



Public Works and Transportation Committee

Anderson Room, City Hall
6911 No. 3 Road

Wednesday, October 21, 2015
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 September 23, 2015.*



NEXT COMMITTEE MEETING DATE

November 18, 2015, (tentative date) at 4:00 p.m. in the Anderson Room

DELEGATION

- PWT-9** 1. Ken Carrusca, Vice President, Environment and Marketing (Western Region), **Cement Association of Canada**, to speak on reducing the greenhouse gas footprint through the use of resilient and long-lasting concrete infrastructure.

ENGINEERING AND PUBLIC WORKS DIVISION

2. **ALEXANDRA DISTRICT ENERGY UTILITY BYLAW NO. 8641
AMENDMENT BYLAW NO. 9298**

(File Ref. No. 12-8060-20-009298; 10-6600-10-01) (REDMS No. 4729245 v. 3)

PWT-10

See Page PWT-10 for full report

Designated Speaker: Alen Postolka

STAFF RECOMMENDATION

That the Alexandra District Energy Utility Bylaw No. 8641 Amendment Bylaw No. 9298 be introduced and given first, second and third reading.

☐

3. **OVAL VILLAGE DISTRICT ENERGY UTILITY BYLAW NO. 9134,
AMENDMENT BYLAW NO. 9299**

(File Ref. No. 12-8060-20-009299; 10-6600-10-02) (REDMS No. 4732576 v. 4)

PWT-20

See Page PWT-20 for full report

Designated Speaker: Alen Postolka

STAFF RECOMMENDATION

That the Oval Village District Energy Utility Bylaw No. 9134, Amendment Bylaw No. 9299 be introduced and given first, second and third readings.

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4. **SMALL AND MEDIUM ENTERPRISE GREENHOUSE GAS
MANAGEMENT PROGRAM**

(File Ref. No. 10-6125-07-02) (REDMS No. 4673854 v. 5)

PWT-31

See Page PWT-31 for full report

Designated Speaker: Brendan McEwen

STAFF RECOMMENDATION

That the development and implementation of a Greenhouse Gas Management program for small and medium enterprises be endorsed.

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5. **MANAGEMENT OF WASTE AND RECYCLABLE MATERIALS
FROM DEMOLITION ACTIVITIES**

(File Ref. No. 10-6370-01) (REDMS No. 3822689 v. 8)

PWT-36

See Page PWT-36 for full report

Designated Speakers: Suzanne Bycraft and Gavin Woo

STAFF RECOMMENDATION

- (1) *That staff prepare a Demolition Waste and Recyclable Materials Bylaw, which establishes the following requirements for management of waste from single-family home demolitions:*
 - (a) *achieve a minimum of 70% diversion of demolition waste;*
 - (b) *establish a \$250 non-refundable fee assessed as part of the demolition permit application process;*
 - (c) *establish a \$2/square foot refundable fee, based on demolition waste recycling performance; and*
 - (d) *require that demolition contractors/builders submit a Waste Disposal and Recycling Services Plan as part of their demolition permit application, and a Compliance Report at the conclusion of the demolition process;*
- (2) *That a new Building Inspector 1 position be approved and a position complement control number assigned; and*
- (3) *That this program be considered as part of the 2016 Operating Budget process.*

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6. **MANAGER'S REPORT**

ADJOURNMENT

☐



Public Works and Transportation Committee

Date: Wednesday, September 23, 2015

Place: Anderson Room
Richmond City Hall

Present: Councillor Chak Au, Chair
Councillor Harold Steves
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 July 22, 2015, be adopted as circulated.

CARRIED

NEXT COMMITTEE MEETING DATE

October 21, 2015, (tentative date) at 4:00 p.m. in the Anderson Room

PRESENTATION

With the aid of a PowerPoint presentation (copy on file, City Clerk's Office), Cameron Cartiere, Associate Professor, Emily Carr University of Art and Design, presented on the Pollinator Pasture at Bridgeport Industrial Park. She advised that the public art pollinator pastures in Richmond and Kelowna are part of a larger, collaborative research project, noting that the projects aim to transform brown field sites and greenways into pollinator pastures, which are aesthetically pleasing, educational, and ecologically beneficial.

Public Works & Transportation Committee

Wednesday, September 23, 2015

Ms. Cartiere reviewed the various phases of the Pollinator Pasture at Bridgeport Industrial Park, and spoke of the design of the pasture including its shape as bumblebee wings and the various species of flowers utilized throughout the design. Also, she highlighted that in partnership with the Richmond Art Gallery and the City's Sustainability Department, several well-attended workshops that taught participants to make seeded paper from recycled paper from Richmond City Hall were held.

PLANNING AND DEVELOPMENT DIVISION

1. **TRANSLINK 2016 CAPITAL PROGRAM COST-SHARING SUBMISSIONS**

(File Ref. No. 01-0154-04) (REDMS No. 4618500 v. 2)

It was moved and seconded

- (1) *That the submission of pedestrian, bicycle and transit facility improvement projects for cost-sharing as part of the TransLink 2016 Bicycle Infrastructure Capital Cost Sharing Regional Needs Program and Transit-Related Road Infrastructure Program, as described in the report, titled, "TransLink 2016 Capital Program Cost-Sharing Submissions" dated August 17, 2015 from the Director, Transportation, be endorsed.*
- (2) *That, should the above submissions be successful and the projects receive Council's approval via the annual capital budget process, the Chief Administrative Officer and General Manager, Planning and Development be authorized to execute the funding agreements and the 2016 Capital Plan and the 5-Year Financial Plan (2016-2020) be updated accordingly dependant on the timing of the budget process.*
- (3) *That the Chief Administrative Officer and the Director, Transportation be authorized to execute a data licensing agreement with TransLink to obtain the 2011 Trip Diary dataset for Richmond.*

CARRIED

ENGINEERING AND PUBLIC WORKS DIVISION

2. **DRAINAGE, DYKE AND SANITARY SEWER SYSTEM BYLAW NO. 7551, AMENDMENT BYLAW NO. 9219**

(File Ref. No. 12-8060-20-009219) (REDMS No. 4505875)

In reply to a query from Committee, Romeo Bicego, Manager, Sewerage and Drainage, reviewed the City's notification protocol to homeowners with regard to completing inspection and maintenance on private property of the City's drainage and sanitary sewer systems.

Public Works & Transportation Committee
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It was moved and seconded

That Drainage, Dyke and Sanitary Sewer System Bylaw No. 7551, Amendment Bylaw No. 9219, be introduced and given first, second and third readings.

CARRIED

3. SERVICING AGREEMENT WITH ECOWASTE INDUSTRIES LTD.

(File Ref. No. 10-6060-01) (REDMS No. 4687425 v. 2)

In reply to a query from Committee, John Irving, Director, Engineering, advised that development cost charges will be triggered at the development permit stage of the project.

It was moved and seconded

That the Chief Administrative Officer and the General Manager, Engineering & Public Works be authorized to finalize and execute a Servicing Agreement between the City and Ecowaste Industries Ltd., to fill and preload Savage Road between Williams Road to Francis Road and to fill and preload Francis Road from Savage Road to a point 210 m to the east, containing the material terms and conditions set out in the staff report titled "Servicing Agreement with Ecowaste Industries Ltd." dated August 31, 2015 from the Director, Engineering.

CARRIED

4. 2015 CLOTHES WASHER REBATE PROGRAM UPDATE

(File Ref. No. 10-6650-02) (REDMS No. 4714455)

In reply to queries from Committee, Corrine Haer, Project Engineer, advised that as a result of lower than anticipated participation in the clothes washer rebate program that ran from May 1 to June 30, 2015, BC Hydro has extended the program from October 1 to November 30, 2015; also, she noted that the specifications for the fall campaign have been adjusted in an effort to increase participation. Ms. Haer advised that advertisements in the local newspaper and the distribution of posters throughout the City's facilities advise the public of the program, and she stated that the rebate program is currently offered for energy efficient clothes washers and toilets.

It was moved and seconded

(1) That the City extends the current partnership with BC Hydro to the end of this year to offer a combined rebate program, which will provide a rebate of up to \$200, equally cost shared between BC Hydro and the City, for the replacement of an inefficient clothes washer with a new high efficiency one; and

3.

Public Works & Transportation Committee
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- (2) *That the Chief Administrative Officer and General Manager, Engineering and Public Works, be authorized to execute an updated agreement with BC Hydro to extend the current program and update the specifications.*

CARRIED

5. MANAGER'S REPORT

(i) *TransLink 2015 Capital Program Cost-Sharing Submission*

Victor Wei, Director, Transportation, spoke to projects submitted as part of TransLink's 2015 Capital Program Cost-Sharing program, highlighting that the Crosstown Bikeway project has successfully received 50/50 funding from TransLink.

(ii) *Southwest Area Transport Plan Senior Advisory Committee*

Mr. Wei provided background information regarding TransLink's Southwest Area Transport Plan Senior Advisory Committee. He stated that Council appointed Councillor Au to serve on this Committee in July 2015, however a meeting has yet to be set; once the Committee begins meeting, staff will notify Council accordingly.

(iii) *BC Coast Weather*

Mr. Bicego referenced an article regarding El Niño weather patterns anticipated to hit BC's coast this year, noting that staff are continually carrying out maintenance works in an effort to be prepared for the anticipated extreme weather.

(iv) *Sewer Heat Recovery System*

In reply to queries from the Chair, Robert Gonzalez, General Manager, Engineering and Public Works, commented on the Gateway Theatre sewer heat recovery system, highlighting that the project has resulted in reductions in greenhouse gas emissions and cost savings in gas consumption. As a result of the project's success, Mr. Gonzalez advised that staff are examining the potential to implement similar technology to capture heat from the Gilbert Trunk sewer line.

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

It was moved and seconded

That staff report back on the potential to recover heat from the Gilbert Trunk sewer line.

CARRIED

Public Works & Transportation Committee
Wednesday, September 23, 2015

ADJOURNMENT

It was moved and seconded

That the meeting adjourn (4:26 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, September 23, 2015.

Councillor Chak Au
Chair

Hanieh Berg
Legislative Services Coordinator

October 13, 2015

By Email: MayorandCouncillors@Richmond.ca

Mayor Malcom Brodie
City of Richmond
6911 No. 3 Road
Richmond, BC
V6Y 2C1

Dear Mayor Brodie:

I write further to a meeting earlier today with Councillors Carol Day and Harold Steves on work being carried out by the Cement Association of Canada (CAC), our member companies operating in BC - Lafarge Canada Inc. and Lehigh Hanson Materials Limited, and broadly by the concrete industry in the region.

