Appendix D – Regional Solid Waste Advisory Summary Binder

SWMP Level of Service Considerations from RSWAC							
Topic Area	**Service**	**Scope**	**RSWAC interest in pursuing concept**	**Implications**			
				Operations	**Convenience**	**Diversion Estimate**	**Financial**
	Type of service discussed	**Describe potential implementation process**	**High, Medium or Low**	**Briefly describe operations**	**How would it impact convenience**	**% for total waste stream**	**Include capital and operating costs**
Residential Curbside	**Consider collecting non-deposit glass container as part of residential curbside service**	Collection trucks required for dedicated glass collection only service. Staff scoped service for triannual collection (three collections per year) to all RDN-served homes (not City of Nanaimo).	Medium	Likely to impact existing depot collection network (reduced revenue stream for them). Would require MMBC approval to change current collector contract(s). May require change to current curbside collection contract(s) to deploy dedicated glass collection vehicles.	For those who will hold glass for 4 months between pickups = High. For the rest = Insignificant to Low.	0.5%	Capital: nil Operating: $190,000/year to add triannual service to current RDN contract. Approx. extra $7 added to residential annual utility bill.
Residential Curbside	**Explore options to collect residential yard & garden waste at the curb**	Collection trucks required for dedicated yard waste collection service. Previous contract RFPs (RDN program not City of Nanaimo) provide level of background costing information based on bi-weekly nine month service. City considering implications as they phase in automated collection over next three years.	Medium	Dedicated collection vehicles required, along with the ability for a processing facility to receive and process the material. Currently Y&G handled through range of facilities - curbside collection will impact them. May be possible to co-mingle food and yard. Possibly better suited to automated collection with standard sized totes.	Varies but likely medium to high. Past surveys have shown 40-60% support for a Y&G waste collection however this drops when cost to collect is known.	0.3 % based on amount of Y&G currently in the curbside stream. Approx. 12,000 tonnes of Y&G is currently handled outside of the RDN system - if collection was set up a portion of this will be captured at curb thereby boosting waste generation and diversion numbers.	Capital: nil Operating: Additional $50/year added to utility bills for home (RDN customers) based on past studies
Residential Curbside	**Compliance and Enforcement to Improve Diversion (Curbside Collection Programs)**	Continue employing outreach and education as primary tool to encourage effective use of curbside program; consider applying and actively enforcing bans on materials at the curb (i.e., enforce use of food waste collection).	Medium	Minimal additional staffing required to continue previous education efforts. Introducing disposal bans at the curb and enforcing them requires additional resources.	Low (potential for High inconvenience)	1 - 3 % range for additional outreach and for enforcing use of food waste collection.	Capital: nil. Curbside Enforcement Staffing: $27,000, Education & outreach efforts: $36,000, Administration: $12,000. This excludes cost for City of Nanaimo. implement residential disposal bans for curbside materials.

SWMP Level of Service Considerations from RSWAC							
Topic Area	**Service**	**Scope**	**RSWAC interest in pursuing concept**	**Implications**			
				Operations	**Convenience**	**Diversion Estimate**	**Financial**
	Type of service discussed	**Describe potential implementation process**	**High, Medium or Low**	**Briefly describe operations**	**How would it impact convenience**	**% for total waste stream**	**Include capital and operating costs**
Regional Facilites	**Provision of Share Sheds at Regional Facilities**	Construct and operate "share sheds" which give customers the opportunity to donate items in good condition for re-use by others instead of landfilling.	Low	Siting of a building to accommodate this service; considerations for traffic flow and safety; staffing to ensure materials left to be shared do meet a minimum standards (and the shed does not become a cheaper disposal alternative for end-of-life items).	Low to Medium. Customers have expressed a level of interest to have share shed or donation opportunities co-located where they take their landfill items. There are numerous not-for-profit and for profit examples locally where re-usable items can be donated.	0.3 % - 0.5 %	Capital: $13,000 to $56,000 (for a shed at each facility - cost depends on type and size of shed) Operations: $190,000/yr. for staffing at both locations
Regional Facilites	**EPR Stewardship depots established at Regional Facilities**	Become a "take back" location of stewardship items. There are currently 17 Stewardship Agencies in BC for items such as paint and paint products, household lighting and fixtures, thermostats, cell phones, small appliances, batteries, tires, and smoke alarms tanks. The RDN currently does not provide services for EPR type materials as the 2004 Zero Waste Plan identified this is best provided by the private sector.	Low	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. RDN may not be picked up by some EPR programs if they determine that coverage for their items is sufficient in this region.	High. Facilities are compensated by some of the EPR programs for the recycling they collect; therefore, a drop-off fee can not be charged. EPR drop-off areas must be separate from garbage and other non-EPR recycling areas to appropriately track disposal. This may limit the convenience for traffic through the facilities, given the current site layouts.	0.25% - 0.5 %	Capital: $248,000 (dependent on number of stewardship programs signing RDN as a location; and on their site requirements). Operations: $384,000/yr. staffing costs
Regional Facilites	**Compliementary Drop Off Days**	Allowance for a “no-charge” drop off day at regional facilities where the cost is covered through taxation	Low	Reintroduction of "Complimentary Disposal" service at RDN Solid Waste Facilities.	High	Decrease in waste diversion. High customer traffic means less time for screening for attendants.	Approximately $42,500 per day in lost revenue and additional staffing requirements.
Regional Facilites	**Household Hazardous Waste**	The Regional District to fund drop off events for non-stewarded residential HHW.	Further discussion required	RDN to run annual drop off events for non-stewarded HHW.	High	<1%	Operations: $80,000-$100,000 to run annual Non-stewarded HHW drop off events.

SWMP Level of Service Considerations from RSWAC							
Topic Area	**Service**	**Scope**	**RSWAC interest in pursuing concept**	**Implications**			
				Operations	**Convenience**	**Diversion Estimate**	**Financial**
	Type of service discussed	**Describe potential implementation process**	**High, Medium or Low**	**Briefly describe operations**	**How would it impact convenience**	**% for total waste stream**	**Include capital and operating costs**
ICI	**Industrial, Commercial, Institutional (ICI) & Multi-Family Diversion**	Increased enforcement and education of existing landfill bans and a relaunch of Commercial Organics Diversion Strategy and Multi-Family Diversion Strategy	High	The RDN continues to work within the current regulatory authorities under the existing SWMP to improve ICI organics and recycling diversion which may include increased education and awareness and/or increased enforcement of current landfill bans at the landfill and transfer station.	Low (potential for High inconvenience)	3.1%	1 new FTE or equivalent at $80,000/year including benefits to oversee the new ICI diversion strategy. $20,000/year in administrative costs to run the program. $100,000/year for increased enforcement.
		Introduction of economic and regulatory tools that encourage diversion. Through the SWMP the RDN requests additional authorities to further drive diversion of recycling and organics within the ICI and Multi-Family sectors which could include Mandatory Waste Collection, Waste Hauler Franchising, Waste Haulers as Agents, or Waste Source Control.	Low support for Franchising	Varies depending on the type of regulatory tools implemented.	Low (potential for High inconvenience)	7.9%-11% Includes 3.1% from education & enforcement	No Financial estimate available at this time as cost projections are dependent on the type of additional regulatory authority granted.
ICI	**Construction, Demolition Waste**	Enhanced education and communication	High	Improve and reintroduce education and communication regarding C&D waste in the region.	Low	1%	$20,000 Education
		Enhanced regulation within existing authorities	High	Enhanced regulation would be carried out in conjunction with increased education.	Moderate	2%	$20,000 for Education $20,000 Regulation
		Additional Regulatory Authority	High	Varies depending on the types of regulatory tools implemented.	Moderate	4%	Unknown at this time

SWMP Level of Service Considerations from RSWAC							
Topic Area	**Service**	**Scope**	**RSWAC interest in pursuing concept**	**Implications**			
				Operations	**Convenience**	**Diversion Estimate**	**Financial**
	Type of service discussed	**Describe potential implementation process**	**High, Medium or Low**	**Briefly describe operations**	**How would it impact convenience**	**% for total waste stream**	**Include capital and operating costs**
Zero Waste	**RDN Zero Waste Plan**	Education	High	Enhanced public education regarding solid waste management in the region in addition to existing education programs.	High	Not quantifiable	$20,000-$40,000 in administrative costs
		Advocacy	High	The RDN continues to advocate for greater waste diversion in region by engaging with federal, provincial and local government agencies as well as BC stewardship groups such as MMBC.	N/A	Not quantifiable	Variable
		RDN Purchasing Policy	High	RDN to establish a sustainable purchasing policy for internal operations which would include best management practices for source separation.	Nominal	Minimal	Minimal
		Zero Waste Definition	High	Adopt Zero Waste International Alliance zero waste definition	N/A	Not quantifiable	N/A

SWMP Level of Service Considerations from RSWAC							
Topic Area	**Service**	**Scope**	**RSWAC interest in pursuing concept**	**Implications**			
				Operations	**Convenience**	**Diversion Estimate**	**Financial**
	Type of service discussed	**Describe potential implementation process**	**High, Medium or Low**	**Briefly describe operations**	**How would it impact convenience**	**% for total waste stream**	**Include capital and operating costs**
Residual Management	**Residual Management**	Landfill	Medium	Continue to operate a regional landfill for residual disposal.	N/A	N/A	Variable
		Waste Export	Medium	Consider waste export when the life span of the current landfill is complete.	N/A	N/A	Variable
	New and Emerging Technologies	Anaerobic Digestion (AD)	Low	Anaerobic Digestion (AD)	N/A	N/A (Estimated 82% Diversion acheivable overall)	$24 M - Capital costs. O&M Cost per year: $3.6 M net revenue Net Cost per tonne: $90
		Conventional combustion (Mass Burn)	Low	Conventional combustion (Mass Burn)	N/A	N/A (Estimated 93% Diversion acheivable overall)	$74 M - Capital Costs O&M Cost per year: $4.5 M net revenue Net Cost per tonne: $85
		Gasification/Pyrolysis	Low	Gasification/Pyrolysis	N/A	N/A (Estimated 97% Diversion acheivable overall)	$90 M - Capital Costs. O&M Cost per year: $6.4 M net revenue Net Cost per tonne: $120
		RDF	Low	RDF	N/A	N/A (Estimated 97% Diversion acheivable overall)	$14 M -Capital Costs. O&M Cost per year: $1.3 M net revenue , Net Cost per tonne: $25
		Material Recovery Facility (MRF)	Medium	Material Recovery Facility (MRF)	N/A	N/A (Estimated 85% Diversion acheivable overall)	$16 M - Capital Costs. O&M Cost per year: $2.1 M net revenue , Net Cost per tonne: $40

REGIONAL DISTRICT OF NANAIMO

STAFF REPORT

TO:	Larry Gardner Manager, Solid Waste Services	**DATE:**	October 14, 2015
		MEETING:	RSWAC, November 5, 2015
FROM:	Jeff Ainge Zero Waste Coordinator	**FILE:**	5370-01

SUBJECT: Curbside Collection Program – Household Glass Collection

RECOMMENDATION
That the report be received for information.

PURPOSE
The Regional Solid Waste Advisory Committee (RSWAC) included curbside collection of household glass containers as an option to be considered as part of the current Solid Waste Management Plan (SWMP) review.

BACKGROUND
The Regional District of Nanaimo (RDN) provides curbside collection of residential garbage, recycling and food waste to over 23,500 single family and equivalent homes located in the seven Electoral Areas, District of Lantzville and City of Parksville. A further 4,000 homes in the Town of Qualicum Beach receive garbage collection service from Town staff, with recycling and food waste collection provided by the RDN. The City of Nanaimo (CoN) provides collection services to 26,000 residences within their boundaries.

Household glass containers (food and beverage jars and bottles) have not been an accepted curbside recyclable item for several years (five years for RDN program customers and many years more for the CoN program). Glass containers have largely been replaced by plastics which are cheaper to produce and transport, and are readily recyclable. British Columbia's last facility for glass recycling (producing new glass containers from old) closed in 2008, which meant locally that the cost to transport glass off the island to a recycler in the US was prohibitive. Instead, glass was being collected at a cost and sent to a facility who charged for receiving it prior to crushing it and mixing it with construction aggregate, or for use in sand blasting or fiberglass applications.

The exclusion of glass from the RDN curbside recycling program in 2010, coincided with sweeping changes to the collection program when food waste collection was introduced and split packer collection vehicles enabled single stream (co-mingled) recycling. Leading up to the 2010 change, an analysis of RDN customers' curbside recycling in 2009 estimated 220 tonnes of glass was collected at the curb; 35% of which was deposit glass which should have been returned for refund. That tonnage represented only 5% of blue box materials. Depot options were provided and funded by the CoN and RDN to provide a household glass collection alternative.

The 2012 Solid Waste Composition Study estimated that glass made up three per cent of curbside materials disposed in the landfill. The glass category included food and beverage jars and bottles as well as ceramics and non-container glass. In terms of the total amount of glass in the overall waste stream, the study estimated it made up 2.6% or 1,386 tonnes. It should be noted that the study pre-dates the May 2014 implementation of the Province's packaging and printed paper stewardship program, operated by the stewardship agency Multi-Material BC (MMBC).

- Curbside Collection

Clear or coloured non-deposit glass bottles and jars are now included in the Province's Packaging and Printed Paper Stewardship Program, operated by the stewardship agency MMBC. Excluded from the MMBC acceptable materials list is deposit glass (which should be returned for a deposit refund), drinking glasses, dishes and cookware, window glass, mirrors, and ceramic products. Both the CoN and RDN collection program programs operate as contracted collectors for MMBC, who pays to have recycling collected on their behalf. In this region, because glass was not part of curbside collection at the time of implementing MMBC's program, household glass is accepted for recycling at MMBC depots only.

The few MMBC affiliated collectors in the Province accepting glass as part of curbside service must do so as a segregated stream and in a dedicated container. Glass is not permitted to be comingled with other recycling materials. For the RDN or CoN to consider reinstating glass as a curbside item a formal change request would need to be made to MMBC to alter the current contractual arrangement.

In terms of costs to reinstate curbside glass collection for the RDN program (not including CoN), staff estimates two additional collection vehicles would be necessary to cover the full service area. Rotating through the current collection routes (40 routes in total), those two trucks would provide for three scheduled glass collections per household per year. Based on figures provided by Progressive Waste Solutions (the RDN collection contractor), the annual cost to add two trucks to the existing service would be approximately $190,000 (or an additional $7.00 per year per household).

At this time, MMBC has advised that approval to change is unlikely during the term of the current collection contract. If MMBC did approve a change to the contract and allow segregated glass collection as part of curbside service, an additional $80/tonne would be paid for glass collected and received on top of the current payment rate.

IMPACT ON DIVERSION

Reinstating glass in the curbside recycling may improve convenience for some residents, but it may have minimal impact to the overall glass capture if curbside service is simply displacing material already being collected at depots. Overall, based on the 2012 Waste Composition Study, the 275 tonnes of glass going to landfill via curbside collection is relatively small scale. Pulling it out of the garbage stream and collecting it in recycling will have minimal effect on diversion rates, and the costs to do that could be difficult to justify. This being said, staff from the CoN report being contacted regularly by members of the public who feel curbside collection of glass is a major area missing from the current collection service. Staff have discussed the potential financial indications of curbside glass collection with residents and in the majority of cases residents have indicated that they would be prepared to pay an additional fee for this service. The CoN will be conducting some community engagement around the issue of residuals collection in Fall/Winter 2015. With the advent of automated collection in the CoN (and the potential to increase revenues via higher user rates for those opting for a larger garbage bin) staff could look to fund some now initiatives to continue to push towards zero waste. All decisions would need to be indicated as public preference and approved by Council. Highlighting disposal alternatives, such as depots or re-use options, as part of promotion and education efforts could prove to be as effective at improving diversion.

Progressive Waste Solutions currently provides curbside glass collection for the 1,100 households in the City of Duncan, on a three-weekly pickup schedule. Over the three month period June-August 2015, a total of 1.34 tonnes of glass was collected. When extrapolated for a full twelve month period, less than 5.5 tonnes would be collected (or five kg per household over a year). The collector reports very few homes place glass out for collection, a noticeable percentage is deposit container glass, and that it does pose a safety risk for collection staff and those at the receiving facility.

FINANCIAL IMPLICATIONS

The financial incentive paid by MMBC to have segregated glass collected at the curb is $80/tonne. The cost to add dedicated collection trucks for glass collection would outstrip any financial benefit for the collection programs. A negative financial impact would also likely be felt by the local MMBC affiliated depots if curbside glass collection displaced glass they currently receive and get paid by MMBC to handle.

REGULATORY AUTHORITY

Changes to current curbside recycling contracts to amend materials collected will require Board and Council approvals along with approval from MMBC. No new authorities are required for this to happen.

SUMMARY/CONCLUSIONS

Household glass containers have not been accepted as part of curbside recycling for several years in this region, and staff is not aware of any glass processors located in the Province who are capable of taking glass and making new glass containers. In 2009, an analysis of the RDN's curbside materials estimated glass containers made up about 5% of the overall recyclables set out for collection. With the advent of the Province's packaging and printed paper stewardship program, operated by the stewardship agency MMBC, household glass containers are considered packaging. Glass containers are accepted at no charge at six depots throughout the region that get paid by MMBC to handle the material.

A change to the curbside recycling collection programs operated by the CoN and RDN would require approval from MMBC, as well as contract changes for the curbside collection contractor. The CoN is contemplating service level options as a new collection system is phased in; this could include glass collection for their customers.

There is limited diversion impact in reinstating glass to the curbside recycling, and any change will come with costs (i.e., two collection trucks estimated at $190,000/year to serve the RDN curbside routes). Glass collection can be included in contract renewal discussions with the collection contractor and MMBC when the time comes, however no immediate changes as part of the SWMP action items are foreseen.

Jeff Ainge	*Larry Gardner*
Report Writer	Manager Concurrence
Dennis Trudeau	*Dennis Trudeau*
General Manager Concurrence	A/CAO Concurrence

REGIONAL DISTRICT OF NANAIMO

STAFF REPORT

TO:	Larry Gardner Manager, Solid Waste Services	**DATE:**	October 13, 2015
		MEETING:	RSWAC, November 5, 2015
FROM:	Jeff Ainge Zero Waste Coordinator	**FILE:**	5370-01

SUBJECT: Curbside Collection Program – Yard Waste Collection

RECOMMENDATION
That the report be received for information.

PURPOSE
The Regional Solid Waste Advisory Committee (RSWAC) included curbside collection of residential yard and garden waste as an option to be considered during the current Solid Waste Management Plan (SWMP) review.

BACKGROUND
The Regional District of Nanaimo (RDN) provides curbside collection of residential garbage, recycling and food waste to over 23,500 single family and equivalent homes located in the seven Electoral Areas, District of Lantzville and City of Parksville. A further 4,000 homes in the Town of Qualicum Beach receive garbage collection service from Town staff, with recycling and food waste collection provided by the RDN. The City of Nanaimo provides collection services to 26,000 residences within their boundaries.

For the purposes of this report, yard waste refers to the organic waste material produced by a residential property. This would include lawn clippings, hedge trimmings, waste from a vegetable garden and waste from flowerbeds. Not included would be kitchen waste, dimensional lumber, yard and garden tools, or other man-made products used in the yard. Currently yard waste is not collected in any of the region's local government curbside collection programs.

History
Between 1993 and 2001, the RDN distributed approximately 16,500 subsidized backyard composters to single family households in the region. Distribution was through a combination of one-day sales, sales through non-profit organizations and sales at RDN disposal facilities. When the composter distribution program was initiated there were few options available to purchase a back yard composter unit. Over time, the private sector began to offer a multitude of composter designs, available at many price points for a resident wishing to purchase a back yard composter. This raised the issue of using tax dollars to compete with the private sector which led the Regional Board to discontinue funding of subsidized composters.

In 2000, the RDN commissioned a survey to examine garbage disposal and composting habits among residents of the RDN. Slightly more than half of the respondents (53%) were in favour of a proposal to collect yard waste. This positive response was slightly higher for respondents in urban areas with the City of Nanaimo at 55%, the City of Parksville at 58% and the Town of Qualicum Beach at 48%.

In 2001, the RDN received competitive bids to collect yard waste as part of its curbside garbage and recycling collection contract tender process. Based on the results of this tender process, the Board directed staff to conduct customer surveys in the urban and suburban areas of the RDN to determine willingness to receive yard waste collection at an annual cost ranging from $17 to $30 per household based on collection frequency. A telephone survey of 400 homes was completed in July 2002.

Only one-third of residents polled supported the highest cost option of $30 per year for collection every two weeks for 9 months. When the collection frequency was dropped to monthly for 9 months at a cost of $25 per year, willingness to pay increased to 42%. When the collection frequency was dropped to four times a year at cost of $17 per year, willingness to pay increased to 53%. The highest level of support for yard and garden waste collection was for the lowest level of service and the support was limited.

Based on these survey results the Regional Board decided not to implement a curbside yard waste collection program for residents of the urban areas served by the RDN curbside collection program.

In 2009, RDN staff issued a Request for Proposals (RFP) for the curbside collection of garbage, recycling and food waste. Similar to the 2001 tender for this service, the RFP requested costs to collect yard waste in the urban and suburban areas of the RDN (excluding the City of Nanaimo) under two service options: bi-weekly collection for nine months and monthly collection for nine months. Proponents' pricing ranged between $18.00 to $36.36 per household, depending upon frequency of service over nine months. Based on these collection cost proposals as well as the cost to process yard waste at a licensed composting facility, staff estimated that the user fee for nine-months of bi-weekly collection service would be $50 annually. The Regional Board did not direct staff to proceed any further with yard waste collection at that time, but did approve the implementation of curbside collection of residential food scraps.

In the first quarter of 2015, staff promoted an online survey seeking information on a number of topics pertaining to solid waste services and the SWMP review process. In response to Question 7 "How does your household currently manage yard and garden waste?", 63% of respondents indicated they compost yard waste at home. Almost 40% reported taking their yard waste to a depot. Other responses included burning, using a collection service, and not producing yard waste. Note that respondents could check multiple boxes to cover all their yard waste management methods meaning the results add up to more than 100%.

When asked if they would be willing to pay a higher curbside user fee if it included yard waste collection service, 60% of respondents indicated no. Of the 40% who indicated they would be willing to pay, 57% of them would support an increase of less than $30. Only 14% of respondents interested in paying for yard waste collection would support a fee increase of $50 or more to receive it.

Current practice

With regards the findings of the 2012 Waste Composition Study, the materials in residential curbside waste received at the landfill included a small amount of yard waste (2%), or an estimated 223 tonnes. A large portion (25%) of the multi-family sample consisted of yard waste. No yard waste was found in the self-haul samples destined for disposal at the landfill. Overall, the study estimated less than 3,000 tonnes of yard waste was disposed of in the landfill in 2012.

Many residents currently self-haul this material to the Regional Landfill, the Nanaimo Recycling Exchange, and the Church Road Transfer Station as well as to several other privately operated sites in

the region, or they pay for private hauling services. These options are well used by residents and the commercial sector throughout the RDN, resulting in roughly 12,000 tonnes of yard waste diverted from disposal in the landfill each year. Unfortunately, Yard Waste is also a frequently illegally dumped item with residents tending not to understand the implications of disposing of organic material in public spaces.

Composting

The amount of yard waste composted in residential backyards has been the subject of studies in various communities however no formal research has been done in the RDN. Figures used to determine the amount of waste composted annually in the backyard range from 100 kg/home (National Solid Waste Benchmarking Initiative) to 450 kg/home (North Shore Recycling Program 2010 study). If we take a conservative 150 kg, and multiply it by the 16,500 compost units sold through the subsidized sales events, 2,475 tonnes of residential yard waste is managed on-site.

Backyard burning

Demand for yard waste collection options is related to the implementation of backyard burning bans. Within the RDN, residential backyard burning regulations vary between municipalities and electoral areas. Although land clearing and backyard burning is generally prohibited within municipal boundaries, there are few restrictions in the Electoral Areas and what restrictions are in place tend to be administered by the local Fire Protection Area, or the Ministry of Forests in the height of a dry summer.

In the Town of Qualicum Beach, where backyard burning is not permitted within the urban containment boundary, a free wood chipping program is offered to residents in the spring and fall of each year. The City of Parksville, where burning is not permitted during the period April 15 to October 15, also provides seasonal branch chipping. In the City of Nanaimo backyard burning is prohibited at all times of the year but no chipping program is offered. In Electoral Area H (Bowser, Deep Bay), where there are currently no backyard burning restrictions, staff provided two yard waste drop-off events in November 2008 and April 2009. Participation at both events was minimal with only 5 households delivering a total of 3 tonnes of material at each event which equated to a cost of $336 per tonne.

Processing

As noted previously in this report, yard waste was not collected prior to the introduction of residential food waste collection in 2010. The privately owned processing facility which receives the curbside organics material (Nanaimo Organic Waste (NOW) formerly International Composting Corporation) was established and licensed to receive source separated organic waste. They have been able to control their process by knowing the ratios of the various feedstocks – the carbon and nitrogen components as well as the moisture content of the mix.

The waste stream management license for NOW requires all in-bound material to be tipped inside the building. Implications to accepting a yard waste/food waste blend include the need to be able to receive the material (and keep it indoors), sort it for contaminants, extract oversize items such as branches for pre-processing (shredding), and have a fair degree of confidence in the mix as it enters the composting system. Seasonal variations in the amount of yard waste available, and if collection was only provided for nine months, also create processing challenges. If yard waste was collected without being mixed with food waste, some of the receiving and processing concerns may be lessened.

Collection Considerations

Many curbside collection programs servicing urban and suburban areas provide yard waste collection service. Processing regulations for yard waste only are less onerous than those required for processing

food waste. For existing yard waste collection programs, adding food waste to their collection may require some processing infrastructure changes and capital outlay, but usually no change is needed for the collection side. It is more challenging to add yard waste to an established food waste collection program in large part due to collection vehicle capacity, collection container types and sizes, seasonal variations of material to be collected and labour considerations.

With the more restrictive backyard burning regulations of the urban areas, a municipality in the RDN could implement a yard waste collection service now without the need to involve the RDN. The challenges of collection and processing would still need to be addressed though.

Without undertaking a formal RFP for yard waste collection or exploring processing options and demand for the service, this report will assume that yard waste collection can be provided to all homes currently receiving curbside service in the region. It also assumes approximately 12,000 tonnes of residential yard waste is available for capture (material noted in the Waste Composition Study and material already diverted through RDN and other facilities). It excludes additional material that may come into the system from other sources (displaced from home composting, backyard burning, or illegal dumping activities). Based on the work done in 2009 and 2010, a collection service could include:

- Yard waste collected separately in dedicated trucks.
- Nine month service (March-November) of bi-weekly (every-other-week collection) on an add-a-day schedule.
- Same service provided to urban, suburban and rural parts of the region.
- Residents provide their own containers to an approved size and standard (such as Kraft bags or regular garbage cans with decals) suitable for manual collection.

Private collection

Subscription yard waste collection services are available to residents in the region, but to date have not seen a large uptake. In addition to one or two of the local commercial haulers who can provide collection, a Victoria based company Community Composting has provided subscription yard waste collection to this area since 2011. Subscribers are provided a wheeled container for their yard waste which is emptied every four weeks on a scheduled pickup day. Subscribers also receive a 20 litre bag of composted soil with each pick up. The company provides two size choices for the yard waste containers; the large cart has a capacity of 360 Litres (95 gallons) while the smaller cart has a capacity of 120 Litres (32 gallons). A one-time refundable container deposit of $95.00 is required prior to the service commencing. The deposit is fully refunded upon termination of service and retrieval of the container. Subscription rates for the service levels offered are:

- 1 year subscription (12 pickups, every 4 weeks): 12 x $22.00 (plus GST) = $277.20
- 6 month subscription (6 pickups, every 4 weeks): 6 x $24.00 (plus GST) = $151.20

The company reports that they have 185 active subscribers receiving their service in this region.

IMPACT ON DIVERSION

Currently yard waste is not counted in the region's overall diversion statistics. The waste composition study completed in 2012 indicates that that roughly 80% of yard waste generated in the RDN is already diverted from landfill disposal. Consequently curbside collection of yard waste would not contribute to any significant increase in waste diversion. Although curbside collection would reduce greenhouse gas emissions by reducing vehicle trips to the various yard waste facilities, compulsory collection could also provide an incentive to produce more yard waste since residents would be paying for the service whether they used it or not. The most significant contribution to the region's sustainability goals

associated with the introduction of curbside yard waste collection would be the rationale to extend backyard burning bans to more areas in the RDN.

FINANCIAL IMPLICATIONS

Based on the work done by staff in 2010 for the RDN collection RFP, the inclusion of yard waste collection at the curb would increase the utility fee by an estimated $50 per household (for 9 months of bi-weekly collection and processing). A formal RFP for a defined service would be required to obtain a more accurate cost. In all likelihood, the current collection vehicles utilized for the region's collection programs are fully committed so additional trucks would be required to provide the service and revised pricing may vary from the 2010 proposals.

Adding a new waste stream to curbside collection (or implementing a major change) does result in an increase in administrative support required to handle calls and enquiries from residents, and for program oversight. Staff estimates this could amount to 0.2 FTE but could probably be accommodated in the existing staff complement at the City of Nanaimo and RDN.

By capturing the yard waste currently being received at RDN and private facilities, revenues at those facilities will be impacted. This may also impact the facilities they in turn send the ground material to (private composting plants, hog fuel burners etc.).

REGULATORY AUTHORITY

No additional authorities would be required for the RDN to introduce yard waste collection as part of the curbside collection program.

SUMMARY/CONCLUSIONS

Support for introducing curbside yard waste collection hovers around 40 to 60% based on surveys completed in the region over recent years. That support drops when respondents are asked about their willingness to pay for such a service. Even without curbside collection, approximately 12,000 tonnes of yard waste is diverted from disposal each year due to residents' use of yard waste drop-off facilities coupled with backyard composting activity. Compare this with less than 3,000 tonnes estimated to enter the landfill, of which only an estimated 225 tonnes is attributed to curbside sources.

The City of Nanaimo reports their intention to conduct a public engagement and learning piece in Fall/Winter of 2015. With the advent of automated collection in Nanaimo, Council have asked staff to review the appetite of City residents for collection of Yard Waste. Staff and Council in Nanaimo regularly hear from residents that they wish to receive collection of Yard Waste, the question remains as to how much they are willing to pay. At a Council meeting in June 2015 City staff reported to Council that, of the 15 largest Cities in BC (of which Nanaimo is ninth), nine of them collected yard waste. City staff also noted as part of this report that the average user rate of the 15 largest municipalities in BC is $197 per household per year, compared to the City rate of $99.75 per year.

Currently yard waste is not counted in the region's overall diversion statistics however based on the 2012 waste composition study and data from facilities handling this material, roughly 80% of yard waste generated in the RDN is already diverted from landfill disposal. The collection of yard waste at the curb will not contribute significantly to the region's diversion goals, but the impression is that such a service will provide a much higher level of convenience for the resident generating the waste.

Curbside collection of yard waste would reduce greenhouse gas emissions by reducing vehicle trips to the receiving facilities, but compulsory collection could also result in more yard waste being captured since residents would be paying for the service whether they used it or not. The most significant contribution to the region's sustainability goals associated with the introduction of curbside yard waste collection would be the rationale to extend backyard burning bans to more areas in the RDN.

Option Discussed	*Estimated Costs to Implement*	*Diversion Impact*
Curbside collection of yard waste	**An estimated additional $50 per household/year to provide curbside collection of yard waste** **$16,500 staffing costs (0.2 FTE to administer the collection of a fourth waste stream)**	**Assuming capture of 70% (157 tonnes) of yard waste available from the amount in the curbside waste stream =** • **0.3% diversion increase for the overall region's disposed waste** **If curbside collection is introduced it is likely to capture a large portion of yard waste already diverted (12,000 tonnes) or managed through composting. The impact is weighted to convenience rather than diversion.**

Two potential actions could form part of the focus if this item is included in the solid waste management plan:

1. Work with Electoral Area directors and planners on backyard burning ban bylaw development.
2. Formally assess the demand and willingness to pay for yard waste collection throughout the region.

Jeff Ainge
Report Writer

Larry Gardner
Manager Concurrence

Dennis Trudeau
General Manager Concurrence

Paul Thorkelsson
CAO Concurrence

REGIONAL DISTRICT OF NANAIMO

STAFF REPORT

TO:	Larry Gardner Manager, Solid Waste Services	**DATE:**	October 13, 2015
		MEETING:	RSWAC, November 5, 2015
FROM:	Jeff Ainge Zero Waste Coordinator	**FILE:**	5370-01

SUBJECT: Curbside Collection Program – Compliance and Enforcement to Improve Diversion

RECOMMENDATION

That the report be received for information.

PURPOSE

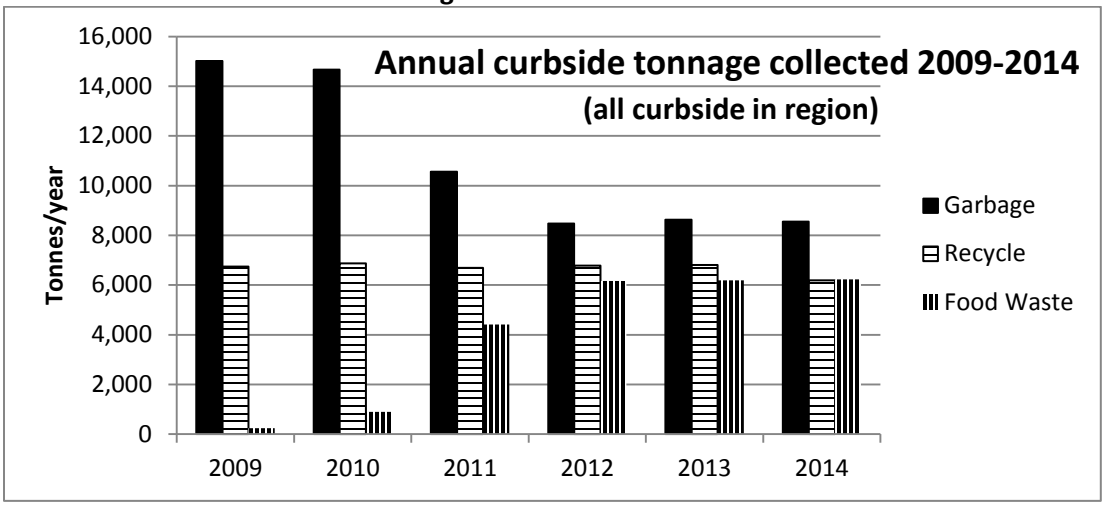
The Regional Solid Waste Advisory Committee (RSWAC) included improved enforcement of, and compliance with, existing residential collection program requirements as an option to be considered as part of the current Solid Waste Management Plan (SWMP) review.

BACKGROUND

The Regional District of Nanaimo (RDN) provides curbside collection of residential garbage, recycling and food waste to over 23,500 single family and equivalent homes located in the seven Electoral Areas, District of Lantzville and City of Parksville. A further 4,000 homes in the Town of Qualicum Beach receive garbage collection service from Town staff, with recycling and food waste collection provided by the RDN. The City of Nanaimo (CoN) provides collection services to 26,000 residences within their boundaries. In terms of the overall waste received at the Regional Landfill, the residential sector is the smallest at 17%.

