**REGIONAL DISTRICT OF NANAIMO**
**REGIONAL SOLID WASTE ADVISORY COMMITTEE MEETING**

**THURSDAY, March 17, 2016, 5:00 PM - 7:30 PM**
**RDN Board Chambers**

**A G E N D A**

**CALL TO ORDER**

**DELEGATIONS**

**MINUTES**

3-7 Amended Minutes of the Regional Solid Waste Advisory Committee meeting held February 4, 2016.

8-11 Minutes of the Regional Solid Waste Advisory Committee meeting held February 18, 2016.

**BUSINESS ARISING FROM THE MINUTES**

**UNFINISHED BUSINESS**

**COMMUNICATIONS/CORRESPONDENCE**

**REPORTS**

12-24 Construction and Demolition Waste – Current State & Future Options Presentation (S. Horsburgh).

**ADDENDUM**

**BUSINESS ARISING FROM DELEGATIONS OR COMMUNICATIONS**

25-32 Issues Review (L. Gardner).

- Group Exercise.

**NEW BUSINESS**

**ADJOURNMENT**

**Distribution**:

| | | | |
|---|---|---|---|
| Alec McPherson | Chair, RDN Director | Gerald Johnson | Member at Large |
| Bill McKay | Deputy Chair | Ellen Ross | Member at Large |
| Derek Haarsma | Business Representative | Amanda Ticknor | Member at Large |
| Jan Hastings | Non Profit Representative | Michael Recalma | Qualicum First Nation |
| Dean Jones | Waste Management Industry | Chief & Council | Nanoose First Nation |
| Jim McTaggart-Cowan | Member at Large | Chief & Council | Snuneymuxw First Nation |
| Michael Tripp | Business Representative | Geoff Goodall | City of Nanaimo |
| Stewart Young Jr. | Business Representative | John Marsh | Town of Qualicum Beach |
| Wally Wells | Business Representative | Al Leuschen | Ministry of Environment |
| Craig Evans | Member at Large | Fred Spears | District of Lantzville |
| John Finnie | Member at Large | Karen Muttersbach | Environment Canada |
| Ben Geselbracht | Member at Large | Glenn Gibson | Island Health |
| Michele Green | Member at Large | | |

**RDN Staff:**

| | |
|---|---|
| Larry Gardner | Manager, Solid Waste Services, RDN |
| Sharon Horsburgh | Senior Solid Waste Planner, RDN |
| Randy Alexander | GM, RCU & Solid Waste Services, RDN |
| Meghan Larson | Special Projects Coordinator |
| Jeff Ainge | Zero Waste Coordinator, RDN |
| Rebecca Graves | Recording Secretary, RDN |

***For information only:***
Regional Board Members: CAO's*:* Dennis Trudeau (RDN), Brad McRae (District of Lantzville), Debbie Comis (City of Parksville), Daniel Sailland (Town of Qualicum Beach), Tracy Samra (City of Nanaimo)

**REGIONAL DISTRICT OF NANAIMO**
**REGIONAL SOLID WASTE ADVISORY COMMITTEE MEETING**
**HELD ON THURSDAY, FEBRUARY 4, 2016**
**BOARD CHAMBERS**

**Present:**

| | |
|---|---|
| Alec McPherson | Chair, RDN Director |
| Bill McKay | Deputy Chair, RDN Director |
| Derek Haarsma | Business Representative |
| Wally Wells | Business Representative |
| Jan Hastings | Non Profit Representative |
| Michael Tripp | Business Representative |
| Jim McTaggart-Cowan | Member at Large |
| John Finnie | Member at Large |
| Ellen Ross | Member at Large |
| Gerald Johnson | Member at Large |
| Amanda Ticknor | Member at Large |

**Also in Attendance:**

| | |
|---|---|
| Randy Alexander | General Manager, RCU, RDN |
| Larry Gardner | Manager of Solid Waste, RDN |
| Rebecca Graves | Recording Secretary, RDN |
| Jeff Ainge | Zero Waste Coordinator, RDN |
| Sharon Horsburgh | Senior Solid Waste Planner, RDN |
| Dennis Trudeau | CAO, RDN |

**Regrets:**

| | |
|---|---|
| Chief & Council | Nanoose First Nation |
| Chief & Council | Snuneymuxw First Nation |
| Glenn Gibson | Island Heath |
| Al Leuschen | Ministry of Environment |
| Karen Muttersbach | Environment Canada |
| Michael Recalma | Qualicum First Nation |
| Fred Spears | District of Lantzville |
| John Marsh | Town of Qualicum Beach |
| Ed Walsh | Waste Management Industry |
| Charlotte Davis | City of Nanaimo |
| Geoff Goodall | City of Nanaimo |
| Frank Van Eynde | Member at Large |
| Michele Green | Member at Large |
| Craig Evans | Member at Large |
| Stewart Young Jr. | Business Representative |
| Meghan Larson | Special Projects Coordinator, RDN |

**CALL TO ORDER**

The Chairperson called the meeting to order at 5:03 PM and respectfully acknowledged the Coast Salish Nations on whose traditional territory the meeting took place.

