



Public Works & Transportation Committee

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

**Wednesday, February 22, 2012
4:00 p.m.**

Pg. # ITEM

MINUTES

PWT-5 *Motion to adopt the minutes of the meeting of the Public Works & Transportation Committee held on Wednesday, January 18, 2012.*



NEXT COMMITTEE MEETING DATE

Wednesday, March 21, 2012 (tentative date) at 4:00 p.m. in the Anderson Room

ENGINEERING AND PUBLIC WORKS DEPARTMENT

PWT-13 1. **NO.1 ROAD NORTH DRAINAGE PUMP STATION UPGRADE**
(File Ref. No. 10-6340-20-P.11314) (REDMS No. 3469687)

See Page **PWT-13** for full report

Designated Speaker: John Irving

STAFF RECOMMENDATION

That the design concept for the No.1 Road North Drainage Pump Station Upgrade be endorsed.



- PWT-19 2. TOILET REBATE PROGRAM**
(File Ref. No. 10-6650-02) (REDMS No. 3459822)

See Page **PWT-19** for full report

Designated Speaker: Lloyd Bie

STAFF RECOMMENDATION

That \$100,000 be allocated from the water levy stabilization provision to increase total 2012 Toilet Rebate Program funding to \$200,000.



- PWT-23 3. SUSTAINABLE GREEN FLEET POLICY 2020**
(File Ref. No. 10-6000-01) (REDMS No. 3358139)

See Page **PWT-23** for full report

Designated Speaker: Suzanne Bycraft

STAFF RECOMMENDATION

That Green Fleet Policy 2020 be re-named "Sustainable Green Fleet Policy 2020" and that the policy be amended by replacing the text of the current policy with the text set out in Attachment 4 of the report dated February 7, 2012 from the Director, Public Works Operations.



- PWT-39 4. PUBLIC SPACES RECYCLING PILOT PROGRAM - RESULTS**(File
(Ref. No. 10-6370-01) (REDMS No. 3459612)

See Page **PWT-39** for full report

Designated Speaker: Suzanne Bycraft

STAFF RECOMMENDATION

- (1) That the pilot program model be used to further develop and expand public spaces recycling in a graduated manner to City facilities, at City events, and to other City properties, including streetscapes, open spaces and parks; and*
- (2) That Nestlé Waters Canada be thanked for their sponsorship of the program and for the donation of the recycling containers to the City of Richmond.*



- PWT-79 5. 4252Q - AWARD OF CONTRACT FOR BATTERY-POWERED ICE RESURFACERS**
(File Ref. No. 10-6000-01) (REDMS No. 3442708)

See Page **PWT-79** for full report

Designated Speaker: Suzanne Bycraft

STAFF RECOMMENDATION

- (1) *That Contract 4252Q, for the Supply and Delivery of Five Battery-Powered Ice Resurfacers, be awarded to Vimar Equipment Ltd. at a total cost of \$453,430.00, plus applicable taxes and levies;*
- (2) *That the additional required funding of \$288,738.50 be approved with funding from the Public Works Equipment Reserve and that the 2012 Capital Budget and the 5-Year Financial Plan (2012-2016) be adjusted accordingly.*

☐

6. **MANAGER'S REPORT**

ADJOURNMENT

☐



Public Works & Transportation Committee

Date: Wednesday, January 18, 2012

Place: Anderson Room
Richmond City Hall

Present: Councillor Linda Barnes, Chair
Councillor Chak Au, Vice-Chair
Councillor Derek Dang
Councillor Linda McPhail
Councillor Harold Steves

Call to Order: The Chair called the meeting to order at 4:00 p.m.

It was agreed that 'Signage for the new RCMP Detachment' be added to the agenda.

MINUTES

It was moved and seconded

That the minutes of the meeting of the Public Works & Transportation Committee held on Wednesday, December 14, 2011, be adopted as circulated.

CARRIED

NEXT COMMITTEE MEETING DATE

Wednesday, February 22, 2012 (tentative date) at 4:00 p.m. in the Anderson Room

ENGINEERING AND PUBLIC WORKS DEPARTMENT

1. **2012 PAVING PROGRAM**
(File Ref. No. 10-6340-20-P.12201) (REDMS No. 3435271)

Public Works & Transportation Committee

Wednesday, January 18, 2012

Jim Young, Manager, Engineering Design and Construction, provided background information and commented on the City's early tendering process that has resulted in the City receiving highly competitive rates. Also, Mr. Young stated that the 3000-block of Moncton Street should be included on Attachment 1 of the staff report entitled '2012 Paving Program.'

In reply to queries from Committee, Mr. Young advised that the City's paving contractor is committed to utilizing sustainable methodologies, practices and materials as per the provisions of the contract. He mentioned that the City monitors the paving program to ensure the contractor is meeting the terms of the contract.

It was moved and seconded

That the staff report regarding the 2012 Paving Program be received for information.

CARRIED

2. **FUEL PURCHASES AGREEMENT – BC PETROLEUM PRODUCTS BUYING GROUP**

(File Ref. No. 10-6000-01/2011) (REDMS No. 3424005)

In reply to queries from Committee, Suzanne Bycraft, Manager, Fleet & Environmental Programs, provided the following information:

- the 2011 over-expenditure was partly due to increased fuel consumption as a result of additional receivables-based operations work, but it is primarily due to fuel price increases;
- the City does not have a specific policy on the source of the renewable content of fuels its fleet utilizes; and
- the City observes savings on fuel consumption on many of its passenger vehicles that utilize alternative fuel/hybrid vehicles.

Discussion ensued regarding the source of the alternative fuel the City's fleet utilizes. Ms. Bycraft advised that the City's Green Fleet Policy addresses a wide-range of factors from acquisition to maintenance of City fleet, however it does not specifically address the source of the alternative fuel purchased. The Green Fleet Policy does outline maximum fuel efficiency of vehicles as a key factor in the City's vehicle acquisition process.

Discussion further ensued regarding the use of food crops to produce biofuels and it was noted that the Richmond School District has a policy regarding the types of biofuels its fleet utilize.

Public Works & Transportation Committee

Wednesday, January 18, 2012

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

It was moved and seconded

That staff review the School District's policy on biofuels and report back on the feasibility of a similar policy for the City of Richmond.

CARRIED

In reply to a query from the Chair, Ms. Bycraft advised that the City is a member of the British Columbia Petroleum Products Buying Group, and as such commented that this would limit the City's ability to independently choose or restrict the source of its biofuels.

It was moved and seconded

That the City participate in the BC Petroleum Products Buying Group fuel purchases contract with Chevron Canada Ltd., commencing December 14, 2011 for a three-year period, with the option to renew for two additional one year periods, to a maximum of five years.

CARRIED

3. ADVANCE CAPITAL BUDGET APPROVAL – 2012 LULU WEST WATERWORKS AREA (WILLIAMS ROAD)

(File Ref. No. 10-6050-01) (REDMS No. 3438433)

In reply to queries from Committee, Mr. Young advised that (i) a main goal of the waterworks capital program is to replace ageing infrastructure prior to failure and to improve fire protection by locally increasing the system supply capacity; and (ii) an operating budget impact is anticipated as there will be a marginal increase in operating costs for the proposed new watermain.

Discussion ensued regarding the proposed watermain's financial implications on utility rates. John Irving, Director, Engineering, advised Council adopted the 2012 Utility Budgets and Rates in December 2011 and funding for the proposed project is available within the annual funding limits; therefore, the proposed watermain would not impact the 2012 utility rates.

It was moved and seconded

That 2012 Capital Project Submission 4719 (Lulu West Waterworks Area) as detailed in Attachment 1 of the staff report dated January 5, 2012 from the Director, Engineering be approved for expenditure and commencement of work.

CARRIED

PLANNING AND DEVELOPMENT DEPARTMENT

4. RICHMOND COMMUNITY CYCLING COMMITTEE – PROPOSED 2012 INITIATIVES

(File Ref. No. 01-0100-20-RCYC1/2012) (REDMS No. 3414787)

Public Works & Transportation Committee

Wednesday, January 18, 2012

Donna Chan, Manager, Transportation Planning, introduced Larry Pamer, Chair of the Richmond Community Cycling Committee.

Discussion ensued regarding the various different types of active transportation, and in reply to a query from Committee Mr. Pamer advised that the Committee would consider broadening its mandate to include other wheeled devices, if the need arose. Mr. Pamer commented that painted bike lanes are great enhancements and noted that there was precedence in Richmond for blue bike lanes. Staff was directed to examine painted bike lanes.

It was noted that a copy of the staff report should be forwarded to Vancouver Coastal Health for their information as many of the initiatives outlined in the staff may be of interest to them.

Discussion ensued regarding an upcoming staff report anticipated to go to the next Community Safety Committee meeting and the Chair requested that staff comment on cycling education and safety when that report comes forward.

It was moved and seconded

- (1) *That the proposed 2012 initiatives of the Richmond Community Cycling Committee regarding cycling-related engineering and education activities, as described in the report from the Director, Transportation, be endorsed; and*
- (2) *That a copy of the report from the Director, Transportation entitled "Richmond Community Cycling Committee - Proposed 2012 Initiatives" be provided to the Council School Board Liaison Committee and Vancouver Coastal Health for information.*

CARRIED

It was moved and seconded

That staff examine the possibility of expanding the Richmond Community Cycling Committee beyond cycling.

CARRIED

5. **TRAFFIC SAFETY ADVISORY COMMITTEE – PROPOSED 2012 INITIATIVES**

(File Ref. No. 01-0100-20-TSAD1-01) (REDMS No. 3410268)

In reply to a query from Committee, Ms. Chan commented on how staff measure the success of traffic safety initiatives and it was suggested that staff collect more feedback.

It was moved and seconded

- (1) *That the proposed 2012 initiatives for the Traffic Safety Advisory Committee, as outlined in the report from the Director, Transportation, be endorsed; and*

Public Works & Transportation Committee

Wednesday, January 18, 2012

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

CARRIED

6. MANAGER'S REPORT

(i) *Accessible Bus Stops*

Ms. Chan referenced a letter from TransLink's Access Transit Users' Advisory Committee requesting that Richmond increase its number of accessible bus stops. It was noted that of Richmond's 711 bus stops, approximately 402 are wheelchair and scooter accessible. Ms. Chan noted that since TransLink's letter, Richmond has commenced the installation of two more accessible bus stops (Garden City Road at Ferndale Road, and Railway Avenue at Woodward's Road) and relocated another (Moncton Street at Steveston Community Centre).

In reply to queries from Committee, Ms. Chan stated that the City typically budgets for four to six accessible bus stops a year and the cost of an accessible bus stop ranges significantly depending on the scope of the project.

(ii) *No. 1 Road and Moncton Street Intersection*

Ms. Chan stated that staff have received lots of positive feedback from residents and businesses regarding the newly upgraded intersection at No. 1 Road and Moncton Street.

(iii) *Steveston Highway Interchange*

Ms. Chan referenced a memorandum dated January 10, 2012 from the Director, Transportation (attached to and forming part of these Minutes as Schedule 1). She spoke of a recent meeting with the Honourable Blair Leckstrom, Minister of Transportation and Infrastructure regarding the Steveston Highway-Highway 99 Interchange and noted that Minister Leckstrom committed to directing his staff to work with City staff to address current traffic deficiencies.

(iv) *Speed Along Garry Street*

Discussion ensued regarding speeding along Garry Street and Ms. Chan advised that a speed study was forthcoming.

(v) *Snow Update*

Tom Stewart, Director, Public Works Operations, advised that the City was able to pre-salt many routes in anticipation of the snowfall. Also, he commented on 12-hour shifts, noting that they ensure 24-hour coverage. The Chair requested that staff provide an update on the implementation of 12-hour shifts at the conclusion of the snow season.

Cllr. Au left the meeting (4:48 p.m.).

Public Works & Transportation Committee

Wednesday, January 18, 2012

(vi) 2012 Capital Projects Open House

Mr. Irving spoke of the 2012 Capital Projects Open House, noting that it is tentatively scheduled for April 4, 2012.

Cllr. Au returned to the meeting (4:49 p.m.).

(vii) Signage for the new RCMP Detachment

Discussion ensued regarding the lack of signage for the new RCMP detachment located at 11411 No. 5 Road. Robert Gonzalez, General Manager, Engineering and Public Works, noted that staff would address the lack of signage.

ADJOURNMENT

It was moved and seconded

That the meeting adjourn (4:50 p.m.).

CARRIED

Certified a true and correct copy of the Minutes of the meeting of the Public Works & Transportation Committee of the Council of the City of Richmond held on Wednesday, January 18, 2012.

Councillor Linda Barnes
Chair

Hanieh Floujeh
Committee Clerk



City of Richmond

Schedule 1 to the Minutes of the
Public Works and Transportation
Committee meeting held on
Wednesday, January 18, 2012.

Memorandum Planning and Development Department Transportation

To: Mayor and Councillors
From: Victor Wei, P. Eng.
Director, Transportation

Date: January 10, 2012
File: 01-0150-20-THIG1/2012-
Vol 01

**Re: MEETING WITH MINISTER OF TRANSPORTATION AND INFRASTRUCTURE ON
STEVESTON HIGHWAY-HIGHWAY 99 INTERCHANGE IMPROVEMENTS**


Mayor Brodie and staff met with Honourable Blair Leckstrom, Minister of Transportation and Infrastructure, and Ms. Linda Reid, MLA Richmond East, on January 10, 2012 to discuss the traffic safety and deficiency issues related to the Steveston Interchange/overpass at Highway 99. The purpose of the meeting was to gain ministerial support for carrying out technical investigation on feasible short-term improvements at the interchange to address the traffic issues prior to determining the long-term improvements for the George Massey Tunnel.

The background information on the Steveston Highway-Highway 99 Interchange and related traffic issues shared with the Minister and MLA Reid is attached.

The above information was well received by Minister Leckstrom. At the close of the meeting, he committed to directing his staff to work with City staff to study the Steveston Interchange with the objective of identifying the recommended improvements to address current traffic deficiencies. To this end, Ministry staff will contact City staff shortly to meet and discuss the next steps for developing a work program for the traffic study.

While understandably no initial financial commitment was made at the meeting by the Minister on funding the construction of the interchange improvements, his commitment on commencing the planning work is considered a significant step towards realizing early traffic improvements to the interchange in advance of the tunnel improvements.

I will continue to update Council on this work as it progresses. In the meantime, if you have any questions regarding this issue, please contact me.


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

JC:lce
Att. 1
pc: TAG

PHOTOCOPIED

JAN 11 2012

RECEIVED





City of Richmond

Report to Committee

To: Public Works and Transportation Committee

Date: February 7, 2012

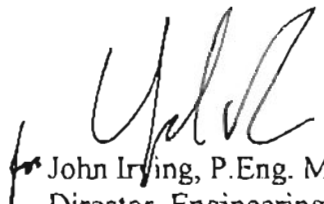
From: John Irving, P.Eng. MPA
Director, Engineering

File: 10-6340-20-
P.11314/Vol 01

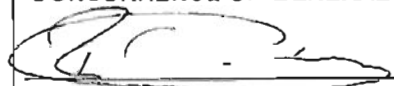
Re: No.1 Road North Drainage Pump Station Upgrade

Staff Recommendation

That the design concept for the No.1 Road North Drainage Pump Station Upgrade be endorsed.


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

Att. 1, 2 & 3

FOR ORIGINATING DEPARTMENT USE ONLY			
ROUTED TO:	CONCURRENCE		CONCURRENCE OF GENERAL MANAGER
Sewerage and Drainage	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>		
Parks	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>		
Public Art	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>		
REVIEWED BY TAG	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>	REVIEWED BY CAO
			YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>

Staff Report

Origin

The No.1 Road North Drainage Pump Station was constructed in 1976. Staff have advanced design to the point whereby the general layout and architectural features have been identified.

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

Analysis

The City's extensive flood protection and drainage system includes 49 kilometres of dikes, a series of ditches/canals, underground pipe and 39 drainage pump stations. The drainage system is designed to prevent the City from flooding during up to a 1:10 year rainfall event.

The existing No.1 Road North Drainage Pump Station services areas along No.1 Road bounded by the north dike to Francis Road including Terra Nova. This station was constructed in 1976 and contains old, antiquated equipment and is in need of a pumping capacity increase to adequately meet current flood protection standards.

Design of an upgraded No.1 Road North Drainage Pump Station commenced in Fall 2011 and has advanced to a point whereby the general layout and architectural features have been identified (Attachments 1, 2 & 3).

In general, the pump station layout has been designed to keep as low a profile as possible in order to preserve view corridors. The design currently has the proposed pump station roof at a slightly lower elevation than the existing pump station roof, thereby preserving and/or enhancing the view corridor. The proposed pump station wall facing No.1 Road will be relatively prominent and present an opportunity for beautification and/or public art.