Since the introduction of region-wide food waste collection in 2010 and 2011, single family homes now divert 60% of their garbage from the landfill through curbside food waste and recycling collection, as seen in Table 1. However, even with the convenience of curbside collection, the 2012 Waste Composition study calculated that compostable organic material remains the largest component of residential waste at 36% (made up of 26% food scraps + 8% compostable paper + 2% yard waste). A much smaller percentage of recyclable material also makes its way into household garbage and into the landfill as opposed to being recycled responsibly through curbside or depot programs.

Table 1 Curbside Collection Tonnages



To improve regional participation in diverting residential food waste from the landfill, the following actions could be considered for inclusion in the SWMP.

- Curbside Outreach and Education

Building on recent outreach activities undertaken by RDN Solid Waste Services staff in support of residential curbside recycling collection, a similar initiative could be made for the food waste collection.

Outreach and compliance efforts specific to curbside collection could be achieved by employing seasonal or temporary staff directly, or by creating a compliance or outreach staff position(s) which could be part-funded through the curbside utility fees. These would only apply to the RDN curbside program; the CoN program is funded and operated separately however similar actions and outreach efforts can be considered and implemented by CoN staff for their collection program.

Working with the collection staff (contracted in the case of the RDN and municipal employees in the case of the CoN), staff could assess the participation levels (set outs of green bins, or lack of green bin set outs, in particular) over a period of time, with seasonal variations accounted for, to give statistically valid data. With that data on hand, barriers to participation can be investigated, targeted compliance messages created, and varied targeted delivery mechanisms employed to promote and encourage participation. This is a methodology known as Community Based Social Marketing which has proven to be very effective in establishing social norms and encouraging positive behaviour change.

- Enforcement through a Disposal Ban

Residential food waste is considered Unacceptable Waste in the RDN and CoN collection bylaws so is not permitted to be included in the garbage container.

When launching their food waste diversion programs within the past year, both Metro Vancouver and the Capital Regional District took the step to ban this material from disposal at their facilities. The RDN did not take this step when introducing residential food waste collection, in large part because the multi-family housing sector is not serviced by local government collection programs but by commercial haulers. Commercially generated food waste is however banned from landfill disposal.

The reality of banning materials from curbside collection is that enforcement is challenging. Collection staff do not open bagged waste for curbside inspections (for health and safety reasons as well as time management constraints). Food Waste is listed as an Unacceptable Waste per RDN Bylaw No. 1591 which applies to the RDN curbside program and therefore not permitted in household garbage, but it is not actually banned from disposal so enforcement is a moot point.

Implementing a disposal ban on residential food waste can be viewed as a regulatory approach to increase use of the green bin and improve food waste diversion. For this to work, education and awareness of the existing program needs to happen – in effect a Community Based Social Marketing program to support the ban's implementation.

- Multi-Family sector collection

Given that the residential sector makes up the smallest component of the region's waste stream, and that residents receiving curbside service have made important steps in achieving 60% diversion through participation in food waste and recycling programs, the opportunity to achieve greater overall levels of diversion and compliance is attainable by having the multi-family sector receive the same level of service as the single-family housing sector. Leveling the playing field in terms of service levels and

materials collected across all housing sectors is expected to have a greater impact on landfill diversion than focusing efforts solely on curbside collection.

IMPACT ON DIVERSION

With respect to the three possibilities introduced above, the impact to landfill diversion rates would vary.

- Curbside Outreach and Education

Implementing targeted education and outreach efforts to improve householders' participation in the curbside collection of residential food waste would likely result in modest increased diversion rates of that material. For example, based on the 2012 Waste Composition Study findings, if a 20% improvement in curbside green bin waste capture was made, an additional 615 tonnes of food waste per annum (or eleven kilograms per household) would be diverted to an organics processing facility.

- Enforcement through a Disposal Ban

In terms of actively enforcing a curbside residential food waste disposal ban, while it may be somewhat effective in improving diversion rates, it is just as likely to "turn off" a percentage of residents and it will be difficult to enforce. The existing disposal ban in place for Commercial Organic Waste results in approximately 3,500 tonnes going to organics processing facilities, but there is room for greater diversion improvement in the commercial sector (a sector which generates far more waste than the residential sector). Focusing efforts on this sector, along with the multi-family housing sector is likely to have greater impact than imposing a disposal ban on food waste in the residential curbside collection.

- Multi-Family sector collection

Over the years this region has seen an increase in this type of housing stock. A staff report prepared in 2012 discussing recycling services available to this sector showed there were 13,430 multi-family dwelling units in the region, of which 12,300 were located in the CoN. The waste from this sector is typically collected by, and viewed as coming from, the Commercial sector. As the amount of multi-family type housing increases, so do the expectations that service levels should equate to those provided for single-family housing. Because of the inclusion of multi-family in commercial loads it is difficult to have hard numbers to work with, but the 2012 Waste Composition Study estimated 29 per cent of multi-family waste was food waste and compostable paper.

Multi-Family waste generation assumptions:

- A multi-family household would set out the same amount of garbage and food waste (excluding recyclables) as a single family household (280 kg/yr) with no allowance made for garburator use, lack of domestic livestock or backyard composter use, household size or demographic differences.
- 280 kg x 29% = 81 kg/dwelling unit of green bin material a year available for capture.
- 81 kg x 13,430 households (based on the 2012 staff report) = 1,088 tonnes of material available for capture.
- 75% participation rate (similar to single family curbside set-outs) = 815 tonnes of material diverted.

Creating a level playing field for all residential sectors will improve diversion rates however the biggest impact by far can be achieved by targeting the commercial sector which makes up the largest component of waste generators in the region.

FINANCIAL IMPLICATIONS

- Curbside Outreach and Education

Costs associated with curbside outreach and education would typically be factored into the curbside programs' operating budgets which are funded through annual utility (user) fees. Implementing an enhanced outreach program for curbside customers could be achieved through employing temporary, seasonal or Co-operative Education program students. Based on recent work completed on the RDN curbside collection program, a summer outreach team of two temporary staff employed for 16 weeks would require a budget line item of approximately $36,000 (wages, benefits, and administrative overhead costs all included).

A financial implication related to curbside service is the reduced price differential between the landfill disposal fee and organics processing fee meaning collecting increased amounts of curbside organics material may result in slight increases in residential annual utility fees.

- Enforcement through a Disposal Ban

The process to implement a disposal ban for any material would require a one to two year timeframe for planning and stakeholder engagement, followed by consultation and preparation of resource materials. A longer term temporary person could be employed to spearhead the project, or the task could form part of a Compliance or Outreach position. Funding to achieve a disposal ban on compostable material from all sectors could be in the order of $100,000 per year for the duration of the timeframe to phase it in. Following implementation, an ongoing commitment to enforcement and compliance of the ban is important for ensuring adherence and monitoring of the ban's effectiveness. An equivalent 0.3 FTE contribution to a Compliance or Outreach staff person (in the RDN), based on a CUPE level 11 classification, would require a budget line item of approximately $27,000 (wages, benefits, and administrative overhead costs all included).

- Multi-Family sector collection

In this region, as with most other jurisdictions, the multi-family sector presents many challenges when it comes to collection service levels, diversity of housing types (town home strata, multi-level, multi-owner, etc.), resident engagement and participation in diversion programs, bans compliance, and service provider involvement. Food waste diversion is offered by the private haulers servicing the multi-family sector however uptake is limited and collection systems are not standardized. It is very unlikely that the existing RDN or CoN curbside collection system can change to accommodate servicing multi-family dwellings. In response to requests for assistance, work is currently underway in preparing a food waste collection tool-kit for building managers, haulers and residents to make use of when considering setting up a food waste diversion and collection program.

Reviewing the range of current service levels, and developing a strategy to include food waste (and perhaps standardized recycling) collection across the region could be accomplished with dedicated staff time. For this particular sector, with over 90% of the multi-family units located within the City, a region-wide coordination position may make sense. A temporary person could be employed for a year to spearhead the project (at an estimated total wage cost of $85,000), or the task could form part of a Compliance or Outreach position. Ongoing program support could accomplished by an equivalent 0.3 FTE contribution to a Compliance or Outreach staff person, based on a CUPE RDN level 11 classification, would require a budget line item of approximately $27,000 (wages, benefits, and administrative overhead costs all included).

REGULATORY AUTHORITY

None of the three options discussed require additional authority for implementation.

With regards curbside compliance and enforcement, solid waste trade journals recently have included articles regarding the legality of garbage inspections by collectors to identify those placing food waste or

recyclable materials in garbage cans. For this reason, outreach and education can be a less contentious and softer approach to achieve the desired behaviour changes. At the time of preparing this report staff knows of one legal challenge underway in Seattle (see Attachment 1 for information).

SUMMARY/CONCLUSIONS

The residential sector contributes the smallest amount of waste to landfill at 17%. Households receiving curbside collection service throughout the region are achieving a 60% diversion rate through their participation in the curbside recycling and food waste collection programs. Despite this laudable achievement, compostable organic waste still enters the waste stream.

Options to improve curbside compliance and participation in diversion programs include targeted outreach and education activities focusing on organics and other recyclable materials, extending the organics disposal ban to include food waste from residential sources, and ensuring the multi-family sector receives a similar level of collection service.

Focusing efforts on the commercial sector, along with the multi-family housing sector is likely to have greater impact than targeting curbside collection.

Option Discussed	***Estimated Costs to Implement***	***Diversion Impact***
Curbside Outreach to improve food waste diversion	$36,000 staffing costs (annually employed seasonal staff).	Assuming capture of 20% (615 tonnes) of food waste from curbside garbage = ▪ 7% diversion increase for the curbside program ▪ 1.15% diversion increase for the overall region's disposed waste
Enforcement through a disposal ban	$100,000-$200,000 to prepare and implement a disposal ban (staffing costs and development of supporting outreach resources). $27,000 annually (staffing costs to monitor compliance and enforcement at the curb only). To be most effective, inclusion of food waste from all sectors in a re-launch of the existing commercial sector ban along with enforcement could be considered. The above costs could be applied to this approach.	If enforcement applied to curbside collection, diversion could increase when coupled with the option above; for example capture 40% (1,230 tonnes) from curbside garbage = ▪ 14% diversion increase for the curbside program ▪ 2.3% diversion increase for the overall region's disposed waste The best achievable result is to enforce the current ban on commercially generated organic waste. ▪ 15% - 25% diversion increase possible for the region's overall diversion rate
Multi-Family sector collection	$85,000 to prepare a region-wide multi-family collection strategy, and to commence with implementation. $27,000 annually (staffing costs to monitor and provide ongoing support for multi-sector collection programs).	Assuming capture of 815 tonnes of food waste from multi-family garbage = ▪ 20% diversion increase for the multi-family sector ▪ 1.5% diversion increase for the overall region's disposed waste

Jeff Ainge

Report Writer

Larry Gardner

Manager Concurrence

Dennis Trudeau

General Manager Concurrence

Paul Thorkelsson

CAO Concurrence

Attachment 1

Courthouse News Service

Monday, July 20, 2015 Last Update: 1:34 PM PT

Seattleites Call Trash-Inspection Law Garbage

By JUNE WILLIAMS

SEATTLE (CN) - Seattle is illegally searching trash cans without warrants looking for recycling scofflaws, a group of residents claim in court.

Although Seattle has one of the highest recycling and composting rates in the nation, the city passed a law in September 2014 that fines residents for discarding food or recyclables in their personal garbage bins.

"The ordinance directs garbage collectors and Seattle Public Utilities (SPU) inspectors to search both residential and business garbage cans, without suspicion or a warrant, in order to estimate whether compostable materials or recyclables make up a 'significant amount' of a garbage can's contents," according to the complaint filed on July 16 in King County Superior Court.

Richard Bonesteel and seven other plaintiff residents contend that the city's new garbage-inspection law "violates privacy rights on a massive scale."

If garbage collectors find a can has more than 10 percent of food or recyclables, Seattle Public Utilities places a warning sticker on the can. Fines will allegedly start in 2016.

"The city's garbage inspection law violates privacy rights on a massive scale. Seattle has an estimated population of 652,500," the complaint states. "The ordinance directs garbage collectors to invade the private affairs of each and every Seattle resident and business on a weekly basis. The city and its agents began enforcing the ordinance in January 2015. From January through April 2015, the city issued an estimated 9,000 notices of violation."

Bonesteel and the other plaintiffs say that Seattle will enforce the ordinance without notice to residents and businesses or an opportunity to challenge violations resulting from the "warrantless inspections."

The residents want an injunction against the warrantless inspections, a judgment that the ordinance is unconstitutional, and damages for invasion of privacy and violation of due process.

Their attorney at Pacific Legal Foundation, Ethan Blevins, issued a statement about the lawsuit.

"Seattle can't place its composting goals over the privacy and due process rights of its residents," Blevins said in a statement. "This food waste ban uses trash collectors to pry through people's garbage without a warrant, as Washington courts have long required for garbage inspections by police."

For the City Attorney's Office, the the Seattle Public Utilities program "fully complies with the law, including the enhanced privacy protections afforded by the Washington constitution."

"SPU believes the instructions we've given to our collectors upholds the Washington state Constitution and civil liberties," SPU said in a statement. "There is no intention of opening trash bags. Containers are only tagged if the contamination is clearly visible. The guidelines state: if you can't see, don't report it and don't tag it."

- END -

Source: *http://www.courthousenews.com/2015/07/20/seattleites-call-trash-inspection-law-garbage.htm*

REGIONAL DISTRICT OF NANAIMO

STAFF REPORT

TO:	Larry Gardner Manager, Solid Waste Services	**DATE:**	October 26, 2015
		MEETING:	RSWAC, November 7, 2015
FROM:	Amanda Kletchko Special Projects Assistant	**FILE:**	5380-20

SUBJECT: Share Shed programs at the 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 introduction of "Share Sheds" at the Regional Landfill (the Landfill) and Church Road Transfer Station (CRTS) as an option to be considered as part of the current Solid Waste Management Plan (SWMP) review.

BACKGROUND
Share Sheds give customers the opportunity to set aside items in good condition for re-use by others instead of landfilling; the installation of Share Sheds at the CRTS and the Landfill could result in greater waste diversion as items are donated and re-used instead of landfilled.

Currently, CRTS and the Landfill do not offer any customer exchange programs, and salvaging is not permitted. Share Sheds have not yet been introduced at the facilities primarily due to potential liability to the Regional District of Nanaimo (RDN) by making salvaged material available to the public. Other considerations include managing traffic, loitering, space and staffing implications.

In order to reduce potential liability, the RDN could introduce a program that imitates the program run by the Capital Regional District. In this scenario, items collected are offered only to local thrift stores or non-profit groups - the public does not have access to items in the Shed. This program could involve a list of desired items submitted to the facility by the receiving organizations, and those items would be identified and set aside by the customers as directed by the Attendants. Alternately, Attendants could be responsible to determine if items are suitable for donation, and pickup could be assigned on a regular basis. The submission of a liability waiver by the receiving organization could solve any liability issues that may arise.

It may be possible to locate sheds inside or outside the scaled areas of both the Landfill and CRTS:

Outside the scaled area

If the Share Sheds are located outside the scaled area, the Attendant would be required to direct the customer to the Share Shed for drop-off. The customer would be required to travel over the scales to complete their waste transaction, and proceed to the Share Shed location. There would be no revenue created with this method, as the customer would not be paying to drop off their item.

Care and planning must take place to reduce traffic congestion and/or confusion. Providing sheds outside of the scaled area could require additional staffing to provide oversight and to maintain the facility. Diversion could be tracked when the receiving organization crosses the scale at the time of pick up.

Inside the scaled area

By providing a Share Shed inside the scaled area, the Attendant would be required to direct the customer to the Share Shed for drop-off, but the customer would not be required to pass over the scale first. This would allow the RDN to continue to collect revenue for all items brought to the site, and the amount of material diversion could still be monitored at the time of pickup by the receiving organization. Additional staff may not be required to monitor the shed, as it would be in the vicinity of the bins area. Attendants may have to field questions by self-haul customers regarding why they cannot take items from the shed.

If it was determined that there would be no charge to the customer for dropping items off for donation, the customer would be required to travel over the scales to complete their waste transaction, and then proceed through the bypass lane and back into the scaled area. Care and planning would need to take place to reduce traffic congestion and/or confusion.

Moving forward with this program could increase customer satisfaction, as requests by customers to provide others with access to reusable items (i.e. furniture and household items), is common. Customers have expressed the desire for a Share Shed, explaining that they have good items to donate, and would like to see things reused rather than landfilled. As they have already made the trip to the facility, it would be convenient if they did not have to travel further to donate at a thrift shop. Staff at the Cowichan Valley Regional District's Bing's Creek facility have indicated that their Share Shed program is very popular with customers, and Attendants at the Landfill say that the amount of re-usable items being landfilled appears high. Nanaimo Recycling Exchange offers free drop-off in their Community Market, but customers must purchase desired items.

A number of guidelines would need to be pre-determined prior to the installation of the Share Sheds:

Acceptable items

The RDN would need to determine what items are considered acceptable in the Share Shed, and also who would be responsible to say if an items belongs in the shed.

Length of Time

A regular routine of organization pickup must be put in place, whether the RDN contacts the organization when the shed is full, or whether a truck comes by on a pre-determined schedule.

Liability

Prior to implementing the Program, the RDN would need to determine liability of collecting second hand goods on behalf of a non-profit organization.

IMPACT ON DIVERSION

It is estimated that approximately 160 - 240 tonnes of waste could be diverted from the Landfill per year resulting in a 0.32% - 0.45% diversion rate. This value is based on the estimations made by landfill Attendants who indicate that one to two 16' cube vans worth of items (1500kg capacity) are re-saleable per week, depending on the time of year.

FINANCIAL IMPLICATIONS

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.

Financial requirements to prepare areas for the Share Sheds is dependent upon the chosen location of the sheds 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 and directional line painting will be necessary.

The cost of a shed varies with size and model. Based on pricing from Global Industries[1] (Figure 1), a metal garage approximately the size of a two-car garage 12w x 32l x 8h (2169 ft^3) with a roll-up door, is $4,400 including the cost of freight. Pricing from Future Buildings[2] (Figure 2) for a steel garage kit 16w x x 32l x 17h (8704 ft^3) is $26,000 including freight, as of Aug. 12, 2015. Table 1 gives greater detail on short term pricing estimates.

Figure 1 Global Industries DuraMax Metal Garage

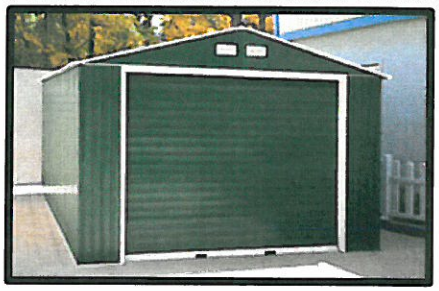


Figure 2 Future Buildings Steel Garage Kit

[1] Global Industries, *Buildings and Storage Sheds, DuraMax Large metal Garages with Roll-Up Door,* http://www.globalindustrial.ca/g/outdoor-grounds-maintenance/sheds/metal-storage-sheds/duramax-large-metal-storage-garage-with-door *Accessed: August 4 2015*

[2] Future Buildings, *Steel Garage Kits,* http://www.futurebuildings.com/future-steel-products/steel-garage-kits.html/nggallery/page/1 *Accessed: August 17, 2015*

Table 1 Share Shed Pricing Estimate

Landfill				
	Amount	**Unit**	**Per unit cost**	**Total**
Labour and Equipment	6	Hours	$175	$1,050
Engineering	4	Hours	$200	$800
Building	1	Each	$4,000	$4,000
Building Delivery	1	Each	$600	$600
Road Marking	1	Each	$200	$200
Signage	2	Each	$75	$150
			Total	**$6,800.00**
CRTS				
Labour	4	Hours	$75	$300
Equipment	2	Hours	$100	$200
Mob/de-mob	1	Each	$500	$500
Building	1	Each	$4,000	$4,000
Building Delivery	1	Each	$600	$600
Engineering	1	Hours	$200	$200
Road Marking	1	Each	$200	$200
Signage	2	Each	$75	$150
			Total	**$6,150.00**
			Total Share Shed Short Term Cost Two Locations	**$12,950.00**

Long Term Costs

A Share Shed will require regular housekeeping by an attendant in maintaining the Share Shed, including directing customers and general tidying. Depending on the location of the shed, one additional Attendant at each location may be needed to monitor the area at a rate of $33/hr.

Table 2 Labour Estimate

Landfill							
	Personnel	**Amount**	**Unit**	**Per unit cost**	**Total per day**	**Total per week**	**Total per year**
Labour	1	8	Hours	33	$312	$2,184	$96,096
CRTS							
Labour	1	8	Hours	33	$312	$2,184	$96,096
			Total Labour Both Locations		**$624**	**$4,368**	**$192,192**

REGULATORY AUTHORITY

Should the RDN decide to move forward with implementing Share Sheds at the Landfill and CRTS, there does not appear to be any changes necessary to RDN authority regarding this program.

SUMMARY

Share Sheds give customers the opportunity to donate items in good condition for re-use by others instead of landfilling; the sites could take on a similar program to that of the Capital Regional District, where items are donated to local thrift stores. From the customer's perspective, the option to donate good quality items at the facility is preferable to landfilling or traveling to a thrift shop. Feedback from facilities that currently offer a Share Shed program indicate that the program is extremely popular with customers, and Attendants at both RDN facilities often see re-useable items being landfilled.

The installation of Share Sheds at the CRTS and the Landfill could result in some waste diversion as items are donated instead of landfilled. The introduction of Share Shed programs at the Landfill and CRTS could result in waste diversion of 160-243 tonnes per year, or a 0.31% - 0.45% diversion rate.

Installing Share Sheds would have a number of short term costs including site preparation, engineering, buildings and signage; Capital costs to introduce Share Sheds at the two facilities could be approximately $13,000. Over the long term, and depending on the location of the Share Sheds, there could be additional labour costs in running the program as one additional Attendant may be required for maintenance purposes; annual operating costs could be approximately $190,000 per annum for the two sites.

Report Writer

Manager Concurrence

General Manager Concurrence

CAO Concurrence

REGIONAL DISTRICT OF NANAIMO

STAFF REPORT

TO:	Larry Gardner Manager, Solid Waste	**DATE:**	October 26, 2015
		MEETING:	RSWAC, November 7, 2015
FROM:	Amanda Kletchko Special Projects Assistant	**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 Summary[1], 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 23[3]), 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-annualreport-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 Buildings[4] (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 Carport [5] (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

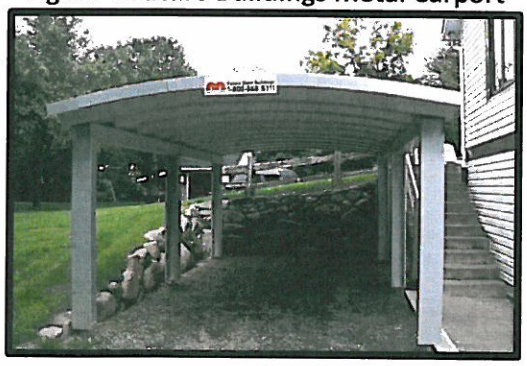


Figure 2 Global Industries Steel Carport

[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/carpot/Steel-Carports *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

A/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 51,217tonnes[1]
* The self-haul rate is 15% of the total RDN solid waste stream[2]

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 2012[3]

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 tonnages[5]

	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	40	16	$220.00	Tonne	$3600
t/person	0.000111				
Electronics[7]	293	119	$200.00	Tonne	$24 900
t/person	0.000814				
Plastic film	7	3	$505.00	Tonne	$1400
t/person	1.94449E-05				
ProductCare: paint, pesticides /solvents, residential lighting	166	67	$45.00	Tubskid (4'x4' bin)	$11 600
#tubskids @~261kg each	636	258			
t/person	0.000461				
Small appliances/ tools	131	53	$209.00	Tonne	$11 100
t/person	0.000364				
Styrofoam	20	8	$505.00	Tonne	$4100
t/person	5.55569E-05				
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

REGIONAL DISTRICT OF NANAIMO

STAFF REPORT

TO:	Larry Gardner Manager, Solid Waste	**DATE:**	April 5, 2016
		MEETING:	RSWAC, April 14, 2016
FROM:	Sharon Horsburgh Senior Solid Waste Planner	**FILE:**	5365-00

SUBJECT: Complimentary Disposal Services at Regional District of Nanaimo Solid Waste Facilities

PURPOSE

Board representatives suggested that the Regional Solid Waste Advisory Committee (RSWAC) consider introduction of "Complimentary Disposal" service at the Regional Solid Waste Facilities (Church Road Transfer Station (CRTS) near Parksville and Regional Landfill in south Nanaimo) as an option for future service. This was a service provided in the past and was well supported by a segment of the population who were the recipients of free waste disposal.

BACKGROUND

A complimentary disposal program was in place in the Regional District of Nanaimo (RDN) from approximately 1992 – 1998. The program was introduced soon after the RDN user-pay system was implemented for garbage pickup and dropoff; there were concerns by the Board that new fees would result in increased illegal dumping in and around the RDN[1]. The Complimentary Disposal program gave RDN residents the opportunity to drop off household waste at the Regional Landfill and CRTS without charge, four times per year. The program began with a complimentary disposal day each season, then was decreased to twice per year, before being cancelled in 1998, when it was determined by the Board that the complimentary disposal service created risks to public safety and environmental protection.[2]

On a complimentary disposal day, an average of 1,450 customers passed through the Regional facilities, disposing approximately 1,250 tonnes of waste each year.[3] This turnout represented approximately 3% of eligible RDN households on a Complimentary Disposal day, and an almost 400% increase in traffic at the facilities. All Landfill employees were required to be on site on complimentary disposal days, and additional staff were hired to assist with traffic control. Employees recall traffic lined up the entire length of Cedar Road, from the Landfill to the intersection of Cedar Road and Highway 19, approximately 1.5km.

At the Regional Landfill facility, customers were directed to drop off their waste in the bin area, but many were sent to the active face of the Landfill if they had a large load and their vehicle was capable.

---

[1] Regional District of Nanaimo. (1996). *Solid Waste Management Free Day Policy at the Solid Waste Management Facilities* (Freedays rpt 9607-1). Donnelly, Mike.

[2] Regional District of Nanaimo. (2000). *Solid Waste Management Self-Haul Tipping Fees* (SelfHaulrpt003). McIver, Carey.

[3] Regional District of Nanaimo. (1998). *Solid Waste Management Free Day Policy at Solid Waste Management Facilities* (SW Free Day rpt 9804). McIver, Carey

Some customers proceeded to the working face without direction, increasing the potential for accidents with Landfill equipment or other residential vehicles. Employees recall long traffic lineups along the Haul Road, between the Landfill face and the exit. All waste was accepted and little to no screening for recyclable or hazardous items took place; waste volume was very high, and bins were emptied continuously. Operational concerns included out-of-district trips, and multiple trips; additionally, each complimentary disposal day took two to three days of clean up, sorting, and moving of all the material brought to the Landfill, which disrupted commercial flow of traffic, and causing the system to slow down.

Staff recall that complimentary disposal days were extremely busy and very hectic. The primary concerns were traffic control and the safety of customers and staff. Photographs from the mid-90's appended to this report illustrate some of the challenges in managing much of the large bulky material received over these one day events.

DIVERSION AND ILLEGAL DUMPING

Recycling/Screening

There are waste diversion policies in place to prevent the disposal of recyclable items in the Landfill; recycling stewardship programs include management for kitchen and yard waste, tires, batteries, electronics, packaging and printed paper, hazardous waste, wood, metal, cardboard and small appliances. These items are banned from the Landfill, and a Complimentary Disposal service would need to involve screening for, and separation of, these items from household garbage.

Illegal Dumping

Complimentary disposal days were introduced in 1992, partially to alleviate concerns that the newly introduced user-pay system would result in increased illegal dumping in the RDN. In 1995, Latimer Consulting Services provided a report entitled "Examination of Changes in Illegal Dumping Since 1992", where it was determined that illegal dumping was not increasing, and that dumping is carried out by residents who would not be enticed by policy changes, rate incentives, or educational efforts to change their behaviour. It was unlikely that residents who participated in the complimentary disposal service were part of that group, as wait times to dispose of waste on a complimentary disposal day were often at least 30 minutes; it's doubtful that residents who dump illegally would wait that long to dispose of their waste appropriately.[4]

FINANCIAL IMPLICATIONS

From 1992 – 1998, approximately 1,450 residents per complimentary disposal day visited the two facilities, resulting in 1,250 tonnes of waste disposal yearly.[5]

In 1996, costs to operate complimentary disposal services at the two facilities were estimated to be approximately $74,000 per year, or $18,500 per day; lost revenue was calculated to be $61 000, and additional staffing costs were $13,000 per year. Total costs per vehicle visiting the sites on a complimentary disposal day were estimated at $12.75 each.

---

[4] Regional District of Nanaimo. (1996). *Solid Waste Management Free Day Policy at the Solid Waste Management Facilities* (Freedays rpt 9607-1). Donnelly, Mike.

[5] Regional District of Nanaimo. (1998). *Solid Waste Management Free Day Policy at Solid Waste Management Facilities* (SW Free Day rpt 9804). McIver, Carey.

Based on 1996 complimentary disposal tonnages (53% garbage, 14% Construction and Demolition, 33% Scrap Metal and Yard Waste), but with 2015 tonnage rates, lost revenue could be $39,000 per day if a complimentary disposal program is re-introduced as it was in 1992. At 2015 rates, additional staffing costs could be $3,500 per day, resulting in a possible loss of $42,500 in costs and lost revenue to operate a complimentary disposal day at two facilities. Additionally, costs to haul recyclables and pay recycling fees could increase costs by $1,500.

"Complimentary Disposal" is not really free. Not collecting a fee for residential garbage means that costs to cover Landfill expenses are not met, including Landfill airspace, engineering costs, environmental monitoring, and contributions to Landfill equipment and other purchasing needs. Additional staffing required to manage high traffic volumes is also not covered by the users. Users who pay for their drop-off are subsidizing those who don't.

OPTIONS

There are options to re-introduce complimentary disposal at Regional facilities, with restrictions that would reduce traffic volume, thus increasing safety, and allowing for appropriate sorting and separation of items.

Drop Off by Municipality or Electoral Area

Individual Municipalities or Electoral Areas could be granted one day per year where the resident is permitted to drop off their waste without charge at either facility. Dividing the areas up by population would control the amount of traffic on site in one day, allowing for proper screening and sorting of waste.

Uncertainties

Complications could arise with Electoral Area drop off as the Scale Clerks would be required to check the address of each customer to confirm eligibility of free drop off. The hauler of the waste may not be the resident, and the resident may not be present during drop off. Unless some form of Area permit was provided, each driver passing through the Scale would need to provide address information; backlash could be experienced if a customer was from the free Area on a given day, but paid for their dropoff because they were unaware of the day.

The RDN may wish to restrict vehicle size and/or waste weights, as questions could arise regarding whether or not the waste is residential or commercial. Another option could be to restrict the weight of "complimentary" waste to a certain number of kilograms, with a fee being applicable over that weight.

Trash It! Ticket

***Trash It!* By Area**

Customers could be provided with a "Trash It! Ticket" with their residential tax package, utility billing or annual collection calendar; this system would help prevent out-of-district trips and multiple loads. The ticket could provide information regarding the approved drop off date for their Area, as well as facility locations, and outline the requirements to drop off (pre-sorting, recycling requirements, hazardous waste information). Customers would be required to provide and relinquish their ticket upon drop off.

Uncertainties
Distribution of the Trash It! Tickets could be complicated; many residents are not the owner of the home in which they reside, and tickets would need to be provided to the resident by the home owner if sent out with tax packages.

The RDN may wish to restrict vehicle size and/or waste weights; questions could arise regarding whether or not the waste is residential or commercial.

Area complimentary disposal days may require additional staff on hand at both facilities in order to appropriately manage traffic volume and screen waste items.

***Trash It!* Any Day**
Customers could be provided with a "Trash It! Ticket" with their residential tax package, utility billing or annual collection calendar that could be used on any day of the year, regardless of residential Area. The Ticket could provide information regarding facility locations and outline the requirements to drop off (pre- sorting, recycling requirements, and hazardous waste information). Customers would be required to provide and relinquish their Ticket upon dropoff.

Uncertainties
Distribution of the Trash It! Tickets could be complicated; many RDN residents are not the owner of the home in which they reside, and tickets would need to be provided to the resident by the home owner if sent out with tax packages.

The RDN may wish to restrict vehicle size and/or waste weights; questions could arise regarding whether or not the waste is residential or commercial.

***Trash It!* by Weight**
In addition to either *Drop Off by Area* or *Any Day Drop Off*, the RDN could introduce a weight restriction for the free waste.

***Trash It!* Decisions by Area**
Some Electoral Areas may show more interest in free dropoff than others, and drop off services to particular areas based on the level of interest could be explored. Based on historical numbers, 3% of the eligible population participated in complimentary services at the facilities. An increased tax rate for an area could be discussed, or a discussion could ensue to help residents understand that "complimentary drop off" is not really free, and that disposal services come at an expense. For example, if Area H were to enter into an agreement with the RDN for complimentary services four times per year, 105 out of 3,509 residents (2011 population) might take part in the service per day. Services provided to those 105 people could cost $22 per person, or $2,300 per day. To cover these costs four times per year could cost each Area H resident an additional $2.60 per year.

Uncertainties
Communicating a request for interest in a free day to the various areas could be difficult, as well as increasing the understanding that disposal could come at a cost in another area of service.

REGULATORY AUTHORITY

There is a possibility that providing complimentary disposal to residential self-haul customers is discriminatory[6]. The Municipal Act allows the RDN to set rates for different classes of people, property or types of land use; however, charging fees to some residents and not to others could be considered discriminatory. It may not be legal to waive tipping fees for residential, but not for commercial, users.

SUMMARY

Complimentary disposal services were introduced in 1992 to offset concerns regarding illegal dumping in response to the new RDN user-pay system. The program ran until 1998, when complimentary disposal services dropped from four per year, to two, and then was eliminated due to public safety and environmental protection concerns.

There are recycling stewardship programs in place for electronics and small appliances, packaging and printed paper, hazardous waste, wood waste, and cardboard, among others. Screening for these items must be maintained for each load. An average complimentary disposal day saw 1,450 customers pass through the two facility's scales, disposing of 1,250 tonnes of waste per year, and representing 3% of eligible RDN households. This volume resulted in a 400% increase in traffic at the facilities, resulting in little to no sorting or recycling of waste. Operational concerns included out-of-district trips, and multiple trips; additionally, each complimentary disposal day took two to three days of clean up, sorting, and moving of all the material brought to the Landfill, disrupting commercial flow of traffic, and causing the system to slow down.

In 1995, a consulting service provided a report entitled "Examination of Changes in Illegal Dumping Since 1992" which determined that illegal dumping was not on the increase since the RDN user-pay system was put in place, and that it was unlikely that the complimentary disposal program was utilized by those who dump their waste illegally.

