



SOLID WASTE ADVISORY COMMITTEE

Notice of Meeting on **Thursday, January 17, 2019 at 12:30 pm to 3:00 pm**
Board Room, 6th floor, 625 Fisgard Street, Victoria, BC

Ariff, Nadia	Kurschner, Mark	Meisen, Axel	Squier, Jane
Blackwell, Denise (Chair)	Laing, Dave	Monsour, Don	Tuggle, Chad
Daliran, Taaj	Latta, Elizabeth	O'Grady, Evelina	Tulloch, Glen
Hillis, Jason	Lawson, Aaron	Shaw, Jeff	Wiebe, Steven
King, Kelly	Maler, Tom	Speller, Rachel	Young Jr., Stew (Vice Chair)

LUNCH WILL BE SERVED

AGENDA

1. Approval of Agenda
2. Adoption of Minutes of November 15, 2018
3. Chair's Remarks
4. Solid Waste Management Planning Process – Status Update/Work Plan
5. Update on Related Solid Waste Initiatives
6. Long List of Waste Management Options
 - Staff Report: Long List of Waste Management Options (attached)
 - Presentation/Topic Introductions
 - Roundtable Discussion (Worksheets)
7. Next Meeting
 - February 21, 2019 - CRD Headquarters
8. Closing Comments
9. Adjournment



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**REPORT TO SOLID WASTE ADVISORY COMMITTEE
MEETING OF THURSDAY, JANUARY 17, 2019**

SUBJECT **TECHNICAL MEMORANDUM – PRELIMINARY LONG LIST OF OPTIONS FOR
THE SOLID WASTE MANAGEMENT PLAN**

ISSUE

To present an initial technical memorandum with a preliminary long list of options for the Solid Waste Management Plan.

BACKGROUND

In October 2018, the CRD engaged Tetra Tech Canada Inc. to research, identify, evaluate and summarize potential waste management strategy options for Revision 3 of the Solid Waste Management Plan (SWMP).

At the November 15, 2018 meeting of the Solid Waste Advisory Committee (SWAC), Tetra Tech staff presented a list of preliminary options for consideration and discussion. The attached technical memorandum provides a summary of the initial options and includes feedback from the committee (Appendix A).

The development of strategy options will continue at the January and February SWAC meetings.

RECOMMENDATION

That the Solid Waste Advisory Committee receive this report for information.

Submitted by:	Russ Smith, Senior Manager, Environmental Resource Management
Concurrence:	Larisa Hutcheson, P.Eng., General Manager, Parks & Environmental Services

AB:ac

Attachment: Appendix A: Technical Memorandum



To: Anke Bergner, Tom Watkins, Russ Smith **Date:** December 20, 2018
cc: **Memo No.:** 001
From: Wilbert Yang, Melissa Nielsen and Claudia Castro **File:** 704-SWM.PLAN03075
Subject: Long List of Options for the Solid Waste Management Plan V.2

This 'Issued for Review' document is provided solely for the purpose of client review and presents our interim findings and recommendations to date. Our usable findings and recommendations are provided only through an 'Issued for Use' document, which will be issued subsequent to this review. Final design should not be undertaken based on the interim recommendations made herein. Once our report is issued for use, the 'Issued for Review' document should be either returned to Tetra Tech Canada Inc. (Tetra Tech) or destroyed.

1.0 INTRODUCTION

Tetra Tech Canada (Tetra Tech) was retained by the Capital Regional District (CRD) to identify and evaluate potential waste management strategy options for Revision 3 of the Solid Waste Management Plan (SWMP). This Technical Memorandum (tech memo) discusses a long list of options to be considered in the SWMP. The CRD's Solid Waste Advisory Committee (SWAC) was presented the initial long list of potential options during a meeting on November 15, 2018. The long list of options builds on the work developed by the CRD between 2012 and 2014 (during the initial stages of the SWMP Revision) and further includes options which are relevant to the current state of the CRD waste management system.