**MINUTES**

MOVED J. McTaggart-Cowan, SECONDED G. Johnson, that the minutes from the meeting of the Regional Solid Waste Advisory Committee regular meeting held January 14, 2016, be adopted. CARRIED

**DELEGATES**

**Derek Haarsma, Haarsma Waste Innovations Inc. re Management of Solid Waste in the Multi-Family & IC&I Sector.**

D. Haarsma gave a verbal presentation on region wide recycling options available to the multi-family & Industrial Commercial & Industrial Sector (IC&I). Multi-family recycling is not a mandatory program and there is the perception that by introducing recycling programs this will lower garbage fees. This has led to varying levels of recycling in the Multi Family and ICI sectors. In regards to IC&I, steel containers are made available for recyclables. Haarsma reduces contamination by sorting recycling into bags so when materials are received at the facility sorting is done much faster. Source separation requires haulers to run more trucks a week to service sites and this doesn't make sense due to the level of contamination in bins.

A discussion occurred in regards to the management of solid waste including topics related to the RDN making recycling mandatory region wide.

L.Gardner outlined that the Regional District has the ability to introduce mandatory collection similar to how we introduced curbside service as a utility. This is a mechanism we have that could ensure ICI buildings comply with recycling programs.

G. Johnson asked if the RDN made recycling mandatory would it increase recycling.

D.Haarsma stated his customer base almost everyone has a recycling program. Depends on size of building, garbage is picked up weekly, recycling every two weeks. Commercial is pretty up to speed on recycling. Not much issue with compliance and buy in. Multi-family buildings are looking for the low cost option. If a mandatory system was in place haulers could still exist the way we do.

M. Tripp commented that his customers business in town have two containers. ICI is 60% of sector, 40% would be residence. The business community is recycling. The issue is staying afloat with changing technology and competing with haulers that ship export waste.

J. Hastings highlighted that 95% of residences in the MF sector have access to same service, what is the barrier to that service being the same? Parksville stratas are included in the RDN collection program. Nanaimo handles only curbside and any strata's are outside of the City curbside collection program and these are handled by private haulers. There is no hard fast regulation telling an apt owner or condo owner that they must recycle. If there was more regulation recycling services would increase dramatically. This would create a level playing field as all haulers would have to abide by the same rules.

MMBC poses a different challenge as containers have to be kept in a separate location and paper removed from packaging. MMBC does not give haulers w funds to educate the MF sector and this would be beneficial as it would help reduce contamination as there is a strict threshold of 3% contamination.

J. McTaggart Cowan asked if it is only paper making money. Is MMBC not paying you properly for that recycled material? D. Haarsma replied that for multi-family its ½ the fee of curbside. ICI that includes the schools is not captured under the MMBC program so we rely on what the market rate is for recyclable commodities. The City and the RDN receive payment to provide residential education programs.

J. Finnie made the observation that Strata's are a legal entity and many have taken on the responsibility of introducing recycling. What would be a better approach to apt buildings?

D. Haarsma responded that when he signed on as an MMBC contractor it was under the impression that the entire Multi Family sector had to comply. As it's rolled out that's not the case. If there was regulation through the RDN, then there would have some teeth to the program.

J. Hastings stated that it isn't right that a private hauler has to provide education. We want to focus efforts on increasing diversion for the ICI sector, and especially for multi-family. I would like to see ICI as the cornerstone for the new plan and designed under the umbrella of Zero Waste. To do that, we need an operational definition of Zero Waste for the purpose of the SWMP.

D. Haarsma commented that education is important, as a hauler we do not have the resources to provide education. This should be the responsibility of RDN or an agency that specializes in education programs so they can do a proper job. It is time consuming and there needs to be consistent messaging and refreshers.

G. Johnson suggested looking into grant programs for providing education as the commercial sector finds complying with MMBC challenging as there is not sufficient funding for education.

**BUSINESS ARISING FROM THE MINUTES**

**Technical Memorandum: Multi-Family & IC&I Recycling in the RDN. (L. Gardner – Presentation)**

L. Gardner introduced a slide presentation summarizing Multi-Family & IC&I waste stream. There are two potential diversion strategy scenarios which would include Scenario 1: increased education/enforcement at regional facilities with a diversion potential of 3% and Scenario 2: additional regulatory authority with a diversion potential of 7.9 -11%. Multi-family recycling rates are estimated to be between 16-18% compared to 30% for single-family and approximately 44% of the waste stream is compostable. L. Gardner provided an overview of the various Regulatory Authority Options which included Waste Source Regulation, Flow Management, Mandatory Waste Collection Service, Waste Hauler Franchise and Waste Haulers as Agents.

A discussion ensued regarding the regulatory authority options and if any should be included in the SWMP. What options are there for targeting the paper and plastic that makes up 25% of the IC&I sector waste stream? Which regulatory authorities would be most effective; mandatory waste collection service for all waste generators, franchising, source regulation, haulers as agents?

J. McTaggart-Cowan questioned how do we need to reduce ICI waste? What is needed to achieve 25%? L Gardner clarified that the diversion potential is up to 11% of the total waste stream and explained the waste composition percentages.

J. Hastings stated that there are municipalities that do mandatory waste collection service, how would it put free enterprise into jeopardy?

L Gardner explained that mandatory waste collection would be set up the same as the residential curbside program, where the RDN contracts the service to a single waste hauler. The contract would be awarded through a tendering process. There wouldn't be any opportunity of others to subsequently compete for business..

J. Hastings asked why can't we have mandatory service and then let the hauler do it? I don't see barrier.

L Gardner outlined a mandatory collection service by, or on behalf of local government can be introduced. The RDN needs additional authorities from the province if, instead, a regulation requires people to obtain their own recycling service. J. McTaggart-Cowan commented the objective is to reduce amount of material going into the landfill to achieve zero waste.

