City of Richmond

Agenda

Public Works and Transportation Committee

Anderson Room, City Hall
6911 No. 3 Road

Wednesday, February 17, 2016
4:00 p.m.

Pg. # ITEM

MINUTES

PWT-5 ***Motion to adopt the minutes of the meeting of the Public Works and Transportation Committee held on January 20, 2016.***

NEXT COMMITTEE MEETING DATE

March 23, 2016, (tentative date) at 4:00 p.m. in the Anderson Room

PLANNING AND DEVELOPMENT DIVISION

1. **CITY OF RICHMOND-TRANSLINK TRAVELSMART PARTNERSHIP - UPDATE**
(File Ref. No. 01-0154-04) (REDMS No. 4793601 v. 4)

PWT-10 See Page **PWT-10** for full report

Designated Speakers: Victor Wei

STAFF RECOMMENDATION

(1) That staff continue to monitor the TransLink TravelSmart pilot program and relevant activities, as described in the staff report titled "City of Richmond-TransLink TravelSmart Partnership – Update," dated January 25, 2016, from the Director, Transportation, and report back on the results following their completion; and

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

2. **TRANSLINK SOUTHWEST AREA TRANSPORT PLAN – UPDATE ON ADVISORY COMMITTEES**
(File Ref. No. 01-0154-04) (REDMS No. 4902112)

PWT-15 See Page **PWT-15** for full report

Designated Speaker: Victor Wei

STAFF RECOMMENDATION

That the staff report providing an update on TransLink's Southwest Area Transport Plan, dated January 27, 2016, from the Director, Transportation, be received for information.

ENGINEERING AND PUBLIC WORKS DIVISION

3. **BYLAW AMENDMENTS TO IMPLEMENT REQUIREMENTS FOR RECYCLING FROM SINGLE-FAMILY HOME DEMOLITIONS**
(File Ref. No. 10-6370-01; 12-8060-20-009516/009522/009523) (REDMS No. 4893304)

PWT-24 See Page **PWT-24** for full report

Designated Speaker: Tom Stewart

STAFF RECOMMENDATION

That:

(1) Demolition Waste and Recyclable Materials Bylaw No. 9516;

(2) Consolidated Fees Bylaw No. 8636, Amendment Bylaw No. 9522; and

(3) Notice of Bylaw Violation Dispute Adjudication Bylaw No. 8122, Amendment Bylaw No. 9523;

each be introduced and given first, second and third readings.

4. **SEWER HEAT RECOVERY IN RICHMOND UPDATE**
(File Ref. No.) (REDMS No. 4912811 v. 2)

PWT-48 See Page **PWT-48** for full report

Designated Speaker: John Irving

STAFF RECOMMENDATION

(1) That the staff report titled "Sewer Heat Recovery in Richmond Update," dated January 18, 2016, from the Director, Engineering, be received for information;

(2) That the scope of work and budget for a Micro-Sewer Heat Recovery Study identified in the "Sewer Heat Recovery in Richmond Update," dated January 18, 2016, from the Director, Engineering, be approved with funding from the Carbon Tax Provision and included as an amendment to the Five Year Financial Plan (2016-2020) Bylaw;

(3) That the application to the Federation of Canadian Municipalities, for up to 50 percent of eligible costs to complete Micro-Sewer Heat Recovery Study, be endorsed; and

(4) That should the funding application be successful, the Chief Administrative Officer and the General Manager, Engineering and Public Works, be authorized to execute the agreement with the Federation of Canadian Municipalities on behalf of the City.

5. **SOLAR FRIENDLY RICHMOND FRAMEWORK**
(File Ref. No. 10-6125-07-02) (REDMS No. 4869774 v. 4)

PWT-53 See Page **PWT-53** for full report

Designated Speaker: Brendan McEwen

STAFF RECOMMENDATION

That the staff report titled "Solar Friendly Richmond Framework," dated January 28, 2016, from the Director, Engineering, be received for information.

6. **MANAGER'S REPORT**

ADJOURNMENT

City of Richmond

Minutes

Public Works and Transportation Committee

Date: Wednesday, January 20, 2016

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 November 18, 2015, be adopted as circulated.

CARRIED

NEXT COMMITTEE MEETING DATE

February 17, 2016, (tentative date) at 4:00 p.m. in the Anderson Room.

PLANNING AND DEVELOPMENT DIVISION

1. **RICHMOND ACTIVE TRANSPORTATION COMMITTEE – PROPOSED 2016 INITIATIVES**
(File Ref. No. 01-0100-20-RCYC1) (REDMS No. 4817866)

In reply to queries from the Committee, Victor Wei, Director, Transportation, provided the following information:

- staff will continue to work with the Richmond Active Transportation Committee (RATC) to sustain the growth in participation in Bike to Work Week;
- the number of cyclist accidents are being monitored and there has been a decline in the number of accidents; and
- staff will continue to work with the RATC and the RCMP to educate the public on bicycle safety and rules of the road.

It was moved and seconded

(1) That the proposed 2016 initiatives of the Richmond Active Transportation Committee, as outlined in the staff report titled "Richmond Active Transportation Committee - Proposed 2016 Initiatives," dated December 18, 2015, from the Director, Transportation, be endorsed; and

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

CARRIED

2. **TRAFFIC SAFETY ADVISORY COMMITTEE – PROPOSED 2016 INITIATIVES**
(File Ref. No. 01-0100-30-TSAD1-01) (REDMS No. 4816624)

In reply to queries from the Committee, Victor Wei, Director, Transportation, provided the following information:

- the installation of pedestrian zone markers in school zones are determined through input from school staff and area residents;
- analysis of vehicular speed and road geometry is undertaken upon receiving a request for the installation of pedestrian zone markers;
- there is regular contact with school administrators and they are aware of the opportunities to advise staff if they believe the installation of pedestrian zone markers are warranted.

The success of the pedestrian zone markers, in terms of pedestrian safety in the vicinity of schools, was noted.

In response to a question, Mr. Wei advised that the new traffic radar data collection units would be mounted on street light poles. The cost of each unit is $5,000 and the plan is to purchase eight units initially and to gradually purchase radar units to replace existing traffic counters.

It was moved and seconded

(1) That the proposed 2016 initiatives for the Traffic Safety Advisory Committee, as outlined in the staff report titled "Traffic Safety Advisory Committee - Proposed 2016 Initiatives," dated December 21, 2015, from the Director, Transportation, be endorsed; and

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

CARRIED

ENGINEERING AND PUBLIC WORKS DIVISION

3. **RICHMOND'S INVASIVE SPECIES ACTION PLAN**
(File Ref. No. 10-6160-07-01) (REDMS No. 4759687 v. 2)

In response to a query from the Committee, Lesley Douglas, Manager, Environmental Sustainability, indicated that the number of invasive species could reasonably be expected to increase as a result of climate change.

It was noted that this is the City's first Invasive Species Action Plan.

It was moved and seconded
That the Invasive Species Action Plan, as described in the staff report titled "Richmond's Invasive Species Action Plan," dated December 7, 2015, from the Director, Engineering, be adopted.

CARRIED

4. **WORKS AND SERVICES COST RECOVERY BYLAW AMENDMENT**
(File Ref. No. 12-8060-20-008752; 10-6060-01) (REDMS No. 4677246 v. 4)

It was moved and seconded
That Works and Services Cost Recovery Bylaw No. 8752 be amended and given first, second, and third readings.

CARRIED

5. **LOCAL AREA SERVICES – NORTH SIDE DONALD ROAD FROM AND INCLUDING 6991 DONALD ROAD TO AND INCLUDING 7480 GRANDY ROAD AND SOUTH SIDE DONALD ROAD FROM GILBERT ROAD TO AND INCLUDING 6760 DONALD ROAD - BYLAW NO. 9277**
(File Ref. No. 12-8060-20-009277; 10-6000-01) (REDMS No. 4726637)

It was moved and seconded

(1) That the Local Area Services Program for roadway development to widen pavement, install curb, gutter, sidewalk, street lights and boulevard trees (where ditch has previously been eliminated on Donald Road), be adopted in accordance with Section 211 and 212 of the Community Charter; and

(2) That Bylaw No. 9277, which authorizes local area services construction at Donald Road, be introduced and given first, second and third readings.

CARRIED

6. **CONSTRUCTION MANAGEMENT SERVICES FOR UTILITY CAPITAL PROJECTS STUART OLSON CONSTRUCTION LTD.**
(File Ref. No. 10-6000-01) (REDMS No. 4873315)

It was moved and seconded

That the staff report titled "Construction Management Services for Utility Capital Projects – Stuart Olson Construction Ltd.," dated January 4, 2016, from the Director, Engineering, be received for information.

CARRIED

7. **MANAGER'S REPORT**

(i) Status of Garbage Cart Program.

Suzanne Bycraft, Fleet and Environmental Programs, advised that delivery of the new garbage carts will commence in February 2016 and will be completed by the end of March 2016. Bi-weekly garbage collection will begin the week following the delivery of the new garbage carts. Recyclable and green material will continue to be collected weekly.

The website tool to allow residents to receive a notification of their garbage and recycling collection dates has been adapted as an app that can be downloaded by residents. A demonstration of the website tool and the app was provided to the Committee.

Residents will be provided with information regarding alternate uses or options for recycling old carts when the new garbage carts are delivered.

(ii) StewardChoice

Suzanne Bycraft, Fleet and Environmental Programs, advised that StewardChoice, a competitor to Multi-Material BC (MMBC), had submitted a stewardship plan to the Ministry of Environment for approval. The plan was rejected.

(iii) Water Quality

Tom Stewart, Director of Operations, assured the Committee that the drinking water in Richmond does not have the lead levels that are contained in the drinking water in Flint, Michigan.

(iv) Capital Projects Open House

Joe Erceg, General Manager, Planning and Development, advised that the 2016 Capital Projects Open House would be held in the lobby of the Richmond City Hall on April 20, 2016.

ADJOURNMENT

It was moved and seconded
That the meeting adjourn (4:22 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, January 20, 2016.

Councillor Chak Au
Chair

Carol Lee, Raincoast Ventures Ltd.
Recording Secretary

City of Richmond

Report to Committee

To:	Public Works and Transportation Committee	**Date:**	January 25, 2016
From:	Victor Wei, P. Eng. Director, Transportation	**File:**	01-0154-04/2016-Vol 01
Re:	**City of Richmond-TransLink TravelSmart Partnership - Update**		

Staff Recommendation

1. That staff continue to monitor the TransLink TravelSmart pilot program and relevant activities, as described in the staff report titled "City of Richmond-TransLink TravelSmart Partnership – Update", dated January 25, 2016, from the Director, Transportation and report back on the results following their completion.

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

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

REPORT CONCURRENCE		
ROUTED TO:	**CONCURRENCE**	**CONCURRENCE OF GENERAL MANAGER**
Economic Development	☑	
Community Social Development	☑	
Sustainability	☑	
Recreation	☑	
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	**INITIALS:** DW	**APPROVED BY CAO**

Staff Report

Origin

At its October 27, 2014 meeting, Council endorsed the City's partnership with TravelSmart, TransLink's branded transportation demand management (TDM) program, to help advance the City's goals to increase sustainable transportation choices for the community. This report provides an update on the joint activities undertaken over the past year.

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

Following Council endorsement of the partnership, the City and TravelSmart executed a Memorandum of Understanding in December 2014 with the objective of implementing TDM strategies that foster behaviour changes that lead to increased use of transit, carpooling, car-sharing, cycling, and walking as viable alternatives to a single occupant vehicle. The next sections below highlight the key initiatives currently underway.

School Travel Planning: Pilot Project at Three Elementary Schools

The ultimate goal of a School Travel Plan (STP) is to create an environment that encourages healthy and active transportation to and from school, improves the journey for those who use vehicles or take school busses, and improves transportation safety for everyone. The benefits of an STP include:

- improved physical health due to increased activity,
- improved student focus (studies indicate that physical activity is linked to improved academic performance),
- environmental benefits due to reduced vehicle emissions and improved air quality, and
- improved community and traffic safety for students and the neighbourhood.

