




City of Richmond

Report to Committee

To: Public Works and Transportation Committee **Date:** January 26, 2018
From: John Irving, P. Eng MPA **File:** 10-6125-05-01/2018-Vol
Director, Engineering 01
Re: **Richmond Carbon Market and Carbon Neutrality Update**

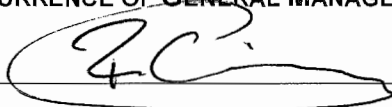


Staff Recommendation

1. That the staff report titled, "Richmond Carbon Market and Carbon Neutrality Update," from the Director of Engineering, dated January 26, 2018 be received for information.
2. That the Chief Administrative Officer and the General Manager, Engineering and Public Works be authorized to negotiate and execute agreements to purchase carbon credits to maintain the City's corporate carbon neutrality status.



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

Att. 1

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

Origin

The City of Richmond committed to maintaining carbon neutral corporate operations when it signed the BC Climate Action Charter. The City has maintained this commitment since 2013. The purpose of this report is to seek approval to develop and execute partnership agreements with two additional Richmond-based organizations (Lafarge Canada and Panevo Services) and to renew a partnership agreement with Pacific Gateway Hotel through the Richmond Carbon Market (RCM) program and to present a corporate carbon neutrality update.

These planned actions support the following Council 2014-2018 Term Goals:

#4 Leadership in Sustainability:

- 4.1. *Continued implementation of the Sustainability Framework.*
- 4.2. *Innovative projects and initiatives to advance sustainability.*

#5 Partnerships and Collaboration:

- 5.1. *Advancement of City priorities through strong intergovernmental relationships.*
- 5.2. *Strengthened strategic partnerships that help advance City priorities*

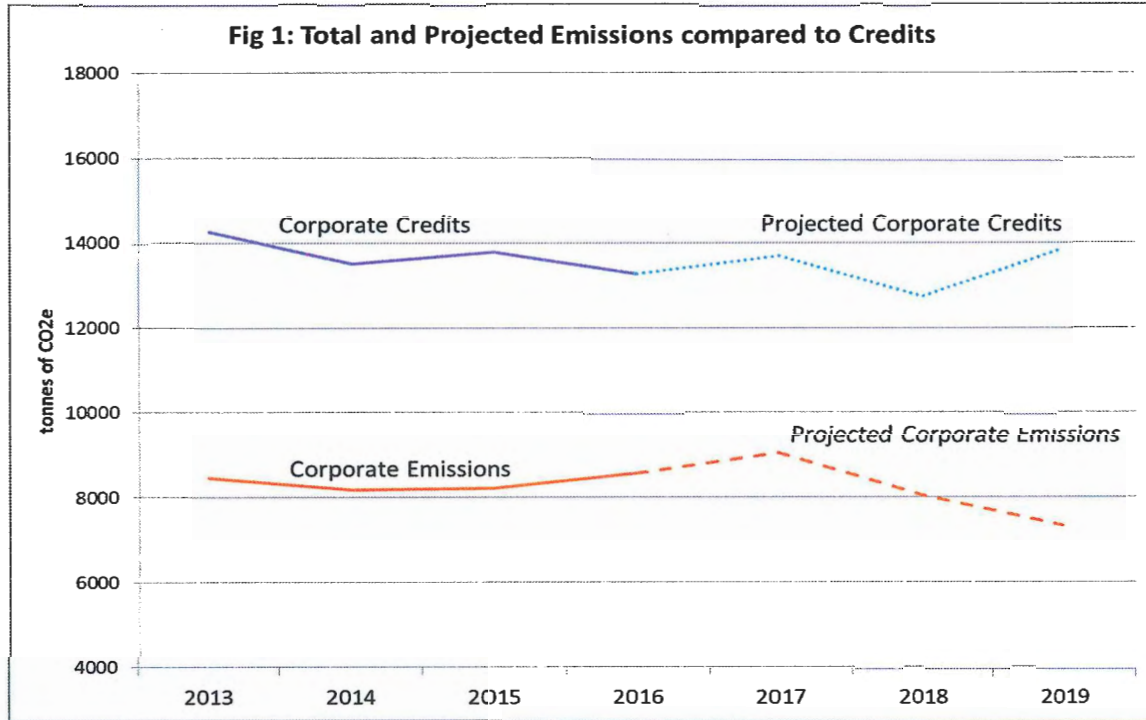
Background

In September 2008, Council signed the BC Climate Action Charter, voluntarily committing the City to annual corporate GHG emissions reporting and to achieving carbon neutral operations. In 2013, Richmond City Council adopted the *Towards Carbon Neutrality: Implementation Strategy*, which put in place an effective framework defined by four key steps for meeting carbon neutrality commitments: measure, reduce, compensate (or offset) and report.