The station is also incorporated into the highly utilized dike trail system connecting the Middle Arm dike to Terra Nova. Accordingly, the pump station maintenance accesses are visualized to be appealing and complimentary to the existing trails while at the same time providing the necessary means for pump station operations and maintenance activities. It is also proposed that short sections of the adjacent dike be raised to meet the look-out/viewing area at the top of the proposed pump station structure which will be at 4.7 metres geodetic. The current elevation of the dike is approximately 3.3 metres geodetic. The 4.7 metre elevation is also consistent with the City's Long Term Flood Management Strategy to address sea level rise.

Subject to Council's support, a public open house will be held shortly to get feedback on the design.

It is anticipated that design will be complete by April 2012, with construction to follow immediately thereafter. It is anticipated that construction will take place over a period of approximately six months.

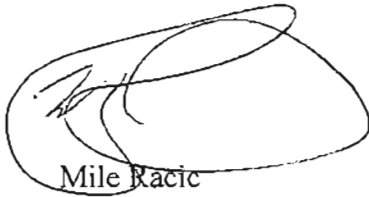
Financial Impact

Funding to complete the No.1 Road North Drainage Pump Station upgrades has been approved by Council as part of the 2012 Capital Program.

While the total project value is \$3.45 million, the No.1 Road North Drainage Pump Station project has been approved for grant funding under the Build Canada Fund – Base Fund Agreement - Flood Protection Program for up to \$2.3 million in federal/provincial funding (²/₃ cost share).

Conclusion

The No.1 Road North Drainage Pump Station has been approved in the 2012 Capital Program. Design has progressed to the point where the general layout and architectural features/opportunities have been identified. Subject to Council's support, a public open house will be held shortly to gain feedback on the proposed design.

A handwritten signature in black ink, appearing to read 'Mile Racic', enclosed within a large, loopy oval shape.

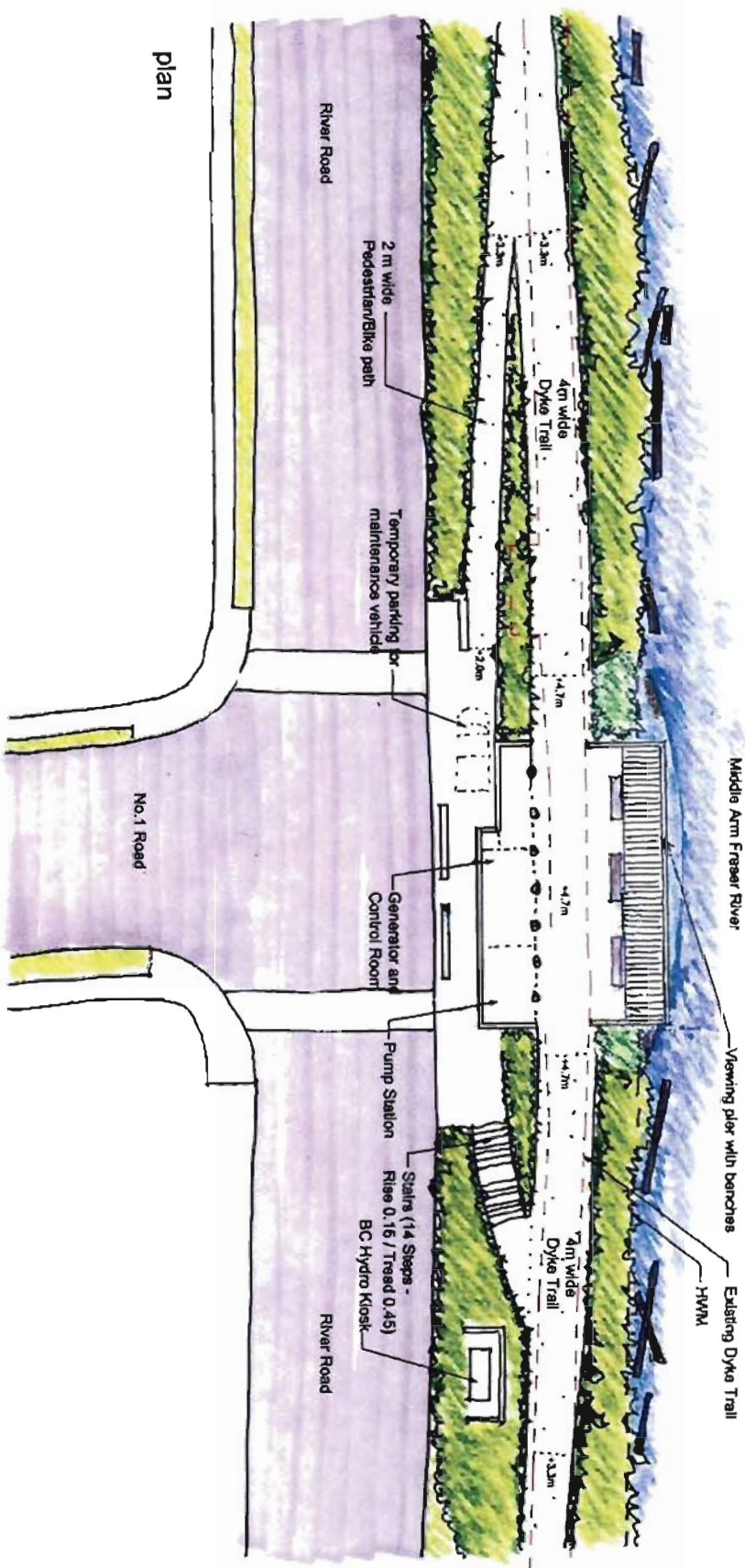
Mile Racic
Acting Project Manager, Engineering Design and Construction
(604-247-4655)

ATTACHMENT 1

elevation



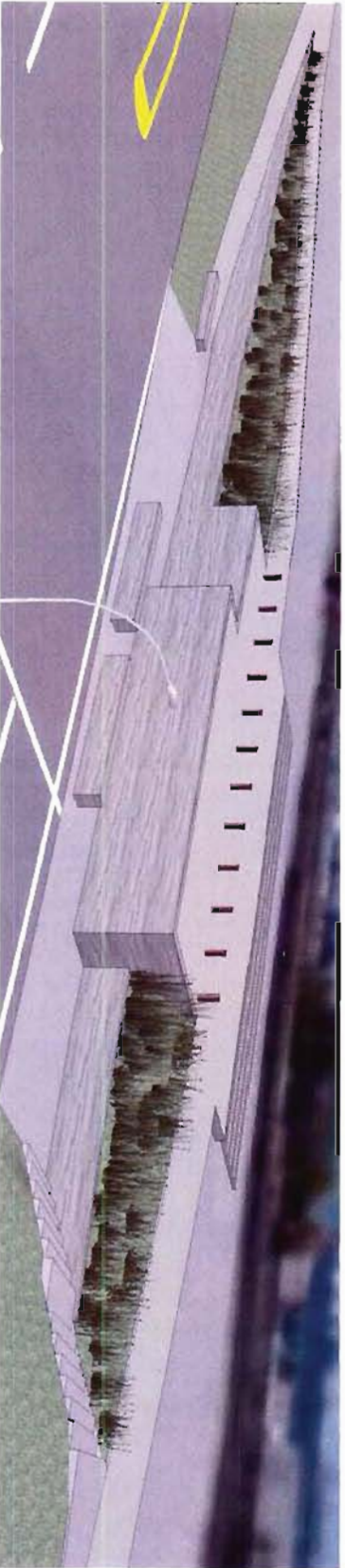
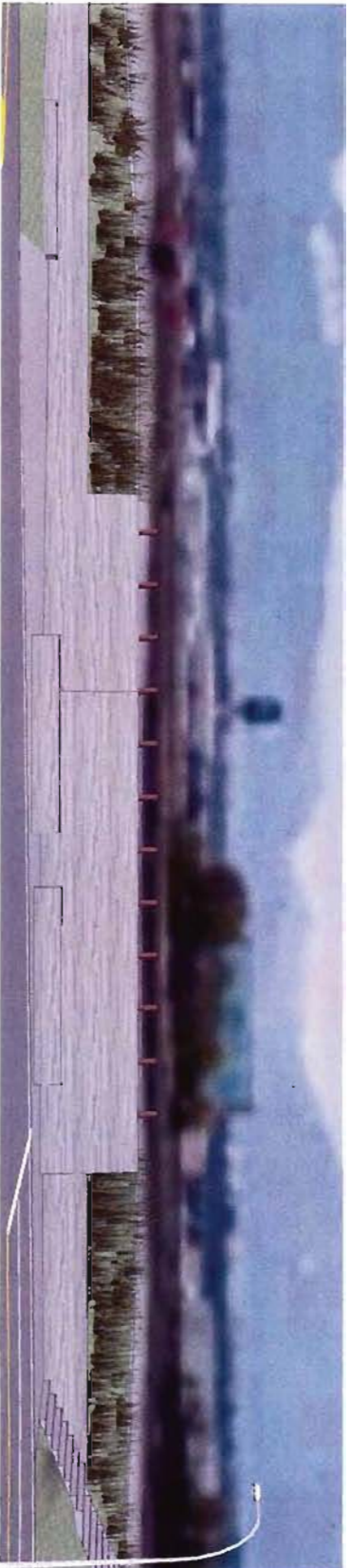
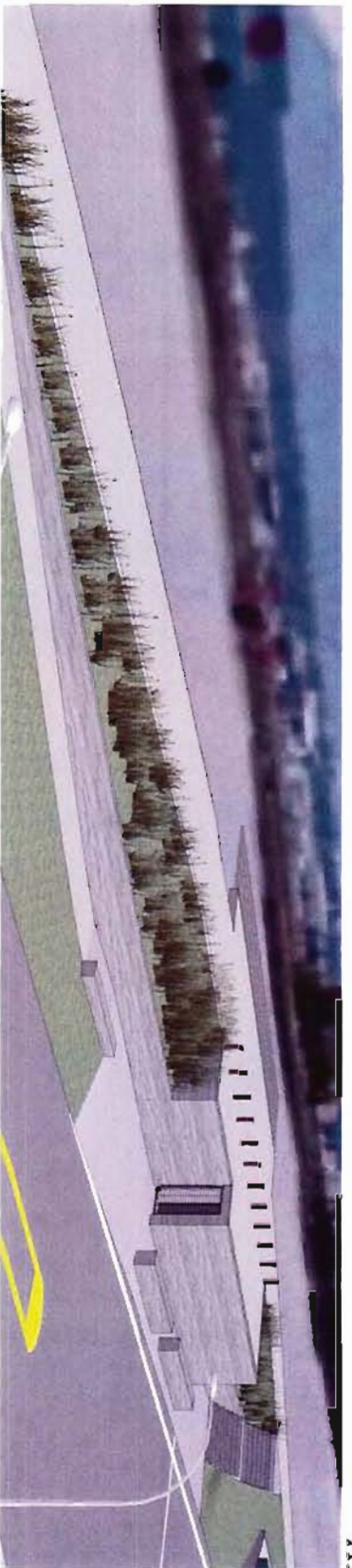
plan



No. 1 Road North Drainage Pump Station Upgrade
option 1a



1:150 (22x34)
1:500 (14x17)
2012.01.24





weathering steel



board formed concrete and wood



rammed earth



gabion and riprap



public art



plants

No.1 Road North Drainage Pump Station Upgrade materials



2012.01.24



City of Richmond

Report to Committee

To: Public Works and Transportation Committee

Date: February 7, 2012

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

File: 10-6650-02/2012-Vol
01

Re: Toilet Rebate Program

Staff Recommendation

That \$100,000 be allocated from the water levy stabilization provision to increase total 2012 Toilet Rebate Program funding to \$200,000.

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

FOR ORIGINATING DEPARTMENT USE ONLY			
ROUTED TO:		CONCURRENCE	CONCURRENCE OF GENERAL MANAGER
Budgets		Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	
Water Services		Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	
REVIEWED BY TAG	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>	REVIEWED BY CAO
			YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>

Staff Report

Origin

At the December 12, 2011 Regular Council Meeting, Council adopted the following motion:

“(1) That the 2012 Utility Expenditure Budgets, as outlined under Options 1 for Water, and Sewer, Option 2 for Solid Waste & Recycling, and Option 3 for Drainage & Diking as contained in the staff report dated December 1, 2011 from the General Managers of Business and Financial Services and Engineering & Public Works, be approved as the basis for establishing the 2012 Utility Rates;”

This motion included \$100,000 in funding from the water provision account for the 2012 Toilet Rebate Program.

This report outlines the current status of the Toilet Rebate Program.

Analysis

In October 2011, the British Columbia Plumbing Code was amended to require 4.8 litre single-flush or 4.1 litre / 6 litre dual-flush toilets. The code was previously amended to require 6 litre toilets in 2005. Prior to 2005, a typical toilet used 13 litres per flush.

Toilets account for approximately 30% of indoor water usage (based on older 13 litre toilets), and changing to low-flush toilets can reduce up to 68% of toilet water usage (75 litres per person per day). Toilet replacement is an important element in an overall water demand management strategy that reduces water consumption and improves municipal sustainability.

In addition to environmental benefits, there are also financial benefits that are realized through toilet replacement. Low-flush toilets can save the City approximately \$40 per dwelling per year in Metro Vancouver water charges when compared to older toilets. With the current rate structure, direct savings can be realized by metered customers and indirect savings may be realized by flat rate customers. Additionally, the per capita water use reduction allows the City and Metro Vancouver to defer infrastructure upgrades that would otherwise be required due to growth.

The City offers a \$100 rebate to homeowners for replacing older, less efficient toilets with new low flow toilets through the Toilet Rebate Program. The simple payback period realized by the City for a typical flat rate dwelling (based on two toilet rebates in a typical dwelling) is approximately five years.

Staff estimated that \$100,000 would be sufficient for the 2012 Toilet Rebate Program, as the City received an average of 880 applications per year in 2010 and 2011; however, there has been an overwhelming amount of interest so far this year and the program is on pace to exhaust the budget well before year-end. This is mainly due to large-scale, batch applications recently received from owners of multiple dwellings. Currently, there are three batch applications that account for a total of approximately 300 toilets. These applications are unusual and have a larger budget impact than anticipated. However, they also provide the benefits of accelerated program

implementation and indirect support to renters who would otherwise not benefit from the program. With a total of 460 toilet rebates processed to date in 2012 (including the batch applications), the toilet rebate budget has \$54,000 in remaining funding, with 11 months remaining in 2012.

Three options are presented below for Council consideration as the City moves forward with administering the 2012 Toilet Rebate Program:

Option 1: Status Quo

The program could be administered until the budget is fully depleted, and any applications submitted after that point would be retained and processed in the future if the program is extended. This could create a backlog of rebate submissions, essentially deferring the rebates to the next budget year.

Option 2: Modify Rebate Offer for Owners of Multiple Properties

A limit could be placed on future applications from owners of multiple properties, in order to reduce the impact of large-scale, batch applications on the toilet rebate budget. Owners of multiple properties could be limited to 20 toilet rebates per year, while maintaining the lifetime maximum of two toilets per dwelling.

Option 3: Apply Additional Funding (Recommended)

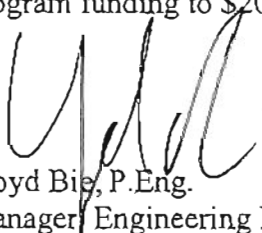
\$100,000 could be allocated from the water levy stabilization provision to increase total 2012 program funding to \$200,000. This level of funding will likely support the program through the end of this year. Should this funding be exhausted prior to the end of 2012, subsequent applications would be held for funding consideration in 2013.

Financial Impact


There is \$7M of available funding in the water levy stabilization provision that could be used to fund the recommended \$100,000 additional funding for the Toilet Rebate Program in Option 3.

Conclusion

The Toilet Rebate Program continues to be in high demand and there are funds available that could be used to extend the Toilet Rebate Program for the rest of this year. Staff recommend that \$100,000 be allocated from the water levy stabilization provision to increase total 2012 program funding to \$200,000.



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



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

JH:jh



City of Richmond

Report to Committee

To: Public Works and Transportation Committee

Date: February 7, 2012

From: Tom Stewart, AScT.
Director, Public Works Operations

File: 10-6000-01/2011-Vol
01

Re: Sustainable Green Fleet Policy 2020

Staff Recommendation

That Green Fleet Policy 2020 be re-named "Sustainable Green Fleet Policy 2020" and that the policy be amended by replacing the text of the current policy with the text set out in Attachment 4 of the report dated February 7, 2012 from the Director, Public Works Operations.

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

Att. 4

FOR ORIGINATING DEPARTMENT USE ONLY			
ROUTED TO:	CONCURRENCE		CONCURRENCE OF GENERAL MANAGER
Sustainability	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>		
REVIEWED BY TAG	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>	REVIEWED BY CAO
			YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>

Staff Report

Origin

This report presents an overview of the City's Public Works equipment and the corporate vehicle fleet. Discussion concerning the funding status and actions which have been implemented to close the funding gap, recommended actions and future policy-based strategies to secure the long-term financial well-being of the reserve -- are outlined for consideration.