1.1 Solid Waste Management Planning

Regional Districts in British Columbia (BC) are required to prepare SWMPs. In 1989, the *Waste Management Act* [now the *Environmental Management Act* (EMA)] was amended to require all regional districts to prepare and submit solid waste management plans to the BC Ministry of Environment and Climate Change Strategy (Ministry) for approval. The purpose of the SWMP is to provide a framework and guiding document that will indicate the region's solid waste management activities over the next 5 to 10 years. The SWMP should outline how solid waste is managed in the region while keeping in mind local circumstances, community goals, disposal capacity, environmental protection, community support, operational capacity and financial sustainability.

1.2 CRD SWMP Revision 3

The CRD's first SWMP was approved by the Ministry in 1989; it has since been updated in 1991 and 1995. Since 1995, eight amendments have been added to the plan. The third SWMP Revision began in 2012. A Public and Technical Advisory Committee reviewed several reports, which included options to include in the Revised SWMP. However, this process was put on hold in 2015 to investigate integrated resource management opportunities. The SWMP Revision process was restarted with a new committee, the Solid Waste Advisory Committee (SWAC), in 2018.

Tetra Tech was retained in the last quarter of 2018. The proposed process and timeline to review, evaluate and select options for Revision 3 of the SWMP is illustrated on Figure 1-1.

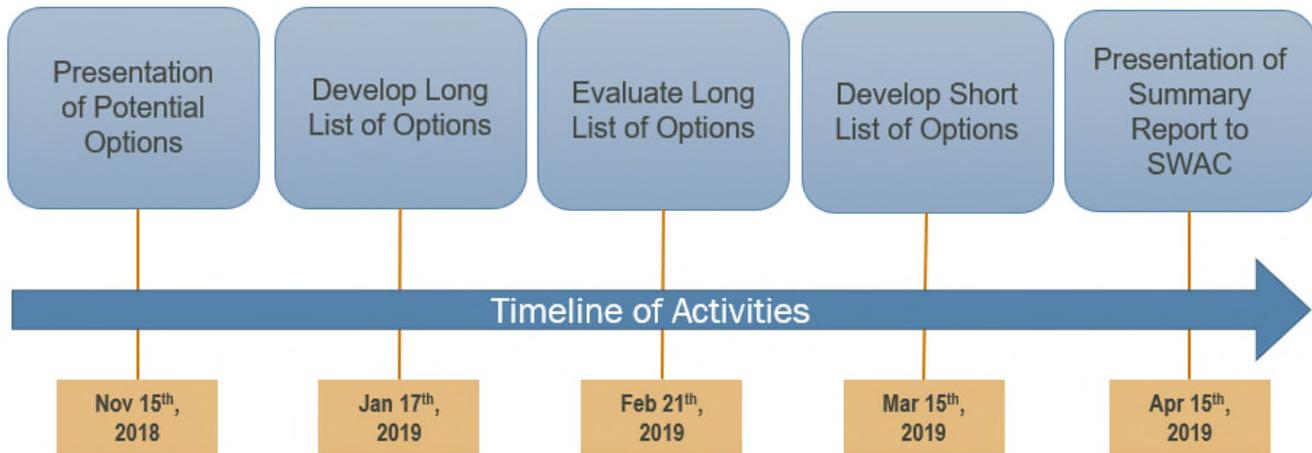


Figure 1-1: Timeline of SWMP Revision Process

The list of options in this tech memo forms a basis for discussion for the January 17, 2019 SWAC meeting. At this meeting, the SWAC will be asked to further elaborate and define the long list of options. Tetra Tech will then work with the CRD to develop evaluation criteria based on the SWMP's Guiding Principles, Objectives, and Goals (presented in sections 1.3, 1.4, and 1.5), which will be used to create a short list of options.

1.3 Guiding Principles

According to the Ministry's guidelines, the SWMP should be founded on locally-relevant guiding principles, which should be clearly stated in the plan. The Ministry provides eight guiding principles – if these guiding principles are modified, a clear rationale for these decisions should be provided to the Ministry.