Not collecting a fee for residential garbage means that costs to cover Landfill costs are not met, including Landfill airspace, engineering costs, environmental monitoring, and contributions to Landfill equipment and other purchasing needs. Additional staffing required to manage high traffic volumes is also not covered by the users. In 1996, costs to operate Complimentary Disposal services at the two facilities were estimated to be approximately $74,000 per year, or $18,500 per day. Based on 1996 complimentary disposal tonnages (53% garbage, 14% Construction and Demolition, 33% Scrap Metal and Yard Waste), but with 2015 rates, the RDN could have a possible loss of $42 500 per day in revenue and staffing costs to operate a complimentary disposal service at two facilities if the program was re-introduced as it was in 1992.

A new program could be implemented at the Regional facilities that would reduce the traffic volume and allow for appropriate screening of items. This new program could involve complimentary disposal acceptance from particular Municipalities and Electoral Areas on certain days, where each area could be given a different day for complimentary dropoff at either the Regional Landfill or the CRTS. Other options include distributing a "Trash It! Ticket" to residents that they would provide and relinquish at the time of drop off. Tickets could be distributed with residential tax packages, utility billing or annual

[6] Regional District of Nanaimo. (1998). *Solid Waste Management Free Day Policy at Solid Waste Management Facilities* (SW Free Day rpt 9804). McIver, Carey.

collection calendar, and may provide particular disposal days by Area, or could be used on any day of the year. Areas could be given the opportunity to accept a tax increase in exchange for complimentary service, and weight restrictions could be implemented to reduce the likelihood of commercial loads. There are several uncertainties for all these options: how to determine the source of the waste if the program is implemented by Area; how to distribute Trash It! Tickets to residents; limiting load size, and; how to communicate that complimentary waste disposal comes at a cost that must be subsidized by users and non-users alike.

Charging fees to some residents and not to others could be considered discriminatory. Introducing a program that a small percentage of the population participates in, means that costs are transferred to a larger population of those who do pay. Additionally, it may not be legal to waive tipping fees for residential, but not for commercial, users.

Report Writer

Manager Concurrence

General Manager Concurrence

CAO Concurrence

PHOTOS


TIRES

REGIONAL DISTRICT OF NANAIMO

STAFF REPORT

TO:	Larry Gardner Manager, Solid Waste	**DATE:**	January 7, 2016
		MEETING:	RSWAC, January 14, 2016
FROM:	Meghan Larson Special Projects Coordinator	**FILE:**	5365-00
SUBJECT:	Multi Family and IC&I Collection in the RDN		

RECOMMENDATION

That the Regional Solid Waste Advisory Committee (RSWAC) receives this report for information.

PURPOSE

To provide background on the current state of Multi-Family and Industrial, Commercial and Institutional (IC&I) sector collection in the RDN and to estimate additional waste diversion potential from this sector.

BACKGROUND

The IC&I sector represents 63% of landfilled waste at the Regional Landfill. Examples of waste generators in this sector include businesses, industries, or commercial operations including stores, offices, hotels, hospitals, schools, restaurants, construction companies, factories etc., and the Multi-Family housing sector. In the Regional District of Nanaimo (RDN) the IC&I sector (including Multi-Family) is serviced by private waste haulers. However, for the purpose of this report Multi-Family waste collection will be examined separately from the rest of the IC&I sector even though the waste is collected together by most haulers.

When comparing the 2004 RDN waste composition study with the study completed in 2012, the amount of waste disposed at the Regional Landfill from the IC&I sector has remained relatively static at approximately 33,239 MT, while the overall percentage of the waste stream coming from the IC&I sector has increased from 56% of waste disposed at the Regional Landfill in 2004 to 63% of waste disposed at the Regional Landfill in 2012.

Multi-Family Housing Sector

As indicated in Table 1, the residential housing sector consists of the following types of housing: single family housing which includes single family detached homes, duplexes and fourplexes (75%), Townhouses and Mobile Home Parks (12%) and Apartments (13%)[1]. Townhouses, Mobile Home Parks and Apartments are typically referred to as Multi-Family housing. Service delivery to the Multi-Family sector is primarily by the private sector. In the RDN, Multi-Family waste is estimated to be 8% of the IC&I waste received at the Regional Landfill and is approximately 20% of the residential solid waste generated in the region (not including self-haul waste).

[1] Estimates based on data from 2012 RDN Multi-Family Housing Diversion Strategy Progress Report

Table 1: Regional Distribution of Housing Units by Type, 2012

Area	Single Family			Townhouses/MHPs			Apartments			Municipal Collection	Private Collection
	%	Garbage	Recycling/FW	%	Garbage	Recycling/FW	%	Garbage	Recycling/FW	%	%
City of Nanaimo	67%	CON	CON	13%	*Private*	*Private*	19%	*Private*	*Private*	67%	32%
Electoral Areas	92%	RDN	RDN	8%	RDN	RDN	0%	*Private*	*Private*	100%	0%
COP	59%	RDN	RDN	24%	RDN	RDN	16%	*Private*	*Private*	83%	16%
Town of Qualicum Beach	84%	TQB	RDN	13%	TQB	RDN	3%	*Private*	*Private*	97%	3%
District of Lantzville	97%	RDN	RDN	3%	RDN	RDN	0%	-	-	100%	0%
Region Wide	75%	-	-	12%	-	-	13%	-	-	80%	20%

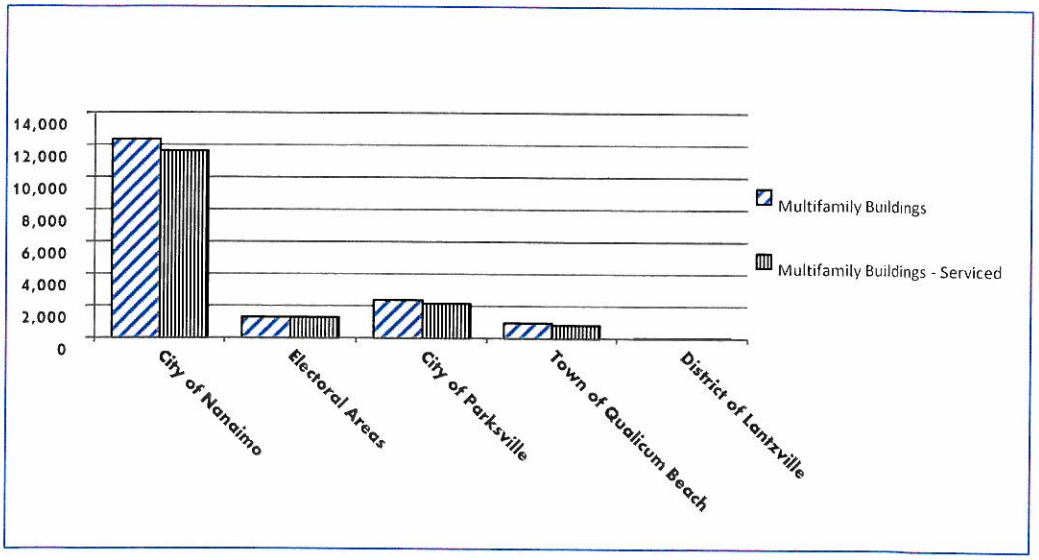
Multi-Family Diversion Strategy

Since 1991, the RDN has progressively banned materials from landfill disposal as local recycling and processing facilities became available. Banned household items include recyclable paper, cardboard, metal and, most recently in 2010, household plastic containers (i.e. empty HDPE and LDPE plastic containers from residential premises including milk jugs, margarine and yogurt containers and dish soap and laundry detergent bottles).

In 2008, the RDN launched a Multi-Family Recycling Program which was designed to increase waste diversion through source separation of recyclable material at multi-family buildings. This was an information program working collaboratively with key stakeholders such as; private haulers, property owners and managers and strata council representatives. Staff met frequently with haulers and consulted with property owners and managers as well as strata council representatives through letters and onsite visits.

The fieldwork involved face to face meetings with building owners to verify onsite recycling services throughout the RDN. Based on observations through these onsite visits, staff concluded that in 2012 94% of multi-family housing buildings had access to on-site recycling services (not including organics) that was equivalent to those provided to the single-family housing as presented in Figure 1.

Figure 1: Multi-Family Buildings with On-site Recycling Services, 2012



As indicated in Figure 1, the Multi-Family Recycling Program significantly improved access to recycling services in the multi-family housing sector. However, the 2012 waste composition study shows that there are still improvements that could be made (see Figure 2). For comparison purposes, the waste composition for the residential curbside is presented in Figure 3. Based on the 2012 Waste Composition study, paper and plastic still made up 31% of the multi-family waste stream. Comparatively, the same materials make up 21% of the residential curbside waste steam. This data suggests that, in 2012, although there was a high level of access (i.e. 94%) to multi-family on-site recycling facilities, there is significant opportunity to increase diversion.

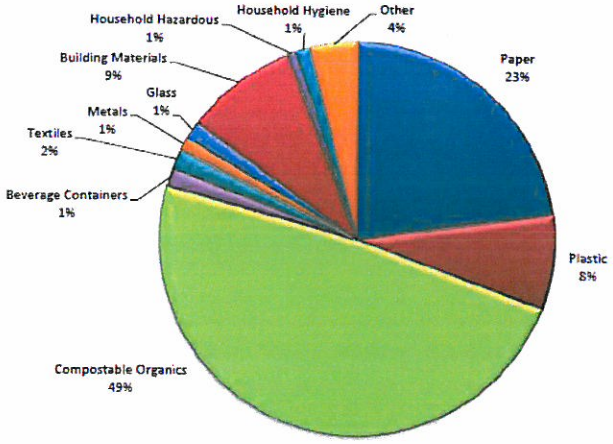


Figure 2: Multi-Family Waste Composition (2012)

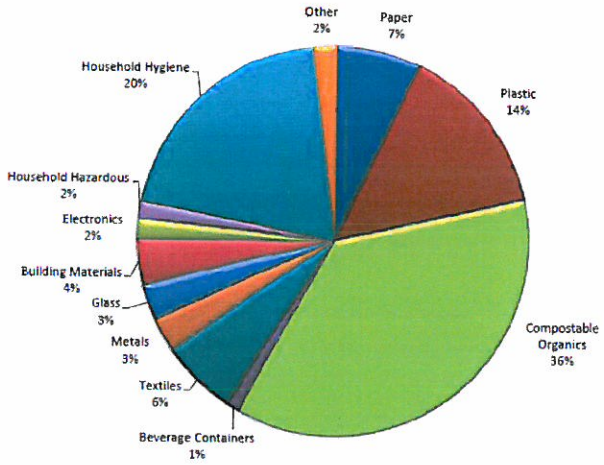


Figure 3: Curbside Residential Waste Composition (2012)

Since the work undertaken in 2012, the Ministry of Environment has amended the provincial Recycling Regulation to include Printed Paper and Packaging (PPP) generated from the residential sector as a stewardship material. Multi-Family housing is included in the residential sector per the recycling regulation, however participation in the stewardship program's collection side relies on haulers to sign on with the stewardship agency and not all have. At present the Ministry has approved one stewardship plan for residential PPP, however a second plan with a focus on Multi-Family is currently with the Province for consideration; if approved this additional plan may result in increased recycling opportunities for this housing sector.

Furthermore, the greatest diversion opportunity continues to be with the compostable organics which make up almost half the waste stream from this housing sector.

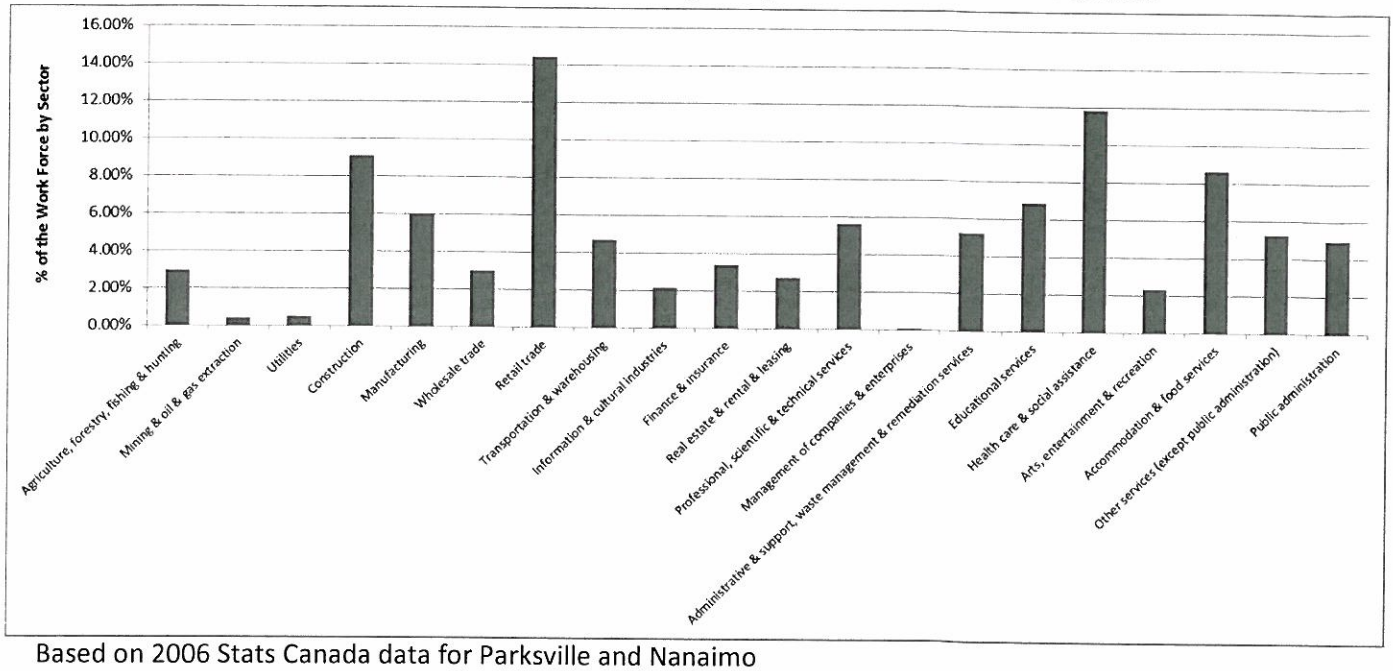
Challenges to achieving a high degree of source separation in the multi-family sector include inconvenience, cost, available space for separation and often a lack of a site champion to promote diversion. Appendix A presents a list of challenges and limitations that hinder diversion in both the multi-family and ICI sectors.

IC&I Sector

In the RDN, the IC&I sector is fully serviced by private waste haulers. Figure 4 provides an overview of the labour force in the Regional District by category with Retail Trade, Construction, and Health Care and Social Assistance being the top ranked employers in the Region.

In large part due to a successful Construction and Demolition (C&D) Waste Diversion Strategy, IC&I waste disposal in the RDN is largely generated from small and large businesses, industry, grocery stores, restaurants, multi-family residences and schools. Further discussion on the C&D Waste Diversion Strategy is not included in this discussion and will be presented to the RSWAC in a separate report.

Figure 4: Regional Distribution of Labour by Categories in Parksville and Nanaimo



Based on 2006 Stats Canada data for Parksville and Nanaimo

Commercial Food Waste Diversion Strategy

In 2004, the RDN waste composition study found that food waste and compostable paper comprised from the IC&I waste sector made up 21.6% of the waste disposed at the Regional Landfill. Following the opening of the International Composting Corporation (now Nanaimo Organic Waste) in June 2005, the RDN banned commercial food waste at the region's solid waste facilities. Commercial food waste includes raw and cooked food and other compostable organic material from commercial and institutional premises.

Extensive consultation preceded the commercial food waste and organics disposal ban with follow-up site visits to over 200 businesses and organizations. Under Bylaw 1531, landfill disposal of compostable organic waste from a commercial or institutional facility is not permitted. It was expected that this prohibition on organic waste being received at the landfill and transfer station would be the catalyst for commercial and institutional facilities to have food waste diversion systems in place.

Figure 5 shows the results from the 2012 RDN waste composition study for the IC&I sector. The compostable organics category (estimated at 26.2% of the total waste disposed at the Regional Landfill disposed) consisted of food scraps (28%), yard waste (7%) and compostable paper products (6%).

The compostable organics from the IC&I sector made up 26.2% of the waste stream in 2012 as compared to 21.6% in 2004. However, with a changing waste stream, the efficacy of the Commercial Food Waste Diversion Strategy is better gauged by considering the change in per capita tonnage of compostable organics in the waste stream and this amount dropped from 95.5 kg/capita to 91.2

kg/capita between 2004 and 2012 respectively. These findings show that the current strategy has only realized modest success and there is significant opportunity for additional organics diversion in the IC&I sector. Furthermore, there is still a significant diversion opportunity with paper and plastic components.

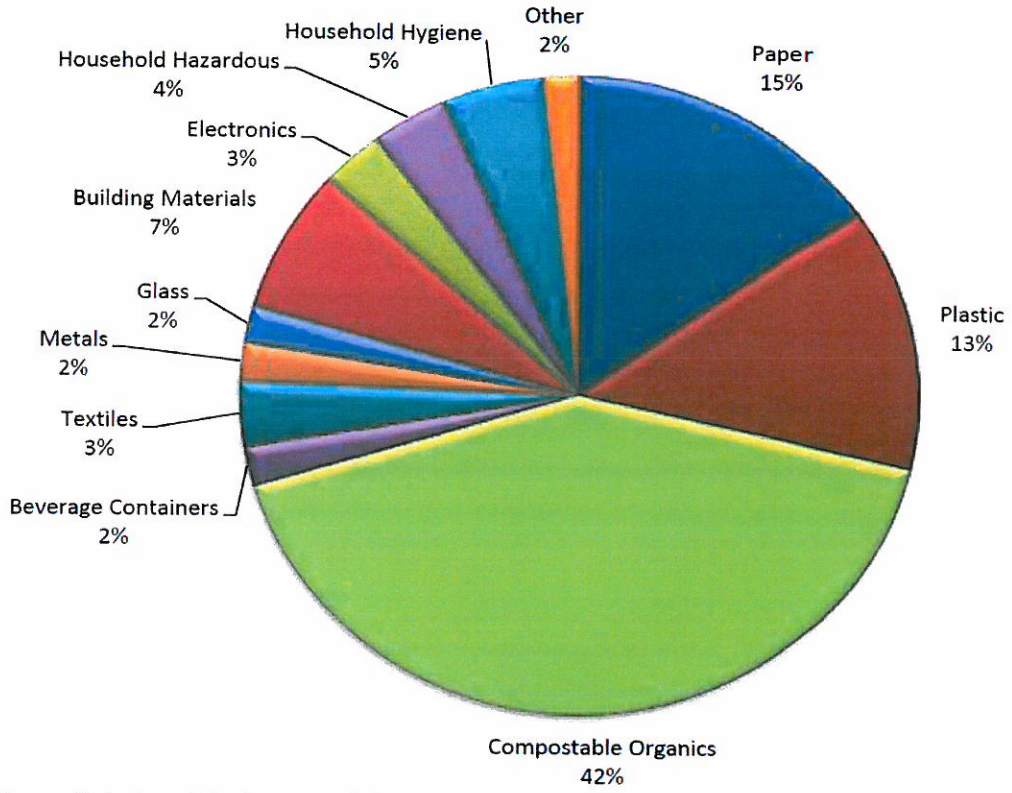


Figure 5: Industrial, Commercial, Institutional Waste Composition in the RDN (2012)

IMPACT ON DIVERSION

Based on the 2012 RDN Waste Composition Study, four material categories characterize approximately 77% of the IC&I waste stream: compostable organics, paper, plastic and building materials as shown in Figure 5. That means that there is an estimated 36% of waste disposed at the Regional Landfill that consists of compostable organics and paper from the IC&I sector that are banned from landfill disposal.

It is clear from the 2012 RDN Waste Composition Study that a large component of compostable organics is still not being diverted from landfill, with only a modest reduction in per capita disposal (from 95.5 kg/capita in 2004 to 91.2 kg/capita in 2012) (refer to Appendix B).

Table 2 shows IC&I weights of compostable organics diverted from landfill disposal from 2007-2015. There are a number of factors affecting these numbers however it is important to recognize that the amount of commercial organics diverted within the RDN has not increased despite the current Commercial Organics ban.

Table 2: IC&I Sector Organics Diversion in the RDN

	2007	2008	2009	2010	2011	2012	2013	2014	2015
Total Weight (tn)	3,408	4,103	3,550	3,187	3,371	3,711	3,566	3,332	3,380

Enforcement

As mentioned previously in this report, the primary mechanism to motivate the diversion of recyclables and organics is by virtue of bans at the landfill and transfer station (refer to Appendix C for full list of existing landfill bans in the RDN). The RDN has encouraged voluntary compliance and has reserved the application of fines to the most egregious cases.

Since 2010, fines have been imposed on 65 separate occasions for recyclables in mixed solid waste. These have primarily been for metal and cardboard being in the waste. Few fines have been issued for commercial organic waste and possibly no fines imposed for household plastic containers. Details of the occurrences as well as pre-2005 data is available in the RDN archives but were un-researched at the time of this report. Anecdotally, landfill staff report that there are seldom significant amounts of banned materials in individual loads, offences on food waste and recyclables in mixed solid waste are applied only when there is contamination of 10% or more in the load.

There are a number of challenges with the current enforcement strategy as follows:

1. No Requirement for Source Separation – Although the landfill ban was intended to drive source separation, there is no actual requirement for the waste producer to make the effort.
2. Enforcement Transferred to the Waste Hauler – Fines are applied to the waste hauler depositing banned material. In theory, the cost can be transferred back to the waste producer but in practice this does not happen (i.e. fear of alienating customers, unable to pinpoint source of contamination due to mixing of loads).
3. Encourages Waste Export – The relative value of the Canadian and US dollar is currently a barrier to waste export to the US. As well, there are also private Canadian for-profit landfills. The imposition of fines on haulers does further increase the potential of waste export to locations that do not impose such restrictions. Should this happen, no waste diversion would likely be achieved.
4. Bans Apply to Different Sectors - Food waste is banned from the commercial sector while plastic containers are banned from households. Waste from different sectors is often collected in the same truck making enforcement in these cases virtually impossible.

IC&I Diversion Strategy

Table 3 looks at two scenarios for increasing diversion in the IC&I and Multi-family sectors.

Scenario 1: Increased Education/Enforcement at Regional Facilities

The RDN continues to work within the current regulatory authorities under the existing SWMP to improve IC&I organics and recycling diversion. This may include:

- Increase education and awareness
- Increase enforcement of current landfill bans at the landfill and transfer station

It is expected that the Multi-Family and IC&I sector would experience a marginal increase in diversion though additional outreach and that diversion would increase commensurate with increased enforcement of the landfill bans and issuing of fines. This approach runs the risk of increasing waste leakage where private haulers opt to haul waste out of district in order to bypass landfill bans. It is estimated that such an approach could remove as much as 20% of the recyclable materials and organics that still remain in the waste stream.

Scenario 2: Additional Regulatory Authority

Through the SWMP the RDN requests additional authorities to further drive diversion of recycling and organics within the IC&I and Multi-Family sectors. This could include:

- Mandatory Waste Collection
- Waste Hauler Franchising
- Waste Haulers as Agents
- Waste Source Control

This scenario provides for the introduction of economic and regulatory tools that encourage diversion. It is estimated that this approach could remove as much as 50-70% of the recyclable material and organics that remain in the waste stream.

Table 3: IC&I Sector Diversion Potential in the RDN

	2012		Scenario 1			Scenario 2					
			If 20% is diverted			If 50% is diverted			If 70% is diverted		
Target Material	Waste Stream %	Amount in Waste Stream (MT)	Amount in Waste Stream (MT)	Waste Stream %	Diversion Potential of Total Waste Stream	Amount in Waste Stream (MT)	Waste Stream %	Diversion Potential of Total Waste Stream	Amount in Waste Stream (MT)	Waste Stream %	Diversion Potential of Total Waste Stream
Paper	9.5	5,049	4039	7.6%	0.6%	2525	4.7%	1.5%	1515	2.8%	2.1%
Plastic	8.4	4,432	3546	6.6%	0.5%	2216	4.2%	1.3%	1330	2.5%	1.9%
Metal	4.8	2,864	2291	4.3%	0.3%	1432	2.7%	0.9%	859	1.6%	1.2%
Compostable Organics	26.2	13,879	11103	20.8%	1.7%	6940	13.0%	4.2%	4164	7.8%	5.8%
Total	48.9	26,224	20,979	39.3%	**3.1%**	13,112	24.6%	**7.9%**	7,867	14.8%	**11.0%**

Note: Scenario 1: 20% increase in diversion of available materials.
Scenario 2: 50% to 70% increase in diversion of available materials.
All estimates based on 2012 total waste generation of approximately 167,000 MT; 53, 319 MT disposed and 68% overall diversion

FINANCIAL IMPLICATIONS

Scenario 1 Increased Education/Enforcement at Regional Facilities	1 new FTE or equivalent at $80,000/year including benefits to oversee the new IC&I diversion strategy. $20,000/year in administrative costs to run the program. $100,000/year for increased enforcement
Scenario 2 Additional Regulatory Authority	No financial estimate is available at this time as cost projections would be dependent on the type of additional regulatory authority which was granted.

REGULATORY AUTHORITY

If Scenario 2 is the preferred option additional regulatory authorities would need to be requested under the new SWMP.

SUMMARY/CONCLUSIONS

The IC&I and Multi-Family sectors waste streams contain significant amounts of recyclable material and compostable organics. This is despite landfill bans being in place for various recyclable materials and commercial organics starting in 1991. These sectors provide the greatest opportunity for further waste diversion in the RDN.

The RDN has done outreach to promote diversion in these sectors and has largely relied on voluntary compliance with the landfill bans and applying fines in the most egregious cases. It is believed that an increased effort in both outreach and enforcement consistent with the current strategies can achieve a moderate increase of about 3% in overall waste diversion. It is also believed that the provision of authorities available through the SWMP can provide additional regulatory and economic tools to drive very high levels of diversion up to a 10% increase in overall waste.

Report Writer

Manager Concurrence

General Manager Concurrence

A/CAO Concurrence

Appendix A: Common Challenges in the IC&I Sector Identified for Waste Diversion

Challenge as identified by: *Waste Haulers*	Limitation to Diversion
Single stream/co-mingled recycling capacity is limited. ICI businesses do not have access to the co-mingled materials recycling facility (MRF).	Haulers can only offer source separated recycling opportunities to their customers – usually cardboard or mixed paper. The material limitation also limits the amounts of materials that can be diverted
Cost to establish and maintain a recycling program is more than the cost for a single mixed waste stream service. Not all haulers for Multi-Family are involved in the PPP stewardship agency (MMBC) so not same level of service available throughout the region.	Customers expect recycling services to be provided for free or at a considerably reduced rate. Some even expect to be paid for their recycling efforts. If these expectations are not met then disposal alternatives are more fiscally attractive for the waste generator.
Not enough space available for the storage of separated materials (i.e. paper)	The amount and type of recycling that can occur onsite is limited by the space available for the collection and storage infrastructure.
Need to have a single point of contact on the client side who is also a "waste champion"	Without someone being responsible for the recycling programs on the client side, recyclable materials such as cardboard, paper, etc. still end up in the waste stream.
Inability of haulers to pinpoint contamination in a load due to multiple stops on each route to fill up the truck	The lack of ability to track where contamination comes from in the load makes it difficult to impose penalties or even offer feedback to those waste generators who are not participating properly in the programs.
Each customer has very different and unique needs	The need to customize programs for each client creates difficulties in offering efficient programs which in turn limits the haulers' ability to collect and handle more types and volumes of materials for diversion.

Challenge as identified by: ***Multi-Tenant building managers including shopping centres***	Limitation to Diversion
Lack of clear understanding of roles, responsibilities and fund allocations for common infrastructure	With an unclear assignment of roles, responsibilities and accountability, programs tend not to materialize or function well in multi-tenant buildings. Similarly, the infrastructure used for a common good (such as waste rooms) tends not to receive the funding or priority it requires for maintenance and improvement.
High staff turnover rates for those most likely to be on the front lines of waste management tasks means a loss of program continuity	Lack of training and/or standardized programs makes separating waste seem difficult and may lead to increased contamination rates and decrease in participation in recycling programs.
Lack of overarching regulations to incentivize/force generator responsibility for waste and participation in programs	Independent tenants of a building may have their own waste diversion policies and targets but their ability to meet them may be hindered if the waste infrastructure is provided on a whole building basis and does not meet their needs.

Challenge as identified by: ***Educational Institutions***	**Limitation to Diversion**
The cost of "extra service" waste management programs is borne by the individual schools and facilities	Schools needing to make budget cuts may look to downsizing or eliminating waste diversion programs as a way to save money.
Lack of available infrastructure to recycle comingled recyclables and organics	Being limited to material specific recycling opportunities (i.e. paper) because of a lack of processing infrastructure in the region has limited the programs the schools can offer for waste diversion activities.

Appendix B: RDN Waste Composition Comparison (2004 to 2012)

Material Category	Residential				ICI				Self-Haul				Waste Stream Summary			
	2004 Waste Stream %	2004 Waste Disposed (MT)	2012 Waste Stream %	2012 Waste Disposed (MT)	2004 Waste Stream %	2004 Waste Disposed (MT)	2012 Waste Stream %	2012 Waste Disposed (MT)	2004 Waste Stream %	2004 Waste Disposed (MT)	2012 Waste Stream %	2012 Waste Disposed (MT)	2004 Waste Stream %	2004 Waste Disposed (MT)	2012 Waste Stream %	2012 Waste Disposed (MT)
Paper	1.6%	931	1.2%	637	6.4%	3,793	9.5%	5,049	1.6%	970	1.7%	969	9.5%	5,694	12.5%	6,656
Plastic	2.7%	1,598	2.5%	1,313	9.2%	5,496	8.4%	4,432	1.8%	1,069	2.9%	1,599	13.7%	8,163	13.8%	7,344
Compostable Organics	16.5%	9,834	6.4%	3,301	21.6%	12,898	26.2%	13,879	2.1%	1,264	2.6%	1,453	40.2%	23,996	35.2%	18,633
Beverage Containers	0.3%	152	0.2%	98	0.3%	205	1.3%	670	0.3%	203	0.2%	86	0.9%	560	1.6%	855
Textiles	1.2%	689	1.1%	576	2.5%	1,476	2.0%	1,080	1.7%	1,029	2.5%	1,380	5.3%	3,194	5.6%	3,037
Metals	0.9%	544	0.5%	260	4.8%	2,864	1.2%	656	0.9%	564	0.7%	375	6.7%	3,972	2.4%	1,291
Glass	0.3%	203	0.5%	275	1.0%	621	1.2%	611	0.4%	224	0.9%	500	1.8%	1,048	2.6%	1,386
Building Materials	0.9%	525	0.7%	347	5.4%	3,207	4.6%	2,438	4.3%	2,596	5.3%	2,963	10.6%	6,328	10.6%	5,748
Electronics	0.0%	14	0.3%	144	0.6%	333	1.9%	997	0.1%	36	0.3%	182	0.6%	383	2.5%	1,323
Household Hazardous	0.1%	83	0.3%	135	0.3%	168	2.3%	1,220	0.6%	334	0.3%	162	1.0%	585	2.9%	1,517
Household Hygiene	1.6%	961	3.5%	1,829	0.6%	351	3.1%	1,633	0.1%	35	0.8%	470	2.3%	1,347	7.4%	3,932
Other	0.3%	133	0.3%	168	3.8%	2,241	1.1%	572	2.7%	2,080	1.4%	859	6.8%	4,454	2.8%	1,599
Totals	26%	15,666	17%	9,083	56%	33,653	63%	33,239	17%	10,405	20%	10,998	100%	59,724	100%	53,319

Appendix C: Landfill Bans

Schedule 'C'

"Prohibited Waste"

The following gaseous liquids and municipal solid wastes are not acceptable for disposal at a Solid Waste Management Facility and include, but are not limited to:

1. At the Regional Landfill:
   - (i) Biomedical Waste;
   - (ii) Commercial Organic Waste;
   - (iii) Concrete or asphalt pieces, or rocks greater than $0.03m^3$ or 70 kg;
   - (iv) Corrugated Cardboard;
   - (v) Drums;
   - (vi) Garden Waste;
   - (vii) Gypsum;
   - (viii) Hazardous Waste;
   - (ix) Household Plastic Containers;
   - (x) Ignitable Wastes;
   - (xi) Land Clearing Waste;
   - (xii) Liquids, except as permitted herein;
   - (xiii) Metal;
   - (xiv) Motor vehicle bodies and farm implements;
   - (xv) Municipal Solid Waste that is on fire or smouldering;
   - (xvi) Radioactive Waste;
   - (xvii) Reactive Wastes;
   - (xviii) Recyclable Paper;
   - (xix) Stewardship Materials:
   - (xx) Special waste, as defined in the *Special Waste Regulation* (British Columbia) except asbestos ;

(xxi) Tires;

(xxii) Wood Waste

2. At Church Road Transfer Station: (i)

Biomedical Waste;

(ii) Commercial Organic Waste;

(iii) Concrete or asphalt pieces, or rocks greater than $0.03m^3$ or 70 kg;

(iv) Controlled Waste;

(v) Corrugated Cardboard;

(vi) Garden Waste;

(vii) Gypsum;

(viii) Hazardous Waste;

(ix) Household Plastic Containers; (x)

Ignitable Wastes;

(xi) Land Clearing Waste;

(xii) Liquids, except as permitted herein;

(xiii) Metal;

(xiv) Motor vehicle bodies and farm implements;

(xv) Municipal Solid Waste that is on fire or smouldering;

(xvi) Radioactive Waste;

(xvii) Reactive Wastes;

(xviii) Recyclable Paper;

(xix) Special waste, as defined in the *Special Waste Regulation* (British Columbia) except asbestos;

(xx) Stewardship Materials;

(xxi) Tires;

(xxii) Wood Waste.

REGIONAL DISTRICT OF NANAIMO

STAFF REPORT

TO:	Larry Gardner Manager, Solid Waste	**DATE:**	March 9, 2016
		MEETING:	RSWAC, March 17, 2016
FROM:	Sharon Horsburgh Senior Solid Waste Planner, Solid Waste	**FILE:**	5365-00

SUBJECT: Construction and Demolition Waste – Current State & Future Options

RECOMMENDATION

That the Regional Solid Waste Advisory Committee (RSWAC) receives this report for information.

PURPOSE

To provide background on the current state of the Construction and Demolition (CD) Waste and future options and to estimate additional waste diversion potential from this sector of the waste stream.

BACKGROUND

In the RDN there are a variety of CD waste disposal options available at the Regional Landfill and Church Road Transfer Station (CRTS) as well as at numerous private waste facilities located throughout the region. Please see map in Appendix 1 that provides an overview of waste and recycling facilities located in the RDN.

CD material includes waste from renovation projects that generate a wide range of materials, approximately between 75%-90% is reusable or recyclable. Building materials as referred to in the 2012 Waste Composition study include concrete, asphalt, wood, gypsum wallboard, metal, cardboard, asphalt roofing and plastic. As part of the RDN's Zero Waste Plan, the Construction/Demolition Waste Strategy was approved by the RDN Board in 2007. A copy of the RDN's CD Diversion Strategy is attached as Appendix 2.