TravelSmart contracts HASTe (Hub for Active School Travel) to facilitate and deliver the STP program in the Greater Vancouver area. To date, HASTe has worked with school and municipal staff to develop STPs in the following cities: Vancouver, Surrey, New Westminster, Coquitlam, and District of North Vancouver.

For Richmond's pilot program, City staff are working closely with the Richmond School District, TravelSmart and HASTe to develop customized STPs at three elementary schools: Garden City, AB Dixon and Walter Lee.[1] The process was initiated in Fall 2015 and typically takes 18 months to progress through the five phases of:

(1) *Set-up*: choose schools and establish stakeholder and school STP committees.

[1] The three schools were identified by Richmond School District based on demonstrated interest from principals.

(2) *Baseline Data Collection*: classroom and family surveys, walkabout and observations.
(3) *Action Plan Development*: identify education and active travel strategies as well as infrastructure planning if needed.
(4) *Action Plan Implementation*: produce and distribute "best routes to school" maps, stage contests and events, and undertake the TravelSmart for Elementary Schools Leadership program whereby a TravelSmart facilitator educates students about the impacts of transportation on their health and environment, and works with student leaders to develop student-led projects that are performed and displayed at a Spring assembly of the entire school.
(5) *Evaluation*: follow-up classroom and family surveys, STP updates as necessary and policy development to ensure program sustainability at the school.

Table 1 outlines the planned schedule. To date, Phase 1 has been completed and actions started within Phase 2. Surveys have been distributed and walkabouts at all three schools with the participation of City and School District staff have occurred to observe on-site conditions, particularly during the start or end of the school day.

Table 1: Planned STP Schedule

Phase	Action	Timeline
1	Set-up	Oct-Nov 2015
2	Baseline Data Collection	Nov 2015-Jan 2016
3	Action Plan Development	Jan-Feb 2016
4	Action Plan Implementation	Mar-Oct 2016
5	Evaluation	Sep-Oct 2016

A multi-agency stakeholder workshop to inform participants about the importance of active and safe routes initiatives and build the capacity of community stakeholders to contribute to and support school travel planning work in Richmond is scheduled for February 24, 2016. The workshop will bring together representatives from Richmond RCMP, ICBC, Vancouver Coastal Health, Richmond School District, Parent Advisory Committees, City of Richmond (Transportation, Community Bylaws, Community Social Development), TransLink, and HUB Cycling.

As part of the City-TravelSmart partnership, TransLink is fully funding the STP process for the three schools for this first year. Should this pilot program prove successful, Richmond School District and the City would explore jointly funding the expansion of the STP program to additional elementary schools in the future.

Business Retention Initiative: Employee Transportation at Riverside Business Park

A high priority action item in the Richmond Resilient Economy Strategy is to retain and support businesses already in Richmond. Data collected through the City's Business Development Program has shown that employee transportation is the number one barrier to workforce attraction and business retention. This issue is most pronounced in the City's business parks, such as the Riverside Business Park (500+ businesses with 6,000+ employees) located off No. 5 Road to the south of Steveston Highway. To address the challenge, City staff are exploring the development of transportation solutions for employees at this site, including improvements to existing transit service, car-sharing, carpooling, cycling, teleworking, hours of work, private shuttle service, and fleet management. Under the MOU, the City has partnered with TravelSmart to deliver relevant aspects of this initiative, including implementation of an employee survey and exploration of transit, walking and cycling options.

Primary market research in the form of an employee survey was conducted in the summer of 2015 to determine the potential demand for alternative transportation services. A total of 1,035 valid responses were received from employees of 23 companies. The survey sought information regarding employees' current commuting patterns, mode choices, hours of work, and which potential solutions they would consider using if available.

When asked what could motivate employees to reduce their reliance on a single occupancy vehicle as the preferred mode of commuting to work, the top five answers were:

- Better access to transit (20%)
- A direct shuttle from a transit exchange/station (14%)
- The availability of car-share vehicles (11%)
- A rewards program for using a sustainable mode (11%); and
- Help with finding carpool participants (8%).

The responses informed the development of potential customized commuting travel options from TravelSmart and the private sector. The City shared this information with a group of representatives from several key businesses within Riverside Industrial Park in late December 2015. Carpooling and a private business park shuttle emerged as the two feasible options of interest to business.

As a next step, staff will continue to facilitate discussions with business stakeholders in Riverside Industrial Park to explore and pursue workable solutions to meet their employee transportation needs. Pending successful uptake of these solutions, this business retention initiative may be introduced to other business parks in Richmond.

Community Outreach

TravelSmart staff participated in City events to promote and raise awareness in the community of sustainable travel modes including:

- March 2015: Activate! Wellness Fair at the Minoru Place Activity Centre.
- May 2015: Public Works Open House at the Works Yard.
- June 2015: Island City by Bike Tour at South Arm Community Centre. TravelSmart generously donated five raffle prizes for the City's 2015 Island City, by Bike Tour with each prize comprising a bike seat cover, bike light and bell, reflective strap, regional cycling map, and Bike Sense manual.
- December 2015: TravelSmart provided an information session on the new Compass Card at an event organized by the Transportation Sub-Committee of the Richmond Seniors Advisory Committee and the Minoru Seniors Society.

Potential Future Initiatives

Staff are working with TravelSmart to identify potential initiatives for 2016 including:

- City events in that TravelSmart may attend to provide information and awareness,
- further school- and business-focussed outreach efforts,

- public education sessions such as transit training sessions for seniors and recent immigrants, and
- support for the update and publication of a new edition of the City's cycling and trails map.

Financial Impact

None. The identified activities are funded by TravelSmart.

Conclusion

Following the launch of the City-TravelSmart partnership in December 2014, staff from different departments are working with TravelSmart to collectively improve the community's awareness and understanding of transportation options and build positive attitudes about sustainable transportation choices. A pilot project with three elementary schools has been initiated with the aim of achieving tangible behaviour changes. In turn, this project would help the City progress towards its targets to reduce greenhouse gas emissions and increase the mode share of active transportation as well as improve personal health and enhance community safety. TravelSmart has also been integrated in one of the City's ongoing business retention programs by delivering relevant expertise to the Riverside Business Park employee transportation initiative. Staff will report back on the final outcomes of these initiatives, which are also anticipated to help inform the development of TransLink's Southwest Area Transport Plan that will include the identification of opportunities for TravelSmart programming.

Joan Caravan
Transportation Planner
(604-276-4035)

JC:jc

City of Richmond

Report to Committee

To:	Public Works and Transportation Committee	**Date:**	January 27, 2016
From:	Victor Wei, P. Eng. Director, Transportation	**File:**	01-0154-04/2016-Vol 01
Re:	**TransLink Southwest Area Transport Plan – Update on Advisory Committees**		

Staff Recommendation

That the staff report providing an update on TransLink's Southwest Area Transport Plan, dated January 27, 2016, from the Director, Transportation, be received for information.

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

Att. 2

REPORT CONCURRENCE		
ROUTED TO:	**CONCURRENCE**	**CONCURRENCE OF GENERAL MANAGER**
Policy Planning	☑	
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	**INITIALS:** DW	**APPROVED BY CAO**

Staff Report

Origin

This report provides information on the update on the development of TransLink's Southwest Area Transport Plan.

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

Southwest Area Transport Plan

The Southwest Area Transport Plan (SWATP) includes Richmond, South Delta (Ladner and Tsawwassen), and Tsawwassen First Nation and will encompass the entire multi-modal transportation network (as opposed to just transit) within the identified sub-area of the region. Based on the structure of TransLink's Regional Transportation Strategy and the Mayors' Council 10-Year Plan, the SWATP will identify priority strategies and actions related to the themes of invest, manage and partner.

As described in the previous staff report on the SWATP, considered by Council at its July 27, 2015 meeting, the project is being led by TransLink staff with that agency's senior management providing oversight and approval. Input from local governments (staff and elected officials), stakeholders (e.g., Ministry of Transportation & Infrastructure (MoTI), Vancouver Airport Authority, Port Metro Vancouver) and the public is being received via three advisory committees: Senior Advisory Committee (SAC), Public Advisory Committee (PAC), and Technical Advisory Committee (TAC).

The PAC and SAC have now been established and each Committee has held its first meeting with staff in attendance; a summary of the meetings are provided below.

Public Advisory Committee

TransLink held an application process from October 26 to November 12, 2015 to establish the PAC, which is comprised of people who live, work and/or study in Richmond, South Delta and Tsawwassen First Nation. PAC members will provide feedback on TransLink's outreach and engagement approach and help ensure that community issues and opportunities, concerns, ideas, and expectations are understood and considered in TransLink's overall decision-making. Attachment 1 provides the Terms of Reference for the PAC.

The 14-member PAC has seven representatives from Richmond, six from Delta and one from Tsawwassen First Nation. With respect to the Richmond representatives, their special interests include seniors, people living with disabilities, employers, new and recent immigrants, cyclists, and post-secondary students. Other members' experience and backgrounds include regular transit users as well as motorists or infrequent transit users.

The PAC held its first meeting on December 17, 2015 at Kwantlen Polytechnic University. In the first half of the meeting, TransLink staff provided an overview of transit-oriented development, and described what is an Area Transport Plan and how the Plan fits within TransLink's planning context. TransLink staff then shared some demographic characteristics of the Southwest Area followed by an overview of TransLink's principles for public consultation and community engagement. The PAC did not identify any issues or concerns with the proposed Plan processes.

Senior Advisory Committee

The six-member Committee is comprised of one elected official and one senior staff member from each of Richmond, Delta and Tsawwassen First Nation with support from senior TransLink staff. As part of the staff report presented at the July 27, 2015 Council meeting, Council approved the appointment of Councillor Chak Au as the City's elected official representative on SAC for the SWATP. The City's senior staff member is Victor Wei, Director, Transportation. The first SAC meeting was held January 18, 2016 at City Hall.

Similar to the first meeting of the PAC, a focus was to provide an introductory overview of the Area Transport Plan development process including the project timeline and public engagement opportunities. The SAC's role is to provide overall strategic direction and the Committee will meet three more times at key points to receive the results of public feedback and provide direction on draft strategies and actions for the Plan as outlined in Attachment 2, which also highlights the upcoming meetings for the PAC and the TAC:

- SAC: The Committee has now met once and will continue to meet three more times until the Plan is finalized.
- PAC: The Committee has met once and will continue to meet a further four times with a meeting held prior to and after each of the two public engagement opportunities.
- TAC: The Committee has met four times and will continue to meet regularly with a further six meetings (i.e., TAC5 through TAC 10) planned for the remainder of the process.

Richmond representatives at SAC have suggested that an additional SAC meeting may be needed in between the proposed third and fourth meetings to receive the results on the second round of public engagement.

The proposed process to engage different parties (i.e., elected officials, key stakeholders, general public) in the development of the Plan was also discussed. An Elected Officials Forum (shown as EO For on Attachment 2) to provide an overview of the SWATP for all members of the three Councils is proposed to be held one to two weeks prior to the first public engagement window.

Key stakeholders will be engaged via briefings and/or workshops. The Committee suggested that additional key stakeholders include goods movement (e.g., BC Trucking Association, Greater Vancouver Gateway Council) and post-secondary institutions (e.g., BCIT, Kwantlen Polytechnic University). Public feedback will be obtained via an online survey and targeted strategies will be used to ensure a broad reach and participation.

Next Steps

The next meeting of the PAC is anticipated in early February 2016 prior to the first public engagement window that is currently planned for the second quarter of 2016. The next meeting of the SAC is currently scheduled for midway in the second quarter to review the results of the public consultation and provide early direction for the Plan as it moves into Phase 2, which is the development of strategies and actions to address the issues and opportunities identified in Phase 1. A second round of public consultation is planned for the fourth quarter of 2016 to allow feedback on these draft strategies followed by finalization of the Plan in early 2017.