L. Gardner commented to achieve zero waste there would be implications on taxation. Waste generators that send waste outside of the region don't contribute money to the region's waste management function. We could try to get cost of disposal down and recover the shortfall in revenue through taxation. We've intentionally put costs high to create an incentive to divert material to the private sector facilities for recycling.

A.McPherson commented we need to make sure everyone is paying for education through the tipping fees in order to cover the education programs so that everyone using the regional system is contributing.

J. McTaggart-Cowan commented we should look at the business and encourage them to redesign by pushing back to the design phase. The business sector should be involved in putting forward what the haulers need with respect to education and regulation. He also suggested that if we're going to set diversion targets, we need to have a target and identify what measures will be implemented to achieve it. Decide what strategies we are going to include so we can measure our progress to see how we are achieving our goal. The RDN needs to become a model of zero waste.

**UNFINISHED BUSINESS**

**COMMUNICATIONS/CORRESPONDENCE**

**Jan Hastings**, re Zero Waste Definitions.

J. Hastings reviewed the zero waste definitions and principles from each of the below agencies:

- Zero Waste International Alliance
- National Zero Waste Council
- Zero Waste BC
- Recycling Council of BC
- BC Ministry of the Environment
- London Remade.

**Jim McTaggart-Cowan**, re RSWAC Motions & Questions.

A. McPherson introduced and suggested that the motions, as presented, will provide an opportunity for the Committee to discuss what options they wish to see in the SWMP.

J. McTaggart-Cowan commented that the purpose of the motions was to provide a structure and to focus on what information is needed to make decisions.

J. McTaggart-Cowan asked if D. Haarsma, M. Tripp and staff could provide information on what is needed to regulate and to create a level playing field.

**REPORTS**

**ADDENDUM**

**NEW BUSINESS**

**ADJOURNMENT**

MOVED J. McTaggart-Cowan, SECONDED G. Johnson, that this meeting be adjourned.

Time: 7:29 pm.

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CHAIRPERSON

**REGIONAL DISTRICT OF NANAIMO**
**REGIONAL SOLID WASTE ADVISORY COMMITTEE MEETING**
**HELD ON THURSDAY, FEBRUARY 18, 2016**
**BOARD CHAMBERS**

**Present:**

| | |
|---|---|
| Alec McPherson | Chair, RDN Director |
| Bill McKay | Deputy Chair, RDN Director |
| Jan Hastings | Non Profit Representative |
| Derek Haarsma | Business Representative |
| Wally Wells | Business Representative |
| Craig Evans | Member at Large |
| Michele Green | Member at Large |
| John Finnie | Member at Large |
| Jim McTaggart-Cowan | Member at Large |
| Ellen Ross | Member at Large |
| Amanda Ticknor | Member at Large |
| Stewart Young Jr. | Business Representative |
| Fred Spears | District of Lantzville |

**Also in Attendance:**

| | |
|---|---|
| Howard Houle | RDN Director |
| Wendy Pratt | RDN Director |
| Bill Veenhof | RDN Director |
| Maureen Young | RDN Director |
| Larry Gardner | Manager of Solid Waste, RDN |
| Rebecca Graves | Recording Secretary, RDN |
| Sharon Horsburgh | Senior Solid Waste Planner, RDN |
| Jane MacIntosh | Superintendent, RDN |
| Dennis Trudeau | CAO, RDN |
| Maggie Warren | Superintendent, RDN |

**Regrets:**

| | |
|---|---|
| Gerald Johnson | Member at Large |
| Charlotte Davis | City of Nanaimo |
| Geoff Goodall | City of Nanaimo |
| John Marsh | Town of Qualicum Beach |
| Chief & Council | Nanoose First Nation |
| Chief & Council | Snuneymuxw First Nation |
| Michael Recalma | Qualicum First Nation |
| Glenn Gibson | Island Heath |
| Al Leuschen | Ministry of Environment |
| Karen Muttersbach | Environment Canada |
| Michael Tripp | Business Representative |
| Randy Alexander | General Manager, RCU, RDN |
| Jeff Ainge | Zero Waste Coordinator, RDN |
| Meghan Larson | Special Projects Coordinator, RDN |

**CALL TO ORDER**

The Chairperson called the meeting to order at 5:04 PM and respectfully acknowledged the Coast Salish Nations on whose traditional territory the meeting took place.

**DELEGATES**

**MINUTES**

MOVED J. McTaggart-Cowan, SECONDED B. McKay, that the minutes from the meeting of the Regional Solid Waste Advisory Committee regular meeting held February 4, 2016, be received for information only and be amended. CARRIED

**BUSINESS ARISING FROM THE MINUTES**

**UNFINISHED BUSINESS**

**COMMUNICATIONS/CORRESPONDENCE**

**REPORTS**

**Residual Management Options (Morrison Hershfield - K. Fichtner – Presentation)**

L. Gardner gave an introduction to the Residual Management Presentation and discussed the upcoming Stage 2 timeline for RSWAC/SWMSC meetings.

K. Fichtner gave a presentation on Waste Processing Technologies. Technologies available to process waste include Material Recovery Facilities, Waste to Fuel, Biological Energy Recovery and Thermal Energy Recovery. Summary of costs, diversion rates along with advantages and disadvantages of each technology was presented.

B. McKay asked if there are any examples of businesses that are using one of these processes that would produce lower emissions than the current endeavour?

K. Fichtner replied that from his experience cement kilns have the potential to offset the use of coal and lower overall emissions if they are permitted to use waste as a fuel source.

