REGIONAL DISTRICT OF BULKLEY-NECHAKO

WASTE MANAGEMENT COMMITTEE

AGENDA

Thursday, March 17, 2022

PAGE NO.		ACTION
	CALL TO ORDER	
	AGENDA – March 17, 2022	**Approve**
	SUPPLEMENTARY AGENDA	**Receive**
	MINUTES	
3-6	**Waste Management Committee Meeting Minutes – February 10, 2022**	**Approve**
	COMMITTEE ADVOCACY	
	Discussion Item – NCLGA or UBCM Extended Producer Responsibility (EPR) Resolution	
7-14	**Verbal Update – Public Consultation Response** **- Expansion of BC Used Oil Management Association** **- Used Oil Extended Producer Responsibility (EPR)**	**Receive**
15-17	**Janette Derksen, Waste Diversion Supervisor** **- RDBN Membership to the Coast Waste Management Association (CWMA)**	**Receive**
	SOLID WASTE ADVISORY COMMITTEE UPDATE	
	None	
	POLICY REVIEW	
	None	
	DIVERSION & RECYCLING	
18-26	**Alex Eriksen, Director of Environmental Services** **- Disposal, Diversion & Revenue: Part 1 – The Cost of Disposal**	**Receive**
	Verbal Update – Recycling Depot Supply Challenges	
27-28	**Janette Derksen, Waste Diversion Supervisor** **- Transfer Stations – Expanding Recycling Depot Programs**	**Discussion/ Receive**
29-31	**Janette Derksen, Waste Diversion Supervisor** **- RDBN Salvage and Re-Use Programs**	**Discussion/ Receive**

OPERATIONS UPDATE

32-33 **Alex Eriksen, Director of Environmental Service** **Receive**
- Knockholt Landfill Update – Waste Re-routing Plan

Verbal Update – Department Activity

MISCELLANEOUS

Verbal Update – Pipeline Legacy Project: Wood Grinding

Verbal Update – Debris Management Course Highlights

FUTURE MEETING TOPICS

- **Houston – Solid Waste and Recycling – April 2022**
- **Wood Waste Operations Update – April 2022**
- **Cost Recovery Plan – Review and Update – April 2022**
- **Disposal Fee Bylaw Changes – April 2022**
- **2m3 rule – do we limit. Loopholes etc. – May 2022**
- **Consideration of accepting sawmill waste (Hogfuel) as daily cover material**

SUPPLEMENTARY AGENDA

NEW BUSINESS

IN-CAMERA MOTION

In accordance with Section 90 of the *Community Charter*, it is the opinion of the Board of Directors that matters pertaining to Sections 90(1)(a) personal information about an identifiable individual who holds or is being considered for a position as an officer, employee or agent of the regional district or another position appointed by the regional district (Regional Solid Waste Advisory Committee) therefore exercise their option of excluding the public for this meeting.

ADJOURNMENT

REGIONAL DISTRICT OF BULKLEY-NECHAKO

WASTE MANAGEMENT COMMITTEE MEETING

Thursday, February 10, 2022

PRESENT:	Chair	Mark Fisher
	Directors	Gladys Atrill – via Zoom Shane Brienen Chris Newell - via Zoom Jerry Petersen Michael Riis-Christianson Gerry Thiessen
	Staff	Curtis Helgesen, Chief Administrative Officer Cheryl Anderson, Director of Corporate Services Janette Derksen, Waste Diversion Supervisor Alex Eriksen, Director of Environmental Services John Illes, Chief Financial Officer Wendy Wainwright, Deputy Director of Corporate Services
	Others	Dolores Funk, Village of Burns Lake - left at 1:40 p.m. Annette Morgan, Village of Telkwa – via Zoom Bob Motion, District of Fort St. James – via Zoom Clint Lambert, Electoral Area "E" (Francois/Ootsa Lake Rural) Linda McGuire, Village of Granisle Mark Parker, Electoral Area "D" (Fraser Lake Rural)
	Media	Eddie Huband, LD News – via Zoom – left at 1:25 p.m.

CALL TO ORDER Chair Fisher called the meeting to order at 1:00 p.m.

AGENDA

Moved by Director Petersen
Seconded by Director Brienen

WMC.2022-2-1 "That the Waste Management Committee Agenda for February 10, 2022 be approved."

(All/Directors/Majority) CARRIED UNANIMOUSLY

MINUTES

Waste Management Committee Meeting Minutes January 13, 2022

Moved by Director Riis-Christianson
Seconded by Director Petersen

WMC.2022-2-2 "That the Minutes of the Waste Management Committee for January 13, 2022 be approved."

(All/Directors/Majority) CARRIED UNANIMOUSLY

COMMUNITY ADVOCACY

Verbal Update – Youth Member Recruitment

Alex Eriksen, Director of Environmental Services
- Received a few applications from Vanderhoof and one from Burns Lake.

SOLID WASTE ADVISORY COMMITTEE (SWAC) UPDATE

Verbal Report re: Recruitment

Alex Eriksen, Director of Environmental Services
- Outreach to the Solid Waste Management Committee members
- Received two applications from the public
- Awaiting response from First Nations Communities
- Extended the deadline for submissions.

POLICY REVIEW

None

DIVERSION & RECYCLING

Clean Farms – Agriculture Plastics Pilot 2021 Update
- Soft start for the program
- Began shipping material late December 2021/early January 2022
- Areas with higher success
- Budget actuals for the year
- Staff will provide quarterly updates moving forward
- Users of the systems finding good setup
    - Issue with the size of the bags
    - CleanFarms is addressing the bag size and working to find a solution.