Financial Impact

None. All staff resources required to support the TransLink's SWATP advisory committees are absorbed within existing approved operating budget.

Conclusion

The development of the Southwest Area Transport Plan is proceeding on schedule and is anticipated to be completed by the first quarter of 2017. Staff will continue to provide regular updates to Council on the progress of the Plan with the next update, anticipated in May 2016, reporting on the results of the first public consultation period.

Joan Caravan
Transportation Planner
(604-276-4035)

JC:jc

Att. 1: Public Advisory Committee Terms of Reference
2: Proposed Involvement of Senior Advisory Committee and Elected Officials

Southwest Area Transport Plan Public Advisory Committee

Terms of Reference and Member Roles and Responsibilities

Project Background

TransLink's Southwest Area Transport Plan {SWATP) involves a full review of the transportation network in Richmond, South Delta {west of Highway 91), and the Tsawwassen First Nation. The SWATP will explore and aim .to address the unique transportation, transit, and infrastructure needs in the Southwest sub-region, including transit service and infrastructure, as well as aspects of cycling, walking, driving, and goods movement.

The SWATP is a comprehensive planning process that will run for approximately two years. The planning process includes analysis of issues and opportunities, assessment of community values, and identification and prioritization of strategies and actions. The planning process will provide multiple opportunities for TransLink to engage with, and receive feedback from stakeholders and the public.

As part of the engagement process for the SWATP, TransLink is establishing a Public Advisory Committee {PAC) comprised of 12 people who live, work, and/or study in Richmond, South Delta and the Tsawwassen First Nation. The PAC will provide advice to TransLink on the engagement approach and the development of the SWATP.

Committee Objectives

SWATP PAC members will assist TransLink with the following:

1. Provide feedback on TransLink's outreach and engagement approach, including activities or tools prior to TransLink engaging broadly with community stakeholders and the public.
2. Review and provide feedback on materials intended for use in the outreach and engagement to ensure that technical information is communicated in an accessible, public-friendly way to stakeholders and the public.
3. Provide feedback on information collected through the public engagement process to help ensure that community issues and opportunities, concerns, ideas, and expectations are understood and considered in TransLink's overall decision-making for the development of the SWATP.

Committee Member Eligibility and Requirements

1. PAC members must live, work, and/or study in Richmond, South Delta, or the Tsawwassen First Nation.

2. PAC members may not be an employee of, or reside with, an employee of the *South Coast British Columbia Transportation Authority* ("TransLink") or any of its subsidiaries or operating companies.

Committee Member Selection

Submitted applications will be reviewed and evaluated by TransLink planning and engagement staff. PAC members will be selected based on their community involvement, past leadership in the community, interest in transportation, and their enthusiasm to make a contribution. Best efforts will be made to accommodate diverse interests, views, values, and perspectives and represent the demographic and geographic characteristics of the sub-region.

Committee Member Roles and Responsibilities

TransLink is responsible for the creation of the Terms of Reference for the PAC. The PAC will function in alignment with TransLink's stakeholder and public engagement activities. TransLink will consider the PAC's feedback when making decisions and will report back on how the feedback from the engagement contributed to the decision-making process.

By agreeing to participate on the PAC, the member agrees to comply with the Terms of Reference as set out herein:

1. The PAC member acknowledges and agrees that his/her role includes providing local insight into all stages of the SWATP prior to TransLink engaging broadly with stakeholders and the public at each phase.
2. The PAC member acknowledges and agrees that TransLink has the sole right and responsibility of making all business and operational decisions with respect to all matters referred to the committee, and is not bound by feedback provided by the PAC.
3. The PAC member acknowledges and agrees that the PAC will provide TransLink with feedback that will be considered as advice in addition to other information collected from a broader engagement process with local and regional stakeholders. All feedback will be considered as advice by TransLink along with technical, environmental, social, economic information to better inform the overall decision-making for the development of the plan.
4. The PAC member acknowledges and agrees that the PAC will include *up to* but *no more than* 12 participants. Membership will consist of representatives who live, work and/or study in Richmond, South Delta, and the Tsawwassen First Nation.
5. A quorum of the committee shall consist of a simple majority of the members present.
6. The PAC member acknowledges and agrees that any breach of obligations under this document may result in release from the PAC.
7. The PAC member acknowledges and agrees that participation by committee members

is a voluntary contribution in support of TransLink's SWATP.

8. The PAC member will represent, to a reasonable degree, the issues, concerns, ideas, and expectations of the broader public.
9. The PAC member will disclose to the PAC Chair any personal situation that may be interpreted as being an actual, perceived or potential conflict of interest.
10. The PAC member will resolve any concerns about the Committee with the Chair.
11. The PAC member will become familiar with the division of roles and responsibilities of the committee members, Chair and TransLink staff.
12. The PAC member will maintain constructive, collaborative and mutually respectful relations with other PAC members, the Chair and TransLink staff.
13. The PAC member will review all material provided in advance of PAC meetings.
14. The PAC member will identify issues to be added to the Committee's agenda.
15. The PAC member acknowledges and agrees that, to assist the committee, the member may be tasked with and required to seek and provide required information in a timely manner as assigned by the Chair.
16. The PAC member will provide feedback by contributing constructively to committee discussions in person and online.
17. The PAC member agrees to ***TransLink's Acceptable Use Policy for the SWATP PAC SharePoint.*** SharePoint will be used as an online collaborative tool to share information amongst PAC members between meetings.
18. The PAC member agrees to ***TransLink's Release and Authorization for Use of Photographs.***
19. The PAC member agrees to ***TransLink's Southwest Area Transport Plan Public Advisory Committee Consent and License.***
20. The PAC member agrees to the following **Media and Public Statements-Communications Protocols** (including social media):
    - TransLink will manage all communications about the PAC process and the SWATP with the public and the media. Accordingly, TransLink will prepare materials and updates and manage the dissemination of material for public and media consumption as appropriate.
    - All media inquiries and requests to PAC members about the PAC and the SWATP must be directed to TransLink, who will in turn address them and report back.
    - PAC members shall not initiate contact with the media or make public statements on behalf of or relating to the SWATP PAC *without first discussing and obtaining prior approval* from the PAC Chair, committee members, and TransLink staff.
21. The PAC member agrees to the following **Confidentiality Protocols:**
    - All material provided to PAC members, or developed by the PAC or its members in relation to the SWATP process, is confidential and proprietary to TransLink. All communications and any information exchanged between PAC members,

including the meeting agendas, meeting minutes, material provided for meetings, and material provided outside of meetings for review, are confidential and expected to be treated as such.

Participation and Term

22. The PAC member acknowledges and agrees to attend meetings which:
    - Will meet approximately six to eight times over the course the planning process.
    - Will occur primarily on weekdays in the evening.
    - Will run for approximately two hours depending on the agenda.
23. May be held in one consistent location that is centrally located within the SWATP study area, or may rotate in location between the communities of the SWATP (i.e. Richmond, South Delta; and the Tsawwassen First Nation), depending on the preference of PAC members.
24. The term for committee members is until completion of the SWATP which is anticipated to last approximately two years.

TransLink Staff Roles and Responsibilities

1. TransLink staff will be responsible for developing the proposed agenda for each meeting and for ensuring that meeting notes are taken.
2. TransLink staff will distribute the proposed agenda and any meeting materials for PAC member review, at least two business days prior to scheduled meetings.
3. TransLink staff will maintain responsibility for all business and operational decisions with respect to any matters referred to the committee.
4. TransLink's ***Principles for Public Consultation and Community Engagement*** will help guide the development and implementation of the outreach and engagement plan for the SWATP.

City of Richmond and Corporation of Delta Municipal Staff and Tsawwassen First Nation Staff Roles and Responsibilities

1. Municipal and Tsawwassen First Nation staff who are members of the SWATP Technical Advisory Committee may attend PAC meetings as observers.

Changes to the *Terms of Reference and Member Roles and Responsibilities*

The Terms of References and Roles and Responsibilities presented in this document may be amended from time to time by TransLink with input from the PAC members.

12/27

How the Senior Advisory Committee and elected officials will be involved – proposal

SAC #1

- ATP Overview
- Confirm SAC role
- Input on engagement

SAC #2

- Consultation results
- Synthesis of issues
- Early directions for plan

SAC #3

- Input on engagement
- Draft Strategies and Actions

SAC #4

- Consultation results
- Receive recommended plan

Note: "EO For" stands for Elected Officials Forum

translink.ca

-- DRAFT FOR DISCUSSION --

TRANSLINK

City of Richmond

Report to Committee

To:	Public Works and Transportation Committee	**Date:**	February 5, 2016
From:	Tom Stewart, AScT. Director, Public Works Operations	**File:**	10-6370-01/2016-Vol 01
Re:	**Bylaw Amendments to Implement Requirements for Recycling from Single-Family Home Demolitions**		

Staff Recommendation

That:

a. Demolition Waste and Recyclable Materials Bylaw No. 9516,

b. Consolidated Fees Bylaw No. 8636, Amendment Bylaw No. 9522, and

c. Notice of Bylaw Violation Dispute Adjudication Bylaw No. 8122, Amendment Bylaw No. 9523

each be introduced and given first, second and third readings.

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

Att. 3

REPORT CONCURRENCE		
ROUTED TO:	**CONCURRENCE**	**CONCURRENCE OF GENERAL MANAGER**
Law	☑	
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	**INITIALS:** DW	**APPROVED BY CAO**

Staff Report

Origin

At their October 26, 2015 meeting, Council adopted the following resolution:

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;

3. That this program be considered as part of the 2016 Operating Budget process;

4. That staff examine incentives for house preservation, including a fee structure; and

5. That the management of waste from single-family home demolitions be reviewed one year after its implementation.

This report presents the new bylaw and amendment bylaws necessary to enact the requirements outlined in Item 1, above.

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.*

Analysis

The City has introduced various residential initiatives designed to increase recycling as part of working toward achieving the regional target of 80% waste diversion by 2020. As part of

advancing waste diversion in the construction/demolition sector, the City consulted with the Richmond Small Builders Group during 2014 and 2015 to provide input. This included undertaking a pilot project to test different recycling approaches and diversion levels associated with single-family home demolitions. The recommended approach for the proposed new Demolition Waste and Recyclable Materials Bylaw 9516 reflects input from this consultation process.

Demolition Waste and Recyclable Materials Bylaw No 9516

This proposed new bylaw sets out the requirements as outlined in Item 1 (above) of the Council resolution. In addition, Bylaw 9516 establishes additional provisions including:

- Exceptions, at the building inspector's discretion, to waive the bylaw requirements. This would be used in situations where the demolition must take place in an expedited manner due to health and safety, or emergency considerations (e.g. damage from fire, etc.)
- Applies to single-family and duplex homes.
- Requirements that demolition materials be taken to licensed recycling and/or waste facilities or reused in accordance with the approved Waste Disposal and Recycling Services Plan.
- Lays out the application, compliance reporting and record keeping requirements that demolition contractors must follow.
- Provides that if 70% or greater diversion of demolition waste is achieved, the refundable fee is fully refunded, and that the refund decreases on a sliding scale based on the percentage of demolition waste diverted.
- Makes the permit holder responsible for meeting the requirements of the bylaw.
- To provide a notice period for builders/demolition contractors, it is recommended that this bylaw become effective April 1, 2016.

In accordance with Council's direction, staff will establish a method to track builder and demolition contractor performance under the bylaw and report back in approximately one year. At that time, the established waste diversion target of 70% can be reviewed to determine the impact on recycling rates, how it contributes to broader regional goals, and whether industry practices have matured to the point where this target could be increased to advance recycling and waste diversion to even higher levels.

