
TO: Larry Gardner
Manager, Solid Waste

DATE: October 26, 2015

FROM: Amanda Kletchko
Special Projects Assistant

MEETING: RSWAC, November 7, 2015

FILE: 5380-20

SUBJECT: EPR Stewardship at Regional District of Nanaimo Solid Waste Facilities

RECOMMENDATION

That the report be received for information.

PURPOSE

The Regional Solid Waste Advisory Committee (RSWAC) included the collection of Extended Producer Responsibility (EPR) stewarded items at the regional facilities as an option to be considered as part of the current Solid Waste Management Plan (SWMP) review.

BACKGROUND

EPR Stewardship Programs are programs that manage the collection and recycling of items that would otherwise end up in the landfill. There are currently seventeen Stewardship Agencies in BC (Appendix 1), recycling items such as paint and paint products, household lighting and fixtures, thermostats, cell phones, small appliances, batteries, tires, and smoke alarms. Recycling acceptance at the Regional Landfill (the Landfill) and Church Road Transfer Station (CRTS) is currently limited to metal, cardboard, yard waste, wood waste, automotive batteries, oil filters, and propane tanks. The Regional District of Nanaimo (RDN) has not expanded recycling services for EPR type materials, as the 2004 Zero Waste Plan identified the services to be provided by the private sector. It was also acknowledged in the 2004 SWMP review that the RDN would incur significant costs to establish depots at regional facilities due to additional staffing requirements, and space limitations, particularly at the Regional Landfill where space is limited.

As well as the EPR programs mentioned, the RDN could expand recycling services to include glass, polystyrene foam (i.e. styrofoam) and plastic bags (MMBC items) and a variety of hard plastic including lawn furniture and toys, which are not stewardship products.

With the growth of EPR programs there are now several for-profit depots in the Nanaimo and Parksville areas where stewardship items are accepted, including Regional Recycling (two locations: Old Victoria Road and Kenworth Road), Parksville Bottle and Recycling Depot and Qualicum Bottle Depot. Nanaimo Recycling Exchange and Gabriola Island Recycling Organization are the local non-profit organizations that collect EPR items. Taking on EPR at the regional facilities may negatively impact revenues at these other facilities; for example, the facilities that Encorp Electronics Recycling works with are mostly for-profit, individually owned and operated businesses that rely on the volumes collected in the electronics program.

Aside from housekeeping, sorting and packaging duties, the EPR programs are managed by the program Stewards. Collection and transportation of large bins are arranged by programs such as ReGeneration, and bins and signage are provided. For smaller items not requiring bin pickup such as Switch the 'Stat and Recycle My Cell, pre-paid courier waybills are provided, and it is up to the facility to ensure the package is appropriately shipped to the Stewards.

The Stewards determine the site requirements, which may include secure storage, protection from weather, supervised collection, and paved surfaces for easy pickup of large bins. The Stewards work with the facility to set up and train staff to identify which items are accepted or not accepted. Before taking on certain programs such as ReGeneration and Electronic Products Recycling Association (EPRA), coverage reviews and site inspections may be required. For example, the Nanaimo and Parksville areas are well covered by Encorp Pacific's Electronics Recycling program for EPRA; this group may not be interested in expanding their collection sites in the RDN area.

At the Cowichan Valley Regional District's Bings Creek Centre, ReGeneration items (paint, lighting products, pesticides & flammable liquids, smoke & CO alarms, major and small appliances, power tools, outdoor power equipment) make up the greatest volume of incoming recycling. Accepting ReGeneration items increases revenue but, the facility must to manage the residuals as well. Residuals from this program may include solvents, brushes, rollers, and patching kits, among other items; turning customers away with such products could result in abandonment and other unsuitable disposal practices.

Facilities are compensated by some of the EPR programs for the recycling they collect; therefore, customers may not be charged a drop-off fee for these items. EPR drop-off areas must be separate from garbage and non-EPR recycling areas in order to appropriately track disposal. There appears to be space to accommodate EPR acceptance at the CRTS facility, but space at the Landfill is extremely limited. Considerable effort and time would be required to reorganize the facility to accommodate EPR acceptance. It is possible that reconfiguring the layouts at the facilities could encourage customers to recycle more of their items rather than using the garbage bins.