In the June 2018 SWAC meeting, guiding principles were discussed in detail. The Ministry's guiding principles were modified slightly to enhance clarity. The guiding principles are:

- Promote zero waste approaches and influence others in support of a circular economy;
- Promote the first 3 Rs (Reduce, Reuse and Recycle);
- Maximize beneficial use of waste materials and manage residuals appropriately;
- Support polluter-pay and user-pay approaches and manage incentives to maximize positive behaviour outcomes;
- Prevent organics, recyclables and hazardous household waste from going into the garbage wherever practical;
- Collaborate with other jurisdictions wherever practical;
- Develop collaborative partnerships with interested parties both within and outside of the CRD to achieve regional targets set in plans; and
- Level the playing field within regions for private and public solid waste management facilities.

1.4 Objectives

During the June 2018 SWAC meeting, draft key objectives were presented and discussed. The key objectives are to be used as a planning tool to identify priorities for topics for discussion. The SWAC proposed the following objectives for the plan:

1. Improve participation in waste reduction activities and diversion services.
2. Decrease contamination levels in waste streams.
3. Facilitate processing and markets for organics, recyclables, and wood waste as appropriate.
4. Maximize local solid waste disposal capacity.
5. Establish a long-term sustainable financial model for the CRD's solid waste service.

These objectives will be further discussed at the February 2019 SWAC meeting and will inform the evaluation criteria to move from the long list to the short list of options.

1.5 Goals

In the June 2018 SWAC meeting, draft key goals were presented and discussed. These can be considered goals for the SWMP and should be intended to create a long-term vision for the plan to achieve.

1. To surpass the provincial per capita waste disposal targets.
2. To extend the life of Hartland Landfill to the year 2100 plus.
3. To have informed citizens that participate effectively in proper waste management practices.
4. To ensure that the CRD's solid waste services are financially sustainable.

The Guiding Principles, Objectives and Goals were endorsed by the CRD Board in October 2018.

2.0 DIVERSION POTENTIAL

The waste diversion analysis, in this section, shows that there are opportunities to increase waste diversion in the regional district.

The Ministry set a provincial target of 350 kilograms (kg) per capita per year which should be achieved by 2020. The CRD is one of the top performing regional districts in the Province and met this target in 2015 and 2016. However, the 2017 disposal rate increased to 407 kg/capita which is suspected to be from strong real estate activity in the region. The most recent disposal rates for the CRD are presented in Table 2-1.

Table 2-1: CRD Per Capita Disposal Rates

Year	Per Capita Disposal (kg per capita)
2015	345
2016	353
2017	407

Two factors are considered when discussing diversion potential:

- **Material Grouping.**
- Table 2-2 presents how material types are grouped for the diversion potential analysis. These groupings reflect material categories that are managed in a particular way. For example, material that is collected via curbside recycling is grouped together, since these materials are targeted through improved residential recycling programs. Wasted food is separated from inedible organic materials, since wasted food may be targeted through waste reduction or food recovery programs, while inedible organic materials may be targeted through organics collection and processing programs.
- **Sector.** Waste from each sector typically has a distinct composition profile and would be targeted by different programs.
- Table 2-3 presents the material groupings according to the following sectors:
 - Single Family;
 - Multi-Family;
 - Bins (i.e., self-hauled waste);
 - Industrial, Commercial, and Institutional (ICI); and
 - Construction and Demolition Materials (CR&D).

Table 2-2: Material Groupings

Category	Included Items
Curbside Recyclable Materials (EPR)	Packaging and Paper Products. This includes material that is collected from the residential sector (managed by Recycle BC) and material that is generated by the ICI sector (currently not managed as part of an EPR program).
Depot Recyclable Material (EPR)	Deposit and non-deposit Containers, Electronics, Batteries, and Used Oil, etc.
Wasted Food	Edible or donatable food
Inedible Organic Materials	Inedible food scraps, yard waste, and compostable paper
Clean Wood	Clean wood
Other Recyclable CR&D Materials	Cardboard, drywall, masonry (concrete/asphalt), metals
Textiles	All textiles
Bulky Objects	All bulky objects such as mattresses and furniture