It should be noted that there is currently inadequate funding to replace the vehicles and equipment on a long term sustainable basis in the fleet reserve. This report only addresses the Policy and does not commit Council to additional levels of funding. If, in the future additional funding is required, it will be brought to Council for consideration under a separate report.

Analysis

1. Background

Under Reserve Fund Establishment Bylaw No. 7812, the City has established a separate reserve fund (Public Works/Corporate Vehicle and Equipment Reserve) for replacement of Public Works equipment and the corporate vehicle fleet. The reserve is populated with an annual contribution which is recovered via monthly or hourly vehicle charges assessed on individual units. In turn, the contribution from each respective department is funded by general revenue/utility rates/taxes or receivable work. Monthly charges are used generally for cars and trucks, and hourly charges are used for larger equipment, which allows for tracking of costs associated with various activities or assets (e.g. maintenance, receivable or construction activities).

In keeping with the purpose of the reserve, these funds are used to purchase replacements for existing vehicles or equipment that have reached the end of their life cycle. Equipment/vehicles, which have been replaced and determined as surplus, are disposed of in accordance with Disposal of City Assets Policy 2003, unless approved by Council for donation. Generally, vehicles are sold at auction unless they are not safe or suitable for this purpose, in which case they are scrapped.

The vehicle reserve is not intended to be used in situations where additional vehicles/equipment are required due to plant growth or staffing increases, or to top-up/expand the features of a vehicle being replaced where those additional features add considerably to the purchase price of the vehicle. In these situations, an alternative funding source requiring Council approval (one-time additional level, surplus, etc.) is sought for the initial acquisition or the additional features, with subsequent replacement being funded from the vehicle reserve (once the vehicle has paid into the reserve over its life-cycle).

2. Overview of Corporate Vehicle and Equipment Fleet

The City has approximately 525 units in its corporate vehicle and equipment fleet. This includes light duty (cars and small pickup trucks), medium duty (utility workhorse vans and large pickup trucks), heavy duty (backhoes), equipment (tractors, excavators) and machinery (pressure

washers, etc.). These vehicles and equipment are used to support all business units within the City (excluding Fire and RCMP) in delivering services to the community and maintaining City infrastructure and operations. The total replacement value of the corporate vehicle and equipment fleet is approximately \$34 million.

3. Current Reserve Situation

The reserve balance will fluctuate based on on-going vehicle replacements and timing of expenditures. As of December 31, 2010, the reserve balance was \$5,888,546.

At the present time, approximately \$1,675,000 is contributed annually from the vehicle/equipment charge-out rates to help fund the reserve, which, in turn, is funded by general revenue/utility rates/taxes or receivable work. Annual capital expenditure requests for acquisitions based on priority (age, condition, etc.) are submitted for Council approval. In general, annual expenditures are limited to the level of the annual contribution in order to ensure the financial stability of the reserve balance. This results in replacement of a lower number of vehicles than required, causing a ballooning effect which is driving up the age of vehicles/equipment and future funding requirements.

Retaining vehicles that have well-exceeded standard replacement cycles, i.e. based on age, hours of use, mileage, condition, etc., can result in a fleet which may not meet changing or current operational requirements. At the same time, maintaining an ageing fleet can drive up operating and maintenance costs. Having vehicles or equipment fail unexpectedly is costly given work crew downtime impacts and material delays, which leads to leasing equipment at higher rates for short periods of time to meet customer service commitments.

4. Reserve Review, Findings and Actions

An independent management and business consulting firm was retained to undertake a financial review to assess the adequacy of the vehicle/equipment reserve to meet the City's short and long term requirements for replacements. Key findings from this study and the actions undertaken or in-progress to date are discussed in the following section.

Key Findings

- 4.1 Fleet Renewal: Richmond's fleet is relatively old given daily usage patterns and operational wear and tear -- the average age of vehicles in the fleet is 9.8 years. As a result, many vehicles are nearing the end of their useful service life, making the fleet due for significant renewal.
- 4.2 Replacement Cycle: Replacing all of the units due for replacement based on age would deplete the existing reserve fund under current contribution levels -- a considerable funding requirement given the total value of the fleet is approximately \$34 million.
- 4.3 Reserve levels: To be sustainable, the annual reserve payment needs to be increased from the current \$1.67 million to approximately \$3.1 million (or an increase of \$1.43 million annually).

Each of these points is discussed further as follows.

4.1 Fleet Renewal

A significant renewal program is currently underway through the capital programs approved by Council. There are approximately 76 units, totalling \$5,876,421 which are actively undergoing renewal. This represents approximately 14% of the total fleet (vehicles and equipment ~525 units). At present, approximately 42 vehicle and equipment units have either been received or are on order and will be received shortly (including excavators/backhoe, a sweeper, a 22-passenger bus, various cars and trucks) totalling approximately \$3 million. Replacements for the remaining units are underway - at various stages of the process, tender stage, evaluation stage, etc. A summary of the active replacement program, the status and associated value of the replacements is included in **Attachment 1**. Also included is the listing of 2012 planned replacements, per the capital budget process. The 5-year plan, from 2012 – 2016, includes replacements for 265 units.

4.2 Replacement Cycle

As noted previously, the average age of the City's fleet is 9.8 years. It is not affordable or practical to replace all of the vehicles/equipment due for replacement at once based on a standard 10 year life-cycle. Therefore, an individual assessment (age/condition/repair history, etc.) of the fleet (vehicles and equipment) was undertaken to establish realistic replacement timeframes, ranging from a low of 7 years to a high of 20 years, depending on use. In some cases, units will not be replaced at the end of their useful life where the level of use does not justify replacement, i.e. downsizing.

This exercise of not replacing vehicles due to a lack of usage is a best practise that should be embedded in the City's fleet replacement strategy going forward.

The outcome of the individual vehicle/equipment assessments undertaken has been formulated into a long-term replacement plan, which projects replacements to 2030. The plan will be somewhat fluid in nature and will be reviewed regularly to reflect realistic replacement timeframes, costs and needs on an on-going basis.

4.3 Vehicle/Equipment Reserve Level

The consultant review identified that the annual reserve contribution should be increased to \$3.1 million (from \$1.675 million) or a total annual increase of \$1.43 million. Recognizing the impact that such a significant increase would have on budgets, staff undertook a number of measures to try to reduce the impact of the required increase, and in particular, the impact on budgets:

- a) As part of the vehicle assessment (as noted under Item 4.2, above), the funding allocation for individual replacements was evaluated and tightened up as much as possible to reflect optimal pricing strategies, in alignment with Council's existing Green Fleet Policy 2020 (**Attachment 2**). Included in optimal pricing strategies will be a value-based approach, meaning that where it makes best business sense and in

accordance with Council's Green Fleet Policy, staff can review alternative acquisition strategies for vehicles and equipment (such as acquiring lease return units, financed purchases, etc.) where it provides best value and in consideration of the total cost of ownership. It is recommended that this approach also be embedded in the City's funding strategy going forward.

By incorporating optimal pricing strategies, combined with the downsizing exercise (identifying those units which will not be replaced at the end of their life-cycle per 4.2, above), the additional annual increase requirement is reduced by \$425,000, or to approximately \$1 million (or a total annual reserve contribution of \$2.675 million).

- b) In an effort to further reduce the impact of the additional annual requirement on operating budgets, the purchase costs for vehicle replacements principally used to support Water/Sewer Services can be funded from Water/Sewer utility budgets, with user charges flowing back to the fleet reserve. By incorporating this approach into the long-term vehicle replacement plan analysis/funding strategy (to 2030), the additional annual funding requirement can be reduced by a further \$500,000.

The above strategies represent a significant reduction in the additional funding requirement to stabilize the reserve; however, an annual shortfall of \$500,000 in the required annual reserve contribution remains, as outlined below.

Fleet Vehicle Reserve – Additional Annual Funding Required		
1.	Existing Annual Reserve Contribution	\$1,675,000
2.	Required Annual Reserve Contribution per Independent Review	\$3,100,000
3.	Annual Reserve Shortfall	(\$1,425,000)
4.	Downsizing/Optimal Pricing Strategies – Savings (per Item 4.2 & 4.3 a)	\$425,000
5.	Running Sub Total: Annual Reserve Shortfall	(\$1,000,000)
6.	Fund Vehicles from Utility Budgets – Reallocation (per Item 4.3 b)	\$500,000
7.	Running Sub Total: Annual Reserve Shortfall	(\$500,000)

To summarize, the strategies outlined above have reduced the total annual funding requirement from that identified by the independent consultant from \$3,100,000 to \$2,175,000. With the annual reserve contribution currently at \$1,675,000, there remains a shortfall of \$500,000 annually. The following section presents a recommended approach to address this gap.

5. Funding Strategy Options to Address Remaining Annual Reserve Shortfall

- a) *Contribution to Reserves:* Staff annually estimate annual hourly usage of vehicles in order to develop the fleet operating budget. The estimate of hourly usage is based on projections for maintenance, capital, receivable and servicing agreement work that may be requested of the City's hourly vehicle fleet, which incorporates a prediction on how much development servicing will be requested for the year. As can be expected, the projected usage is somewhat conservative in order to ensure that budgeted revenue targets can be met. However, when receivable and servicing

agreement work requested through development exceeds budgeted revenues, a portion of the rate (approximately 20%) is dedicated to the replacement of the vehicle or equipment given its usage. Included in the proposed policy amendment is the transferring of excess revenues related to vehicle and equipment usage into the Public Works/Corporate Vehicle and Equipment Reserve. While this amount will vary annually, it is a key principle in establishing a sustainable reserve – the more equipment is used, the sooner it will require replacement and the revenues recovered should contribute towards replacement.

- b) *Status Quo*: No action could be taken to increase the reserve contribution. This option would result in the reserve being completely depleted by the 2020/2021 timeframe, as shown by the blue line on **Attachment 3**. This option does not create a sustainable funding source for replacements beyond that timeframe. Other options, such as borrowing, could be pursued at that time.

Staff do not recommend this option since it is not financially sustainable.

- c) *Increase the annual reserve contribution; review incremental increases annually*: Under this option, based on ongoing reviews of the reserve status and vehicle/equipment replacement funding requirements, an incremental increase would be proposed on an additional level basis at appropriate intervals.

The green line on **Attachment 3** reflects a \$250,000 annual increase, supplemented by an arbitrary incremental increase of \$25,000 commencing in 2013. The \$25,000 annual incremental increase was selected arbitrarily for evaluation purposes. Any proposed annual amount would be adjusted to reflect an approach toward creating sustainable reserve levels. Amounts will vary based on efficiency gains or increased revenues and will be evaluated annually. Any proposed increases would be submitted as part of the budget process for Council's consideration and, as such, this will not be included as a recommendation in the Sustainable Green Fleet Policy. However, staff will continue to evaluate and recommend an approach which leads towards embedding full costs into vehicle and equipment rates in alignment with best sustainability practices.

6. Funding Strategy Policy Elements

As discussed throughout in this report, there are a number of components necessary to create an effective funding strategy. These include best practises designed to help minimize costs, increased revenues from expanded use of City equipment resulting from overall efficiencies in Public Works operations, fleet efficiency gains, and supplemental funding – all of which are designed to create a sustainable funding approach to the City's fleet and equipment needs. To capture the best practices aspects of the strategy as outlined in this report and embed them in City policy, it is recommended that existing "Green Fleet Policy" 2020, be amended by:

- a) Renaming the policy to "Sustainable Green Fleet Policy",
- b) Adding to the existing policy statement, "employ an effective strategy to ensure a sustainable funding model is maintained for vehicle and equipment acquisitions".

- c) Adding the following best practices as Item “5. Vehicle and Equipment Reserve Funding Strategy”:

“The City will employ strategies to maintain a sustainable reserve funding model for vehicle and equipment acquisitions which allows for appropriate replacement cycles, maximizes suitability and efficiency to required applications and which:

- Downsizes by not replacing units where usage does not constitute an on-going need
- Clarifies that replacement of vehicles and equipment will be on a same level of service basis consistent with the approved budget
- Incorporates alternative acquisition strategies which represent best value and take into account the total cost of ownership
- Provides funding for vehicle/equipment acquisitions from utility funding sources, where those vehicles/equipment principally support those business areas
- Transfers any operating budget surplus due to the use of vehicles and equipment to the Public Works/Corporate Vehicle and Equipment Reserve.”

The proposed policy, as outlined above, is contained in **Attachment 4**.

Financial Assumptions

The following are key assumptions included in this financial analysis:

- Assumes a 3% annual return on the reserve. While not realistic at current banking interest rates, it is expected this is a reasonable assumption over the ~20 year life of the plan.
- Assumes that vehicle replacement costs will increase by 5% annually.
- Assumes that revenues flowing back into the reserve for salvage (auction/trade-in, etc.) will be 5% of the original purchase price of the vehicle.

Financial Impact

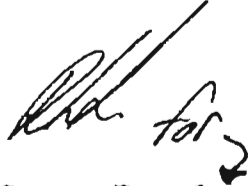
None.

Conclusion

A comprehensive approach to address the existing shortfall in the corporate vehicle and equipment reserve is outlined in this report. A funding strategy is proposed which comprises a combination of actions, including a recommendation to embed best practices in Council policy, to transfer to the vehicle/equipment reserve any operating budget surplus arising from vehicle and equipment use, and to supplement the reserve by consideration of additional annual funding as part of future budget deliberations.

Implementation of the strategies outlined in this report will create the opportunity for a sustainable funding model going forward for the Public Works Corporate Vehicle and Equipment Reserve. This will ensure the availability of needed resources to maintain service levels in various City and Public Works functional areas. The funding strategy is outlined as an amendment to the existing Green Fleet Policy, which is proposed to be renamed the "Sustainable Green Fleet Policy", as presented with this report.

The proposed adoption of the Sustainable Green Fleet Policy is one of the key ways that the City is implementing the principles and practices in the Corporate Sustainability Policy.

A handwritten signature in black ink, appearing to read "Suzanne Bycraft", with a stylized flourish at the end.

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

SJB:

Attachment 1

Summary of Active Replacement Program

Item #	Unit #	Description	Status*
1	419	1982 Crown Forklift	Planned
2	501	1987 Art Tec Fldck Trailer	Planned
3	718	1992 GMC Van	Evaluation
4	732	1992 John Deere Excavator	Received
5	756	1993 GMC Crew Cab	On-order
6	806	1994 Ford Truck	Evaluation
7	807	1994 Ford Truck	On-order
8	819	1994 Ford 2WHDR Truck	Pending
9	828	Clark Forklift	Planned
10	829	1994 Ford Pick Up Truck	Pending
11	830	1994 Ford Pick Up Truck	Pending
12	842	Leroi Compressor	Planned
13	845	1995 Ford Pick Up Truck	Pending
14	848	1995 Ford Van	Received
15	859	1995 Freightliner Dump	On-order
16	867	1995 Ford Van	Pending
17	871	1995 Ford Pick Up Truck	Pending
18	874	Forklift	Planned
19	876	1996 Freightliner Dump	On-order
20	881	1995 Ubilt Trailer	Planned
21	891	1996 Ford Passenger Bus	Received
22	895	1997 Ford Pick Up Truck	Pending
23	901	1996 Ford Ranger	Pending
24	902	1996 Ford Pick Up Truck	Pending
25	904	1996 Ford Pick Up Truck	Pending
26	905	1996 Ford Pick Up Truck	Pending
27	906	1996 Ford Pick Up Truck	Pending
28	913	1996 Caterpillar	Received
29	916	1996 Ford Pick Up Truck	On-order
30	917	1996 Ford Pick Up Truck	Received
31	919	Zamboni Resurfacer	Evaluation
32	921	1997 Ford Pick Up Truck	Pending
33	922	1996 Ford Econo Van	On-order
34	923	1996 Ford Econo Van	On-order
35	928	1997 Ford Street Sweeper	Received
36	931	1997 Ford Ranger Pick Up	Pending

