

Preliminary Options - Solid Waste Management Plan Update



PAC Workshop - May 3, 2018

Workshop Outline

- Workshop Objectives
- Solid Waste System Recap
- Waste Composition
- Diversion Potential Model
- Guiding Principles
- Plan Goals
- Preliminary Options
- Short-Listing Options



Workshop Objectives

- Provide background information
- Identify areas for improvement
- Establish Guiding Principles
- Start thinking about SWMP goals
- List options for consideration



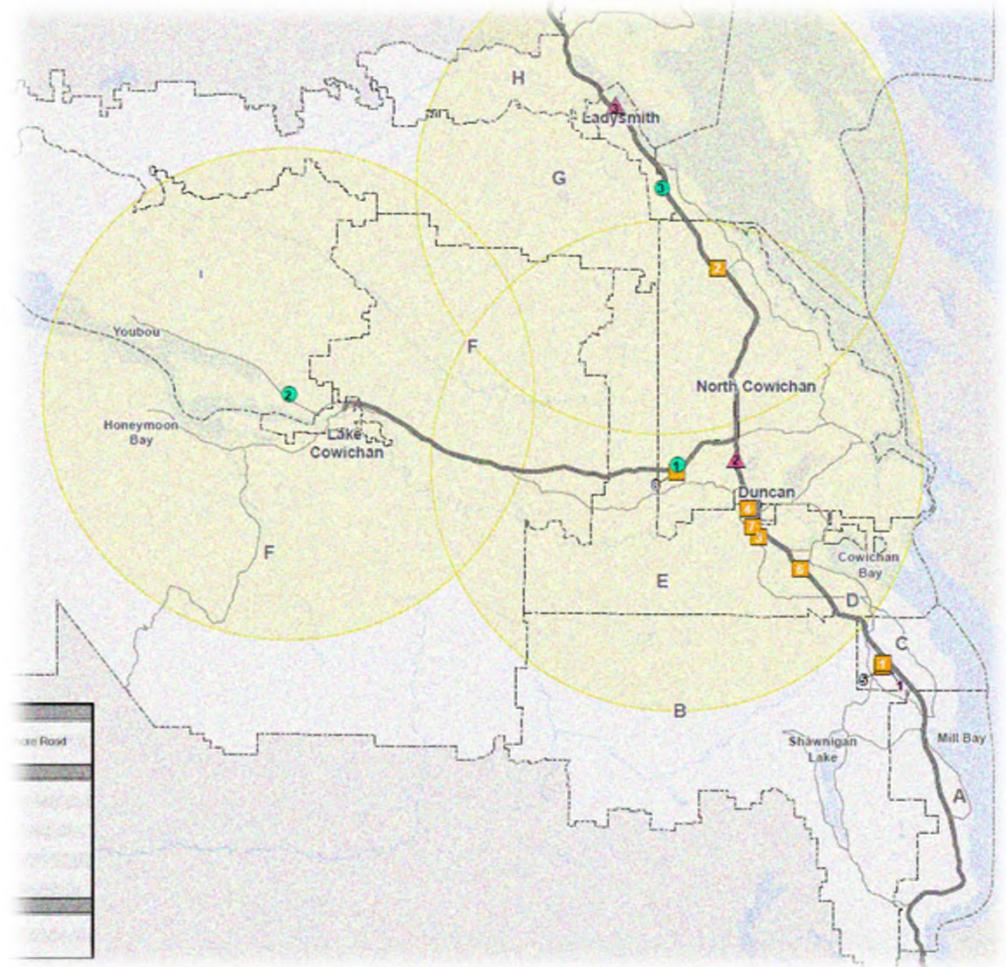


Recap of Solid Waste System



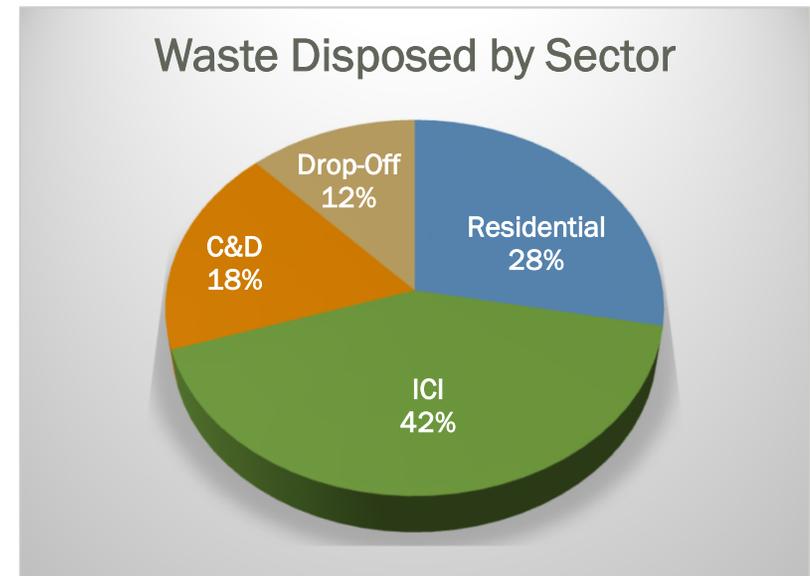
Solid Waste Statistics

- Population: 83,739
- Disposal: 30,100 tonnes
- Diversion: 44,000 tonnes
- Disposal Per Capita:
358 kg/capita