Consolidated Fees Bylaw No. 8636

The Consolidated Fees Bylaw No. 8636, also presented with this report, establishes the fees payable under the bylaw, including the $250 non-refundable fee to fund the administration and resource requirements necessary to support the bylaw. In addition, the $2/square foot refundable fee is established under this bylaw. This fee was established through the consultation process

and at an amount designed to provide an incentive for permit holders to comply. It represents approximately thirty percent of estimated current practice demolition costs. This corresponds with the estimated additional costs expected to be incurred by the City to cover the added resource requirements needed for compliance follow up and enforcement activities.

Notice of Bylaw Violation Dispute Adjudication Bylaw 9523

The Notice of Bylaw Violation Dispute Adjudication Bylaw 9523, also presented with this report, establishes fines for failure to comply with key provisions of Bylaw 9516, including:

- Failure to submit a Waste Disposal and Recycling Services Plan;
- Commencement of work without a plan;
- Removing waste other than to a licensed disposal facility; and
- Removing recyclable materials other than to a licensed recycling facility or as set out in the approved Waste Disposal and Recycling Services Plan (i.e. reuse).

Resource Funding Requirements

A new Building Inspector 1 position was approved to support the additional workload as a result of this program.

Incentives for House Preservation

In relation to the Council resolution for examination of incentives for house preservation, including a fee structure, staff note that the Community Charter provides the authority in which Municipalities can impose fees payable in respect of a service of the municipality. A fee for local government services must be related to the cost of providing those services. As such, a higher fee above the cost-recovery model cannot be imposed on the demolition fees that are punitive in nature in an effort to discourage demolition activities.

The Provincial government initiative to "Green" the Building Code has created drastic changes to the Building Code in recent years. Recent code changes such as requiring more insulation, thicker walls, higher thermal resistance of windows and doors, high efficient heating and ventilation system and new seismic requirements have an overall impact on the demand of existing older homes being relocated. These new code requirements would likely serve to be cost prohibitive, for example, if house moves were to be encouraged as part of the preservation strategy.

Therefore, the recycling and waste diversion strategy, as proposed in this report, is considered the most effective approach in promoting the reuse and recycling of demolition materials.

Financial Impact

Funding in the amount of $115,220 has been included in approved 2016 operating budget for the new Building Inspector 1 position. This funding is fully offset by projected revenues from the non-refundable $250 fee, to be collected at issuance of the demolition permit. Therefore, there is

no net operating budget impact resulting from the introduction of the new bylaw and associated resource requirements.

Conclusion

Demolition Waste and Recyclable Materials Bylaw No. 9516 establishes a standard to require recycling of waste from single-family and duplex home demolitions, including a permit fee plus a refundable fee based on square footage, where it is fully refundable if 70% waste diversion is achieved. The bylaw will be administered by the Building Approvals Department. In accordance with Council's direction, staff will report back in approximately one year after implementation of the bylaw.

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

Gavin Woo, P. Eng.
Senior Manager, Building Approvals
(604-276-4113)

SJB:

Att. 1: Demolition Waste and Recyclable Materials Bylaw No. 9516
2: Consolidated Fees Bylaw No. 8636, Amendment Bylaw No. 9522
3: Notice of Bylaw Violation Dispute Adjudication Bylaw No. 8122, Amendment Bylaw No. 9523

City of Richmond

Bylaw 9516

Demolition Waste and Recyclable Materials Bylaw No. 9516

WHEREAS Part 2, Division 1, Section 8 of the *Community Charter* confers upon the **City** authority to, by bylaw, regulate, prohibit, and impose requirements in relation to the protection and enhancement of the well-being of its community in relation to refuse, garbage or other material that is noxious, offensive or unwholesome, and in relation to the use of waste disposal and recycling services;

AND WHEREAS Part 7, Division 2, Section 194 of the *Community Charter* confers upon the **City** authority to, by bylaw, impose a fee in respect of the exercise of authority to regulate, prohibit or impose requirements;

AND WHEREAS the Greater Vancouver Sewerage and Drainage District, Greater Vancouver Regional District, and their respective member municipalities, including the **City**, have set a target in the Integrated Solid Waste and Resource Management Plan of 70% diversion of municipal solid waste from disposal by 2015;

AND WHEREAS it is deemed desirable to regulate, prohibit, and impose requirements with respect to the use of waste disposal and recycling services to ensure that waste and recyclable materials resulting from demolition work are managed in a manner that enhances and protects the well-being of the community and the target diversion rate is achieved,

NOW THEREFORE, the Council of the City of Richmond enacts as follows:

PART ONE: APPLICATION AND AGREEMENT

1.1 No person shall commence or continue, or cause or allow the commencement or continuation of, any **work** except in accordance with the provisions of this Bylaw.

1.2 The **building inspector** may, in cases where this Bylaw would otherwise apply, approve **work,** in writing, and deem it exempt from application of this Bylaw in circumstances where such **work** is required to be carried out in the interests of public health and safety or to be carried out immediately in the case of emergency.

1.3 Nothing in this Bylaw precludes or relieves a person from complying with any provision of the **Building Bylaw**, other bylaws of the **City**, or any federal, provincial, or local government laws or regulations applicable to **work**.

1.4 Neither the review nor acceptance of a **waste disposal and recycling services plan**, or **compliance report** constitutes a representation, warranty, assurance or statement by the

City that the **owner** has complied with the **Building Bylaw**, this Bylaw, or any other applicable enactment, law, or regulation respecting safety.

PART TWO: MANDATORY RECYCLING

2.1 At the time of submitting an application for a **building permit** for **work**, a properly completed **waste disposal and recycling services plan** regarding the management of **waste** and **recyclable material** must be signed by the **owner** or **agent** and submitted to the **building inspector**.

2.2 No person shall commence or continue, or cause or allow the commencement or continuation of, any **work** unless the **building inspector** has approved a **waste disposal and recycling services plan** for that **work**.

2.3 If **recyclable material** is removed from a **site**, the **recyclable material** must be removed:

(a) to a **recycling facility**; or

(b) in accordance with an approved **waste disposal and recycling services plan,** including **reuse** by the **owner** or **agent**, removal to a **recycling facility,** or as otherwise set out therein.

2.4 If **waste**, other than **recyclable material**, is removed from a **site,** the **waste** must be removed to a **disposal facility**.

PART THREE: COMPLIANCE REPORTING AND RECORD KEEPING

3.1 To ensure compliance with this Bylaw, the **owner** or **agent** must keep records of the surveying, removal, handling, management, and **disposal** of **waste** and **recyclable material**, including:

(a) payment receipts, donation receipts, weigh bills, inspection reports, clearance letters, sampling reports, waste transport manifests, and recycling verification letters from mixed load **recycling facilities** detailing the percentage of **waste** recycled, **reused** or **disposed**;

(b) photographs, if applicable, recording the removal of **recyclable material** from the **site** as specified in an approved **waste disposal and recycling services plan**; and

(c) any other records that the **building inspector** specifies, at the time of application for a **building permit** for **work,** must be kept.

3.2 Within ninety (90) days after **project completion**, the **owner** or **agent** must submit the following to the **building inspector**:

(a) a properly completed **compliance report**; and

(b) originals of the records required to be kept under section 3.1 above.

PART FOUR: FEES

4.1 Every person who performs, or causes or allows the performance of **work**, must pay the non-refundable **application fee** and the **waste disposal and recycling services fee** at the time of submitting the **waste disposal and recycling services plan**.

4.2 The holder of the **building permit** for the **work** is eligible for a **fee refund,** as calculated in accordance with Schedule "B" attached to this Bylaw, if the following have also been completed to the satisfaction of the **building inspector**:

(a) a **waste disposal and recycling services plan**;

(b) within ninety (90) days after **project completion**,

(i) a **compliance report**;

(ii) submission of the originals of the records required to be kept under section 3.1 above; and

(iii) an application to the **building inspector** for the **fee refund**;

(e) within seven (7) days of being requested to do so, submission to the **building inspector** of any of the records required to be kept under this Bylaw, in addition to those submitted under 4.2(b)(ii) above, in order to evaluate eligibility for the **fee refund.**

PART FIVE: OFFENCES, PENALTIES AND ENFORCEMENT

5.1 (a) A violation of any of the provisions identified in this bylaw shall result in liability for penalties and late payment amounts established in Schedule A of the *Notice of Bylaw Violation Dispute Adjudication Bylaw No. 8122*, as amended and replaced from time to time; and

(b) A violation of any of the provisions identified in this bylaw shall be subject to the procedures, restrictions, limits, obligations and rights established in the *Notice of Bylaw Violation Dispute Adjudication Bylaw No. 8122*, as amended and replaced form time to time, in accordance with the *Local Government Bylaw Notice Enforcement Act, SBC 2003, c. 60*, as amended and replaced form time to time.

5.2 Any person who gives false information required under this Bylaw is deemed to have committed an infraction of, or an offence against, this Bylaw, and is liable on summary conviction to a penalty of not more than $2,000 in addition to the costs of the

prosecution, and each day that such violation is caused or allowed to continue constitutes a separate offence.

5.3 Any person who contravenes or violates any provision of this Bylaw, or any **building permit** for **work** issued in connection with this Bylaw, or who suffers or allows any act or thing to be done in contravention or violation of this Bylaw, or any **building permit** for **work** issued in connection with this Bylaw, or who fails or neglects to do anything required to be done under this Bylaw, or any **building permit** for **work** issued in connection with this Bylaw, commits an offence and upon conviction shall be liable to a fine of not more than Ten Thousand Dollars ($10,000.00), in addition to the costs of the prosecution, and where the offence is a continuing one, each day that the offence is continued shall constitute a separate offence.

PART SIX: INTERPRETATION

6.1 In this bylaw, unless the context requires otherwise:

AGENT	means a person authorized in writing to act on behalf of the **owner** in connection with a **building permit**, including a hired tradesman or contractor.
APPLICATION FEE	means the fee set-out in the City's Consolidated Fees Bylaw No. 8636, as amended from time to time.
BUILDING BYLAW	means the **City's** Building Regulation Bylaw No. 7230, as amended or replaced from time to time.
BUILDING INSPECTOR	means the Manager, Building Approvals Department or those positions or persons designated by Council to act under this bylaw in the place of the manager.
BUILDING PERMIT	has the same meaning defined in the **Building Bylaw**.
CITY	means the City of Richmond.
COMMUNITY CHARTER	means *Community Charter*, SBC 2003, c. 26, as amended or replaced from time to time.
COUNCIL	means the Council of the **City**.
COMPLIANCE REPORT	means a report substantially in the form attached to this Bylaw as Schedule "B", as modified from time to time by the **building inspector**.
CORPORATE OFFICER	means the person appointed by **Council** pursuant to section 148 of the ***Community Charter*** as the Corporate Officer of the **City**, or his or her designate.

DISPOSAL	means: (a) the abandonment, discard, or destruction of any materials, substances, or objects; and (b) the application, release, or incorporation of materials, substances or objects in or to land.
DISPOSAL FACILITY	means a **facility** that: (a) has a valid and subsisting permit, licence, or operational certificate issued under **GVS&DD**'s **Municipal Solid Waste and Recyclable Material Regulatory Bylaw** for the operation of a disposal facility regulated under that bylaw; (b) is approved as a disposal facility under the **Integrated Solid Waste and Resource Management Plan**; or (c) destroys or landfills **waste** in the course of conducting an industry, trade, or business.
FACILITY	means any land, building, site, or structure.
FEE REFUND	means the refund of a **waste disposal and recycling services fee** paid in respect of a **waste disposal and recycling services plan** as calculated in accordance with Schedule "B" attached to this Bylaw.
GVS&DD	means the Greater Vancouver Sewerage and Drainage District.
HAZARDOUS MATERIALS	means any material, product, or substance regulated as a controlled product or hazardous waste under the *B.C. Workers Compensation Act* and *B.C. Environmental Management Act,* respectively, that is present on a **site** or is produced, originates, or results from **work**.
INTEGRATED SOLID WASTE AND RESOURCE MANAGEMENT PLAN	means **GVS&DD**'s approved Integrated Solid Waste and Resource Management Plan.
MUNICIPAL SOLID WASTE AND RECYCLABLE MATERIAL REGULATORY BYLAW	means the **GVS&DD's** Municipal Solid Waste and Recyclable Material Regulatory Bylaw No. 181, 1996, as amended or replaced from time to time.