* Planned – Specification Development Stage

Pending – Specification Complete

Received – In-Service

On-Order – P.O. Issued

Evaluation – Tenders Issued & Closed

Item #	Unit #	Description	Status*
37	942	1997 Ford Crane	Received
38	943	1997 Ford Pick Up Truck	On-order
39	952	1997 Chevrolet Cavalier	Pending
40	958	1998 Cat Excavator	Received
41	962	1997 Ford Econo Van	Pending
42	963	1997 Ford Econo Van	Pending
43	965	1996 Ford Pick Up Truck	Pending
44	966	1996 Ford Pick Up Truck	Pending
45	968	1997 Ford Econo Van	Pending
46	969	1998 Ford Econo Van	Pending
47	994	1999 Ford Crew Cab Dump	On-order
48	1000	1996 Ford Pick Up Truck	Pending
49	1003	Yamaha Golf Cart	Evaluation
50	1006	1997 Cat Excavator	Received
51	1035	2001 Ford E250 Cargo Van	On-order
52	1036	2001 Ford E250 Cargo Van	On-order
53	1038	2001 GMC Safari Mini Van	Received
54	1039	2001 GMC Safari Mini Van	Pending
55	1040	2001 GMC Safari Mini Van	Received
56	1041	2001 GMC Safari Mini Van	Received
57	1042	2001 Chev Cavalier	Received
58	1043	2001 Chev Cavalier	On-order
59	1044	2001 Chev Cavalier	On-order
60	1048	2001 Chev Cavalier	Received
61	1049	2001 Chev Cavalier	Received
62	1050	2001 Chev Cavalier	Received
63	1051	2001 Chev Cavalier	Received
64	1052	2001 Chev Cavalier	On-order
65	1053	2001 Chev Cavalier	Received
66	1054	2001 Chev Cavalier	On-order
67	1157	2001 Ubilt Trailer (Box)	Planned
68	1199	2003 Chevrolet Cavalier	Received
69	1439	2006 Smart Car	Received
70	1444	2010 Arkfield Emergency Water Mobile Response Unit	Received
71	1450	2011 Chevy Cruze	Received
72	1504	2010 JD Front Mower	Received
73	1505	2009 3080 Kubota Ride on Mower	Received
74	1508	2011 Ford Econo Van	Received

* Planned – Specification Development Stage

Pending – Specification Complete

Received – In-Service

On-Order – P.O. Issued


Evaluation – Tenders Issued & Closed

Item #	Unit #	Description	Status*
75	1539	2006 Husqvarna Aerator Sod Cutter 18"	Received
76	1541	2011 Haulmark Box Trailer (Portable Water Stations)	Received


**2012 Planned Replacements
(Pending Approval via Capital Budget Process)**

Item #	Unit #	Description
1	503	1987 Art Tec Flatdeck Trailer
2	557	1988 Ubilt Flatdeck Trailer
3	667	Toro Mower
4	729	1992 E H Wachs Tank
5	794	1994 Hino Flatdeck Paint Stripper
6	849	1995 Ford Flatdeck
7	884	1996 G&M Flatdeck
8	945	1997 Ford Econo Van
9	964	1997 Ford Econo Van
10	981	1999 Ford F450 Truck
11	1004	1998 Plymouth Voyageur Van
12	1007	1996 Ford Pick Up Truck
13	1008	1996 Ford Pick Up Truck
14	1009	1997 Ford Pick Up Truck
15	1010	1996 Ford Pick Up Truck
16	1016	1999 Ford E450 Mini Bus
17	1023	2000 John Deere Tractor Mower
18	1024	2000 John Deere Tractor Mower
19	1025	1999 New Holland Tractor
20	1026	Verti Drain
21	1028	1999 John Deere Tractor Mower
22	1030	2000 GMC 4x4 Pick Up Truck
23	1079	2000 Hitachi Excavator
24	1085	2001 Grumman Workhorse Van
25	1086	2001 Chev Cavalier
26	1095	2001 E350 1 Ton Versalift Van
27	1096	2001 E350 1 Ton Versalift Van
28	1105	1982 Hyster Forklift
29	1134	2001 John Deere Ride On
30	1135	2001 John Deere Ride On
31	1136	2001 John Deere Ride On
32	1137	2001 John Deere Ride On
33	1193	2003 Ford Cargo Van
34	1197	2003 Ford F-150 Pick Up Ext. Cab
35		Contingency

Attachment 2

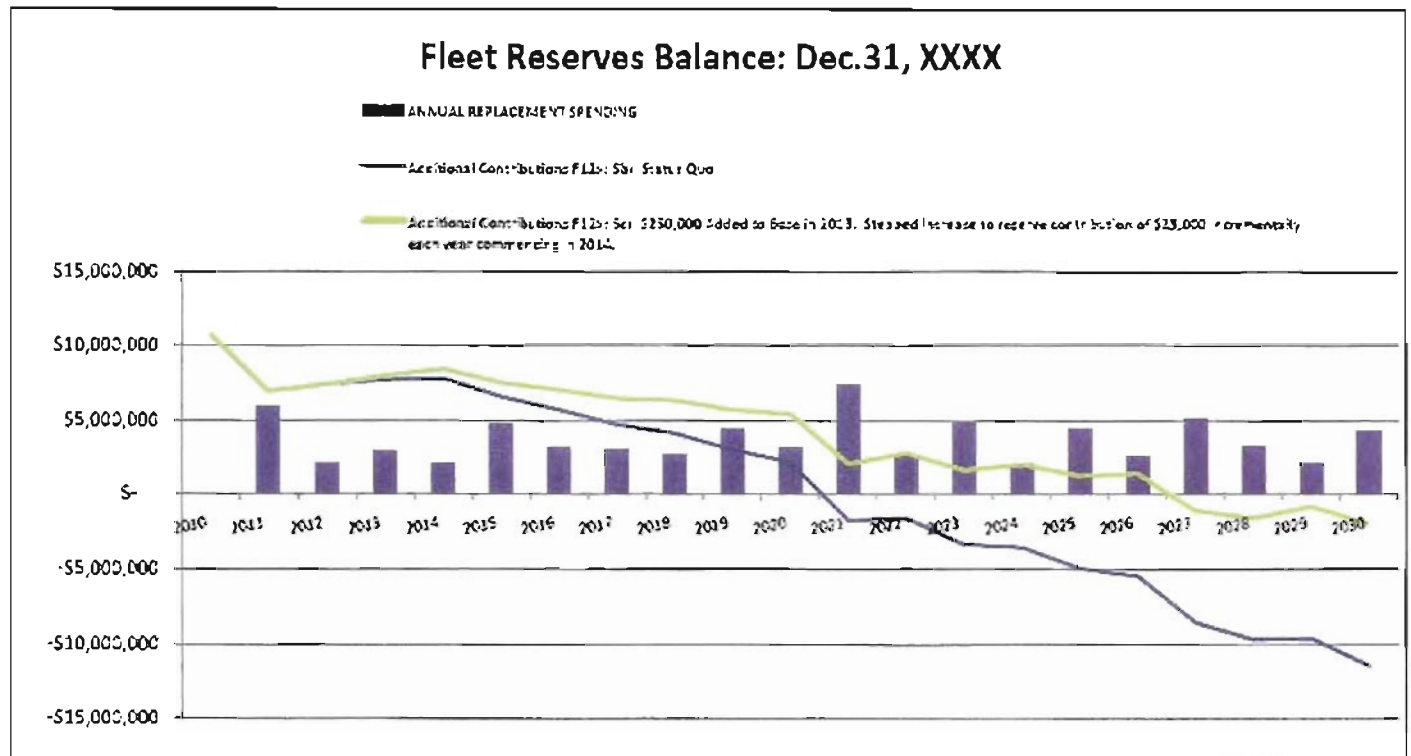
	City of Richmond	Policy Manual
Page 1 of 2	Adopted by Council – December 11, 2006 Amended by Council – February 23, 2009	Policy 2020
File Ref:	Green Fleet Policy	
<p>Policy:</p> <p>It is Council policy that:</p> <p><i>in recognition that the production, use and disposal of motor vehicles result in significant impacts to human health and environment, and pose a sizeable cost requirement for the City, the City of Richmond will seek to:</i></p> <ul style="list-style-type: none"> • be a leader in incorporating innovation and leading-edge technology in the management of its fleet, and • manage its corporate fleet according to the following Green Fleet objectives and performance standards. <p>1. <u>Acquisition</u></p> <p>Purchases of new vehicles will be conducted in accordance with the City's Environmental Purchasing Policy and specifically aimed at:</p> <ul style="list-style-type: none"> • minimizing overall fleet. • using the smallest size vehicles available to meet assessed need • using vehicles with highest fuel efficiency and cost effectiveness based on considerations of life-cycle costing and financial investment requirements • maximizing the use of alternative fuels and technologies. • biofuels will be evaluated by taking into account their effect on agriculture, environmental impact, cost, source location and energy balance. The highest blends available will be used subject to operational constraints. <p>Efficiency performance standards will be incorporated into bid specifications.</p> <p>2. <u>Operational Safety and Efficiency</u></p> <p>The City's fleet will be operated in a manner which:</p> <ul style="list-style-type: none"> • maintains high safety standards • maximizes manufacturer recommended performance standards • supports, implements and complies with current operations and emissions standards • incorporates technologies to accurately measure individual vehicle emissions • ensure optimal vehicle operations and minimize emissions and fuel consumption • adopts new technologies, including retrofits, aimed at improving fuel efficiency and reducing emissions, wherever practicable and cost effective • prevents non-purposeful idling of City vehicles • supports alternative transportation programs for City employees. <p>The City's driver/operator training program will include education on:</p> <ul style="list-style-type: none"> • operational practices for maximizing fuel efficiency and reducing emissions (e.g., minimizing travel distances, anti-idling, etc.) • increasing safety, and 		

Attachment 2 (Cont'd)

		City of Richmond	Policy Manual
Page 2 of 2	Adopted by Council – December 11, 2006 Amended by Council – February 23, 2009		Policy 2020
File Ref:	Green Fleet Policy		
<ul style="list-style-type: none">• encouraging acceptance of alternate technologies and approaches. <p>3. <u>Education and Awareness</u></p> <p>The City will work in partnership with the Richmond community and other agencies to support community-wide green fleet initiatives, wherever practicable and cost effective.</p> <p>4. <u>Monitoring and Reporting</u></p> <p>Corporate fleet practices, including annual fuel consumption, will be monitored and reported on in the City's State of Environment reporting program.</p>			

3192744

Attachment 3





City of Richmond

Policy Manual

Page 1 of 2

Adopted by Council – December 11, 2006

Policy 2020

Amended by Council – February 23, 2009

File Ref:

Sustainable Green Fleet Policy

Policy:

It is Council policy that:

in recognition that the production, use and disposal of motor vehicles result in significant impacts to human health and environment, and pose a sizeable cost requirement for the City, the City of Richmond will seek to:

- be a leader in incorporating innovation and leading-edge technology in the management of its fleet.
- manage its corporate fleet according to the following Green Fleet objectives and performance standards, and
- employ an effective strategy to ensure a sustainable funding model is maintained for vehicle and equipment acquisitions.

New

1. Acquisition

Purchases of new vehicles will be conducted in accordance with the City's Environmental Purchasing Policy and specifically aimed at:

- minimizing overall fleet
- using the smallest size vehicles available to meet assessed need
- using vehicles with highest fuel efficiency and cost effectiveness based on considerations of life-cycle costing and financial investment requirements
- maximizing the use of alternative fuels and technologies
- biofuels will be evaluated by taking into account their effect on agriculture, environmental impact, cost, source location and energy balance. The highest blends available will be used subject to operational constraints.

Efficiency performance standards will be incorporated into bid specifications.

2. Operational Safety and Efficiency

The City's fleet will be operated in a manner which:

- maintains high safety standards
- maximizes manufacturer recommended performance standards
- supports, implements and complies with current operations and emissions standards
- incorporates technologies to accurately measure individual vehicle emissions
- ensure optimal vehicle operations and minimize emissions and fuel consumption
- adopts new technologies, including retrofits, aimed at improving fuel efficiency and reducing emissions, wherever practicable and cost effective
- prevents non-purposeful idling of City vehicles
- supports alternative transportation programs for City employees.



City of Richmond

Policy Manual

Page 2 of 2	Adopted by Council – December 11, 2006 Amended by Council – February 23, 2009	Policy 2020
File Ref:	Sustainable Green Fleet Policy	

The City's driver/operator training program will include education on:

- operational practices for maximizing fuel efficiency and reducing emissions (e.g., minimizing travel distances, anti-idling, etc.)
- increasing safety, and
- encouraging acceptance of alternate technologies and approaches.

3. Education and Awareness

The City will work in partnership with the Richmond community and other agencies to support community-wide green fleet initiatives, wherever practicable and cost effective.

4. Monitoring and Reporting

Corporate fleet practices, including annual fuel consumption, will be monitored and reported on in the City's State of Environment reporting program.

5. Vehicle and Equipment Reserve Funding Strategy

← New proposed section 5

The City will employ strategies to maintain a sustainable reserve funding model for vehicle and equipment acquisitions which allows for appropriate replacement cycles, maximizes suitability and efficiency to required applications and which:

- Downsizes by not replacing units where usage does not constitute an on-going need
- Establishes that replacement of vehicles and equipment will be on a same level of service basis consistent with the approved budget
- Incorporates alternative acquisition strategies (including consideration of leases and financing purchases) which represent best value and take into account the total cost of ownership
- Provides funding for vehicle/equipment acquisitions from utility funding sources, where those vehicles/equipment principally support those business areas
- Transfers any operating budget surplus due to the use of vehicles and equipment to the Public Works/Corporate Vehicle and Equipment Reserve.



City of Richmond

Report to Committee

To: Public Works and Transportation Committee

Date: February 6, 2012

From: Tom Stewart, ASCT.
Director, Public Works Operations

File: 10-6370-01/2012-Vol
01

Re: Public Spaces Recycling Pilot Program - Results

Staff Recommendation

1. That the pilot program model be used to further develop and expand public spaces recycling in a graduated manner to City facilities, at City events, and to other City properties, including streetscapes, open spaces and parks.
2. That Nestlé Waters Canada be thanked for their sponsorship of the program and for the donation of the recycling containers to the City of Richmond.

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

Att. 2

FOR ORIGINATING DEPARTMENT USE ONLY			
ROUTED TO:	CONCURRENCE		CONCURRENCE OF GENERAL MANAGER
Sustainability	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>		
Parks & Recreation	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>		
REVIEWED BY TAG	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>	REVIEWED BY CAO
			YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>

Staff Report

Origin

A public spaces recycling pilot program was undertaken from July 28th – October 28th, 2011 in partnership with Nestlé Waters Canada. The pilot area encompassed the Steveston business district, Garry Point Park, the Steveston Community Centre and Hugh Boyd Park. The purpose of the pilot program was to help design a model for public spaces recycling programs and enhance the City's waste diversion efforts. Participation in the pilot program was approved by Council at their February 28, 2011 meeting. This project provided Richmond with the opportunity to host the first pilot public spaces recycling program in British Columbia.

This report presents the results of the pilot program and outlines an approach for expanding public spaces recycling in Richmond.

Analysis

Background

Recycling in public spaces is an important next step in advancing toward 70% waste diversion by 2015. It serves to reinforce the recycling behaviours typically practised in home environments, raises the profile of recycling in the community, and presents a positive statement and image of community pride and environmental responsibility. Challenges with public spaces recycling include contamination, additional servicing requirements associated with handling different recycling streams, scavenging, costs and suitability of containers, space requirements, and appropriate signage/messaging on containers.

The proposal by Nestlé Waters Canada to undertake a pilot public spaces recycling program presented an excellent opportunity to test various approaches to address the identified challenges as well as provide valuable insights in advancing public spaces recycling. The cost for the pilot program recycling containers, various communications aspects and program measurement were funded by Nestlé Waters Canada, the Canadian Beverage Association and Encorp Pacific (Canada). Nestlé Waters retained a consultant, StewardEdge Inc. to support the project. The City managed the implementation and operational aspects of the program and developed the program branding, signage materials and other related items.

The goals of the pilot program were to:

- measure and improve public spaces recycling performance,
- create a model public spaces recycling system for beverage containers and other recyclables,
- create enhanced opportunities for the public to manage recyclables and reduce litter,
- assess the impact of the provincial deposit/refund system for beverage containers on public spaces recycling,
- establish suitable recycling infrastructure based on functional and aesthetically pleasing recycling bins,
- increase public awareness of the opportunities for and convenience of recycling in Richmond.

To measure the program, solid waste audits were conducted prior to implementation of the program to establish a baseline assessment. A further audit was undertaken midway through the pilot to determine the impact of the program. The waste audit included structured observation of behaviour of the pilot area as well as at the Canada Line stations, where the City had previously installed recycling containers.



Waste Audit Taking Place at the Works Yard

Pilot Program Details

The pilot program encompassed three distinct areas, including the Steveston business district, two community parks and a community facility as shown in the following table. In total, Nestlé Waters provided 81 containers at a cost of approximately \$50,000. The City undertook container installation, servicing and maintenance.

Table 1: Summary of New Recycling Bins

Location	Bin Type	Quantity
Steveston Village	Eco Media (for boardwalk)	2
	Recycle Duo Metal	42
Garry Point Park	Eco Media	2
	Recycle Duo Metal	20
Steveston Community Centre	Triads	3
	Recycle Duo Metal	8
Hugh Boyd Playing Field	Chevy Lane Macs Two Stream	4
New Bin Totals		81

The City selected the styles of containers to be used as well container instructional signage. City staff also developed the promotional signage as well as the “Go! Recycle” program communications branding, with the tag line, “At home or on the go, recycle!”. The program officially launched on July 28, 2011 with a successful media event held at Garry Point Park. Program signage was also installed at key locations to help raise awareness and increase participation. **Attachment 1** contains an overview of the containers, signage and installation locations.