B. McKay commented on the composition of waste and the new material being introduced causing an increase in the level of non-recyclable materials which are becoming almost impossible to recycle.

K. Fichtner remarked that some material is getting harder to recycle and therefore creating the development of product stewardship programs. Construction and demolition materials in a lot of municipalities are causing a problem and composite materials are challenging to recycle.

J. Finnie questioned if the information provided was showing higher costs for combustion and pyrolysis processes and how much of that cost is due to emission control systems or is it part of the technology cost?

K. Fichtner replied 30-50% of the cost is for emission control systems.

B. McKay questioned if Vancouver Island has been viewed as a model and if Nanaimo could become a central clearing house for a polymer plant?

K. Fichtner could not answer but would like to follow-up. There is a recent study conducted for Regional Districts from Central and Southern Vancouver Island that concluded both highway and rail transportation was more expensive than to have a regional facility to manage their own residual waste.

J. McTaggart-Cowan enquired about a cost estimate to make the material at Nanaimo Organic Waste (NOW) a Class A product?

L. Gardner, NOW produces a Class A compost in accordance with the Provincial Organic Matter Recycling Regulation. However due to contaminants the finished compost is difficult to market. NOW is a privately owned facility and the current owners would be required to invest significant Capital in the plant to improve the end produce. The owners have reviewed the option of installing an anaerobic digestion (AD) system. Orgaworld that are building the new facility in Surrey visited NOW and gave the owners some advice and a cost estimate with regards improving the operation and the quality of the finished product. It is not improvements at the front end of the operation but a change in how the feedstock is processed to help remove contamination that will greatly improve the end product.

D. Haarsma questioned the waste material in a dirty MRF if under ideal conditions we could capture 45% and the remainder 55% would still go to landfill?

K. Fichtner replied that the material balance is maximum 20% recycling, maximum 40% organics, and 40% left for residuals and those residuals could be made to fuel or be landfilled.

J. MacIntosh questioned if the waste material prepared for the digestion system could be used at a wastewater treatment facility?

K. Fichtner replied that the AD systems are designed for a certain biological oxygen demand and if you add a lot of solids it would overload the system.

B. McKay asked if there are any examples of facilities that produce energy from these technologies that is utilized as district energy?

K. Fichtner commented that Houwelling Nurseries Co generation plant in Delta utilizes landfill gas in its greenhouses near the Vancouver Landfill.

B. McKay questioned if glass is going the way of newsprint as far as volume?

K. Fichtner replied that there is a bit of glass recycling in some areas but the use of glass is getting less. There aren't a lot of markets for used glass and manufactures can make glass cheaper from sand than from cullet.

**GROUP EXERCISE**

L. Gardner introduced the group exercise and the Committee broke off into groups to discuss the topics "Which residual management options would you advise the board to consider and why?" and "What would trigger you to advise the Board to consider any new technologies in the future?"

The results from the Group Exercise are shown in Table 1 below.

| **TABLE 1** | **Group Exercise** | |
|---|---|---|
| Group | Which Residual Management Options Would You Advise The Board to Consider And Why? | What would trigger you to advise the Board to consider any new technologies in the future? |

| | | |
|---|---|---|
| #1 | • Landfill capacity (somewhere/somehow)<br>• Integrate with clean MRF<br>• Continue to embrace new and emerging technologies | • Collaborating with other jurisdictions for new ideas, economies of scale, including diversion strategies. |
| #2 | • MRF- for residual, (dirty) for ICI and for what is already going to the landfill (garbage) with an AD closed system<br>• Prefer SS to create a more robust system first. | • We define technology as regulation and enforcement and the "force is with us", we have been triggered |
| #3 | • Island solution<br>• Education/Enforcement<br>• Keep eyes open/stay informed<br>• Source control improvements<br>• Siting new landfill extremely hard (0.1%) | • No other alternatives – must<br>• New technology arises<br>• Cost effective<br>• Known markets<br>• High social value<br>• Community benefit |

**ADDENDUM**

**NEW BUSINESS**

**ADJOURNMENT**

MOVED B. McKay, SECONDED J. McTaggart-Cowan, that this meeting be adjourned.

Time: 7:30 pm.

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CHAIRPERSON

REGIONAL DISTRICT OF NANAIMO

# STAFF REPORT

| | | | |
|---|---|---|---|
| **TO:** | Larry Gardner<br>Manager, Solid Waste | **DATE:** | March 9, 2016 |
| | | **MEETING:** | RSWAC, March 17, 2016 |
| **FROM:** | Sharon Horsburgh<br>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.<br>Hub City Paving |
| Asphalt Shingles | DBL Disposal Services Ltd.<br>Pacific Coast Waste Management |
| Concrete | DBL Disposal Services Ltd.<br>Hub City Paving<br>Haylock Bros.<br>Mayco Mix<br>Pacific Coast Waste Management<br>Parksville Heavy Equipment |
| Metal | ABC Recycling<br>Alpine<br>Annex Auto<br>Bull Dog Auto Parts<br>Carl's Metal Salvage<br>DBL Disposal Services Ltd.<br>Nanaimo Recycling Exchange<br>Schnitzer Steel |
| Land Clearing (LC) | DBL Disposal Services Ltd.<br>Earthbank Resource Systems<br>Pacific Coast Waste Management |
| Wood (lumber) | Alpine<br>Coast Environmental Services<br>DBL Disposal Services Ltd.<br>Gabriola Island Recycling Organization<br>Nanaimo Recycling Exchange<br>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.<br>• Commence information campaign to make CD waste generators and haulers aware of alternate facilities.<br>• Encourage the role of building supply retailers and producers in the collection of DLC material for recycling.<br>• 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.<br>• 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 :<br>$20,000 Education<br>$20,000 Regulation<br>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.