Clean Farms – Agriculture Plastics Pilot 2021 Update Report	Moved by Director Brienen Seconded by Director Riis-Christianson
WMC.2022-2-3	"That the Committee receive the CleanFarms Agriculture Plastics Pilot 2021 Update Report."
	(All/Directors/Majority) CARRIED UNANIMOUSLY

Verbal Report – Recycle Depot Supply Challenges

Janette Derksen, Waste Diversion Supervisor has had discussions with Recycle BC, Green for Life Inc. and local haulers to mitigate supply issues. The Smithers Telkwa Recycling Depot had to close for a short period and staff utilized the Bulkley Nechako Emergency and Public Alerts system to provide information to area residents. Discussion took place regarding the benefit of using the Alert System to notify residents.

Mr. Eriksen noted that the letter sent by the Board to Recycle BC in regard to the issue assisted in furthering discussions regarding the supply chain issues.

Discussion Item – Expanding Recycling Depot Programs

Mr. Eriksen and Ms. Derksen provided an outline to potentially expand recycling depot programs at RDBN Recycling Depots.

The following was discussed:

- One stop shop for all recycling depots in the region
- Specific to electronics
    - Currently only Fort St. James Recycling Depot collects electronics
    - Bottle Depots in other communities collect electronics
- Due to collection gaps in the community Fort St. James Recycling Depots provides a number of Extended Producer Responsibility (EPR) Programs
- Staff capacity to increase product collection at RDBN Recycle Depot sites
- Capturing end of life
- Solutions to removing recyclable products from being dumped on the Transfer Station floor
- Incorporating electronics, small appliance, lights and lamps, bulky tools and equipment, smoke detectors, alarms etc.
- Vanderhoof – Paint and Paint Plus
- Potential impact to current businesses, nonprofits and not-for-profits in the region
- Potential partnering agreements
- Milk cartons now being recycled will directly impact RDBN Recycling Depots
- Inconsistent hours of operation of external recycling operations in the region
- Inconsistent service levels across the region
- Consider best service for the user
- Tipping fee discussion needed
- Three priorities: diversion, customer service, cost effectiveness
- Staff will continue to research potential options.

OPERATIONS UPDATE

Verbal Update – Knockholt Capacity Update – Waste Re-Routing Plan

Mr. Eriksen provided an update regarding the Knockholt Landfill capacity and waste re-routing plan. There has been less waste delivered recently, extra compaction and ability to maximize all slopes on the landfill which has allowed the landfill capacity to extend to June 2022.

Air Curtain Burner Received	Moved by Director Riis-Christianson Seconded by Director Petersen
WMC.2022-2-4	"That the Committee receive the Director of Environmental Services' Air Curtain Burner Received memorandum."
	(All/Directors/Majority) CARRIED UNANIMOUSLY

Verbal Update – Department Activity

Mr. Eriksen mentioned that the Environmental Services department is working on capital planning, scheduling, and budgets.

MISCELLANEOUS

Coast Waste Management Society Meeting

Chair Fisher mentioned he attended a teleconference on February 9, 2022 with the Coast Waste Management Society and discussion took place regarding Construction and Demolition (C&D) Waste. He spoke of programs in Alberta and BC that are cost neutral to address demolition of large infrastructure. Chair Fisher indicated good examples exist to utilize for future reference.

FUTURE MEETING TOPICS

- Metal Salvage Discussion – March 2022
- Revenue vs. Diversion Discussion Including Airspace & Development Costs-March 2022
- Legacy Projects – Funding Request Updates – March 2022
- Wood Waste Operations Update – April 2022
- Cost Recovery Plan – Review and Update – April 2022
- Disposal Fee Bylaw Changes – April 2022

NEW BUSINESS

NCLGA 2022 Resolution	Chair Fisher will work with staff to draft a resolution for the NCLGA AGM and Convention in May 2022 regarding Extended Producer Responsibility (EPR) Programs and the importance of the Ministry of Environment and Climate Change Strategy's focusing on repairs and reuse.
ADJOURNMENT	Moved by Director Brienen Seconded by Director Petersen
WMC.2022-2-5	"That the meeting be adjourned at 1:47 p.m."
	(All/Directors/Majority) CARRIED UNANIMOUSLY

Mark Fisher, Chair

Wendy Wainwright, Deputy Director of Corporate Services

Program Consultation

Expansion to All Automotive Containers

BC Used Oil
Management Association

Overview of BCUOMA

The British Columbia Used Oil Management Association (BCUOMA) is an industry association formed under the British Columbia Society Act in 2003.

BCUOMA's mandate is to ensure the responsible collection and management of the used oil, antifreeze, filters and containers required under the BC Recycling Regulation.

A shipping container converted into an oil-recycling facility – like this one in Vernon – has come to GFL Transfer Station and Recycling Facility on Vye Road in Abbotsford.

Used motor oil and antifreeze accepted for recycling in Abbotsford

Facility on Vye Road purchases modified shipping container to collect the items

Jan. 3, 2020 6:00 a.m. / COMMUNITY

An Abbotsford recycling facility is now a
filters and containers.

The BC Used Oil Management Associati
announced Thursday that these items w
Station and Recycling Facility at 34613 V

BC Used Oil
Management Association

For Immediate Release

BC Used Oil Management Association announces opening of used oil recycling facility in Abbotsford

- Abbotsford residents provided with brand new, free to use, and environmentally friendly used oil recycling facility

VICTORIA, BC (Dec 16, 2019) – BC Used Oil Management Association ("BCUOMA"), a not-for-profit group dedicated to the collection and recycling of lubricating oil, oil filters, oil containers, antifreeze and antifreeze containers in British Columbia, today announced that the GFL Transfer Station & Recycling Facility located at 34616 Vye Road, Abbotsford, is now accepting used oil, antifreeze, filters