Table 2-3 presents the potential waste diversion according to material categories and sector. The purpose of this is to highlight areas with room for improvement which could be targeted by options/programs outlined in the SWMP and the effect that waste reduction and diversion programs could have on the overall waste stream. Key findings from the diversion potential analysis include:

- 67% of the materials disposed could be potentially diverted;
- More waste is disposed by the ICI sector than by any other sector (41%);
- In residential and ICI sectors, the most diversion potential is from wasted food and organic materials; and
- If 95% of divertible materials were diverted, a 150 kg per capita disposal rate would be achieved (“Zero Waste”).

Table 2-3: Potential Waste Diversion¹

Sector	Sector Contribution to Landfill (%)	Material Type	Material Contribution to Landfill (%)	Material Contribution to Landfill (tonnes)
Single-Family	25%	Curbside Recyclable Material	2.8%	4,390
		Depot Recyclable Material (EPR)	3.2%	5,110
		Wasted Food	3.8%	6,060
		Inedible Organic Materials	4.9%	7,740
		Clean Wood	0.1%	160
		Other Recyclable Building Materials	0.9%	1,480
		Textiles	1.8%	2,790
		Bulky Objects	0.0%	0
Total Possible Divertable from SF			17.4%	27,730
Multi-Family	13%	Curbside Recyclable Material	1.7%	2,700
		Depot Recyclable Material (EPR)	1.6%	2,490
		Wasted Food	2.0%	3,130
		Inedible Organic Materials	2.9%	4,560
		Clean Wood	0.0%	20
		Other Recyclable Building Materials	1.1%	1,760
		Textiles	0.6%	890
		Bulky Objects	0.0%	0
Total Possible Divertable from MF			9.8%	15,550
Bins	5%	Curbside Recyclable Material	0.1%	170
		Depot Recyclable Material (EPR)	0.4%	570
		Wasted Food	0.1%	110
		Inedible Organic Materials	0.4%	650
		Clean Wood	0.2%	370
		Other Recyclable Building Materials	0.9%	1,450
		Textiles	0.1%	160
		Bulky Objects	0.3%	410
Total Possible Divertable from Bins			2.4%	3,890
ICI	41%	Curbside Recyclable Material	6.4%	10,210
		Depot Recyclables	5.8%	9,290
		Wasted Food	5.8%	9,220
		Inedible Organic Materials	7.2%	11,450
		Clean Wood	0.2%	390
		Other Recyclable Building Materials	1.3%	2,090
		Textiles	2.6%	4,190
		Bulky Objects	0.8%	1,310
Total Possible Divertable from ICI			30.2%	48,150
CR&D	16%	Curbside Recyclable Material	0.1%	150
		Depot Recyclables	0.7%	1,170
		Wasted Food	0.0%	0
		Inedible Organic Materials	0.0%	50
		Clean Wood	2.2%	3,520
		Other Recyclable Building Materials	3.6%	5,670
		Textiles	0.2%	260
		Bulky Objects	0.1%	180
Total Possible Divertable from CR&D			6.9%	11,000

¹ Percentages shown in bold red text indicate that this material has a significant diversion potential (greater than 3%).

The diversion potential analysis is a useful tool that will help assess the environmental implications as the SWAC determines which long list options should be further considered for the short list options. During this process, disposal targets will be further discussed. Examples of potential disposal targets are presented in Table 2-4.

Table 2-4: Potential Disposal Targets

Description of Potential Target	Disposal Target (kg per capita)	% Divertible Materials Removed from Waste Stream to achieve goal
<i>Current Disposal Rate</i>	407	N/A
BC Ministry Goal	350	21%
Ambitious Goal	250	58%
Zero Waste Goal	150	95%

3.0 PRELIMINARY LONG LIST OF OPTIONS

This section presents the preliminary long list of options. These options were developed based on the following:

- Previous work completed in the 2012-2014 SWMP Revision, before the process was put on hold;
- Current trends in solid waste management (local, national, and global), as identified by Tetra Tech, the CRD, and the SWAC;
- Preliminary needs assessment of the CRD waste management system identified by CRD staff; and
- Initial brainstorming session with the SWAC and CRD staff on November 15, 2018 (options identified or strongly supported by the SWAC on November 15, 2018 are italicized and denoted by a “SWAC Item” bullet point in this section). Notes from the November 15 SWAC meeting are attached to this tech memo as Appendix A.

