyTrain, SeaBus, and HandyDART. The West Coast Express is a higher priced premium service.
- Time of Travel: Customers travelling outside of peak times (i.e., after 6:30 p.m. on weekdays and all day weekends and holidays) pay a one-zone fare on SkyTrain and SeaBus.
- Fare Product: Customers can choose to purchase a single-ride ticket or use a Compass Card to get a discount by using Stored Value or purchasing a DayPass or a Monthly Pass.
- Customer Group: Adults pay full price. Youth, students, seniors, and people with disabilities that impact their ability to travel independently are eligible to travel at a reduced price. Children under four years of age travel for free when accompanied by an adult.



Figure 1: Current Fare Zone Map

- *Journey Time*: Customers can make multiple trips across bus, SkyTrain and SeaBus on a single fare for up to 90 minutes, and 120 minutes with a West Coast Express fare.

### Process and Timeline

The introduction of Compass provides an opportunity to improve the way TransLink's transportation system is priced. In addition to a review of best practices of other transit agencies around the world, data from the Compass system such as trip patterns and overall travel behaviour will help inform the development and evaluation of fare system options.

A dedicated page on TransLink's website has been established at [translink.ca/farereview](http://translink.ca/farereview). As shown in Figure 2 below, the process will have four phases each with its own public and stakeholder consultation period. The feedback gathered at each phase will be analyzed and, together with technical studies, will inform the next phase.

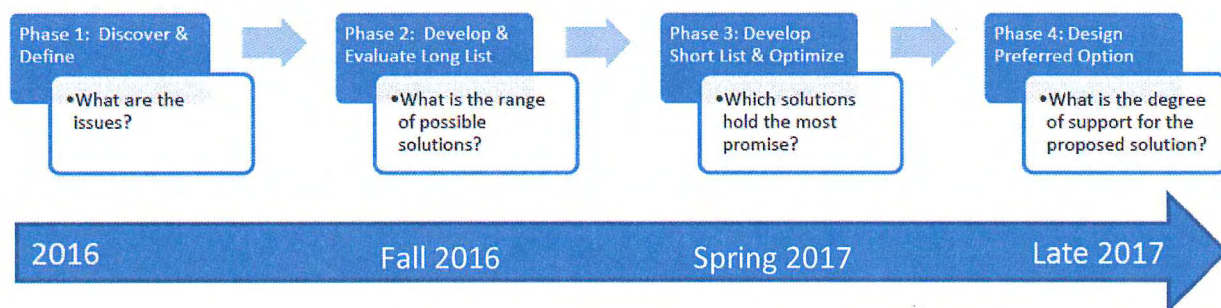


Figure 2: Project Overview and Timeline

As a starting point for discussion, TransLink has identified the following factors to be considered as part of the review:

- Customers have expressed a desire for fairness, simplicity, affordability, and value for money.
- Current policy (per TransLink's *Regional Transportation Strategy*) is that fares should be priced for fairness, efficiency and revenue, and have the goals of growing ridership and achieving a modal shift to transit.
- Compass allows a finer-grained fare structure not previously available.

The two primary components to be reviewed are: (1) the fare structure (i.e., across distance, time and modes); and (2) programs/products (e.g., discounts, passes). Elements of the transit fare system that are not part of the review are:

- *Compass and Fare Gates*: Current issues related to accessibility of the gated system at SkyTrain and SeaBus stations are being addressed through a separate process.
- *Fare Increases*: The intent is for the preferred option to maintain the current average fare paid by customers recognizing that the distribution of fares paid may change (i.e., some customers may pay more while others may pay less).
- *Eliminating Revenue from Fares*: Fares currently recover approximately 53 per cent of transit operating costs and contribute approximately 39 per cent of total revenues to TransLink. Given the failure of the Metro Vancouver transportation and transit plebiscite in May 2015,

there is no potential alternative funding source to replace the significant portion of TransLink revenue that fares comprise.