BC Government - Regulation + 5 Year Plan

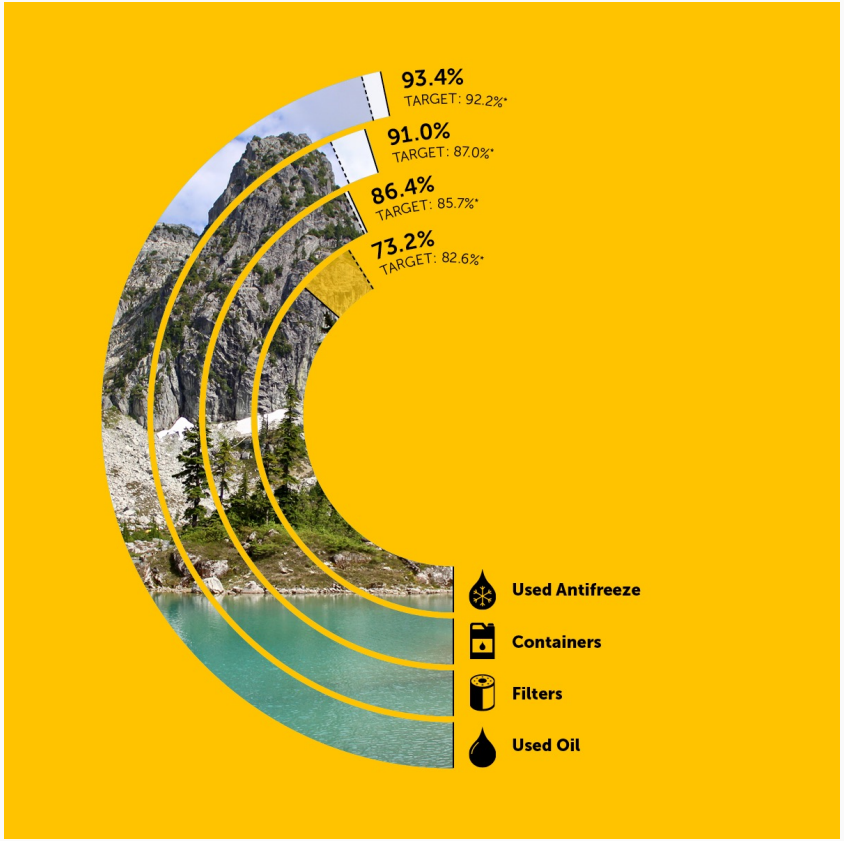
In 2019, the British Columbia Government released the Clean BC Plastics Action Plan.

On June 29th, 2020, the Province amended the BC Recycling Regulation (now EPR Regulation) to put the BC Plastics Plan into action by adding all kinds of packing products to the Regulation, including residential and commercial automotive packaging that was not already included in the Regulation.

In September 2021, the Province released the EPR Five-Year Action Plan recommitting to regulate additional packaging products.

BCUOMA EPR Plan

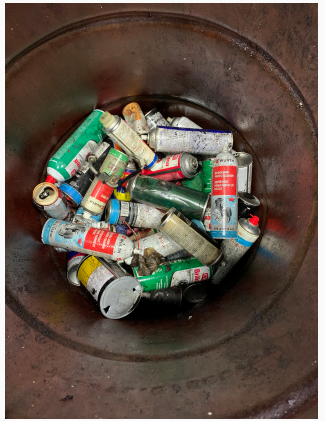
- In September 2020, BCUOMA indicated its intention to the BC Minister of Environment to add additional automotive packaging to its program by January 2023.
- BCUOMA's EPR Plan was most recently approved by the Province on Feb 5th, 2021.
- BCUOMA intends to submit a plan amendment in early 2022.



Additional Automotive Containers

BCUOMA intends to add all automotive containers to its program, including:

- Diesel Exhaust Fluid
- Automotive additives
- Windshield washer
- Aerosols
- Drums (up to 210L)
- Others



Program and Operational Changes

- BCUOMA expects very few operational changes with this expansion.
- Many of the additional container types are considered contamination in the current collection stream and including more types will increase the total amount captured.
- BCUOMA's EPR Plan Performance Measures are proposed to remain the same.

CONSULTATION and Next Steps

Public Consultation Period:

January 18, 2022 to March 15 , 2022

Comments by March 15:

Submit In writing to David Lawes dlawes@usedoilrecycling.ca

BCUOMA's approved EPR Plan:
https://bcusedoil.com/app/uploads/2021/02/BCUOMA-EPR-Plan-Revised-2021-02-05.pdf

BCUOMA's most recent Annual Report: https://bcusedoil.com/annual-report-2020/

BC Used Oil
Management Association

REGIONAL DISTRICT OF BULKLEY-NECHAKO
MEMORANDUM

To: Chair Fisher and Waste Management Committee

From: Janette Derksen, Waste Diversion Supervisor

Date: March 17, 2022

Subject: RDBN Membership to the Coast Waste Management Association (CWMA)

RECOMMENDATION

That the Board receive this memo.

UPDATE

The RDBN is officially a member of the Coast Waste Management Association (CWMA). This membership allows any member of our board or staff to utilize the services within the membership.

Attached you will find a list of the benefits for being a member of the CWMA, as well as the welcome email inviting any Board or staff member to take full advantage of these benefits. Should anyone like to receive the monthly emails from CWMA, staff can assist with filling out the specific form.

Attachments:
1. CWMA - Benefits of Membership

From: Coast Waste Management Association
To: Janette Derksen
Subject: [EXTERNAL]: RE: Welcome to Membership with the Coast Waste Management Association!
Date: February 28, 2022 3:54:43 PM

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or on clicking links from unknown senders.

Dear Janette,

On behalf of the Board of Directors, I would like to warmly welcome you and the entire team at the Regional District of Bulkley-Nechako to the Coast Waste Management Association!

Please feel free to forward this email to your team, as they share in all the benefits of membership with CWMA.

I have added your organization to the current membership list on our web space.

I will add you to our email distribution to begin receiving our **wildly popular weekly curated news** (sample below): a comprehensive update of waste management related news that matters to our members. **Please forward this sign-up form** to your team or simply send me any emails to add to this list.

We also have a number of active Working Groups & Round Tables, if you are interested in learning more about any of them, send me a quick email.