EPR bins could be located inside or outside the scaled areas at both facilities:

Outside the scaled area:

If the bins are located outside the scaled area, customers would be required to drop off EPR items before or after crossing the scale with garbage and other paid recycling. Care and planning must take place to reduce traffic congestion and/or confusion.

Inside the scaled area

If bins are located inside the scaled area, customers would be required to use the bypass lane before or after dropping off their paid garbage and recycling items. Pre-planning and attendant diligence must take place to prevent dumping of garbage and other paid items in the recycling area. Care and planning must take place to reduce traffic congestion and/or confusion.

RDN residents have expressed interest in the facilities' expanding acceptance to include EPR stewardship items for recycling. From the customer's perspective, the convenience of a "one stop drop off" facility could increase their satisfaction as the need to travel to a second recycling location is eliminated. Additionally, by increasing the recycling options at the facilities, diversion rates could increase as facilities staff would be able to redirect customers to convenient on-site EPR recycling.

IMPACT ON DIVERSION

Based on information obtained from Table 3 of the 2012 RDN Waste Composition Summary¹, it is estimated that EPR items could make up between 0.23% - 0.46% of the waste stream at the two RDN facilities, depending on what percentage of current recyclable items in the waste stream get diverted (Appendix 2).

Bin Attendants at both facilities often see EPR items disposed of into the garbage bins; most commonly, plastics, polystyrene, and glass, as well as paint cans, electronics and bicycle/ATV tires. It is possible that reconfiguring the layouts at the facilities could encourage customers to recycle more rather than using the garbage bins. For example, making the garbage bin inconvenient to use, or reducing the number of garbage bins from two to one, and requiring customers to use clear garbage bags and pre-sort their items before arriving at the facilities may help to increase diversion of recyclable items from the Landfill.

The Nanaimo area is currently ahead of the provincial average for electronics recycling, with 5.63kg per capita collected, as compared to the provincial average of 4.9kg per capita. The highest diversion rate in BC is in the Central Okanagan area, with 7.95kg per capita.² The RDN would have to capture an additional 2.32kg per person of new material to reach the Central Okanagan rate; calculations performed for the purpose of this report indicate that approximately 1.20kg per person of additional electronics is available to be collected by the RDN (based on values in the Solid Waste Composition Study).

FINANCIAL IMPLICATIONS

Rebates

Rebates are offered to collection facilities for some EPR items, which could help to offset any reduction in tipping fees. Rebates for common household recyclables are outlined in Appendix 3, and range from \$0.10/L for used oil to \$120 for newer, working cell phones. Based on EPR rebates received by the Capital Regional District (Environmental Resource Management Annual Report 2013, page 23³), and by comparing tonnages accepted on a per capita basis, the RDN could potentially receive rebates of approximately \$56,000 - \$59,000/yr. (Appendix 4).

It is important to note that the RDN may not be picked up by some EPR programs if they determine that coverage for their items is already sufficient in the Nanaimo area.

Short Term Costs

Time required to prepare the area is location dependent. Preparation at CRTS could be completed within a few hours to a day; preparation at the Landfill could take up to several days due to space restrictions. A Planner or Engineer may need to be involved in planning the sites for best use of space and roadways. Several EPR items are collected in tubs measuring approximately 4'x4', and the Household Hazardous Waste bin is a metal bin approximately 12'x5' with a 4' latching door on the front which must be located outdoors. Ideally, a covered and paved area would be required for EPR collection, with room for a forklift and space for a truck and trailer to safely maneuver. The purchase of a new or used forklift may be required.