The CAC has been delivering an industry presentation on climate change to elected officials and staff across the region, across BC and across Canada. Our presentation, titled "**Working together Towards Low Carbon, High Value Infrastructure Investments**" focuses on the opportunities for municipalities to continue to work towards reducing their overall greenhouse gas (GHG) footprint through the use of resilient and long-lasting concrete infrastructure. This is described through the use of:

- concrete in LEED, energy-efficient building construction,
- the use of concrete in road pavements (e.g. high-traffic intersections, roundabouts, parking lots and bus lanes), and
- the use of lower carbon intensity Contempra / Portland Limestone Cement.

It was suggested that it may be worthwhile to deliver this presentation to the City of Richmond's General Purposes Committee, as well as offering to schedule a tour to one of the local cement plants. We would be happy to speak to a condensed version of the presentation, and take questions.

By way of this letter, we request such an opportunity. Please let me know if this request can be accommodated.

Should you have any questions, please feel free to call me at (604) 839-6627.

Sincerely,



Ken Carrusca, P.Eng.
Vice President, Environment and Marketing (Western Region)
Cement Association of Canada

cc: Councillor Carol Day
Councillor Harold Steves

1188 West Georgia Street, Suite 900, Vancouver, BC V6E 4A2 Tel: (604) 269-0582

www.cement.ca



City of Richmond

Report to Committee

To: Public Works and Transportation Committee
From: John Irving, P.Eng. MPA
Director, Engineering
Date: September 25, 2015
File: 10-6600-10-01/2015-
Vol 01
Re: Alexandra District Energy Utility Bylaw No. 8641 Amendment Bylaw No. 9298

Staff Recommendation

That the Alexandra District Energy Utility Bylaw No. 8641, Amendment Bylaw No. 9298 be introduced and given first, second and third readings.

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

Att. 1

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

Staff Report

Origin

In 2010, Council adopted the Alexandra District Energy Utility Bylaw No. 8641 establishing the rate for the delivery of energy for space heating, cooling and domestic hot water heating within the Alexandra District Energy Utility (ADEU) service area.

The purpose of this report is to recommend 2016 ADEU service rates.

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

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

4.1. Continued implementation of the sustainability framework.

4.2. Innovative projects and initiatives to advance sustainability.

Analysis

2015 Rates

The 2015 rate was developed on the basis of delivering energy to residential customers and is in effect for most of the ADEU service area. This is comprised of:

1. Capacity Charge (Fixed) - monthly charge of \$0.084 per square foot of the building gross floor area, and a monthly charge of \$1.125 per kilowatt of the annual peak heating load supplied by DEU, as shown in the energy modeling report required under Section 21.1.(c); and
2. Volumetric Charge (Variable) - charge of \$3.599 per megawatt hour of energy consumed by the building.

In July 2014, Council adopted a separate rate for large format retail buildings (defined as the Area A in the Bylaw). The current 2015 rate in effect for Area A of the service area is comprised of:

1. Capacity Charge (Fixed) - monthly charge of \$0.0452 per square foot of the building gross floor area; and
2. Volumetric Charge (Variable) - charge of \$0.00 per megawatt hour of energy consumed by the building.

When the detailed design of the energy delivery system for Area A is complete, staff will bring forward recommendations to Council on how this rate should be divided into fixed and variable charges, as is the case with the residential rate.

Factors Considered in Creating the Rates

Factors that were considered when developing the 2016 ADEU rate options include:

- **Competitive Rate:** The rate should provide end users with annual energy costs that are less than or equal to conventional system energy costs, based on the same level of service.
- **Cost Recovery:** The ADEU was established on the basis that all capital and operating costs would ultimately be recovered through revenues from user fees. The financial model included recovery of the capital investment over time and built in a rate increase year over year to cover the fuel cost increases, inflation, etc. to ensure the financial viability of the system.
- **Forecasted Utility Costs:** Utility cost (electricity and natural gas) increases are outside the City's control. Nonetheless, these commodity costs directly impact the operation cost of the ADEU. BC Hydro's 10 year plan projects an electricity rate increase of 6% in 2016. Natural gas costs are expected to increase by 5.4% (residential and Lower Mainland) according to the Multi-Year Performance Based Ratemaking Plan for 2014-2019.
- **Consumer and Municipal Price Indexes:** Other factors to consider include various price indexes. For example, the Consumer Price Index (CPI) is estimated by the Finance Department at 2.2% based on the average of recent BC forecasts, while the Municipal Price Index (MPI) is estimated at 2.7%.

Proposed 2016 ADEU Rates

Taking into consideration the above factors, three options are presented for consideration.

Option 1 – No increase to ADEU rate for services (Not recommended)

Under the Option 1, the rate would not change from the 2015 rate.

The ADEU remains in its early days of operation and the expansion to its full capacity is still under construction. As a result, the utility (electricity and natural gas), operation, and maintenance costs are still largely based on projections of the financial model. Variation from the model will affect the long term performance of the ADEU. For example, the revenue may vary from the projected revenue in the financial model depending on the speed of the neighbourhood's development and occupancy. The financial modeling of the ADEU has taken into consideration modest rate increases similar to projected increase rates for conventional energy. A status quo approach may have a negative impact on the financial performance of the ADEU. For example, it may cause an extension of the payback period, reduction of internal rate of return, etc.

Option 2 – 2% increase to ADEU rate for services (Not recommended)

Under this option, the rate would increase modestly to slightly less than the Consumer Price Index (CPI – projected at 2.2%). While a 2% rate increase will partially cover the estimated utility (electricity and natural gas), operation, and maintenance cost increases, it is below the estimated

“business as usual” (BAU) cost of energy commodity (electricity and natural gas) increases that customers not serviced by a DEU would face and is below the increase projected in the ADEU financial business model. Since BAU costs are expected to increase over the CPI, this option is not recommended.

Option 3 – 4% increase to ADEU rate for services (Recommended)

The proposed 4% rate increase under this option follows the ADEU financial model and is below the estimated BAU rates increase that customers would pay based on projected conventional utility costs, which are 6% and 5.4% respectively for electricity and natural gas.

The ADEU financial model follows the principle of full cost recovery. To mitigate potential financial risks, it is recommended that the City follow the financial model in the early years of the utility operation and annually adjust the rates accordingly. As more data is collected about the connected building’s energy loads and consumption and operation and maintenance costs, the model will be updated and annual rate adjustment may follow more judicious year to year financial indicators, to ensure that the financial performance continues to meet its obligations.

Table 1: Proposed Rates for Services, excluding Area A

	2015	2016 Option 1 0% Increase	2016 Option 2 2% Increase	2016 Option 3 4% Increase
Capacity Charge One: Monthly charge per square foot of the building gross floor area	\$0.084	\$0.084	\$0.086	\$0.087
Capacity Charge Two: Monthly charge per kilowatt of the annual peak heating load supplied by DEU	\$1.125	\$1.125	\$1.148	\$1.170
Volumetric Charge: Charge per megawatt hour of energy consumed by the building	\$3.599	\$3.599	\$3.671	\$3.743

Table 2: Proposed Rates for Services, Applicable to Area A

	2015	2016 Option 1 0% Increase	2016 Option 2 2% Increase	2016 Option 3 4% Increase
Capacity Charge: Monthly charge per square foot of the building gross floor area	\$0.0452	\$0.0452	\$0.0461	\$0.0470
Volumetric Charge: Charge per megawatt hour of energy consumed by the building	\$0.00	\$0.00	\$0.00	\$0.00

The recommended rate outlined in the proposed Alexandra District Energy Utility Bylaw No. 8641, Amendment Bylaw No. 9298 (Attachment 1), represents full cost recovery for the delivery of energy within the ADEU service area.

Proposed Housekeeping Amendments to Bylaw

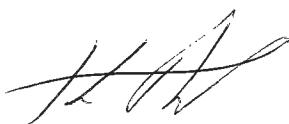
The Alexandra District Energy Utility Bylaw No. 8641 uses the term “Services Agreement” to define the agreement between the Service Provider and Customer. This term is also used in documents related to other City infrastructure, such as sanitary sewer, water, and storm sewer, and as a result there have been instances of confusion among parties working with the Bylaw. It is proposed that the term “Service Agreement” is replaced with “Energy Services Agreement” to ensure clarity. Additional proposed changes include minor housekeeping items within the Bylaw to further ensure clarity. These proposed changes are outlined in Attachment 1.

Financial Impact

None at this time.

Conclusion

The recommended 4% increase (Option 3) for the 2016 ADEU service rate supports Council’s objective to keep the annual energy costs for ADEU customers competitive with conventional energy costs, based on the same level of service. As a comparison to conventional system energy costs, the 4% rate increase is below the estimated rate increase for BC Hydro and Fortis. The rate increase also ensures cost recovery to offset the City’s capital investment and operating costs. Staff will continuously monitor energy costs and review the rate to ensure rate fairness for consumers and cost recovery for the City. The proposed housekeeping amendments will provide greater clarity when working with Alexandra District Energy Utility Bylaw No. 8641 in the future.



Kevin Roberts
Project Engineer, District Energy
(604-204-8512)



Alen Postolka
Manager, District Energy
(604-276-4283)

Att.1: Alexandra District Energy Utility Bylaw No. 8641, Amendment Bylaw No. 9298



**Alexandra District Energy Utility Bylaw No. 8641,
Amendment Bylaw No. 9298**

The Council of the City of Richmond enacts as follows:

1. The **Alexandra District Energy Utility Bylaw No. 8641**, as amended, is further amended:

- (a) by revising Section 1.2(w) containing the defined term “Service Related Charges” by deleting the word “HST” and replacing it with the words “GST, PST” so that Section 1.2(w) now reads as follows:

“(w) “**Service Related Charges**” include, but are not limited to, the fees specified in Schedule B (Fees), the rates and charges specified in Schedule C (Rates and Charges), GST, PST and all other taxes applicable to the Services;”

- (b) by adding a new Section 1.2(o) to read as follows:

1.2(o) “**Energy Services Agreement**” has the meaning given in Section 5.1 of this Bylaw;

- (c) by deleting in its entirety the existing Section 1.2(y) containing the defined term “Services Agreement;

- (d) by re-numbering all sub-sections in Section 1.2 as necessary so that they maintain sequential numerical order;

- (e) by replacing the capitalized term “Services Agreement” with the new defined term “Energy Services Agreement” in each instance the capitalized term “Services Agreement” is used in **Alexandra District Energy Utility Bylaw No. 8641**, namely in the following Sections:

Section 4.2

Section 5.1

Section 5.2

Section 5.3
Section 5.4
Section 9.1
Section 13.1
Section 13.6
Section 14.3
Section 14.7
Section 17.2
Section 18.1
Section 18.2
Section 18.3
Section 23.3
Section 23.5
Section 23.6

- (f) by revising Section 6.2(b) by adding the words “supply and” before the word “install” so that Section 6.2(b) now reads as follows:

“6.2(b) supply and install the Heat Exchanger and Meter Set upon payment of the applicable installation fees set out in Schedule B (Fees) to this Bylaw; and”

- (g) by revising Section 6.2(c) by adding the words “supply and” before the word “install” and by adding a comma and the words “upon payment of the applicable installation fees set out in Schedule B (Fees) to this Bylaw” after the words “Service Provider” at the end of the section so that Section 6.2(c) now reads as follows:

“6.2(c) supply and install the Service Connection from the DEU to the Delivery Point on the Designated Property using the route which is the most suitable to the Service Provider, upon payment of the applicable installation fees set out in Schedule B (Fees) to this Bylaw.”