Waste Disposed by Sector

- Majority of waste disposed from the ICI sector
- Roughly 30% goes to private sector transfer stations



Sector	Quantity of Disposed Materials (tonnes)	Percent of Total Waste
Single Family (municipalities)	2,600	9%
Single Family (Electoral Areas)	4,100	14%
Multi-Family	1,700	6%
Industrial, Commercial, and Institutional	12,800	42%
Drop-off	3,600	12%
Construction and Demolition	5,300	18%
Total Materials	30,100	100%

Residential Collection



PUBLIC

Garbage

Public sector service delivery
except in certain electoral areas



PRIVATE

Recycling

All municipalities and electoral
areas receive curbside collection
service



DEPOTS

Organics

Some electoral areas have no
access to curbside organic
collection services

COLLECTION

Other Collection



Multi-family



Serviced by private sector
(except in Lake Cowichan)



ICI



Serviced by private sector
(except in Lake Cowichan)



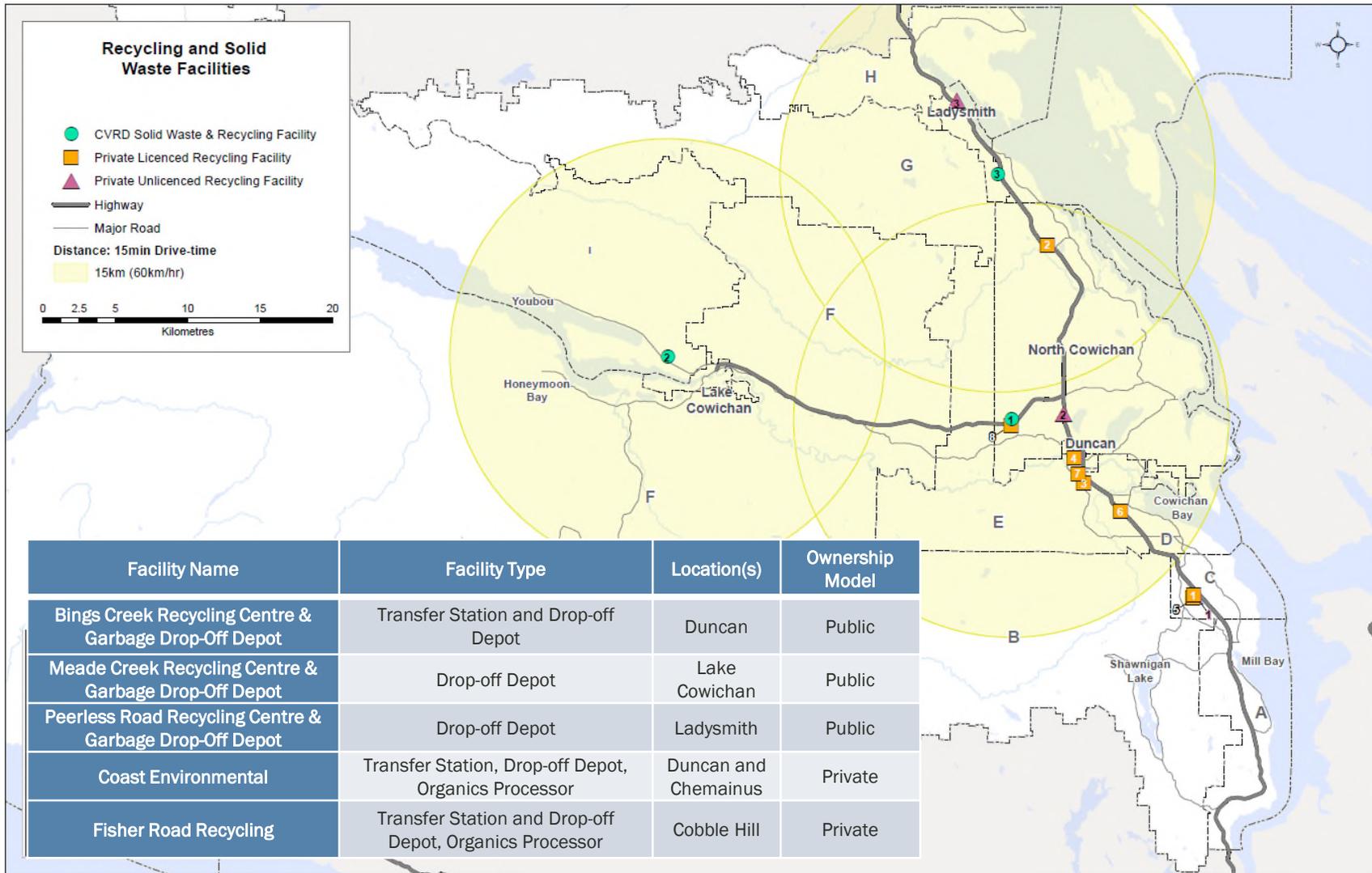
Depots



Most residents (except those in
South End) are within a 15-minute
drive) of public depots. South End
residents may use private depots.