The Steveston Group of 8 (major non-profit groups in the Steveston area) was consulted and supported the project. The Steveston logo was included on the promotional signage on containers based in the Steveston Business District and at Garry Point Park. A Steveston heritage signage was also included on the Eco Media containers. Steveston Community Centre staff were included in our consultations and involved in selecting the containers to be used inside their facility.



Container on Steveston boardwalk with heritage signage.

The outdoor containers were serviced by litter collection crews as part of their normal course of duties. Collected recycling materials were brought to the Recycling Depot. Adjustments were incorporated based on litter staff input as well as comments received from the public generally as the pilot program progressed. Steveston Community Centre managed servicing of the indoor containers at their centre.

While the pilot portion of this program has completed, the containers remain in service for continued public use.

Pilot Program Results

A detailed report on the program was prepared by StewardEdge Consulting (**Attachment 2**), which contains an overview of the pilot as well as detailed audit results by individual pilot area. A summary of the results, key findings and lessons learned are discussed below:

Waste Audit Results

- There was a 35% reduction in overall waste generated (1,422 kg baseline audit vs. 928 kg post-implementation):

Table 2: Waste Generation Summary

	Baseline Generation	Post- Implementation Generation
	kg/week	kg/week
Total Recyclable Fibre	237.8	150.8
Total Recyclable Beverage Containers	29.2	13.9
<i>PET Bottles</i>	8.2	2.6
Total Recyclable Non Beverage Containers	36.9	18.0
Total Recyclable Containers	74.3	34.5
Total Recyclables (Fibre + Containers)	312.1	185.4
Non-Recyclable Material	1,110.3	742.6
Total All Material	1,422.4	927.9
Percent Change		-35%

(Source: StewardEdge Consulting)

- Recyclable beverage containers in the garbage were reduced by 27%. Total recyclable containers in the garbage were reduced by 29%. These materials may have been diverted into the appropriate container and likely taken via scavenging activity. Total recyclables (including fibre and containers) in the garbage were reduced by 9%.

Table 3: Waste Composition Comparison

Material Category	Baseline Composition	Post- Implementation Composition	% Change In Composition
Total Recyclable Fibre	15.7%	16.3%	-3%
Total Recyclable Beverage Containers	2.1%	1.5%	-27%
<i>PET Bottles</i>	0.6%	0.3%	-52%
Total Recyclable Non Beverage Containers	2.6%	1.9%	-25%
Total Recyclable Containers	5.2%	3.7%	-29%
Total Recyclables (Fibre + Containers)	21.9%	20.0%	-9%
Non-Recyclable Materials	78.1%	80.0%	3%

(Source: StewardEdge Consulting)

- The pilot was most successful in Steveston Village, where total recyclable containers in garbage decreased by 41%. Total recyclables (including fibre and containers) decreased by 12%.

Other Findings

- Scavenging is a common activity, where individuals rummage through containers to collect refundable items. In many cases, scavengers will damage container locks in an attempt to access the refund containers. Liner bags can also become dislodged. These issues can present challenges for litter attendants and impact servicing times. There needs to be balance struck between providing security for the containers to avoid any liability concerns (i.e. servicing doors left ajar) and the availability of deposit/refund containers to determined scavengers.
- Effective signage is a critical aspect of public spaces recycling programs. Through structured observation at the Canada Line, there was a 21% increase in the accuracy rate by which individuals place their waste in the appropriate stream where the individuals took the time to look at the signage (96% vs. 75%).
- Some negative comments were received about the brightness of the green colour of the promotional signage on the sides of the containers. This is an issue of balance between ensuring attention is drawn to encourage recycling, while at the same time, not having signage which might be perceived as overwhelming. This can be easily managed by adjusting the colour tones. Staff are working to fine tune the colour scheme for future application and use.
- Very positive feedback about the program was received from many Steveston businesses and the general public. The availability of recycling opportunities in these highly-visible and high-pedestrian traffic areas conveyed a very positive image of Richmond's environmental leadership, and was well received by residents and visitors alike.

Lessons Learned

The pilot program presented a good opportunity to test different styles and types of containers, measure the effects of public spaces recycling, as well as assess the effect of instructional and promotional signage. Key lessons from this pilot were that different styles of containers will be required for expanded public spaces recycling. For example, the Chevy Lane container may be best suited to parks and City streetscape environments, whereas bins such as the Eco Media container are good for high traffic areas where there are wide pathways or walkways. The Recycling Duo and Triad containers are suited to indoor use, i.e. at

Containers for Parks and Streetscape Environments



Containers for Indoor Use



community facilities. Therefore, a variety of containers may be the best approach for any wider-scale program.

Containers should be of a design that is distinct from traditional waste containers to help draw attention to recycling. It is also clear that all containers, including those for waste, must allow individuals to deposit materials 'hands-free' -- in other words, without the requirement to touch a handle or flap.

Clear, concise, effective signage, which is both instructional and promotional, is a must. Images are an important aspect of signage, as is branding. The "Go!Recycle" branding aspect of this program was very successful in helping to draw attention to the program as well as promote recycling in public spaces. It is evident that an overarching communications campaign, which incorporates educational and instructional messaging, is a fundamental component to the successful introduction of a public spaces recycling program.

Scavenging for deposit/refund containers will continue to be an issue and is difficult to prevent. Public safety and operational effectiveness as impacted by scavenging are considerations in container design and selection.

The public spaces recycling program was very successful and was well received. The overall amount of waste generated as well as the amount of recyclable materials in the garbage was reduced, thereby improving public spaces recycling performance. The availability of distinct recycling containers, with clear and effective signage, and coupled with a focused communications and education campaign, played a pivotal role in the success of the pilot program through encouraging recycling and discouraging litter. It was also evident that the deposit/refund system for beverage containers is effective in limiting the amount of beverage containers that end up in the garbage stream.

Next Steps

Although the pilot program has concluded, the donation of the recycling containers to the City by Nestlé Waters and their partners allows public spaces recycling to continue on an on-going basis in the study area. This provides the City with an excellent foundation from which to further grow and develop public spaces recycling. Staff are currently working to make fine-tuning modifications to the containers and the instructional/promotional signage to maximize the program's overall effectiveness and as part of on-going evaluation.

Full scale implementation of a public spaces recycling program of a similar magnitude to that of the pilot, including both indoor (i.e. community facilities) and outdoor (streetscapes, open spaces, parks) environments, would be quite costly if undertaken all at the same time. It is also expected that the cumulative additional workload for litter collection staff could potentially result in the need for additional staffing resources. Therefore, a more graduated implementation approach, which allows for further evaluation, is preferred.

Existing Garbage/Recycling Containers



Using recycling containers of similar design to garbage containers does not clearly distinguish or highlight recycling.

Moving forward, it is proposed that the program be implemented in a phased and opportunity-based approach. For example, community facilities and community event recycling can be targeted initially. City streetscapes, open spaces and parks can be implemented on an opportune basis, i.e. when existing containers become worn and require replacement and/or for new installations. The implementation cost would be managed within existing budget allocations to the degree possible, with any additional funding requirements identified through the budget process, if required.

Financial Impact

The cost for the recycling containers, waste audits and communications support was borne by Nestlé Waters Canada and their partners (estimated at \$50,000 for the recycling containers, plus costs associated with the communication elements, waste audits and final summary report preparation). The City gained considerable benefit by assuming ownership of the containers, as well as valuable information from the waste audit, summary report and communications support. The City incurred costs associated with the promotional aspects of the program and container modifications, estimated at \$14,000. These costs were accommodated within existing budget allocations.

Costs associated with expanding the program to community facilities, events, streetscapes, parks and open spaces will be from existing budget allocations, with any additional funding requirements identified through the normal budget process.

Conclusion

The Public Spaces Recycling Pilot Program was successful in helping to establish a model for public spaces recycling. The program was also successful in increasing recycling and reducing overall waste generation in the pilot study area. The City gained value in assuming ownership of the recycling containers as well as from the audit results and communications support. The promotional branding of this program as the "Go!Recycle" program, with the tag line, "At home or on the go, recycle!", was a key success factor in drawing awareness to the program and public spaces recycling in general.

A graduated approach to advancing public spaces recycling in City facilities, at City events and in streetscapes, parks and open spaces is recommended. Information from this pilot program will be very valuable in advancing this initiative, while at the same time raising the profile of recycling in the community and presenting a positive statement of community pride and environmental responsibility.



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SJB:

Attachment 1

Summary of Containers, Signage and Installation Locations

 <p>Recycling Duo Dimension: 22 5" x 23 5" x 40" 42 – Steveston Village (including boardwalk) 20 – Garry Point 8 – outside Steveston Community Centre</p>	<div>Top opening</div>  <div>Side panels</div> 
 <p>Chevy Lane Dimension: 24" x 38" x 37" 4 – Hugh Boyd Sports Field</p>	<div>Front labels</div>  <div>Side panels</div>  <div>Top labels</div> 
 <p>Eco-Media Dimension: n/a 2 – Garry Point Park 2 – Steveston Village (boardwalk)</p>	<div>Front/back panel poster</div>  <div>Top canopy</div>  <div>Side panels</div>  <div>Front opening</div> 
 <p>Triad Dimension: 17 8" x 31 9" 3 – Steveston Community Centre</p>	<div>Front labels</div> 

Attachment 1 (Cont'd)

	Advantages	Disadvantages	Potential Solutions
Recycle Duo 	<ul style="list-style-type: none"> Visually appealing and design. Rain hood prevents liquid from damaging the quality of recycled material (e.g. fibre). Side panels are spacious allowing for City branding opportunity. Recycling containers can be seen from a distance. Container design unique and allows for customization. No flaps at openings. Multiple use - outdoor/indoor use, however, best suited to indoor environments. 	<ul style="list-style-type: none"> Garbage stream has reduced capacity (i.e. less than a traditional garbage container). Rain hood requires frequent cleaning by litter staff. Locks are a not tamper proof. Plastic panels are susceptible to vandalism. Disposed and recycled materials can be seen through the clear/steel mesh door – looks unsightly. Requires level surface, mounted on concrete pad. 	<ul style="list-style-type: none"> Container is available in single stream (eg. garbage only). Two units can be placed side-by-side depending on usage rate. Redesign locks to discourage vandalism. Side/front/back panels are available in solid steel. Doors can be replaced with solid steel or smoked lexan. Best application may be for indoor use. If used outside, use concrete pad mount.
Triad 	<ul style="list-style-type: none"> Containers are well labelled – easy to use at a glance. Doesn't take up a lot of space. No flaps at openings. Bins can be manoeuvred or 'clustered' differently to suit space. 	<ul style="list-style-type: none"> Suited to indoor use only. 	
Eco-Media 	<ul style="list-style-type: none"> Altered to remove flaps at openings. Good capacity, suited to high volume/traffic. Well labelled. Front/back panels can be used to promote other recycling initiatives. Sturdy structure and not easily damaged. 	<ul style="list-style-type: none"> Requires level surface and concrete pad mount. Use should be restricted to large areas due to container size. Susceptible to graffiti if any part of surface area is left vacant. 	<ul style="list-style-type: none"> Use concrete pad mounts and ensure level surface. Suitable for boardwalk and wide sidewalk/walkway areas. Ensure signage and promotional wraps cover all surface areas.
Chevy Lane 	<ul style="list-style-type: none"> Container size is not invasive. Educational labels can be placed at the top opening to remind people what goes where. Sturdy structure which is less susceptible to damage. Multiple use - outdoor/indoor Latch locking system allows staff to put the same locks as other containers (avoid carrying around multiple keys). 	<ul style="list-style-type: none"> Container openings at top of bin allow water to penetrate waste and recyclables. Somewhat restricted capacity. Lack of suitable space to highlight promotional aspects of public spaces recycling. Well suited to streetscapes, parks and open spaces. Can also be used indoors. 	<ul style="list-style-type: none"> Review potential to change opening location to front loading style. Add containers for capacity. Work with manufacturer to modify bin sides to allow additional promotion.



**City of Richmond Public Space Recycling
Pilot Program Report**

December 14, 2011

Prepared for:
Nestlé Waters Canada
Canadian Beverage Association
Encorp Pacific (Canada)
and the City of Richmond

Prepared by:
StewardEdge Inc.

Attachment 2 (Cont'd)**EXECUTIVE SUMMARY**

This document is a report on the Public Space Recycling Pilot Program that was implemented in Richmond, British Columbia in the summer of 2011. Funding for the project was provided by Nestlé Waters Canada, the Canadian Beverage Association and Encorp Pacific (Canada) with operational and financial support from the City of Richmond.

The goals of the pilot program were to:

- Measure and improve public space recycling performance;
- Create a model public space recycling system for beverage containers and other recyclables generated in the City of Richmond;
- Create enhanced opportunities for the public to manage recyclables and reduce the amount of litter in public spaces;
- Assess the impact of the provincial deposit/refund system for beverage containers on a public space recycling program;
- In consultation with the City of Richmond, create and validate an enhanced public space recycling infrastructure based on functional and aesthetically pleasing recycling bins;
- Increase public awareness of the opportunities for and convenience of recycling in the City of Richmond.

Solid waste audits were conducted prior to implementation of the pilot program to establish a baseline assessment of the generation of waste and recyclables at the chosen sites. Follow-up audits were conducted after the introduction of new, enhanced recycling bins and supporting communications activities. The waste audits examined garbage and recycling from each bin, with each sample classified according to an established, comprehensive list of material categories. In the data analysis, the material categories were consolidated to arrive at a kilogram/week calculation for 30 material categories. In addition to the audits, structured observation was conducted at four Canada Line transit stations.

The program was supported with a public awareness campaign built on key learnings from pilot projects in Niagara, Samia and Halifax. Leveraging existing communications strategies at the City of Richmond, the campaign was a collaborative effort between the project sponsors and City staff. It included new signage, a public launch event, and extensive media coverage through public service announcements and earned media in newspapers, newsletters and social media.

The pilot program was successful in achieving the stated program goals. The enhancement of public space recycling infrastructure reduced the amount of recyclable material in the garbage stream and increased the apparent diversion of recyclables, including beverage containers.

In addition, the program provided a valuable template for the implementation and future expansion of public space recycling initiatives in similar communities.

The selection and strategic placement of more effective recycling bins, coupled with a compelling new brand ("Go!Recycle"), high-impact graphics and strong communications support from the City provided residents and visitors in the Pilot Area with the sense of greater opportunity to recycle – and a disincentive to litter in public spaces.

Attachment 2 (Cont'd)

Analysis of data from the pre- and post-implementation waste audits confirmed that the British Columbia deposit/refund system for beverage containers suppresses the quantity of beverage containers that remain disposed of in public spaces. However, enhancing people's opportunities to recycle in public spaces does improve the diversion of beverage containers discarded on-the-go.

Finally, effective communications and outreach activities raised the level of public awareness and created a platform for further emphasis on ways to expand recycling.

The report contains a number of detailed conclusions to support the proposition that Public Space Recycling can have a significant impact on consumer recycling behaviour. Among these conclusions are:

- While the actual numbers were small (plastic bottles represented only 0.58% of the waste stream prior to implementation), the diversion rate of plastic bottles from the garbage stream increased by 52% (to 0.28%).
- The composition of recyclable beverage containers found in the garbage stream decreased by 27% between the baseline audit and the post-implementation audit, indicating that residents and tourists were putting their beverage containers in the recycling bin.
- Results of the structured observations at the transit stations suggest that scavenging activities were responsible for the low numbers of bottles and cans in recycling bins. This observation was confirmed by City staff and by vandalism to recycling bin locks.
- The composition of recyclable non beverage containers found in the garbage stream decreased by 25% between the two audit periods.
- Effective signage is a critical component of public space recycling programs. The structured observation measured an increase of 21% in the accuracy rate by which individuals place their waste in the appropriate stream.

Given that bins were already in place at the pilot sites prior to program implementation, the results of the program are less dramatic than in pilot programs where no bins existed in the pre-implementation phase. However, the improvements made remain impressive and demonstrate the benefit of incremental improvements in public space recycling bins and signage.

Attachment 2 (Cont'd)

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Attachment 2 (Cont'd)**SECTION I: PLANNING AND METHODOLOGY****1. Introduction**

The City of Richmond is a large municipality in the Lower Mainland of British Columbia, with a population of 195,000 people living in an area of 129 square kilometers. The city is characterized by economic and demographic diversity and a mixture of urban, suburban and rural communities as well as commercial and industrial business areas.

Richmond boasts vibrant tourism and recreational facilities owing in part to the significant transportation, sports and other infrastructure investments undertaken in support of the 2010 Olympic Winter Games, for which it was an official venue. Steveston, a historic fishing village in southwest Richmond, is a popular tourist destination and recreational community that provides an ideal geographic focus and platform for the implementation of a public space recycling program focusing on beverage containers and paper products.