ONE-FAMILY DWELLING has the same meaning defined in the **Building Bylaw**.

OWNER means the registered owner of an estate in fee simple, the registered owner of a leasehold estate and also includes:

(a) the tenant for life under a registered life estate;

(b) the registered holder of the last registered agreement for sale;

(c) an Indian who is an **owner** under the letters patent of a municipality, incorporated under Section 9 of the *Local Government Act*;

(d) a lessee or licensee with authority to build on land;

(e) an occupier, tenant or holder of an interest in respect of the surface of water;

(f) the Province or Canada, or a crown corporation or agency of either of them, if the government, corporation or agency applies for a **building permit**, a **gas permit**, or a **plumbing permit** under this bylaw, in respect of **parcel** in which it holds an interest; and

(g) an **agent**.

PROJECT COMPLETION means the date of completion and final approval of **work** as determined in accordance with the **Building Bylaw.**

RECYCLABLE MATERIAL means a material, substance, or object that is produced, originates or results from **work** and satisfies at least one of the following:

(a) is organic material and is capable of being composted;

(b) is managed as a marketable commodity with an established market by the **owner** or operator of a **recycling facility**;

(c) is being used in the manufacture of a new product that has an established market or is being

processed as an intermediate stage of an existing manufacturing process;

(d) is being **reused** by the **owner**, or the **agent** on or off the **site** for **construction**; or

(e) is a material, product or substance prescribed in Schedule "C" attached to this Bylaw as a **recyclable material**,

but excluding **hazardous materials**.

RECYCLING FACILITY means a **facility** or licensed business, other than a **disposal facility** or an incinerator facility, and that:

(a) has a valid and subsisting permit, licence, or operational certificate issued under the **GVS&DD**'s **Municipal Solid Waste and Recyclable Material Regulatory Bylaw**;

(b) is required to provide information on quantities of received and transferred material to the **GVS&DD** through the **GVS&DD**'s **Municipal Solid Waste and Recyclable Material Regulatory Bylaw**;

(c) is approved as (i) a new organics processing facility; or (ii) a publicly-owned transfer station or landfill, under the Integrated Solid Waste and Resource Management Plan for purposes other than **disposal**;

(d) is a drop off depot which is owned or operated by a charitable organization registered under the *Income Tax Act* (Canada) or a non-profit organization to which section 149 of the *Income Tax Act* applies;

(e) is a **facility** where the owner or operator purchases or otherwise pays valuable consideration for all **recyclable material** received, cleaned, sorted, baled or packaged at the **facility**;

(f) accepts only asphalt and concrete for the purposes of reprocessing, resale and **reuse**; or

(g) builds products using recycled or **reused** buildings materials or resells salvaged building materials under a valid business license.

REUSE	means further or repeated use of building materials.
SITE	means any land, building, structure, or improvements where **work** is or is intended to be performed.
TWO-FAMILY DWELLING	has the same meaning defined in the **Building Bylaw**.
WASTE	means any discarded or abandoned material, substance, or object that is produced, originates, or results from **work**, and any other prescribed material, substance or object, but excluding **hazardous materials**.
WASTE DISPOSAL AND RECYCLING SERVICES FEE	means the fee set-out in the City's Consolidated Fees Bylaw No. 8636, as amended from time to time.
WASTE DISPOSAL AND RECYCLING SERVICES PLAN	means the form of plan attached to this Bylaw as Schedule "A".
WORK	means the demolition, deconstruction, or systematic disassembly of a **one-family dwelling** or a **two-family dwelling**, and any accessory **buildings** on the same **site,** regulated by the **Building Bylaw**.

6.2 References in this Bylaw to enactments, bylaws of the City, or the bylaws or plans of **GVS&DD**, include those enactments, bylaws, and plans as they may be amended or replaced from time to time.

6.3 Unless otherwise defined herein, all words or expressions used in this Bylaw have the same meaning as the same or like words or expressions used in the **Building Bylaw**.

PART SEVEN: SEVERABILITY AND CITATION

7.1 If any section, subsection, paragraph, clause or phrase of this bylaw is for any reason held to be invalid by the decision of a court of competent jurisdiction, such decision does not affect the validity of the remaining portions of this bylaw.

7.2 This Bylaw is cited as **"Demolitions Waste and Recyclable Materials Bylaw No. 9516"**, and is effective April 1, 2016.

PART EIGHT: FEES BYLAW

8.1 The *Consolidated Fees Bylaw No. 8636*, as may be amended from time to time, applies to this bylaw.

FIRST READING	
SECOND READING	
THIRD READING	
ADOPTED	

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

MAYOR

CORPORATE OFFICER

Schedule "A"
Waste Disposal and Recycling Services Plan
(Single Family/Duplex - Residential)

Date _____

Demolition Project Site Address _____

Demolition Type ☐ Residential Building ☐ Other_____

Project Floor Space [square feet]

Main Floor Space [square feet] _____

Total Floor Space [square feet] _____

Estimated Total Waste and Recyclable Material Generation = _____ tonnes (from Table 1)

Estimated Waste and Recyclable Material Generation (from Table 1)

Walls and flooring = _____ kg (for complete demolition, or for walls and flooring calculated separately)

Roofing = _____ kg

Foundations and footings = _____ kg

Other material = _____ kg

Total = (Walls/Flooring _____+ Roofing _____+ Foundations_____ + Other _____) ÷ 1000 = _____**tonnes**

Type of Structure (Wood frame, Concrete, Steel, etc) _____

Expected Project Completion Date (DD/MM/YYYY) ____/____/____

Name of Permit Applicant: _____ (please print)

Signature of Permit Applicant _____Date_____

NOTE TO APPLICANT: Please complete the other side of the form

CITY STAFF USE ONLY	
Building Permit No. (*demolition*): _____	
Waste Disposal and Recycling Services Package	☐ Form 1 – Project information and checklist received from permit applicant
☐ Application Fee Received ☐ Fee Received **Waste Disposal and Recycling Services Fee Amount** $ _____	
Calculation of Fees: Fees set-out in the *Consolidated Fees Bylaw No 8636.*	
Waste Disposal and Recycling Services that will be required: ☐ Removal of all recyclable materials to an authorized recycling facility or to a disposal facility for a purpose other than disposal ☐ Re-use of recyclable materials as proposed in this Waste Disposal and Recycling Services Plan or in another acceptable manner	
Signature of Application Reviewer: _____	
Keep a copy of this page and Form 2 in file	

4831892

TABLE 1

Planning how you will manage the recyclable materials generated at your site will help you meet the recycling requirements. **Please complete the following checklist of the types of recyclable materials that your project is expected to generate and submit as part of Form 1.** Use this checklist for discussion with waste collection, recycling and disposal companies. A list of recycling facilities is available from the Permits Department or http://www.metrovancouver.org/services/permits/Permits%20%20Regulations/ActiveSolidWasteLicenceList.pdf

You must keep track of all materials generated over the duration of the project by keeping receipts from all recycling and disposal facilities **or signed forms** from all salvagers for material re-use (Form 3 **–compliance report**).

Materials	Will the Work generate this material?	Will this material be reused or used as backfill? If yes, specify how and where.	Estimate of material generated as waste (incl. recyclable material) (kg)	For information
Asphalt				Can be recycled
Cardboard				Can be recycled.
Cement and concrete				Can be recycled
Uncontaminated excavated soil and rocks				Can be reused or recycled
Drywall / Gypsum				All must be recycled.
Green waste (incl. shrubs, lawn, small trees)				Can be reused or composted
Glass				May be recyclable
Metal				Can be recycled
Plastic - rigid buckets, etc (no PVC)				Can be recycled
Plastic - wrapping and bags				Can be recycled
Roofing - Asphalt shingles				Can be recycled
Wood – clean				Can be recycled
Wood – roofing				Can be recycled
Other recycled/reused materials (Please list)				
Estimate of Total Waste (incl. Recyclable Material) Generated from Demolition (kg):				

*Note: Do not include **Hazardous Materials** in this Form. All hazardous wastes must be disposed of according to Work Safe BC and BC Ministry of Environment requirements, as well as any additional requirements imposed by the disposal facility.*

Schedule "B"

Compliance Report

Submit this form following the completion of project and attach documentation (copies of receipts, weigh bills, etc.)

Demolition Type: ☐Residential Building ☐Other_____

Building Type: ☐Wood frame ☐Concrete ☐Other_____

Project Site Address: _____

Building Permit No. (*demolition*): _____ Name of permit holder: _____

Project Floor Space [square feet]: _____ (Main floor) _____ (Total)

Project Start Date (DD/MM/YYYY): ____/____/____ Project Completion Date (DD/MM/YYYY): ___/____/___

Waste Disposal and Recycling Services Plan Compliance

☐ Diversion Form and documentation (i.e., receipts and weigh bills) attached

Tonnes recyclable material managed as authorized (i.e. non-hazardous material removed to a **Recycling Facility** or as approved in **Waste Disposal and Recycling Services Plan) =** _____ = "**A**"

Tonnes disposed (i.e. non-hazardous **waste** removed to a **Disposal Facility**) = _____ = "**B**"

Total non-hazardous tonnages of waste from demolition = _____ = A+B = **Total**

Level of Compliance = (A ÷ Total) x 100 = _____ % = "**C**" (use for refund calculation)

Waste Disposal and Recycling Services Fee Refund Calculation

Waste Disposal and Recycling Services Fee paid (from Form 1) $_____= "**D**" (use for refund calculation)

Refund calculated as follows:

If C is 70% or greater, then D = Refund = $ _____

If C is less than 70%, then (C ÷ 70) x (D) = Refund = $ _____

CITY STAFF USE ONLY			
Compliance Report ☐ Complete ☐ Approved	Amount of **Waste Disposal and Recycling Services Fee** paid (Form 1) **= $**_____ Amount of fee refunded **= $**_____		
Compliance with Waste Disposal and Recycling Services requirements	☐ Yes	☐ Partial	☐ No

_____ _____

Signature of Permit Holder Signature of Compliance Report Reviewer

DATE:_____ DATE: _____

Diversion Form Example

Project Site Address _____	**Building Permit No.** *(demolition)* _____

Calculate your achieved recycling rate as described below. Use recycling facility and disposal facility receipts to fill out the information below. Ask your hauler, recycler or site cleanup vendor to assist you.

A volume to weight conversion table, if required, is on the next page.

COMPLETE AND RETURN WITH RECEIPTS WITHIN 90 DAYS OF PROJECT COMPLETION

Note: Each receipt must show the type and quantity of materials received and permit #

Material Type	A		B	
	Tonnes Reused or taken to Recycling Facility	Reuse or Recycling Facility used for purposes other than Disposal (name, location)	Tonnes taken to Disposal Facility	Disposal Facility Used (name, location)
Asphalt				
Cardboard				
Cement and concrete				
Uncontaminated excavated soil and rocks				
Drywall / Gypsum		**DRAFT**		
Green waste (incl. trees/shrubs)		**SAMPLE**		
Glass				
Metal				
Plastic – rigid (no PVC)				
Plastic wrapping and bags				
Roofing – asphalt shingles				
Wood - Clean				
Wood - Roofing				
Other recycled/reused materials (Please list)				
Mixed materials *(excluding hazardous materials)*				
TOTAL non-hazardous MATERIALS	**A =** _____		**B=** _____	

Column Totals A____/(A____+B____) X 100= _____% Materials managed as authorized

* The **building inspector** will compare the total quantity of materials from columns A and B with the amount of waste expected from the project, based on estimates in Table 1 of Schedule C.