Key initiatives in the CD strategy include:

- In January 2008, the RDN banned loads of wood delivered in roll-off bins from RDN Solid Waste Facilities;
- Increased the tipping fee for clean wood waste at RDN Solid Waste Facilities to create incentives to divert this material to licensed recycling facilities; and
- Wood waste received at the Regional Landfill and CRTS is shipped to third party recycling facilities or processed for on-site beneficial use at the Regional Landfill.

This strategy has attracted private sector investment and now the majority of the CD waste is managed at private sector facilities in the RDN and clean wood waste is no longer buried as garbage in the Regional Landfill.

CONSTRUCTION/DEMOLITION WASTE STRATEGY

The RDN promotes diversion of CD materials through disposal bans on cardboard, gypsum (drywall), metal and wood, and high tipping fees on loads of CD waste arriving at the regional facilities. (Roll-off containers of CD materials cannot be delivered to the Regional Landfill or CRTS).

Private sector recycling facilities manage the majority of CD waste in the Region and it is processed as follows:

- Wood waste is chipped and used as hog fuel (fuel substitute) at pulp mills on Vancouver Island;
- Gypsum is recycled into new gypsum wallboard;
- Metal is recycled;
- Concrete and asphalt are recycled; and
- Asphalt shingles are recycled on a limited basis.

There is also significant reuse of building materials and fixtures through salvage operations and retail stores such as Demxx and Habitat for Humanity's ReStore.

In addition to the wood waste ban that was introduced in 2008, the Province cancelled the burn permit for wood waste and the land clearing waste burn site on Weigles Road in Nanaimo. With limited options for disposal, the private sector wood waste drop-off sites are essential to the RDN's waste diversion goals.

LAND CLEARING WASTE MANAGEMENT

Land clearing (LC) waste refers to trees and stumps removed when land is cleared for development. Because of the large and bulky nature of this material, it is difficult to manage at municipal solid waste landfills and composting facilities. There are three private operations in the RDN that receive and process LC waste: Pacific Coast Waste Management, DBL Disposal Services Ltd., and Earth Bank Resource Systems.

In areas of the RDN where LC waste can be disposed of through on-site burning, all fires must be managed in accordance with the BC Open Burning Smoke Control Regulation and the local fire authority.

ALTERNATIVE OPTIONS FOR CD WASTE IN THE REGION

In 2006, the RDN introduced the Waste Stream Management Licensing Bylaw that was part of the CD Waste Management Strategy. There are now several facilities in the RDN dedicated to accepting CD materials and source-separating loads for recycling. Table 1 provides a list of these facilities.

Table 1 - Material & Facility Name

Material	Facility Name
Asphalt	Haylock Bros. Hub City Paving
Asphalt Shingles	DBL Disposal Services Ltd. Pacific Coast Waste Management
Concrete	DBL Disposal Services Ltd. Hub City Paving Haylock Bros. Mayco Mix Pacific Coast Waste Management Parksville Heavy Equipment
Metal	ABC Recycling Alpine Annex Auto Bull Dog Auto Parts Carl's Metal Salvage DBL Disposal Services Ltd. Nanaimo Recycling Exchange Schnitzer Steel
Land Clearing (LC)	DBL Disposal Services Ltd. Earthbank Resource Systems Pacific Coast Waste Management
Wood (lumber)	Alpine Coast Environmental Services DBL Disposal Services Ltd. Gabriola Island Recycling Organization Nanaimo Recycling Exchange Pacific Coast Waste Management

FUTURE DIVERSION POTENTIAL

In 2004, the RDN waste composition study found that building materials, essentially CD waste, was 12% of the total waste stream. In 2012, the proportion of CD waste has remained virtually the same at 11%. The respective tonnage of CD is approximately 2,500 tonnes from the commercial sector and 3,000 tonnes from the self-haulers.

Table 2 outlines the amount of CD materials disposed of by all sectors and provides detailed data of the types of building materials by category and the volumes received from the residential, commercial and self-haul sectors.

Table2: Detailed Data by Waste Category from 2012 Waste Composition Study

Material Category	Residential		Commercial		Self-Haul		Totals	
	Waste Stream Percentage	Estimated Tonnes Disposed	Waste Stream Percentage	Estimated Tonnes Disposed	Waste Stream Percentage	Estimated Tonnes Disposed	Waste Stream Percentage	Estimated Tonnes Disposed
Building Materials	**0.7%**	**347**	**4.6%**	**2,438**	**5.6%**	**2,963**	**10.8%**	**5,748**
Clean Wood	0.3%	145	1.0%	509	0.8%	403	2.0%	1,057
Treated or Painted Wood	0.2%	88	1.4%	759	0.0%	6	1.6%	853
Gypsum/drywall/plaster	0.0%	0	0.3%	186	1.2%	652	1.6%	838
Masonry/bricks	0.0%	0	0.2%	91	0.5%	241	0.6%	332
Asphalt products	0.0%	0	0.1%	52	0.0%	0	0.1%	52
Carpet & Underlay	0.0%	0	0.8%	437	1.9%	1,004	2.7%	1,441
Flooring (non-wood)	0.0%	0	0.0%	0	0.1%	54	0.1%	54
Other (fiberglass insulation)	0.2%	114	0.8%	404	1.1%	604	2.1%	1,122

Depending on the quality of the building materials listed in Table 2, most could have been recycled locally and this would include: gypsum, brick and asphalt, clean wood waste, concrete, and asphalt shingles. Coated/painted wood and asbestos materials (e.g. pre-1990 drywall) have limited potential for recycling. For an overview on the challenges of managing treated or painted wood in the waste stream please see Appendix 3 which is a copy of material presented at the 2015 Coast Waste Management Association jointly by Tauseef Waraich, Cowichan Valley Regional District and Dan Lazaro, Coast Environmental Services.

At the current time, there are no viable markets on Vancouver Island for carpet, flooring and insulation. It is estimated that of the approximately 5,700 tonnes of the CD materials in the waste stream, about 2,300 tonnes may be available for recycling.

The RDN is now well served by private sector facilities and this has contributed to the RDN's high diversion. Table 3 highlights that building materials in the waste stream has decreased overall from 46.8kg's per capita to 37.8kg's per capita between 2004 and 2012 respectively.

Table 3: Comparison of Kg's per capita results from 2004 and 2012 RDN waste composition study

Material Category	Residential				ICI				Self-Haul				Waste Stream Summary			
	2004 Waste Stream %	2004 KG/Cap	2012 Waste Stream %	2012 KG/Cap	2004 Waste Stream %	2004 KG/Cap	2012 Waste Stream %	2012 KG/Cap	2004 Waste Stream %	2004 KG/Cap	2012 Waste Stream %	2012 KG/Cap	2004 Waste Stream %	2004 KG/Cap	2012 Waste Stream %	2012 KG/Cap
Building Materials	0.9%	3.9	0.7%	2.3	5.4%	23.7	4.6%	16.0	4.3%	19.2	5.3%	19.5	**10.6%**	**46.8**	**10.6%**	**37.8**

The largest decrease was from the IC&I sector that represented 7% of the waste stream in 2012 as compared to 16% in 2004. Diverting roll off containers from RDN waste facilities has contributed to a significant decrease in tonnage from the IC&I sector.

However, the amount of materials independently disposed or recycled at out-of-region facilities is unknown. Increased regulatory authorities could restrict movement of waste and recyclables outside our region. Waste migration presents challenges and opportunities. Waste sent for disposal at public and private facilities within our region is subject to our Zero waste Plan. Waste that migrates from our of our region is not counted in our waste composition study. The material that migrates creates lost economic opportunities for the private sector operators in our region and the RDN facilities lose revenue. Additional regulatory authorities could potentially create economic incentives to keep material in our region that helps to create local economic opportunities.

In 2015, RDN staff were made aware of two demolition projects where the waste migrated to other jurisdictions and staff estimate that these projects would have generated roughly 1,000 tonnes. It was reported that this CD material was landfilled out of region. Based on local industry reports approximately; 70% of the material was wood, metal, gypsum, and aggregate which could have been recycled locally. The practice of exporting demolition waste out of region is not uncommon. It is estimated that a typical 1970's two storey basement home would yield roughly 25-30 tonnes and commercial building on average between 400 – 600 tonnes. The residual waste from projects demolished locally could see the residual being brought to the Regional Landfill. Increased regulatory authorities could ensure this type of waste is recycled instead of landfilled. RDN waste diversion calculations would not change as this material is currently not counted.

POTENTIAL UPDATES TO REVISE THE CD STRATEGY

The 2012 Waste Composition results show there are still opportunities to divert wastes in the building materials category to increase diversion. Of this material, it is assumed that 2,300 tonnes is recyclable According to companies specializing in demolition between 70% - 90% is potentially divertible.

To create the business environment to encourage diversion to follow is a combination of policy tools their estimated diversion potential. The policy tools range from increased education, enhanced regulatory measures and economic incentives:

TYPE OF MEASURE	POLICY TOOL	Diversion Potential of Remaining CD	Diversion Potential of Total Waste Stream
Education & Communication	• Educate development community about Demolition and Land Clearing (DLC) recycling at construction/demolition sites. • Commence information campaign to make CD waste generators and haulers aware of alternate facilities. • Encourage the role of building supply retailers and producers in the collection of DLC material for recycling. • Provide technical assistance to municipalities that introduced demolition recycling requirements, based on a sample municipal bylaw.	20%	1%
Enhanced Regulation Within Existing Authorities	• Work with municipalities to develop a process to require DLC recycling at construction/demolition sites. RDN & municipalities to introduce policies to manage waste through building and demolition permits to manage waste and recycling from the construction and demolition industry. • Review Demolition permit requirements in the Region and work with those that do not have any permitting processes for requiring waste management plans as a condition of such permits.	40%	2%
Additional Regulatory Authorities	• Expand RDN authorities for economic incentives or regulatory instruments to further promote waste diversion (e.g. source separation, flow management, licensing of haulers).	90%	4%

FINANCIAL IMPLICATIONS

Increased Education & Communication	Enhanced education and communication would be an estimated cost of $20,000.
Enhanced Regulation Within Existing Authorities	Enhanced regulation would be carried out in conjunction with increased education with an estimated cost of : $20,000 Education $20,000 Regulation Total: $40.000
Additional Regulatory Authority	No financial estimate is available at this time as cost projections would be dependent on the type of additional regulatory authority which was granted.

SUMMARY/CONCLUSIONS

The policies and programs included in the RDN's Construction and Demolition Strategy has contributed significantly to the region's 68% diversion rate. The CD waste stream makes up approximately 11% of the overall waste stream, however, due to contaminants in the material (e.g. asbestos, lead) not all of the CD is waste recyclable. It is estimated that with increasing education and communications we could potentially expect 20% diversion of the remaining CD waste representing 1% of the overall waste stream. It is estimated with increased regulation within existing authorities there is the potential to see a 40% increase in the amount of CD being recycled or 2% of the overall waste stream. If additional regulatory authorities are introduced between 70-90% of CD could potentially be diverted and this represents 4% of the over-all waste stream.

The amount of materials independently disposed or recycled at out-of-region facilities is unknown. Increased regulatory authorities could restrict movement of waste and recyclables outside our region. Waste being exported is not counted in our waste composition study. RDN staff is aware of two such recent projects which staff estimate would have generated around 1,000 tonnes which was landfilled.

The landfill bans have created feedstock for local recycling businesses and this has been reinforced through our material bans and applying fines to heavily contaminated loads. This regulatory framework has promoted diversion of CD waste. Measures designed to increase diversion that range from education to additional regulatory authorities and economic tools would help to prevent waste migrating out of our region.

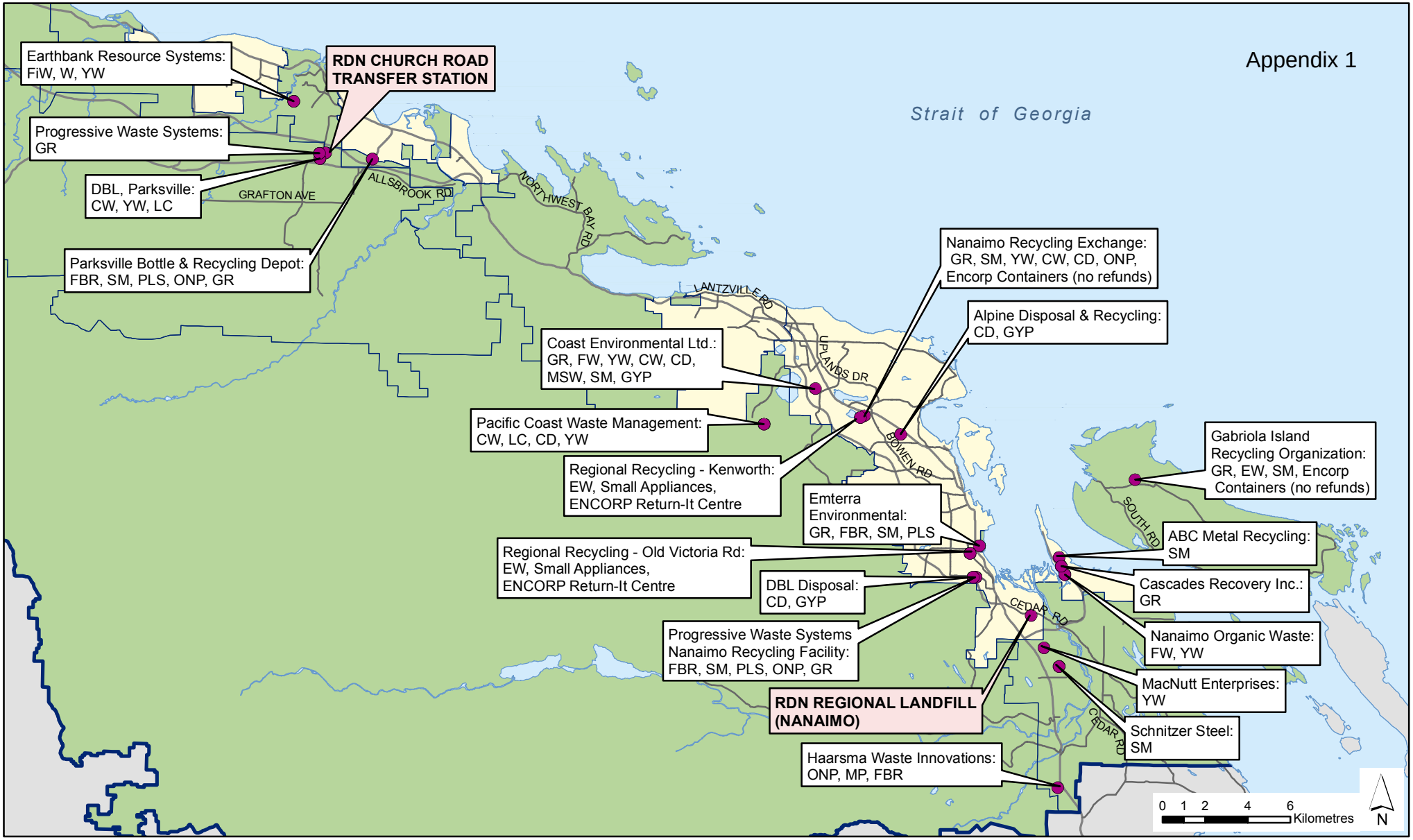
Report Writer

Manager Concurrence

General Manager Concurrence

CAO Concurrence

Appendix 1



REGIONAL DISTRICT OF NANAIMO

RDN Solid Waste & Recycling Facilities

Legend

Recycling Facility | Highway | Electoral Area | Municipality | RDN Boundary

Materials

General Recycling (Blue Box Materials, Re-used Items)	GR	Scrap Metal	SM	Construction Demolition	CD	Gypsum	GYP
News Print	ONP	Fibre	FBR	Food Waste	FW	Biosolids	BS
Mixed Paper	MP	Land Clearing	LC	Yard Waste	YW	E Waste	EW
Plastics	PLS	Clean Wood	CW	Asphalt Shingles	ASHG	Fish Waste	FW
		Municipal Solid Waste	MSW				

Mar. 2016

Mapping the Way to Zero Waste

Construction/Demolition Waste Diversion Strategy

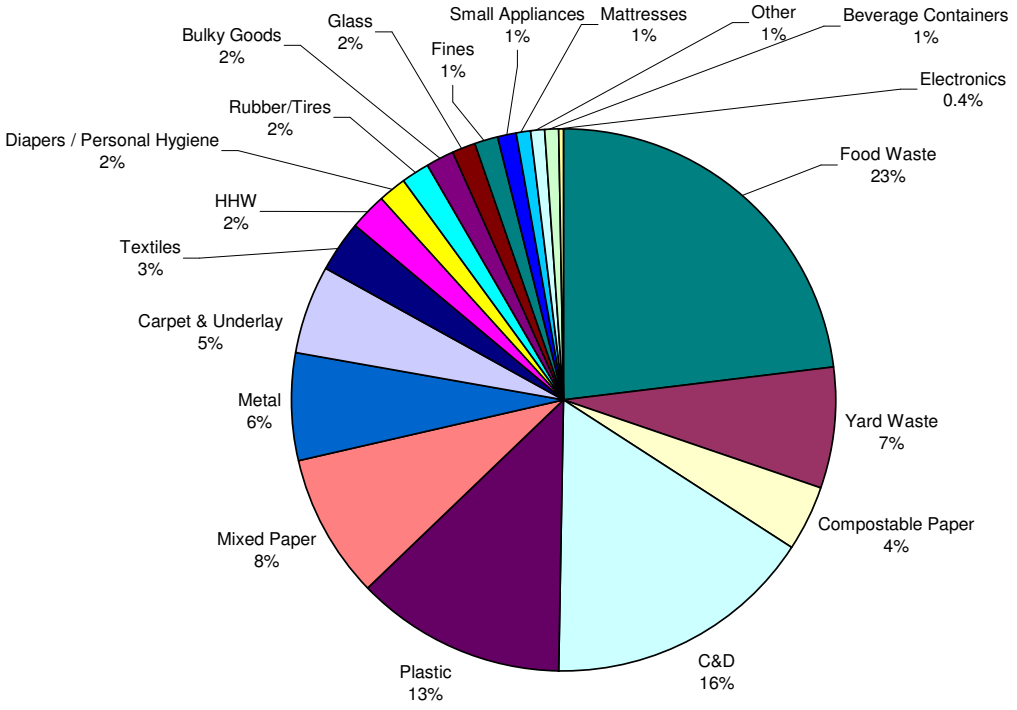
Why Divert Construction/Demolition Waste From Disposal?

It's in the Plan!

When we reduce the amount of waste that goes into the landfill or other disposal sites, we save resources, reduce costs and minimize our footprint on the environment. That's why the RDN adopted the Zero Waste diversion target in 2002 as its long-term goal. Zero Waste builds on the significant successes of the earlier 3Rs Plan (Reduce, Reuse, Recycle), under which, by 2003, we were diverting 57 percent of our solid waste from the landfill. That was more than the 50 percent target set in 1989 by the provincial environment ministry for all regional districts, but it's still too much. The updated Solid Waste Management Plan (SWMP) approved by the RDN Board in 2004 aims to increase this diversion rate to 75 percent by 2010 by diverting additional materials away from landfill. Construction/Demolition Waste (C/D) diversion is an important element of the RDN Zero Waste plan.

C/D is the Second Largest Component of Solid Waste

The following chart shows that C/D comprises 16% of all waste landfilled in the RDN, and next to compostable organics, C/D is the largest component of landfilled waste in the RDN.



C/D Diversion Leads the Way to Zero Waste

In 2005, the RDN Board approved an organics diversion strategy that, when fully implemented, should divert an additional 15% of the overall waste stream from landfill. That leaves C/D waste as the most significant portion of the overall waste stream in the RDN. In 2006, 11,000 tonnes of C/D was landfilled: about 8,000 tonnes of wood waste and 3,000 tonnes of asphalt shingles. The projected RDN diversion rate of 70% after organics diversion is fully implemented would increase to up to 75% by diverting C/D from disposal.

Economic and Infrastructure Development

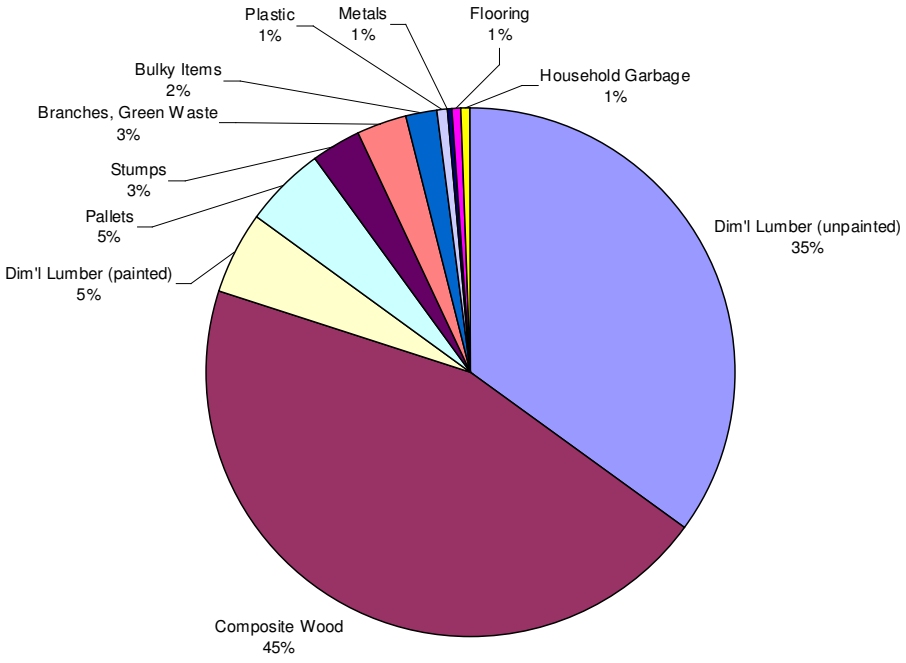
The vision of turning waste into feedstock for a new and beneficial product that creates wealth from waste is a supporting theme of the RDN Zero Waste Plan. That is why the RDN adopted the Waste Stream Management License (WSML) bylaw which not only regulates recycling and waste management facilities but also creates economic activity and jobs.

Diverting C/D to facilities licensed under WSML provides the feedstock to build and maintain sustainable private waste management infrastructure and correctly shifts the financial and physical responsibility for waste away from the public facilities to the generators and receivers of the waste.

What is Construction/Demolition Waste?

Construction/demolition waste (C/D), is wood and mixed waste from demolition and construction activities. It can contain many different types of materials including clean, treated and painted wood waste, plastics and vinyl, carpet, brick and rubble, glass, metal, asphalt roofing and any other material that may be found in construction and demolition.

In terms of C/D received at RDN solid waste facilities, the chart below shows that it is mainly wood waste. Wood waste can be used for a number of other purposes from providing an alternative fuel for pulp mill boilers to a bulking agent for composting and soil manufacture.



The Current Situation for Managing C/D

There are currently two facilities in the RDN that can manage the wood waste component of C/D, one in School District 69, near the Church Road Transfer Station and one at Duke Point in Nanaimo. Two additional facilities under development in Nanaimo will be able to manage C/D in the near future. All of the current and planned facilities in the RDN are recycling wood waste into boiler fuel for heat generation in pulp mills. There is a facility in the Cowichan Valley Regional District that is recycling asphalt shingles into a material that can be used as a supplement in traditional asphalt production.

Clean wood waste is also accepted at the Regional Landfill and is ground, at considerable expense to the RDN, and mixed with soil for landfill operations. The wood waste consumes limited space available at the landfill and the grinding presents safety and liability considerations due to the large numbers of commercial and residential customers in relatively close proximity to the grinding operation. There is a need for some ground wood waste at the landfill, however the supply greatly exceeds the demand.

As the prices of natural gas and hog fuel increase, pulp and paper mills are increasingly interested in C/D as fuel. The market for C/D is expected to strengthen as lumber companies close and consolidate sawmills across BC, eliminating the traditional sources of hog fuel. The price of natural gas is not expected to drop for a sustained period, further strengthening the C/D market over time.

Who Would Divert C/D?

C/D is delivered to the landfill and transfer station from three main sources, commercial haulers hauling for the construction industry, small to medium-sized construction contractors hauling their own waste and residential self-haul customers. Approximately 63% of C/D comes from commercial haulers and 27% from miscellaneous self-haulers, including residential and commercial customers.

The commercial haulers generally deliver larger, homogenous loads of C/D. The construction contractors usually bring pick up loads of C/D while the self-haul customer usually brings a mixed load of waste and recyclables, with C/D comprising a small portion of the load.

How Will We Divert C/D?

For the purposes of developing an effective C/D diversion strategy, the individual components of the C/D waste stream must be dealt with separately. There are facilities available licensed to receive and process wood waste and asphalt roofing material. No open burning of waste is allowed in the SWMP. Most of the materials in C/D can be recycled. With licensed facilities in place, diversion of C/D from the landfill is simply a matter of banning C/D from disposal. When this occurs, the majority of C/D will be processed for recycling and other beneficial uses such as energy production.

What is the Plan?

Tipping Fees

Setting the disposal tipping fees to insure full cost recovery and encourage use of alternate facilities creates a powerful incentive to divert C/D from RDN facilities.

Disposal Bans

Banning C/D from disposal has two parts. The first is to ban large commercial loads (larger than a pick up truck) and commercial customers that haul waste in pick up trucks that are frequent users of the RDN disposal facilities and cumulatively, dispose of large quantities of C/D. The purpose of the large loads and commercial ban is to divert the largest, continuous C/D waste stream to private licensed facilities.

To allow residential customers with small loads of C/D to continue to enjoy the convenience of using the RDN facilities, C/D will continue to be received from these customers. Some of this C/D can be utilized for operational purposes at the landfill. Contracts with licensed facilities can be established to manage any C/D in excess of operational needs.

There are no facilities in the RDN licensed to recycle asphalt roofing, therefore the RDN would continue to receive asphalt roofing, keep it separated and, pending an acceptable contract price, ship it to the asphalt roofing recycling facility in the CVRD.

Next Steps and Implementation

2007

- Commence information campaign to make C/D waste generators and haulers aware of alternate facilities.
- Amend Solid Waste Facilities Bylaw 1428 to include C/D disposal bans and to adjust the tipping fees to insure full cost recovery and encourage use of alternate facilities.
- Establish contracts with licensed, private facilities to accept and process C/D received by the RDN that cannot be utilized for operational purposes at RDN facilities.
- Implement bans.

2008

- Analyze diversion resulting from strategy, adjust strategy as required.
- Analyze cost recovery for program, adjust fees as required.

Appendix 3

CWMA presentation - Protocols for managing painted wood - Dan Lazaro, Coast Environmental

C&D Woodwaste - Challenges and Opportunities for Diversion

Why use biomass?

- Sustainably harvested biomass is carbon neutral.
- One tonne of dry biomass (bdt) can displace between 1.5 and 3 barrels of oil, depending on the application, technology and process efficiency applied. (envirochem, 2004)
- Wood to electricity (large scale steam) can produce 900 kWh/bdt
- C&D Wood 7,000-8,200 btu / lb – consider as a fuel, not a waste.
- As comparison, Hog Fuel ~5,500 btu / lb

Regulatory Perspective

Provincial
- BC Energy Plan
- BC Bioenergy Strategy
- Agricultural Waste Control Regulation
- Environmental Management Act
- Waste Discharge Regulation
- Small Electrical Power Generating Facility Code of Practice
- Safety Authority - Pressure vessels and boilers

Regional and Municipal
- Waste stream management licenses
- Local air quality regulations (Metro Vancouver)

Biomass Definition in Various Regulations
- Includes industrial residue of wood that has "not been treated with glue, paint or preservative, or contain substances harmful to humans, animals or plants"

Painted wood issue

- Estimated upwards of 15,000MT available as potential biomass on Vancouver Island.
- CVRD / Coast – cost sharing for consultant to perform "burn test" analysis on clean wood vs. painted wood samples to determine if painted wood impacts on emissions.

Kiln dried post consumer woodwaste is drier (6-12% moisture) and therefor burns "hotter" than hog fuel (30-60% moisture) and could contribute to lower overall emissions at biomass facilities.

CVRD & Wood Waste – Historically

The CVRD does not have a regional landfill or incinerator. All garbage is shipped with truck, barge and rail to Rabanco Roosevelt Regional Landfill in WA.

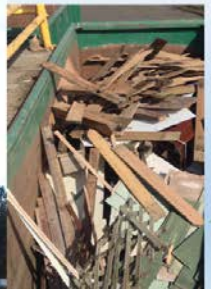
Waste Wood Diversion:

In the past, the CVRD diverted all wood waste products from waste disposal with the exception of: *treated wood, wood with lead-based paint, arborite, melamine, etc.*

Waste Wood Quantitates:

In 2014, CVRD recycling centers collected 1,500 MT of waste wood. Roughly 8,000 MT of waste wood was collected and diverted regionally (private + CVRD facilities). Similar quantities were diverted in earlier years.

CVRD & Wood Waste – Today



As a result of MoE's recent review of local paper mill permits, the CVRD and private facilities can no longer divert painted wood or composite wood products (like particle board/plywood) from landfill.

Painted Wood Waste Bin at Bings Creek Recycling Centre

CVRD & Wood Waste – Today

Wood Diversion:

Based on CVRD 2015 scale data, it is estimated that the CVRD Recycling Centres will divert 800 MT of 'clean wood', while ~700 MT of 'painted wood' will be landfilled.

The CVRD estimates that regionally 4,000 MT of painted wood waste will be landfilled this year.

CVRD – Looking for New Solutions for Painted Wood!

Potential for Code of Practice ?

Suggested screening and sorting procedures to allow partial painted wood inclusion into biomass:

1. Continue to sort out known contaminants: creosote, treated lumber, melamine, laminates, etc.
2. Sort out heavier weighted to low paint ratio wood, example: single sided painted wood, pallets (typically in the 40-60lbs range with a light paint coating).
3. Exclude low weighted to high paint ratio wood, example: <1/2 painted plywood, painted wood shingles (not enough wood weight to painted surface area), wood painted on all sides.
4. Exclude pre 1980's painted wood due to potential for lead contamination (HealthLinkBC).

EPA – Non Hazardous Secondary Material Rule

- C&D can be re-classified from a solid waste to a fuel if it can pass the "legitimacy criteria"

1) Must be managed as a valuable commodity.
2) Have a meaningful heating value.
3) Used as a fuel that recovers energy.
4) Contain contaminants at levels comparable to traditional fuels.

- Properly screened/sorted C&D wood meets all these requirements and the Construction and Demolition Recycling Association (CDRA) developed C&D wood derived product specifications for grading C&D wood for suitable fuel burn (based on 3 grades (contaminant levels) and 4 sizing categories).

REGIONAL DISTRICT OF NANAIMO

STAFF REPORT

TO:	Larry Gardner Manager, Solid Waste Services	**DATE:**	April 5, 2016
FROM:	Meghan Larson Special Projects Coordinator	**MEETING:**	RSWAC, April 14, 2016
		FILE:	5365-00
SUBJECT:	Solid Waste Management Education		

PURPOSE

This report is for information only for the Regional Solid Waste Advisory Committee (RSWAC) regarding the current Solid Waste Management Education strategy in the Regional District of Nanimo (RDN).

BACKGROUND

Both the City of Nanaimo and the Regional District of Nanaimo (RDN) undertake promotion and education related to solid waste management in a variety of formats. All Solid Waste Management programs include an education component and any new programs introduced by the RDN include an education and outreach component.

Websites

The RDN has information related to solid waste management planning, bylaws, disposal and transfer facilities, and zero waste programs on the Solid Waste and Recycling pages of the RDN's website.

A website dedicated to providing information on curbside recycling in the region was developed in partnership with the City of Nanaimo. Both organizations partner to co-host two distinct websites focusing on recycling in our region (www.recycling2016.ca) and curbside composting (www.beyondcomposting.ca). Although the CoN and RDN operate separate collection programs, there are efficiencies in having a central location to visit for locally relevant information which is the basis for establishing the co-hosted website.

Social Media

Solid waste staff routinely posts information on the RDN Facebook and Twitter feeds. These media are used to promote solid waste related events, newsletters and reminders of program changes. In November 2014, a new curbside collection reminder app and web feature was launched to provide an added level of service to RDN curbside customers. In addition to collection day reminders, the app is a portal for information on materials accepted at the curb. The app is available by keying in "RDN Curbside" through the Apple App Store, or for Android devices through Google Play.

Utility billing insert (2014) & Recycling Brochure (2015)

An information insert outlining the changes to curbside recycling was prepared to accompany the 2014 utility billing inserts sent to Regional District curbside program recipients. In partnership with RDN Finance staff and those at Lantzville and Qualicum Beach, over 22,400 registered property owners received the information. Timing of the Parksville billing cycle precluded the insert being sent to

residents in that municipality. On Parksville collection routes, the contractor's collection staff kept the literature on hand and provided it to residents seeking recycling information.

The content was refreshed in 2015 to create a "Recycling In Our Region" brochure. This is provided to new residents, those seeking additional recycling information, and is available at outreach events.

Newsletters

Three Zero Waste Curbside Program newsletters are produced annually and distributed by Canada Post to 24,000+/- homes receiving RDN curbside service. The 2014 and 2015 editions featured content explaining and promoting the new recycling stewardship program and its impact on our curbside collection program. The newsletters are also accessible via the RDN website and social media feeds.

Additionally, the RDN Solid Waste Services also produces and distributes a bi-yearly Solid Waste Management newsletter region-wide containing updates on the Solid Waste Management planning progress, bylaws, regional trends and zero waste goals.

Curbside Setout Inspections

Utilizing money received from MMBC for administration and education, the aim of the curbside outreach activity is to reach out to residents to clarify common issues and concerns resulting from the MMBC changes to curbside collection, to reinforce residents' good recycling practices, and to provide encouragement where there was room for improvement. RDN Staff from the Solid Waste Service casual labour pool who are comfortable interacting with the public and knowledgeable about recycling within the RDN were employed for the task. Duties included inspection of recyclables set out at the curb for collection, identifying and tagging non-compliant recyclables, talking with residents, and distributing information regarding curbside collection.

The outreach program was well received by many of the residents who had direct contact with the field staff. Many residents indicated they were not aware of the changes to the curbside program or were confused as to what materials were accepted under the program. A small number of interactions involved angry and verbally abusive residents; in those situations the staff did what they could to diffuse the anger and moved on to another street. Some of those tagged as having non-compliant recycling did contact the RDN office or the collection contractor seeking clarification, or to complain that they were singled out. These conversations were opportunities for additional education.

Collection Staff

As part of their collection contract, Progressive Waste Solutions staff both on the trucks and those providing customer service play an important education role. The diligence of the collectors on the routes tagging and leaving behind the most obvious non-compliant materials is critical to reinforcing messages regarding acceptable materials (in all three material streams collected, not just recycling).

School Education Program

The RDN contracts a 3rd party non-profit agency to deliver a zero waste school education program which provides free classroom workshops to schools throughout the RDN. Facilitators bring examples of things made from recycled material to show how recycling is helping work towards the goal of Zero Waste. They discuss how a landfill works and show the results of a recent waste audit using a Garbage Pizza.