Take time to review our HISTORY and here is copy of the organization BY-LAWS to keep for reference as needed.

Thank you for your support and we look forward to many years together!

With enthusiasm,
Sheila

Sheila Molloy
Executive Director
Coast Waste Management Association

Benefits of Membership

Working Groups & Roundtables
Our popular topic-specific roundtables take place throughout the year and are well-attended. Last year's introduction of our actionable **working groups** is another great way to network, learn, and look for solutions.

Wildly Popular Weekly Industry News Updates
For over 12 years, CWMA has sent thoughtfully curated updates to notify members of industry news, topics, issues, and events. We ensure our members stay up-to-date on waste news in BC and beyond.

Networking
One of our greatest benefits for over 26 years is our strong community built through providing excellent forums for networking, collaboration, and idea sharing we provide each year to all of our members and the greater community.

Events & Stakeholder Feedback Sessions
Always popular and relevant! In addition to a regular schedule of Networking & Speaker events, we occasionally provide the forums for presentations and stakeholder information engagements by stewardship programs, the government, and industry leaders.

Discounted Event Rates & Exclusive Free Events
Discounted registration fees at our workshops and networking events hosted throughout the year as well as member-rates to our Annual Conference. From time to time we will also hold exclusive free events for members only.

Connections & Research
CWMA's Executive Director is a key resource to our network. We help build business and waste solutions one relationship at time. As our reach in the community is vast, our ability to uncover information and make connections is a great benefit to our members.

Courtesy Web Link
We highlight members from our site in our membership listing to ensure ease-of-access to your information by all members and the greater community.

Discounted Advertising Rates
Members can highlight their organization by sponsoring our events at great rates. More information on Ad options is coming soon!

Representation
CWMA staff and directors will often represent members' interests through participation in local and provincial committees, events and feedback loops.

Voting Privileges
Voting privileges for member organizations (detailed in our bylaws).

REGIONAL DISTRICT OF BULKLEY-NECHAKO
MEMORANDUM

To: Chair Fisher and Waste Management Committee

From: Alex Eriksen, Director of Environmental Services

Date: March 17, 2022

Subject: Disposal, Diversion & Revenue: Part 1 – The Cost of Disposal

---

RECOMMENDATION

That the Committee receive this Memo.

INTRODUCTION

The value of airspace in a Landfill is difficult to define as this is a reflection of both the financial cost and social values of a given country/province/community. It is relatively easy to quantify the financial burden of disposing of waste in a landfill, and generally possible to define the environmental impacts of landfilling and Diversion, but placing a dollar figure on cultural values relating to waste management decisions is nearly impossible.

The RDBN Solid Waste Management Plan (2019) provides a guideline for increasing the Reducing, Re-use and Recycling options in the RDBN, which demonstrates the RDNB's willingness to actively divert waste from the landfill.

The interrelationships between Waste Disposal, Diversion and Revenue are complex and are more easily understood when first viewed separately. Part 1 in this series will focus on the costs for disposal.

BACKGROUND

In 2020 and 2021, several Committee and Board discussions regarding the RDBN diversion strategy took place and included topics such as metal salvaging, recycling depot revenue, agricultural plastics recycling pilot program, wood waste, cost recovery options and more. A common theme of these discussions is the cost to taxpayers for diversion initiatives in contrast to the low cost of landfilling.

COST OF DISPOSAL

The total cost for disposal at RDBN Landfills and the Regional averages at the current rates of disposal are as follows:

Average Regional Disposal Costs			
Airspace	**KLF**	**CLF**	**Average**
Average Annual Cost	$518,632	$445,789	$482,211
Average Cost per m3	$19.71	$26.75	$23.23
Average cost per MT	$39.42	$53.49	$46.46

The basic factors affecting how the cost per metric ton or cubic metre of waste landfilled is calculated includes the: development and closure costs, operating costs and disposal revenue. These factors are neither simple nor consistent between Landfills due to their cell design, site infrastructure and disposal volumes and are therefore presented separately below.

Assumptions for the calculations are as follows:

1. The current (active) Phase will provide the most relevant example for the calculations.
2. The cost for Phase development of the Landfills include: design consulting, soil investigations, building materials, cell construction and site re-development.
3. The final closure costs are incremental and accrued through numerous small and large efforts over the course of the lifetime of the Phase.
4. The total lifespan of the Phase are estimated from at the current and projected rates of disposal and cover soil utilization.
5. Operational costs do not include administration, management or field labour expenses, nor do they include large capital improvements to the site.
6. Site equipment is replaced every 10 years.
7. Construction & Demolition waste is considered a relatively stable revenue source. KLF will account for 60% of the regional revenue and CLF will assume the remaining 40%.
8. Metal Recycling Revenue is variable but has stable collection volumes. KLF will account for 60% of the regional metal revenue and CLF will assume the remaining 40%.
9. Periodic revenue like large projects, contaminated soils and pipeline waste is not included.
10. Compacted waste is approximately 0.5MT/m^3
11. The calculations do not incorporate costs for the development of subsequent Phases or other potential expenses for new infrastructure associated with mature landfills such as leachate treatment, landfill gas recovery, fences etc.
12. The calculations do not consider expenses for operating Transfer stations or Hauling operations.