The options presented in this section are organized according to the pollution prevention hierarchy and the Circular Economy principles, as is further described in Table 3-1. At the January 17 SWAC Meeting, these options will be discussed and grouped as Strategies with multiple Action Items in each Strategy.



Figure 3-1: Pollution Prevention Hierarchy²

² 5 R Pollution Prevention Hierarchy – A Guide to Solid Waste Management Planning, BC Ministry of Environment and Climate Change

Table 3-1: Options Organization

Option Topic	Includes	Description
Circular Economy	<ul style="list-style-type: none"> ▪ Education and Behaviour Change ▪ Advocacy ▪ Policy Development 	Circular Economy represents approaches which apply to the waste management system as a whole (rather than as one of the levels of the pollution prevention hierarchy in Figure 3-1). Circular Economy is further defined and described in Section 3.1
Reduce & Reuse	<ul style="list-style-type: none"> ▪ Reduce; and ▪ Reuse. 	Reduce, Reuse, Recycle, Recover, and Residuals Management are the 5 Rs of the pollution prevention hierarchy (below). It is preferable to find solutions at the top levels of the pollution prevention hierarchy before using solutions lower in the pollution prevention hierarchy in Figure 3-1.
Recycle	<ul style="list-style-type: none"> ▪ Recycle – Increasing Overall Diversion; ▪ Recycle – PPP; ▪ Recycle – EPR; and ▪ Recycle – Organics. 	
Recovery and Residuals Management	<ul style="list-style-type: none"> ▪ Recover ▪ Residuals Management ▪ Construction, Renovation and Demolition ▪ Illegal Dumping 	

3.1 Circular Economy

As a regional district government, the CRD is well-positioned to be a Circular Economy leader. Within a Circular Economy, materials are extracted from the typical linear economy process line with the intention of delaying or avoiding disposal.

‘Circular Economy’ is *not* just a new word for recycling, rather, it’s a replacement of conventional commercial incentives (i.e., single bottom line) with more sustainable alternatives (e.g., triple bottom line) to ensure that materials stay in use, instead of being disposed. This realignment of incentives should include legislation.

The re-creation of an economy (from linear to circular) must occur at all levels of government; the CRD cannot act alone in this endeavor. Thus, the CRD’s strategy to move towards a Circular Economy could involve the following key components, which are described in the following sub-sections:

- **Education and Behaviour Change.** Education and behaviour change components are woven throughout many of the options in this document. Further, it is understood that any option which requires any behaviour change of the public must include education strategies. Broader education and behaviour change options are outlined in Section 3.1.1;
- **Advocacy.** Recognizing that the CRD cannot act alone in moving towards a Circular Economy, this section includes options for advocacy, wherein the CRD asks senior levels of government (provincial and federal) to consider legislation which could re-align conventional economic incentives; and
- **Policy Development** A variety of regulatory approaches may be taken, including enhancement of existing disposal bans, support for CRD municipalities to adopt Circular Economy practices, waste stream management licensing, and land use planning.

As the CRD moves towards a Circular Economy, there is an understanding that changes may be required to the larger system. Thus, while the options in Sections 3.2 and 3.4 each apply to a level of the pollution prevention hierarchy (Figure 3-1), the options in this section apply to the whole system.

Governments play a key role in the creation of a circular economy. As the public becomes more aware of pressing environmental issues, the support for change (especially pertaining to a visible problem like waste) should grow. In the SWMP Revision, the CRD can build on the following challenges and opportunities:

- Ideal placement as a local government of a progressive, environmentally-conscious region;
- Strong community organizations with environmental and social objectives that may be interested in participating in Circular Economy initiatives;
- Ideal placement in time where ‘Circular Economy’ is becoming more recognized; and
- Opportunities exist to promote sustainable design and enhance education efforts.