COLLECTION

Facilities in CVRD



Private Sector Processing Facilities

	Facility	Location	Recyclable Materials Processed	Organic Materials Processed
 MATERIAL RECOVERY FACILITY  COMPOST FACILITY  FUTURE DIVERSION TECHNOLOGY PROCESSING	Fisher Road Recycling	Cobble Hill	Mattresses, couches and armchairs, clean wood waste, drywall, asphalt roofing shingles, metal, rubble, packaging and printed paper (PPP)	Food and yard waste
	Coast Environmental	Chemainus and Duncan	Clean wood waste, cardboard, drywall, asphalt roofing shingles, rubble, metal	Food and yard waste
	Stone Pacific Contracting	Duncan	Rubble	None
	Central Landscape Supplies	Cobble Hill	None	Yard waste
	Cowichan Biodiesel Coop	Duncan	None	Waste vegetable oil
	Hillside Stone & Garden	Duncan	None	Yard waste
	Schnitzer Steel	North Oyster	Metals	None

Disposal



MARKET

- No local disposal
 - Exported to Roosevelt Regional Landfill (USA)
 - 21,664 tonnes exported in 2016
- RDN Landfill - Emergency disposal capacity



LANDFILL

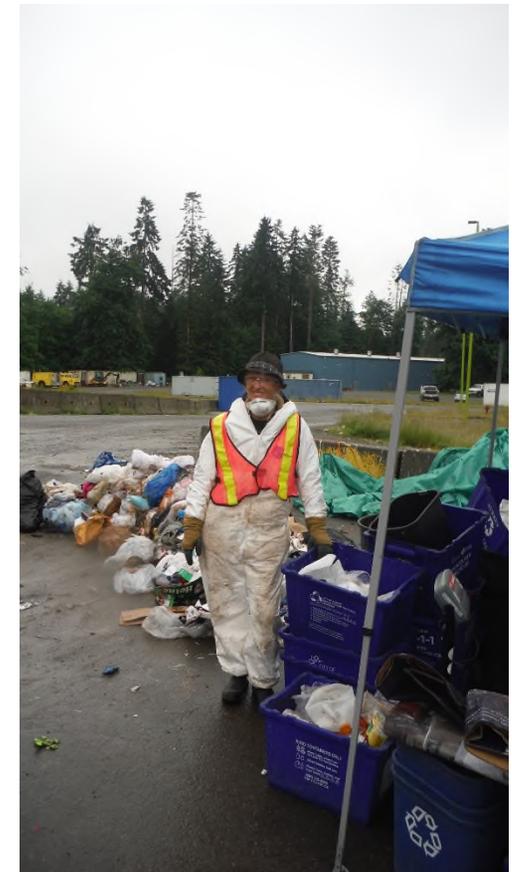
END POINT

2017 Waste Composition Study



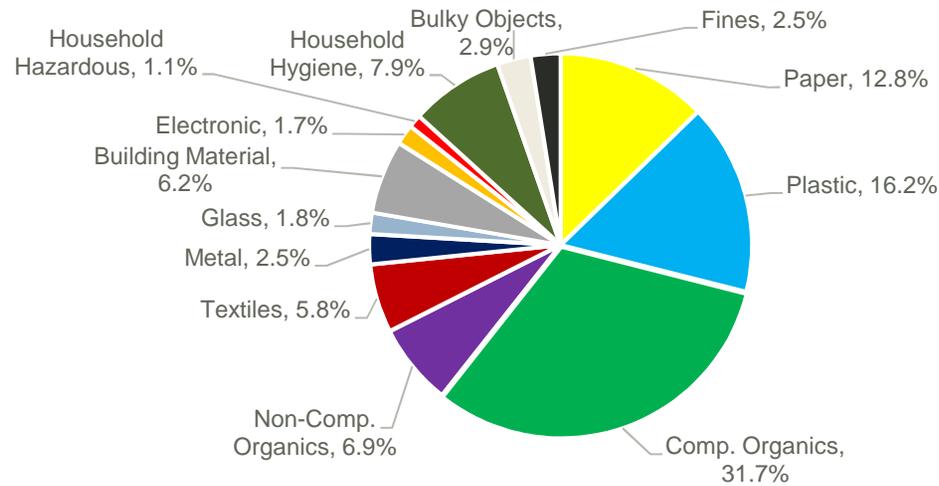
2017 Waste Composition Study

- Conducted in June 2017
- 77 samples completed over three weeks
- Analyzed all sectors: single-family residential, multi-family residential, commercial (ICI), self-hauled waste, and construction and demolition (C&D)
- Key Findings:
 - Overall, organic materials compose 31.7% of garbage
 - Curbside recyclables and organics compose a significant proportion of residential and ICI garbage
 - ICI garbage comprises a higher proportion of organic and recyclable materials than residential sectors