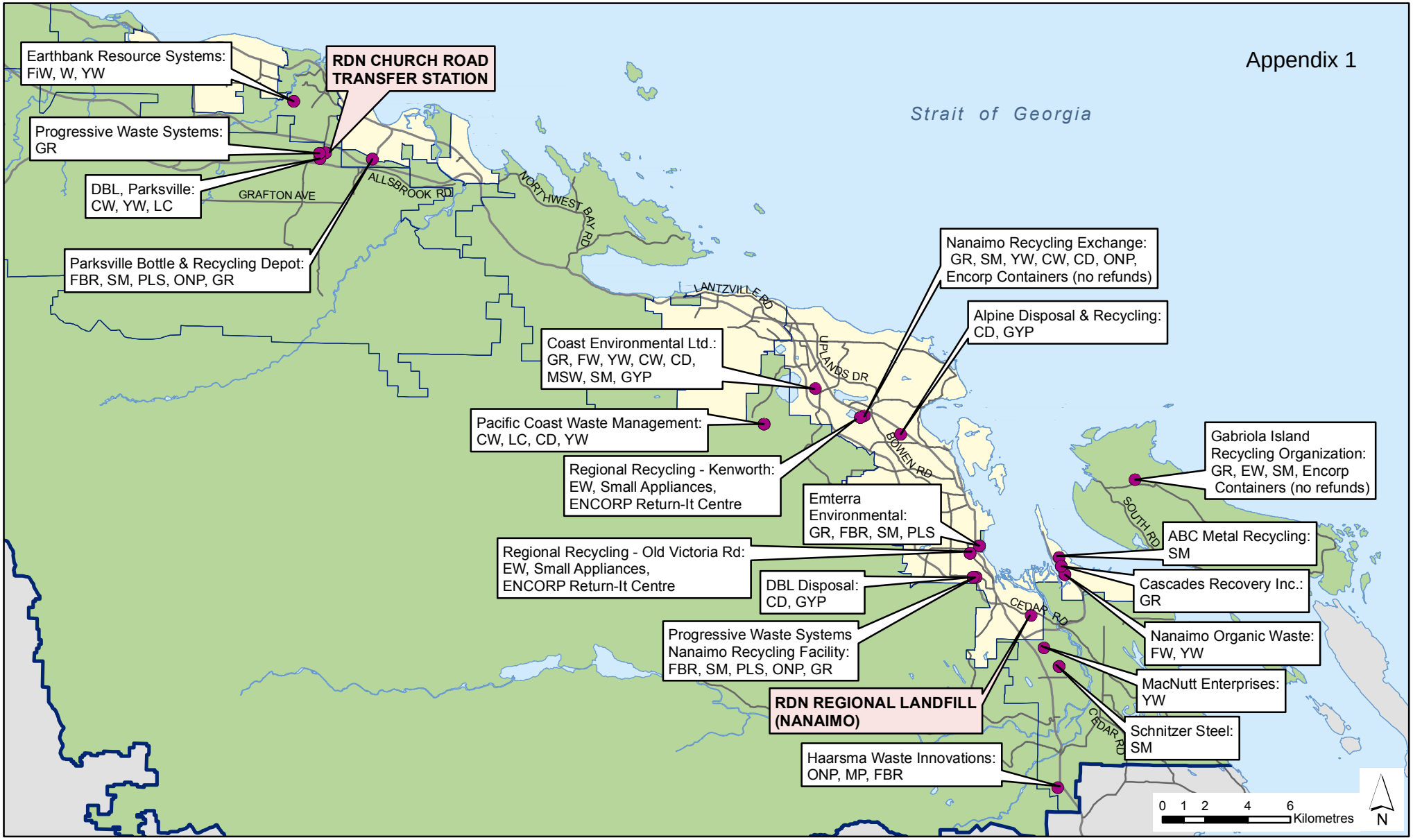
Report Writer

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

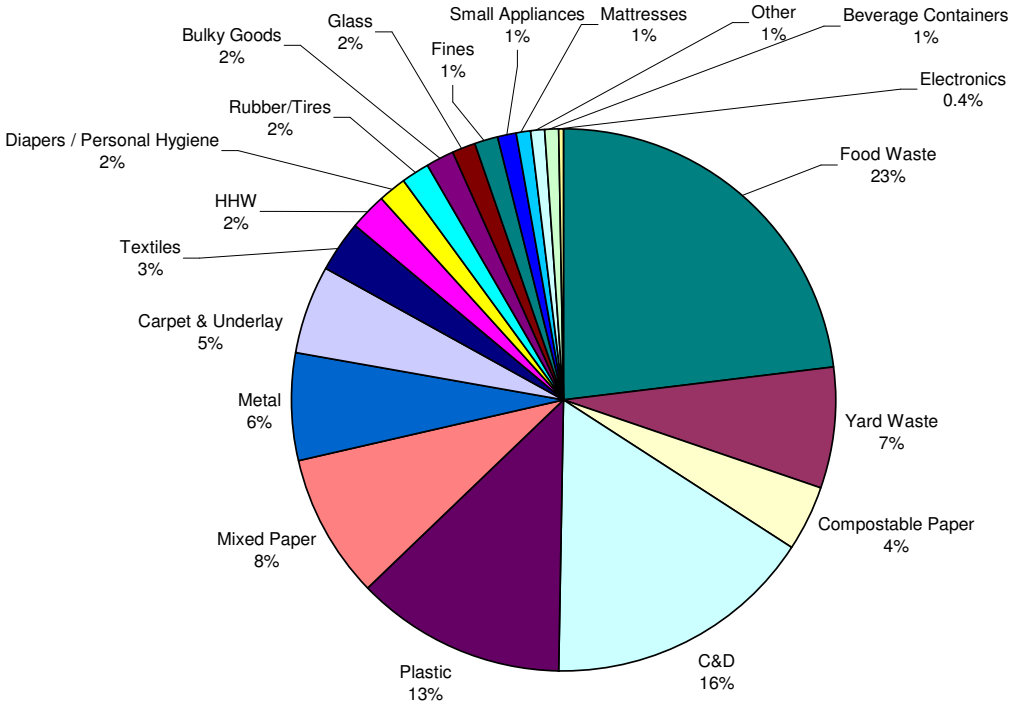
## Why Divert Construction/Demolition Waste From Disposal?