3.1.1 Education and Behaviour Change

Education and behaviour change components are woven throughout many of the options in this document. Further, it is understood that any option which requires any behaviour change of the public must include education strategies. Broader education and behaviour change options are outlined in this section. The goal is to promote zero waste approaches, influence others in support of a circular economy and have informed citizens who participate effectively in proper waste management practices.

3.1.1.1 Challenges and Opportunities

The challenges and opportunities relating to education and behaviour change in the CRD can be summarized as follows:

- Promotion and education is required to change behaviour and the CRD has a robust communications strategy;
- The CRD has a K-12 school outreach program which engages thousands of students each year; and
- Community-based social marketing (CBSM) is a proven approach to changing behaviour.

3.1.1.2 Options

Education and behavior change options in the CRD may include:

1. Ensure adequate CRD promotion and education resources;
2. Maintain and enhance robust communication strategy, including:
 - Web-based info, including a searchable database;
 - CRD InfoLine;
 - Brochures/print-based info;
 - Social media;
 - TV and radio campaign;
 - Newspaper advertising;
 - Community outreach; and
 - Leveraging community associations to promote messaging.
3. *Revise the K-12 school outreach curriculum to teach principles of circular economy*
4. *Create a toolkit for businesses and organizations to educate on how they can work in line with the Circular Economy.*

SWAC
Items

3.1.2 Advocacy

The CRD, as a federation of local governments, has limited power to influence producers and consumers. Thus, leadership among its group of local governments and advocacy to other levels of government is required to move towards a Circular Economy.

3.1.2.1 Challenges and Opportunities

The challenges and opportunities relating to advocacy in the CRD can be summarized as follows:

- BC has a well-established EPR programs that mandates the management of materials by producers, however, there are notable gaps in the current programs (e.g., no EPR programs for commercial sector (ICI) Packaging and Printed Paper).
- Limited power exists at regional district level to influence producers and consumers.

3.1.2.2 Options

Options relating to advocacy may include:

1. Advocate to the BC Ministry for the expansion of EPR programs.
2. Advocate provincially and federally to limit the distribution/sale of single-use items.
3. Advocate provincially and federally for sustainable product design, including:
 - Increase post-consumer recyclable content in consumer goods;
 - *Eliminate distribution and manufacturing of non-recyclable materials (packaging and other); and*
 - Encourage design for environmental principles and sustainable manufacturing.

SWAC
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3.1.3 Policy Development

This section describes policy development to move the CRD in line with the Circular Economy include using disposal bans, waste stream management licensing, and land use planning tactics.

3.1.3.1 Challenges and Opportunities

The challenges and opportunities relating to policy development in the Capital Region can be summarized as follows:

- The CRD has had disposal bans in place for many recyclable items since 1991, introduced disposal bans on leaf and yard waste in 2006, and food scraps in 2015;
- CRD municipalities may have an appetite for implementing regulatory measures to limit use of single-use items, as demonstrated by the City of Victoria's Checkout Bag Regulation Bylaw;
- There is an opportunity to identify the role(s) of waste management facilities (existing and future) to support:
 - Regional economic development;
 - Local processing capacity; and
 - A Circular Economy.
- There is a lack of adequate zoning for waste management facilities in municipalities and electoral areas, which may lead to difficulty in siting future facilities, thus further limiting regional processing capacity and options;
- The CRD has a responsibility to protect public health and interests and the environment;
- A Guiding Principle of the CRD SWMP Revision 3 (as discussed in Section 1.3) is to level the playing field within the region for private and public solid waste management facilities. That is, solid waste management facilities in a given region, whether public or private, should be subject to similar requirements. CRD examples are the Salt Spring Island Transfer Station Bylaw and the Composting Facilities Bylaw; and
- There are opportunities for collaborating with other jurisdictions (e.g. ban the same materials) and developing partnerships (e.g. working with stewardship agencies).