TABLE 1 - ESTIMATING WASTE GENERATION

Material type	Quantity	Lbs	Kg
Demolition			
Wood – floor (without conc. topping)	1 sq ft	10	4.5
Wood – floor (with conc. topping)	1 sq ft	20	9
Wood – wall (exterior)	1 lin ft	25	11.4
Wood – wall (interior)	1 lin ft	20	9
Wood – roof	1 sq ft	5	2.2
Concrete slab (4" thick)	1 sq ft	50	22.7
Asphalt	1 sq ft	50	22.7
Brick/masonry	1 sq ft	50	22.7
Spread footing (20" wide)	1 lin ft	265	120.5

TABLE 2 - VOLUME TO WEIGHT CONVERSION

Mixed C&D	Quantity	Lbs	Kg
Mixed C&D (structural)	1 cu yd	500	227.3
Mixed inerts (concrete, brick, dirt, asphalt)	1 cu yd	2000	909.1
Separated inerts	1 cu yd	2000	909.1
Wood	1 cu yd	375	170.5
Metals	1 cu yd	906	411.8
Roofing Materials			
Asphalt shingles/Composition	1 cu yd	419	190.5
Asphalt shingles/Composition	1 sq ft	3	1.4
Asphalt Tar Roofing	1 cu yd	2919	1326.8
Wood Shake/Shingle Roofing	1 cu yd	435	197.7
Wood Shake/Shingle Roofing	1 sq ft	2	0.9
Tiles (concrete roofing)	1 cu yd	10	4.5
Tiles (concrete roofing)	1 sq ft	2900	1318.2
Yard Waste			
Green waste (shrubs, turf, etc.)	1 cu yd	500	227.3
Yard trimmings	1 cu yd	108	49.1

Source: City of Santa Monica and Foster City Building Inspection Division (CA)

Schedule "C"

Recyclable Material

Recyclable Material List:

1. Appliances
2. Architectural detail elements (decorative trim, finials, railings, etc.)
   Asphalt
3. Asphalt roofing shingles
4. Bricks, clocks, ceramic tile
5. Cabinetry
6. Cardboard
7. Concrete
8. Doors
9. Drywall
10. Fixtures and hardware (lighting, plumbing, bathtubs, sinks, doorknobs, etc.)
11. Glass
12. Glass windows in frames
13. Green waste (shrubs, trees, sod, etc.)
14. Metal (steel, aluminum, coppers, brass, etc.)
15. Metal – cable and wiring
16. Metal – window frames
17. Paper
18. Plastic – ridged (buckets, pails, etc.)
19. Plastic – soft (wrapping, bags, etc.)
20. Wood – structural (including pallets)
21. Wood – plywood, particle board, OSB, etc.
22. Wood – shingles/siding (shakes, etc.)
23. Wood – flooring

City of Richmond

Bylaw 9522

CONSOLIDATED FEES BYLAW NO. 8636, AMENDMENT BYLAW NO. 9522

The Council of the City of Richmond enacts as follows:

1. The **Consolidated Fees Bylaw No. 8636**, as amended, is further amended by adding Schedule A attached to and forming part of this bylaw as a schedule to Consolidated Fees Bylaw No. 8636, in alphabetical order.

2. This Bylaw is cited as **"Consolidated Fees Bylaw No. 8636, Amendment Bylaw No. 9522"**, and is effective April 1, 2016.

FIRST READING _____

SECOND READING _____

THIRD READING _____

ADOPTED _____

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

_____
MAYOR

_____
CORPORATE OFFICER

SCHEDULE – Demolition Waste and Recyclable Materials

Demolition Waste and Recyclable Materials Bylaw No. 9516
Section 4.1

Description	Fee
Application Fee	$250.00 per waste disposal and recycling services plan submission
Waste Disposal and Recycling Service Fee	$2.00 per square foot of structure to be demolished

City of Richmond

Bylaw 9523

Notice of Bylaw Violation Dispute Adjudication Bylaw No. 8122, Amendment Bylaw No. 9523

The Council of the City of Richmond enacts as follows:

1. Notice of Bylaw Violation Dispute Adjudication Bylaw No. 8122, as amended, is further amended at Part One – Application by adding the following after section 1.1(o):

   "(p) Demolition Waste and Recyclable Materials Bylaw No. 9516,"

2. Notice of Bylaw Violation Dispute Adjudication Bylaw No. 8122, as amended, is further amended by adding to the end of the table in Schedule A of Bylaw No. 8122 the content of the table in Schedule A attached to and forming part of this bylaw.

3. This Bylaw is cited as "**Notice of Bylaw Violation Dispute Adjudication Bylaw No. 8122, Amendment Bylaw No. 9523**" and is effective April 1, 2016.

FIRST READING	_____	CITY OF RICHMOND
SECOND READING	_____	APPROVED for content by originating Division
THIRD READING	_____	
ADOPTED	_____	APPROVED for legality by Solicitor

_____ MAYOR

_____ CORPORATE OFFICER

SCHEDULE A to BYLAW NO. 9523

SCHEDULE A to BYLAW NO. 8122

Designated Bylaw Contraventions and Corresponding Penalties

A1 Bylaw	A2 Description of Contravention	A3 Section	A4 Compliance Agreement Available	A5 Penalty	A6 Early Payment Option	A7 Late Payment Amount	A8 Compliance Agreement Discount
	Period of Time from Receipt (inclusive)		**n/a**	**29 to 60 days**	**1 to 28 days**	**61 days or more**	**n/a**
Demolition Waste and Recyclable Materials Bylaw No. 9516	Failure to submit a completed waste disposal and recycling services plan with an application for a building permit for demolition	2.1	No	$ 475.00	$ 450.00	$ 500.00	n/a
	Commencing, continuing, causing or allowing the commencement or continuation of demolition work without an approved waste disposal and recycling services plan	2.2	No	$ 475.00	$ 450.00	$ 500.00	n/a
	Removing recyclable material from a site to a location other than a recycling facility or as otherwise set out in an approved waste disposal and recycling services plan	2.3	No	$ 475.00	$ 450.00	$ 500.00	n/a
	Removing waste (other than recyclable materials) from a site to a location other than a disposal facility	2.4	No	$ 475.00	$ 450.00	$ 500.00	n/a

City of Richmond

Report to Committee

To:	Public Works and Transportation Committee	**Date:**	January 18, 2016
From:	John Irving, P.Eng. MPA Director, Engineering	**File:**	10-6600-10-02/2016-Vol 01
Re:	**Sewer Heat Recovery in Richmond Update**		

Staff Recommendation

That:

1. The staff report titled "Sewer Heat Recovery in Richmond Update" from the Director, Engineering, dated January 18, 2016, be received for information;

2. The scope of work and budget for a Micro-Sewer Heat Recovery Study identified in the "Sewer Heat Recovery in Richmond Update" from the Director, Engineering, dated January 18, 2016, be approved with funding from the Carbon Tax Provision and included as an amendment to the Five Year Financial Plan (2016-2020) Bylaw;

3. The application to the Federation of Canadian Municipalities for up to 50 percent of eligible costs to complete Micro-Sewer Heat Recovery Study, be endorsed; and

4. Should the funding application be successful, the Chief Administrative Officer and the General Manager of Engineering and Public Works be authorized to execute the agreement with the Federation of Canadian Municipalities on behalf of the City.

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

REPORT CONCURRENCE		
ROUTED TO:	**CONCURRENCE**	**CONCURRENCE OF GENERAL MANAGER**
Finance Department	☑	
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	**INITIALS:** DW	**APPROVED BY CAO**

Staff Report

Origin

This report responds to a referral from the September 23, 2015 Public Works and Transportation Committee meeting, in which it was requested:

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

This report includes a recommendation to complete a new study to assess further opportunities in Richmond to recover renewable energy from the City's sanitary sewer system.

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.*

Background

In 2010, Council adopted targets in Richmond's Official Community Plan to reduce community greenhouse gas (GHG) emissions 33% below 2007 levels by 2020, and 80% below 2007 levels by 2050. The 2041 Official Community Plan also includes a target to reduce energy use 10% by 2020 below 2007 levels. Richmond's 2014 Community Energy and Emissions Plan (CEEP) outlines an array of strategies and actions for the City to meet these targets. Many of these strategies and actions relate to renewable energy, including:

> ***Strategy 10:*** Utilize Local Energy Sources
>
> - **Action 26:** Promote building scale renewable energy - explore opportunities to implement education, incentives and requirements.
>
> ***Strategy 13:*** "Lead by example" with City Operations Energy Management

With respect to renewable sewer heat, the City has engaged in multiple studies and initiatives which have explored the potential of sewer heat recovery (SHR) as an energy source within the City of Richmond. Below is a list highlighting several of these projects:

1. Gilbert Trunk Sewer Main and Oval Village District Energy Utility

   In 2012, the City and Metro Vancouver retained a consultant to assess the feasibility of recovering sewer heat from the new Gilbert Road Trunk Sewer Main in the Oval Village area in order to service the demands of upcoming development within the Oval Village

District Energy Utility (OVDEU) Service Area. The study indicated that the new Gilbert Trunk Sewer Main system could provide the desired 4 megawatt (MW) of renewable power from sewage heat. Integrating this energy source is in the current OVDEU business plan and it will be integrated after a critical mass of buildings has been connected.

2. Gateway Theatre

   At the Gateway Theatre, the City and its partners successfully integrated a sewage heat recovery system into the building's heating system. The location of a sewer wet well under the theatre proved to be an ideal location to install the heat recovery system due to the limited infrastructure required to connect the building to the sewage heat source. The system has been successfully operating since April 2013, with an estimated displacement of over 900 gigajoules (GJ) of natural gas annually, a 35% reduction, and an estimated reduction in greenhouse gas emissions of over 45 tonnes annually, also a 35% reduction. The City continues to monitor and analyze the performance of this system.

3. Lulu Island Waste Water Treatment Plant – Energy Provision for Richmond City Centre

   A study of effluent heat recovery potential at the Lulu Island Wastewater Treatment Plant (LIWWTP) has been completed. The study analyzed the feasibility of using heat energy generated by sewage at the LIWWTP to service a District Energy Utility in the Richmond City Centre area. A review of the potential energy loads that could be served by the LIWWTP and analysis of the feasibility of installing distribution piping alongside the planned sewer main upgrades in Gilbert Road was conducted. The studies illustrated that there is potential for the effluent heat source to service the projected energy demands of the development within the City Centre area. The analysis showed favourable results for the feasibility of this concept. However, further detailed analysis and planning is required prior to any additional action. The City will continue to work with Metro Vancouver to explore this as a potential renewable energy source.

4. Vancouver Sewerage Area - Integrated Resource Recovery Study

   Metro Vancouver's Integrated Resource Recovery (IRR) Study for the Vancouver Sewerage Area (VSA) was a multi-phase project that involved evaluating potential resource recovery opportunities associated with the liquid and solid waste streams originating within the VSA. As part of this study, the Iona Island Waste Water Treatment Plant was identified as a high potential source of sewer heat energy. However, the location is not considered ideal due to the distance from the City of Richmond's potential energy loads and the poor geotechnical conditions on site.

5. Lulu Island Sewerage Area - Integrated Resource Recovery Study

   Similar to the VSA IRR Study above, this initiative was just launched and will look to create an overall strategy for developing opportunities for the recovery of energy, reclaimed water, and other materials in the Lulu Island Sewerage Area. This includes

opportunities for sewer heat recovery from the Lulu Island Wastewater Treatment Plant. This study is in its early stages and will be continuing throughout 2016.

6. Kwantlen Polytechnic University Micro-Sewer Heat Recovery Study

   Based on a request from Kwantlen Polytechnic University (KPU), the City completed a feasibility study for the utilization of recovered sewage heat energy from its Alderbridge Sanitary Pump Station (ASPS) on Kwantlen St. to potentially service a new facility at KPU. The study included analyzing the potential energy generation at this pump station, the energy demands of the new facility and estimates of implementation costs for a micro-scaled sewer heat recovery system similar to the Gateway project. The study showed promising results for a system of this kind.