¹ Walker, Maura and Associates. *Solid Waste Composition Study Report (2012)*, <http://rdn.bc.ca/cms/wpattachments/wpID1602atID5945.pdf> Accessed August 20, 2015

² Personal communication between RDN and Encorp Electronics September 2015

³ Capital Regional District. *Environmental Resource Management Annual Report (2013)* <https://www.crd.bc.ca/docs/default-source/crd-document-library/annual-reports/solid-waste/2013-erm-annual-report-web.pdf?sfvrsn=4> Accessed September 3, 2015

The cost to prepare areas for EPR items is dependent upon the chosen location at each facility. The current rate of Engineering consultation, if required, is \$200/hr. Labourers, operators and equipment are available on site at the Landfill at a rate of \$175/hr; labourers and operators are available at CRTS at a rate of \$75/hr, but equipment may need to be rented at a rate of \$125/hr and a mob/de-mob fee of approximately \$500.

New informational signage, directional line painting, and paving will be necessary as specified by the EPR program requirements. If the recycling facilities are expanded to include Styrofoam acceptance, there are several models of foam densifiers available. CVRD currently operates with a Recycle Tech XT-200SA, using heat to densify the foam; the XT-200SA is not large enough to handle the Bing's Creek current foam volume (max volume of this model is 200lb/hr). The XT-200SA is approximately \$35,000 CAD; the commercial-sized model XT-500SA handles 500 lb/hr and is approximately \$85,000 CAD. Heger Foam Compacting Systems offer compaction processing as opposed to heat treatment; Heger "Tiger" and "Lion" models range from approximately \$69,000 to \$127,000 CAD including freight from Germany, as of August 2015. Alternatively, foam could be shipped un-densified, resulting in less of a rebate from MMBC.

The cost of a covered recycling shelter varies with size and model. Based on pricing from Future Buildings⁴ (Figure 1), a bolt together metal carport approximately 10w x 20l x10h (ft), is \$15,000 per unit. A much cheaper version shelter would be the 12w x 20l x8h Global Industries Steel Carport⁵ (Figure 2) for approximately \$2,000. Table 1 shows greater detail of short term costs that could be incurred by this project.

Figure 1 Future Buildings Metal Carport

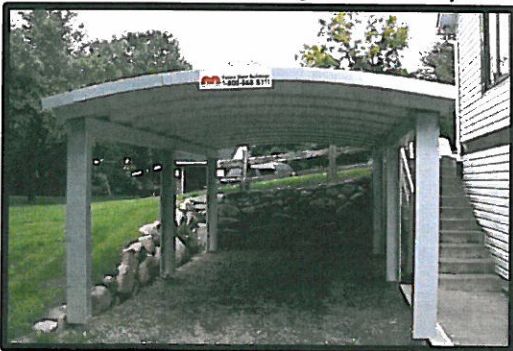
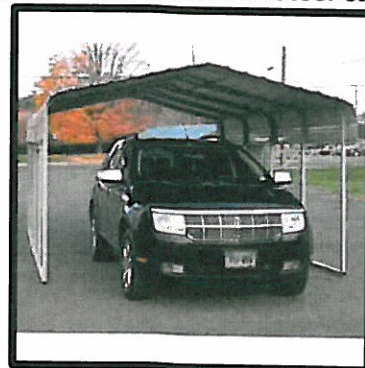


Figure 2 Global Industries Steel Carport



⁴ Future Buildings, *Carport Kits and Shelters*, <http://www.futurebuildings.com/future-steel-products/carport-kits.html>
Accessed: August 17, 2015

⁵ Global Industries, *Gray 12xW x 20'L x8'H Steel Carport*,
<http://www.globalindustrial.ca/g/outdoor-grounds-maintenance/tarps-canopies/carport/Steel-Carpots> Accessed: August 17, 2015