Staff will provide input into each stage of the process through regular participation at TransLink's Regional Transportation Advisory Committee (RTAC) and stakeholder forums held as part of the engagement processes.

### Current Phase 1

Figure 3 illustrates the key steps of Phase 1. The multiple account evaluation framework will be used to assess a range of options against objectives, enable development of a short list and guide selection of a preferred option.

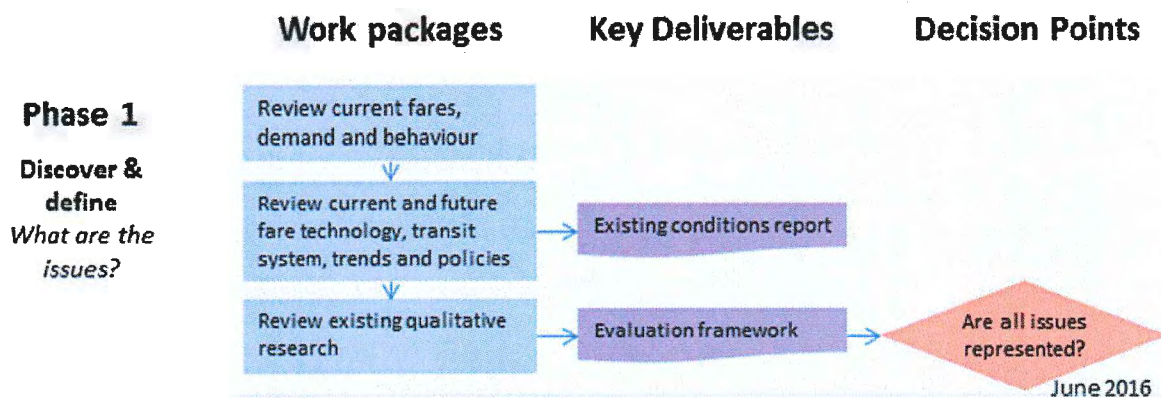


Table 1 identifies draft priorities of the review. Through the engagement period of Phase 1, stakeholders and the public will be asked to choose their top four priorities for TransLink to consider from this list and can add a new objective, which will help guide the evaluation process.

The engagement period of Phase 1 began on May 18, 2016 with three regional stakeholder forums, one of which was attended by staff. TransLink staff provided an overview of the process and attendees then responded to two questions regarding: (1) how well the current system operates; and (2) the top priority objectives of the review. Both questions form the on-line survey (at [translink.ca/farereview](http://translink.ca/farereview)) for the general public that is open from May 24 to June 30, 2016 (Attachment 1). The survey questions are intended to identify the current issues (what is working well, what is not working well) and gain feedback on the desired key objectives that TransLink should consider in the review.

Table 1: Draft Priorities for Review

Draft Priorities
Fares should be the same for all trips
Make fares lower for shorter distance trips
Provide more fare product options for different periods of time (e.g., 3-day, weekly)
Make fares lower in areas with infrequent service
Make fares lower in less busy times
Make fares lower for services that cost less to build and operate
Make fares lower for people with less ability to pay
Provide more fare product options to make transit more affordable for families to travel together
Make fares lower for slower and less direct service
Make fares lower for people who use transit frequently
Make it easy to understand and predict how much you'll pay



Similar to TransLink's public engagement process recently undertaken for Phase 1 of the Southwest Area Transport Plan, activities during the period include:

- On-line survey supplemented by in-person sessions and hard-copy surveys.
- Promotion of online survey to community/business groups and other stakeholders via email outreach as well as media releases, placement of advertisements in local newspapers, and use of social media.
- Forum for elected officials (local, provincial and federal governments) where TransLink staff will share information about the project (date to be determined).

The City will further support this engagement process through its standard communication tools including social media (Twitter and Facebook) and inclusion on the City website.