Public space recycling captures the "last mile" of recyclables – items otherwise collected through British Columbia's deposit/refund and curbside recycling programs but often left behind by consumers in areas such as parks, streetscapes and other public spaces. Beverage containers specifically are highly visible and often consumed on-the-go. This pilot program aimed to provide the residents and visitors in the Pilot Area (defined below) with the opportunity and infrastructure to recycle more effectively in public spaces, in the process helping to reduce litter and contribute to Metro Vancouver's municipal solid waste diversion target of 70%.

The pilot Public Space Recycling Program was sponsored by Nestlé Waters Canada in conjunction with the Canadian Beverage Association and Encorp Pacific (Canada) and in partnership with the City of Richmond. The purchase of new recycling bins for the pilot sites was funded by the sponsors, as was a significant portion of the accompanying public awareness campaign. StewardEdge Inc., a Canadian packaging and product stewardship program consultancy, was contracted to design and manage the project.

The pilot program was five months in duration¹ and was developed by StewardEdge in collaboration with the City of Richmond. StewardEdge planned the siting of the recycling bins, recommended the quantity and type of bins, provided critical input to promotion and education activities, and measured the overall performance, successes and challenges of the program. The City of Richmond assumed the operating costs of material collection as well as significant costs associated with the public awareness campaign.

2. Project Profile and Waste Streams

Southwest Richmond is a popular destination for locals and tourists alike. The Pilot Area consists of four public spaces in and around Steveston, a historic fishing village located on Richmond's southwestern tip. Each year, Steveston attracts thousands of visitors due to its quaint character,

¹ Initially planned as a three month pilot, the program was extended to five months due to bin design and related matters.

Attachment 2 (Cont'd)

national historic sites, annual maritime festivals, waterfront boardwalks, whale watching tours and views of the Fraser River and Gulf Islands.

2.1. General Overview

By agreement among the project sponsors and the City of Richmond, StewardEdge was asked to implement and manage a Public Spaces Recycling (PSR) Program in the Pilot Area. Based on their popularity with tourists and local recreationists, Steveston Village, Garry Point Park, Steveston Community Centre and the playing fields at Hugh Boyd Community Park were identified as principal sites within the Pilot Area. New recycling bins were allocated to each venue. Collectively, these sites cover a compact area of less than five square kilometres but include a diversity of public space facilities.

The strategy with regard to site and bin selection was determined jointly by StewardEdge and City of Richmond staff, who also provided valuable insights into local consumer behaviour.

- "Triad" bins were placed inside the Steveston Community Centre, replacing the makeshift bins that had been in use prior to the pilot.
- Outside the Community Centre, "Recycle Duo" bins were concentrated in the area east of the building, which was previously under-served.
- In downtown Steveston Village, unattractive, tightly concentrated and less visible bins were replaced by fewer, but more effective Recycle Duo bins covering a larger area. In addition, two eye-catching "Eco Media" bins were placed on the boardwalk at Imperial Landing, one of the main attractions of Steveston.
- In Garry Point Park, Recycle Duo bins replaced existing single-stream bins along the main walking path. Eco Media bins were placed at the path entrance and in the parking lot adjacent to the main food concession.
- Chevy Lane Mac's Two Stream bins were placed at the playing fields at Hugh Boyd Community Park, which had previously been served only by small garbage bins.

Bin design improvements included the addition of rain hoods to reduce the impact of precipitation on collected materials, the removal of cover flaps on certain bins (which experience has shown to discourage use by consumers) and the use of single units to house multiple waste streams as opposed to multiple bins which created a disorganized look and tended to confuse consumers. Table 2.1 summarizes the types and quantities of bins selected for each site. Photographs of the bins are presented in Appendix B.

Table 2-1 New Recycling Bin Summary

Location	Bin Type	Quantity
Steveston Village	Eco Media (for boardwalk)	2
	Recycle Duo Metal	42
Garry Point Park	Eco Media	2
	Recycle Duo Metal	20
Steveston Community Centre	Triads	3
	Recycle Duo Metal	8
Hugh Boyd Playing Field	Chevy Lane Mac's Two Stream	4
New Bin Totals		81

Attachment 2 (Cont'd)**Goals**

The goals of the pilot program were to:

- Measure and improve public space recycling performance;
- Create a model public space recycling system for beverage containers and other recyclables generated in the City of Richmond;
- Create enhanced opportunities for the public to manage recyclables and reduce the amount of litter in public spaces;
- Assess the impact of the provincial deposit/refund system for beverage containers on a public space recycling program;
- In consultation with the City of Richmond, create and validate an enhanced public space recycling infrastructure based on functional and aesthetically pleasing recycling bins;
- Increase public awareness of the opportunities for and convenience of recycling in the City of Richmond.

Objectives

Program objectives included:

- Identifying current recycling and disposal behaviours;
- Assessing the impact of recycling systems already in place including measurement of baseline volumes of beverage containers and fibre being recycled and landfilled;
- Providing effective public awareness and communications support that complemented existing communications related to Richmond's residential recycling programs;
- Implementing effective bin signage;
- Measuring the contamination rate of non-recyclables in the recycling stream pre and post-implementation;
- Measuring the increased rate of recycling achieved;
- Assessing the apparent effects of British Columbia's deposit/refund system for beverage containers on public space recycling;
- Measuring and observing recycling behaviour at four Canada Line stations.

Solid waste audits were conducted prior to installation of the new bins to establish baseline data. Post-implementation audits were conducted two months after the new bins were installed to measure the effectiveness of the initiative. Structured observation was also conducted during the baseline phase to obtain greater insight into the impact of British Columbia's beverage container deposit/refund program on the public's behaviour with regard to used beverage containers.

Collection facilities at four Canada Line transit stations were assessed through structured observation. The stations had previously been outfitted with collection bins but limited performance analysis had been undertaken. The eco-friendly receptacles sited at the transit stations are manufactured by Big Belly Solar and feature a solar powered waste compactor that

Attachment 2 (Cont'd)

reduces collection frequency which saves time and money while reducing greenhouse gas emissions.

3. Waste Audit Methodology

StewardEdge conducted detailed waste composition studies from June 11 to 15 and September 24 to 29, 2011. The studies included detailed waste audits for each of the waste collection sites, during the pre-implementation phase and subsequent to bin implementation and roll-out of the communications strategy. The primary objective of the waste audits was to determine the composition of solid waste disposed of at the pilot sites and specifically, the composition of recyclables within the garbage stream. Waste samples were collected from each of the Pilot Area sites:

1. Steveston Village, including Imperial Landing
2. Garry Point Park
3. Steveston Community Centre
4. Playing fields at Hugh Boyd Community Park

During the baseline phase of the study, structured observation was conducted at four Canada Line transit stations to assess the behavioural impacts on the proper use of waste and recycling bins. The transit stations chosen for structured observation included:

1. Aberdeen Station
2. Bridgeport Station
3. Brighthouse Station
4. Lansdowne Station

In terms of traffic, high season in the Pilot Area is from June to September, a time during which public spaces are frequented more often due to an influx of tourists and favourable weather.

Given that both the baseline and post-implementation audits fell within this season, the resultant data may not reflect seasonal variations. However, while generation of waste may be expected to increase during the high season, the composition should not vary substantially throughout the year. Moreover, in follow-up discussion with the City of Richmond, it was noted that the audits actually straddled the Pilot Area's peak season, which was generally considered to start at the beginning of July and end shortly after Labour Day. Thus, to the extent that seasonal variations in composition do occur, they would have been detected in the post-implementation audits.

Given this, the study data provides a reasonable representation of the composition of the public space waste streams in the Pilot Area.

Attachment 2 (Cont'd)**3.1. Waste Sort Methodology**

The following tasks outline the work performed during the solid waste composition study.

3.1.1. Composition Study Set Up

This task required City of Richmond staff to arrange for access and space to conduct the waste sorting exercise. City staff collected the waste materials and brought them to the Public Works yard where StewardEdge conducted the audit.

3.1.2. Waste Sort Categories

To provide a useful classification of material types and consistency with previous pilot project results, StewardEdge staff sorted the collected waste into 64 categories. The detailed list of material categories is presented in Table A-1 in the appendix.

3.1.3. Sampling

Each sample was hand-sorted into 64 material categories and weighed. The cumulative weekly weight of each material category was used to develop a profile of the public space waste composition in the Pilot Area.

The baseline audit took place over five days (Friday to Tuesday) while the post-implementation audit was conducted over six days (Friday to Wednesday). These days were specifically chosen to capture data from both peak (Friday to Sunday) and off-peak (Monday to Wednesday) days. A sixth day was added during the post-implementation phase to ensure any major variations would be captured in the dataset. All of the waste and recyclables generated were weighed and hand-sorted to determine the composition of the solid waste stream.

3.2. Data Analysis/Methodology

Waste sort data was compiled and summarized by waste stream and then converted to kilogram (kg) per week estimates. The audit team collected and sorted five days' worth of garbage and recycling from each site in the baseline phase of the project and six days' worth of garbage and recycling from each site in the post-implementation phase. Adjustments were then made to calculate the kg per week estimates.

To make the dataset more manageable and results more meaningful, the original list of material categories was collapsed from 64 to 30 categories focusing on recyclable materials accepted in British Columbia's deposit/refund and curbside recycling programs. Table 3-1 presents the summarized list of materials.

The data were used to generate the tables and chart presented in Section 5, which summarize waste composition and generation for recyclable and non-recyclable materials, as well as contamination rates for the Pilot Area sites.

Attachment 2 (Cont'd)

Table 3-1 Waste Audit Material Categories (summary list)

PRINTED PAPER	
1	Newspaper
2	Telephone Books / Directories
3	Magazines & Catalogues
4	Mixed Fine Paper
5	Books
6	Other Paper
PAPER PACKAGING	
7	Molded Pulp
8	Cardboard
9	Kraft Paper
10	Boxboard / Cores
11	Gable Top Cartons
12	Aseptic Containers
PLASTICS	
13	PET Water Bottles
14	PET Beverage Bottles (other)
15	PET Other Bottles & Jars #1
16	PET Other Packaging #1
17	HDPE Beverage Bottles #2
18	HDPE Other Bottles & Jugs #2
19	PVC Bottles & Jars #3
20	Other Bottles, Jars & Jugs #4 LDPE, #5 PP, & #7
21	Wide Mouth Tubs & Lids # 2 HDPE, #4LDPE, #5PP
METALS	
22	Aluminum Beverage (non-alcohol)
23	Aluminum Beverage (alcohol)
24	Aluminum Food Cans
25	Aluminum Foil & Foil Trays
26	Steel Food & Beverage Cans
GLASS	
27	Glass Containers (non-alcohol)
28	Glass Containers (alcohol)
29	Dairy Containers
30	Food Containers

Attachment 2 (Cont'd)

SECTION II: PROGRAM IMPLEMENTATION

4. Public Awareness Campaign

A key component of the Public Spaces Recycling Program was the public awareness campaign and communications strategy that supported the enhanced collection infrastructure. The campaign was designed to increase public awareness about the new recycling program in the Pilot Area and to facilitate a better understanding of which materials were accepted for recycling and which were not.

Building upon the successful communications strategies developed for the Niagara, Halifax and Sarnia public space recycling pilots, the Richmond pilot was customized to appeal to local audiences and to complement existing campaigns for single and multi-family residential waste, yard waste and food scraps. City staff emphasized the importance of design consistency and branding, as many of their other programs are defined by their own unique identities (e.g., Green Cart, Blue Cart, Green Can). Consequently the brand "Go! Recycle" was developed by City staff and used consistently on signage and promotional material to encourage residents and visitors to take part. All of these elements are represented in the photo below.



Mayor Malcolm Brodie and Nestlé's director of corporate affairs, John Challinor, unveil the new recycling bins at Garry Point Park. Source: Richmond News

Attachment 2 (Cont'd)

The main elements of the public awareness campaign were:

- On-bin signage designed to educate consumers about which materials were/were not recyclable and where they should be disposed of. Signage graphics were developed by StewardEdge in keeping with the City's graphic standards and its preference for photographic rather than pictographic images.
- Branded (Go! Recycle) display signage designed to raise the profile of the pilot program and awareness among the general public. Branding and signage graphics were developed and produced by the City of Richmond while sign placement was recommended by StewardEdge.
- A public launch event on July 28, featuring representation from the project sponsors, the Mayor and City of Richmond Councilors, the MLA and other community leaders, to publicize and raise awareness of the initiative. Organized by a public relations consultancy contracted to the sponsors, the launch event received extensive local media coverage and was formally recognized in the province's Legislative Assembly.
- Ongoing media and public relations follow-up by City staff, as well as ongoing community promotion through the City's internal communications network.
- Outreach to community stakeholders: Steveston Community Society, Gulf of Georgia Cannery Society, Steveston Historical Society, Britannia Heritage Shipyard Society, London Heritage Farm, Steveston Rotary Club, Steveston Merchant's Association and the Steveston Harbour Authority.

Planning and implementing strategic communications for recycling is a specialized activity. The success of Richmond's public awareness campaign is attributable to several factors, most notably the efforts of City staff who contributed municipal funds toward signage and promotion, worked collaboratively with StewardEdge in the placement of signage and proactively promoted the new program to local media outlets and online.

SECTION III: RESULTS

5. Waste Audit Results & Analysis

This section summarizes the results of the structured observation and the waste composition studies as they pertain to waste generation, composition, and diversion. Detailed waste audit results are presented in the tables in Appendix C. The audit data for the playing fields at Hugh Boyd Community Park were excluded from the analysis as waste generation during the June audit was very high (>150kg) and very small during the follow-up study (<50kg) which made statistically valid comparisons difficult for this site.

5.1. Structured Observation Analysis

Structured observation consists of observing the behaviour of individuals in a given environment without attempting to influence that behaviour in any way. Structured observation was conducted at four Canada Line transit stations to assess types of behaviour that could affect waste audit results.

Attachment 2 (Cont'd)**5.1.1. Scavenging Activities**

The results of the structured observation indicate that scavenging activities are common in the Pilot Area. Individuals remove containers accepted by British Columbia's beverage container deposit/refund program in order to collect the refunds from containers returned to Return-It depots or retailers.

Pilot program staff observed scavenging activities at Aberdeen Station and Brighthouse Station. Several individuals were observed searching garbage bins, most likely for deposit-bearing beverage containers, but left empty-handed. The assumption was that the garbage bin had already been picked over by the time the structured observation was conducted which explains why individuals did not remove any material from the bin. Containers were removed from recycling racks located at Brighthouse Station, further supporting the notion that individuals actively remove deposit containers from the waste stream in the City of Richmond.

5.1.2. Improper Disposal

Individuals were observed discarding materials into the wrong waste stream at two transit stations. For instance, a juice box and a bag of household waste were discarded in the garbage stream and coffee cups were discarded in the recycling stream. In some cases the individual looked at the bin signage which depicted the accepted materials and in other cases they did not. This behaviour could be explained by either confusion or lack of awareness regarding the recyclability of different materials or alternatively, apathy or disregard for proper disposal methods.

5.1.3. Use of Signage

Despite a few instances of misdirected waste, the signage displayed at the four transit stations was highly effective in directing consumers to place their waste materials in the appropriate waste stream. Consumers who looked at the signage prior to throwing out their waste directed it into the appropriate stream 96% of the time. In contrast, when consumers did not look at the signage first, their accuracy rate decreased to 75%.

5.1.4. Other Observations of Note

Vandalism of new bins caused by individuals attempting to break into the units to recover deposit-bearing containers was observed by City of Richmond staff. Where locks prevented individuals from accessing the recyclables, they would craft hooks out of coat hangers to remove the containers from the recycling stream of new bins at the pilot sites. These observations were not recorded during structured observation sessions but demonstrate the impact that the behaviour of individuals has on waste composition. There is some debate amongst City staff over the appropriate response to this behaviour, i.e., strengthening the security features (locks) on the bins vs. leaving the bins unlocked to give scavengers easy access and mitigate vandalism.

Also of note were two anomalies that impacted waste composition during the study period:

- 1) Heavy precipitation led to the discovery of wet fibres in the garbage stream.
- 2) A swim meet that involved outdoor camping was held at Steveston Community Centre during the audit period resulting in waste materials that would not typically be generated in a public space environment, such as cans of beans and tuna, being discarded in the bins.

Attachment 2 (Cont'd)

The photo below illustrates the materials generated as a result of the swim meet held at Steveston Community Centre.



5.2. Waste Generation

Amenities in the Pilot Area are regularly utilized in the spring and summer months, roughly the period from June to September. This is the period during which the majority of waste is generated.

Weekly waste generation was significant. Based on audit results, 1,422 kilograms of waste per week was generated during the baseline phase of the project (June 2011) and approximately 928 kilograms of waste per week was generated during the post-implementation phase (September 2011). These figures do not include the recyclables that were diverted from the bins prior to collection as a result of scavenging activities. During the two audit periods, waste generation decreased by 35%. Table 5-1 summarizes the quantity of waste generated across all sites included in the analysis for each material category.