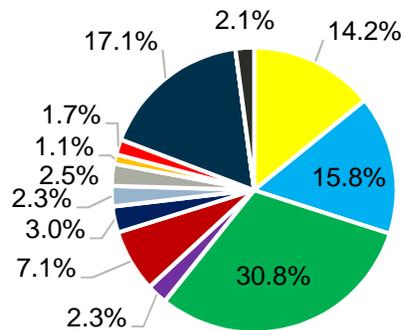


Waste Composition Results

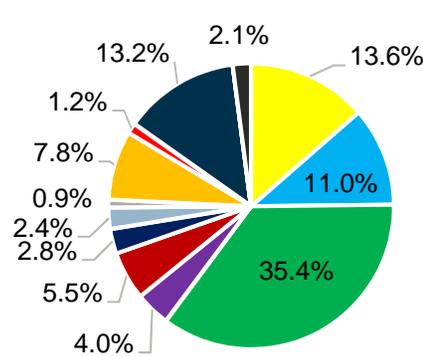
Overall Waste Composition



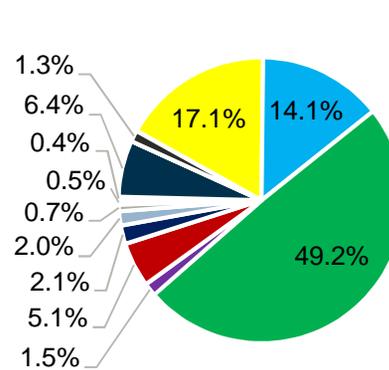
Single Family



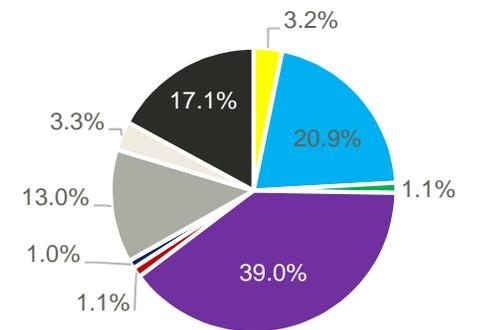
Multi-Family



ICI



Construction and Demolition



Diversion Potential

How much can still come out
of CVRD's Garbage?



Diversion Potential

- Waste composition study categories were broken down into groupings by material
- These material groupings reflect groups of materials that are managed in a particular way

Category	Included Items (e.g.)
Curbside Recyclable Material (EPR) ¹	Packaging and Printed Paper Materials that are collected from the residential sector (Managed by Recyclable BC)
ICI Recyclable Materials ¹	Packaging and Printed Paper Materials from the commercial sector
Depot Recyclable Material (EPR)	Deposit Containers, Electronics, Batteries, Used Oil, and Containers, etc.
Wasted Food	Edible or donatable food
Inedible Organic Materials	Inedible food scraps, yard waste, and compostable paper
Recyclable C&D Materials	Cardboard, Drywall, Masonry (concrete/asphalt), Clean Wood, and Metals
Textiles	All textiles
Bulky Objects	Furniture and Mattresses

¹Curbside Recyclable Material and ICI Paper and Printed Packaging are the *same materials*. In the residential sector, these materials are managed by Recycle BC. In the ICI sector, materials are not managed by a product stewardship program.

Diversion Potential

- Diversion potential was analyzed according to sector:
 - Single Family (municipalities)
 - Single Family (Electoral Areas)
 - Multi-Family
 - Industrial, Commercial, and Institutional
 - Self-hauled Waste
 - Construction and Demolition Materials
- Current Disposal in CVRD = 358 kg/capita
- BC Disposal Goal = 350 kg/capita by 2020
- Long-term CVRD Disposal Goal = ???
 - This plan will decide



Diversification Potential: Single Family and Multi-Family Residential

				Current CVRD Disposal = 358 kg/capita Provincial Goal = 350 kg/capita CVRD Goal = 250 kg/capita by 2025 (to be confirmed)			
Sector	Contribution to Landfill by Sector (percent and tonnes)	Material Type	Material Contribution to Landfill (tonnes) ¹	Target Disposal Rate (kg/capita)			
				325	300	250	150
				16% of divertable materials is removed from the current waste stream	28% of divertable materials is removed from the current waste stream	50% of divertable materials is removed from the current waste stream	97% of divertable materials is removed from the current waste stream
Single-Family (Municipalities)	9% (2,600)	Curbside Recyclable Material	269	54	75	134	261
		Depot Recyclable Material (EPR)	204	41	57	102	198
		Wasted Food	322	64	90	161	313
		Inedible Organic Materials	463	93	130	232	449
		Recyclable Building Materials	71	14	20	35	69
		Textiles	204	41	57	102	198
		Bulky Objects	4	1	1	2	4
Single-Family (Electoral Areas)	14% (4,100)	Curbside Recyclable Material	326	65	91	163	316
		Depot Recyclable Material (EPR)	274	55	77	137	266
		Wasted Food	797	159	223	399	773
		Inedible Organic Materials	975	195	273	487	945
		Recyclable Building Materials	173	35	48	86	168
		Textiles	279	56	78	139	270
		Bulky Objects	0	0	0	0	0
Multi-Family	6% (1,700)	Curbside Recyclable Material	253	51	71	126	245
		Depot Recyclable Material (EPR)	165	33	46	83	160
		Wasted Food	292	58	82	146	284
		Inedible Organic Materials	376	75	105	188	365
		Recyclable Building Materials	27	5	8	14	26
		Textiles	89	18	25	44	86
		Bulky Objects	0	0	0	0	0