- (h) by revising Section 6.3 (c) by deleting the duplication of the words “for all” in the first line so that section 6.3(c) now reads as follows:

“6.3(c) the Customer pays the Service Provider in advance for all additional costs as determined by the Service Provider to install the Heat Exchanger, Meter Set and Service Connection in accordance with the Customer’s request; and”

- (i) by revising Section 6.8(b) by deleting the word “water” and replacing it with the word “fluid” so that Section 6.8(b) now reads as follows:

“(b) treating all fluid in the building mechanical system sufficiently to prevent corrosion of the Heat Exchangers.”

- (j) by revising Section 6.11 by adding the words “or permit to be constructed” after the words “A Customer must not construct” so that Section 6.11 now reads as follows:

“6.11 A Customer must not construct or permit to be constructed any permanent structure which, in the sole opinion of the Service Provider, obstructs access to a Service Connection, Heat Exchanger or Meter Set.”

- (k) by revising Section 7.2 by deleting each use of the word “kilowatt” and replacing it with the words “megawatt hours” so that Section 7.2 now reads as follows:

“7.2 The quantity of Energy delivered to a Designated Property will be metered using apparatus approved by the Service Provider. The amount of Energy registered by the Meter Set during each billing period will be converted to megawatt hours and rounded to the nearest one-tenth of a megawatt hour.”

- (l) by revising Sections 13.2(c) and (d) by deleting each use of the word “kilowatt” and replacing it with the word “megawatt” so that Sections 13.2(c) and (d) now read as follows

“(c) the number of megawatt hours of heat energy supplied to the Heat Exchanger and Meter Set; and

(d) the number of megawatt hours of heat energy returned from the Heat Exchanger and Meter Set.”

- (m) by revising the heading to Part 18 so that it reads as follows:

PART 18: TERMINATION OF ENERGY SERVICES AGREEMENT

- (n) by inserting a new Section 21.1(c) to read as follows:

“21.1(c) a duly signed Energy Services Agreement;”

- (o) by re-numbering all sub-sections in Section 21.1 as necessary so that they maintain sequential numerical order;

(p) by deleting Schedule C (Rates and Charges) in its entirety and replacing with a new Schedule C as attached as the Schedule A to this Amendment Bylaw

2. This Bylaw is cited as "Alexandra District Energy Utility Bylaw No. 8641, Amendment Bylaw No. 9298".

FIRST READING

SECOND READING

THIRD READING

ADOPTED

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

MAYOR

CORPORATE OFFICER

Schedule A to Amendment Bylaw No. 9298**SCHEDULE C to BYLAW NO. 8641****Rates and Charges****PART 1 - RATES FOR SERVICES**

The following charges will constitute the Rates for Services for the Service Area excluding shaded Area A as shown in Schedule A to this Bylaw:

- (a) Capacity charge – a monthly charge of \$0.087 per square foot of gross floor area, and a monthly charge of \$1.170 per kilowatt of the annual peak heating load supplied by DEU as shown in the energy modeling report required under Section 21.1.(c); and
- (b) Volumetric charge – a charge of \$3.743 per megawatt hour of Energy returned from the Heat Exchanger and Meter Set at the Designated Property.

PART 2 - RATES FOR SERVICES APPLICABLE TO AREA A

The following charges will constitute the Rates for Services applicable only to the Designated Properties identified within the shaded area (Area A) shown in Schedule A to this bylaw:

- (a) Capacity charge – a monthly charge of \$0.0470 per square foot of gross floor area; and
- (b) Volumetric charge – a charge of \$0.00 per megawatt hour of Energy returned from the Heat Exchangers and Meter Sets at the Designated Property.



City of Richmond

Report to Committee

To: Public Works and Transportation Committee

Date: September 25, 2015

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

File: 10-6600-10-02/2015-
Vol 01

Re: Oval Village District Energy Utility Bylaw No. 9134, Amendment Bylaw No. 9299

Staff Recommendation

That the Oval Village District Energy Utility Bylaw No. 9134, Amendment Bylaw No. 9299 be introduced and given first, second and third readings.

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

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

Staff Report

Origin

In 2014, Council adopted the Oval Village District Energy Utility Bylaw No. 9134 (Bylaw) establishing governing regulations and the rate for the delivery of energy for space and domestic hot water heating within the Oval Village District Energy Utility (OVDEU) service area.

The purpose of this report is to:

- a) Recommend 2016 OVDEU service rates
- b) Recommend the expansion of the service area so that it encompasses two new development sites
- c) Replace the term “Services Agreement” with “Energy Services Agreement” in the Bylaw

This report supports Council’s 2014-2018 Term Goal #8 Sustainability:

8.1. Continued implementation and significant progress towards achieving the City’s Sustainability Framework, and associated targets.

8.2. Review opportunities for increasing sustainable development requirements for all new developments, including consideration of increasing requirements for sustainable roof treatments (e.g. rooftop gardens, solar panels, etc.) and energy security (e.g. use of local renewable energy sources, use of district energy systems, etc.).

Background

In 2013, under Council direction, the Lulu Island Energy Company (LIEC) was established as a wholly-owned corporation of the City for the purposes of managing district energy utilities on the City’s behalf. District Energy Utilities Agreement between the City and the LIEC was executed in 2014, assigning the LIEC the function of providing district energy services on behalf of the City.

The LIEC encompasses the Oval Village District Energy Utility (OVDEU) service area and administers the associated operations, assets and liabilities. All capital and operating costs are recovered through revenues from user fees, ensuring that the business is cost neutral over time for the City of Richmond’s residents. In 2014, in order to accomplish these goals, LIEC and Corix Utilities entered into a design-build-finance-operate-maintain concession agreement. The City is the sole shareholder of the LIEC and Council sets the rates to customers.

Analysis

Proposed 2016 OVDEU Rates

The 2015 OVDEU rate is comprised of:

1. Capacity Charge (Fixed) - monthly charge of \$0.0458 per square foot of the building gross floor area; and
2. Volumetric Charge (Variable) - charge of \$28.20 per megawatt hour of energy returned from the Heat Exchanger and Meter Set at the Designated Property.

Factors that were considered when developing the 2016 OVDEU rate options are:

- **Competitive Rate:** The rate should provide end users with annual energy costs that are less than or equal to conventional system energy costs, based on the same level of service.
- **Cost Recovery:** The OVDEU was established on the basis that all capital and operating costs would ultimately be recovered through revenues from user fees. The financial model included recovery of the capital investment over time and built in a rate increase year over year to cover for the fuel cost increases, inflation, etc. to ensure the financial viability of the system.
- **Financial Obligations from LIEC to Corix:** The OVDEU business was established based on the concept that all capital and operating costs would be recovered through revenues from user fees, ensuring that the business would be cost neutral over time. In order to fulfill these requirements, LIEC executed a concession agreement with Corix Utilities to design, construct, finance, operate and maintain the OVDEU. Under this agreement, Corix is entitled to recover from LIEC any costs and expenses that are incurred in accordance with prudent utility practice.
- **Forecasted Utility Costs:** Utility cost (electricity and natural gas) increases are outside the City's control. Nonetheless, these commodity costs directly impact the operation cost of the OVDEU. BC Hydro's 10 year plan projects an electricity rate increase of 6% in 2016. Natural gas costs are expected to increase by 5.4 % (residential and Lower Mainland) according to the Multi-Year Performance Based Ratemaking Plan for 2014 through 2019.
- **Consumer and Municipal Price Indexes:** Other factors to consider include various price indexes. For example, the consumer price index (CPI) is estimated by the Finance Department at 2.2% based on the average of recent BC forecasts, while municipal price index (MPI) is estimated at 2.7%.

Taking into consideration the above factors, three options are presented for consideration:

Option 1 – No increase to the OVDEU rate for services (Not recommended)

Under the “status quo” option, the rate would not change from the 2015 rate.

The OVDEU is in its early days of operation, and as a result the utility (electricity and natural gas), operation and maintenance costs are still largely based on projections of the original financial model. Variation from the model will affect the long term performance of the OVDEU. For example, the revenue may vary from the projected revenue in the financial model depending on the speed of development and occupancy. The financial model of the OVDEU has taken into consideration modest rate increases similar to projected increase rates for conventional energy. A status quo approach would have a negative impact on the financial performance of the OVDEU and could affect LIEC’s business model.

Option 2 – 2% increase to OVDEU rate for services (Not recommended)

A 2% increase would only partially cover the estimated utility (electricity and natural gas), operation and maintenance cost increases. At this stage, the OVDEU relies on natural gas to provide energy services to customers and therefore natural gas cost takes a considerable portion of OVDEU expenses. This rate increase is also below the projected increase used in the OVDEU financial model. Hence, an increase of only 2% would have a negative impact on the financial performance of the OVDEU and could affect LIEC’s business model.

Option 3 – 4% increase to OVDEU rate for services (Recommended)

The proposed 4% rate increase under this option follows the OVDEU financial model and is below the estimated business as usual (BAU) rates increase that the customers would pay based on projected conventional utility costs, which are 6% and 5.4% respectively for electricity and natural gas.

The OVDEU financial model and LIEC business model follows the principle of full cost recovery. To mitigate potential financial risks, it is recommended that the City follow the financial model as much as possible in the early years of the utility operation and annually adjust the rates as per the model. As the utility collects more actual data about the connected buildings’ energy loads and consumption, operation and maintenance costs, the model will be continuously updated and the annual rate adjustment may follow closer year to year financial indicators, to ensure that the business is sustainable, economically viable and beneficial for LIEC and its customers.

These options are displayed in Table 1.

Table 1: Proposed Rates for Services

	2015	2016		
		Option 1 0% Increase	Option 2 2% Increase	Option 3 4% Increase
Capacity Charge	\$0.0458	\$0.0458	\$0.0467	\$0.0476
- monthly charge per square foot of the building gross floor area				
Volumetric Charge	\$28.20	\$28.20	\$28.764	\$29.328
- charge per megawatt hour of energy consumed by the building				

The LIEC is a service provider appointed by Council to provide energy services to OVDEU customers on behalf of the City. City Council is the regulator and the rate setting body for the OVDEU service area. In accordance with this structure, LIEC staff have prepared the above rate analysis, and the LIEC Board of Directors has reviewed and approved the recommended 2016 OVDEU rate for services (Attachment No.1).