3.1.3.2 Options

1. Expand material disposal bans to include more materials; consider enhancing or changing enforcement measures.
2. *Consider CRD legislation that can incentivize local use of materials which can be reused (e.g., incent consumers to use wood instead of drywall).*
3. Review CRD bylaws.
4. Support CRD municipalities in creating legislation to support circular economies at the municipal level:
 - Create sample policies and bylaws; and
 - Create toolkit for municipalities.
5. Increase zoning for waste management activities.
6. Develop language templates for Official Community Plans related to waste management activities
7. Include the potential role of waste management facilities in Economic Development Strategies and /or long-term plans.
8. Integrate consideration of waste management facility needs into long range planning such as Community Plans.
9. *License waste management facilities in the region and monitor their activities.*
10. Implement a waste collection franchising system in the region.
11. Promote procurement policies that support a circular economy.

SWAC
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SWAC
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3.2 REDUCE AND REUSE

The options in this section relate to reduce and reuse: the top two Rs of the pollution prevention hierarchy (Figure 3-1).

3.2.1 Reduce

The CRD undertakes a wide range of education activities to encourage reduction, including the school program and campaigns (such as the Create Memories not Garbage campaign). One of the biggest barriers to reducing are high material consumption levels which are a widespread issue, exacerbated by the recent economic and real estate upswing, resulting in an increased waste disposal rate in 2017.

As in many larger population centres, there is a growing acceptance of the 'sharing economy' and other local reuse solutions, including car- and bike-share programs, Repair Cafes, and the Victoria Tool Library.

It is important to consider food waste when discussing reduction, as edible food typically represents a large portion of landfilled material. Additionally, a large quantity of edible food waste is recycled through food scraps recycling programs – it is more desirable to address this problem at the top level of the waste prevention hierarchy and reduce, rather than recycle, wasted food. The CRD has recently joined Canada's "Love Food Hate Waste" campaign in an effort to decrease the amount of avoidable food waste from residential sources.

3.2.1.1 Challenges and Opportunities

The challenges and opportunities relating to ‘Reduce’ in the CRD can be summarized as follows:

- High material consumption levels;
- Large quantities of edible food are wasted in the CRD (18,000 tonnes of edible food waste were disposed at Hartland in 2017, or 12% of all landfilled materials);
- A growing interest exists to move towards circular economy solutions; and
- Local initiatives in place to reduce single-use items (e.g., City of Victoria Checkout Bag Regulation Bylaw).

3.2.1.2 Options

Reduce options may include:

1. Promote reduction of resources and goods use:
 - Continue to participate in “Love Food Hate Waste” program;
 - Promote better planning and buying habits; and
 - Promote a reduction in the purchasing of goods.
2. Support renting and sharing programs:
 - Support Tool Library, Repair Cafés, and DIY Repair; and
 - Support Sharing Economy Initiatives.
3. Support residential food waste reduction:
 - Continue to participate in “Love Food Hate Waste” program;
 - *Advocate for regulation for clarity around use-by vs expiry dates; and*
 - *Educate CRD consumers about use-by vs expiry dates.*
4. Support ICI food waste reduction.
5. Support single-use item reduction.
 - *Promote and provide support for retailers that provide packaging-free grocery options (bulk, BYO container, etc.); and*
 - *Support similar programs to the City of Victoria’s Checkout Bag Regulation Bylaw to reduce single-use plastics. Consider supporting programs which apply to other single-use items, including those made of non-plastic materials.*

3.2.2 Reuse

Local reuse organizations exist in the CRD. However, large quantities of reusable goods are going into the landfill – in 2017, 8,000 tonnes of textiles were disposed at Hartland and 6,000 tonnes of durable plastic goods (e.g., toys) was disposed at Hartland; much of this material was still in a usable condition.

Additionally, large quantities of edible food are disposed by the ICI sector (e.g., grocery stores) – much of this food could have been donated. This is termed ‘food rescue’ and typically fits into the ‘reuse’ category of the waste prevention hierarchy.