Diversion Potential: ICI, Self-Haul, and C&D

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				16% of divertable materials is removed from the current waste stream	28% of divertable materials is removed from the current waste stream	50% of divertable materials is removed from the current waste stream	97% of divertable materials is removed from the current waste stream
Industrial, Commercial, Institutional	42% (12,800)	ICI Paper and Printed Packaging	1,627	325	456	814	1,578
		Depot Recyclable Material (EPR)	709	142	198	354	688
		Wasted Food	4,400	880	1,232	2,200	4,268
		Inedible Organic Materials	2,302	460	644	1,151	2,233
		Recyclable Building Materials	326	65	91	163	316
		Textiles	569	114	159	284	552
		Bulky Objects	52	10	15	26	50
Self-hauled Waste	12% (3,600)	Curbside Recyclable Material	184	37	51	92	178
		ICI Paper and Printed Packaging	0	0	0	0	0
		Depot Recyclable Material (EPR)	282	56	79	141	273
		Wasted Food	74	15	21	37	72
		Inedible Organic Materials	105	21	29	53	102
		Recyclable Building Materials	691	138	193	345	670
		Textiles	275	55	77	138	267
Bulky Objects	465	93	130	233	451		
Construction and Demolition Materials	18% (5,300)	Curbside Recyclable Material	46	9	13	23	44
		ICI Paper and Printed Packaging	0	0	0	0	0
		Depot Recyclable Material (EPR)	120	24	34	60	116
		Wasted Food	0	0	0	0	0
		Inedible Organic Materials	61	12	17	30	59
		Recyclable Building Materials	46	9	13	23	45
		Textiles	61	12	17	30	59
Bulky Objects	175	35	49	87	169		
Disposal Reduction (tonnes) from 30,100				3,626	5,077	9,066	17,588
Resulting Per Capita Disposal Rate (kg/capita) from 358 kg/capita				325	300	250	150

¹Red cells indicate a large diversion potential (greater than 500 tonnes); orange cells indicate a medium diversion potential (200 to 500 tonnes)

Diversion Potential - Findings

- Overall, 18,000 tonnes of material that goes to landfill in CVRD is divertable – that's 60% of the material that is landfilled
- The ICI sector disposes of more garbage than any other sector (42%). Therefore, the ICI sector has the largest (but maybe not the easiest) diversion potential
- In residential and ICI sectors, the largest diversion potential is from wasted food and inedible organic materials
- The C&D and self-haul sectors had less divertable material than other sectors
- If 50% of the divertable material that is currently disposed was instead diverted, a 250 kg/capita disposal rate would be achieved



Questions?

Please ask questions via the chat feature of GotoMeeting.



Guiding Principles



Standard

Considerations for Guiding Principles

- Guiding principles used to evaluate preliminary options
- Highest ranked options to be assessed in greater detail for the Plan update

Evaluation Criteria	Value Description			Material Evaluation									
	High	Medium	Low	Shingles	C&D Wood	Carpet	Textiles	MRF Residue	Forestry	Railway Ties	Used Motor Oil	Tires	Ag Plastic
	H	M	L										
Need for Alternative Disposal	No competitive alternative options	Available options are not strong	Strong markets in place	M	M	M	M	M	L	H	L	L	H
Cost to Dispose	>\$80/t	0-\$80/t	Sold as commodity	M/H	H	H	H	H	L/M	H	L	M	H
Ease of Transportation	<\$25/t	\$25-55/t	>\$55/t	H	H	H	H	M/H	L	H	M	M/H	M
Available Quantity	100+kt/yr	20-100 kt/yr	< 20 kt/yr	M	H	M	M	L/M	H	H	M	M	L

Provincial Guiding Principles

Promote zero waste approaches and support a circular economy

Promote the first 3 Rs (Reduce, Reuse and Recycle)

Maximize beneficial use of waste materials and manage residuals appropriately

Support polluter and user-pay approaches and manage incentives to maximize behaviour outcomes

Prevent organics and recyclables from going into the garbage wherever practical

Collaborate with other regional districts wherever practical

Develop collaborative partnerships with interested parties to achieve regional targets set in plans

Level the playing field within regions for private and public solid waste management facilities.

CVRD Guiding Principles

- Are there other principles that should be included?
- Are the provincial guiding principles acceptable?



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Goals



Goals for CVRD's Plan

- What is the goal for the plan?
- Do we want a quantitative target?
 - 300 kg/capita by Date ?
 - 80% Diversion by Date ?
- Do we want a qualitative target?
 - Zero waste



Goals - Placeholder

- Develop interim goals
- Assess options technically and financially
- Re-evaluate interim goals
- Subject to Board approval



Questions?

Please ask questions via the chat feature of GotoMeeting.



Preliminary Options for Consideration



Options

Options are split up into three categories:

1. Reduce, Reuse, and Recycle
2. Recovery and Residuals Management
3. Operational Improvement

We encourage you to questions via the chat feature of GotoMeeting during this section.



Reduce, Reuse, and Recycle



Option 1: Reduce Wasted Food from Residential and ICI Sectors

Issues:

- 1,400 tonnes of edible and donatable food being wasted by the residential sector
- 3,100 tonnes of edible food and 1,300 tonnes of donatable food being wasted by the ICI sector.



- A. Promote Residential Food Waste Reduction
- B. Build Local Food Rescue Capacity for the ICI Sector



Option 2: Explore Reduction and Reuse Opportunities

Issues:

- Opportunities exist to enhance the CVRD's programs at the top of the waste prevention hierarchy (reduction and reuse)
- A. Enhance and Improve Local Reuse Opportunities
 - B. Consider Mechanisms to Ban Single-Use Plastic Bags or Other Single-Use Items



Option 3: Improve Multi-Family Residential and ICI Recycling

Issues:

- Easily recyclable materials make up 13% of the ICI disposal stream and 15% of the multi-family disposal stream (compared to 9% in the single-family sector);
- Compostable organic materials make up 52% of the ICI disposal stream and 39% of the multi-family stream (compared to 23% from the single-family sector that have garbage, recycling, and organics collection);
- Nearly one-third (9,250 tonnes) of the waste disposed is recyclable or compostable material from the multi-family and ICI sectors.