Knockholt Landfill Phase 3 Disposal Cost:(2019 to 2038 - 19 year lifespan)(500,000m3 of airspace)

	2018	2019	2020	2021	2022	2022 to 2038	Total	Annual
Development	$315,000	$0	$244,000	$268,000	$300,000	$100,000	$1,227,000	$64,578.95
Closure Costs	$0	$0	$0	$10,000	$10,000	$200,000	$220,000	$11,578.95
Operations	NA	$389,000	$418,000	$325,000	$421,000	$6,000,000	$7,553,000	$397,526.32
Equipment Replacement	$0	$0	$0	$0	$0	$4,000,000	$4,000,000	$210,526.32
						Expenses	**$13,000,000**	**$684,211**
C&D Revenue	NA	$172,454	$90,935	$62,400	$90,000	$1,350,000	$1,765,790	$92,936.31
Metal Recycling Revenue	NA	$22,200	$15,600	$242,400	$100,000	$1,000,000	$1,380,200	$72,642.11
						Revenue	**$3,145,990**	**$165,578**
						Phase 3 Net Cost	**$9,854,010**	**$518,632**

KLF 19 Year Average	
Average Annual Cost	$518,632
Average Cost per m3	$19.71
Average cost per MT	$39.42

Clearview Landfill Phase 1 (Subcell 3, 4 &5) Disposal Costs (2018 to 2028 - 9 year lifespan)(150,000m3 airspace)								
	2018	**2019**	**2020**	**2021**	**2022**	**2022 to 2028**	**Total**	**Annual**
Development	$42,000	$50,000	$45,000	$32,000	$60,000	$100,000	$329,000	$36,556
Closure Costs	$40,000	$50,000	$0	$0	$10,000	$200,000	$300,000	$33,333
Operations	$194,201	$181,408	$249,287	$161,919	$272,000	$1,650,000	$2,708,815	$300,979
Equipment Replacement	$0	$0	$0	$0	$0	$2,000,000	$2,000,000	$222,222
						Expenses	**$5,337,815**	$593,091
C&D Revenue	$83,600	$114,970	$60,624	$41,600	$60,000	$360,000	$720,793	$80,088
Metal Recycling Revenue	$89,440	$15,000	$10,520	$65,160	$124,800	$300,000	$604,920	$67,213
						Revenue	**$1,325,713**	**$147,301**
						Phase 3 Net Cost	**$4,012,102**	**$445,789**

CLF 9 Year Average	
Average Annual Cost	$445,789
Average Cost per m3	$26.75
Average cost per MT	$53.49

The above costs are not absolute. Adjustments to the lifespan of the cell (ie. increase or decrease in disposal) will affect the value of the airspace.

COST OF DEVELOPMENT

Another way to represent the cost of airspace is through development and closure costs alone. This would regard operational expenses and revenue disposal costs as externalities that exist regardless of volumes received. When the assumptions and Phase details remain the same as above, the cost for developing airspace is as follows:

Development Cost	**KLF**	**CLF**	**Average**
Average Annual Cost	$76,158	$69,889	$73,023
Average Cost per m3	$2.89	$4.19	$3.54
Average Cost per MT	$5.79	$8.39	$7.09

Since the above costs are a function of the development cost, closure cost and total volume of the landfill cell, the costs would only change with fluctuations of the construction expenses and are independent of lifespan in years.

CONCLUSION

The total average cost per cubic meter and metric tonne of landfill airspace are approximately $23/m^3 and $46/MT respectively.

The average development cost per cubic meter and metric tonne of landfill airspace are approximately $3.50/m^3 and $7.00/MT respectively.

Although the above methodologies are simplistic and exclude many other conventional costs associated with landfilling and waste management, they provide insight into both the operational and developmental similarities and differences between the RDBN sub-regional landfills.

Respectfully Submitted,

Alex Eriksen
Director of Environmental Services

Attachments:

1. Airspace – Its Your Biggest Hidden Cost

LANDFILLS

Airspace—It's Your Biggest Hidden Cost

Crunching the numbers to find where you may be losing money in your landfill

Dec. 28, 2021

Aerial composition of a landfill from drone imagery

For most landfill managers, airspace is a hidden cost. You can't hold it in your hands, you can't see it, and it doesn't show up as a specific line item on the budget. It is truly a hidden cost. But that doesn't mean you shouldn't know what it is.

There are several ways to determine the value or cost of landfill airspace.

You could simply take your average per ton tipping fee and convert that to a cost per cubic yard. For example, if your average gate rate is $50 per ton, multiple that times your landfill's average airspace utilization factor (AUF)…let's say it's 1,600 pounds per cubic yard, then divide by 2,000. The resulting answer is the revenue-generating potential of a cubic yard of your airspace. Here's the equation:

$50 per ton × 1,600 pounds per cubic yard × 1 ton (2,000 pounds) = $40 per cubic yard

This is an example of the revenue method of calculating airspace value. However, this method often overstates the actual value of your airspace, because of the time value of money (TVM) concept, where present dollars are more valuable than future dollars.

Based on the equation you might initially think that every cubic yard is worth $40, but the reality is that even if you waste airspace today, you'll still be able to sell another cubic yard tomorrow, and the next day, and so on. You won't miss out on that $40 revenue until your landfill has closed…and you have no more airspace to sell. Thus, that $40 of "lost" revenue is a future value.

In that case, the future revenue that you'll miss out on may not be worth much in today's dollars. For example, consider the following scenario:

Remaining landfill life: 30 years

Cost of money (interest rate): 4% per year

Future value of 1 cubic yard: $40.00

Present value of 1 cubic yard: $12.33

In this example, a future value of $40 (30 years from now) is worth only $12.33 in today's dollars. That means today's airspace still has value, just not as much as your tipping fee might indicate.

Another way to calculate airspace value is based on the simple economic concept of supply and demand. In other words, your airspace is worth what the local market says it's worth. You can have grand visions of selling your airspace for $97 per cubic yard, but if the local market will only pay you $40, then that's what it's worth. That's what we'd call a "Market Reality." This is another version of the revenue approach, so again, it must be discounted to reflect NPV.

Finally, you can begin the process of valuing airspace by first determining what it costs to create. And once you know the cost of your

landfill's airspace, you can adjust your price with more confidence. But you've got to know the cost, or you won't know where to start in the valuation process.

This leads us to one of the fundamental problems in the landfill industry: Most landfill managers don't know how much it costs to produce their airspace.

What we're talking about here is a simple business concept. Do you think your tire manufacturer knows their cost of truck tires? Do you think your fuel supplier knows their cost of diesel? Of course, or they won't be in business very long.