Proposed Expansion of the Service Area

When the project was initiated, the service area included all the active developments, entailing a range of mixed-use or multi-family residential buildings. As presented to Council in 2014, staff would bring proposals to Council for the expansion of the service area boundary, as new developments take place in the vicinity of the current service area. Two new developments adjacent to the existing service area are now in the active stage of development (Attachment No. 2), shown in Table 2 below. The information from this table is preliminary and subject to change.

Table 2: New Developments Bordering the Current Service Area

Development	Address	Size/Type	Application Process
Hallmark Holdings	7811 Alderbridge Way	35,800 m ²	Rezoning
Xpec Elmbridge Holdings	7100 Elmbridge Way	24,900 m ²	Development Permit

Further to the LIEC being the OVDEU service provider, LIEC staff have assessed the economy and technical feasibility of connecting the two new developments to the OVDEU system. In order to leverage economies of scale and realize the long-term social, economic and environmental benefits of district energy, expansion to service new developments is a key opportunity. Benefits of scale in this scenario relate to:

- Spreading the capital costs over a larger customer base
- Maximizing potential for introducing waste heat as an energy source

- Maintain low rates to OVDEU customers
- Reducing greenhouse gas emissions

The LIEC Board of Directors has reviewed the expansion potential and recommends that these two new developments are included in the OVDEU service area.

Proposed Housekeeping Amendment to Bylaw

Staff propose to replace the currently used term "Services Agreement" in the Bylaw with the term "Energy Services Agreement." The purpose of this housekeeping amendment is to place the Oval Village District Energy Bylaw No. 9134 within the district energy context, as the term "services agreement" is also used in documents related to other City infrastructure: sanitary, water and storm. Another benefit is that the amendment will bring the terminology more in line with the Concession Agreement with Corix Utilities.

Financial Impact

None at this time.

Conclusion

The recommended 4% increase (Option 3) for the 2016 OVDEU service rate supports Council's objective to keep the annual energy costs for OVDEU customers competitive with conventional energy costs, based on the same level of service. As a comparison to conventional system energy costs, the proposed 4% rate increase is below the estimated rates increase by BC Hydro and Fortis. At the same time, the proposed rate ensures cost recovery of the capital and operating costs, and that the OVDEU business is cost neutral over time for the City of Richmond's residents. Staff will continuously monitor energy costs and review the rate to ensure rate fairness for the consumers and cost recovery for the City.

For: 

Doru Lazar, MBA, P.Eng., PMP
Senior Project Manager
(604-204-8695)



Alen Postolka, P.Eng., CP, CEM
District Energy Manager
(604-276-4283)

DL:dl

Att. 1: Oval Village District Energy Utility Bylaw No. 9134, Amendment Bylaw No. 9299
Att. 2: Proposed Expansion of the Service Area



**Oval Village District Energy Utility Bylaw No. 9134
Amendment Bylaw No. 9299**

The Council of the City of Richmond enacts as follows:

1. The **Oval Village District Energy Utility Bylaw No. 9134** is amended by deleting **Schedule A (Boundaries of Service Area)** of the Bylaw in its entirety and replacing it with a new Schedule A as attached as Schedule A to this Amendment Bylaw.
2. The **Oval Village District Energy Utility Bylaw No. 9134** is amended in **Schedule B General Terms and Conditions** as follows:
 - (a) by deleting in its entirety the existing Section 1.1(aa) containing the defined term "Services Agreement";
 - (b) by adding a new Section 1.1(p) to read as follows:

1.1(p) "Energy Services Agreement" has the meaning given in Section 3.1 of these General Terms and Conditions;
 - (c) by re-numbering all sub-sections in Section 1.1 as necessary so that they maintain sequential numerical order;
 - (d) by replacing the capitalized term "Services Agreement" with the new defined term "Energy Services Agreement" in each instance the capitalized term "Services Agreement" is used in **Schedule B** of the **Oval Village District Energy Utility Bylaw No. 9134**, namely in the following Sections:

Section 2.2

Section 3.1

Section 3.2

Section 3.3

Section 3.4

Section 7.1

Section 11.1

Section 11.6

Section 12.3

Section 12.7

Section 16.1
 Section 16.2
 Section 16.3
 Section 19.9
 Section 21.3
 Section 21.5
 Section 21.6

(e) by revising the heading to Part 16 so that it reads as follows:

PART 16: TERMINATION OF ENERGY SERVICES AGREEMENT

(f) by deleting **Schedule D (Rates and Charges)** of the Bylaw in its entirety and replacing it with a new Schedule D as attached as Schedule B to this Amendment Bylaw.

3. This Bylaw is cited as "**Oval Village Energy Utility Bylaw No. 9134, Amendment Bylaw No. 9299**".

FIRST READING

SECOND READING

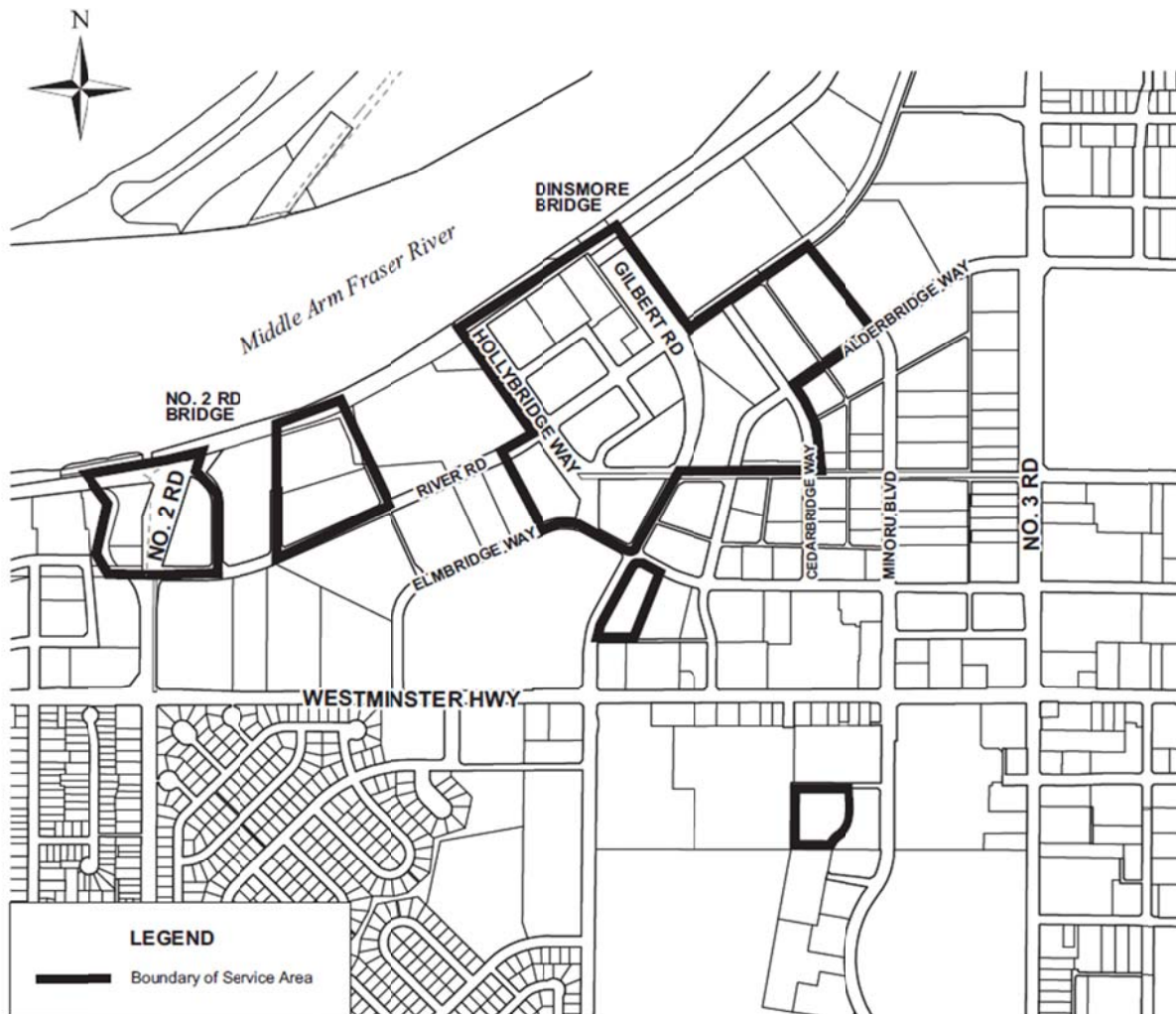
THIRD READING

ADOPTED

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

 MAYOR

 CORPORATE OFFICER

Schedule A to Amendment Bylaw No. 9299**SCHEDULE A****Boundaries of Service Area**

Schedule B to Amendment Bylaw No. 9299**SCHEDULE D****Rates and Charges****PART 1 - RATES FOR SERVICES**