Participants learn about natural resources and the importance of wisely using renewable resources. The Zero Waste workshop can be tailored to adults who want to improve home or office recycling.

City of Nanaimo

The City of Nanaimo operates their budget for solid waste education in the city. The City of Nanaimo distributes a "Trash Talk" newsletter to all City addresses in the spring and fall of each year; has a dedicated web page on the City's website that includes information related to the City's residential collection services, a link to the RDN recycling directory along with a list of reuse and recycling organizations operating in the City; and promotes solid waste campaigns through traditional print ads, signage (i.e. trucks and bus stops), radio, cinema ads and regular media releases as well as online social media to engage residents in solid waste related topics. Annual curbside collection schedules are also distributed to all serviced homes in the City of Nanaimo. The City has recently started to attend public events to promote and gauge public satisfaction with current services provided. They host and promote an annual "Reuse Rendezvous" event which is a city wide swap meet where residents are encouraged to place unwanted items at the curb for collection by freebie hunters. In 2014, they hosted and promoted the first annual "Zero Waste Challenge" where residents were encouraged to compete to slim their bin and in the Fall of 2015 the City has plans to launch a "Keep Nanaimo Clean" anti-littering campaign. The City works regularly with Shaw TV to produce light hearted and informative solid waste news stories.

Identified Gaps in Current Education Strategy

Based on feedback from our stakeholders including the public, RSWAC, industry and other municipal partners some of the gaps in education that have been identified in the RDN and the City of Nanaimo are:

- *Multi-family Buildings*: Particularly in cities lots of people are living in multi-family buildings and are completely unaware of the services available to them in the region. Most buildings have garbage and some form of recycling collection. In 2010, the RDN conducted a study of multi-family building recycling and found that 86% of complexes in the region were meeting the requirements of the RDN's landfill bans. It is the responsibility of building managers and/or private haulers to increase waste services to these buildings. The City, RDN and Nanaimo Recycling Exchange are currently conducting a pilot program with The Beacon (118 unit high rise strata condo building in downtown Nanaimo) to introduce organics collection to the residents. As part of the pilot program a "Tool Kit" will be compiled to assist other building managers and residents to implement similar programs in their buildings.
- *Depot Items*: The RDN contributes funds to the Recycling Council of British Columbia to provide communications on stewardship programs that exist in our region however, unless residents are aware of RCBC the RDN typically fields these calls. There is no real comprehensive method of informing residents about what they can take to the depots. In this region, local government does not partner with the various stewardship agencies to provide take-back locations; the depots have taken on the important role, however it is difficult to explain because some depots accept more items than others and the RDN does not control what is and is not accepted at these locations. The RDN does maintain an online recycling directory which includes depot locations through the region but it can be hard to navigate for certain items. Maintaining an up to date directory is an ongoing challenge.
- *New Residents*: People moving into the region do not always receive information about our programs and services. The RDN currently mails out new information to owners of newly constructed homes located in electoral areas or if a single family home has changed hands. The

zero waste newsletters are currently the only tool for reaching new residents with program and service information for rentals or other dwelling units.

OPTIONS FOR IMPLEMENTATION

A number of considerations would need to be made in targeting public education including but not limited to staffing, program development and program delivery.

As an example the Cowichan Valley Regional District (CVRD) provides adult education through a contract with Cowichan Green Community. The contract is funded by three CVRD divisions and offers workshops on sustainable transportation, water conservation and waste reduction to community groups by request as well as at public events. The RDN could consider partnering with other departments to put out a joint RFP for public education.

Alternatively the RDN could consider hiring a full or part time staff person to work under a public education role. Such a role could include writing/editing of zero waste newsletters, development and delivery of public workshops/event displays and focused campaigns/strategies for multifamily or ICI sector, and maintaining an active social media presence.

The RDN could also consider improvements to its current online recycling directory. By partnering with the City of Nanaimo both organizations could implement a Waste Wizard widget similar to the current Online Collection look up feature which could be used online or through the RDN Curbside Collection App. The widget would allow residents to enter the item they are interested in disposing of and the results would produce a list of locations that accept that item for recycling and/or disposal. The widget would require regular updating of information to maintain accurate database but would be locally relevant and easy to use for residents and regional staff. This widget would provide background analytics to help support future outreach and communication based on frequently searched items.

Alternatively, the RDN and City could more actively promote the use of the BC Stewards Recyclepedia App which has a series of drop down lists for EPR items in BC.

COMMUNITY IMPLICATIONS

Depending on the type of adult education delivered to the public there could be improved support/use of current services and facilities for solid waste (both private and public) with no required changes to existing service levels.

There are already a number of organizations and NGOs that provide adult education opportunities in the region, including but not limited to:

- Home Depot: delivers workshops on DIY and reuse projects to promote reuse in the community
- Repair Café: delivers workshops to the community on basic repairs to a variety of household items to promote reuse.
- Stewardship Groups: A number of the stewardship groups in BC visit the region to host displays at public events promoting recycling of stewarded items.

The RDN could explore more opportunities to partner with other organizations to further solid waste education in the region. Other conduits to channel solid waste related information to an adult audience include service clubs, seniors' associations, residents' associations, having a presence at locations such as grocery stores, hardware stores and retailers, and through promoting solid waste messages through schools (with the expectation some or all of the message will make it home to the parents).

IMPACT ON DIVERSION

The impact of more education on diversion is difficult to predict and measure as the number of interactions or participants does not always correlate with a change in behaviour (i.e. higher diversion). It can take time for a behaviour change to become an established habit, meaning messages have to be delivered repeatedly through a range of media formats and kept fresh so as not to become ignored or overlooked.

FINANCIAL IMPLICATIONS

Not all costs listed below would be required, however they are provided for information only as a form of comparison for selecting future education strategies. Please note the information provided here is based on the current RDN program only (with most funded through the curbside collection user fee). Table 1 summarizes the existing solid waste management education budget for 2016.

Table 1: Current Solid Waste Management Education Budget

Current Education Expenses funded by Curbside Collection User Fees	**Yearly Budget**
Curbside Program Newsletter (3x per year)	$42,000
Operations and Maintenance for ReCollect collection reminder system	$8,000
Promotional Materials (Curbside)	$10,000
Review and upkeep of relevant curbside collection content available on three websites (Beyond Composting, Recycling2016, main RDN site)	$10,000 major* $2,000 minor
Advertising Budget (Curbside)	$10,000
Current Education Expenses funded by RDN Tipping Fees	**Yearly Budget**
Region Wide Zero Waste Newsletter (2x per year)	$54,000
RCBC Hotline	$5,000
Compost Program	$5,000
Nanaimo Recycling Exchange School Education Program Contract	$30,000
Total	**$166,000**

*In 2016 the RDN has budgeted for a major review and update of website content however most years only require minor updates.

Additionally, the City of Nanaimo has a yearly budget of $60,000 for solid waste education and promotion.

If the RDN chose to increase the profile of public education as part of the solid waste management plan it is expected to cost in the range of $20,00-$40,000 depending on the method of deliver (i.e. contract, part-time staff). This amount is in addition to targeted education as a component of options previously discussed by the RSWAC (i.e. curbside, ICI & Multi-Family Diversion, CD). Table 2 provides a summary of these solid waste management options specially targeted at education:

Table 2: Potential Solid Waste Management Education Options

Option	**Yearly Budget**
Compliance and Enforcement to Improve Diversion in Curbside Collection	$36,000
Industrial, Commercial, Institutional & Multi-Family Diversion	$20,000
Construction Demolition	$20,000
Increased Solid Waste Public Education	$20,000-$40,000

REGULATORY AUTHORITY

No new regulatory authority would be required by the RDN to include an enhanced level of education and outreach within the action items of the Solid Waste Management Plan.

SUMMARY/CONCLUSIONS

Education and promotion related to solid waste management practices and programs is currently provided through a variety of formats, and funded through the existing solid waste budgets for approximately $166,00/year. A greater emphasis could be placed on "pushing" relevant information to targeted adult audiences through traditional and social media, as well as being more active in locations where the solid waste message would be well received. Increasing the profile of solid waste public education would cost an additional $20,000-$40,000/year.

A variety of options are available to the RDN to enhance education, ranging from boosting or refocusing the current education offerings, contracting out for such a service, to employing a staff person to take a proactive role in overseeing and delivering education and solid waste related communications.

Report Writer

Manager Concurrence

General Manager Concurrence

CAO Concurrence

REGIONAL DISTRICT OF NANAIMO

STAFF REPORT

TO:	Larry Gardner Manager, Solid Waste	**DATE:**	January 5, 2016
		MEETING:	RSWAC, January 14, 2016
FROM:	Sharon Horsburgh Senior Solid Waste Planner	**FILE:**	5365-00
SUBJECT:	RDN's Zero Waste Plan		

RECOMMENDATION

That the Regional Solid Waste Advisory Committee (RSWAC) receives this report for information as part of the 2015 Solid Waste Management Review Process.

PURPOSE

At the November 26, 2015 Regional Solid Waste Advisory Committee (RSWAC) meeting, it was requested that a report be prepared explaining the Regional District of Nanaimo's (RDN) Zero Waste Plan.

BACKGROUND

The RDN's Zero Waste Plan is described in Section 6 of the 2004 Solid Waste Management Plan (SWMP) and is attached as Appendix 1. The SWMP is a long-term vision of how the Regional District will manage its solid waste, including diversion and future disposal needs. The RDN prepared their first SWMP in 1988 and amended that plan in 1996 to include a "3Rs Plan". In 2003, the RDN reviewed the status of the 1996 3Rs Plan and found that most of the programs and policies in the 3Rs Plan had been implemented and the diversion rate in the RDN increased from 45% in 1998 to 57% in 2003. This increased diversion came about despite the fact that two major elements of the plan, an in-vessel composting facility and a construction/demolition waste recycling facility were not constructed.

In 2002, the RDN Board adopted "zero" as the waste diversion target, meaning that the RDN will continuously strive to reduce the amount of waste requiring disposal. In addition, Policy 4H of the RDN's Regional Growth Strategy (adopted June 2003) states: *"The RDN agrees to pursue a solid waste management approach that concentrates on creating less waste, with the ultimate long term goal of eliminating the need for waste disposal (i.e. a "Zero Waste" approach)"*. To reflect this new goal, the updated 3Rs Plan was named the Zero Waste Plan. The Zero Waste Plan outlines how the RDN plans to continue reducing the quantity of waste disposed.

The Zero Waste Plan was developed by undertaking the following steps:

(I) review the existing 3Rs Plan to identify what elements of that plan should be retained and carried forward to become part of the Zero Waste Plan;

(II) identify new waste reduction opportunities by:
- reviewing waste diversion initiatives undertaken in other North American jurisdictions that are considered "leading edge";
- interviewing waste management coordinators in BC and across Canada; and
- brainstorming RDN-unique ideas;

(III) develop a menu of components for possible inclusion in the Zero Waste Plan using the initiatives identified in the first two steps;

(IV) present the menu of possible components to the Regional Solid Waste Advisory Committee (RSWAC) to obtain their feedback; and
(V) develop a draft Zero Waste Plan based upon RSWAC's and staff input.

As a result of this process, the following components were adopted in the approved 2004 Solid Waste Management Plan.

Ongoing Programs

- Compost Education Program
- School Education Program
- Zero Waste Promotion and Education
- Illegal Dumping Program Expanded Disposal Bans
- Waste Composition Study
- Waste Stream Licensing and Technical Assistance
- Curbside Food and Yard Waste Collection Study
- Yard Waste Composting at RDN Disposal Facilities
- Recycling at RDN Disposal Facilities
- Residential Curbside Garbage and Recycling Collection

New Programs 2005-2007

- Single Family Organics Collection Pilot
- C/D Market Study
- User Pay Review
- RDN Internal Zero Waste Policy
- Single Family Organics Collection Program

In 2013, a review of the current SWMP was initiated with the Stage 1 review, the Existing System Report. The report concluded that the RDN has fully implemented the key components of its 2004 SWMP, including residential food waste collection and banning commercial food waste from landfill disposal. Participation in these programs has resulted in the region diverting 68 per cent of its waste for composting and recycling and achieving a 350 kilogram per capita landfill disposal rate, one of the lowest in Canada.

DISCUSSION

The RDN and its member municipalities, residents and businesses have led the way in reducing the amount of garbage that is landfilled. In 1991, the RDN introduced Canada's first user pay residential garbage collection system. Since then, the RDN and its partners have expanded curbside recycling programs, banned paper, metal, commercial food waste, clean wood waste and other recyclable materials from the landfill, and successfully promoted composting throughout the region.

In the fall of 2012, as a first step in updating the RDN's SWMP, the RDN conducted a waste composition study of the waste sent to the Regional Landfill to determine what types of waste continue to be landfilled and by which sector. The data from the study indicates that roughly 35% of the waste currently landfilled could be composted and 20% could be recycled.

Some of the milestones the RDN has achieved on the road to Zero Waste include:

- 1989 - Residents and businesses divert 10% of solid waste from the landfill.
- 1995 - Recycling, reuse and recycling initiatives divert 26% of solid waste from the landfill.
- 2000 - The RDN and its municipal partners divert 57,000 tonnes of material from the landfill or 54% of the total waste generated in the region, exceeding the 50% target set by the provincial government.
- 2002 - The RDN adopts Zero Waste as its long-term waste diversion target.
  2004 - The RDN prepares an updated Solid Waste Management Plan which sets an interim goal of diverting 75% of the region's waste from the landfill by 2010. *[Note that this diversion target included biosolids which are no longer accounted for in the diversion/disposal calculations.]*
- 2005 - The RDN bans commercial food waste from the landfill. A commercial food waste diversion program involving businesses and organizations diverts more than 6,000 tonnes of food waste and organic compostables annually from the landfill.
- 2007 - The RDN and its municipal partners launch a residential food waste collection pilot project that will provide the information needed to develop a region-wide program.
- 2010 – Introduction of region wide food waste curbside collection program.
- 2012 – The region achieved a 68% diversion rate and a per capita waste generation rate of 347 kilograms.
- 2012 - Waste Composition Study was completed.
- 2013 -Stage One - Existing System Report.
- 2013 - Begin to review the 2004 SWMP.

To support the RDN's Zero Waste Plan, the RDN's SWMP includes eight guiding principles and they are as follows:

1. *The consumption of material and energy resources is set at a level that is ecologically sustainable.*
2. *The regional solid waste stream is reduced to the greatest extent possible, in accordance with the hierarchy of reduce, reuse, and recycle, and consistent with local resources and the nature of the regional solid waste stream.*
3. *The goal of environmental policy is to not exceed the capacity of the environment to accept waste and the strategies for achieving that goal cautiously anticipate the environment's capacity.*
4. *Individuals and firms are enabled to make environmentally sound choices about consumption of resources and generation of waste through provision of appropriate information, including user-pay and market-based incentives, wherever possible.*
5. *Reduction policies and strategies are developed through public consultation in a cooperative manner between government, private enterprise and community stakeholders. This may entail more flexibility in existing procedures and the setting precedents. The cost effectiveness of any strategy will be based on full accounting of costs and benefits, both monetary and non-monetary.*
6. *The strategies and policies promote community development whenever possible.*
7. *All parties must have equal access to relevant information and the opportunity to participate effectively throughout the process.*
8. *Openness and trust between stakeholders are the keys to a successful process.*

The RDN is unable to achieve all these goals alone, however, the RDN has been actively promoted these concepts though participation on policy making committees of various national, provincial and regional organizations such as the Solid Waste Association of North America, AVICC, National Zero Waste Council, the Recycling Council of BC, Coast Waste Management Association and Zero Waste Nanaimo. All of these organizations are multi-stakeholder groups that have a good track record of influencing senior government policy. Zero Waste is a very active subject of discussion in all of these groups.

The RDN's existing solid waste management system is diverse and reflects a mature waste management system. The key components of the existing waste management system are:

- Zero waste has been adopted as the waste diversion target – meaning that the RDN will continuously strive to reduce the amount of waste requiring disposal;
- Curbside collection of garbage, kitchen scraps and recyclables for all single-family homes;
- User pay waste management fees for both the landfill and the curbside collection services;
- A policy of banning materials from disposal as garbage once a stable alternative use is identified;
- An organics diversion strategy that enables the diversion of both residential and commercial food and yard waste;
- A Construction/Demolition Waste Strategy that banned the disposal of clean wood waste to drive the development of a recycling industry for waste from construction and demolition activities;
- A Waste Stream Management Licensing system that ensures private waste management facilities operate at a high standard; and
- A comprehensive Illegal Dumping Prevention Strategy.

A number of the key components of the waste management system are discussed in more detail below.

Zero Waste

The RDN's Zero Waste concept is worth highlighting. There are many significant challenges with the implementation of Zero Waste as many aspects are beyond local government's regulatory jurisdiction. For example, local government does not have the authority to regulate products or packaging such as design for environment, end of life return of product, bans or minimum recycled content. However, in these areas, the RDN is proactive and assists with the dissemination of information as well as participating on policy setting committees as noted previously.

Organics Diversion Strategy

The cornerstone of the RDN's 2004 SWMP was the diversion of organic waste from landfilling. The 2004 waste composition study indicated organic waste represented 47 % of the RDN's residential waste stream by weight and 40% of the ICI waste stream. Therefore, diverting organics was determined to be the single most effective means of increasing diversion of waste from landfilling. The 2012 Waste Composition Study showed that the total waste stream organics dropped from 178 kg/person in 2004 to 123 kg/person in 2012. There remains significant opportunity for further organics diversion.

Construction/Demolition Waste Strategy

In February 2007, the Regional Board approved a Construction/Demolition (CD) Waste Strategy. Key initiatives in the strategy include:

- Increasing the tipping fee for clean wood waste at RDN Solid Waste Facilities to create incentives to divert this material to licensed recycling facilities;
- Effective January 1, 2008, the RDN put a ban on disposal of clean wood waste in the Regional Landfill and roll-off containers of wood waste at RDN Solid Waste Facilities; and
- Arranging contracts with third party wood waste recycling facilities to manage wood waste received at the Regional Landfill and Church Road Transfer Station from small self-haulers.

As a result of the strategy, there are currently several CD waste management facilities in the RDN and clean wood waste is no longer buried as garbage in the Regional Landfill.

Construction, demolition and renovation projects generate a wide range of materials, most of which are reusable or recyclable. These include concrete, asphalt, wood, gypsum wallboard, metal, cardboard, asphalt roofing and plastic. The RDN promotes diversion of these materials through disposal bans on cardboard, gypsum (drywall), metal and wood, and high tipping fees on loads of CD waste arriving at the Regional Landfill.

The majority of CD waste is recycled or used as a fuel substitute. The following materials are managed as follows:

- Wood waste is chipped and used as hog fuel at pulp mills on Vancouver Island and in Washington State;
- Drywall (gypsum) is recycled;
- Metal is recycled;
- Concrete and asphalt are recycled; and
- Asphalt shingles are recycled for road base applications.

There is also significant reuse of building materials and fixtures through salvage operations and retail stores such as Demxx and Habitat for Humanity's ReStore.

Waste Stream Management Licensing Bylaw

RDN Bylaw No. 1386, 2004 requires solid waste management facilities operating in the RDN to maintain a Waste Stream Management License (WSML). A similar bylaw is in place in the Cowichan Valley Regional District. The authority to license and regulate solid waste facilities is given to regional districts through BC's Environmental Management Act and the RDN's licensing bylaw was enacted under the 2004 SWMP.

The RDN's licensing Bylaw No.1386 was established to fulfill the following objectives:

1. Create a high standard of operation for waste management facilities.
2. Encourage and protect legitimate waste management operations.
3. Establish a reporting system for the flow of waste materials within the RDN.
4. Protect and enhance the waste reduction rate achieved.
5. To provide a level playing field.

In the RDN, there are currently 13 facilities that hold Waste Stream Management Licenses and five applications are under review.

RDN Waste Stream Management License Holders (as of July 2015)
1. Schnitzer Steel Pacific
2. Parksville Bottle & Recycling Depot
3. Nanaimo Organic Waste (formally ICC)
4. Progressive Waste (formally BFI) Nanaimo Recycling Facility
5. Emterra Environmental
6. Earthbank Resource Systems
7. Alpine Disposal & Recycling (ADR)
8. Pacific Coast Waste Management (PCWM)
9. DBL Disposal Services Ltd. (formally Porter Wood Recycling Ltd.)
10. DBL Disposal Service Ltd.
11. Progressive Waste (formally BFI Canada), Springhill
12. Cascades Recovery Inc.
13. Coast Environmental Services
RDN Waste Stream Licenses (In Progress)
14. Haarsma Waste Solutions
15. Gabriola Island Recycling Organization
16. Nanaimo Recycling Exchange
17. ABC Metal Recycling
18. MacNutt

Illegal Dumping Prevention Strategy

The RDN has implemented an Illegal Dumping Prevention Strategy and works collaboratively with community groups. The key components of the program include prevention of illegal dumping through education; funding the clean-up of illegal dumpsites; waiving of landfill tipping fees and illegal dumping surveillance and enforcement activities. The program cost is approximately $100,000 annually.

Education & Outreach

Both the RDN and the City of Nanaimo undertake promotion and education related to solid waste management. The RDN has information related to the solid waste management planning, bylaws and zero waste programs on the Solid Waste and Recycling pages of the RDN's website. The RDN and the City of Nanaimo distribute approximately seven Zero Waste/Solid Waste related newsletters each year to homes across the region. The RDN contracts the Nanaimo Recycling Exchange to provide a zero waste school education program, which provides free classroom workshops to schools throughout the RDN. It is estimated that the RDN spends approximately $200,000 annually on education.

ALTERNATIVES

There are no alternatives for this report.

FINANCIAL IMPLICATIONS

This report is presented for information purposes only therefore there are no financial implications.

SUMMARY/CONCLUSIONS

In 2002, the RDN Board endorsed the adoption of a Zero Waste Plan for inclusion in the Solid Waste Management Plan. Since that time, the RDN has introduced a number of strategies and policies, and has taken action, to reduce the amount of waste being landfilled. The RDN is considered a leader in North America with respect to its Zero Waste programs.

Through community cooperation and support, the RDN has achieved 68% waste diversion and an annual per capita disposal rate of 347 kilograms. According to the Province of BC 2012 Waste Diversion Calculator, this is one of the lowest disposal rates in Canada. Furthermore, the RDN and Cowichan Valley Regional Districts are believed to have the lowest per capita disposal rates in the world. With a continued promotion of Zero Waste concepts, there is expected to be continued improvements that will meet the future needs of the RDN.

Report Writer

Manager Concurrence

General Manager Concurrence

A/CAO Concurrence

6. Zero Waste Plan

In April 2003, the RDN reviewed the implementation status of their 1996 *3Rs Plan* as a first step in updating this component of the Solid Waste Management Plan. Most of the programs and policies in the 3Rs Plan were implemented and the diversion rate in the RDN increased from 45% in 1998 to 57% in 2003. This increased diversion came about despite the fact that two major elements of the plan, an in-vessel composting facility and a construction/demolition waste recycling facility were not constructed.

In 2002 the RDN adopted "zero" as their waste diversion target, meaning that the RDN will continuously strive to reduce the amount of waste requiring disposal. In addition, Policy 4H of the RDN's Regional Growth Strategy (adopted June 2003) states: *The RDN agrees to pursue a solid waste management approach that concentrates on creating less waste, with the ultimate long term goal of eliminating the need for waste disposal (i.e. a "Zero Waste" approach).* To reflect this new goal, the updated 3Rs Plan is called the *Zero Waste Plan*. The Zero Waste Plan outlines how the RDN plans to continue reducing the quantity of waste disposed.

The Zero Waste Plan was developed by undertaking the following steps:

(I) review the existing 3Rs Plan to identify what elements of that plan should be retained and carried forward to become part of the Zero Waste Plan;

(II) identify new waste reduction opportunities by:
- reviewing waste diversion initiatives undertaken in other North American jurisdictions that are considered "leading edge";
- interviewing waste management coordinators in BC and across Canada; and
- brainstorming RDN-unique ideas;

(III) develop a menu of components for possible inclusion in the Zero Waste Plan using the initiatives identified in the first two steps;

(IV) present the menu of possible components to the Regional Waste Advisory Committee (RWAC) to obtain their feedback; and

(V) develop a draft Zero Waste Plan based upon RWAC's and staff input.

This section briefly describes each component of the Zero Waste Plan. The components are organized into two sections:

1. **Ongoing Programs** –programs that were part of the 1996 3Rs plan, were implemented and continue to operate, including programs identified in the annual budget for 2004;
2. **New Programs** – programs that have new diversion potential that will be implemented in 2005 to 2007 upon adoption of this Solid Waste Management Plan.

All costs are presented in 2004 dollars.

On-Going Programs 2004

Program	Budget
Compost Education Program The Zero Waste compost education program has several components, including: • enhance, maintain and promote demonstration gardens; • promote usage of the yard waste management educational materials available on the RDN's website; • conduct spring and fall seminars on composting, grasscycling, zero waste landscaping, natural garden and lawn care, etc. Partnering with local garden centres that sell backyard composters and native plants will be explored.	**$5,000**
School Education Program Continue contracting out design and delivery of a primary school program that focuses on the concept of zero waste.	**$15,000**
Zero Waste Promotion and Education The Zero Waste Promotion and Education program contains the following elements: • Continue and enhance current zero waste information initiatives including the web site, newsletters and participation in community events. • Maintain funding to the Recycling Council of BC for operation of the hotline. Promote the hotline to RDN residents and businesses. • Continue annual financial support to Recycling Council of BC for their ICI waste exchange service. Promote this service to RDN businesses and institutions. • Maintain and print the Zero Waste (recycling) directory and the online directory on the RDN web site and ensure data is up to date through annual reviews of the listings. Promote directory and reuse awareness, particularly with customers that bring reusable goods to RDN disposal. • Continue television advertising on Shaw Cable. • Promote to all sectors the availability of Zero Waste tools, particularly those available on the web such as the Recycling Directory, Zero Waste Business Tool Kit, Zero Waste Landscaping Tips, and Composting Information. Additional tools will be accessed from other jurisdictions and, with permission, modified for use in the RDN.	**$58,500**

Program	Budget
Illegal Dumping Program The Illegal Dumping Program includes surveillance and enforcements activities as well as on-going clean-up of illegal dumping sites and free disposal (tipping fees are waived) for community clean-up events. To encourage community clean-ups, groups that undertake these activities will be recognized in the RDN newsletter or other media.	**$63,000**
Expanded Disposal Bans International Composting Corporation (ICC) opened their private composting facility in Nanaimo in April 2004. Consequently, in accordance with RDN Board policy, organic waste from commercial generators (e.g. grocery stores, institutions, and restaurants) will be banned at the Regional Landfill and Church Road Transfer Station in the fall of 2004. Implementation of the ban would involve a "ramp up" period if increasing enforcement starting with advanced notice of upcoming ban, then notices (rather than financial penalties) for the first months of the bans implementation, and eventually implementing financial penalties that are double the tipping fees for loads containing banned materials. In addition, yard waste and products covered under province-wide stewardship programs will also be banned, as opportunities to divert these materials are readily available in the RDN.	**$24,000**
Waste Composition Study Conduct a waste composition study to estimate the quantity of recyclable materials remaining in the waste stream and the source of those materials (residential, ICI or DLC). This study will assist in focusing waste diversion programs and policies where they will have the greatest impact.	**$25,000**
Waste Stream Management Licensing Technical Assistance To support the implementation of the Waste Stream Management Licensing Bylaw (which is ultimately intended to enhance diversion in the RDN), technical assistance will be required on an annual basis to prepare site specific operating plans and requirements	**$15,000**

Program	Budget
Curbside Food and Yard Waste Collection Study Organic waste collection could divert food waste, non-recyclable paper products and other organic waste materials in addition to providing yard waste removal service to residents in the RDN curbside collection service area. Based on a 2002 CRD waste composition study, approximately 45% of the residential waste stream is compostable. In the RDN, if only half of the residential-based organic waste is diverted through an organics collection program, 5,600 tonnes of waste would be diverted from the landfill annually. This study will research collection methods and successes in other North American jurisdictions	**$10,000**
Yard Waste Composting at RDN Disposal Facilities To ensure an on-going opportunity to dispose of yard waste, the RDN will continue to accept source-separated yard waste at the landfill and transfer station. The drop-offs are for self-haul customers (small loads). Yard waste is transferred to private composting facilities. The tipping fee at the RDN facilities is based on the market cost of composting. Drop-off opportunities are promoted by RDN and municipalities. (Note: The cost associated with this program is directly related to volumes received at the RDN's facilities.)	**$268,000**
Recycling at RDN Disposal Facilities The RDN provides the opportunity for self-haul customers at the disposal facilities to recycle batteries, appliances, propane tanks, fluorescent light tubes, scrap metal, tires, gypsum (at CRTS), cardboard, paper, glass, and metal and plastic food and beverage containers.	**$161,500**
Residential Curbside Garbage and Recycling Collection Continue with residential garbage and recycling collection programs including strict can limits and comprehensive range of recyclable materials including rigid plastic containers. Provide service to approximately 23,000 households.	**$1,766,970**

New Programs 2005 - 2007

2005	Budget
Single Family Organics Collection Pilot Design and conduct a pilot organics collection program. Conduct pre and post surveys with participants and measure actual diversion. This pilot would address the feasibility of organics collection for some or all of the residents on the curbside collection program and help to refine the final program design.	$82,000
C/D Market Study Conduct an analysis of the local market capacity for wood waste and construction/demolition wastes to determine the viability of a ban on all or a portion of this waste. In the event that a private sector C/D processing facility is established, licensed and operational by 2005 the C/D market study will not be done.	$10,000
2006	**Budget**
User Pay Review Before tendering next curbside contract, re-assess feasibility of going to full user pay or a subscription-based system for garbage collection. A full user pay program would provide users with a financial incentive to further reduce waste and reward those households that already have achieved significant waste reduction. If viable, a "pay-as-you-throw" request for proposal or tender would be designed for the new curbside waste collection contract (scheduled to begin in 2007).	$20,000
RDN Internal Zero Waste Policy Using existing municipal models, develop an internal Zero Waste Policy to ensure that the environmental impact of RDN purchasing and operations of the RDN is minimized. Environmental purchasing policies developed by other municipalities, such as the City of Richmond, will be used as a template.	$4,000

2007	Budget
Single Family Organics Collection Program Based on the results of the curbside yard and food waste collection study undertaken in 2004 as well as the pilot collection project undertaken in 2005, a full single family curbside collection program could be implemented in 2007 based on the results of the tender process undertaken in 2006. The costs presented for full program implementation are rough estimates of a household organic waste collection program (food waste and soiled paper). Yard waste collection is not included at this time since not all households may require this service. The types of organic wastes collected, collection method and frequency, and composting facility tipping fees have not yet been defined. This cost estimate includes only the households serviced by the RDN although it is assumed that the City of Nanaimo will also consider implementing a similar program if it is found to be cost-effective.	Start-up costs (one-time): $97,000 On-going annual costs: $460,000

♦ Zero Waste Plan Summary

i. Diversion Potential

The diversion potential of the Zero Waste Plan ranges from an *additional* diversion of 4% in 2004 to an additional 41% in 2009, as shown in Table 6-1. Although many of the programs listed in the plan do not contribute directly to diversion, they are believed to be essential to supporting existing and planned zero waste initiatives and without them the diversion potential of the other programs could not be realized. Upon full implementation, the RDN could achieve an *overall* diversion rate of 76%.

Table 6-1 Zero Waste Plan New Diversion Potential

Year	2004 (%)	2005 (%)	2006 (%)	2007 (%)	2008 (%)	2009 (%)
New Programs						
Expanded Disposal Bans	4	13	24	31	34	34
Waste Composition Study						
Construction/Demo Waste Market Study						
Single Family Organics Collection				5	5	5
User Pay Review						
RDN Internal Zero Waste Policy						
New Diversion (based on 2003 baseline)	**4**	**13**	**24**	**38**	**39**	**39**
Total Cumulative Diversion (based on 2003 baseline of 57%)	**59**	**63**	**68**	**75**	**76**	**76**

ii. Costs

Table 6-2 shows the annual cost for the Zero Waste Plan from 2004 to 2009.

Table 6-2. Zero Waste Plan Costs

Year	2004	2005	2006	2007	2008	2009
Ongoing Programs						
Residential Curbside Garbage and Recycling Collection*	$ 1,766,970	$ 1,802,309	$ 1,838,356	$ 1,875,123	$ 1,912,625	$ 1,950,878
Illegal Dumping Program	$ 63,000	$ 63,000	$ 63,000	$ 63,000	$ 63,000	$ 63,000
Recycling at RDN Disposal Facilities	$ 161,500	$ 161,500	$ 161,500	$ 161,500	$ 161,500	$ 161,500
Yard Waste Composting	$ 268,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000
Zero Waste Promotion and Education	$ 58,500	$ 58,500	$ 58,500	$ 58,500	$ 58,500	$ 58,500
School Education Program	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000
Compost Education Program	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000
New Programs						
Expanded Disposal Bans	$ 24,000	$ 500	$ 500	$ 500	$ 500	$ 500
Centralized Composting Facility	$ -	$ -	$ -	$ -	$ -	$ -
Waste Composition Study	$ 25,000	$ -	$ -	$ -	$ -	$ -
Curbside Organics Collection Study	$ 10,000	$ -	$ -	$ -	$ -	$ -
Single Family Organics Collection Pilot	$ -	$ 82,000	$ -	$ -	$ -	$ -
Single Family Organics Collection	$ -	$ -	$ -	$ 557,000	$ 460,000	$ 460,000
WSML Technical Assistance	$ 15,000	$ 10,000	$ 10,000	$ 5,000	$ 5,000	$ 5,000
CD Waste Market Study	$	$ 10,000	$ -	$ -	$ -	$ -
User Pay Review	$ -	$	$ 10,000	$ -	$ -	$ -
RDN Internal Zero Waste Policy	$ -	$ -	$ 4,000	$ -	$ -	$ -
Total Cost per Year	$ 2,411,970	$ 2,372,809	$ 2,330,856	$ 2,905,623	$ 2,846,125	$ 2,884,378

* based on 2% estimated annual contract cost increase

iii. Staffing

The Zero Waste Plan is to be implemented with the RDN's existing solid waste staff complement. As needed, research, studies and some services will be contracted out.

REGIONAL DISTRICT OF NANAIMO

Scope of Work

TO:	Larry Gardner Manager of Solid Waste	**DATE:**	July 31, 2015
FROM:	Sharon Horsburgh Senior Solid Waste Planner	**FILE:**	5365-00
SUBJECT:	Residual Management Assessment – Scope of Work		

OBJECTIVE

The objective is to consider alternatives to landfilling within the Regional District of Nanaimo (RDN). This is a preliminary level assessment and should consider thermal systems, biological systems and waste to fuel. It is intended to assess cost/benefit at a high level to be used to eliminate non-viable options from further consideration or, to determine what criteria or thresholds might make a specific option viable. "Benefit" includes application of the 5R hierarchy to further advance zero waste.