### 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

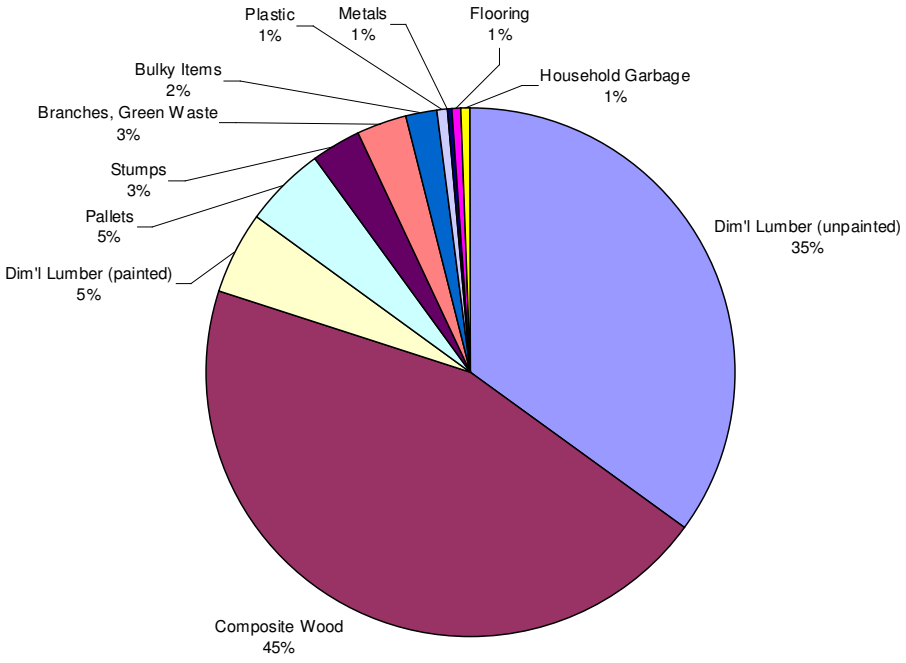
The vision of turning waste into feedstock for a new and beneficial product that creates wealth from waste is a supporting theme of the RDN Zero Waste Plan. That is why the RDN adopted the Waste Stream Management License (WSML) bylaw which not only regulates recycling and waste management facilities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

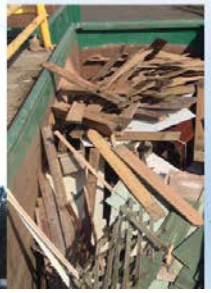
**Waste Wood Diversion:**

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).

## Reports/Data/Communications to Date for RSWAC

The chart is an attempt to identify all of the committee's issues identified to date; priorities emerging from small group exercises; and internal/external communications about issues. Further, it attempts to match the issues to the reports and data collected so far. The goal is to organize what we have; to highlight issues identified that haven't been discussed yet; and, hopefully, to highlight further research or discussions needed. Whether or not further research or discussion is needed on some of these issues should be a matter for the committee to determine.

There are many reports to date that RDN staff has worked hard to create for the committee. The reports answer many questions, but may not have answered all the questions identified in our 'Issue Identification"; the "Consolidated Option Identification" document; or that have come up in the committee's on-going discussions.

| Identified Issues | Report(s) | Needs more Research | Needs more Discussion |
|---|---|---|---|
| **Background information**<br>Provincial data suggests MSW generated my exceed planned growth in recycling nand diversion activities mean MSW could continue to grow.<br>Province developed 3 diversion scenarios to assist with planning for future waste and recycling needs.<br>Zero Waste initiatives are an integral part of the RDN's SWMP, evaluation of current ZW programs will determine policies/programs meet future needs<br>Key policy drivers to help with Zero Waste and diversion include curbside recycling and organics for S/F, disposal bans, user pay fee structure, organics diversion for res and ICI, recycling depots, current and future EPR programs, a regional landfill designed and operated to maximize environmental protection, education and outreach<br>How can we do better with what we have?<br>How do we address consumerism?<br>Can tax requisition be translated to $/tonne<br>Does Solid Waste Management Plan have to be the name we use locally to market public consultation<br>Is there an assessed value by housing type? | BC Stats Fact Sheet<br>RSWAC Terms of Reference (Revised from 2013)<br>Stage 1 Existing System Report<br>Backgrounder for the RDN Zero Waste Program<br>Consultation and Communications Plan, Jan 2015<br>Consultation Summary Report<br>Stage 1 and Stage 2 Consultation Efforts<br>Future Population and Demographics<br><br>L. Gardner to get back on G. Johnson's question<br><br>P. Thompson to get back to G. Johnson question | | |
| **#1 Reduce and Reuse**<br>difficult to measure compared to waste diversion<br>Education is main focus<br>how to encourage behaviours that move "up the hierarchy"<br>reduce waste or reduce consumption?<br>how to move toward sustainable product design | Reduce, Reuse and EPR (Options: Reduce p. 2 #1-9; Reuse p.3 #1-6)<br>RD Authority to Manage Consumer Product<br><br><u>Available Reports</u><br>Letter to Jan Hastings from MOE ("A regional | | |