Table 1 EPR Stewardship Short Term Pricing Estimate

Landfill				
	Amount	Unit	Per unit cost	Total
Labour and Equipment	20	Hours	\$175	\$3,500
Engineering	8	Hours	\$200	\$1,600
Styrofoam densifier	1	Each	\$85,000	\$85,000
Forklift	1	Each	\$20,000	\$20,000
Building 10x20	1	Each	\$15,000	\$15,000
Paving	25	m ²	\$50	\$1,250
Road Marking	1	Each	\$200	\$200
Signage	2	Each	\$75	\$150
			Total	\$126,700.00
CRTS				
Labour	6	Hours	\$75	\$450
Equipment	2	Hours	\$100	\$200
Mob/de-mob	1	Each	\$500	\$500
Building 10x20	1	Each	\$15,000	\$15,000
Engineering	1	Hours	\$200	\$200
Styrofoam densifier	1	Each	\$85,000	\$85,000
Forklift	1	Each	\$20,000	\$20,000
Road Marking	1	Each	\$200	\$200
Signage	2	Each	\$75	\$150
			Total	\$121,700.00
Total EPR Recycling Expansion Short Term Cost Two Locations				\$248,400.00

Long term costs

The Capital Regional District has three employees dedicated to managing the recycling area; part of the agreement with the ReGeneration program is that there must be supervised collection at the site. There is some labour intensiveness involved in maintaining EPR programs, including spotting and sorting items as they arrive, preparing items for shipment to the stewards, and general housekeeping duties. Depending on the location of the shed, two additional attendants at each location may be needed to monitor the area at a rate of \$33/hr including the cost of benefits. Table 2 outlines the estimated labour requirements in an expanded facility.

As an EPR depot, the RDN would also be required to have in place indemnity insurance.

Table 2 Long Term Labour Costs

Landfill							
	Personnel	Amount	Unit	Per unit cost	Total per day	Total per week	Total per year
Labour	2	8	Hours	33	\$528.00	\$3,696.00	\$192,192.00
CRTS							
Labour	2	8	Hours	33	\$528.00	\$3,696.00	\$192,192.00
Total labour two locations					\$1,056.00	\$7,392.00	\$384,384.00

REGULATORY AUTHORITY

Should the RDN decide to move forward with implementing EPR Stewardship at the Landfill and CRTS, there does not appear to be any changes necessary to authority under the existing SWMP.

SUMMARY

The introduction of an EPR recycling program at the Regional Landfill and CRTS could result in an increase in waste diversion by approximately 0.22% – 0.45%, as customers use on-site recycling stations as opposed to landfilling. Options for recycling expansion include taking on various EPR programs such as ReGeneration (paint, household lighting, CO and smoke alarms, small appliances), cell phones, batteries, and thermostats, among others. Currently, there are several for-profit and non-profit depots in the Nanaimo and Parksville areas where EPR items are accepted; taking on EPR at the regional facilities could negatively impact revenue at these facilities that depend on the volumes collected for the programs.

Storage containers and signage are provided by the EPR programs, and the shipping of items for recycling is covered with free packaging and pre-paid courier waybills or bin pickup for large volumes. The Stewards determine the site requirements, which could include secure storage, protection from weather, supervised collection, and paved surfaces for safe pickup of large bins. Some Stewards will also determine if there is currently adequate collection coverage in an area; if coverage is considered suitable, they are not required to expand their collection.

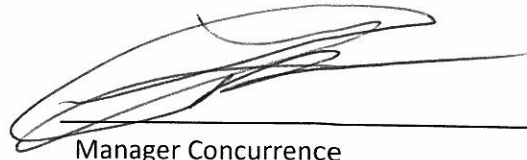
Collection rebates are offered by some programs, and could help offset the loss of tipping fees. Rebates range in value from \$0.10/L for used oil to \$120 for newer model working cell phones. Based on rebates received by the Capital Regional District in 2013, the RDN could expect rebates in the range of \$56,000 - \$59,000 per year, if all programs agree to receive EPR items from RDN facilities.

From the customer’s perspective, the convenience of a “one stop drop off” facility could increase their satisfaction as the need to travel to a second recycling location is eliminated. Plastics, polystyrene, and glass are often observed in the garbage bins, as well as paint cans, electronics and tires. Adding EPR and reconfiguring the facility’s layouts could increase both convenience and diversion rates.