DELIVERABLES

The final report should include, but not be limited to:

- The amount (i.e. percentage of the waste stream) of additional material that may be diverted for recycling as part of waste processing associated with the technology. Provide comments on the material types, expected quality, marketability and residual waste.
- The amount of material that would go to recovery (i.e. energy or fuel), existing or potential markets, expected value of the fuel and the amount of residual waste from the recovery process.
- Order of magnitude costs including capital, operating and maintenance.
- Consideration of a source separated waste stream under two scenarios (i.e. 70% and 80% diversion) as explained in more detail below.

BACKGROUND

The RDN is currently in Stage 2 of the Solid Waste Management Plan (SWMP) review process. Numerous options have been suggested for changes or improved services with respect to education, recycling, expanded curbside collection, regulatory activities and residual waste management. RDN staff is currently undertaking a high level assessment of each of the options which will be used to develop a short list of preferred options.

In regards to residual management, waste is currently landfill at the RDN's Cedar Road Landfill. The landfill has a projected life of about 25 years. During the Stage 2 planning process, alternatives for residual waste management were introduced and included thermal systems, biological systems and waste to energy/fuel systems. The decision was to proceed with a high level assessment of each of these technologies to determine their viability in the RDN.

In discussing residual management options with the Regional Solid Waste Advisory Committee (RSWAC) continuation of source separation of waste is preferred over attempting to mechanically separate a mixed waste stream. The RDN currently relies on a three stream curbside collection system and material bans at the landfill (e.g. clean wood waste, commercial organics) to advance source separation. For the purpose of this study, source separation of waste is expected to continue in the RDN for the foreseeable future.

Waste Generation

Waste generation within the RDN has been forecast until 2025 and this report is available as attachment 1. A summary of the RDN's results are set out in the attached Technical Memo. The projections were extrapolated from information provided by BC Stats report titled *Solid Waste Generation in British Columbia, 2010-2025 Forecast, June 2012.* Waste generation projections in the RDN are forecasted as follows:

- At 70% diversion, residual waste in 2015 is expected to be 52,000 tonnes and increasing to 57,000 tonnes in 2025.
- At 80% diversion, residual waste in 2015 is expected to be 52,000 tonnes and decreasing to 36,000 tonnes in 2025.

Waste diversion in the RDN is currently at 68%. The 80% diversion scenario relies on improvements to the organics diversion programs with only a modest increase from provincial stewardship programs. This is because current RDN policies are believed to have largely achieved the same results of what is expected to be accomplished by the introduction of new provincial stewardship programs over this same period.

Organic Wastes

Source separated food waste and depot collected yard and garden is currently composted under contract to the RDN by Nanaimo Organics Waste (NOW). At the current time, the resulting compost has a low value primarily due to plastics contamination. The amounts of food and yard/garden waste processed and composted at NOW is 6,225 metric tonnes (M/T) of food waste and 7,900 m/t of yard waste respectively. Additionally, an estimated 1,000 tonnes of food waste generated in the region is composted at alternate sites in neighbouring jurisdictions.

Under the RDN's Waste Stream Management Licensing Bylaw 1386 several "for profit" waste management facilities have received licenses to process land clearing, wood waste and yard/garden waste these materials may be used for composting, soil blending and as a fuel source by local pulp mills.

Based on annual reporting by the WSML holders the aggregated annual volume is 64,200 m/t tonnes and this is comprised of approximately 18,000 m/t land clearing, 14,700 m/t wood waste and is 19,400 m/t for yard waste and 6,225 m/t food waste. The aggregated totals for material composted/soil blended is approximately 20,000 m/t. It is estimated that the total of organic material shipped as a fuel source to local mills is 44,200 m/t and this consists of landclearing material, wood waste and some yard waste.

Furthermore, approximately 1,200 m/t of de-watered biosolids are generated annually from the two waste water treatment plants operated by the RDN. The Class B digester sludge is currently land

applied. Facility upgrades underway are expected to increase biosolids production to approximately 1,600 m/t per year.

Assessment of waste to energy or waste to fuel options should consider the above referenced organic waste as a potential material source.

Previous Studies

Previous studies that are pertinent to this assessment are found in following attachements:

1. *Regional District Of Nanaimo Waste Generation Projections,* RDN, Technical Report, March 2015
2. *Solid Waste Composition Study Report,* Maura Walker& Associates, 2012.
3. *Tri-Regional District Solid Waste Study,* AECOM, May 2011.

APPENDIX 1

Prohibited Waste at RDN Facilities

At the Regional Landfill:
(i) Biomedical Waste;
(ii) Commercial Organic Waste;
(iii) Concrete or asphalt pieces, or rocks greater than 0.03m3 or 70 kg;
(iv) Corrugated Cardboard;
(v) Drums;
(vi) Garden Waste;
(vii) Gypsum;
(viii) Hazardous Waste;
(ix) Household Plastic Containers;
(x) Ignitable Wastes;
(xi) Land Clearing Waste;
(xii) Liquids, except as permitted herein;
(xiii) Metal;
(xiv) Motor vehicle bodies and farm implements;
(xv) Municipal Solid Waste that is on fire or smouldering;
(xvi) Radioactive Waste;
(xvii) Reactive Wastes;
(xviii) Recyclable Paper;
(xix) Stewardship Materials:
(xx) Special waste, as defined in the Special Waste Regulation (British Columbia) except asbestos ;
(xxi) Tires;
(xxii) Wood Waste

At Church Road Transfer Station:
(i) Biomedical Waste;
(ii) Commercial Organic Waste;
(iii) Concrete or asphalt pieces, or rocks greater than 0.03m3 or 70 kg;
(iv) Controlled Waste;
(v) Corrugated Cardboard;
(vi) Garden Waste;
(vii) Gypsum;
(viii) Hazardous Waste;
(ix) Household Plastic Containers;
(x) Ignitable Wastes;
(xi) Land Clearing Waste;
(xii) Liquids, except as permitted herein;
(xiii) Metal;
(xiv) Motor vehicle bodies and farm implements;
(xv) Municipal Solid Waste that is on fire or smouldering;
(xvi) Radioactive Waste;
(xvii) Reactive Wastes;
(xviii) Recyclable Paper;
(xix) Special waste, as defined in the Special Waste Regulation (British Columbia) except asbestos;
(xx) Stewardship Materials;
(xxi) Tires;
(xxii) Wood Waste.

REGIONAL DISTRICT OF NANAIMO

MEMORANDUM

TO: Daniel Pearce
A/General Manager, Transportation and Solid Waste

DATE: March 27, 2015

FROM: Sharon Horsburgh
Senior Solid Waste Planner

FILE: 5365-00

Meghan Larson
Special Projects Assistant

SUBJECT: **Authority under the RDN's Solid Waste Management Plan to Regulate Municipal Solid Waste**

PURPOSE

To bring forward a report on information regarding flow management as a measure to regulate Municipal Solid Waste (MSW) generated in the Region.

BACKGROUND

The RDN has experienced a significant reduction in tipping fee revenue over the last two years. While the majority of this revenue loss is likely due to the export of residual waste out of the Regional District of Nanaimo (RDN) by private haulers, additional waste diversion activity may also be contributing to the shortfall. The loss of revenue associated with waste flow out of the RDN has a significant impact on the financial sustainability of the RDN solid waste management system. The recent trend in regional government has been to consider flow management as a regulatory tool to maintain the sustainability of current regional solid waste management systems.

In February 2015, the RDN hired Carey McIver & Associates to undertake a detailed analysis of the extent to which waste export is occurring, what the motivation is for waste export, what barriers exist to waste export and, based on the foregoing, an opinion on whether or not waste export is likely to increase and on what timeline. The RDN has experienced a significant reduction in tipping fee revenue since 2012. Based on a detailed examination of RDN scale data, RDN disposal facilities experienced a net reduction of 7,251 tonnes of MSW from commercial haulers over two years from 2013 to 2014. This equates to an average net loss of 3,625 tonnes annually. Indicators, as noted above, suggest that the amount of waste being transferred out of region, referred to as "leakage," has the potential to increase if the RDN does not consider options to address the loss of revenue to RDN disposal facilities.

One option under consideration is the authority to regulate waste flow by local governments. On October 17, 2014 the Minister of Environment denied approval of Metro Vancouver's proposed Bylaw 280, which would have regulated waste flow to prevent leakage. In denying approval of the Bylaw, the Minister cited concerns of creating a monopoly, increased illegal dumping, negative effects on recycling of packaging and printed paper and destabilizing private sector collection and handling. This decision by the Minister has the potential to exacerbate leakage in both Metro and the RDN.

Metro Vancouver concluded that without regulatory controls on waste export, if large loads continue to be charged at a rate higher than the competitive market, commercial haulers will exit the regional system at an increasing rate. They also noted that large loads subsidize small loads because the cost of managing large loads is less on a per tonne basis than small loads. As a result, on February 14, 2015, Metro Vancouver responded to the risk of increasing leakage by adopting Bylaw 288 (Tipping Fee Bylaw) that reduces the tip fee for large loads. They have also introduced a Transaction Fee recognizing there are fixed costs regardless of load size, e.g. scales, tip floor, attendant staff. The basis of the fee structure is as follows:

- Previous Rate:
  - $109 per tonne for all loads
  - Minimum $10 load per load
- Bylaw 288 Rates:
  - Transaction Fee: $5 per load + per tonne charge
  - Minimum Fee including Transaction Fee: $15 per load
  - Per Tonne Charge:
    - Small Loads < 1 tonne: $130 per tonne to a max of $109
    - Medium Loads < 9 tonnes: $109 per tonne to max $720
    - Large Loads > 9 tonnes: $80 per tonne

Metro Vancouver believes this rate structure is still high enough to encourage waste diversion and that waste currently being exported will return to the Metro system over the next five years. Continuing with a user pay model, fees are forecasted to increase over the next five years as follows: small loads at $157/tonne, medium loads at $138/tonne and large loads at $85/tonne. Had Metro continued with a set rate of $109/tonne for large loads, tip fees were forecasted to increase to over $200/tonne under a user pay model for the same period, which would only serve to exacerbate waste export and further increases to tip fees. Metro Vancouver recognized the uncertainties with the alternatives explored but concluded that adjusting the tip fees is a necessary step to address long term sustainability of the solid waste function.

Discussion

One of the major issues identified for review in the 2015 Solid Waste Management Plan (SWMP) is how to finance the Solid Waste Management System in the RDN. Currently, the majority of funding for the Solid Waste function is drawn from RDN tipping fees. Since 2014, expenses are exceeding revenues with the deficit being funded by increasing the tax requisition. Private waste export of MSW was identified during Stage 1 of the SWMP Review as an issue that could destabilize the current RDN waste management system.

The regulatory provisions of the Provincial *Environmental Management Act*, extend authority to Regional Districts to regulate Solid Waste according the region's SWMP. If the Board chooses to include flow management in the draft SWMP, there are two options: (i) prepare a Bylaw for approval with the draft plan; or (ii) submit the plan for approval to the Minister and prepare a Bylaw that would require consultation and later be submitted to the Province for final adoption.

Authority to manage municipal solid waste and recyclable material generally referred to as "flow control" can cover:

- the types, quality or quantities of municipal solid waste or recyclable material that may be brought onto or removed from a site;
- the burning of any class or quantity of municipal solid waste or recyclable material;

- set fees for the services of a waste hauler and require waste haulers to acts as agents of the regional district to collect and remit fees.

Staff will be providing the Board with updates on the SWMP as the stakeholder and public consultation processes are completed, including information on options to move forward with flow management in the both the short and long term.

ALTERNATIVES

There are no alternatives for this report.

FINANCIAL IMPLICATIONS

There are no financial implications with this report.

STRATEGIC PLAN IMPLICATIONS

Solid Waste flow management impacts the RDN Strategic Plan's ability to consider future options for waste management, disposal and facility development to meet the needs of a growing population.

SUMMARY / CONCLUSIONS

The regulatory provisions of the Provincial *Environmental Management Act* extends authority to Regional Districts to regulate Solid Waste. The RDN is proposing to review waste flow management options as part of the SWMP process and to potentially develop a Bylaw designed to ensure waste generated in the RDN is handled at a regional facility. The intent of the Bylaw will be to create a level playing field for participants, ensure a cost effective and equitable solid waste management system, support future waste diversion targets and promote private sector innovation and economic opportunities.

RECOMMENDATIONS

That the Board receive this report for information.

Report Writer

Report Writer

Manager Concurrence

A/General Manager Concurrence

A/CAO Concurrence

REGIONAL DISTRICT OF NANAIMO

MEMORANDUM

TO:	Daniel Pearce A/General Manager, Transportation and Solid Waste	**DATE:**	March 27, 2015
FROM:	Jane MacIntosh A/Superintendent of Landfill Operations	**FILE:**	5365-00
SUBJECT:	**Disposal Facility Future Cost Projections**		

PURPOSE

To bring forward a report on information regarding *Disposal Facility Future Cost Projections* based on two potential scenarios.

BACKGROUND

Over the past two years the Regional District of Nanaimo (RDN) has experienced a decreasing trend in the volume of waste being delivered to the Regional Landfill. The road to Zero Waste, as per our Solid Waste Management Plan, has included many initiatives to divert materials from the landfill for re-use, recycling, etc.; however, the magnitude of this decrease is attributed more to the current practice of commercial waste export than the success of waste diversion programs.

Management of the lifespan of the landfill includes the evaluation of available airspace for waste filling, a predicted annual tonnage of waste material and an overall compaction rate for the waste. What is developed is called a fill-plan that basically tells us how much waste can be fit in the space available. Based on historical events the public preference is to maximize the life of the existing landfill rather than construct a new landfill. Given this general mandate, engineers have developed a fill-plan that includes various expansions to the landfill over time to expand the available footprint and achieve the longest lifespan possible for the site. In addition to the operating costs of the landfill, there are also capital costs associated with various projects to complete engineered expansions such as berms.

There are currently no mechanisms in place to control the destination of waste generated within the RDN. Given the recent commercial practice of exporting waste outside of the RDN, the tonnages delivered to the landfill from 2010 to 2014 have dropped from approximately 70,700 metric tonnes (MTs) to 51,400 MTs. The loss of revenue associated with this change in tonnage is approximately $2,412,500. With no means to control the leakage of residual waste from the district, the ability to forecast future projections and generate an engineered fill-plan becomes increasingly challenging.

Looking ahead, there are a number of scenarios that could occur at this point. The observed decreasing trend could continue or, conversely, management directives or changes in market conditions could result in a return of waste to the landfill. The development of the landfill site must allow for either option to ensure the landfill is prepared and there is a place for the waste should the volumes return to a "normal level." The RDN tasked the engineers to review a number of options, three of which are discussed in more detail in the following paragraphs.

Scenario 1: This scenario evaluated the effects of a continued decreasing trend in waste volume. It assumes there are no mechanisms in place to control the flow of waste from the district and the continued success of waste diversion programs would drop the annual tonnage to approximately 20,000 MTs. At this volume and with current tipping fees, which include allowances for general inflation, growth rates for garbage generation and interest rates, the landfill life could extend until the year 2075. The net present value for the site until closure in 2075 and including 25 years post-closure care is -$67.9 million.

Scenario 2: This scenario evaluated the outcome if the Zero Waste Program achieved an 80% diversion rate and assumes 10% of waste generated is exported outside the region. At our current volume and existing tipping fees, which include allowances for general inflation, growth rates for garbage generation and interest rates, the landfill life could extend until the year 2052. The net present value for the site until closure in 2052 and including 25 years post closure care is -$47.9 million.

Scenario 3: This scenario evaluated the outcome if the Zero Waste Program achieved an 80% diversion rate and flow control measures directed all RDN generated waste to the local landfill. At our current volume and existing tipping fees, which include a 2% tip fee increase over inflation, growth rates for garbage generation and interest rates, the landfill life could extend until the year 2048. The net present value for the site until closure in 2048 and including 25 years post-closure care is $12.4 million.

Normalizing Net Present Values: To aid with comparing each scenario, net present values were normalized for a 25 year period (2015 to 2050). The results are summarized below:

Scenario	Alternative Description	Closure Year	Net Present Value (25 year period)	Net Present Value (closure + 25 years)
1	Waste Volume Decrease - 22,000 tonnes, no flow control	2075	-$40.4 million	-$67.9 million
2	80 percent waste diversion, **no** flow control in place (10% waste export)	2052	-$37.9 million	-$47.9 million
3	80 percent waste diversion, flow control in place	2048	-$3.7 million	$12.4 million

While the landfill may last a much longer time if the annual tonnage drops and waste continues to leave the district, the financial implications are stark. Each scenario has implications to waste management practices to mitigate the cost such as closing the landfill, constructing a transfer station and also exporting waste off-Island for final disposal.

ALTERNATIVES

There are no alternatives for this report.

FINANCIAL IMPLICATIONS

There are no financial implications with this report.

STRATEGIC PLAN IMPLICATIONS

Flow Management impacts the ability of the RDN Strategic Plan to consider future options for waste management, disposal and facility development to meet the needs of a growing population.

SUMMARY / CONCLUSIONS

The operation of the Regional Landfill requires preparing future fill-plan options for maximizing the use of air-space and landfill life. The fill-plan guides the day-to-day operation of the site and development of expansion areas to achieve optimal capacity within a defined footprint space. Decreasing trends in waste volumes over the past few years have generated a concern in the ability to adequately predict the future development and costs associated with operating the landfill. Realistic scenarios that evaluate the status quo and flow control measures generate significantly different cost implications and indicate further attention to managing solid waste in the district is economically imperative to the district.

RECOMMENDATIONS

That the Board receive this report for information.

Report Writer

Manager Concurrence

A/General Manager Concurrence

A /CAO Concurrence

REGIONAL DISTRICT OF NANAIMO

TECHNICAL MEMORANDUM

TO:	Larry Gardner Manager, Solid Waste Services	**DATE:**	March 3, 2015
FROM:	Meghan Larson Special Projects Assistant	**FILE:**	5365-00

SUBJECT: REGIONAL DISTRICT OF NANAIMO WASTE GENERATION PROJECTIONS

Issue: Forecasting future waste quantities is fundamental for planning waste management programs and services.

Background:

The Regional District of Nanaimo (RDN) is currently reviewing and updating the Solid Waste Management Plan. Ministry of Environment guidelines, for developing Solid Waste Management Plans, suggest a minimum of a 10 year planning horizon; therefore, forecasting waste generation until at least 2025 is fundamental in developing the Plan.

This *Technical Memorandum* first reviews forecasting of waste generation carried out by the province for the period between 2010 and 2015 and documented in the BC Stats report *Solid Waste Generation in British Columbia, 2010-2025 Forecast*, *June 2012.* Secondly, the memorandum considers where the RDN currently fits in with the provincial model. And lastly, the memorandum discusses where the RDN might vary with respect to future forecasting.

Discussion:

1. Provincial Forecasting of Waste Generation

The BC Stats report defined key sectors for waste generation and recycling/diversion as follows:

> *Residential* - Residential waste is solid waste produced by all residences and includes waste that is picked up by the municipality (either using its own staff or through contracting firms), and waste from residential sources that is self-hauled to depots, transfer stations and disposal facilities.
>
> *Industrial, Commercial and Institutional* - IC&I wastes include: industrial materials, which are generated by manufacturing, and primary and secondary industries, and are managed off-site from the manufacturing operation; commercial materials, which are generated by commercial operations, such as shopping centres, restaurants, offices and others; and institutional materials that are generated by institutional facilities, such as schools, hospitals, government facilities, seniors homes, universities, and others.

Construction, Renovation & Demolition - CR&D wastes refer to wastes generated by construction, renovation and demolition activities. It generally includes materials such as wood, drywall, certain metals, cardboard, doors, windows, wiring and others. It excludes materials from land clearing on areas not previously developed as well as materials that include asphalt, concrete, bricks and clean sand or gravel.

Local Government Recycling/Diversion - Local government recycling/diversion programs include material recycling, organics composting and other waste diversion programs offered by local governments. Recycling is the process whereby a material (for example, glass, metal, plastic, paper) is diverted from the waste stream and potentially remanufactured into a new product or used as a raw material substitute. Local government recycling/diversion figures do not include industry product stewardship, which is measured separately. For instance, it does not include materials picked up under stewardship programs such as materials picked up by local government under contract to Multi-Material BC (MMBC).

Industry Product Stewardship Recycling/Diversion - Industry product stewardship is another form of diversion of waste from landfills. It refers specifically to the collection of materials for reuse or recycling that may offer some sort of incentive for the consumer. Many manufacturers now provide programs to their consumers to recycle or safely dispose of their products. In some cases, consumers pay environmental fees to recover the costs of these programs, and deposits as incentives to participate in the return programs. This term most frequently refers to the return of materials such as beverage containers, tires, paints, batteries, pesticides and motor oil.

The report highlights three projection scenarios with varying degrees of measures taken to divert waste from disposal:

Scenario 1 - 2010 diversion and recycling programs continue as planned; plans for new industry product stewardship programs proceed as expected (e.g. Printed Paper and Packaging); and, enhanced construction, renovation and demolition (CR&D) waste programs do not materialize as quickly as expected.

Scenario 2 – Diversion and recycling programs increase collection rates; construction and demolition waste programs are implemented; and, organic material diversion programs expand significantly.

Scenario 3 – Diversion and recycling programs significantly increase collection rates; high performing construction demolition waste programs are implemented; and, organic material diversion programs expand dramatically.

Under all Scenarios overall waste generation in BC will continue to rise (+17.7%). Refer to the BC Stats report for full details on how their projections were calculated.

Scenario 1 findings:

"Current and planned diversion and recycling programs continue as planned, but enhanced construction and demolition waste programs do not materialize as quickly as expected"

- Assumes maintenance of current programs plus the addition of new programs already identified for implementation (i.e. Packaging and Printed Paper).
- More waste will be generated and, although diversion will remain at 43%, the total amount of waste requiring disposal will increase by 17.5% over 15 years.
- Materials recycled by local government will decline by 16.4% as responsibility is transferred to industry stewards. (i.e. Packaging and Printed Paper; although that material is largely collected by local government through curbside programs, the responsibility rests with the industry steward).

Scenario 2 findings:

"Current and planned diversion and recycling programs increase collection rates, construction and demolition waste programs are implemented and organic material diversion programs expand significantly"

- Assumes a stewardship program for construction, renovation and demolition (CRD) waste and moderately stronger growth in collection from newer programs.
- Assumes greater diversion of organics by local government.
- Assumes a provincial diversion rate of 62% by 2025.
- Results in a projected decline in waste disposal by 21.8% between 2010 and 2025.
- States: *"Given the trend toward increased recycling, stewardship and other practices, a scenario whereby waste diversion efforts experience moderate expansion appears to be a fairly realistic one."*

Scenario 3 findings:

"Current and planned diversion and recycling programs increase collection rates, construction and demolition waste programs are implemented and organic material diversion programs expand significantly"

- Assumes significant advancement of all diversion strategies.
- Assumes the main driver for increased diversion over Scenario 2 is further advancement of organics programs by local government.
- Assumes a provincial diversion rate of 81% by 2025.
- Results in a projected decline in waste disposal by 61.6% between 2010 and 2025.
- "While this may seem a somewhat unlikely scenario, it is nonetheless worth examining as something for BC to strive for."

2. Waste Generation Trends

Over the 20 year period from 1990 to 2010 the total waste generation for the province increased by 40%. What this means is that while great strides were made in increasing waste diversion, per capita waste disposal was not decreasing. The BC Stats report shows a linear projection for waste generation trends over the next 10 years i.e. waste generation increases at the same rate as population. This indicates the province is projecting that per capita waste generation will remain relatively static over the next 10 years.

3. RDN Waste Generation in Relation to the Provincial Model

Applying the provincial model to local waste management practices, the RDN is considered to currently fall within the scope of Scenario 2. Scenario 2 is based on stewardship programs for CRD waste, organics diversion programs by local government and that a stewardship program for packaging and printed paper is in place. The following describes how RDN waste management practices are consistent with Scenario 2:

- *Construction, Renovation and Demolition (CRD) Waste Diversion by Local Government:*

  A 2004 waste composition study determined that after organics, CRD waste was the largest component of solid waste disposed of in the Regional Landfill. The RDN's Zero Waste Plan identified the need to divert the clean wood waste from construction demolition sites from the landfill.

  In February 2007, the Regional Board approved a Construction/Demolition Waste Strategy. Key initiatives in the strategy included:

  - Increasing the tipping fee for clean wood waste at RDN Solid Waste Facilities to create incentives to divert this material to licensed recycling facilities;
  - A ban on disposal of clean wood waste in the Regional Landfill and roll-off containers of wood waste at RDN Solid Waste Facilities; and
  - Arranging contracts with third party wood waste recycling facilities to manage wood waste received at the landfill and transfer station from small self-haulers.

  Effective January 1, 2008, the RDN banned clean wood waste from disposal in the Regional Landfill and roll-off containers of wood waste at RDN Solid Waste Facilities. The initiatives of the RDN are believed to largely meet the diversion goals of what a provincially mandated CRD strategy might look like.

- *Organics Diversion by Local Government:*

  The RDN currently has a two-step approach to organics diversion; Commercial Food Waste Diversion and Green Bin Residential Food Waste Collection.

  In June 2005, the RDN banned disposal of food and other organic waste from commercial and institutional sources at the region's solid waste facilities, putting the first phase of its organics diversion strategy into action.

  The ban on commercial food waste in the Regional Landfill followed the opening of International Composting Corporation in Nanaimo, the first composting facility licensed under the RDN Waste Stream

Management Licensing Bylaw. The International Composting Corporation is currently under the ownership of Nanaimo Organic Waste.

Extensive consultation preceded the commercial food waste and organics disposal ban in 2005 with follow-up site visits to over 200 businesses and organizations. Landfill disposal of compostable organic waste from a commercial or institutional facility is not permitted under Bylaw 1531.

The expectation is for all commercial and institutional facilities such as restaurants, grocery stores, and school and hospital cafeterias to have food waste diversion systems in place. Commercial food waste includes raw and cooked food and other compostable organic material from commercial and institutional premises.

The RDN has encouraged participation in the commercial food waste ban with little regulatory enforcement to date. The strategy has allowed affected businesses and organizations to comply using the most cost-effective and efficient methods for their operations. The second step, providing region-wide Green Bin residential food waste collection, was accomplished in October 2011. Again, the driver was the 2004 waste composition analysis which showed that food waste and compostable paper made up approximately 50 per cent of household garbage. The residential Green Bin Program enables households to help divert all food waste in the region from the landfill for processing into compost and potentially renewable fuels.

The green bin goes beyond what can be composted at home. Not just fruit and vegetable scraps but cooked food, meat, fish, bones, food soiled paper and paper packaging such as waxed fast food cups and milk cartons will be accepted in your green bin. Currently, the green bin program diverts an estimated 106kg per household of food waste from the Regional Landfill each year from the residential curbside collection program.

- *Packaging and Printed Paper Provincial Stewardship Program*

The curbside collection programs operated by the RDN and the City of Nanaimo (City) are funded through user fees sent out on their utility bills, not through taxes. By partnering with MMBC in May 2014, the City and the RDN became Packaging and Printed Paper collectors on MMBC's behalf and receive appropriate financial incentives from MMBC. As a result, the recycling portion of annual user fees charged to single family residential households has been reduced. Prior to partnering with MMBC, the RDN and the City provided residential recycling collection to all single family residential homes in the region. So far, there has been no measurable difference in the amount of recyclable material collected through the curbside collection program before and after the partnership with MMBC.

Since 1991, the RDN has progressively banned materials from landfill disposal as local recycling and processing facilities became available.

In 2010, household plastic containers were added to recyclable paper, cardboard, and metal already banned from the landfill.

Thanks to the cooperation of waste haulers and the owners and management of multi-family dwellings, 86% of complexes in the region are now meeting the requirements of the ban on landfill disposal of

household recyclable materials. All multi-family complexes should have a system in place to collect and recycle all household recyclables subject to the landfill disposal bans.

Currently, the RDN is at a diversion rate of 68% which is above the provincial diversion rate of 49% by 2014 for Scenario 2. However, the BC Stats projections are based on a provincial average which includes many districts that have less mature and developed programs such as exist in the RDN. In other words, Scenario 2 is a composite of regions having both lower and higher diversion rates yielding a provincial average of 49%. However, in considering the description of programs of Scenario 2, they mirror almost exactly what exists in the RDN.

4. Future Waste Generation

The following section discusses future waste generation in the RDN relative to provincial Scenarios 2 and 3. The RDN is considered to currently fall within Scenario 2, so this is really a "status quo" future option. Scenario 3 anticipates significant advancements in diversion strategies particularly in regards to organics management. Such advancements do apply to the RDN.

Scenario 2

Under Scenario 2, it is projected that the RDN would see an increase (+8%) in the amount of waste disposed to landfill with yearly tonnages increasing from 52,635 metric tonnes in 2014 to 56,629 metric tonnes in 2025. This increase is largely due to an increase in population in the region and the assumption that waste diversion rates nominally increase.

Scenario 2 Projections												
	2014	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**
Population	**151,687**	**153,551**	**155,540**	**157,629**	**159,730**	**161,831**	**163,922**	**165,996**	**168,049**	**170,087**	**172,094**	**174,077**
Per capita waste disposal (kg)	**347**	**336**	**325**	**325**	**325**	**325**	**325**	**325**	**325**	**325**	**325**	**325**
Waste Disposal (m/t)	**52,635**	**51,617**	**50,599**	**51,279**	**51,962**	**52,646**	**53,326**	**54,001**	**54,668**	**55,331**	**55,984**	**56,629**
Total Recycled (m/t)	**111,850**	**114,890**	**118,065**	**119,650**	**121,245**	**122,840**	**124,427**	**126,001**	**127,560**	**129,107**	**130,630**	**132,135**
Total Generated (m/t)	**164,486**	**166,507**	**168,664**	**170,929**	**173,207**	**175,485**	**177,753**	**180,002**	**182,228**	**184,438**	**186,614**	**188,765**
Diversion Rate	**68%**	**69%**	**70%**	**70%**	**70%**	**70%**	**70%**	**70%**	**70%**	**70%**	**70%**	**70%**

Note: Baseline waste generation for 2014 had not been calculated at the time of this report. A per capita waste disposal rate of 347kg was assumed for the purposes of future projections.

Scenario 3

Under Scenario 3 it is projected that the RDN would see a decline (-32%) in the amount of waste disposal to landfill with yearly tonnages decreasing from 52,635 metric tonnes in 2014 to 35,865 metric tonnes in 2025. This Scenario assumes provincially recycling/diversion rates increase dramatically including both government recycling/diversion as well as industry product stewardship recycling/diversion causing the volume of waste disposed of in landfills to shrink drastically. For the RDN specifically, reductions would be realized through improvements to the organics diversion programs with only a modest increase from provincial stewardship programs. This is because current RDN policies are believed to largely achieve the same results of a provincial CRD stewardship program.

Scenario 3 Projections												
	2014	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**
Population	**151,687**	**153,551**	**155,540**	**157,629**	**159,730**	**161,831**	**163,922**	**165,996**	**168,049**	**170,087**	**172,094**	**174,077**
Per capita Waste disposal (kg)	**347**	**336**	**325**	**304**	**293**	**282**	**271**	**260**	**249**	**239**	**228**	**206**
Waste Disposal (m/t)	**52,635**	**51,617**	**50,599**	**47,860**	**46,766**	**45,626**	**44,438**	**43,200**	**41,912**	**40,576**	**39,189**	**35,865**
Total Recycled (m/t)	**111,850**	**114,890**	**118,065**	**123,069**	**126,441**	**129,859**	**133,315**	**136,801**	**140,316**	**143,862**	**147,425**	**152,899**
Total Generated (m/t)	**164,486**	**166,507**	**168,664**	**170,929**	**173,207**	**175,485**	**177,753**	**180,002**	**182,228**	**184,438**	**186,614**	**188,765**
Diversion Rate	**68%**	**69%**	**70%**	**72%**	**73%**	**74%**	**75%**	**76%**	**77%**	**78%**	**79%**	**81%**

Note: Baseline waste generation for 2014 had not been calculated at the time of this report. A per capita waste disposal rate of 347kg was assumed for the purposes of future projections.

Data Limitations

It is important to keep in mind that these are projections only and there are a number of factors that can change these projected outcomes as well as influence the type of service that might be provided:

- Regional Growth – aging population, increased densification in some areas
- Industry Product Stewardship programs – rate of successful diversion
- Waste Export – where is the waste in our region being disposed of
- Consumerism – Are individual buying habits staying the same or are individuals buying more or less

All of these factors will play a role in how much waste is actually produced in the future.

Conclusion:

Applying the Provincial model for waste generation suggests the following:

- Under a status quo scenario of 70% diversion over the next 10 years forecasts a per capita waste disposal of 325kg with at total amount of residuals of 56,629 metric tonnes annually by 2025
- Under the Province's most optimistic forecast of 81% diversion over the next 10 years forecasts a per capita waste disposal of 206kg with a total amount of residuals of 35,865 metric tonnes annually by 2025

The Province states in reference to an 81% diversion that *"While this may seem a somewhat unlikely scenario, it is nonetheless worth examining as something for BC to strive for"*. It is important to note that this level of diversion is based on a Provincial average with different areas having high and lower diversion. Although the report is not explicit that all areas of the province would have to have high levels of diversion to reach this target, it definitely implies such.

Nevertheless, given that the RDN has a mature waste management system and currently has all of the elements to promote further levels of diversion, 81% diversion appears to be achievable in the context of the provincial forecast.

REGIONAL DISTRICT OF NANAIMO

STAFF REPORT

TO:	Paul Thorkelsson	**DATE:**	July 2, 2015
FROM:	Larry Gardner Manager, Solid Waste	**MEETING:**	RSWAC, July 9, 2015
		FILE:	0360-20-RSWAC

SUBJECT: Authorities Provided to Regional Districts Through an approved SWMP - RSWAC

PURPOSE

The purpose of this report is to provide the Regional Solid Waste Advisory Committee (RSWAC) an overview of the authorities that may be granted by the province to a Regional District through Ministerial approval of a Solid Waste Management Plan (SWMP).

BACKGROUND

A SWMP is an instrument of the *Environmental Management Act* and, from an "authorities" perspective, it serves to:[1]

1. Provide an exemption to gaining another type of authorization (e.g. Permit) for discharges to the environment. This exemption applies to both public and private facilities named in a SWMP. Also, it can apply to a specific facility (e.g. specific landfill), to a class of sites (e.g. multiple landfills), or a future contemplated facility.
2. Not require the assent of electors for adopting a bylaw for implementing a waste management plan (e.g. borrowing).
3. Provide Regional Districts additional powers to manage municipal solid waste.

Item 3 above, additional powers available to Regional Districts to manage municipal solid waste, is the subject of this report.

DISCUSSION

Regional Districts can only act where they have explicit authority delegated by the province. The *Environmental Management Act* sets out a number of additional authorities that Regional Districts may avail themselves of to manage solid waste or recyclables. These additional authorities allow:

1) The imposition of fees on persons that use a waste hauler or generate municipal solid waste. Fees may be based on the quantity, type or composition of the waste. Also, the fees may be varied by class of person, business, operation or by the waste.
2) Requiring waste haulers to act as agents of the Regional District to maintain records and collect and remit fees, and, set compensation payable for this service.