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| what is local/prov government role?<br>Promote practices?<br>Support non-profit reuse centres?<br>**Identified Priorities for Reduce and Re-use (from exercises)**: adult education, RDN facility like Urban Ore, storage, repair, repurposing, salvage; fund non-profits/small business for repair and repurpose; waste reduction education needed; promote re-use | district should also be exploring other means to reduce waste up-stream")<br>Austin Texas, Zero Waste Strategic Plan<br>MMBC PPP Stewardship Plan (pp. 25 – 28) | | |
| **Curbside**<br>How to improve diversion<br>Do MRFs have a role?<br>Food waste in rural areas<br>Does curbside need improvement?<br>Identified Priorities: enforce Green Bin use; curbside audits; provide M/F with same collection as S/F; incorporate waste management through building code bylaws. | Curbside Collection- Household Glass<br>Curbside Collection-Yard Waste<br>Curbside Collection-Compliance and Enforcement | | |
| **CRD**<br>More diversion needed<br>Lack of education for sector<br>Worksafe challenges<br>Appropriate tip fees<br>Lack of data and future regulations unknown<br>Current wood waste issue | <u>Available Reports</u><br>Data from Wood Waste Recycling presentation at CWMA | | |
| **Zero Waste/Resource Recovery**<br>Which technology is best for RDN waste stream and size?<br>62% of what's in landfill is recyclable<br>Use MRF as last ditch landfill pre-screen<br>What is effect of MRFs on source separation?<br>Can we eliminate need for recovery?<br>Definition of Zero Waste: ZWIA? RCBC?<br>ZWIA calls waste a resource<br>RDN Zero Waste policy… "continuously strives to reduce the amount of waste requiring disposal." | Backgrounder for RDN Zero Waste Program<br>Share Shed Programs at RDN Facilities<br>RDN's Zero Waste Plan<br>Zero Waste models (list of available models)<br><br><u>Available Reports/Info</u><br>What is the best disposal option for the "Leftovers" on the way to Zero Waste? (Report and Webinar hosted by CoN August 19, 2015) | | |

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| Key drivers: bans, garbage as resource once a stable, alternative use is identified, high disposal fees.<br>**NOTE:** Resource Recovery and Zero Waste got blended in our discussions and reports in May. BUT, Zero Waste definition of Resource Recovery is recovery of valuable resources before landfill and incineration is not an option. MoE definition of Recovery is material or energy recovery through technology (thermal treatment/incineration). These definitions are incompatible. Might be best to talk about RR once we have decided on RDN definition/application for Zero Waste.<br>**Identified Priorities from exercises:** RDN facility to separate materials for recycling; "Everything to a MRF" for ICI and M/F; introduce incentives to reduce waste to landfill. | Zero Waste Business Case<br>Zero Waste to Landfill: False Path to Circular Economy<br>Innes Hood Consulting, North Vancouver<br>CalRecycle: Resource Recovery Parks Case Studies<br><br>*RDN request to GBN for written response to MRF plans announced when MMBC started.<br>Note: Green by Nature will not be building MRF in Nanaimo. (Jan Hastings: from conversation with Ed Walsh, GBN) | | |
| **Residual Waste Management**<br>Landfill air space is most important asset<br>What are options when landfill is full?<br>Optimize landfill and waste export<br>Should self-haul be studied/policed?<br>Investigate "break the bag"<br>Investigate WTE further<br>Zero Waste Plan<br>What options aren't desirable?<br>WSML, Flow Control<br>Community support to site new landfill?<br>Role of education and bans | RDN Waste Generation Projections<br>The 3R- Recycling and End Uses (p.2-3 "Garbage")<br>Cedar Road Landfill Gas/Cedar Road Bioenergy<br>Disposal Facility Future Cost Projections<br>Authority Under RDN's SWMP to Regulate Municipal Solid Waste<br>SWANA Comparative Analysis: Source Separation vs MRF<br>Residual Management: Scope of Work<br>Next Use<br>New and Emerging Technologies (presentation)<br><br><u>Available Reports</u><br>What is the best disposal option for the "Leftovers" on the way to Zero Waste? | | |
| **Waste to Energy**<br>Under what circumstances should WTE be considered/not considered?<br>Biomass energy commonly used in Island mills | New and Emerging Technologies (presentation) | | |