### Draft Priorities

Staff offer the following comments on the 11 draft priorities with the first four below suggested as those of greater importance in terms of equity, efficiency and encouraging greater ridership.

- Easy to Understand: Fares are a key lever in encouraging changes in travel behaviour, whether a shift from auto to transit in support of regional goals, or a shift in time of travel in order to more efficiently use existing capacity. To effect those changes, users need to be able to understand, accurately predict and compare the prices of various options (e.g., lower fare in off-peak times).
- Discounts for People with Less Ability to Pay: Transit is a public service and lower fares should be available for qualified low-income users who may have no other means of mobility.
- Lower Fares in Less Busy Times: Encouraging a shift in travel behaviour to less busy times will optimize the use of existing capacity, mitigate congestion in peak times, and defer the need for costly expansion.
- More Fare Product Options: Increased options (e.g., evenings or weekends only) may better attract potential new riders by tailoring the fares to a greater range of travel behaviour.

With respect to the remaining draft priorities, staff have the following comments:

- Varying Fares by Type of Service: Different fares based on the type of service (as opposed to the type of user or trip) such as a lower fare for slower services suggests that users have a choice of service (e.g., pay a higher fare for a direct service) but this is not always true.
- Lower Fares for Frequent Transit Users: Typically, passes include a discount compared to a cash fare. If a further discount is desired, there are alternative options to "reward" frequent transit users (e.g., loyalty program) rather than lowering fares and thus revenues.
- Flat Fare for All Trips: A flat fare would not enhance system efficiency as there would be no incentive to shift travel times to optimize capacity.

### Additional Topics for Consideration

Staff have identified the following additional topics for consideration as part of the fare review.

- HandyDART: Consider means to better integrate the HandyDART fare structure with that of conventional transit to provide consistency and seamless accessibility across the systems.
- Transportation Demand Management: Work with municipalities and the development industry to use bulk/discount transit passes/fares as a means to encourage transit usage and in support of reduced parking requirements in new developments.
- Employer Pass: Consider reinstatement of the employer transit pass program or an equivalent incentive to provide a discount on transit fares for employees of qualified employers.
- Price Cap: Currently, there is no maximum daily fare paid by Compass users who travel multiple times in a single day. The maximum daily fare should be equal to the cost of a day pass.
- Future Enhancements: Consider future integration with other modes of travel such as bike-share and BC Ferries.

### Financial Impact

None.

### Conclusion

TransLink has initiated a review of its transit fare structure, products and programs, which have remained essentially unchanged for 30 years. The process will run until late 2017 and staff will continue to provide regular updates to Council on the progress of the review with the next update, anticipated in Fall 2016, reporting on the results of the Phase 1 public consultation period.



Joan Caravan  
Transportation Planner  
(604-276-4035)

JC:jc

Att. 1: Transit Fare Review – Phase 1 On-line Survey



## Transit Fare Review

0%

### Transit Fare Review

Over the last 30 years, the way we determine fares – including our zone structure and our fare products – hasn't changed much.

It's time to take a fresh look at our fare system.

This is the first of four phases of the Transit Fare Review. In order to get this right, we want to make sure we get your input along the way. The process is just starting and no decisions have been made.

The survey should take you about 10 - 15 minutes to complete. Before you start, make sure you've read more about the project on our [Transit Fare Review page](#).

## Transit Fare Review

16%

### Overall Satisfaction

Currently, the key features that determine your transit fare in Metro Vancouver are the transit mode, zones travelled, time of travel, and eligibility for regular or concession fares.

#### 1. For each of the transit services you use, how satisfied are you with the current way that fares are determined?

(If you don't use one of the transit services below, select "not applicable".)