[1] *Environmental Management Act*, Part 3

3) The regulation of:
   a. the types, quality or quantities of municipal solid waste or recyclable material that may be brought onto or removed from a site;
   b. discarding or burning of municipal solid waste or recyclable material;
   c. the transport of municipal solid waste or recyclable material within or through the area covered by the Waste Management Plan;
   d. requiring the owner or operator of a site or a hauler to hold a recycler license, a waste stream management license or a hauler license, or comply with a code of practice;
   e. establishing different prohibitions, conditions, requirements and exemptions for different classes of persons, sites, operations, activities, municipal solid wastes or recyclable materials;

The first step to gaining the regulatory authorities is to have the intention stated in the SWMP along with a statement that consultation will be carried out with those affected. Enactment of these authorities is through bylaw which requires prior approval of the Minister of the Environment.

Of the available additional authorities, the current RDN SWMP (2004) only includes waste stream licensing described in 3(d) above. The specific licensing provisions were enacted by Bylaw No. 1386 (Appendix 1) which was approved by the Minister of the Environment on April 6, 2005. The goal of the waste stream licensing system is to ensure proper management of privately operated facilities by specifying operating requirements so as to protect the environment, to ensure that regional and municipal facilities and private facilities operate to equivalent standards, and to achieve the objectives of the SWMP.

SUMMARY/CONCLUSIONS

Through a SWMP, Regional Districts can access additional authorities to manage municipal solid waste and recyclables. The RDN is updating 2004 SWMP and may want to revisit the existing authority the province has granted with respect to waste stream licensing. Furthermore, other available authorities that might aid in managing waste and achieving the goals of the SWMP should be considered.

Report Writer

General Manager Concurrence

C.A.O. Concurrence

INDEX

BYLAW NO. 1386

REGIONAL DISTRICT OF NANAIMO

BYLAW NO. 1386

(consolidated for convenience to include up to 1386.01)

A BYLAW OF THE REGIONAL DISTRICT OF NANAIMO TO REGULATE THE MANAGEMENT OF MUNICIPAL SOLID WASTE AND RECYCLABLE MATERIAL

WHEREAS:

A. The Regional District of Nanaimo and the Province of British Columbia are jointly committed to the regulation and management of municipal solid waste and recyclable material within the district so as to encourage waste reduction and recycling and ensure that residual materials are disposed of in a manner consistent with the Solid Waste Management Plan approved by the Minister of Water, Land and Air Protection;

B. The Regional District of Nanaimo is authorized pursuant to the *Environmental Management Act* to regulate with respect to municipal solid waste and recyclable material;

C. The Regional District of Nanaimo is operating under a Solid Waste Management Plan which defines a regulatory system for the management of all privately operated municipal solid waste and recyclable material operations. The goal of the regulatory system is to ensure proper management of privately operated facilities by specifying operating requirements so as to protect the environment, to ensure that regional and municipal facilities and private facilities operate to equivalent standards, and to achieve the objectives of the Solid Waste Management Plan.

NOW THEREFORE the board of the Regional District of Nanaimo in open meeting duly assembled enacts as follows:

ARTICLE 1

1. INTERPRETATION

1.1 Definitions. In this bylaw, terms defined in the *Environmental Management Act* shall have the meaning set out therein for the purpose of this bylaw unless otherwise defined in this bylaw. In this bylaw:

"biosolids" means stabilized municipal sewage sludge resulting from a municipal waste water treatment process or septage treatment process which has been sufficiently treated to reduce pathogen densities and vector attraction to allow the sludge to be beneficially recycled in accordance with the requirements of the Province of BC Organic Matter Recycling Regulation.

"board" means the Regional board of the Regional District of Nanaimo.

"charitable organization" is an organization as defined in the *Income Tax Act* (Canada) as a registered charity.

"composting facility" means a facility that processes organic matter that may include biosolids to produce compost.

"depot" means an operation, facility or retail premises, or an association of operations, facilities or retail premises, identified by or operating under or in fulfillment of a *Environmental Management Act* Stewardship Program.

"district" means the Regional District of Nanaimo.

"Environmental Management Act" means the Province of BC *Environmental Management Act*, SBC 2004 c.30, as amended or replaced and any successor legislation and any regulations thereunder.

"**facility license**" means a waste stream management license or a recycler license issued by the district.

"**General Manager**" means a person appointed to the position of General Manager of the Regional District of Nanaimo.

"leachate" means:

a) effluent originating from municipal solid waste and/or recyclable material being received, processed, composted, cured or stored at a facility,

b) effluent originating from municipal solid waste and/or recyclable material being stored, or

c) precipitation, storm water, equipment wash water or other water which has come into contact with, or mixed with, municipal solid waste and/or recyclable material being received, processed, composted, cured or stored.

"**licensee**" means the owner or operator to whom a valid and subsisting facility license has been issued.

"litter" means loose refuse deposited, discarded or stored in an open place other than in a container.

"non-profit organization" is an organization as defined in the *Income Tax Act* (Canada) as a non-profit organization.

"odour" means smells which are ill-smelling, unpleasant, disgusting, offensive, nauseous or obnoxious as reported to and considered as such by the General Manager.

"**process**" or "**processing**" means sorting, baling, repackaging, grinding, crushing or any other management activity that requires hauled recyclable material or municipal solid waste to be unloaded from the delivery vehicle.

"qualified professional" means a person who:

a) is registered in British Columbia with his or her appropriate professional association, acts under that professional association's code of ethics, and is subject to disciplinary action by that professional association, and

b) through suitable education, experience, accreditation and knowledge may be reasonably relied

on to provide advice within his or her area of expertise as it relates to this bylaw.

"recycle" or any variation thereof, means any process by which municipal solid waste or recyclable material is transformed into new products or a feedstock to manufacture or process products that meet internationally or other approved specifications and standards using current available technology.

"**reprocessing**" means conversion of recyclable materials or municipal solid waste into a form suitable for transportation or manufacture into new products.

"**resale**" refers to selling of a material that has been purchased but not processed.

"**residue**" or "**residual**" means the portion of municipal solid waste or recyclable material that remains unusable after the manager of the municipal solid waste or recyclable material has no further use for it.

"**runoff**" means any rainwater, leachate, or other liquid which drains over land from any part of a facility.

"**sludge**" means an unstabilized, semi-solid by product of wastewater treatment.

"**Solid Waste Management Plan**" means the district's Solid Waste Management Plan, as amended from time to time.

"store" and **"storage"** means to keep on land or water, whether or not open to the air, covered, in a structure or container.

"transfer station" means any land and related improvements or buildings and related improvements at which municipal solid waste from collection vehicles is received, compacted, or rearranged for subsequent transport.

"vector" means a carrier organism that is capable of transmitting a pathogen from one facility, waste source, product or organism to another facility, waste source, product or organism.

1.2 **Schedules.** The schedules listed below and annexed hereto, shall be deemed to be an integral part of this bylaw,

Schedule "A" - Exemptions from Licensing Requirements
Schedule "B" - Plan Facilities (Public)
Schedule "C" - Fees – Facilities
Schedule "D" - Publishing and Billboard Posting Requirements

1.3 **No Conflict with Municipal Requirements.** The requirements under this bylaw are distinct and separate from the requirements of a municipality. For greater clarity, municipalities may impose further restrictions or require further conditions than those imposed under this bylaw by the district.

1.4 **Compliance with Other Laws.** Nothing in this bylaw, including, *inter alia,* a license, excuses any person from complying with all other applicable enactments.

1.5 **Purpose of Bylaw.** This bylaw is enacted for the purposes of regulating waste management facilities within the regional district in the general public interest. It is not contemplated nor intended, nor does the purpose of this bylaw extend:

(1) to the protection of any person from economic loss;

(2) to the assumption by the regional district or any employee of any responsibility for ensuring the compliance by a facility operator, his or her representatives or any employees, retained by him or her, with the requirements of this bylaw or any other applicable codes, enactments or standards;

(3) to providing to any person a warranty with respect to any facility for which a License is issued under this bylaw;

(4) to providing to any person a warranty that a facility operation is in compliance with this bylaw or any other applicable enactment.

1.6 **Licensees to Comply.** Neither the issuance of a license under this bylaw nor the acceptance or review of plans or specifications or supporting documents, nor any inspections made by or on behalf of the regional district shall in any way relieve the owner, operator or licensee from full and sole responsibility to operate in accordance with this bylaw and all other applicable enactments, codes and standards.

ARTICLE 2

2 FACILITIES REQUIRING FACILITY LICENSES

2.1 **Prohibition.** Subject to Section 2.2, no person or organization shall own or operate within the area of the Regional District of Nanaimo a site, facility or premises where municipal solid waste or recyclable material is managed unless that person holds with respect thereto and strictly complies with a valid and subsisting facility license.

2.2 **Exclusions.** Notwithstanding Section 2.1, no facility license is required for:

a) facilities owned and operated by the district or its member municipalities,

b) those facilities set out in Schedules "A" and "B" to this bylaw,

c) a facility or operation that is registered under and that is fully in compliance with a code of practice under Article 5,

d) those facilities otherwise exempted under this bylaw.

2.3 **Type of Facility License**. Type I facility licenses are required for all facilities except any facility which is owned or operated by a charitable organization or non-profit organization which requires a Type II facility license.

ARTICLE 3

3 FACILITY LICENSE APPLICATION

3.1 **Form of Application.** A facility license application under this bylaw shall be filed at the district's office in the form prescribed by the district. Applications must be accompanied by:

a) the application fee specified in Schedule "C",

b) a written statement from the owner (if other than the applicant) of the property on which the facility is located or is to be located acknowledging and approving of the proposed use of the property,

c) a written statement from the senior manager of the land use planning department of the municipality or electoral area in which the facility is located or is to be located stating that the applied for use is a permitted use under the municipality's or district's zoning bylaws or under Section 911 of the *Local Government Act*, and

d) a proposed operating plan for the facility as provided in Section 9.1.

3.2 **Procedure on Application for all Facilities.** The following application requirements must be met by all operations requiring a facility license:

a) The applicant must publish, not more than 30 days from the date of submission of the application, at the applicant's expense, a notice that has been reviewed and approved by the General Manager, in a local newspaper that is distributed at least weekly in the area where the facility is located or proposed to be located, in accordance with Section 1 of Schedule "D", and within 30 days after the date of publication provide to the General Manager a copy of the full page tear sheet as proof of publication.

b) The applicant must post a clearly legible copy of the details of application as described in Schedule "D", protected from the weather, to the satisfaction of the General Manager, in a conspicuous place at all entrances to the land fronting on a public road on which the facility is located or proposed to be located within 15 days after the date of the application and keep the copy posted for a period of not less than 30 days.

c) The General Manager may give written notice of an application to any person that the General Manager considers may be affected by the application or full details of the application to any authority the General Manager deems necessary to assist with regulatory requirements.

d) Persons who consider themselves adversely affected by the granting of a facility license, may within 45 days of the date of the first posting, publishing, service or display required by this bylaw, notify the General Manager in writing setting out the reasons why they consider themselves adversely affected, and the General Manager will provide a copy of the written reasons submitted by the persons who consider themselves adversely affected to the applicant and allow the applicant to respond.

e) The General Manager may take into consideration any information received after the 45-day period prescribed by Subsection 3.2(d) if the General Manager has not made a decision on the facility license within that time period.

3.3 **Adequate Notice.** Despite Subsection 3.2, if, in the opinion of the General Manager, any method of giving notice set out in Subsection 3.2 is not adequate or practical, the General Manager may, within 30 days of receipt of the application, require an applicant to give notice of the application by another method that is, in the opinion of the General Manager, more effective.

3.4 **Evaluation of a Facility License Application.** The General Manager will consider the following matters with respect to the facility proposed in the application:

a) the potential risk posed to the environment and/or public health,

b) the protection of the environment,

c) comments from the host municipality relating to compliance with the local zoning or other bylaws that may affect a facility design and/or operating plan,

d) comments from persons who consider themselves adversely affected,

e) information received as a result of the fulfillment of the requirements set out in Sections 3.2 and 3.3,

f) compliance with the Solid Waste Management Plan,

g) any operating plan submitted to the General Manager under Article 9, and

h) compliance by the applicant with the requirements to pay fees and report as required under this bylaw.

3.5 **Issuance of a Facility License.** After receipt of a facility license application and completion of requirements in this Article 3 to the satisfaction of the General Manager, the General Manager may issue a facility license on such terms and conditions set out in Section 4.1 and 4.2 as the General Manager considers necessary to protect the environment and to achieve the objectives of this bylaw and the Solid Waste Management Plan.

ARTICLE 4

4 FACILITY OPERATING REQUIREMENTS

4.1 Operating Conditions for Facilities. All owners and operators of facilities that are required under this bylaw to obtain a facility license must comply with the following operating conditions:

a) install and maintain locking gates on all access roads into the facility to prevent unauthorized access and ensure that the gates are locked at all times when the facility is unattended,

b) construct access roads to and through the facility from suitable material satisfactory to the General Manager and capable of providing all weather access for all emergency vehicles,

c) install and maintain, as required by the General Manager, barriers to limit access to the facility except by the access roads (in the form of fencing, trees, shrubbery, natural features or other barriers),

d) ensure that at all times the facility has telephone service or other functioning communication equipment with which to immediately summon fire, police or other emergency service personnel in the event of an emergency,

e) prevent the escape of litter, mud or debris from the facility site to adjoining roads or adjacent lands,

f) prevent the escape of any leachate from the facility to a surface not covered by an impermeable barrier and not equipped with a leachate containment system,

g) ensure that an employee is present at all times that the facility is open for business or accepting municipal solid waste or recyclable material,

h) inspect every load received before mixing with any other loads,

i) maintain a record of all rejected loads including date, time, type of material, hauler's name, generator's name and vehicle license number,

j) ensure that any municipal solid waste or recyclable material that is removed from the facility is taken to a site or facility that complies with all applicable provincial, state or federal regulations and with zoning and any other applicable enactments and hold any license, permit or approval required by the local government(s) of the jurisdiction in which the facility is located and be able to produce documentary evidence confirming the above,

k) ensure that there is no burning of municipal solid waste or recyclable material at the facility, and take all precautionary measures possible required by the General Manager to reduce the potential risk of ignition of such materials,

l) produce and comply with an operating plan acceptable to the General Manager under Article 9,

m) require the licensee to provide and maintain security in such amount and in a form satisfactory to the General Manager under Section 8.1,

n) ensure access to, and provide and maintain necessary related works associated with an adequate water supply or other suitable fire suppressant on site for extinguishing fires on site, and

o) if there is a fire, immediately notify the local fire department and the General Manager and take all measures necessary to extinguish the fire.

4.2 **Terms and Conditions for Facility Licenses.** In addition to and without limiting the requirements set out in Section 4.1 or otherwise, where sufficient cause exists, as determined by the General Manager , the General Manager may do the following in a facility license:

a) specify, prohibit, or restrict the type, quality, or quantity of municipal solid waste or recyclable material that may be brought onto or removed from a facility,

b) require the licensee to contain the municipal solid waste or recyclable material within a height or heights and spatial area or areas specified by the General Manager,

c) require the licensee, at its sole cost, to submit to the General Manager a quantity survey or a land survey of the municipal solid waste or recyclable material at the facility, prepared by a British Columbia Land Surveyor,

d) require the licensee to recover, for the purpose of recycling, any recyclable materials which are subject to material bans imposed by bylaw or by resolution of the district,

e) require the licensee to construct, install, repair, alter, remove, or maintain works, and provide plans and specifications prepared by a registered professional engineer (or any other qualified professional as appropriate and recognized as such by the General Manager) prior to the commencement of any construction, installation, repair, alteration, removal or maintenance of such works,

f) require the licensee to submit plans, procedures, and specifications prepared by a registered professional engineer (or any other qualified professional as appropriate and recognized as such by the General Manager), for or relating to the handling of spills, fires, floods, earthquakes, and other emergencies at the facility,

g) require the licensee to provide and maintain risk insurance in such amount and in a form satisfactory to the General Manager under Section 8.12,

h) require the licensee, at such times and in such manner as is acceptable to the General Manager, to measure, record, and submit information to the General Manager relating to:

(i) the type, quality, and quantity of municipal solid waste and recyclable material brought onto and removed from the facility,

(ii) the handling of municipal solid waste and recyclable material at the facility,

(iii) the quantity and characteristics of leachate, runoff, and odour generated by the facility,

(iv) the characteristics of the surface water, groundwater and soil at the facility to assess for existing degradation or contamination,

(v) the characteristics of surface water and groundwater in the surrounding area which may be affected by leachate or other runoff from the facility,

(vi) the condition of roads and public utilities located at or adjacent to the facility insofar as the condition of the roads and public utilities affects or are affected by the operation of the facility,

(vii) slope stability, settlement, and erosion at the facility, and

(viii) the operation and maintenance of equipment and works at the facility, including leachate collection and treatment systems, runoff, water management systems, and air quality and air quality control systems,

i) require that any or all of the information required in Subsection 4.2 (h) be prepared by a registered professional engineer (or any other qualified professional as appropriate and recognized as such by the General Manager), and

j) provide for implementing terms and conditions of a facility license in phases or provide for varying dates for compliance with the terms and conditions of a facility license.

ARTICLE 5

5 CODES OF PRACTICE

5.1 Establishment of Codes of Practice. The board may, from time to time, establish codes of practice setting out different prohibitions, regulations, conditions, requirements, exemptions, and rates or levels of fees for different classes of persons, facilities, operations, activities, trades, businesses, municipal solid waste, or recyclable material for the purpose of prohibiting, regulating, or controlling the handling of municipal solid waste and recyclable material. Codes of practice will be established by way of adoption of a code of practice as an amendment to this bylaw.

5.2 Conditions of a Code of Practice. A code of practice may set such terms and conditions and specify such requirements as the district considers advisable and, without limiting in any way the generality of the foregoing, the district may in a code of practice:

a) require that facilities or operations, to be as specified by the district, register with the district in order to qualify under a code of practice,

b) include any of the requirements set out in Article 4, and

c) require security in an amount and form and subject to conditions set out in Article 8, or as defined in the code of practice itself.

5.3 **Registration Fee.** An application to register under a code of practice under this bylaw must be filed at the district's office in the prescribed form accompanied by the applicable registration fee set out in column 2 of Schedule "C" to this bylaw.

ARTICLE 6

6 ILLEGAL DUMPING

6.1 **Definitions.** In this article:

"responsible person" means one or more of the following:

a) a person who generated municipal solid waste or recyclable material that has been delivered, deposited, stored, or abandoned, and/or

b) a person who hauled municipal solid waste or recyclable material that has been delivered, deposited, stored, or abandoned, and/or

c) a person who had or has charge or control of the land or buildings on which municipal solid waste or recyclable material has been deposited, stored, or abandoned or to which municipal solid waste or recyclable material has been delivered.

6.2 **Prohibition.** No responsible person shall deliver, deposit, store, or abandon, cause or allow to be delivered, deposited, stored or abandoned, municipal solid waste or recyclable material on or within any lands or improvements except a facility that holds a valid and subsisting facility license within the area of the Regional District of Nanaimo unless the municipal solid waste or recyclable material:

a) is placed in a receptacle for scheduled curbside collection by a hauler or a local government, or

b) is taken to a facility outside the boundaries of the Regional District of Nanaimo that complies with all applicable enactments, including without limitation, land use bylaws.

6.3 **Liability for Illegal Dumping.** In addition to any other penalty imposed under this bylaw, the General Manager may require, by written notice, a responsible person to remove to a licensed facility any municipal solid waste or recyclable material that has been deposited in contravention of Section 6.2. Such removal shall be at the responsible person's cost. If a responsible person fails to remove the municipal solid waste or recyclable material within the time period specified in the notice, the General Manager may cause the municipal solid waste or recyclable material to be disposed at a licensed facility, and the responsible person shall pay all of the costs associated with the disposal.

6.4 **Proof of Compliance** The General Manager may require a responsible person who wishes to manage municipal solid waste or recyclable material in accordance with paragraph 6.2 b) to provide to the district documents evidencing that the facility complies with the enactments referred to in that paragraph.

ARTICLE 7

7 AMENDMENTS

7.1 Amendment of a Facility License. The General Manager may amend the terms and conditions of a facility license either in whole or in part:

a) on its own initiative where it considers necessary due to changes in the facility's practices, or

b) on application in writing by a licensee,

c) on its own initiative where it considers necessary due to changes external to the operations of the facility

7.2 Major and Minor Amendment. For the purposes of this article:

a) **"major amendment"** to a facility license means any amendment which is not a minor amendment, and

b) **"minor amendment"** to a facility license means:

(i) a change of ownership, control, or name,

(ii) a change of legal address or mailing address,

(iii) a change to the hours of operation,

(iv) a decrease in the authorized quantity of municipal solid waste or recyclable material, accepted or stored,

(v) an increase in the authorized quantity of municipal solid waste or recyclable material accepted or stored that does not exceed 10% of the authorized quantity specified in the license first received by the facility,

(vi) a change in the authorized quantity of municipal solid waste or recyclable material accepted or stored such that, in the opinion of the General Manager, the change has or will have less impact on the environment,

(vii) a change in a requirement to record and submit information, or

(viii) a change to the works, method of treatment, or any other condition in a facility license such that, in the opinion of the General Manager, the change has or will have less impact on the environment.

7.3 Procedure on Amendment Application.

a) For all applications for major amendments, the provisions set out in Sections 3.1 to 3.5 shall apply subject to necessary modification as deemed appropriate by the General Manager.

b) For all applications for minor amendments, the General Manager may, at his discretion, require that any of the provisions set out in Sections 3.1 to 3.5 also apply, subject to

necessary modification as considered appropriate by the General Manager.

ARTICLE 8

8 SECURITY AND RISK INSURANCE

8.1 **Requirement for Security.** The General Manager, as a precondition to issuing a facility license, or as a term or condition of a facility license or by written notice at any time prior to or after the issuance of the facility license, requires an owner, operator or licensee of a facility to provide and maintain security in an amount and form satisfactory to the General Manager and for such period as may be required, to ensure:

a) compliance with this bylaw or a facility license, and

b) that sufficient funding is available for facility operations and maintenance, remediation of the facility, facility closure, and post-closure monitoring of the facility, in accordance with the terms and conditions of the license.

8.2 **Form of Security.** The security held by the district under Section 8.1 may be in the following form, provided that the particular form of security is satisfactory to the district, acting reasonably:

a) cash,

b) certified cheque,

c) an irrevocable standby letter of credit issued by a Canadian Schedule I chartered bank.

8.3 **Amount of Security**. The security held by the district under Section 8.1 in respect of a facility shall be in such amounts as may be reasonably satisfactory to the General Manager and be based primarily on the maximum tonnage of pre-processed material allowed at the facility at one time, multiplied by the current per tonne cost to haul and dispose of the material. This shall be done for each material type allowed at the facility. Calculations for material types that may result in a positive value shall also be shown when determining the amount of security required, but these values cannot be used to offset the total security required. In addition, the security may, without limitation, vary depending on any or all of the following:

a) the type of facility,

b) the type of operations and maintenance activities performed or to be performed at the facility,

c) the anticipated or actual activities required for closure and post-closure monitoring of the facility,

d) the types of discharges that could have the potential to result from the operation, remediation, closure, and post-closure monitoring of the facility, including, without limitation, leachate, storm water, odours, dust, litter, and erosion, and the cost of installing, operating, repairing, and maintaining works that may be required to control such discharges at the facility,

e) the geotechnical and other physical characteristics of the facility site,

f) possible administrative or contingency fees for site clean-up activities coordinated by the General Manager, and

g) such other factors as the General Manager may reasonably determine.

Without limiting the generality of the foregoing, the General Manager may, in an amendment to a facility license under Section 7.1, amend the amount of security required under Section 8.1 for the facility.

8.4 **Conditions for Drawing on Security**. Where a licensee, owner or operator defaults under this bylaw or a facility license, the General Manager may, by written notice to the licensee, require the default to be remedied within a period specified by the district and if the default is not remedied within the specified time, the district may draw down in whole or in part on the security for purposes as described in Section 8.5.

8.5 **Use of Security.** The security drawn down by the district, under Section 8.4, may be used to ensure compliance with the provisions of this bylaw and the facility license, including without limitation funding for the following:

a) the handling of municipal solid waste, recyclable material, or any other materials at the facility,

b) the carrying out of operations and maintenance activities at the facility in compliance with an operating plan accepted by the General Manager under Section 9.3,

c) the control, abatement or prevention of leachate or contaminants escaping from the facility,

d) the expenses incurred by the district, including legal expenses, in

(i) carrying out or causing to be carried out any of the activities described in this section, and

(ii) complying with any laws or enactments of the federal, provincial or any local government, including the district.

8.6 **Additional Conditions for Drawing on Security.** Notwithstanding Section 8.4, the district shall be entitled to draw down, in whole or in part, on any security it holds under Section 8.1, where:

a) such security is not renewed, replaced, or extended at least 30 days in advance of its scheduled expiry date, or

b) the General Manager is satisfied on reasonable grounds that the value and utility of the security may otherwise be compromised.

In this event, the district shall hold and deal with the proceeds thereof as security in the same manner as the district is entitled to hold and deal with the original security.

8.7 **Replenishment of Security**. If the district draws down in whole or in part on the security under this article, the owner, operator or licensee of a facility must replenish the security drawn down within 30 days if required to do so in writing by the General Manager and the provisions of this article, with the necessary changes, shall apply to such replenished security.

8.8 **Survival.** Notwithstanding any suspension, cancellation, expiration, or other termination of a facility license, all owners, operators, or licensees of a facility shall continue to be bound by the requirements in a facility license to provide and maintain security, which requirements shall survive any such suspension, cancellation, expiration, or other termination until otherwise notified by the General Manager.

8.9 **Return of Security.** Provided the owner, operator or licensee of a facility is in full compliance with this bylaw and a facility license, the district may return to the owner, operator or licensee of a facility the security held by it:

(a) upon completion, to the reasonable satisfaction of the General Manager, of all activities required for the closure or post-closure of the facility,

(b) upon receipt by the district of substitute or replacement security satisfactory to the General Manager, or

(c) where the General Manager otherwise deems expedient.

8.10 **Unclaimed Security.** If after making reasonable efforts the district is unable to effect return of the security under Section 8.9, title of the security shall vest absolutely in the district after the fifth anniversary of the initial attempt to return the security.

8.11 **Interest on Cash Security.** If the security or any portion thereof provided under Section 8.1 is in the form of cash, the interest earned thereon at the rate referred to below will be added to and form part of the principle amount of the security, and may be used under Section 8.4. Any portion of the principle amount of the security and accrued interest not utilized will be returned pursuant to Section 8.9. The interest rate for the security will be the prime rate charged by the Canadian Imperial Bank of Commerce for Canadian dollar loans, from time to time, less two percentage points.

8.12 **Security in the Form of Insurance.** Notwithstanding Section 8.2, the General Manager may require that an owner, operator, or licensee obtain environmental risk insurance from an insurance broker approved by the General Manager, that covers risks associated with such events as floods, earthquakes, toxic spills, fires, leachate breakouts, and water, sewer, and gas pipe breaks.

ARTICLE 9

9 OPERATING PLANS

9.1 Operating Plan Requirements. Every person who submits an application for a facility license under Section 3.1 must include with the application a proposed operating plan for the facility described in the application. Proposed operating plans must provide full and complete details on all of the following:

a) the site and location of all works within the facility,

b) the types, quantity, and quality of municipal solid waste and recyclable material that will be managed within the facility,

c) the methods for handling municipal solid waste and recyclable material within the facility,

d) the measures that will be taken to protect the environment, the site, and the lands adjacent to the facility,

e) a monitoring program to assess the measures in paragraph (d) above,

f) the methods for complying with regional disposal bans and recycling requirements,

g) the methods for dust, odour, vector, mud, and litter control and prevention,

h) the methods for handling any waste delivered to the facility which is not authorized by the license,

i) the procedures for weigh scale operation at the facility, or other site where municipal solid waste and recyclable material is weighed for acceptance at the facility or removal from the facility,

j) the frequency and method of facility inspection to be carried out by facility staff,

k) measures to protect the site and adjacent lands in case of fire, seismic disturbance, or flood,

l) the methods for containment and treatment of runoff at the facility and the prevention of runoff from the facility to adjacent lands,

m) the actions that will be taken if ground or surface water becomes contaminated as a result of operations at the facility, and

n) any other matter specified by the General Manager regarding the management of municipal solid waste and recyclable material at the facility.

9.2 Professional Engineering Involvement. The General Manager, at his sole discretion may require any or all of the information required in Subsections 9.1 (a) though (n) inclusive to be prepared by a registered professional engineer (or any other qualified professional as appropriate and recognized as such by the district).

9.3 Review and Acceptance of Operating Plans. The General Manager will review all proposed

operating plans submitted under Section 9.1, and may require amendments.

9.4 **Further Amendments to Operating Plans.** Following the acceptance of an operating plan under Section 9.3, the General Manager may require the terms, conditions or other aspects of the operating plan to be amended:

a) on the General Manager's own initiative where the General Manager considers it necessary and after consultation with the licensee, or

b) on request in writing by the licensee, subject to approval by the General Manager.

ARTICLE 10

10 FEES AND MONTHLY STATEMENTS

10.1 **Application Fees.** Every person who requires an amendment as described in Section 7.1 (a) or applies for a facility license or any amendment as described in Section 7.1 (b) shall pay to the district, on application or commencement of amendment process, for a facility set out in column 1 of Schedule "C" to this bylaw, the corresponding license application fee or amendment application fee as set out in columns 2, 3 or 4, respectively, as applicable. An application fee will not be refunded if a license is not issued or amended.

10.2 **Payment of Security.** Applications for a facility license for facilities not established prior to enactment of the bylaw must provide the amount of security required under Section 8.2 with the submission of the application. For a facility license for facilities existing at the time of enactment of the bylaw, up to 50% of the amount of security may be deferred for a period of one year from the date of submission of the application.

10.3 **Annual Administration Fee.** Every licensee shall pay to the district upon the date of issuance of a facility license and thereafter annually on the anniversary date of the issuance of the license, the annual administration fee set out in column 5 of Schedule "C". The district will provide to all licensees annual invoices setting out the annual administration fee due and payable in accordance with Schedule "C".

10.4 **Monthly Statement.** Unless requested at greater frequency by the General Manager, every licensee shall deliver to the district, a monthly (twelve times per year) written statement signed by an officer or a principal of the owner or operator of the facility setting out either the amount or quantity in metric tonnes of all municipal solid waste and recyclable materials received, shipped from, and the maximum net tonnage on site at any one time during the month at the facility as measured in the delivery vehicle. The statement shall be delivered monthly to the district within 21 days after the last day of the previous month.

10.5 **District Invoices.** All invoices rendered by the district shall be due and payable 30 days from the date of the invoice. Late payments will accrue interest computed at the rate of one and one quarter percent (1.25%) per month on the outstanding balance, calculated and compounded monthly, from the date such amounts become due and payable until the date they are paid in full.

10.6 **Records.** Every licensee must make and maintain for a period of seven years from the date when they were made, accurate records, books of account, copies of the monthly statements referred to in

Section 10.4, and copies of all electronic and hard copy information and data upon which those statements were prepared (for the purposes of this article called "records"). The records must identify either:

a) the amount or quantity in metric tonnes (or cubic metres) of municipal solid waste and recyclable materials received, shipped from, and the maximum net tonnage on site at any one time during the month at the facility, or

b) the number of container and vehicle loads and the size or capacity of the containers and vehicles carrying municipal solid waste received, shipped from, and the maximum net tonnage on site at any one time during the month at the facility.

10.7 **Inspection and Copying of Records.** The General Manager may inspect, make copies and take away such copies of any records referred to in Section 10.6 maintained by and for any person who is required to provide a monthly statement under Section 10.4 during normal hours of business, at any business premises where the records are maintained. The General Manager may take with them to the business premises such other persons and equipment as may be necessary.

10.8 **Proof of Identity.** An employee or agent of the district inspecting records under Section 10.7 must, when requested, provide proof of identity to any person present at the location where the records are maintained.

10.9 **Audit.** A person who is required to provide a monthly statement under Section 10.4, if requested in writing by the General Manager, shall at that person's expense provide to the General Manager within 45 days of such request, an audited statement of the total amount of fees payable under Sections 10.1, 10.2, and 10.3, for a specified period of time. This statement must be prepared by a Chartered Accountant or Certified General Accountant in accordance with Generally Accepted Auditing Principles.

ARTICLE 11

11 DUTY TO REPORT

11.1 **Discharge of Waste at Facility.** Where, out of the normal course of events, there occurs at a facility a discharge of waste to the environment or a serious and imminent danger thereof by reason of any condition, and where any damage or danger to land, water or air may reasonably be expected to result therefrom, any person who at any material time:

(a) owns the waste or has the charge, management or control of the waste, or

(b) causes or contributes to the discharge or danger of discharge

shall verbally report such occurrence to the General Manager as soon as practicably possible and shall report such occurrence to the General Manager in writing within 48 hours.

11.2 **Deviation from Normal Operating Practices.** Where, during the normal course of operations, there occurs at a facility a situation or combination of events that is a deviation from the approved operating practices as set out by the terms and conditions set out in the license, operating plan, code of practice, or this bylaw, the facility operator shall verbally report such occurrence to the

General Manager as soon as practicably possible and shall report such occurrence to the General Manager in writing within 48 hours.

11.3 Duty to take all Reasonable Measures. A person who is referred to in Section 11.1 shall, as soon as possible in the circumstances, take all reasonable measures consistent with safety, protection of the environment, and compliance with the terms and conditions of the license, operating plan, code of practice, or this bylaw, and thereby counteract, mitigate or remedy any adverse effects that result or may reasonably be expected to result from the occurrences referred to in Section 11.1 or 11.2.

11.4 Compliance. Compliance with Article 11 and Article 12 of this bylaw does not signify compliance with any other requirements found within the bylaw. The district retains the right to pursue any actions available to remedy non-compliance with any other section of this bylaw, notwithstanding compliance with Article 11 and Article 12.

ARTICLE 12

12 INVESTIGATION, INSPECTION AND RECORDS

12.1 Powers of the District. The powers of the district under this article may be exercised in relation to any site, facility, or premises which is, or which the General Manager upon reasonable grounds believes to be, among those described in Article 2.1 of this bylaw, and any site, facility, or premises associated therewith.

12.2 Residential Structures. Nothing in this section authorizes the entry of any structure used primarily as a residence, or any residential accommodation in any other structure.

12.3 Investigation. A bylaw enforcement officer or other employee or agent of the regional district may at any reasonable time enter any facility, site or premises and investigate any works, process or activity that is related to, used for or capable of being used for the production or handling of municipal solid waste or recyclable material.

12.4 Additional Powers. The powers of a district under Section 12.3 include the following powers:

a) to examine, take away and make copies of records relating to:

(i) the causing or the potential to cause pollution by municipal solid waste or recyclable material,

(ii) the production and managing of municipal solid waste or recyclable material,

(iii) the characteristics of the municipal solid waste or recyclable material produced or managed, and

(iv) a potential contravention,

b) to carry out inspections, observations, measurements, tests and sampling and to otherwise ascertain whether the terms of this bylaw or a facility license have been or are being complied with and take away samples of leachate, runoff, groundwater, soil, articles, substances,

municipal solid waste or recyclable material as they consider appropriate.