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|---|---|---|---|
| Metro Vancouver's proposal<br>Large volumes of garbage and recycling necessary to make MSW incineration feasible<br>Zero Waste Int'l Alliance definition of Zero Waste says no to incinerators<br>*Durham T\WTE study of drinking water and agri land<br>*What is value of energy from waste compared to energy saved if recycled?<br>WTE produces hazardous waste residual to be factored in to cost<br>High costs per tonne when capital factored in | K. Fichtner to follow up with answer (Craig has)<br><br>K. Fichtner to follow up with answer<br><br><u>Available Reports</u><br>MOE Information Sheet: Waste to Energy in Solid Waste Management Plans<br>Zero Waste perspective on WTE?<br>Data from Wood Waste Recycling presentation at CWMA | | |
| **Financing the Solid Waste System**<br>Costs of Diversion: Tip fee revenue reduced by leakage and diversion<br>Decrease costs<br>Adjust tip fees<br>Taxation<br>Solid Waste budget is fixed cost budget and tip fees are declining<br>User Pay systems (if I pay for something, then might as well use it OR if it is cheaper to recycle than dispose in garbage, I'll recycle)<br>How can public make financial decisions when they don't understand solid waste processes, costs and impacts?<br>Hard to recycle items cost $ | Landfill tip fee analysis<br>RDN Waste Export Analysis (Carey McIver)<br>Disposal Fee Future Cost Projections<br>Emerging Technologies Presentation (Konrad Fitchner)<br><br><u>Available Reports</u><br>Zero Waste Business Case<br>Innes Hood Consulting, North Vancouver | | |
| **Diversion percentage target for RDN**<br>70%, 80%, 90%<br>Zero Waste?<br>Scenario 1, Scenario 2, Scenario 3 | BC Stats Fact Sheet<br>RDN Survey Results<br>Regulatory Tools to Promote Increased Waste Diversion<br>Jurisdictional Scan Regarding Waste Diversion | | |

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| | Programs<br><br><br><u>Available Reports</u><br>Zero Waste Business Case<br>Innes Hood Consulting, North Vancouver | | |
| **Recycling**<br>All S/F homes in RDN have municipal curbside recyclables and organics collection<br>M/F and ICI collection not provided by municipal services: no single service provider: confusion and lack of standardization, minimal data, need for increased diversion. ICI and M/F Options listed in ICI and/or M/F sections.<br>Limited end uses for some recyclable materials (glass)<br>Recycling costs increasing<br>Changing markets to fund recycling<br>**EPR**<br>Not well understood. Lack of public awareness<br>MMBC plan to add new products on hold<br>What role should local gov't take in EPR programs? *Local govt invite industry to discuss issues and solutions.<br>**Role of EPR's related to general recycling**: EPR programs have taken ownership valuable products. What's left is difficult and expensive to recycle. EPR's governed by economics or environmental stewardship principles? How to ensure EPR programs fully compensate for costs of collection. EPR's can gut programs to recycle non-EPR products (for depots and brokers).<br>**Identified Priorities (from exercises):** upstream advocacy for reduction and Design for Environment; increase recycling education for M/F and ICI; improve recycling options for ICI and M/F; | Reduce Reuse and EPR<br>Recycling and End Uses<br>An overview of MRFs<br><br><br><br><u>Available Reports- Recycling</u><br>Austin Texas, Zero Waste Strategic Plan<br>Recycling Overview Ppt-Jan Hastings NRE<br><br><br><br><br>Reduce Reuse and EPR (EPR Options 1-8 on p. 4, p. 5)<br>EPR at RDN Facilities<br>RD Authority to Manage Consumer Products | | |

| | | | |
|---|---|---|---|
| increase market development to increase local recycling business opportunities; Strong private sector investment that needs to be protected because of contribution to diversion<br>**Some identified options:** RDN partner with recyclers to manage "hard to recycle" products and education?<br>Local solutions to local waste; Resource Recovery facility that also provides employment for people with barriers to employment; Help entrepreneurs with local recycling solutions; | | | |
| **ICI**<br>Need increased diversion according to 2012 Waste composition study<br>Need more than bans/fines to increase diversion: commercial hauls have banned materials, haulers are enforcers, lose customers if enforce, who should enforce<br>How to create level playing field and support increased recycling collection<br>Do we have target for ICI diversion?<br>RDN not involved in service to commercial sector<br>Haulers as educators? Who should educate?<br>**Challenges with ICI Organics:** data collection and tracking, enforcement is difficult, staff implements programs (turnover a factor), enforcement affected by leakage threat : incentives vs flow control, lack of enforcement decreases diversion potential.<br>Regulations to increase diversion? | Stage 1 Existing System Report<br>Regulatory Tools to Promote Waste Diversion (not fully discussed for ICI waste stream)<br>Options Exercise May 2015<br>Multi-Family and ICI Collection in the RDN: (Challenges summarized Appendix A)<br>The 3 R--Recycling and End Uses (Organics options p. 7, #1-12<br>Hauler data-Derek Haarsma (presentation)<br><br><u>Available Reports</u><br>Austin Texas, Zero Waste Strategic Plan<br>NRE data from School District 68 Pilot (to be compiled) | | |
| **Multi-Family Residences**<br>**Issues:** lack of resident engagement in recycling initiatives; diversity of housing types; compliance enforcement and/or monitoring; service provider involvement; MMBC program challenges; collection services vary by facility and hauler (education programs complicated if not standardized); lack of | Curbside Collection Program-Compliance and Enforcement to Improve Diversion.<br>Multi-Family and ICI Collection in the RDN: (Challenges summarized Appendix A)<br>Hauler data-Derek Haarsma | | |

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| data (recorded as ICI because collected by private haulers); approximately 29% is food waste and paper; projected 815 tonnes diversion if green bin program implemented.<br>Limited space allocation for recycling in M/F facilities<br>Option for by-law changes? | <u>Available Reports</u><br>NRE/RDN/CoN/Beacon Organics Pilot program (data to be compiled) | | |