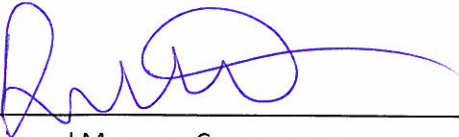
The introduction of EPR programs at the sites would have a number of short term costs including site preparation, engineering, new equipment, buildings and signage. The preliminary cost to expand recycling by addition of EPR items at the regional disposal facilities would be an estimated \$250,000 in modifications to accommodate increased recycling. Over the long term there would be additional labour costs in providing two additional personnel as well as a potential loss in tipping fee revenue if EPR items were made available for free drop off. It is estimated that there would be an additional cost of \$380,000 per annum to staff the expanded recycling at both regional facilities.



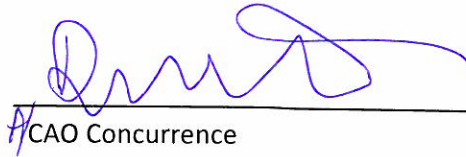
Report Writer



Manager Concurrence



General Manager Concurrence



CAO Concurrence

APPENDIX 1

List of EPR Programs

Stewardship Program Name	Products Covered
AlarmRecycle	Used or expired smoke alarms, carbon monoxide (CO) alarms and combination smoke & CO alarms.
BC Used Oil Management Association	Antifreeze, lubricating oil, oil filters and oil containers.
Brewers Association of Canada	Beer containers (bottles, cans and kegs).
Canadian Battery Association	Consumer and industrial lead-acid batteries.
Call 2 Recycle	Non-rechargeable, rechargeable and cell phone batteries.
Electronic Products Recycling Association	Computers and components, TVs, video players, home audio-visual items, portable and car audio devices. Corded and cordless phones, walky talkies, electronic musical instruments, medical monitoring & treatment devices and video gaming systems & accessories.
Encorp Pacific (Canada)	Return for deposit soft drink, juice, water, and alcohol beverages in glass, plastic, aluminum and drinking box, gable top, or pouch containers. Also accepts plastic and gable-top milk non-deposit containers. Provides depot recycling drop-off for products listed beside the Electronics Products Recycling Association.
Light Recycle	All residential and commercial light bulbs, tubes, table and floor lamps and fixtures and outdoor lights and strings. The program is operated by Product Care Association.
Health Products Stewardship Association	Leftover medicines can be returned to participating pharmacies throughout BC. Not accepted at the Nanaimo Recycling Exchange.
Multi-Material BC	Residential packing and printed paper on behalf of industry
Outdoor Power Equipment Institute of Canada	Electrical outdoor power equipment, ranging from lawn movers to grass trimmers, chain saws and pressure washers.
ReGeneration	Paint, flammable liquids, domestic pesticides and gasoline.
Recycle My Cell	Cell phones, smart phones, wireless PDAs, batteries and pagers.
Switch the 'Stat	Older mercury-containing thermostats and electronic thermostats.
Telus Return & Recycle Program	Used mobile handsets and accessories, and telecommunication items such as corded phones, cordless phones and charging stations, modems, routers, gateways and TV remote controls.
Tire Stewardship BC	Scrap vehicle tires, bicycle tires and tubes.
Unplugged Small Appliance Recycling Program	Old and broken small appliances ranging in size from toasters and electric toothbrushes to countertop microwaves and vacuum cleaners. Power tools, sewing machines, electrical exercise and sporting equipment, and other electrical products.

APPENDIX 2

Breakdown of potential diversion rates

* In 2014, the total solid waste disposed was 51,217 tonnes¹

* The self-haul rate is 15% of the total RDN solid waste stream²

Therefore:

15% of 51,217 t = 7683 tonnes of self-haul waste in 2014

* 6.1% of the self-haul waste was recyclable items in 2012³

With 25% and 50% projected recovery rates for EPR items:

25% of 6.1% = 1.5%

1.5% of 7680 = 115 tonnes of recyclable items in the self-haul waste stream

115 tonnes of 51,217 tonnes of total waste = 0.23% of waste may be diverted

Or

50% of 6.1% = 3.05%

3.05% of 7683 = 234 tonnes of recyclable items in the self-haul waste stream

234 tonnes of 51,217 tonnes of total waste = 0.46% of waste may be diverted

¹ RDN Scalehouse data (2014)