Achieving carbon neutrality for corporate operations entails that the City reduces corporate emissions where possible and offsets corporate emissions as necessary. Guided by the City's 2013 Green Fleet Action Plan and Energy Management Program for buildings and infrastructure, the City is constantly working on reducing its corporate GHG emissions footprint and energy use. To meet the City's community commitment of 33% reduction from 2007 levels by 2020, Council has endorsed a 20% GHG emissions reduction target for Fleet by 2020 from 2011 levels and a 65% reduction for corporate buildings by 2020 from 2007 levels.

Key mechanisms identified in the 2013 strategy to address the need for compensation included assessing and quantifying beyond "business as usual" corporate activities that reduce GHG emissions and the implementation of the RCM pilot program to invest in Richmond-based projects.

The City has achieved carbon neutral operations for the past four reporting years, and is anticipating achieving carbon neutrality in 2017 as well. Due to the City's completion of several emissions reduction projects since 2013, including the investment in the development of RCM projects, the City is carrying forward a surplus of credits. Any surplus credits are able to be carried forward to following years to achieve carbon neutrality. Based on the ongoing work to reduce corporate emissions and the ongoing accumulation of verified emission credits, the City is projecting that carbon neutrality will be maintained through past the 2020 reporting year, as shown below in Figure 1.



Richmond Carbon Market Program

The RCM pilot program was initiated in 2015, and it was envisioned that it would act as a tool that the City could use to build community resilience by investing in Richmond-based projects that would generate carbon credits that then belong to Richmond. When the pilot was introduced, Council endorsed a strategy to invest funds the City receives annually through the Province’s Climate Action Revenue Incentive Program. In 2015 five project submissions were received as part of the first round of projects. The five projects and their current status are shown in the following table.

Table 1: First Round Project Submissions for RCM program

Proponent	Project Description	Project Status	GHG emission credits (tCO ₂ e)
1. Pacific Gateway Hotels	Building energy efficiency retrofits	Retrofit work was completed prior to 2015, and the purchase agreement for the associated 2015 credits was finalized in 2016	106
2. EcoWaste Industries	Enhanced landfill re-vegetation and carbon sequestration	Project is on –hold, full re-design is required and it may not qualify for the program once implemented	-
3. TnT Supermarkets	Organic waste diversion and bio-digester, to achieve a zero waste grocery operation	Equipment associated with project was moved to another location outside of Richmond	-
4. RDH Building Engineering	Building energy renewal and retrofits in Richmond	The proponent did not complete the required reporting – project was not advanced	-
5. Harvest Power	Packaged organics separation and recycling	The proponent did not complete the required reporting – project was not advanced	-

While there was community interest in the call for projects, agreements with four of the five original proponents were not completed. The RCM program is on-going, and for this reason two new proponents and one original proponent have come forward in the City’s second call for projects.