- A. Mandate Multi-Family Source Separation Requirements
- B. Mandate ICI Source Separation Requirements
- C. Provide for Collection Services to Multi-Family and ICI Sector
- D. Enhance Enforcement of Material Disposal Bans



Option 4: Provide Equal Access to Publicly Funded Infrastructure

Issues:

- Most residents in the south end of the regional district (over 30,000 residents) are not within a 15-minute drive of a publicly funded Recycling Centre
- Residents in these Areas and in Electoral Area H are also not provided with curbside garbage collection by the CVRD.
- Over 33,000 Residents in the CVRD (mostly in Electoral Areas) do not have public sector organics collection. Residents in areas with *no* organics collection, either public or private, have 13% more organics in the garbage than in areas with organics collection.

- A. Develop a Public Recycling Centre in the South End
- B. Expand Agreements between CVRD and Private Facilities in the South End
- C. Implement Universal Garbage Collection in all Electoral Areas
- D. Provide Organics Collection to all Electoral Areas



Option 5: Improve Organics Processing

Issues:

- There are several organic processing facilities in the CVRD and many are generating unacceptable odour that are impacting residents and businesses.
- Amount of organics being continues to grow as more organics from outside the being brought into facilities in the CVRD.
- Facilities that process more organics than they were designed to receive are susceptible to odour incidents.

- A. Ensure Use of Best Management Practices for Odour Management
- B. Prohibit Out-of-Region Organics Processing in CVRD
- C. Standardize Design Criteria and Limits to Protect Environment and Public
- D. Build an Organics Processing Facility
- E. Purchase a Wood Chipper for Curbside Services
- F. Increase Use of Backyard Composters



Option 6: Investigate Processing and Transfer Capacity for Recyclables

Issues:

- Recyclable materials are hauled to out of region to material recovery facilities (MRFs) because there is no MRF in the CVRD
- There are no facilities in the CVRD that accept comingled ICI recyclable materials; this material is typically hauled out-of-region or not collected at all because there is no local drop off location.

- A. Investigate Feasibility of a Material Recycling Facility (MRF)
- B. Determine Feasibility of Creating ICI Transfer Capacity for Recyclables



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- There are no facilities in the CVRD that accept comingled ICI recyclable materials; this material is typically hauled out-of-region or not collected at all because there is no local drop off location.

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- B. Determine Feasibility of Creating ICI Transfer Capacity for Recyclables



Option 7: Improve Management of Construction and Demolition (C&D) Materials

Issues:

- There are no programs that mandate recycling of C&D materials in the CVRD.
 - There is limited disposal capacity for hazardous C&D materials (asbestos, gypsum wallboard) and the material is costly to manage and properly dispose.
- A. Monitor C&D Disposal and Recycling Activities in the Region
 - B. Mandate Diversion Targets for C&D Materials
 - C. Mandate that all C&D Materials be taken to Permitted Facilities
 - D. Create a C&D Waste Management Strategy
 - E. Reduce Barriers to Disposing Hazardous Materials (asbestos, gypsum wallboard)



Option 8: Advocate for Expansion of EPR Programs

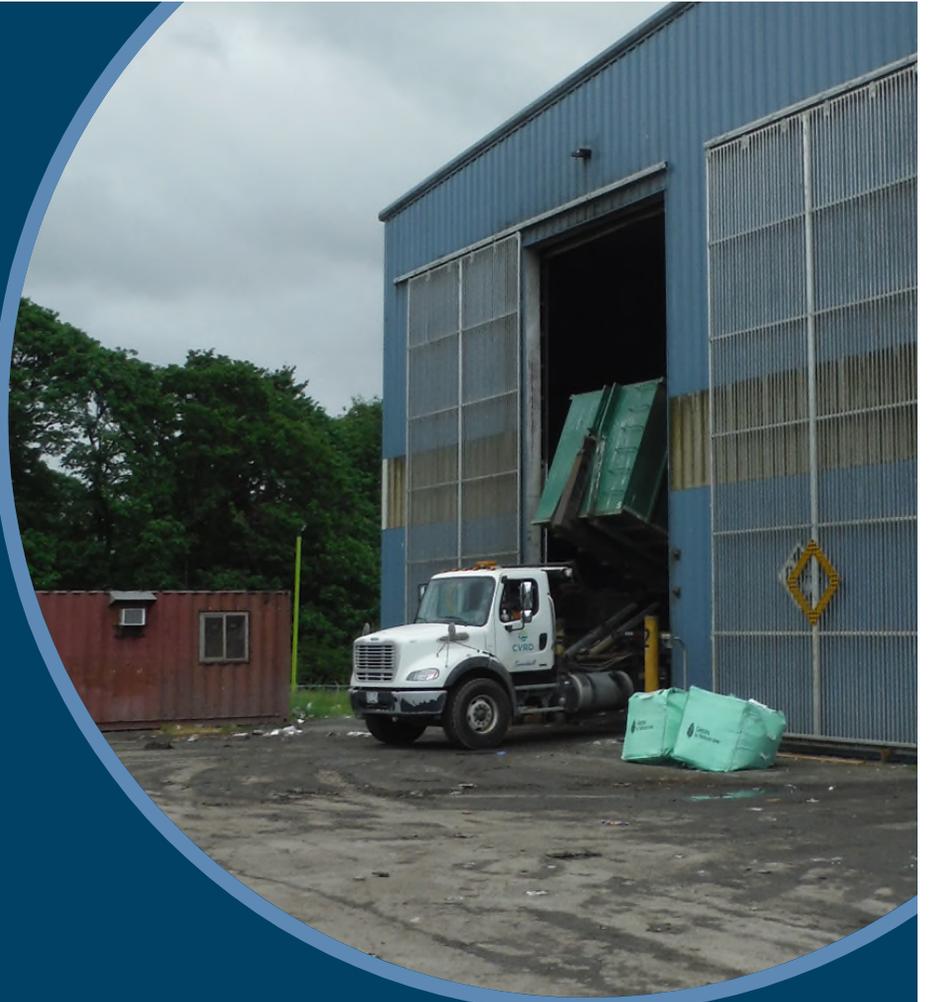
Issues:

- The CVRD currently accepts mattresses and bulky furniture at Bings Creek for recycling, however, recycling of these items is currently funded through tipping fees because there are no EPR programs for these items.
 - 579 tonnes of textiles are disposed by the residential sector and 569 tonnes are disposed by the ICI sector. These materials are recyclable but are not managed by an EPR Program.
- A. Advocate to the Ministry to Expand EPR Programs to these materials





Recovery and Residuals Management



Option 1: Explore Options for Local Disposal

Issues:

- The CVRD has one of the highest tipping fees in British Columbia.
- The solid waste is exported to the Roosevelt Regional Landfill in Washington State, and the CVRD is responsible for transportation costs and the USD exchange rates.

Option	Description
Status Quo	<ul style="list-style-type: none"> - Waste is shipped to Roosevelt Regional Landfill - Disposal cost = \$130/tonne
Disposal at Comox Valley Regional Landfill	<ul style="list-style-type: none"> - New landfill recently opened in Comox Valley - Explore feasibility of disposal here
Waste to Energy (WTE) (Public Facility)	<ul style="list-style-type: none"> - Two recent studies have deemed that a WTE facility is not feasible - The 2018 SWMP could revisit this
Waste to Energy (Private Facility)	<ul style="list-style-type: none"> - A new private WTE facility may be built in Cowichan Valley - Explore feasibility of disposal here
New CVRD Landfill Development	<ul style="list-style-type: none"> - CVRD last tried to site a landfill in the mid-1990s but was unsuccessful

Option 2: Reduce Illegal Dumping

Issue:

- Illegal dumping of materials occurs throughout the CVRD.

Background:

- A campaign was conducted in 2016 to reduce illegal dumping in Hillcrest
- A “Free Tipping” policy was implemented in the early 2000s to provide financial incentives to non-profit organizations who clean up public lands
- CVRD may wish to analyze costs and ubiquity of illegal dumping to determine whether changes should be made



Option 3: Improve Collection of Materials which are Difficult to Dispose

Issues:

- The CVRD has no options for residents to safely dispose of household hazardous materials which are not managed by an EPR program.
 - The CVRD does not have subsidized collection for bulky items, such as furniture and mattresses, which may contribute to illegal dumping.
- A. Accept Household Hazardous Materials at CVRD Recycling Facilities
- Periodically or year-round
- B. Implement Occasional Curbside Collection for Bulky Items
- Residents could call 2-3 times/year



Option 4: Monitor Historic Disposal Sites

Issues:

- The CVRD has a number of closed disposal sites that require ongoing monitoring and attention
 - Koksilah Sanitary Landfill
 - Koksilah Road Incinerator Ash Landfill
 - Peerless Road Incinerator Ash Landfill
 - Meade Creek Incinerator Ash Landfill (ash landfill closure is in progress at the time of writing).

The CVRD needs to continue monitoring and assessing the state of these historic disposal sites



Operational Improvements



Option 1: Bings Creek Transfer Station 10-Year Plan

Issues:

- Bings Creek receives most of the waste in the regional district. The future function and capacity of this facility needs to be determined.
- Bings Creek does not receive ICI sector recyclables.
- Bings Creek is not equipped with compactors or balers. Purchasing this equipment may lead to operational efficiencies.

Future role of the Bings Creek Transfer Station needs to be determined. Consider:

- Type and amount of material to be received
- Processing that could occur on site
- Condition assessment of the structures.



Option 2: Create an Asset Management Plan

Issues:

- The CVRD owns mobile (trucks/equipment) and stationary (buildings) assets
- Important to understand the assets that the CVRD holds and the considerations to manage the solid waste system sustainably

An asset management planning process could be conducted to document the future needs of the solid waste management system.



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- Important to understand the assets that the CVRD holds and the considerations to manage the solid waste system sustainably

An asset management planning process could be conducted to document the future needs of the solid waste management system.



Option 3: Create an Emergency Management Plan

Issues:

- The CVRD currently does not have an emergency/disaster management plan for solid waste in the event of a natural disaster.
- Several Canadian municipalities, such as Fort McMurray, interior BC, and Calgary, were affected by fires or floods.

Consideration should be given to developing an Emergency Management Plan for public waste management facilities.



Questions?

Please ask questions via the chat feature of GotoMeeting.