Table 5-1 Waste Generation Summary

	Baseline Generation	Post- Implementation Generation
	kg/week	kg/week
Total Recyclable Fibre	237.8	150.8
Total Recyclable Beverage Containers	29.2	13.9
PET Bottles	8.2	2.6
Total Recyclable Non Beverage Containers	36.9	18.0
Total Recyclable Containers	74.3	34.5
Total Recyclables (Fibre + Containers)	312.1	185.4
Non-Recyclable Material	1,110.3	742.6
Total All Material	1,422.4	927.9
Percent Change		-35%

Attachment 2 (Cont'd)**5.3. Waste Composition Analysis**

The waste was sorted and classified into 64 material categories. The data categories were then consolidated for the purpose of analysis.

The baseline audit, coupled with structured observation, provided early confirmation that proportion of deposit-bearing recyclable beverage containers in the waste stream was negligible. Consequently, greater emphasis was placed on examining the composition of the garbage stream. The resulting waste composition analysis provides insight into how recycling behaviour changed subsequent to implementation of the PSR pilot.

The analysis provides evidence of a significant reduction in the weight of recyclables, including recyclable beverage containers (keeping in mind that the numbers are small for beverage containers), in the garbage stream following the implementation of the pilot program.

5.3.1. Waste Composition by Material Category

In the post-implementation phase, recyclable materials comprised approximately 20% (baseline was 22%) of the solid waste found in the garbage stream in the Pilot Area. Table 5-2 and Figure 5-1 compare the composition of each material category during the baseline phase with the composition of the post-implementation phase. The waste audit findings show that the largest component of the waste stream by weight was non-recyclable materials, followed by recyclable paper fibre, recyclable non-beverage containers and recyclable beverage containers.

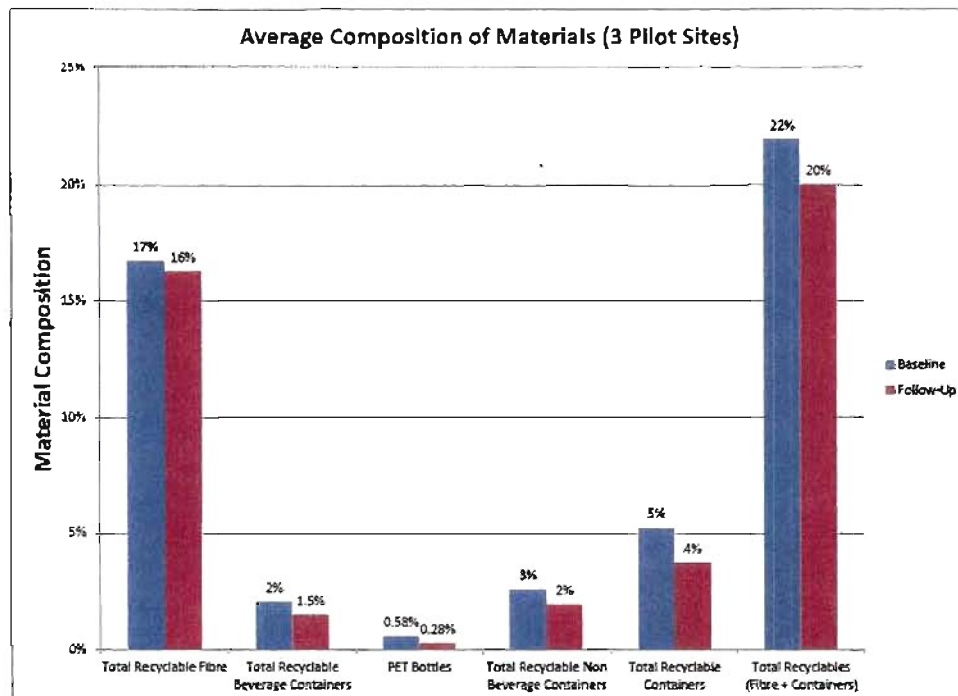
The non-recyclable material category remained fairly consistent across the two audit periods. The greatest change in composition was the recyclable containers category (decreased 29%), specifically PET bottles. The proportion of PET bottles within the garbage stream decreased by 52% between the two audit periods; this finding suggests that individuals may have diverted a greater proportion of their used bottles into the appropriate stream during the post-implementation phase and that scavenging activity may have increased or a combination of both.

Table 5-2 Waste Composition Comparison

Material Category	Baseline Composition	Post-Implementation Composition	% Change in Composition
Total Recyclable Fibre	16.7%	16.3%	-3%
Total Recyclable Beverage Containers	2.1%	1.5%	-27%
<i>PET Bottles</i>	0.6%	0.3%	-52%
Total Recyclable Non Beverage Containers	2.6%	1.9%	-25%
Total Recyclable Containers	5.2%	3.7%	-29%
Total Recyclables (Fibre + Containers)	21.9%	20.0%	-9%
Non-Recyclable Materials	78.1%	80.0%	3%

Attachment 2 (Cont'd)

Figure 5-1 Average Composition of Recyclables (3 Pilot Sites)



Attachment 2 (Cont'd)

5.3.2. Waste Composition by Pilot Site

This section presents the waste composition by pilot site. As discussed above, the Hugh Boyd playing fields were excluded from the analysis due to statistically insignificant data. The data presented in Table 5-3 demonstrate that composition of recyclable beverage containers decreased significantly at Garry Point Park (-35.5%) and in Steveston Village (-36%). The composition of beverage containers remained virtually unchanged at the Steveston Community Centre. Given that the other two sites showed significant decreases in this category, there may have been an anomaly that occurred at the Community Centre which affected the amount of beverage containers disposed in September 2011. The composition of PET bottles within the garbage stream decreased at all sites, most dramatically in Steveston Village.

Table 5-3 Waste Composition by Pilot Site

	Waste Composition by Pilot Site								
	Garry Point Park			Steveston Community Centre			Steveston Village		
	Baseline	Post-Implementation	% Change	Baseline	Post-Implementation	% Change	Baseline	Post-Implementation	% Change
Total Recyclable Fibre	18.0%	20.2%	12.4%	16.0%	12.0%	-24.9%	16.5%	16.0%	-3%
Total Recyclable Beverage Containers	2.3%	1.5%	-35.5%	1.9%	2.0%	6.9%	2.1%	1.3%	-36%
PET Bottles	0.7%	0.5%	-23.0%	0.4%	0.3%	-32.8%	0.6%	0.1%	-77%
Total Recyclable Non Beverage Containers	1.1%	2.2%	107.5%	3.5%	1.9%	-46.3%	2.8%	1.8%	-35%
Total Recyclable Containers	4.1%	4.3%	4.7%	5.8%	4.2%	-28.2%	5.5%	3.3%	-41%
Total Recyclables (Fibre + Containers)	22.1%	24.5%	10.9%	21.8%	16.2%	-25.8%	22.0%	19.3%	-12%
Non-Recyclable Materials	77.9%	75.5%	-3.1%	78.2%	83.8%	7.2%	78.0%	80.7%	3%
Total All Material	100%	100%		100%	100%		100%	100%	

Attachment 2 (Cont'd)**6. Conclusions**

Implementation of the Public Space Recycling Program in the Pilot Area was successful. The enhancement of the public space recycling infrastructure reduced the amount of recyclable material in the garbage stream and increased the apparent diversion of recyclables, including beverage containers.

In addition, the program provided a valuable template for the implementation and future expansion of public space recycling initiatives in similar communities. A review of the program's performance, conducted in early November with City of Richmond staff, suggested a number of opportunities for refinement (e.g. measures to mitigate the incidence of vandalism on new bins), but overall the partners were very satisfied with the program's design and execution.

The selection and strategic placement of more effective recycling bins, coupled with a compelling new brand ("Go! Recycle"), high-impact graphics and strong communications support from the City provided residents and visitors in the Pilot Area with the sense of greater opportunity to recycle and a disincentive to litter in public spaces.

Analysis of data from the pre- and post-implementation waste audits confirmed that British Columbia's deposit/refund system for beverage containers suppresses the quantity of beverage containers that remain disposed of in public spaces. However, enhancing people's opportunities to recycle in public spaces does improve the diversion of beverage containers that are discarded in public spaces.

Finally, effective communications and outreach activities – much to the credit of staff and elected officials in the City of Richmond – raised the level of public awareness and created a platform for further emphasis on ways to expand recycling.

Detailed Conclusions

- While the actual numbers were small (only 0.58% of the waste stream prior to implementation), the diversion rate of plastic bottles from the garbage stream increased by 52% (to 0.28%).
- Fewer beverage containers going to landfill contribute to Metro Vancouver's 70% diversion target.
- The pilot was most effective in Steveston Village.
- The composition of recyclable beverage containers found in the garbage stream decreased by 27% between the baseline audit and the post-implementation audit indicating that residents and tourists were putting their beverage containers in the recycling bin.
- Results of the structured observations at the transit stations suggest that scavenging activities were responsible for the low numbers of bottles and cans in recycling bins. This observation was confirmed by City staff and by the vandalism to recycling bin locks.
- Even though beverage containers were likely removed from the recycling bin for the purpose of redeeming their deposit through BC's beverage container deposit program, this can still be considered recycling given that all containers returned via the deposit program are recycled.
- Another positive sign is the fact that the composition of recyclable non beverage containers found in the garbage stream decreased by 25% between the two audit periods.

Attachment 2 (Cont'd)

- Effective signage is a critical component of public space recycling programs. The structured observation measured an increase of 21% in the accuracy rate by which individuals place their waste in the appropriate stream.

Given that bins were already in place at the pilot sites prior to program implementation, the results of the program are less dramatic than in pilot programs where no bins existed in the pre-implementation phase. However, the improvements made remain impressive and demonstrate the benefit of incremental improvements in public space recycling bins and signage. Municipal public space recycling programs can be improved over time helping to capture that elusive "last mile" of recyclable material.

Attachment 2 (Cont'd)

APPENDICES

A. Data Tables

Table A-1 Waste and Recyclables Generation and Composition

Material Category		Material Accepted	Baseline Generation (kg/week)	Post-Implementation Generation (kg/week)	Baseline Composition (%)	Post-Implementation Generation (kg/week)	% Change in Composition
1. PRINTED PAPER			81.16	87.17	6%	9%	64%
1	Newspaper	Y	62.96	69.43	4%	8%	69%
2	Telephone Books / Directories	Y	5.61	2.23	0%	0%	-39%
3	Magazines & Catalogues	Y	0.82	1.51	0%	0%	181%
4	Mixed Fine Paper	Y	11.33	13.94	1%	2%	88%
5	Books	Y	0.00	0.00	0%	0%	n/a
6	Other Paper	Y	0.45	0.06	0%	0%	-79%
2. PAPER PACKAGING			385.38	151.94	27%	16%	-40%
7	Coffee Cups	N	78.14	48.68	6%	5%	-5%
8	Tissue/Toweling	N	137.43	37.44	10%	4%	-58%
9	Molded Pulp	Y	23.58	7.50	2%	1%	-51%
10	Cardboard	Y	21.32	7.65	2%	1%	-45%
11	Kraft Paper	Y	70.41	31.94	5%	3%	-31%
12	Boxboard / Cores	Y	41.31	16.58	3%	2%	-39%
13	Laminated Packaging	N	8.87	0.00	1%	0%	-100%
14	Composite Can	N	0.32	0.42	0%	0%	101%
15	Gable Top Cartons	Y	1.36	1.01	0%	0%	14%
16	Aseptic Containers	Y	2.66	0.72	0%	0%	-59%

Attachment 2 (Cont'd)

Material Category		Material Accepted	Baseline Generation (kg/week)	Post-Implementation Generation (kg/week)	Baseline Composition (%)	Post-Implementation Generation (kg/week)	% Change in Composition
3. PLASTICS			225.99	119.82	16%	13%	-19%
17	Polyethylene PE Plastic Bags & Film - Packaging	N	83.47	11.45	6%	1%	-79%
18	Polyethylene Plastic Bags & Film - Non-Packaging	N	27.12	57.03	2%	6%	221%
19	PET Water Bottles	Y	2.37	1.41	0%	0%	-9%
20	PET Beverage Bottles (other)	Y	5.86	1.18	0%	0%	-69%
21	PET Other Bottles & Jars #1	Y	19.77	9.02	1%	1%	-30%
22	PET Other Packaging #1	Y	0.64	0.59	0%	0%	41%
23	HDPE Beverage Bottles #2	Y	3.68	1.71	0%	0%	-29%
24	HDPE Other Bottles & Jugs #2	Y	0.91	0.13	0%	0%	-78%
25	PVC Bottles & Jars #3	Y	0.00	0.00	0%	0%	n/a
26	Other Bottles, Jars & Jugs #4 LDPE, #5 PP, & #7	Y	9.51	0.94	1%	0%	-85%
27	Polystyrene #6 PS	N	52.99	17.34	4%	2%	-50%
28	Wide Mouth Tubs & Lids # 2 HDPE, #4 LDPE, #5 PP	Y	1.14	0.53	0%	0%	-29%
29	Large HDPE & PP Pails & Lids > 4 litres and < 25 litres HDPE & PP pails	N	0.00	0.00	0%	0%	n/a
30	Plastic Laminated Films*	N	5.87	5.58	0%	1%	45%
31	HSW Bottles, Jugs and	N	1.76	0.19	0%	0%	-84%

Attachment 2 (Cont'd)

Material Category		Material Accepted	Baseline Generation (kg/week)	Post-Implementation Generation (kg/week)	Baseline Composition (%)	Post-Implementation Generation (kg/week)	% Change in Composition
	Tubs empty HSW containers						
32	Other Rigid Plastic Packaging	N	1.53	7.39	0%	1%	640%
33	Durable Plastic Products	N	9.37	5.33	1%	1%	-13%
4. METALS			14.21	5.79	1%	1%	-38%
34	Aluminum Beverage (non-alcohol)	Y	3.22	0.36	0%	0%	-83%
35	Aluminum Beverage (alcohol)	Y	1.93	0.52	0%	0%	-59%
36	Aluminum Food Cans	Y	2.24	0.82	0%	0%	-44%
37	Aluminum Foil & Foil Trays	Y	0.71	0.20	0%	0%	-57%
38	Steel Food & Beverage Cans	Y	0.21	0.82	0%	0%	486%
39	Aerosol Cans	N	0.00	1.72	0%	0%	n/a
40	Steel Paint Cans	N	0.00	0.32	0%	0%	n/a
41	Other Metal	N	5.89	1.05	0%	0%	-73%
5. GLASS			10.81	12.06	1%	1%	70%
42	Glass Containers (non-alcohol)	Y	7.59	1.06	1%	0%	-79%
43	Glass Containers (alcohol)	Y	0.00	5.97	0%	1%	n/a
44	Dairy Containers	Y	0.50	0.00	0%	0%	-100%
45	Food Containers	Y	1.78	4.95	0%	1%	325%
46	Other Glass	N	0.95	0.08	0%	0%	-87%
6. HOUSEHOLD SPECIAL WASTES			0.13	0.33	0%	0%	289%
47	Batteries	N	0.13	0.00	0%	0%	-100%
48	Paint & Stain cans / tubs	N	0.00	0.00	0%	0%	n/a

Attachment 2 (Cont'd)

Material Category		Material Accepted	Baseline Generation (kg/week)	Post-Implementation Generation (kg/week)	Baseline Composition (%)	Post-Implementation Generation (kg/week)	% Change in Composition
49	Motor Oil	N	0.00	0.00	0%	0%	n/a
50	Other HSW liquids	N	0.00	0.32	0%	0%	n/a
51	Other HSW sharps	N	0.00	0.01	0%	0%	n/a
7. ORGANICS			597.56	456.34	42%	49%	17%
52	Food Waste	N	415.96	213.44	29%	23%	-22%
53	Yard Waste	N	26.27	44.96	2%	5%	162%
54	Pet waste	N	155.33	197.95	11%	21%	95%
8. OTHER WASTE MATERIALS			98.89	91.90	7%	10%	42%
55	Diapers and Sanitary Products	N	47.03	15.14	3%	2%	-51%
56	Electronic Waste	N	1.99	4.04	0%	0%	211%
57	Small Kitchen Appliances	N	0.00	0.00	0%	0%	n/a
58	Textiles	N	10.65	6.92	1%	1%	-1%
59	Carpeting	N	0.00	0.00	0%	0%	n/a
60	Construction & Renovation Waste	N	1.58	11.91	0%	1%	1051%
61	Tires and Other Rubber	N	2.56	0.00	0%	0%	-100%
62	Ceramics	N	0.00	0.47	0%	0%	n/a
63	Large Bulky	N	3.78	2.43	0%	0%	-2%
64	Other Waste	N	31.29	50.99	2%	6%	149%
Grand Total			1,414.13	925.36	100%	100%	

Attachment 2 (Cont'd)

B. Pilot Site Photos (Pre and Post Program Implementation)

Pre-Pilot and Post-Implementation Comparisons

The following are images comparing the bins used prior to the pilot and post-implementation.