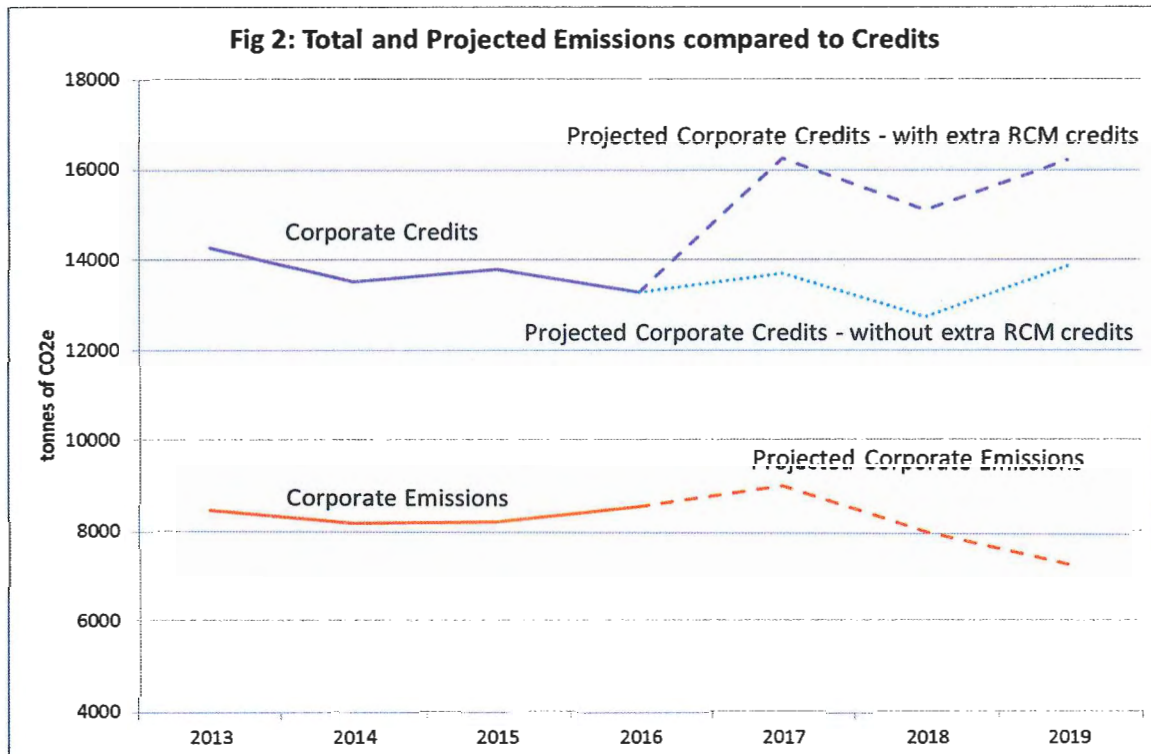
Analysis

The second call for projects through the RCM involved re-posting a Notice of Opportunity on BC Bid, providing direct information to Richmond businesses through the City’s Economic Development Office monthly newsletter and social media page, and by soliciting directly some of the participants that were involved in the City’s original pilot program consultations. As a result of these actions two additional participants were identified, with Pacific Gateway Hotel re-submitting a follow up proposal. Information on the three submissions that were received as part of the second round call for projects is listed in the table below for Council consideration. For further description and information on each potential participant and their submissions, please see Attachment 1.

Table 2: Community Project Submissions to the Richmond Carbon Market

Proponent	Project Description	Project Status	Est. GHG emission reductions available (tCO₂e)	Max. Investment (\$25/tCO₂e)
1. Pacific Gateway Hotels	Building energy efficiency retrofits – Calendar years 2016 and 2017	Completed, quantification to be finalized in early 2018	200	\$5,000
2. Lafarge Canada	Asphalt recycling and displacement of virgin aggregate material	Completed, quantification to be finalized in early 2018	2,400	\$60,000
3. Panevo Services Ltd	Industrial and commercial energy efficiency improvement and equipment renewal consultants	Not yet implemented	500-2,000	\$50,000
Total			3,100-4,600	\$115,000

If approved, the execution of agreements with both Pacific Gateway and Lafarge can likely be completed before the City’s 2017 carbon neutral reporting deadline in June 2018, which will allow further surplus to be accumulated this reporting year. Once Panevo Services Ltd finalizes its project submission and the required quantification and verification documents, the specific project information will be reviewed by the City. It is not expected that the execution of a purchase agreement with Panevo will occur prior to June 2018, but could be completed before the 2018 reporting deadline in June 2019 if approved. The City will be well positioned to maintain corporate carbon neutrality indefinitely if these proponents are selected to be included in the Richmond Carbon Market Program and corporate emissions targets are reached, as shown in Figure 2.



In addition to external RCM program projects, there are internal corporate projects that the City has quantified or is in the process of quantifying to further reduce the City’s carbon footprint. The expected credits associated with the projects are reflected in Figures 1 and 2. Further information on the corporate projects and their status are listed in the following table.

Table 3: Anticipated Corporate Carbon Credits

Project Description	Tonnes CO2e	Project Status
Household Organic Waste Composting – Municipally Collected	7,000	Quantification completed by Metro Vancouver on an annual basis.
Corporate concrete and asphalt recycling – Sidaway Yard	500	Quantification and reporting methodology completed in 2017, further credits received on an annual on-going basis as concrete batches are recycled.
Alexandra District Energy Utility (2014-2016)	550	Quantification and verification completed in 2017. Credits will be a one-time allocation as the ADEU is now part of the separate corporation, Lulu Island Energy Company.
Northeast Bog (2018)	Over 1,000*	Initial carbon assessment has been completed. Further ecological and environmental assessments to be completed in mid-2018.
Total projected credits from corporate projects	9,050^a	

*) current estimates, projects still to be quantified

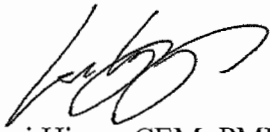
^a) currently approximately 7,500 tonnes of the projected credits from corporate activities would be available on an on-going basis

Financial Impact

None, funding for this program was previously approved by Council.