Short-listing Options

Process to Short-List Options

- Develop and define evaluation criteria
 - Guiding Principles represent evaluation criteria
- For each option, assess and score relative to the evaluation criteria
- Add up scores to determine highest and lowest ranking options
- Identify:
 - **Must do options**
 - **Don't do options**
 - On the fence options (more discussion)

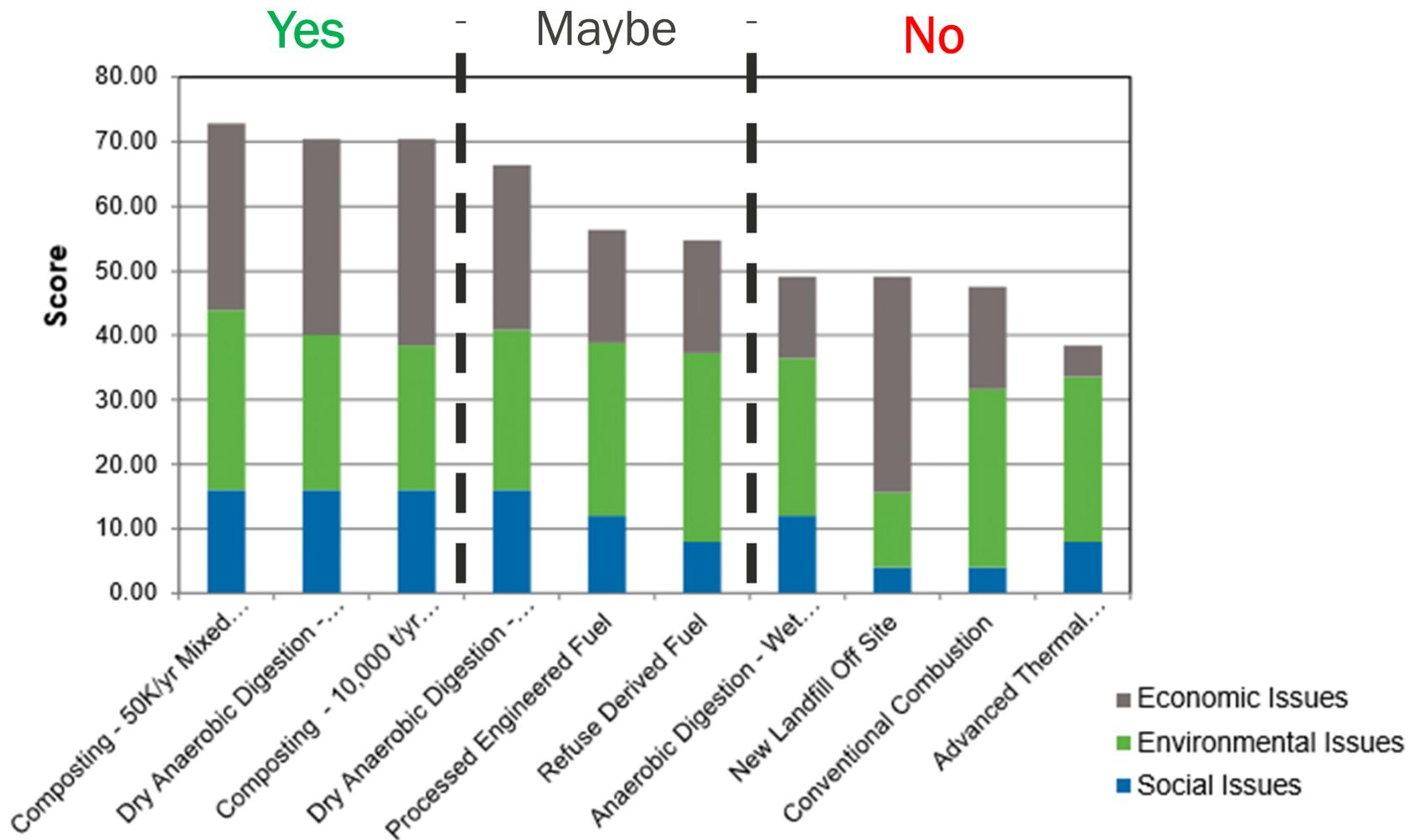
Multi-Criteria Evaluation

Evaluation Criteria	Value Description			Material Evaluation									
	High	Medium	Low	Shingles	C&D Wood	Carpet	Textiles	MRF Residue	Forestry	Railway Ties	Used Motor Oil	Tires	Ag Plastic
	H	M	L										
Need for Alternative Disposal	No competitive alternative options	Available options are not strong	Strong markets in place	M	M	M	M	M	L	H	L	L	H
Cost to Dispose	>\$80/t	0-\$80/t	Sold as commodity	M/H	H	H	H	H	L/M	H	L	M	H
Ease of Transportation	<\$25/t	\$25-55/t	>\$55/t	H	H	H	H	M/H	L	H	M	M/H	M
Available Quantity	100+kt/yr	20-100 kt/yr	< 20 kt/yr	M	H	M	M	L/M	H	H	M	M	L
Energy Value	25,000+ kJ/kg	18-25,000 kJ/kg	<18,000 kJ/kg	L	M	H	M	M	M	M	H	H	H

Multi-Criteria Evaluation Scoring

Evaluation Criteria	Material Evaluation									
	Shingles	C&D Wood	Carpet	Textiles	MRF Residue	Forestry	Railway Ties	Used Motor Oil	Tires	Ag Plastic
Need for Alternative Disposal	2	2	2	2	1	1	3	1	1	3
Cost to Dispose	2.5	3	3	3	3	1.5	3	1	2	3
Ease of Transportation	3	3	3	3	2.5	1	3	2	2.5	2
Available Quantity	2	3	2	2	1.5	3	3	2	2	1
Energy Value	1	2	3	2	2	2	2	3	3	3
TOTAL	10.5	13	13	12	11	8.5	14	9	10.5	12

Graphical Presentation of Options



Questions?

Please ask questions via the chat feature of GotoMeeting.