In the business world, we refer to this as Cost of Goods Sold (COGS). The COGS includes the direct labor, equipment, and material costs of producing what landfills sell (airspace). It excludes indirect costs such as sales and marketing. Airspace costs often also exclude the cost of operating the landfill (e.g., push, pack, and cover), with the idea being those costs will be incurred regardless of the cost of airspace.

Seems pretty basic when you stop and think about it. A company that sells only one commodity should darn well know the cost of producing it. But as an industry, we often don't.

Imagine how that impacts your ability to decide if a new compactor makes sense. Or if you should just replace the worn teeth on your current machine. Does it make sense to continue covering with daily cover soil, or should some type of Alternative Daily Cover (ADC) be used? Should you spend the money to steepen the old, settled perimeter slopes of your landfill…or just run with your current plan? How will your organics diversion program impact your organization's overall cost when it's expected to decrease landfill tonnage?

All of these questions require you to weigh cost versus benefit. But if you don't know the cost side of the equation…it's not really an equation at all, it's just a guess.

It is standard industry practice to do cost accounting for the entire landfill, and in some cases split it out and do the same thing for individual modules. Simply explained, the overall cost of your landfill's

airspace should be calculated by adding up all the direct costs associated with creating that airspace, including land acquisition, design, permitting, construction (of liner and leachate collection systems), closure, and post-closure. That total cost is then divided by the total volume of airspace created. So, let's say you expect to spend $22 million in direct (airspace) costs, to produce 2.4 million cubic yards of airspace. Accordingly, that's a cost of $9.17 per cubic yard.

But for individual landfill modules, the cost of airspace will vary, with initial modules likely costing more and future modules having a lower cost per cubic yard. Breaking down your airspace cost per module can be vital to managing annual cash flows. Suppose your overall average airspace cost is $9.17, but the first module's cost is $16.35? That higher initial COGS could severely impact your cash flow during the early years of operation.

In our experience, having calculated airspace costs for a wide range of landfills, we've found that airspace costs typically run between $5 and $15 per cubic yard. Yes, there are other factors that can impact airspace costs, but this is the range. The process of calculating airspace costs is not that difficult, it's just a matter of knowing how to do it, and then deciding which costs to include.

Yes, I know that some managers will say that their airspace costs are simply rolled into their overall budget, so as long as they are being thrifty with the operation, it all balances out. That's baloney. Managers make decisions every day that should be based on knowing the cost of airspace. So, should the landfill compactor run two hours per day, four hours per day…or should you buy three more compactors and run them all full-time? Without knowing the cost of airspace, it's impossible to make that decision—or dozens more that correlate to your airspace cost.

This can also be a big motivator for your crew, once you are able to translate your airspace value to something they can understand. Because one of the more costly tasks associated with your landfill is placement of cover soil (mostly due to the cost of airspace it consumes), during onsite training events we will often express the cost of airspace to a truckload of soil. At one landfill, where the cost of airspace was $16 per cubic yard, we explained that every (30 cy) load of dirt brought in for daily cover

consumed $480 of sellable airspace. Imagine the revelation of the articulated truck operator who brings in an average of 32 loads of soil per day (Monday through Saturday) for daily cover, when he realizes that his actions consume more than $15,000 per day in airspace? That operator alone is consuming airspace worth $90,000 per week, or $4.7 million annually. I bet most operators don't know that. I bet most managers don't, either.

Understanding the costs associated with airspace is a cornerstone of landfill management and knowing that cost will allow landfill managers to make better decisions and focus on the thing that matters most—airspace.

Neal Bolton *is a civil engineer with 37 years of experience in heavy construction and landfill operations. He recently presented a four part webinar series, "Process Improvement for Solid Waste Facilities," through Forester University.*

MSW Management Magazine
The Journal for Municipal Solid Waste Professionals
June 2021 Issue
Page 44-45

REGIONAL DISTRICT OF BULKLEY-NECHAKO
MEMORANDUM

To: Chair Fisher and Waste Management Committee

From: Janette Derksen, Waste Diversion Supervisor

Date: March 17, 2022

Subject: Transfer Stations – Expanding Recycling Depot Programs

---

RECOMMENDATION

Receive and Discuss

BACKGROUND

During the February 10, 2022 Waste Management Committee meeting, staff brought forward the topic of Expanding Recycle Depot Programs for discussion. The Board was generally in support of the "One-Stop-Shop" concept for RDBN Sites but had concerns about the potential impacts to local Bottle Depots which generate revenue through the same programs that the RDBN is considering incorporating. The Regional District's Solid Waste Management Plan also supports the opportunity to include more EPR programs at the transfer stations.

The EPR programs that could potentially be added would include the collection of: electronics, small appliances, lights & lamps, power tools, bulky equipment and household detectors.

The benefits of the "One-Stop-Shop" concept include convenience for the public, increased diversion from landfills and increased revenue from collected material. The potential downsides to this approach are impacts to private Bottle Depot revenue and potential additional expenses for program establishment and management.

UPDATE

Staff was asked to provide additional information on the specific impacts to the local Bottle Depots, and specifically the current revenue for Electronics recycling program for the relevant Bottle Depots.

Bottle Depots are not collecting their full potential of any material, as RDBN site staff are seeing large amounts of recyclable material entering the Transfer Stations and Landfills. For example, the total potential disposal of electronics is 2.5kg per person per year. One of the Bottle Depots reported their tonnage which correlated to only 48% of their full potential with the given population. Currently the Bottle Depots in the RDBN generate between $5,000-6,000 of revenue from electronics recycling.

Staff reached out to the managers/owners of the Burns Lake, Smithers and Nechako Valley Bottle Depots, who expressed the following:

- All were in support of increased diversion and acknowledged the advantage of having the EPR programs hosted at RDBN Transfer Stations.
- They understood that the program stewards would support the multiple drop off locations within a community to capture more in-scope material.
- All were concerned with the potential negative impact to their revenue stream should the RDBN

host the same EPR programs, especially with the Electronics Program. However, the potential revenue loss associated with sharing these programs was not detrimental to the success of the business. All understood why the RDBN is considering this, but not all were in support of the initiative due to revenue loss and potential employment hours loss. They requested that they be informed of developments and decisions.