Steveston Village, Pre-Pilot



Steveston Village, Post-Implementation



Attachment 2 (Cont'd)

Garry Point Park, Pre-Pilot



Garry Point Park, Post-Implementation



Attachment 2 (Cont'd)

Steveston Community Centre, Pre-Pilot



Steveston Community Centre, Post-Implementation



Attachment 2 (Cont'd)

Hugh Boyd Playing Field, Pre-Pilot



Hugh Boyd Playing Field, Post-Pilot



Attachment 2 (Cont'd)

Bin Design, Location & Signage Improvements

These images show the improvement made by replacing stand-alone units with a dual-stream bin. Separate units tend to wander and look disorganized over time.



Attachment 2 (Cont'd)

These images demonstrate the benefit of placing fewer, more attractive bins over a larger area.



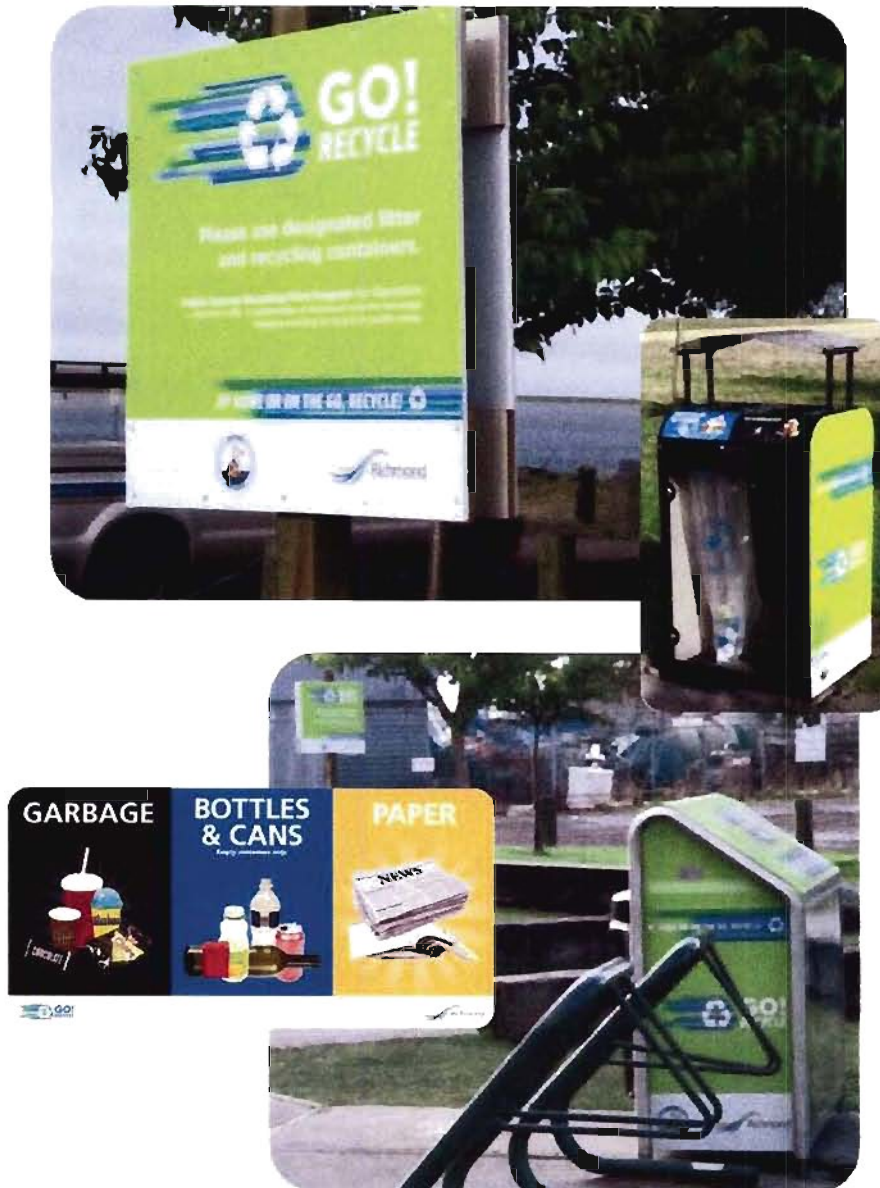
Attachment 2 (Cont'd)

These images compare the pre-pilot signage with the signage designed for the pilot program by the City of Richmond with assistance from StewardEdge. The communications strategy emphasized consistency, clarity and colour.

Pre-Pilot Signage

Attachment 2 (Cont'd)

Post-Implementation Signage & Messaging





City of Richmond

Report to Committee

To: Public Works and Transportation Committee

Date: January 5, 2012

From: Tom Stewart, ASCT.
Director, Public Works Operations

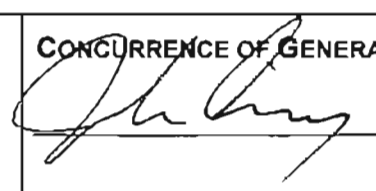
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Re: 4252Q - Award of Contract for Battery-Powered Ice Resurfacers

Staff Recommendation

1. That Contract 4252Q, for the Supply and Delivery of Five Battery-Powered Ice Resurfacers, be awarded to Vimar Equipment Ltd. at a total cost of \$453,430.00, plus applicable taxes and levies;
2. That the additional required funding of \$288,738.50 be approved with funding from the Public Works Equipment Reserve and that the 2012 Capital Budget and the 5-Year Financial Plan (2012-2016) be adjusted accordingly.

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

FOR ORIGINATING DEPARTMENT USE ONLY			
ROUTED TO:	CONCURRENCE	CONCURRENCE OF GENERAL MANAGER	
Budgets	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	 POR: RG	
Purchasing	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>		
Parks and Recreation	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>		
REVIEWED BY TAG	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	REVIEWED BY CAO	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>

Staff Report

Origin

This report seeks Council approval to award Contract 4252Q, and expand the scope of the award to include a total of five units. As additional funding from the Public Works Equipment Reserve is required to award the Contract in light of the recommended expanded scope, Council approval is required.

Analysis

Background

The City currently has five ice resurfacers. Four of these machines are in-service units used to clean the eight different ice sheets at the Minoru (one unit) and Richmond Ice Centre arenas (three units). The fifth unit is a back-up and is intended to be used to ensure arena services can continue to be offered to the public during regularly-scheduled or demand maintenance of any of the four in-service units.

Four ice resurfacers were replaced in 2006 and are battery-powered Olympia Ice Bears. This electric technology is particularly well suited to the indoor arena environment due to the fact there are no fossil fuel emissions. The fifth is a 1996 Zamboni propane-powered unit (919) and was approved for replacement as part of its regular life-cycle under project 40530 with funding from the Public Works Equipment Reserve. Unit 919 is being replaced with an electric unit.

To facilitate the replacement of unit 919, Contract 4252Q was issued to the marketplace on July 28, 2011. This request for quotations included an option for bidders to also quote on replacement of the four existing ice resurfacers, with a trade-in provision for each. This option was included to: a) allow consideration for consistency in the style and type of units for ease of operation and maintenance; and b) shop the marketplace since the four units purchased in 2006 were first vintage or prototype units and require extra diligence for Fleet Operations and the vendor to maintain a sufficient inventory of the older-style parts needed for ongoing repairs, etc. In addition, these units will each require battery replacements (at a cost of approximately \$16,500/each) prior to their normal scheduled replacement cycle in 2017. Staff considered it a prudent, but not mandatory, step to see what the market would bear for the early replacement of the existing four ice resurfacer units in conjunction with the acquisition of the replacement for unit 919.

Public Tendering

The request for quotations closed on August 3, 2011 and resulted in the following responses¹.

Bidder	Product Type	Purchase Cost for One Unit (with trade-in of 919)	Total Purchase Cost for Four Additional Units (after trade-in of four existing units)	Total Cost for Five Units
1. Crocker Equipment	Zamboni 552	\$143,700	\$594,800	\$738,500
2. Vimar Equipment Ltd.	Olympia Ice Bear	\$169,918	\$283,512	\$453,430
3. Vimar Equipment Ltd.	Olympia Millennium E	\$157,928	\$451,712	\$609,640
4. Westrac Industrial Ltd.	Ice Cat B220	\$112,500	No Bid	No Bid
5. Joe Johnsen	Engo 200SX	\$161,257	No Bid	No Bid

¹Note that the costs noted in this table are exclusive of taxes and applicable levies.

Proposal Evaluation

An interdepartmental staff team consisting of arena and Fleet Operations staff reviewed the proposal submissions in accordance with the requirements outlined in the quotation. A summary of each submission is outlined below.

1. Crocker Equipment

The Zamboni 552 ice resurfacers technology is based on a combustible platform-style unit which has been converted to an electric motor to drive the power train. This unit operates based on an opportunity charging system, i.e. charging after use. Alterations/adapters would have to be put in place to conform with the existing charging infrastructure at an estimated cost of \$12,000 per charging location because the required charging infrastructure is not compatible with that currently in place. The opportunity charging system does not meet the specification requirement of 25 sheets per single charge. The opportunity charge technology, while providing for continuous charge, is somewhat more vulnerable to oversight in maintaining regular charge status. For example, if the operator was remiss in plugging the unit in for charging after use, the battery charge could be depleted and there would be a negative impact to service levels and potentially, arena revenues, since the unit would require time to be charged sufficiently before the ice can be cleaned. By contrast, the existing in-service units are charged once per day only (over-night) and can conduct 25 ice cleans per charge as a minimum, which meets the arenas daily operational requirements.

Other considerations include operator familiarity and training/orientation requirements on a different make/model of unit, which could also negatively impact service intervals. Having one unit of a different style and make would also necessitate support for parts and materials for maintenance, with no ability to inter-change parts between units in situations where a quick-fix is needed to maintain service. To achieve consistency in all units, costing was sought to purchase four additional units, using the existing units as trade-ins. The costing provided by the vendor for this potential approach did not represent an attractive offer, i.e. \$594,800 for four additional units. Overall, the Zamboni unit is not desired by the user group.

2. Vimar Equipment Ltd.: Olympia Ice Bear

The Olympia Ice Bear is an upgraded, newer vintage of the existing four in-service units. The Ice Bear technology was designed, engineered and constructed as an electric machine (i.e. not converted from a combustible style) and has four individual wheel motors to propel the unit. This allows for wheel speeds to be set and hence draws less amperage from the battery, providing for the efficiency in battery power to achieve the minimum 25 ice cleans per charge. This provides for one unit to sufficiently support two sheets of ice for an entire day on one charge. This unit is charged once daily (over-night) so is less susceptible operator oversight in potentially forgetting to charge the unit between ice cleans. Overall, the Olympia Ice Bear is a more efficient design. The battery charging infrastructure is also compatible with the existing charging infrastructure at both Minoru and Richmond Ice Centre arenas. Operator familiarity with this style of unit is also a consideration since this unit is similar to the existing four units. Vendor support for the existing units (also Vimar Equipment Ltd.) has been excellent. As such, the Olympia Ice Bear is the unit desired by the user group.

To obtain consistency with all units and upgrade to a newer model in order to address the challenges with maintaining a sufficient parts inventory for these first vintage units, costing was sought to purchase four additional units, using the existing units as trade-ins. The costing provided by the vendor for replacement of the existing four units to the newer vintage design is very attractive at \$70,878/unit for a total of \$283,512 (plus levies and taxes) for four additional units, or \$453,430 to replace all five units. It is important to note that this is a one time opportunity and that Vimar has made it clear that the City will not be able to take advantage of this exceptional offer in the future. In addition, this results in a favourable cost-benefit overall to the Public Works Equipment Reserve through savings in anticipated replacement costs.

Therefore, there are two options available under this proposal:

- i) Purchase one Olympia Ice Bear and award this contract to Vimar Equipment Ltd. at a total cost of \$169,918, plus levies and taxes, or
- ii) Expand the purchase to include five Olympia Ice Bear units and award this contract to Vimar Equipment Ltd. at a total cost of \$453,430, plus levies and taxes.

In addition to the financial savings replacement of the existing ice resurfacers will enable the City to provide a reliable level of service given the down-time of the existing machines when repairs are required.

Staff recommend Option ii). The cost benefit to support this recommendation is provided in the Financial Impact section of this report.

3. Vimar Equipment Ltd.: Olympia Millennium E

While the Olympia Millennium E is manufactured by the same manufacture of the Ice Bear and shares the same electrical motor design, the design of the snow dump box, wash and flood water arc different. The Millenium E has a longer wheel base than the Ice Bear and as a result has a turning radius of 180 inches compared to the Ice Bear's preferred 154 inches. The Millenium E is designed with a 2.91 cubic meter snow dump box compared to the Ice Bear's 3.37 cubic meter capacity. The Millenium carries a total of 1,164 litres of flood and wash water compared to the Ice Bear's 1,232 litres of water. The Millenium E's operator line of sight is not as good as the line of sight on the Ice Bear which could affect safety related to the operation of the machine. For these reasons, the Millenium E is not desired by the user group. In addition, the costing provided to purchase four additional units is not as attractive as that provided for the Ice Bear unit.

4. Westvac Industrial Ltd.

The Ice Cat B220 unit proposed by Westvac Industrial Ltd. is a 2009 demonstration unit. The bid submission was incomplete and therefore did not comply with minimum specification requirements. This bid, therefore, was not considered.

5. Joe Johnsen

The Engo 200SX unit proposed by Joe Johnsen did not meet specification requirements for the minimum required number of ice cleans per charge and lacks an hour meter (which is required for maintenance purposes). In addition, the warranty offer was minimal and there is no local service available to support servicing and parts. The machine is currently not in use anywhere in Canada, and therefore, the company's experience and the track record for this unit could not be verified as outlined in the request for quotations. For these reasons, the Engo 200SX was not considered.

Summary/Recommendation

After reviewing the bid submissions, the proposal by Vimar Equipment Ltd. to expand the scope of Contract 4252Q to replace five units, per Item 2 ii), above, represents best value to the City, and is therefore recommended. As noted previously, the offer to buy back the existing ice resurfacer units is a one time offer by Vimar that presents best value to the City.

Financial Impact

The recommendation to expand the scope of Contract 4252Q to replace all five ice resurfacer units results in the requirement for additional funding from the Public Works Equipment Reserve of \$288,738.50 (\$283,512 plus levies and net taxes) at this time. While additional expenditure is required, this approach represents an overall savings in replacement costs of approximately \$450,000 due to the incentive pricing obtained via the contract as follows:

<i>Summary of Costs and Anticipated Savings per Recommended Option (to Purchase Five Ice Resurfacer Units)</i>							
<i>Vimar Equipment Ltd. Proposal</i>			<i>Funding/Anticipated Savings</i>				
<i>Ice Resurfacer Unit/s</i>	<i>Purchase Price/ Unit with Trade-In</i>	<i>Total Cost (not incl. taxes/ levies)</i>	<i>Project Year</i>	<i>Project Approval Status</i>	<i>Project Number</i>	<i>Funding Allocation in PW Equipment Reserve</i>	<i>Variance/ Savings</i>
Unit 919	\$169,918	\$169,918	2011	Approved	40530	\$175,000	\$5,082
Units 1303, 1304, 1305, 1330	\$70,878	\$283,512	2017	Pending	TBD	\$720,000 (\$180,000/unit)	\$450,004
Total Cost for 5 Units		\$453,430					

As noted in the above table, the long-term Public Works and Corporate vehicle replacement plan allocates the 2017 anticipated replacement costs for the four existing in-service units at \$180,000 each, or a total of \$720,000. The proposal by Vimar Equipment Ltd. offers significant trade-in incentive to encourage the acquisition/upgrade to purchase these four additional units at this time at a considerable price reduction, i.e. \$283,512. Although this proposal requires that additional dollars be expended in 2012 vs. 2017, it represents an approximate savings of \$450,000 over anticipated replacement costs. In addition, this represents an overall positive financial benefit to the Public Works Equipment Reserve in alignment with the proposed Sustainable Green Fleet Policy 2020.

The proposed option is recommended based on the analysis of the information received through the bid process and does not consider factors such as overall life-cycle maintenance costs, etc.

Conclusion

The proposal by Vimar Equipment Ltd. to expand the scope of Contract 4252Q to include replacement for all five City ice resurfacer units represents best value and overall cost savings. In addition, the Olympic Ice Bear unit proposed best suits the operational needs of the arenas to support the services provided to the public. The additional funding required to accommodate this expanded purchase at this time can be accommodated from the Public Works Equipment Reserve with Council's authorization. An adjustment to the 2012 capital budget and 5-year financial plan (2012-2016) will also be required.

Handwritten signature of Suzanne Bycraft, appearing as "S. Bycraft" in cursive.

Suzanne Bycraft
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