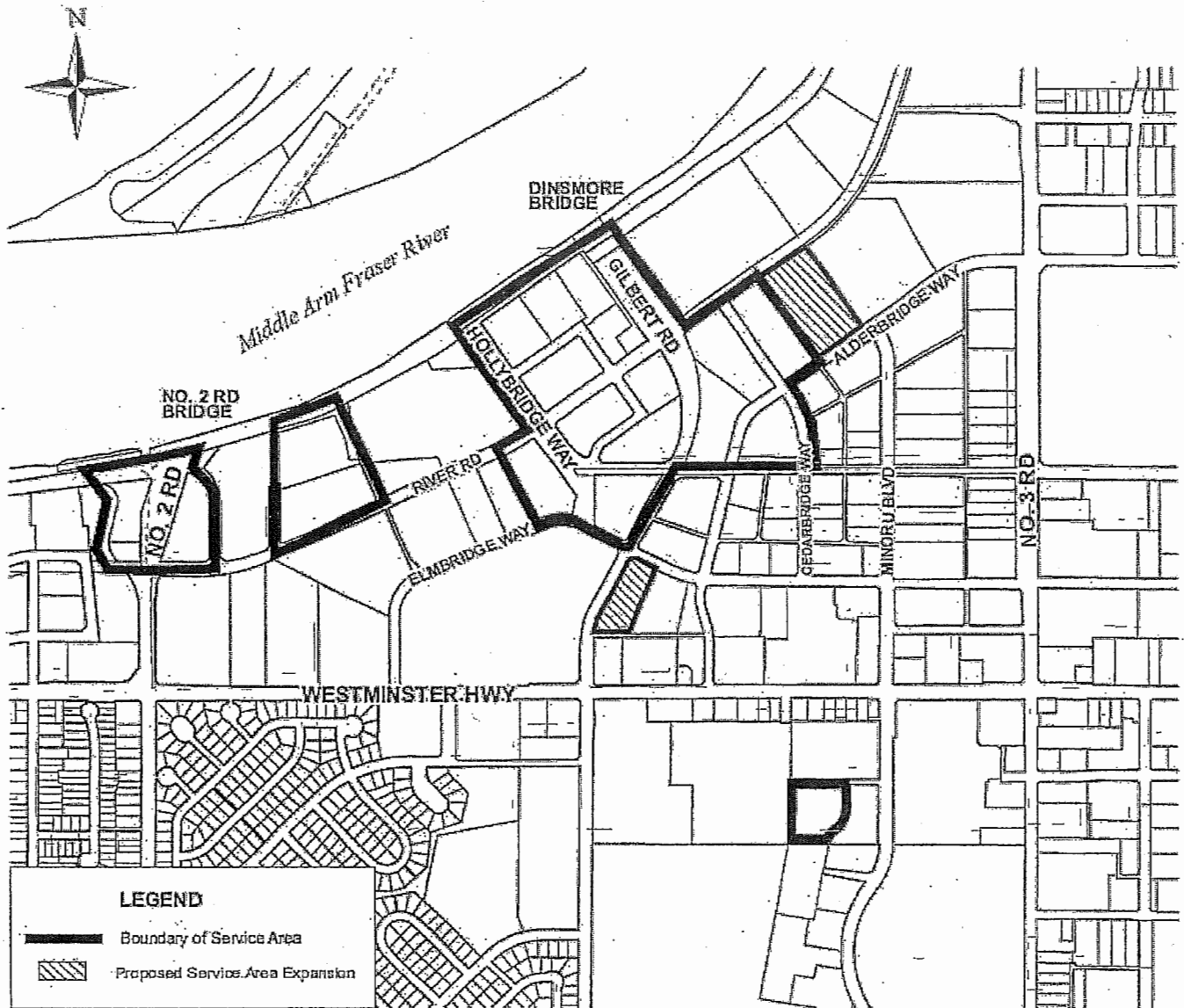
The following charges, as amended from time to time, will constitute the Rates for Services:

- (a) capacity charge - a monthly charge of \$0.0476 per square foot of gross floor area;
and
- (b) volumetric charge – a monthly charge of \$29.328 per megawatt hour of Energy
returned from the Heat Exchanger and Meter Set at the Designated Property.

PART 2 - EXCESS DEMAND FEE

Excess demand fee of \$0.14 for each watt per square foot of the aggregate of the estimated peak heat energy demand referred to in section 19.1(e) (i), (ii), and (iii) that exceeds 6 watts per square foot.

Attachment No.2-Proposed Expansion of the Oval Village Service Area





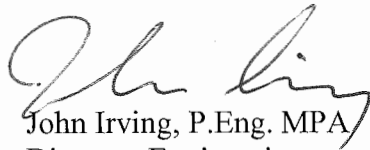
City of Richmond



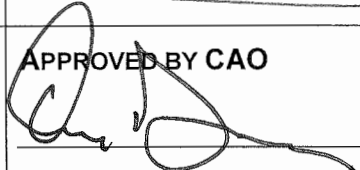
Report to Committee

To: Public Works and Transportation Committee
From: John Irving, P.Eng. MPA
Director, Engineering
Date: October 5, 2015
File: 10-6125-07-02/2015-
Vol 01
Re: Small and Medium Enterprise Greenhouse Gas Management Program

Staff Recommendation

That the development and implementation of a Greenhouse Gas Management program for small and medium enterprises be endorsed.


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

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

Staff Report

Origin

This report proposes that a Greenhouse Gas (GHG) Management program for small and medium enterprises (SMEs) be endorsed.

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

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

4.2. Innovative projects and initiatives to advance sustainability.

Background

Richmond's 2041 OCP includes aggressive targets to reduce the community's energy use 10 per cent by 2020, and to reduce community GHG emissions 33 per cent by 2020 and 80 per cent by 2050. The 2014 Community Energy and Emissions Plan (CEEP) identifies that business operations account for more than 33 per cent of community emissions. Accordingly, the CEEP commits Richmond to a variety of strategies to reduce business emissions, including:

Strategy 8: Encourage Energy Efficient Businesses

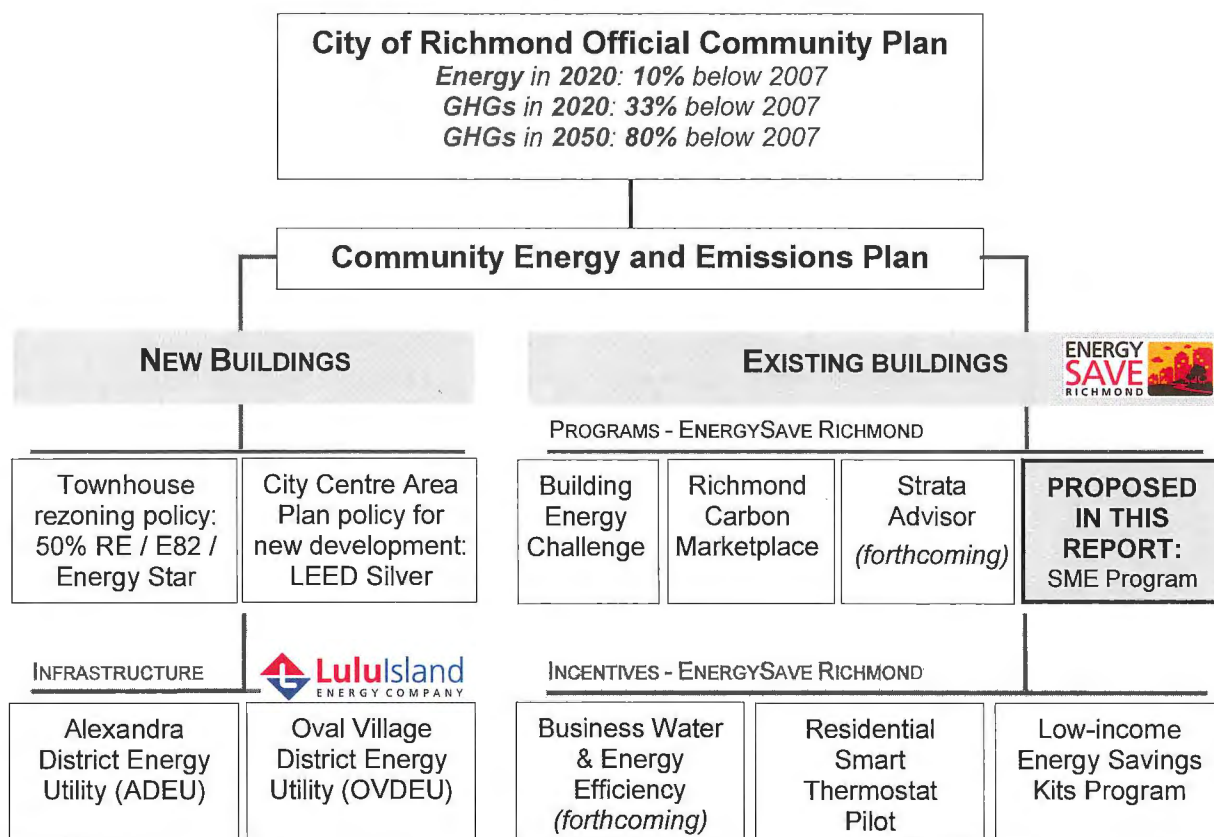
Strategy 3: Improve the Performance of the Existing Building Stock

Strategy 6: Facilitate Changes in Transportation Behaviour and Mode Choice

Additionally, as a signatory to the Climate Action Charter, the City has committed to being "carbon neutral" in its corporate operations. Carbon neutrality is achieved by reducing emissions, and balancing remaining emissions with carbon credits. The Joint Provincial-UBCM Green Communities Committee has established protocols for how local governments can generate carbon balancing credits by supporting energy projects in their communities.

Analysis

The City has established "EnergySave Richmond" as an umbrella initiative, encompassing multiple different city energy programs that support strategies in the CEEP. Active EnergySave programs can be reviewed by visiting www.energy.richmond.ca. EnergySave Richmond is also used as a vehicle to promote programs offered by BC Hydro, FortisBC, Metro Vancouver and other organizations providing solutions that can reduce energy spending and emissions for Richmond's households and businesses. The figure below illustrates elements of Richmond's climate and energy actions, including EnergySave programs.



Current Status of Existing Programs

Staff are preparing a Community Energy and Emissions Plan Update that will include updated information on the EnergySave programs and incentives noted above. The following briefly describes the current status of these initiatives:

- Building Energy Challenge:** Launched in December 2014, the Challenge is a friendly competition between building operations managers to reduce annual energy use. Program participants managing over 5 million square feet of Richmond building space are now registered, and 3 energy management workshops have been provided for participants.
- Richmond Carbon Marketplace (RCM):** This pilot program encourages Richmond organizations to increase their investment in improved energy efficiency and reduced GHG emissions by providing project support and financial incentives in exchange for carbon offsets. Local GHG “offsets” achieved through this program will be eligible for use by the City to reduce the City’s own corporate GHG emissions footprint.
- Residential Smart Thermostat Pilot:** In July 2015, the City launched its pilot Smart Thermostat incentive program, and will continue to receive application to the program until November 2015.

- **Low-income Energy Savings Kits Program:** The Low-Income Energy Savings Kits Program is offered by BC Hydro and FortisBC. Staff have promoted the program at multiple community events, workshops for key stakeholder organizations, and conducted a mailing campaign to promote the program. BC Hydro notes increased participation in Richmond associated with these efforts.
- **Business Water and Energy Efficiency Program:** This program will provide water and energy saving fixtures free of charge to businesses. Staff are in the process of launching the program and securing a funding agreement with a major utility
- **Strata Energy Advisor:** This program will provide advising services to multifamily stratas considering energy improvements in Richmond. Staff are working with regional stakeholders to ensure alignment with other programs before launching the program locally.

Related Past City Programs

In 2013, the City of Richmond partnered with Climate Smart to deliver a Program for 11 Richmond-based businesses on a 1-year pilot basis. Climate Smart is a BC social enterprise with the purpose of enabling small- and medium-sized enterprises (SMEs) to reduce their GHG emissions while cutting costs and fulfilling their corporate social responsibility objectives. The average projected operating costs savings to businesses per tonne of CO₂e identified through the Climate Smart program is approximately \$400. Businesses that participate with Climate Smart for multiple years average a 9.6 per cent reduction in GHG emissions by their third year of participation.