- Several partnership opportunities were suggested and generally centered around using RDBN Recycling Depots as collection points for the Bottle Depots who would then receive revenue for the material. The Bottle Depots generally have limited space to package and store the program materials in question and this type of partnership would be very beneficial for them.

OPTIONS

As a local government the goal is not to compete with private business for revenue nor is it to subsidize their operations, so this is a challenging issue. Staff has provided several simplified options for waste diversion by incorporating additional EPR programs as follows:

Option A
Expand RDBN Recycling Depot Programs to promote the “One-Stop-Shop” by taking on additional programs and receive the revenue for collected material. This would compete directly with the Bottle Depots but would not include Return-It Deposit Containers.

Options B
Establish collection points at RDBN Transfer Stations for EPR programs currently managed by the Bottle Depots, who would receive the revenue through the steward. The goal would be to try and minimize RDBN staff time used for this and have robust agreements with the Bottle Depots for servicing the on-site program.

Option C
The RDBN would only take on programs that local Bottle Depots are willing to share.

The precise mechanisms for the above options have not been finalized and will likely require pilot initiatives to determine what challenges need to be addressed. Initiatives for any of the above items or new options will be brought forward to the Committee before implementation

REGIONAL DISTRICT OF BULKLEY-NECHAKO
MEMORANDUM

To: Chair Fisher and Waste Management Committee

From: Janette Derksen, Waste Diversion Supervisor

Date: March 17, 2022

Subject: RDBN Salvage and Re-Use Programs

RECOMMENDATION

Receive and Discuss.

BACKGROUND

The topic of re-use and salvage (ie. metal) has surfaced multiple times within Boardroom discussions over the years. Early in 2014-2016 there were various safety and logistical challenges with the re-use sheds. In 2017, the Board moved to adopt a ban on metal salvaging at the transfer stations with the addition of more re-use bays at all RDBN's public sites. Safety protocol for daily salvage of wood waste were created also in 2017. Many of these decisions were made based on safety concerns and reducing the RDBN's liability.

The re-use of materials and items is an important component of reducing waste and saving money for the end consumer. Although re-use and salvage is considered "delayed disposal", the consumption of salvaged material, rather than new goods, is a form of reduction, and thus helps to reduce overall waste generation. Especially with the current culture of consumerism and the rising costs of many goods, the Reduce and Re-use principles need to be encouraged and more widely practiced. Through the implementation of the RDBN Solid Waste Management Plan (2019) (SWMP). The RDBN is committed to promoting the waste reduction hierarchy, which is: prevention, reduction, re-use, recycle, recovery and residual. Re-use and salvage is an important component of reducing what goes into the landfill, and staff is continually working on methods of finding ways to give "new life" to old products.

One of the most significant actions taken was the aforementioned ban on metal salvaging, which increased public safety, reduced conflict and increased the revenue stream for recycled metal. In 2021, the topic of salvaging metal was brought forward, with a focus on the financial impacts (reduced revenue) of allowing the public to salvage. Staff was asked to provide potential options for public metal salvaging in the future. However, the topic of metal salvaging exists within the greater context of increasing overall salvage and re-use programs at RDBN Transfer Stations and will be addressed as such.

CURRENT RE-USE AND SALVAGE OPTIONS

Transfer Stations currently have options for public re-use or salvage of the following items or materials:

- Bicycles & Lawnmowers
- Windows & Doors
- Wood waste
- Re-use shed for household items

The following items/materials are salvaged by commercial handlers:

- Propane Bottles – Free
- 1 lb propane bottles – RDBN Expense
- Scrap Metal – RDBN Revenue
- Automotive Batteries – RDBN Revenue

The above lists do not include Recycling programs managed and funded by EPR or Stewardship programs.

FUTURE RE-USE OPTIONS

Staff have determined that the most practical way of encouraging re-use at RDBN Transfer Stations is through the separation of Re-usable items and building materials, made available to the public.

When considering additions or changes to re-use programs, staff considers several factors including, cost, impact to site staff, site layout/dynamic, impacts to the public and management requirements. There must be clear benefit and minimal impact for a new program to be introduced.

Staff has developed several potential strategies to incorporate more re-use options at the RDBNs Transfer Stations based on the 're-usable item" principle, as follows:

1) Establish additional re-use bays for items and materials considered to be re-useable. These will include:
    a. Good building materials – tin roofing, intact lumber, insulation, fencing, etc.
    b. Furniture - desks, sofas, tables, chairs, shelving, exercise equipment, etc
    c. Re-useable metal items - metal drums, small motors, compressors, automotive parts, etc.
    d. Miscellaneous – re-usable or repairable or highly sought-after items. Site staff will assist with facilitating this by using their discretion on what would be good and interesting to most.

2) Amend the Re-Use Shed acceptable items list to include CSA items like infant safety seats, cribs, strollers etc. The user will assume the risk for re-using these items

3) Designated Metal Salvage Area – the likely mechanism for this is the establishment of a day-drop area from which the public can salvage. This area would be cleared daily and added to the metal stockpile which would not be accessible to the public for safety reasons.

4) Instruct Site Attendants to not only inform the public and promote the re-use programs, but also to actively relocate re-useable items and material to the appropriate salvage bays, if dropped at a disposal location by the public.

The precise mechanisms for the above options have not been finalized and will likely require pilot initiatives to determine what challenges need to be addressed. Discussions with site staff and the public have revealed a willingness and desire for the above and staff is confident that they can be successful with appropriate planning. Initiatives for any of the above items or new options will be brought forward to the Committee before implementation.