12.5 **Return of Documents.** Where the district has taken away original records from a facility, site or premises under Subsection 12.4(a), the district, upon written request from the owner or operator of the facility, will return copies of the records to the owner or operator within 24 hours of the inspection or if that is not possible, as soon thereafter as is practicable.

12.6 **Assistance.** The employee or representative of the district may take with him or her onto any facility, site, or premises such other persons and equipment as may be necessary to carry out the actions authorized in Section 12.4.

12.7 **Identification.** The employee or representative of the district shall, forthwith upon arrival at a facility, site, or premises, provide proof of identity to a person present at the facility, site, or premises.

12.8 **Records.** Notwithstanding Sections 2.2, 4.1, and 10.4, the General Manager may require the owner or operator of a facility, site, or premises at which municipal solid waste or recyclable material is managed to keep records of volumes, weights, types, amounts, quantities, and composition of municipal solid waste or recyclable material originating from within the Regional District of Nanaimo that is brought onto or removed from the facility, site, or premises and to submit, on request annually, the records to the district.

ARTICLE 13

13 SUSPENSION AND CANCELLATION

13.1 **Suspension and Cancellation of Facility Licenses.** Without limiting any other provision of this bylaw, the General Manager, after giving notice to a licensee, may suspend for any period or cancel a facility license in whole or in part where the following has occurred or is occurring:

a) the licensee fails to comply with any term, condition, or requirement of the facility license or any provision of this bylaw,

b) the licensee has made a material misstatement or material misrepresentation in the application for the facility license,

c) the licensee has failed to:

(i) provide the monthly statement of quantities in accordance with Section 10.4, or

(ii) make payment of fees in accordance with Article 10,

d) the licensee does not exercise any rights under the facility license for a period of 3 years,

e) the facility license is no longer necessary by reason of a code of practice under this bylaw,

f) the licensee is an individual who has died,

g) the licensee is a corporation that is struck off the register or is dissolved under its incorporating enactment,

h) the licensee is a partnership that is dissolved,

i) the licensee requests that the facility license be cancelled, or

j) the land and related improvements or buildings and related improvements licensed under this bylaw are no longer a facility.

13.2 **Notice.** A notice served under Section 13.1 must state the time at and the date on which the suspension or cancellation is to take effect.

13.3 **Suspended or Cancelled License Not Valid.** A facility license that is suspended or cancelled is not a valid and subsisting license. Notwithstanding the foregoing, the provisions in a facility license relating to security continue to survive as set out in Section 8.5.

ARTICLE 14

14 OFFENCES AND PENALTIES

14.1 **Offence.** Any person who contravenes a provision of this bylaw, a facility license, an order, a code of practice, or a requirement made or imposed under this bylaw commits an offence and is liable to a fine not exceeding $200,000.

14.2 **Separate Offences.** Where there is contravention that continues for more than one day, each day or part of a day on which the contravention occurs is a separate offence.

14.3 **Offences by Employees, Officers, Directors or Agents.** If a corporation commits an offence under this bylaw, an employee, officer, director, or agent of the corporation who authorized, permitted or acquiesces in the offence commits the offence even though the corporation is convicted.

14.4 **Remedies Cumulative.** The rights and remedies available to the district under this bylaw shall be cumulative and not alternative and shall be in addition to and not a limitation of any other rights and remedies that would otherwise be available to the district at law.

ARTICLE 15

15 APPEALS

15.1 Appeals to Board. An applicant or licensee affected by a decision of the General Manager under Section 3.5, 4.2, 7.1, 8.1, 8.3 or 8.12 to this bylaw may appeal the decision to the board by advising the board in writing of the order or requirement being appealed from and setting out the reason for the appeal and attaching any relevant documents.

15.2 Time Limit for Commencing Appeal. The written notice of appeal under Section 15.1 must be delivered to the board within 30 days of the decision from which the appeal is made.

15.3 Review by the Board. The matter will be reviewed by the board pursuant to Section 15.4.

15.4 Power of the Board. Upon considering the matter under appeal, the board may:

a) confirm, reverse or vary the decision under appeal, and

b) make any decision that the board considers appropriate.

15.5 Appeal Does Not Operate as Stay. An appeal under this section does not operate as a stay or suspend the operation of the decision being reviewed unless the board orders otherwise.

ARTICLE 16

16 GENERAL

16.1 Notification of Change in Control. A licensee shall notify the district in writing of a change in ownership or control of the license within 10 days after such a change.

16.2 Delivery of Notices. Any notice required to be given to an owner or operator of a facility or a licensee shall be deemed to have been delivered if such notice is delivered personally to an owner or operator of a facility or a licensee or is mailed by double registered mail to the registered or records office of an owner or operator of a facility or a licensee or to the address for service set out in a license. If delivery of a notice is unable to be effected by double registered mail then delivery may be affected by any of the following:

a) personal delivery to the registered or records office of an owner or operator of a facility or a licensee,

b) personal delivery to a director, officer, liquidator, trustee in bankruptcy or receiver manager of an owner or operator of a facility or a licensee,

c) personal delivery to an adult individual at the facility who appears to be an employee of an owner or operator of a facility or a licensee or appears to be in control of the facility, and

d) posting on the door or gate of the facility, when no one is present at the facility or the facility appears to be abandoned.

16.3 No Transfer or Assignment. A transfer or assignment of a facility license is without effect

without the prior written approval of the General Manager. Approval will be given if all license requirements are being fulfilled and no license or license amendment fees are owed to the district.

16.4 **Headings.** The headings in this bylaw are for convenience only and shall not limit, enlarge or affect the scope of any of the provisions in this bylaw.

16.5 **Severability.** If any portion of this bylaw is deemed *ultra vires*, illegal, invalid or unenforceable in any way in whole or in part by any court of competent jurisdiction, such decision shall not invalidate or void the remainder of this bylaw. The parts so held to be *ultra vires*, illegal, invalid or unenforceable shall be deemed to have been stricken from this bylaw with the same force and effect as if such parts had never been included in this bylaw or revised and reduced in scope so as to be valid and enforceable.

ARTICLE 17

17 TITLE

This bylaw may be cited for all purposes as the "Regional District of Nanaimo Waste Stream Management Licensing Bylaw No. 1386, 2004".

Read three times the 10th day of August, 2004.

Received approval from the Ministry of Water, Land and Air Protection this 6th day of April, 2005.

Adopted this 26th day of April, 2005.

Chairperson

Deputy Administrator

SCHEDULE "A"

EXEMPTIONS FROM LICENSING REQUIREMENTS

For greater certainty and without limiting the generality of Section 2.1 of the bylaw, the following facilities, or any portion of a facility managing recyclable material or municipal solid waste in accordance with the following specifications, shall be exempt from the licensing requirements under Section 2.1:

1. any facility which accepts exclusively asphalt and concrete for the purposes of reprocessing, resale and reuse;

2. any retail food, grocery, beverage or drug establishment that accepts recyclable products on a return-to-retail basis;

3. any depot operating under or in fulfillment of the *Environmental Management Act* Beverage Container Stewardship Program Regulation, 1997; and

4. any facility operating under or in fulfillment of a *Environmental Management Act* Stewardship Program.

A facility that manages recyclable material or municipal solid waste in accordance with the above and also manages recyclable material or municipal solid waste in a manner not specified above will be required to be licensed within the provisions of this bylaw for the portion(s) of the operation not specified as exemptions in this Schedule A.

SCHEDULE "B"

PLAN FACILITIES (PUBLIC)

FACILITY	LOCATION
Regional District of Nanaimo Landfill	1105 Cedar Rd, Nanaimo
RDN Church Road Transfer Station	860 Church Rd, Parksville

SCHEDULE "C"

FEES - FACILITIES

The fees payable to the district by owners or operators of facilities under this bylaw shall be as follows:

1. Application, Amendment, Annual Administration and Other Fees

Column 1	Column 2 License Application Fee	Column 3 Major Amendment Application Fee	Column 4 Minor Amendment Application Fee	Column 5 Annual Administration Fee
Facility license Type I	$1,000	$500	$100	$500
Facility license Type II	$100	$100	$50	$100
Code of Practice Registration	$100	-	-	$100

SCHEDULE "D"

PUBLISHING AND BILLBOARD POSTING REQUIREMENTS

1. Publishing Notice Details for all Applications

A published notice in a newspaper must:

(i) be at least 8 centimetres in width,

(ii) be at least 100 square centimetres in area,

(iii) be entitled "FACILITY LICENSE APPLICATION NOTICE" in a minimum type size of 12 points,

(iv) have the text of the license application in a minimum type size of 8 points,

(v) include the civic address of the proposed facility,

(vi) include the name of the owner of the land on which the facility is proposed to be located,

(vii) include the full name and address of the operator of the proposed facility,

(viii) include a complete description of the activity to be carried out and the types and quantities of municipal solid waste or recyclable material to be managed at the facility, and

(ix) include such other information as the General Manager considers necessary.

REGIONAL DISTRICT OF NANAIMO

STAFF REPORT

TO:	Dennis Trudeau General Manager, Transportation and Solid Waste	**DATE:**	August 31, 2015
		MEETING:	RSWAC, Sept. 17, 2015
FROM:	Larry Gardner Manager, Solid Waste Services		
		FILE:	0360-20-RSWAC

SUBJECT: Regulatory Tools to Promote Increased Waste Diversion – Regional Solid Waste Advisory Committee

RECOMMENDATION

That the Regional Solid Waste Advisory Committee (RSWAC)receive this report for information.

PURPOSE

The purpose of the report is to explore, at a conceptual level, regulatory approaches that might be applied to increase waste diversion as part of the Regional District of Nanaimo's (RDN) Solid Waste Management Plan (SWMP).

BACKGROUND

The RSWAC has been advised of the authorities Regional Districts have regarding waste management, and, additional authorities that are available and may be accessed through Ministerial approval of a SWMP (staff report: *Authorities Provided to Regional Districts Through an Approved SWMP –RSWAC, July 2, 2015).* Furthermore, the RSWAC has been advised that Regional Districts do not have the authority to regulate consumer products (staff report: *Regional District Bylaw Authority to Manage Consumer Products – RSWAC, May 15, 2015).*

It is recognized that education, promotion and incentives are valuable tools to encourage and foster waste diversion efforts. However, the purpose of this report is to consider regulatory concepts that might push greater levels of diversion. A range of regulatory options are presented below and each is discussed in more detail in subsequent sections of this report:

1. *Mandatory Waste Collection Service* – This is akin to the residential curbside collection service provided throughout the RDN but expanded to all waste generators including multi-family, institutional and commercial. The current residential curbside collection system is mandatory and every single-family residential dwelling must pay for the service and there is no ability to opt out. A mandatory system could be provided by local government staff or contracted out to a private hauler. This is actually a "service" and not exclusively "regulatory", however, it is a concept that closely aligns with other regulatory approaches and, therefore, is discussed in this report. An expanded mandatory service for all waste collection is within local government's authority to introduce without additional authorities obtained thorugh the Solid Waste Management Planning process.

2. *Waste Hauler Franchise* - This is a system where the RDN would sign contractual agreements with waste haulers to provide waste collection services for the multi-family, commercial or institutional sector within the RDN. Under these agreements, waste haulers would abide by specific standards (e.g. waste/recyclables separation), set an established fee schedule, have reporting obligations and potentially remit fees to the RDN. A franchise system does not require mandatory participation by waste generators, although if a generator choses to hire a service, it could only be done by a franchise hauler. A franchise system can be set up with a defined operating area for the franchisee or to allow many franchisees to offer service within a common area. To introduce a franchise system, additional authorities provided by the SWMP are required.

3. *Waste Hauler As Agents* – This is similar to a franchise system but does not establish contractual agreements with each hauler operating in the area. It does allow for setting fee levels based on the quantity or type of waste and varying fees by class of persons, activities or businesses. Haulers can be required to act as agents and collect and remit fees on behalf of the RDN. To establish haulers as agents, additional authorities provided by the SWMP are required.

4. *Flow Management* – Flow management is the ability to direct the hauling of waste, or the hauling of recyclables, within or through the area covered by the Solid Waste Management Plan. To establish flow management regulation, additional authorities provided by the SWMP are required.

5. *Waste Source Regulation* – This is the ability to impose requirements on waste generators such as the requirement for waste and recyclable separation. Regulations or Codes of Practices could be developed that might apply to different sectors or business areas such as multi-family homes, food preparation, or demolition projects. To impose waste source regulations, additional authorities provided by the Solid Waste Management Plan are required.

Mandatory Waste Collection Service

Diversion Implication

In general, there is a propensity for most people to use a service that is provided. So where collection is provided for different material types (i.e. garbage, organics, recyclables), it is expected that most waste generators would begin to use the expanded service of their own accord, thereby significantly improving waste diversion. To further increase diversion, there is the ability to include limitations or variable rates for the amount of garbage that is set out. As well, there is the ability to require waste/recyclable separation or material bans.

Administration and Enforcement Implication

A mandatory system is a significant administrative burden to collect utility fees and either deliver the collection service directly or through contract.

Through a mandatory system, materials speration could be progressively implemented from education to enforcement aimed at higher diversion. Inspection at waste generators sites of trash and recyclables could be carried out to determine compliance with waste separation rules.

Community Implications
At the two RDN waste receiving sites, there are approximately 170,000 customer visits annually. About 150,000 visites are self-haul customers with the balance being commercial haulers. A mandatory waste collection service would be expected to significantly reduce this traffic as essentially everyone would be provided with a waste collection service. Although the greenhouse gas benefit of less traffic would be difficult to predict, it is believed that a manadatory collection system would have some positive environmental benefit in this regard.

There are seven large waste hauling companies and many independent waste haulers that currently operate in the RDN. A mandatory collection system would essentially eliminate the free enterprise system that currently exists in the RDN. It is expected that this industry group would oppose an expanded mandatory waste collection system.

Community cost implications of such a system are not known at this time.

Waste Hauler Franchise

Diversion Implication
There are numerous examples of waste hauler franchises, particularly in the United States, and a couple of examples are:

- The City of Tampa, Florida requires those providing a waste hauling service to obtain a "Hauler Agreement" and those self-hauling to obtain a "Haul Your Own Permit". Commercial waste franchisees are required to remit 15% of their gross revenue to the City to support the City's solid waste system. The franchisees are compelled to collect trash, recyclable materials and green waste separately.
- The City of Gardena, California requires that all waste haulers working in the area must be franchisees. The franchise gives the hauler the right to collect waste and recyclable materials generated or accumulated with the City. A requirement of the franchise is to annually submit a Source Reduction and Recycling Plan that is reviewed by the City to ensure that it meets the state-mandated recycling requirements. Further, the franchisee is required to prepare and follow a C&D Waste Diversion Plan to assure conformance with the City's requirement that 50% of regulated C&D Wastes must be diverted.

A waste hauler franchise system in the RDN has the potential for significant increases in diversion consistent with that of a mandatory waste collection service described above.

Administration and Enforcement Implication
A waste hauler franchise system is a significant administrative burden to set up the contracts and to monitor waste hauler performance but likely less onerous than what is required for a mandatory waste collection system. The level of compliance and enforcement oversight is likely to be higher than for a mandatory system. Overall, the resource demand on local government to support either system is anticipated to be similar.

Community Implications
Depending on how a franchise system is designed (e.g. requiring a self-haul permit, levy on commercial waste collection), it could work as an incentive or disincentive for self-haul customers thereby increasing or decreasing traffic at RDN waste receiving sites.

A franchise system can be compatible with free enterprise and, as such, it is more likely to gain acceptance to the waste hauling industry as compared to a mandatory waste collection system.

Community cost implications of such a system are not known at this time.

Waste Hauler As Agents

Diversion Implication

The previous two examples of systems, mandatory collection and franchising, are based on *compelling* an action and *enforcement* to make it happen (e.g. waste separation). Assigning waste haulers as agents, does have an enforcement component but it is more focused on an economic driver to affect the desired behavior. For example, it is possible to require waste haulers to collect and remit a fee to the RDN where a customer's waste is not separated or where a recycling or organics collection service is not provided. Such a system provides an economic driver to encourage waste diversion efforts and removes the enticement of low cost disposal. Such a system has similar waste diversion potential to the previous systems discussed. There is no known model of such a system in existence.

Administration and Enforcement Implication

Such a system is expected to be a moderate administration and a minor enforcement burden. Waste haulers would have some increased administration through the collection and remittance of fees as well as reporting. There would be a minor level of enforcement to ensure haulers are complying but very little enforcement activity at the waste source.

Community Implications

Such a system is entirely market based and promotes industry innovation to achieve the lowest cost with highest diversion. Haulers would be compensated for the additional administrative tasks associated with fee collection and remittance on behalf of the RDN. For these reasons, the waste hauling industry may be more amenable to such a system as compared to the others discussed.

Although community cost implications of such a system are not known at this time, this is considered to be a lower cost option than the other concepts presented.

Flow Management

Diversion Implication

It is a well-recognized universal concept that with increasing costs, alternatives to avoid those costs are sought out. This concept applies equally to waste management and, therefore, those communities with the highest waste disposal costs also have the highest waste diversion success. Much of the RDN's waste diversion success can be at least indirectly attributed to high disposal costs. Often the high "tip fee" gives the waste an artificial value where there is a willingness to pay to have the waste recycled. So, as tip fees are inflated higher, it encourages more diversion even if true costs for disposal have not changed. This works until the tip fee exceeds other disposal options. This is the exact circumstance that currently exists in the RDN where waste is being exported out of the region for low cost disposal.

Flow management provides the ability to restore high cost disposal as an incentive for waste diversion. As local government can authorize where waste is shipped for disposal, low cost disposal options can be excluded. Flow management has at least the potential, or possibly greater, of achieving high diversion as compared to the other options presented above. The high potential is related to its simplicity of the approach and that it covers all waste types and sources.

It is worthy of note that in 2014, the Minister of the Environment, rejected a Metro Vancouver bylaw that proposed to introduce flow management. The bylaw also proposed to regulate facilities so it is not know to what extent the flow management component or facilities management component influenced the final decision. Reasons stated by the Minister in denying the bylaw were:

- The potential to create a monopoly on waste management;
- The potential for increased illegal dumping;
- The possible negative effects on the new packaging and printed paper recycling program; and
- The destabilizing effect it may have on private-sector collection and hauling.

Administration and Enforcement Implication
Such a system is expected to be a very low administration burden and a minor enforcement burden. Compliance and enforcement activities would be related to checking that waste is not being shipped outside the region for low cost disposal. It is expected that if flow management was brought into force that all major waste haulers would comply and not attempt to evade the regulations.

Community Implications
Overall waste management costs may be very similar to the other systems presented but there is likely to be a perception of high cost if tipping fees are high. Due to this perception, there may be reluctance to raise tipping fees high enough to encourage the desired diversion behavior. Such a system is entirely user pay and costs are not socialized (i.e. taxation). Other areas that have considered flow management have typically had industry opposition to this type of regulation.

Waste Source Regulation

Diversion Implication
This is the ability to impose requirements on waste generators such as the requirement for waste and recyclable separation. An example of this is the City of Vancouver's Green Demolition bylaw which requires 75% recycling of materials on demolition of pre-1940 homes and 90% on pre-1940 character homes. Examples of this type of source control applied to all business sectors do exist in some United States communities. Diversion potential is likely higher than what exists with the other concepts, as strict requirements can be applied and enforced at the source site.

Administration and Enforcement Implication
Such a system is expected to be a moderate administration burden to develop and maintain regulations. Of all the concepts presented here, this has the highest compliance and enforcement burden as it attempts to regulate every waste source site.

Community Implications

This system is entirely regulatory and attempts to compel an action with no incentive to encourage the desired behavior. As such, this system is likely to result in the most conflict.

Cost implications of such a system are not known at this time but are potentially the highest due to the necessary level of compliance and enforcement work necessary.

JURISDICTIONAL TRENDS

A jurisdictional search of communities throughout North American show that there is a trend is to ban materials from disposal. This is most evident with the banning of organic waste illustrated by the following examples:

- Scotland – in 2014 regulations came into force requiring all businesses and organizations to separate key materials (i.e. plastic, glass, metals, paper and card) and most food businesses to separate food waste. Maximum fines for failing to comply are £10,000.
- Seattle, Washington – is introducing fines to residents and businesses. Residents will receive a warning and then a $1 fine is added to their bill when their trash contains 10% or greater food waste or certain paper products. Commercial properties will receive two warnings followed by a $50 fine on their next bill.
- Vermont – a Universal Recycling law introduced in 2012 imposes landfill bans on plastic, aluminum and metal container, paper, yard & garden waste, and food scraps. Mandatory compliance is being phased in over 6 years beginning with the largest generators of food scraps who must start separating them if there is a permitted composting facility located within 20 miles. They are introducing a "pay-as-you-throw" variable rate pricing to incentivize recycling. Waste haulers must pick up residential recycling at no charge.
- Massachusetts – Starting in October 2015, food waste generators that produce more than one ton of food waste per week, must divert it from landfills.
- San Francisco, California – 2011 regulations came into effect allowing fines to be applied to those not effectively separating food scraps and recyclables. Following warnings, fines are $100 for small businesses and single family homes and $1000 for large businesses and multi-family buildings. The ability to fine came after decades of voluntary, convenient programs and financial incentives. San Franciso concluded that they would not achieve their diversion goals without mandatory recycling and composting.
- Capital Regional District – 2015 CRD introduced a ban on kitchen scraps at the Hartland Landfill. Commonly a Bylaws Enforcement Officer is situated at the landfill disposal area and applies fines to non-compliant waste haulers that range from $100 to $1000.
- Whistler, BC – They are considering an organics and recycling ban with the intention that haulers are fined if the load contains the banned materials.
- Metro Vancouver – They recently introduced an organics ban at the landfill and transfer station. As of July 1, 2015, waste loads with more than 25% visible food will be surcharged 50% of the cost of disposal. Metro plans to reduce the amount of food scrap allowed over time.

If the material bans are to be effective, there needs to be an absence of low cost disposal of mixed waste or the bans need to be undertaken inconjuction with some other regulatory control such as hauler franchising or waste source regulation. A number of the examples above rely on some combination of regulatory tools.

Starting 1991, under Bylaw 1531, the RDN has increased the number of banned materials at the landfill and transfer station including commercial organic waste, recyclable paper and stewardship materials (see Appendix 1 for the complete list). Currently enforcement of the bans is lax and fines are only applied to the most egregious violations. Although the RDN could immediately apply more aggressive enforcement of disposal bans it is more likely to exacerbate waste export and disposal rather than have the desired effect of increasing waste diversion. Enforcement of bans in combination with some other regulatory measures discussed here improves the certainty of higher diversion goals.

SUMMARY/CONCLUSIONS

The intent of this report is not to delve into the detail of alternate regulatory schemes. It is, however, intended to present alternative concepts that are likely to increase waste diversion.

Other than *mandatory waste collection,* all the other regulatory approached presented in this report require additional authorities gained through Ministerial approval of the amended SWMP In other words, the SWMP must state the desire for any or all of these authorities before they can be utilized. The actual implementation of the authorites would not happen until such time as they are adopted by the RDN at some future date and following extensive consultation on the specific bylaw. If such intent is not stated in the SWMP, the RDN can not take actions in these areas.

Report Writer

General Manager Concurrence

CAO Concurrence

APPENDIX 1

Prohibited Waste at RDN Facilities

At the Regional Landfill:
(i) Biomedical Waste;
(ii) Commercial Organic Waste;
(iii) Concrete or asphalt pieces, or rocks greater than 0.03m3 or 70 kg;
(iv) Corrugated Cardboard;
(v) Drums;
(vi) Garden Waste;
(vii) Gypsum;
(viii) Hazardous Waste;
(ix) Household Plastic Containers;
(x) Ignitable Wastes;
(xi) Land Clearing Waste;
(xii) Liquids, except as permitted herein;
(xiii) Metal;
(xiv) Motor vehicle bodies and farm implements;
(xv) Municipal Solid Waste that is on fire or smouldering;
(xvi) Radioactive Waste;
(xvii) Reactive Wastes;
(xviii) Recyclable Paper;
(xix) Stewardship Materials:
(xx) Special waste, as defined in the Special Waste Regulation (British Columbia) except asbestos ;
(xxi) Tires;
(xxii) Wood Waste

At Church Road Transfer Station:
(i) Biomedical Waste;
(ii) Commercial Organic Waste;
(iii) Concrete or asphalt pieces, or rocks greater than 0.03m3 or 70 kg;
(iv) Controlled Waste;
(v) Corrugated Cardboard;
(vi) Garden Waste;
(vii) Gypsum;
(viii) Hazardous Waste;
(ix) Household Plastic Containers;
(x) Ignitable Wastes;
(xi) Land Clearing Waste;
(xii) Liquids, except as permitted herein;
(xiii) Metal;
(xiv) Motor vehicle bodies and farm implements;
(xv) Municipal Solid Waste that is on fire or smouldering;
(xvi) Radioactive Waste;
(xvii) Reactive Wastes;
(xviii) Recyclable Paper;
(xix) Special waste, as defined in the Special Waste Regulation (British Columbia) except asbestos;
(xx) Stewardship Materials;
(xxi) Tires;
(xxii) Wood Waste.

REGIONAL DISTRICT OF NANAIMO

STAFF REPORT

TO:	Larry Gardner Manager, Solid Waste Services	**DATE:**	May 10, 2016
FROM:	Sharon Horsburgh Senior Solid Waste Planner	**MEETING:**	RSWAC, May 19, 2016
		FILE:	5365-00
SUBJECT:	Options for the Management of Household Hazardous Waste (HHW)		

RECOMMENDATION

That the report on Options for the Management of Household Hazardous Waste be received for information.

PURPOSE

This report has been prepared in response to the RSWAC requesting a report regarding funding household hazardous waste collection events.

BACKGROUND

Household hazardous waste (HHW) is any waste from your home that is considered dangerous. It includes any leftover household product that is marked flammable, corrosive, explosive or poisonious. Common examples are pesticides, varnishes, paints, cleaners, and batteries.

In British Columbia, HHW is primarily managed through Provincial government established Extended Producer Responsibility programs (EPR). These programs cover the following materials: paint, oil, household lighting, CO and smoke alarms, small appliances, cell phones, batteries, thermostats, and pharmacueticals, among others. These EPR programs are designed to ensure these materials which are or contain hazardous waste is handled, stored, transported, treated and disposed of properly.

Typically HHW materials are dropped off at depots where they are packed into containers, placed in a truck and transported to a warehouse. The waste is re-sorted and sent to the appropriate facilities for treatment or disposal. The disposal method depends on the type of product: some is sent to Swan Hills, Alberta for incineration; PCBs go to Quebec; some pesticides are incinerated, while others go to secure landfills in BC; solvents and waste oils are recycled or reused in heat recovery fuel in Alberta.

RDN HHW Management

In the RDN, HHW management has been left to the private sector. Currently, there are several for-profit and non-profit depots in the Nanaimo and Parksville areas where EPR items are accepted. The RDN is one of the highest subscribers to EPR programs in the Province and this is an important consideration when evaluating the effectiveness of the existing programs. The RDN does not provide HHW drop off programs at its facilities as many items are covered by EPR programs. A number of depots throughout the RDN accept the majority of EPR materials in the region and they have indicated that non EPR materials are prevalent and can pose a financial burden on the organization if abandoned at these depots. In 2015, the Nanaimo Recycling Exchange (NRE) spent $12,000 on handling and disposal of non-stewarded HHW items.

The Province's strategy to manage HHW is through industry-led EPR programs. These programs place the responsibility to provide end-of-life recycling and appropriate disposal on the producers and retailers of the product. This system shifts the cost burden from the general taxpayer or local government on to the producer and consumer. At the RDN's regional facilities, staff advise customers to take materials not accepted at the landfill to appropriate locations for safe disposal. Hazardous waste companies like Terra Pure, Hetherington, and Arrowsmith Environmental will accept hazardous waste which is not part of the EPR programs at a cost.

RDN staff have indicated they do occasionally set aside HHW material that has been left at the landfill or transfer station. Those materials are stored securely until there is sufficient quantity for transportation. There are usually 2 shipments per year and the RDN budgets approximately $1,000 per annum for abandoned HHW.

The RDN's 2012 Waste Composition Study identified that HHW consisted of less than 1% of the waste stream and the majority of the materials found were covered by EPR programs. Table 1 below categorizes the materials considered HHW:

Table 1: Categories of Household Hazardous Waste in Residual Waste Stream

HOUSEHOLD HAZARDOUS WASTE	EPR PROGRAM (Residential Products Only)
Batteries	✓
Medical/Biological Waste	No program
Stains	✓
Preservatives	✓
Latex Paint	✓
Oil-based Paint	✓
Aerosols	✓
Solvents	✓
Pesticides	✓
Herbicides	Some items
Fungicides	Some items
Motor Oil	✓
Oil Filters	✓
Anti-Freeze	✓
Pharmaceuticals	✓
Flammable Products Other Petroleum based Products	✓
Mercury Containing items Thermostats & lightbulbs	✓

JURISDICTIONAL SCAN ON HHW MANAGEMENT OPTIONS

Some Regional Districts with limited access to drop off depots work collaboratively with EPR organizations and local government to provide mobile collection events. EPR organizations determine the site requirements, which could include secure storage, protection from weather, supervised collection, and paved surfaces for safe pickup of large bins. Typically, if the EPR organizations determine there is adequate collection coverage in an area, they decline the expansion of depot services or participating in mobile collection events.

Columbia Shuswap Regional District (CSRD)

The CSRD conducts Household Hazardous Waste Round-up events in the communities of Salmon Arm, Revelstoke and Golden to collect a backlog of hazardous household material. These events take place every two years. This program provides an opportunity for residents to safely dispose of materials that are toxic, corrosive, reactive or ignitable.

In 2016, the CSRD has budgeted $80,000 to provide this services to residents at no charge. The CSRD offers residents this opportunity because this material is not accepted in the landfill but it requires safe disposal. While some products such as pesticides and herbicides are regulated through an Extended Producer Responsibility Program administered by Product Care, not every community has a Product Care depot, and not all products are accepted as part of the stewardship program, so this program helps consumers with their non-conforming leftovers.

Capital Regional District (CRD)

The Hartland recycling area accepts almost all types of household hazardous waste from residents only. The program does not include industrial waste from commercial businesses. The Capital Regional District recently issued a contract for Household Hazardous Waste Management and Hazmat Services, in the amount of $382,544.69. It is estimated that the CRD handles 65 tonnes per year of HHW previously managed through a private depot. In addition to the Hartland Landfill, there are several for-profit and non-profit depots that accept EPR items at more convenient drop off locations across the Capital region.

Thompson-Nicola Regional District (TNRD)

The TNRD host HHW events in cooperation with the City of Kamloops as well as a few events in some of the smaller municipalities. Events are typically held in larger towns/cities (Kamloops/Merritt) every year and other smaller communities every two or three years. The Region's hazardous waste contractor receives all materials not covered by Product Care. Product Care also sends their contractor to accept their materials. The cost of the events greatly depends on the amount of material received. The event costs range from $8,000 - $20,000 for one day events.

TNRD have indicated they are starting to phase out the drop off events as they are working towards accepting HHW year round at their full service eco-depots. They have found a significant amount of the material that comes into the events is paint and oil that are already covered through EPR stewardship programs. There is minimal non-EPR material and it is proposed this can be collected for a fee by their contractor. Depot service provides much better service to residents as the service is year round opposed to one day a year.

Regional District of North Okanagan (RDNO)

RDNO have introduced a full service Eco Depot at a cost of $200,000. The stewardship agencies pay to participate in the Eco Depot. However the costs to run the regional roundup events was approximately $75,000 per year.

Regional District of Okanagan Similkameen (RDOS)

RDOS's Penticton landfill accepts hazardous waste at their landfill and provides a round up service for approximately $80,000.

Regional District of Central Okanagan (RDCO)

The RDCO has a contractor in the City of Kelowna that runs a year round depot. The contractor receives material directly from the public at the contractor's facility, and then the contractor invoices the RDCO for all non-program materials. The Annual budget for this service is approximately $80,000.

City of Chilliwack

HHW annual service is approximately $35,000 per year.

District of Mission

Newalta HHW annual service is approximately $30,000 per year.

OPTIONS FOR CONSIDERATION

There are a number of options that can be introduced to manage HHW drop off events in the Regional District. These could involve going out for an RFP to determine the costs associated with hosting a Regional Round up Event and involving existing service providers of HHW services that currently offer EPR programs as well as managing non EPR material.

IMPACT ON DIVERSION

By changing how HHW programs are administered it is not expected to significantly impact diversion of the 297 metric tonnes or >1% of the waste stream as the majority of this material is already captured by EPR programs. Furthermore, the RDN's waste composition is generally reflective of other regional districts with more expensive means of managing HHW. However, by offering a service to handle this material annually may generate a higher percentage of material. Based on data form other programs the range is from 50 – 500 tonnes over 2 – 5 yrs.

FINANCIAL IMPLICATIONS

Currently the RDN budgets $1,000 to manage orphaned HHW that is left on site at regional facilities. In 2015, the NRE spent $12,000 on disposal of non-stewarded HHW items. Based on the information gathered from other regional districts, if the RDN was to consider taking on the role of managing non-stewarded HHW region it would like be best done through a contracted service and to allocate $80,000-$100,000 for budgeting purposes to cover two bi-annual HHW collection events.

Table 2 summarizes the Projected Costs to manage Non-EPR materials.

Table 2: Projected Costs to manage Non-EPR materials

Projected Costs to manage Non-EPR materials	**Yearly Budget**
Contractor	$70,000
Communications & Advertising	$5,000
Rentals	$5,000
Total	**$80,000**

REGULATORY AUTHORITY

No new regulatory authority would be required by the RDN to enhance the existing EPR programs in place. The programs current in place are well subscribed and provide a safe option for collection. Adding collection events would potentially reduce material following to these drop off depots and could potentially drive more material to community based HHW Round up events shifting the costs to the RDN.

STRATEGIC PLAN IMPLICATIONS

There are no strategic plan implications.

SUMMARY/CONCLUSIONS

In the RDN, HHW management is carried out by the private sector and there are currently several for-profit and non-profit depots in the Nanaimo and Parksville area where EPR items are accepted. The RDN is one of the highest subscribers to EPR programs. The RDN does not provide HHW drop off programs at its facilities as many items are covered by EPR programs and based on our waste stream analysis there are minimal non EPR material that requires special handling. The NRE accepts the majority of EPR materials in the region and they have indicated that non EPR materials are prevalent and they are financial burden on the organization. In 2015, the NRE spent $12,000 including handling on disposal of non-stewarded HHW items.

While the mandate for this material rests with the Provincial government there are numerous regional districts that have taken on the role of managing HHW collection in order to protect the environment as there are no convenient programs available. It is estimated that if the RDN to takes a more active role in HHW management similar to other regional districts we should budget between $80,000-100,000 annually. This would augment existing service levels and round up events could be carried out in different areas of the RDN.

For Sharon Horsburgh
Report Writer

Manager Concurrence

General Manager Concurrence

CAO Concurrence