Conclusion

Through the continued strategic implementation of the *Towards Carbon Neutrality – Implementation Strategy*, the City is a leader amongst BC municipalities in working towards reductions in community and corporate GHG emissions. With the continued development and deployment of the Richmond Carbon Market program, the development and quantification of corporate projects, and the strive to achieve corporate building and fleet GHG emission reduction targets, the City is well positioned to maximize corporate and community benefits of transitioning towards a low carbon community while also maintaining carbon neutral operations indefinitely.



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Att. 1: Richmond Carbon Market Program - Submission Summary 2018



Proponent Submissions Summary

A second request for community greenhouse gas (GHG) emission reduction project plans was issued publicly in November 2017, as part of the Richmond Carbon Market program. This request was designed to further assess the opportunity for the City to invest in community based projects that result in quantifiable GHG emissions reductions, which then could be used to offset the City's corporate GHG footprint.

Three submissions were received as part of this request, and detailed project summaries and organization information is indicated below.

1. Pacific Gateway Hotel

- **Business type:** Pacific Gateway Hotel is a 374 room hotel, resort, and marina operation on Sea Island in Richmond. The hotel is affiliated with Preferred Hotels and Resort International, which represents a global collection of 650 independent hotels in 85 countries.
- **Location:** 3500 Cessna Drive, Richmond
- **Type of Project:** Building energy efficiency retrofits – Option 1
- **Project Description:** The facility completed energy efficiency upgrades to the building structure and systems to reduce energy use and GHG emissions, including;
 - Building automation system upgrades
 - Boiler plant replacement with domestic hot water pre-heat
 - Upgrade and replacement of make-up air units and exhaust fans
 - Lighting re-lamp and retrofit
 - Resealing the building envelope to decrease conditioned air leaks.

The project quantification will assess the difference in GHG emissions between business as usual energy use of the building as compared to the post energy efficiency retrofit operation.

- **Pre-feasibility Estimated GHG Emissions Reduction:** 200 tCO₂e per year
- **Project Timeline:** Project was completed in 2014, and a three year baseline was established. The project timeline for this submission will include emission reductions in the 2016 and 2017 calendar years as compared to the baseline conditions.
- **Additional Community Benefits:** Economic investments in energy efficiency upgrades at the hotel help support local jobs and economy.

2. Lafarge Canada

- **Business type:** Lafarge North America has numerous operations throughout North America, producing construction and infrastructure related material including cement, ready-mix concrete, aggregates, asphalt, and other products. Lafarge operates a large cement manufacturing and processing plant in East Richmond as well as a smaller asphalt batch plant on Mitchell Island.
- **Location:** Mitchell Island, Richmond
- **Type of Project:** Emissions reductions through displacement of virgin material – Option 2
- **Project Description:** Lafarge operates a plant on Mitchell Island that produces an asphalt product used for paving roads of various types. The asphalt they manufacture is a mix of asphalt cement combined with aggregate and sand. Asphalt cement is the black, tarry liquid (nearly solid at ambient temperatures) residue from the oil refining industry. The plant has been modified so that they can accept recycled asphalt material into their mix displacing the amount of virgin asphalt cement material they use, and reducing the transportation required for that material. The greater amounts of recycled material the plant uses, the greater the energy and emissions savings they can achieve.
- **Pre-feasibility Estimated GHG Emissions Reduction:** 2,400 tCO₂e per year
- **Project Timeline:** This project is an on-going activity at the asphalt batch plant on Mitchell Island, with various amounts of recycled material used on an annual basis. Estimated credits are derived from the plant's asphalt production and recycled content mix in 2016.
- **Additional Community Benefits:** Reduced truck traffic in the City, which results in reduced pollution.

3. Panevo Services Ltd

- **Business type:** Panevo Services Ltd is an engineering consultant company that delivers energy efficiency studies, Energy Management Information System projects, and minor capital projects for industrial clients across Canada that help to reduce energy use and GHG emissions.
- **Location:** Various clients in Richmond, BC
- **Type of Project:** Building and Industrial energy efficiency – Option 1/2
- **Project Description:** Panevo is consistently helping various clients achieve energy and GHG reductions, as well as cost savings, through various efficiency and equipment renewal projects, such as; boiler upgrades, waste heat recovery system installations, and envelope improvements. Currently they are working with multiple Richmond based clients, and are expecting to be able to bring a project plan forward in the next six months for RCM consideration.
- **Pre-feasibility Estimated GHG Emissions Reduction:** 500-2,000 tCO₂e per year
- **Project Timeline:** Before the end of 2018
- **Additional Community Benefits:** Increased cost savings for Richmond businesses, increased economic activity, and reduced emissions related pollution.