CLOSURE

The potential new options for salvage and re-use are supported by the SWMP and are expected to be well utilized by the public if implemented.

REGIONAL DISTRICT OF BULKLEY-NECHAKO
MEMORANDUM

To: Chair Fisher and Waste Management Committee

From: Alex Eriksen, Director of Environmental Services

Date: March 17, 2022

Subject: Knockholt Landfill Update – Waste Re-routing Plan

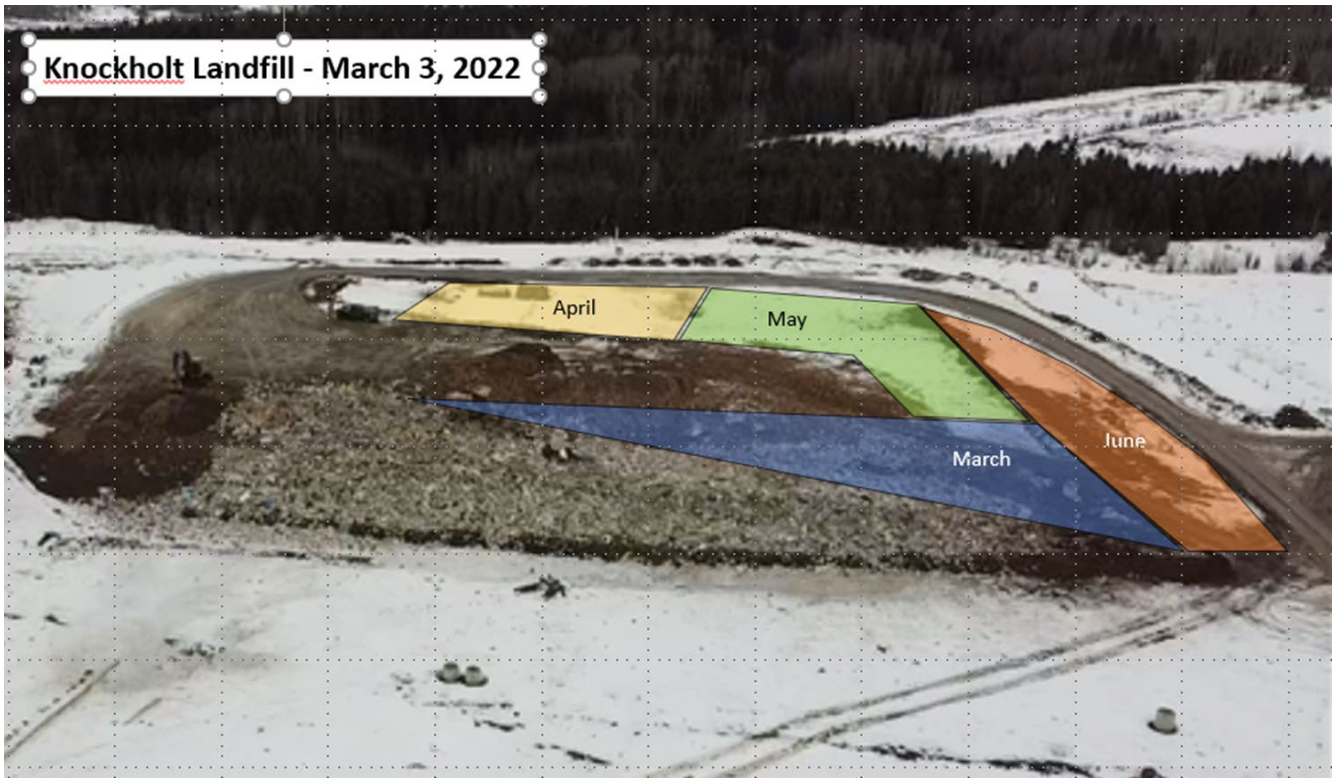
RECOMMENDATION

That the Board receive this memo.

UPDATE

In January and February, disposal volumes at the Knockholt Landfill were lower than expected, which has provided approximately one-month of additional airspace. It was also recognized that approximately one additional month of additional air space can be achieved by maximizing the slope of the landfill at several locations. Landfill staff have also used additional time compacting the waste to help extend the airspace. No waste has been diverted from the Burns Lake Transfer Station to date.

The current lifespan of the Knockholt Landfill with current restrictions is 6 to 7 months (September 1 to 30, 2022).



No adjustments to the Waste Re-routing Plan will be made and currently Stage 2 of the Re-routing Plan (below) is in effect except for diversion from BLTS. Staff do not expect to extend restriction to Stage 3 or greater.

As soon as construction of the Phase 3 development is commenced, hopefully in early May 2022, the re-routing plan restrictions can be lifted.

For reference, the KLF re-routing plan was as follows:

Stage 1 (April 2021)
- No project greater than 5 loads (tandem axle or bin) will be accepted at KLF - re-routed to Clearview.
- Out-of-Region waste - directed to Clearview (or denied disposal)

Stage 2 (January 2022)
- Stage 1 restrictions apply.
- Up to 40% of Burns Lake Transfer Station's waste (2 loads per week) - re-routed to Clearview by RDBN Haul Operations
- Utilize only chipped wood waste as daily cover and minimize loads.

Stage 3 (based on capacity assessment and construction outlook)
- Stage 2 restrictions apply.
- No Transfer Station Waste accepted from Smithers-Telkwa, Granisle, Southside or Burns Lake – re-routed to Clearview by RDBN Haul Operations
- No new projects greater than 1 load (tandem axle or bin) accepted at KLF - re-routed to Clearview
- No Pipeline Camp Waste accepted – re-routed to Clearview (at hauler expense, disposal fees waived)

Stage 4 (based on capacity assessment and construction progress)
- Stage 3 restriction apply.
- Full waste diversion to the Clearview Landfill except for municipal waste from the District of Houston (as there is a public transfer station at the Knockholt Landfill)

Respectfully Submitted,

Alex Eriksen
Director of Environmental Services