Climate Smart's services have also been offered to regional businesses through Metro Vancouver. Metro Vancouver is currently engaging Climate Smart to design a GHG management program that may be offered across the region, anticipated for late 2016 or 2017.

In June 2015, Council approved a Business Water & Energy Efficiency program. This program focuses on directly installing water and energy efficient fixtures in businesses. The broader program proposed in this report will complement this more specific direct install program and will be engaging the same target audience.

Proposed New Program for Small and Medium Enterprises

This report proposes to implement the first year of a multi-year GHG management program targeted at Richmond SMEs. The program will assist SMEs:

- **Measure emissions.** Emissions will be measured from a range of sources, which may include facilities, vehicle fleets, waste, material consumption, employee commuting and other sources.
- **Identify emissions reduction opportunities.** Based on businesses inventory of emissions and known opportunities for their sectors, the program will identify useful emissions reductions opportunities. This will include referring businesses to utility programs, government programs, and other emissions reduction services.

- **Implement emissions reductions projects.** The program will provide capacity building and support for organizations undertaking emissions reduction projects.
- **Communicate and leverage successes.** The program will provide guidance on how organizations can promote their emissions reduction successes.

Staff shall explore opportunities to secure ownership of the credits generated through this program as part of efforts to continue to meet the City's carbon neutral commitments. It is intended that participating businesses shall commit emission reduction credits resulting from the proposed program to the City, up to the value of the annual incentive provided by the City for that firm.

The City will work with Metro Vancouver, utilities, and other stakeholders to align its programming with other services offered in the region. This will provide for a simpler, more user-friendly experience for participating SMEs.


Financial Impact

Staff estimate that up to \$40,000 will be required to fund the first year of the program, sufficient to support the participation of 15-20 Richmond-based companies over the coming year. These funds can be drawn from the City's Carbon Neutral Provisions Fund, which is earmarked for emission reduction activities. Participating businesses are expected to contribute an average of \$1500 annually by way of membership fees proportionate to each firm's size. The energy savings and GHG reduction benefits of participating in the initiative are projected to result in significant net cost savings for participating companies: Climate Smart reports that businesses have achieved an average of \$11,000 in annual energy savings¹ from participating in their program. This new initiative will also result in reduced community emissions, and the potential for additional GHG reductions suitable for sale to the City through the Richmond Carbon Marketplace initiative.

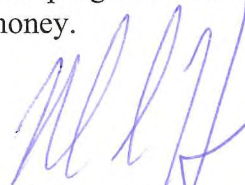
Program support for future years will be brought forward as part of the 2016 operating budget, at which time staff expects greater clarity regarding opportunities to coordinate with the proposed Metro Vancouver initiative.

Conclusion

This report proposes that the City support a GHG management program for small and medium enterprises to reduce GHG emissions and save businesses money.



Brendan McEwen
Sustainability Manager
(604-247-4676)



Nicholas Heap
Sustainability Project Manager
(604-783-4267)

¹ Savings for individual companies range from \$0 to more than \$100,000 per year.



City of Richmond

Report to Committee

To: Public Works and Transportation Committee **Date:** October 2, 2015
From: Tom Stewart, ASCT.
Director, Public Works Operations **File:** 10-6370-01/2013-Vol
01
Re: **Management of Waste and Recyclable Materials from Demolition Activities**

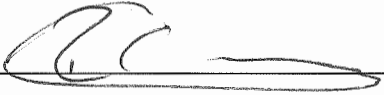

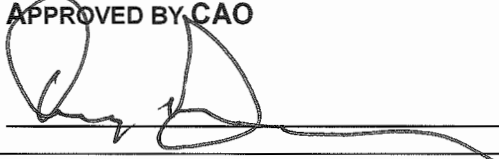
Staff Recommendation

That:

1. staff prepare a Demolition Waste and Recyclable Materials Bylaw which establishes the following requirements for management of waste from single-family home demolitions:
 - a. achieve a minimum of 70% diversion of demolition waste, and
 - b. establish a \$250 non-refundable fee assessed as part of the demolition permit application process, and
 - c. establish a \$2/square foot refundable fee, based on demolition waste recycling performance, and
 - d. require that demolition contractors/builders submit a Waste Disposal and Recycling Services Plan as part of their demolition permit application, and a Compliance Report at the conclusion of the demolition process.
2. a new Building Inspector 1 position be approved and a position complement control number assigned; and
3. this program be considered as part of the 2016 Operating Budget process.

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

Att. 2

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

Staff Report

Origin

At their April 18, 2007 meeting, Public Works and Transportation Committee passed the following referral motion:

That the matter of requiring the submission of a demolition waste recycling plan as a requirement of the issuance of demolition permits be referred to staff for review and comment to the Committee on the feasibility of the proposal.

In addition, at their March 3, 2015 meeting, Planning Committee passed the following referral motion, in part, per Item (4):

That staff: . . . (4) examine options to restructure demolition fees and regulate the recycling of demolition material; and report back.

This matter has been pending subject to actions at the regional level relating to the development of the Integrated Solid Waste and Resource Management Plan (ISWRMP), which includes an action item (2.4.1) that requires demolition recycling at construction/demolition sites. In addition, the region has been working to establish some consistency through the development of a model bylaw that could be tailored and implemented by local governments as well as help foster development of facilities for processing waste and using recycled products from demolitions. In addition, a clean wood waste disposal ban at regional facilities was implemented in January 2015. These are among many action items identified in the ISWRMP that will be necessary to reach regional waste diversion targets of 70% by 2015 and 80% by 2020.

The regulatory authority to require recycling at demolition sites rests with local governments. To assist with this, the model/suggested bylaw approach developed by Metro Vancouver was used by Richmond staff to spearhead consultation with Richmond's Small Builders Group. The consultation process included undertaking a pilot project to compare current practices against a varying range of options for increased recycling.

This report presents the results of the consultation process and pilot project, and recommends development of a bylaw to require recycling of demolition waste from single-family home demolitions.

Analysis

Background

Based on 2013 Metro Vancouver recycling and solid waste quantity data, demolition, landclearing and construction (DLC) waste accounts for 30% of total waste disposed in the region, or approximately 392,000 tonnes. The majority of the disposed waste is made up of wood waste and mineral aggregates (rubble, soil, asphalt products, concrete and stucco, etc.). The balance includes metals, plastics, organics, glass and hazardous waste. Past waste composition studies for Metro Vancouver indicate that over 55% of DLC waste is from single-family residential demolition. Diversion rates are lowest for single-family residential

demolitions, compared to demolitions of multi-family residential or non-residential structures. The most impactful initiative, therefore, would be one that targets single-family residential home demolitions.

Over 510 demolition permits are issued on average annually in Richmond based on five year trend data. A summary of demolition permit activity over the last five years is provided below for information:

2010: 558
2011: 653
2012: 492
2013: 332
2014: 521

In 2010, Richmond's demolition permit activity represented approximately 20% of that across the region. Based on disposal tonnages at the Vancouver Landfill in 2012 and 2013, it is estimated that 70,000 tonnes of demolition waste disposed of from projects in the region originates in Richmond. Collectively, demolitions in the four largest municipalities (Richmond, Vancouver, Surrey and Burnaby) represent about 70% of the demolition activity happening across the region. It is expected that up to 80% of waste from demolition, land clearing and construction activities can be captured for recycling to help advance the region's diversion goals.

In light of the significant proportion of demolition waste originating from Richmond, actions to promote recycling of demolition waste are an important consideration to support established regional waste diversion targets. This includes initiatives that are both corporate and community based.

Corporate Action

As an initial step and as part of leading by example, Council adopted Policy 2308 at their June 23, 2014 meeting (Attachment 1). This policy establishes a target of 80% diversion for waste from City facilities-based projects, including demolition and construction activities. This policy is administered by the Project Development section of the Engineering and Public Works Division.

Community Action

Pilot Program Results

To establish an effective approach to promote recycling at the community level, consultation with Richmond's Small Builders Group was undertaken. The scope included waste from single-family home demolitions, based on Metro Vancouver's findings, which indicate that the majority of material sent to disposal facilities is from this sector. Construction waste and that from demolitions of multi-family residential or non-residential structures are not targeted at this time based on low demolition waste volumes from these sectors. In construction, this is principally due to economic reasons. Current industry practices relating to management of demolition waste from multi-family and non-residential structures is already at an advanced stage.

The consultation process with Richmond's Small Builders Group included seeking their input on Metro Vancouver's model bylaw as well as undertaking a pilot project in the spring of 2014. The pilot project involved testing four different recycling options at properties in Richmond to assess:

1. *Steady State*: To gain an understanding of current practices for demolition of single-family homes and diversion rates achieved.
2. *Maximum Recycling*: Use a deconstruction approach to determine maximum achievable diversion rates.
3. *Accelerated Recycling*: Aim to achieve at least a 70% diversion rate by recovering some specific materials that are not generally sorted and recovered on typical demolition projects.
4. *Mixed Loads to Recycling Facility*: An approach where normal demolition waste practices are followed with remaining waste taken to a demolition waste recycling facility. This approach is very similar to the current practise where mixed demolition materials are loaded onto a truck. However, instead of being hauled to a landfill, the materials are taken to a designated facility where materials are sorted for recycling.

Four similar-styled single family homes located in Richmond were selected for this pilot program at 9431, 9451, 9471 and 9491 Williams Road.

The results of the pilot project are summarized in the following table. This project showed that diversion rates of up to 90% can be achieved, with low to moderate time and cost impacts.

Spring, 2014: Single-family Home Demolition Recycling Pilot Initiative				
Address:	9491 Williams	9431 Williams	9451 Williams	9471 Williams
Objective	Steady State	Maximum Recycling	Accelerated Recycling	Mixed Loads to Recycling Facility
Recycling Activity Location	On Site	On Site	On Site	Off Site (mixed loads separated for recycling)
Materials Recycled¹	<ul style="list-style-type: none"> Concrete Metals 	<ul style="list-style-type: none"> Clean wood Concrete Clean drywall Metals Mattress Asphalt 	<ul style="list-style-type: none"> Trees Concrete Metals 	<ul style="list-style-type: none"> Clean wood Trees Concrete Clean drywall
Total Cost (\$) <i>(excludes hazardous materials)</i>	\$ 13,548.45	\$ 18,236.21	\$ 13,916.20	\$ 21,115.81
Total Cost per ft² <i>(excludes hazardous materials)</i>	\$ 6.86	\$ 9.36	\$ 5.14	\$ 7.01
Cost Variance Compared to Steady State <i>(per ft²)</i>	0%	+ 36%	N/A	+2.18%
Diversion Rate	51.6%	90.1%	54.3%	89.4%
Duration (work days)	3	10	5	4

¹ Hazardous materials were managed separately for each site based on WorkSafe BC Occupational Health and Safety Regulation Part 20

Receiving Facilities

There are a number of licensed facilities in Richmond and the region that are able to accept demolition waste. These facilities are outlined in Attachment 2.