² RDN Scalehouse data (2014)

³ Walker, Maura and Associates. *Solid Waste Composition Study Report (2012) Table 3*, <http://rdn.bc.ca/cms/wpattachments/wpID1602atID5945.pdf> Accessed August 20, 2015

APPENDIX 3

Rebate Values

Program	Items Collected	Rebate
Regeneration		
AlarmRecycle	CO2 alarms, smoke alarms	\$50/box (1'x1')
CESA ElectroRecycle	Small appliances	\$209/tonne
Light recycle	Residential lighting, fixtures, flashlight	Rebate per box (value unavailable at this time)
ProductCare	Paint, varnishes, wood preservatives, paint cans	\$45/tubskid (~4'x4')
ProductCare	Household hazardous waste	\$120/tubskid (~4'x4')
Encorp Return-It Electronics ⁴	Household electronics	\$200/tonne
Call2Recycle	Batteries, cell phones	Small collection: \$0 Medium collection 20-30 palletized boxes per 1-3 months: \$0.22/kg Large collection 2 or 3 palletized drums per year: \$0.38/kg (drums not included)
Recycle my Cell	Cell phones and their batteries	Non-working cell phones \$1.00/2.2kg Working, newer models \$1 - \$120 depending on model No rebate for chargers or batteries
Switch the 'Stat	Residential thermostats	No rebate
Tire Stewardship BC	Off rim vehicle, bike, motorcycle tires	No rebate
BC Used Oil Management Association	Oil, oil filters, oil containers, antifreeze and antifreeze containers	Oil: \$0.10/L Antifreeze: \$0.15/L No rebate on containers
MMBC		
Plastic Bags	Plastic bags and overwrap	\$505/tonne baled
Styrofoam	Household Styrofoam packaging	\$505/tonne baled or densified
Glass	Household non-refundable glass	\$80/tonne

⁴ Rebate information for Encorp Electronics is approximate

APPENDIX 4

Rebates

Breakdown of potential rebates based on a Per capita basis

*2013 rebate value for EPR Programs at the Capital Regional District was \$139,461

* CRD population 359,991

$\$139,461/359,991 = \0.39 rebate per capita CRD

*RDN population 146,574

$\$0.39 * 146,574 = \$57,163.86$ potential RDN rebate based on population

Breakdown of potential rebates based on CRD EPR tonnages⁵

	CRD Hartland ⁶	Approximate RDN tonnage based on CRD population			
Population	359 991	146 574			
EPR Program	Tonnes Collected 2013	RDN Potential tonnage	Rebate	Unit	Total
Batteries t/person	40 0.000111	16	\$220.00	Tonne	\$3600
Electronics ⁷ t/person	293 0.000814	119	\$200.00	Tonne	\$24 900
Plastic film t/person	7 1.94449E-05	3	\$505.00	Tonne	\$1400
ProductCare: paint, pesticides /solvents, residential lighting #tubskids @~261kg each t/person	166 636 0.000461	67 258	\$45.00	Tubskid (4'x4' bin)	\$11 600
Small appliances/ tools t/person	131 0.000364	53	\$209.00	Tonne	\$11 100
Styrofoam t/person	20 5.55569E-05	8	\$505.00	Tonne	\$4100
Used Oil (Litres)	28 000	11 400	\$0.10	L	\$1600
Used Antifreeze (Litres)	3657	1490	\$0.15	L	\$200
Regional District of Nanaimo Potential EPR Rebate					\$58 500

⁵ Totals have been rounded to the nearest \$100

⁶ Capital Regional District. *Environmental Resource Management Annual Report (2013)* <https://www.crd.bc.ca/docs/default-source/crd-document-library/annual-reports/solid-waste/2013-erm-annualreport-web.pdf?sfvrsn=4> Accessed September 3, 2015

⁷ Rebate information for electronics is approximate