Analysis

Metro Vancouver's sewer network and waste water treatment plants within Richmond appear to be able to provide energy for a large scale energy system. To date, the focus of the analysis of sewer heat recovery options in the City of Richmond has mainly been on larger projects and opportunities. Staff remain engaged on all the opportunities outlined above and will bring forward discrete opportunities for Council's consideration as they arise. In the case of the OVDEU, the proximity of the new Gilbert Road Trunk Sewer Main creates a scenario which is feasible for a direct connection to Metro Vancouver's sewer network. Staff will continue to work with stakeholders to explore these projects as a potential renewable energy source.

The above projects have focused mainly on larger scale projects, with the exception of the Gateway project and KPU study. Given the promising results that these projects two have shown, it is worth considering similar opportunities across the City. The sewer heat energy that is available within the City of Richmond's own sewer pipe network is unknown however. For this reason, there is value in assessing available energy within the City's own sewer network with the intent of identifying the potential for smaller scale projects that maximize heat recovery in Richmond. The network comprises pump stations, forcemains and gravity collectors; pump stations and larger forcemains have the highest potential for economic sewer heat recovery.

In this context, it is proposed to conduct a study to assess micro-Sewer Heat Recovery (mSHR) opportunities across all urban areas of Richmond. An mSHR system is envisioned to be defined by a series of mSHR energy plants which will provide thermal energy to either public or private buildings, as seen at the City's current demonstration project at the Gateway Theatre.

Traditional, larger scale SHR systems require significant capital investment to develop the energy plant. The density of energy demand in the Richmond's City Centre area will support these types of investments. mSHR is anticipated to carry lower capital costs however and as a result has potential for application in other areas of the community. The proposed study will investigate the feasibility of using standalone micro sewer heat recovery plants that will be housed in new developments or within existing pump stations. The study will firstly assess and identify recoverable heat in the City's sanitary sewer network, focusing on forcemains and pump stations. This work will build on the study that examined sewer heat in Metro Vancouver's

sewer forcemains. This information will then be compared against current and future land use identified in the Official Community Plan for the whole city in an effort to identify potential candidate locations that mSHR could be feasibly employed. With a shortlist of candidate areas identified, conceptual design and costing would be completed to better understand how the service can be delivered most effectively. This will include an estimation of costs, financing strategies and revenues for the City's district energy company, the Lulu Island Energy Company.

The KPU study showed promise for harvesting sewer heat at this scale. Applying this approach more broadly across the City is expected to reveal opportunities in other areas of the community for sewer heat recovery. In the KPU study, it was estimated that greenhouse gas (GHG) emission reductions would range from ~3.9 to 5 tonnes per annum for the one connected building. On the surface and with these possible outcomes, staff consider that sewer heat recovery of this scale has potential for connecting buildings to renewable energy sources throughout all parts of the community. If the study identifies that mSHR is technically feasible in any specific area, staff will bring information to Council identifying this feasibility, the catchment area and potential mechanisms available to the City for pursuing the establishment of a mSHR system based on both the technical feasibility and the viability of a business case analysis. For the reasons identified above, a recommendation is included to approve the general scope and budget for the study. To offset costs, staff have initiated an application for the Federation of Canadian Municipalities' Green Municipal Fund, which provides up to 50% of eligible costs to a maximum contribution of $175,000 for feasibility studies.

Financial Impact

The anticipated cost of the proposed study is $170,000 with a potential grant contribution from the Federation of Canadian Municipalities (FCM) of up to 50%. As this grant also accepts in-kind contributions as project cost, the FCM grant for this proposed study could be up to $100,000. If the grant is successful, the City's total contribution will be no more than $70,000. Funds are currently available for the study in the Carbon Tax Provision account. All FCM reimbursements would be returned to this account. An amendment to the City's 5 Year Financial Plan (2016-2020) will be required based on approval of this request.

Conclusion

The City remains engaged in multiple studies and initiatives which have explored the potential of using recovered sewer heat as an energy source for heating buildings in Richmond. With the focus of many of the previous investigations being on larger scale SHR systems, the feasibility of implementing smaller, decentralized systems in unknown. It is proposed to look further in to micro-Sewer Heat Recovery (MSHR) across all urban areas of Richmond by conducting a study to identify and analyze potential MSHR opportunities.

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

City of Richmond

Report to Committee

To:	Public Works and Transportation Committee	**Date:**	January 28, 2016
From:	John Irving, P.Eng. MPA Director, Engineering	**File:**	10-6125-07-02/2015- Vol 01
Re:	**Solar Friendly Richmond Framework**		

Staff Recommendation

That the staff report "Solar Friendly Richmond Framework" dated January 28, 2016, from the Director, Engineering, be received for information.

John Irving, P.Eng. MPA
Director, Engineering
(604-276-4140)
Att: 2

REPORT CONCURRENCE		
ROUTED TO:	**CONCURRENCE**	**CONCURRENCE OF GENERAL MANAGER**
Building Approvals Development Applications Policy Planning	☑ ☑ ☑	
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	**INITIALS:** DW	**APPROVED BY CAO**

Staff Report

Origin

On May 20, 2015, Planning Committee directed staff to "examine using solar energy as a source of power in the city and report back." This report responds to this direction. 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.*

Background

In 2010, Council adopted targets in Richmond's Official Community Plan to reduce community greenhouse gas (GHG) emissions 33% below 2007 levels by 2020, and 80% below 2007 levels by 2050. The 2041 Official Community Plan also includes a target to reduce energy use 10% by 2020 below 2007 levels. Richmond's 2014 Community Energy and Emissions Plan (CEEP) outlines an array of strategies and actions for the City to take to reduce community energy use and GHG emissions. Many of these strategies and actions relate to solar energy, including:

> ***Strategy 10:*** Utilize Local Energy Sources.
>
> - **Action 26:** Promote building scale renewable energy - explore opportunities to implement education, incentives and requirements.
>
> ***Strategy 13:*** "Lead by example" with City Operations Energy Management.

Analysis

Solar Energy Technologies

A variety of different solar technologies are applicable to buildings in Richmond, including:

- Solar photovoltaics (PV) – Solar PV panels produce electricity.
- Solar hot water – Solar energy is used to heat water for domestic use, swimming pools, etc.
- Solar air heating – A solar collector is used to pre-heat air, which is subsequently used in conditioned space.

Of these technologies, solar PV has experienced the greatest cost reductions in recent years. Some analysts suggest that it is now less costly to supply hot water using solar PV and a heat pump, than it is to install a solar hot water heating system. Solar air heating has proven cost effective in some applications, but is only applicable to a relatively small range of building types

(such as warehouses), and typically will only be installed during major building renovations or new construction. In contrast, solar PV is applicable to a wide range of building types, and can be technically fairly simple to implement. For these reasons, this report focuses predominantly on the installation of solar PV.

Solar PV Costs

The costs of solar PV modules has decreased markedly, resulting in a trend of reduced costs for installing PV on buildings (see Attachment 1). One estimate of the current average Canadian cost of installing rooftop PV on residential buildings is $3.60/Watt (W) of solar panel capacity; presuming a typical residential solar PV system is 5kW in capacity, this equates to a cost of $18,000 for a residential solar system. However, the installed costs vary between jurisdictions, suppliers and projects; City staff have received estimates that the average cost to install solar PV in British Columbia currently ranges from $3.00/W to $5.00/W.

The cost of solar includes the following components:

- Solar module (e.g. the panel).
- Other hardware (inverters, charge controllers, racking/mounting systems, etc.)
- Financing cost
- Installer profit
- Soft costs
    - Permitting, inspection and interconnection (electrical permits, building permits, utility interconnection).
    - Labour
    - Customer Acquisition (marketing).

Importantly, while modules and hardware are global commodities and have similar costs across jurisdictions, "soft costs" vary markedly. In Germany, the cost of rooftop solar is approximately $2.20/W compared to an average of approximately $3.60/W in Canada (Attachment 2). This difference is attributable mainly to Germany's lower "soft costs." Reducing solar's soft costs through more efficient use of labour (less staff "downtime"), improved marketing, and simpler permitting and interconnection requirements is one of the most important opportunities to decrease the costs of solar and make it more financially viable.

In a number of North American jurisdictions with higher electricity prices, sunny climates and/or favourable incentive policy regimes, rooftop PV is now cost competitive with the retail price of electricity, and is said to have reached "grid parity." In these jurisdictions, solar is growing very rapidly; indeed, the Solar Foundation's 2015 Solar Jobs Census reports that solar accounted for one out of every 83 new jobs in the U.S.A. in 2015.

However, due to the Lower Mainland's relatively low electricity prices and low annual levels of sunshine, residential solar would need to cost approximately $2.00/W to be competitive with the retail price of electricity. This is comparable to the costs that currently prevail in Germany. Industry stakeholders vary in their estimates for when this threshold could be consistently reached, with some estimating 5 to 10 years. The cost thresholds for "grid parity" for commercial

buildings will differ, as commercial buildings face different utility rates structures and there are some economies of scale to installing larger rooftop solar arrays.

Some building owners choose to install solar PV even when it is not competitive with retail electricity prices; this choice may reflect environmental values, technological interest, energy security concerns, leadership, and other reasons. However, reaching "grid parity" is widely seen as a key threshold, after which significantly greater volumes of buildings will opt to install solar PV.

BC Hydro's Net Metering Program

BC Hydro's net metering program is designed for residential and commercial customers who want to connect a small electricity generating unit to the BC Hydro distribution system. Generating units up to 100 kW in capacity that use a clean or renewable resource, including solar PV, are eligible to participate in the program. The program is open to residential and commercial customers with "smart metering."

When a net metering customer generates more electricity than they use, they receive a credit to their account that is subsequently applied to their future electricity use. At their anniversary date, participants with an excess generation credit remaining on their account will receive 9.99 cents per kWh from BC Hydro.

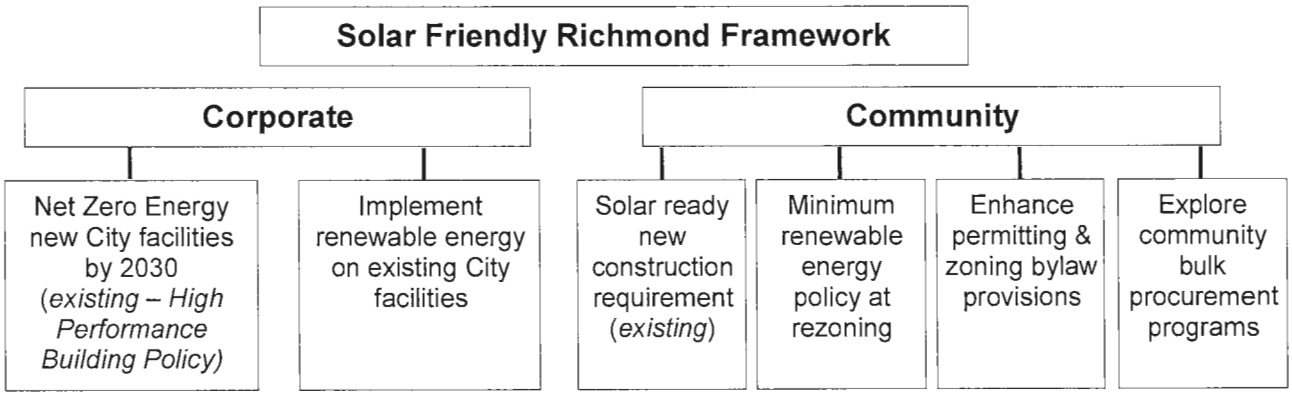
Other Energy Options

As costs decline in the future, solar is likely to play an increasing role in Richmond's energy supply mix. In the short to medium term, however, other energy technologies are anticipated to play a greater role in cost-effectively reducing energy use and greenhouse gas emissions in the community. Notably, energy efficiency technologies can deliver greater energy resources and emissions reductions for both existing and new developments at a fraction of the cost of solar energy. These technologies include heat pumps, which heat and cool spaces and provide hot water using renewable thermal energy sources (such a ground-source, air, or waste heat). Likewise, they include more efficient building enclosures, lighting, and mechanical equipment.