One potential concern with implementing initiatives designed to increase recycling is that existing facilities may not be able to manage increasing waste volumes (as other communities follow suit). This has been discussed at the regional level, where it is recognized that this is a supply and demand issue. As with past recycling initiatives, there is confidence that as demand for recycling services for demolition waste increases, the business opportunity will drive new facilities and increased market capacity. As it stands, there is considered to be sufficient recycling capacity to manage increased recycling volumes from a Richmond-based bylaw approach.

Approaches in Other Cities

1. The City of Vancouver introduced the following as a condition of receiving a building permit effective September, 2014:
 - 90% waste diversion from demolitions involving pre 1940's character homes, and
 - 75% recycling of other pre 1940's homes.
2. The City of Port Moody has a demolition waste management/recycling fee (set by bylaw) that is refundable based on recycling performance if at least 70% diversion is achieved.
3. The City of North Vancouver has a Council endorsed policy that requires recycling of specified materials.
4. The District of West Vancouver requires the owner to sign a notarized statutory declaration listing where material has been taken for recycling.
5. The City of New Westminster undertook a pilot program in 2015 as part of seeking consultation on the proposed Metro Vancouver bylaw that directs 100% of loads containing recyclable materials to recycling facilities.

Options

The following three options are presented for Council's consideration in relation to demolition waste recycling:

1. *Adopt Metro Vancouver Model Bylaw:*

The Metro Vancouver model bylaw would direct all source-separated or mixed loads containing recyclable materials from demolition projects to approved recycling facilities, including private facilities licensed by Metro Vancouver. The Metro Vancouver model bylaw establishes a structure where no non-refundable fees are paid. Instead, proponents pay a fee (established by the local government) which is refundable based on their recycling performance. In other words, if 100% waste diversion is achieved, they receive 100% of their fee back. If 80% diversion is achieved, they receive 80% of their fee back.

Local governments set their refundable fees at a level where forfeited fees cover administration costs and other costs associated with demolition waste management.

This option was reviewed with Richmond's Small Builders Group and was considered to be too difficult to achieve as a starting point. Discussion and preference was to establish what would still be a stretch target for industry at the outset, gradually increasing as industry practices mature. Therefore, this option is not recommended.

2. *Retain Status Quo:*

As per the findings from the pilot program, industry is already recycling just over one-half of waste (~51.6%) based on current practices including waste disposal bans and prohibitions, economies of scale, etc. Under this option, Council would take a hands-off approach and allow the industry to mature independent of any additional requirements or regulations placed on builders by the City.

This option is not recommended as it does not give the catalyst that might otherwise be needed to further waste diversion to advance the targets in the ISWRMP.

3. *Adopt a Richmond-Specific Bylaw Approach (RECOMMENDED):*

After considering the results of the pilot program and receiving input from the Small Builders Group, another option is to develop a bylaw/policy approach specific to Richmond. Under this option, a stretch target of 70% would initially be established, increasing to 80% over time as industry practices mature. Builders would pay an upfront, non-refundable fee (to cover additional administration costs), plus a fee which is 100% refundable if the 70% waste diversion target is achieved.

This is the recommended option as it will help advance demolition waste recycling and create a level playing field for builders. This option was supported by Richmond's Small Builders Group.

In reviewing both the Metro Vancouver model bylaw and the results of the pilot project with Richmond's Small Builders Group, the following key elements were developed:

- A bylaw requirement to achieve a minimum of 70% diversion of demolition waste from single-family home demolitions. As industry practices mature, the minimum diversion rate can be increased to 80%;
- A \$250 non-refundable fee assessed as part of the demolition permit application process, collected as Building Approval revenue. This fee will be retained to support an additional Building Inspector position that will be required to administer the project.
- A \$2/square foot refundable fee. The fee is refundable based on recycling performance achieved, i.e. $x/70$. For example, if 70% waste diversion is achieved, the entire fee is fully refunded. The amount of the refund is reduced proportionately if waste diversion is less than 70%. Based on an average of 510 permits issued

annually and an average single-family demolition of 2,000 square feet, annual Building Approval revenue would be \$2.04 million. It is assumed that all of this amount would be refunded, for no net budgetary impact.

- The bylaw and program is to be fully administered by the Building Approvals group.
- Demolition contractors/builders will be required to complete a Waste Disposal and Recycling Services Plan and pay the applicable fees as part of their demolition permit application. At the conclusion of the demolition, the contractor must submit a compliance report, with supporting receipts attached for review by the City. Compliance reports are reviewed by the City for accuracy/completeness and appropriate refundable fees applied based on recycling performance.

Under the proposed approach, it is estimated that 10% of total regional demolition waste could be diverted (50%-70% of 70,000 tonnes = 35,000 to 49,000 tonnes/392,000). This corresponds to the diversion of about 3% of the overall regional waste going to disposal (35,000 to 49,000 tonnes/1,328,000 tonnes). When considered against overall total regional waste generation (including recycling) of 3,348,000 tonnes, the estimated diversion of 35,000-49,000 tonnes from this initiative would represent one percentage point closer to the regional diversion goal of 80% by 2020.

Resource Requirements

Staff note that a new position for a Building Inspector to administer this program is required due to the added workload. Generally, three hours per permit is required at the commencement of the program, or one full time equivalent for every 500 permits. Once the program is established, the required processing time reduces to two hours per permit. Based on this range and the average number of demolition permits issued by the City annually (approximately 510) as well as the expectation that future demolition permit activity will be higher, it is estimated that one new full-time equivalent position will be required. Staff, therefore, are seeking approval for a new full time building inspector position as part of this initiative.

Next Steps

Should Council support the recommended approach, staff would recommend that a Demolition Waste and Recyclable Materials Bylaw be prepared and brought to Council for consideration. Staff envision the new requirements coming into effect in the first quarter of 2016 to allow industry sufficient notice and time to adapt their practices.

Financial Impact

The cost for a building inspector is \$115,220, including fringe, fleet vehicle and related items. Full cost recovery for this additional resource will be recovered as part of the proposed \$250 demolition waste permit fee, for no net budgetary impact, i.e., the estimated revenue from the demolition waste permit fee is \$127,500, based on issuing an average of 510 permits.

The above expenditure amounts and offsetting revenues will be included in the 2016 budget process, for consideration.

Conclusion

Development of a process to require demolition recycling is a key initiative identified in the Regional Integrated Solid Waste and Resource Management Plan. After consultation with Richmond's Small Builders Group, staff are recommending support for development of a Richmond-specific bylaw to require 70% waste diversion for demolition of residential single-family homes, commencing in 2016.



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- Att. 1: Policy 2308 – Management of Waste and Recyclable Materials from City Facilities
Demolition and Construction Activities
2: Demolition Waste, Recycling and Disposal Facilities at and Near Richmond



**City of
Richmond**

Policy Manual

Page 1 of 1	Adopted by Council: June 23, 2014	Policy 2308
File Ref: 6370-00	MANAGEMENT OF WASTE AND RECYCLABLE MATERIALS FROM CITY FACILITIES DEMOLITION AND CONSTRUCTION ACTIVITIES	

POLICY 2308:

It is Council policy that:

1. TARGETS

- 1.1 The City of Richmond will target a diversion rate of 80% by weight for the demolition of City facilities houses, new facility construction, and major facility renovations, recognizing that in some instances it will not be feasible to achieve this target in a fiscally prudent manner.

2. OBJECTIVE

The City of Richmond will:

- 2.1 Continue to increase the reuse and recycling of demolition, land clearing and construction (DLC) waste from City facilities.
- (a) Require contractors to provide a Waste Disposal and Recycling Services Plan for demolition and construction projects.
 - (i) Require contractors to provide a Compliance Report, documenting adherence to the Plan.
 - (b) Prioritize the salvage of building components for reuse, then recycling, and finally other waste diversion and disposal technologies, whenever technically feasible and fiscally prudent.
 - (c) Encourage contractors to recycle and/or salvage for reuse wood especially, to help build markets for wood waste diversion, and avoid disposal.
 - (i) Require that all clean/untreated wood waste be reused or recycled.
- 2.2 Seek to improve DLC waste management practices in the demolition and waste management industries.
- (a) Document and share the City's DLC waste management practices with industry.
- 2.3 Ensure the demolition activities of City facilities shall comply with the applicable health and safety regulations.
- (a) Ensure a qualified person inspects the site to identify hazardous materials that may be handled, disturbed or removed.
 - (b) Ensure the City is provided the resulting hazardous materials report.

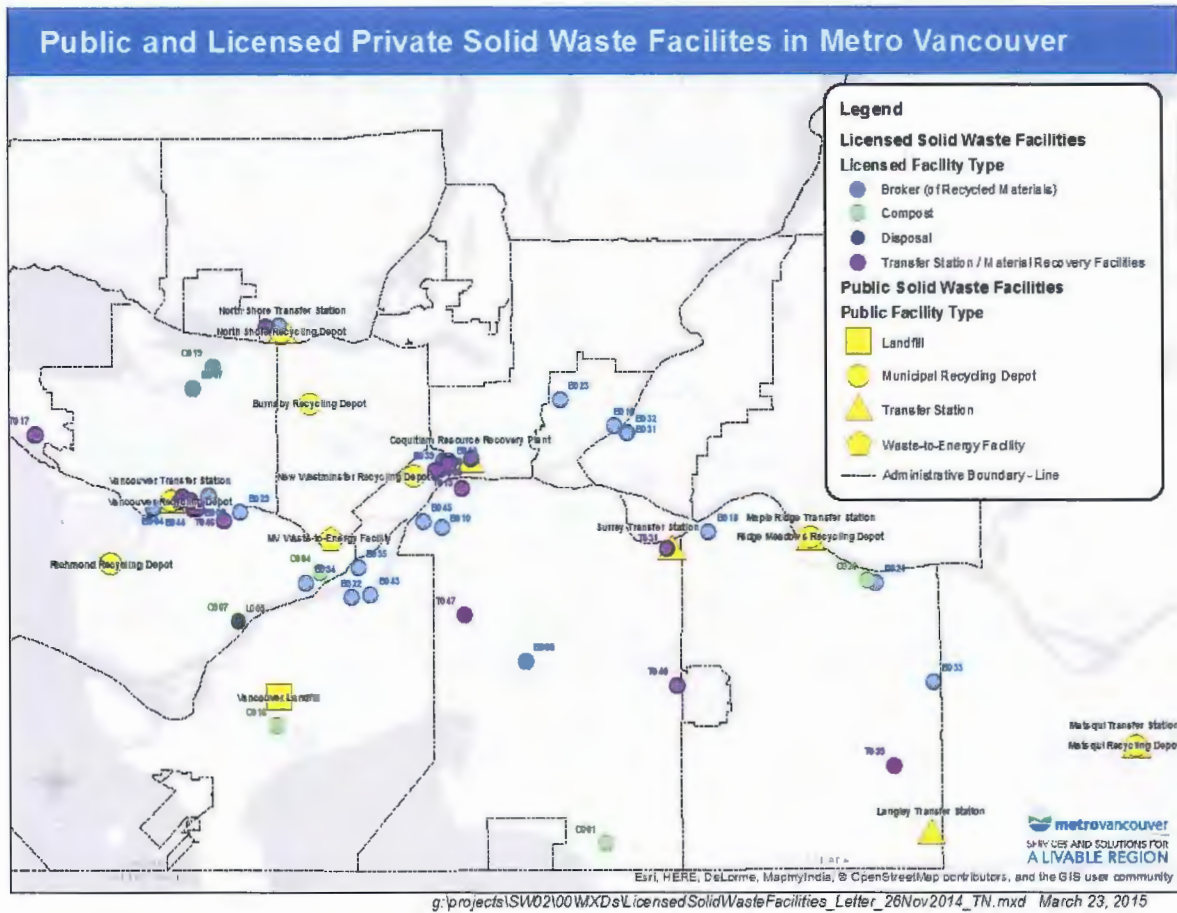
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Attachment 2