	Very satisfied	Somewhat satisfied	Neither satisfied nor dissatisfied	Somewhat dissatisfied	Very dissatisfied	Not applicable/Don't Use
Bus						
SkyTrain						
SeaBus						
West Coast Express						
HandyDART						

## Transit Fare Review

33%

#### 2. What is your level of agreement with each of the following statements?

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Don't know
The current zone-based fare structure works well.						
There should be more fare product options for different periods of time (e.g. 3-day, weekly).						
There should be fare product options to make transit more affordable for families to travel together.						
The current transfer window (90 minutes) is long enough.						



## Transit Fare Review

50%

### 2. What is your level of agreement with each of the following statements?

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Don't know
Fares should be lower for people with less ability to pay than for people with more ability to pay.						
Fares should be lower at less busy times of day than at busier times of day.						
Fares should be lower for services that cost less to build and operate, than for services that cost more to build and operate.						
Fares should be lower for shorter distance trips than for longer distance trips.						
Fares should be lower for people who use transit frequently than for people who use transit occasionally.						
Fares should be lower in areas with infrequent service than in areas with frequent service.						
Fares should be set to be a cost competitive alternative to driving.						
Fares should be the same for all trips.						
Fares should be lower for slower and less direct services than for faster and more direct services.						
Fares currently cover a bit more than half of the cost of operating transit. Fares should be set to cover a higher share of transit costs.						

## Transit Fare Review

66%

### 3. What should be the top four priorities as we consider changes to the transit fare structure, products and programs?

Please choose four objectives.

- ☐ Provide more fare product options for different periods of time. (e.g. 3-day, weekly)
- ☒ Make fares lower for services that cost less to build and operate.
- ☐ Fares should be the same for all trips.
- ☐ Make fares lower for slower and less direct services.
- ☐ Make it easy to understand and predict how much you'll pay.
- ☐ Provide more fare product options to make transit more affordable for families to travel together.
- ☐ Make fares lower for people with less ability to pay.
- ☐ Make fares lower for people who use transit frequently.
- ☐ Make fares lower for shorter distance trips.
- ☐ Make fares lower at less busy times.
- ☐ Make fares lower in areas with infrequent service.

Current number checked: 0 Minimum: 4 | Maximum: 4

## Transit Fare Review

83%

You're almost done! Please tell us a bit about yourself.

We're collecting this anonymous demographic information to better understand general characteristics of our customers.

Which age group do you belong to?

How often do you use each of the following transit services?

	Every day	At least once a week	At least once a month	At least once a year	Rarely or never
Bus					
SkyTrain					
SeaBus					
West Coast Express					
HandyDART					

What mode of transportation do you use most often? If you use multiple modes equally, select the mode traveling the greatest distance.

(One response only.)

- ☐ Drive alone
- ☐ Travel in a private vehicle with at least one other person/carpool/rideshare
- ☐ Bicycle
- ☐ Motorcycle, Scooter
- ☐ Walk
- ☐ Public Transit (Bus, SkyTrain, SeaBus, West Coast Express, HandyDART)
- ☐ Use two modes the same/Can't choose one mode
- ☐ Don't know
- ☐ Other

4. What are the first three characters of your postal code?

- ☐ Postal Code:
- ☐ Don't know

How did you hear about the Transit Fare Review?

(Select all that apply.)

- ☐ Advertisements on bus, SkyTrain, SeaBus, or West Coast Express
- ☐ Bus shelter advertisement
- ☐ Buzzer blog
- ☐ Email from an organization
- ☐ News media (Newspaper article, radio or television news story)
- ☐ Newspaper advertisement
- ☐ Print material (postcard, rack card/brochure)
- ☐ TransLink booth in the community
- ☐ TransLink eNewsletter
- ☐ TransLink Listens panelist email
- ☐ TransLink website
- ☐ TransLink Social Media (Twitter, Facebook)
- ☐ Word of mouth (Email/heard from family, friend or colleague)
- ☐ Online ads
- ☐ I work for TransLink, CMBC, BCRTC, West Coast Express, Transit Police or InTransitBC
- ☐ None of the above
- ☐ Don't recall