The City supports energy efficiency in a variety of ways – for example, by allowing an Energuide 82 or EnergySTAR for Homes (standards measuring of homes' energy efficiency) as part of its Townhouse Energy Efficiency and Renewable Energy policy. The City is also working with the province, utilities, and other stakeholders to develop a "stretch energy standard" for new buildings. Future City actions will focus on enabling both energy efficiency as well as renewable energy sources like solar to achieve the City's energy and emissions objectives.

A Framework for City Action on Solar

The diagram below illustrates a proposed comprehensive framework to enable greater uptake of renewable energy in Richmond. It includes both actions the City will take in its corporate operations, as well as actions to stimulate demand for solar in community buildings.



Elements of this framework are further explained below.

Corporate Action on Solar

The City of Richmond has taken a variety of leadership actions to integrate solar and other clean energy technologies into its corporate operations. In 2014, Council endorsed revisions to the "Sustainable High Performance Building Policy – City Owned Facilities" (Council Policy # 2307). Among other policies, it sets a goal to construct net zero energy and carbon neutral corporate buildings by 2030. This will necessitate the use of renewable energy.

The City has already integrated solar into a wide variety of corporate buildings and infrastructure. These include:

- Solar air heating on the South Arm Community Centre
- Solar hot water on Steveston Firehall No 2, South Arm Outdoor Pool, and Minoru Aquatic Centre.
- The Hamilton Fire Hall's "Trombe wall" solar collector
- Planned solar PV installations which will meet 33 per cent of electricity demand at the new Firehall No 1, and on the Minoru Complex building.

Opportunities to accelerate solar deployment

The City will continue to identify opportunities to integrate renewable energy into new and existing facilities. This may involve simply installing solar at a greater rate via the capital budgeting process, as solar becomes more affordable. Furthermore, other financing models may be considered, including third-party financing tools such as leases or power purchase agreements. Such third party financing tools are recognized as a means of accelerating solar deployment, as they do not require the owner to supply the required construction capital up front in order to install a solar system. Indeed, the majority of rooftop solar installed in North America in recent years uses third-party ownership mechanisms. Local governments can use such mechanisms, and also provide education about their availability to community members.

A number of local governments have also helped organize bulk procurement initiatives, involving municipal buildings as well as institutional, commercial, and residential properties in

the community. For instance, bulk procurement of solar installations can reduce the costs of installation, making solar more viable.

Further research is required regarding what options are most appropriate for Richmond. For this reason, staff are continuing to evaluate procurement models to accelerate the implementation of solar on City facilities, and potentially other buildings within the community.

Renewable Energy Policy for New Construction

In 2010, Council opted in to the provincial Solar Hot Water Ready Regulation for new single family homes. This regulation requires new homes to be constructed so that solar hot water and/or solar PV may be installed in the future.

As part of discretionary development processes at time of rezoning, there is an opportunity to request that developments include a minimum level of renewable energy. One policy that has been applied in a number of jurisdictions in Europe is to require new developments to provide a certain minimum percentage of projected energy use via onsite renewable energy; a requirement to provide 10% of a building's energy needs through on-site renewables is widely referred to as the "Merton Rule," after the municipality that pioneered this measure. This policy ensures deployment of renewables, while also encouraging more energy efficient building systems.

Adoption of such a "*city wide minimum level of renewable energy policy*" requires consideration of many factors, including the costs imposed on building developments. Any such policy would consider air-source and ground-source heat pumps to count towards renewable requirements, to provide options for meeting requirements cost effectively and in developments without adequate solar exposure (e.g. shading). Additionally, the City is participating in the provincial Energy Efficiency Working Group, which is developing a "stretch energy code" that can be applied to new buildings. It is recommended that adherence to the "Stretch Code" be a viable compliance pathway, once it is available.

A renewable energy policy is being considered as part of the update of the Steveston Village Heritage Strategy scheduled to be presented to Council in early 2016. Following its consideration as part of the Steveston Strategy, Sustainability staff will continue to evaluate a minimum renewable energy requirement for new developments city wide.

Enhancing Regulatory Processes for Renewable Energy and Energy Efficiency

A number of land use regulations can impact the viability of installing renewable energy. For example, building height restrictions in the Zoning Bylaw could hinder solar installations, if the additional height of the PV panels result in buildings exceeding building height limits. Richmond has already taken a number of actions to better accommodate green building practices in the Zoning Bylaw and other regulations; for example, the Zoning Bylaw provides allows green infrastructure service areas to be exempted from calculations of floor area. Nevertheless, there may be opportunities to further accommodate solar and other green building features; strategies to explore include providing a height limit exemption for solar energy systems, the exclusion of the building footprint taken up by above-code insulation within building walls from floor area calculations, and other strategies aimed at removing barriers to green building features.

Staff will undertake a review of the Zoning Bylaw and development permit guidelines to identify potential changes to increase the provision of renewable energy and energy efficiency technologies. Staff are also evaluating options for building permitting processes for such installations.

Financial Impact

Costs associated with accelerating deployment of renewable energy on city facilities are encompassed within existing capital and operating budgets; opportunities for further deployment will be brought forward for Council's consideration. The development of any policies at time of rezoning will involve minor consulting expenses. These are covered within the existing operating budget. Efforts to reduce barriers to renewable energy and energy efficiency in existing regulations can be accommodated with existing staff resources as part of future work plans.

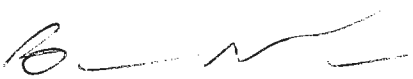
Conclusion

This report provides an overview of solar and other energy technologies and economics, and outlines a comprehensive framework for the City to support greater deployment of solar both in its corporate operations and in the community. Strategies which staff are pursuing include:

1. Exploring opportunities to accelerate the implementation of solar energy on City facilities.

2. Exploring policy for a minimum renewable energy requirement for new developments.

3. Identifying any potential barriers to green building strategies within the Zoning Bylaw, and exploring options to minimize regulatory processes.



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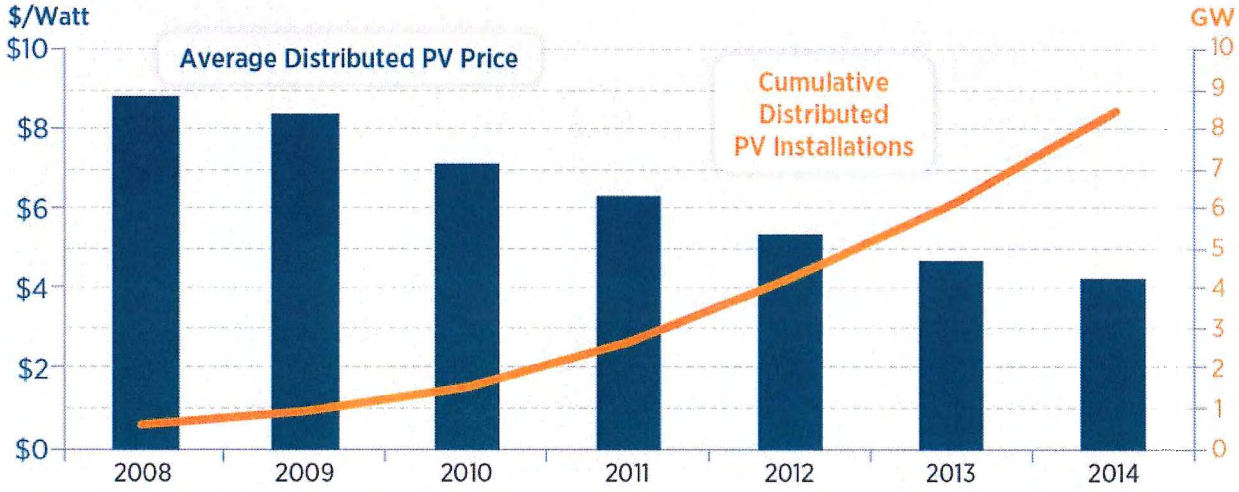
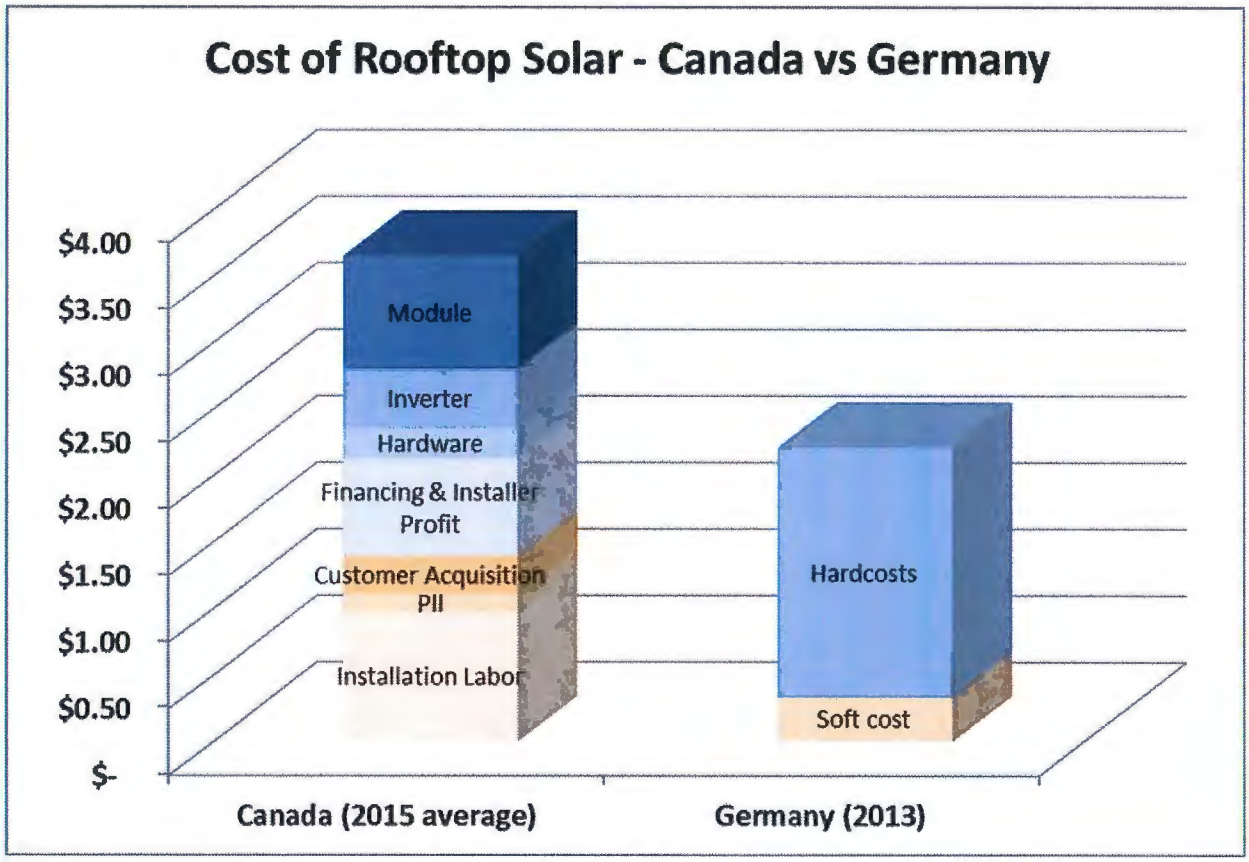
Att. 1: Cost trajectory of distributed solar PV in North America
2: Costs of Rooftop Solar – Canada vs. Germany

Attachment 1: Costs Trajectory of Distributed Solar PV in North America



Source: US Department of Energy. 2015.

Attachment 2: Costs of Rooftop Solar – Canada vs. Germany



Sources: HESPV; NRCan; Rocky Mountain Institute.