Demolition Waste, Recycling and Disposal Facilities At and Near Richmond

		Address	Issued	Status	Material
Licensed specific material brokers					
1	B008 New West Gypsum Recycling (B.C.) Inc	38 Vulcan St., New Westminster, BC	1997	Active	Gypsum drywall
2	B022 Basran Fuels Ltd.	9486 River Road, Delta, BC	2011	Active	Wood waste
3	B034 Lafarge Canada Inc.	7611 # 9 Road, Richmond, BC	2011	Active	
4	GRE Manufacturing Cdn. Inc	10064 River Road, Delta, BC	2013	Active	Glass
5	Stonewolf Ventures Ltd. (Tidy Trailers)	11571 Twigg Place, Richmond, BC	2013	Active	DLC Materials
Currently don't require a license (using specific recycled materials, used building material retailers)					
6	Lock Block	115-13171 Mitchell Road Richmond, BC			Concrete
7	Columbia Bitulithic Lafarge	13340 Mitchell Road, Richmond, BC			Concrete, asphalt
8	Richmond Steel	11760 Mitchell Road Richmond, BC			Metals
9	Ailed Salvage and Metals	11651 Twigg Pl, Richmond, BC			Metals
10	Mainland Sand and Gravel	- 12500 No 5 Rd, Richmond, BC - 14271 River Rd, Richmond, BC			Concrete, asphalt
11	Regional Recycling	13300 Vulcan Way, Richmond, BC			Cardboard, scrap metal
12	Richvan Holdings Ltd.	15300 River Rd, Richmond, BC			Concrete, asphalt
13	Fairway Disposal	11566 Twigg Place, Richmond, BC			Concrete, asphalt
14	Jack's New and Used	4912 Still Creek Ave, Burnaby, BC			Used building materials
15	Habitat for Humanity	7977 Enterprise Street, Burnaby, BC 69 West 69 th Avenue, Vancouver, BC			Used building materials
Licensed DLC MRFs, transfer stations, or landfills with recycling drop-off					
16	T001 Urban Wood Waste Recyclers Ltd.	110 East 69th Avenue, Vancouver, BC	1997	Active	Wood waste
17	T027 Urban Wood Waste Recyclers Ltd.	4 Spruce Street, New Westminster, BC	2003	Active	Wood waste
18	T003 726223 B.C. Ltd. (Waste-Away Disposal Services)	11560 Twigg Place, Richmond, BC	1996	Active	
19	T005 Inner-City Demolition Ltd.	11640 Twigg Place, Richmond, BC	1998	Active	Concrete, asphalt, cardboard, land clearing debris, plates, soap metal, wood, mixed construction waste
20	T045 (Mitchell Island MRF)	11611 Twigg Place, Richmond, BC	2007	Active	
21	Northwest Group Properties	460 East Kent Avenue South, Vancouver, BC	2013	Active	
22	Smithers Enterprises	8501 Ontario St, Vancouver, BC			
23	Pacific Carpet Recycling (PAC Recycling)	130 – 2351 No.6 Road, Richmond, BC	2014	Active	Used carpet
24	EcoWaste Industries	15111 Williams Rd, Richmond, BC	1997	Active	Wood, gypsum, drywall, metal
25	Vancouver South Transfer Station	377 West Kent Avenue North, Vancouver, BC			Wood
26	Vancouver Landfill	5400 72nd Street, Delta, BC			Drywall

Attachment 2 (cont'd)



Attachment 2 (cont'd)



Metro Vancouver Licensed Solid Waste and Recyclable Material Facilities

License	Licensed Name	Site Address	Issued	Status
B002	733166 B.C. Ltd. (Western Material Recovery)	11610 Twigg Pl., Richmond, BC	2000	Active
B003	Halton Recycling Ltd. (Emterra Environmental)	132 Riverside Dr., North Vancouver, BC	1997	Active
B004	Halton Recycling Ltd. (Emterra Environmental)	955 W. Kent N. Ave., Vancouver, BC	1997	Active
B005	Halton Recycling Ltd. (Emterra Environmental)	6362 -148th St., Surrey, BC	1997	Active
B008	New West Gypsum Recycling (B.C.) Inc.	38 Vulcan St., New Westminster, BC	1997	Active
B010	Cascades Recovery Inc.	12345 - 104 Ave., Surrey, BC	1997	Active
B013	Wastech Services Ltd.	1001 United Blvd., Coquitlam, BC	1997	Active
B016	Augustine Trucking Ltd.	1708 Perkins St., Port Coquitlam, BC	2001	Active
B018	Cloverdale Fuels Co. Ltd.	20408 - 102B Avenue, Langley, BC	2004	Active
B021	James Environmental Services	8910 - 256th Avenue, Langley, BC	2008	Active
B022	Basran Fuels Ltd.	9486 River Road, Delta, BC	2011	Active
B023	Happy Star's Recycling Services Ltd.	1603 Langan Ave., Port Coquitlam, BC	2009	Active
B029	Urban Impact Recycling Ltd.	15360 Knox Way, Richmond, BC	2010	Active
B031	Augustine Soil & Mulch Ltd.	17949 Kennedy Road, Pitt Meadows, BC	2011	Active
B032	Meadows Landscape Supply Ltd.	17949 Kennedy Road, Pitt Meadows, BC	2011	Active
B033	Recyc-Mattress Inc.	Unit 212 - 27353 58th Crescent, Langley, BC	2011	Active
B034	Lafarge Canada Inc.	7611 #9 Road, Richmond, BC	2011	Active
B035	Canadian Mattress Recycling Inc.	1210 Cliveden Avenue, Delta, BC	2011	Active
B039	Urban Impact Recycling Ltd.	5 Capilano Way, New Westminster, BC	2011	Active
B043	GRE Manufacturing Cdn. Inc.	10064 River Road, Delta, BC	2013	Active
B044	Stonewolf Ventures Ltd.	11571 Twigg Place, Richmond, BC	2013	Active
B045	International Material Recovery Inc.	10619 Timberland Road, Surrey, BC	2013	Active
B046	Pacific Mattress Recycling Inc.	8275 Sherbrooke Street, Vancouver, BC	2014	Active
B047	Recycling Alternative	449 Industrial Ave, Vancouver, BC	2014	Active
C001	Baird Cattle & Border Feedlot Corp.	17256 - 8th Ave., Surrey, BC	1997	Active
C004	Fraser Richmond Soil & Fibre Ltd.	End of No. 8 Rd., Richmond, BC	1997	Active
C007	Ecowaste Industries Ltd.	15111 Williams Rd., Richmond, BC	1997	Active
C016	Enviro-Smart Organics Ltd.	4295 72nd Street, Delta, BC	2011	Active
C019	Strathcona Business Improvement Association	1235 East Hasting Street, Vancouver, BC	2012	Active
C020	Glenval Organics Ltd.	25330 88th Avenue, Langley, BC	2013	Active
L005	Ecowaste Industries Ltd.	15111 Williams Rd., Richmond, BC	1997	Active
T001	Urban Wood Waste Recyclers Ltd.	110 East 69th Ave., Vancouver, BC	1997	Active
T003	726223 B.C. Ltd. (Waste-Away Disposal Services)	11560 Twigg Pl. Richmond, BC	1996	Active
T005	Inner-City Demolition Ltd.	11640 Twigg Pl. Richmond, BC	1998	Active
T009	Wastech Services Ltd.	1200 United Blvd., Coquitlam, BC	1997	Active
T013	Bright Sky Disposal Ltd.	12863 - 116 Ave., Surrey, BC	1998	Active
T015	King Kubota Services Ltd.	140 Mountain Hwy, North Vancouver, BC	1998	Active
T017	The University of British Columbia	6055 Nurseries Rd., Vancouver, BC	1999	Active
T027	Urban Wood Waste Recyclers Ltd.	4 Spruce Street, New Westminster, BC	2003	Active
T031	Wastech Services Ltd.	9770 - 192nd Street, Surrey, BC	2004	Active
T032	AWS Transport Ltd.	11 Braid Street, New Westminster, BC	2006	Active
T039	Cloverdale Disposal Ltd.	26116 31B Avenue, Langley, BC	2012	Active
T040	Northwest Group Properties Inc.	19500 - 56th Avenue, Surrey, BC	2012	Active
T041	Northwest Group Properties Inc.	460 East Kent Avenue South, Vancouver, BC	2013	Active
T042	Smithers Enterprises Inc.	8501 Ontario Street, Vancouver, BC	2013	Active
T043	Eagle Disposal Inc.	11611 Twigg Place, Richmond, BC	2013	Active
T044	Northwest Group Properties Inc.	460 East Kent Avenue South, Vancouver, BC	2014	Active
T046	Pacific Carpet Recycling (PAC Recycling)	130 - 2351 No. 6 Road, Richmond, BC	2014	Active
T047	Great West Disposal Inc.	7800 Anvil Way, Surrey, BC	2014	Active

as of June 1, 2015

Source: <http://www.metrovancouver.org/services/Permits-regulations-enforcement/PermitRegulationEnforcementPublications/ActiveSolidWasteLicenceList.pdf>