The CRD recognizes the value of reuse. There is a reuse area at Hartland landfill and free stores at the Gulf Islands recycling depots. The CRD also allows non-profit reuse organizations to dispose of non-saleable goods at a reduced tipping fee at Hartland landfill.

3.2.2.1 Challenges and Opportunities

The challenges and opportunities relating to ‘Reuse’ in the CRD can be summarized as follows:

- Reusable goods are going into the landfill (furniture, textiles, building supplies, appliances, toys, etc.);
- Reuse Store platforms exist in the CRD, including stores for used goods (e.g. Thrift stores, ReStores) and online platforms (e.g. craigslist.org, usedvictoria.ca); and
- Food recovery organizations (e.g., food banks) exist in the CRD.

3.2.2.2 Options

Options relating to ‘reuse’ may include:

1. Support food recovery organizations (food banks, organizations that promote food reuse).
2. Support and maintain existing reuse activities by the CRD.
3. Support organizations and events that support reuse:
 - Continue to support Reuse Non-Profit Organizations
 - Promote events such as community-wide garage sales, “reuse rendezvous”, “ski swap,” etc.; and
 - *Promote and provide support for retailers that have in-house recovery programs (e.g., takeback programs).*
4. Promote Reuse:
 - Continue to promote reuse establishments, such as Free Stores, ReStores, and Thrift Stores;
 - Promote Repair café/tool library; and
 - Consider an art contest and display using reused/salvaged materials.

SWAC
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3.3 RECYCLE

The options in this section relate to recycle, the third R of the pollution prevention hierarchy (Figure 3-1).

3.3.1 Recycle – Increasing Overall Diversion

Sections 3.3.2 through 3.3.4 discuss how the CRD could consider improving recycling of PPP, EPR items, and organics. However, there are some general, systematic changes which may be considered to increase overall diversion. Most of these changes involve modifying the garbage collection practices in the region. In the CRD, six municipalities in the CRD provide municipal garbage collection to residents, in the remaining municipalities and

electoral areas, residents arrange for garbage collection from private haulers. Thus, it should be considered that any widespread changes to garbage collection may be very difficult to implement.

3.3.1.1 Challenges and Opportunities

The challenges and opportunities relating to 'Recycle – Increasing Overall Diversion' in the CRD can be summarized as follows:

- Recyclable materials are being landfilled;
- The CRD has disposal bans on many recyclable materials; and
- The Chinese National Sword policy is restricting markets for recyclables.

3.3.1.2 Options

1. *Shift disposal ban enforcement efforts to generator, rather than hauler, with a focus on ICI sector.*
2. *Recommend that municipalities update bylaws to require use of clear bags for garbage.*
3. *Mandate collector to provide bags for organics collection.*
4. *Incentivize recycling through PAYT garbage collection. (Note: CRD already has user pay garbage collection system)*
5. *Recommend that municipalities update bylaws to require bi-weekly garbage collection to incentivize recycling (especially organics). (Note: CRD already has user pay garbage collection)*
6. *Set intention for government to initiate local recycling infrastructure.*
7. Promote Recycling:
 - Update MyRecyclopedia.ca– for mobile and web browsers;
 - *Enhance visibility of MyRecyclopedia.ca;*
 - Continue to support Victoria Compost Education Centre;
 - Continue to support Hartland Landfill Learning Centre and tours;
 - Continue to promote grasscycling and xeriscaping; and
 - Promote recycling at festivals and events.

SWAC Items

SWAC Item

3.3.2 Recycle – Packaging and Paper Products (PPP)

In 2014, the BC Recycling Regulation was amended to include Packaging and Paper Products (PPP) as an Extended Producer Responsibility (EPR) program. The amendment shifted the responsibility for managing these materials to producers who formed a nonprofit agency called Recycle BC to oversee the program. The CRD has a mature recycling program for single-family residences and has been providing curbside recycling in the region since 1989. Since 2014, the CRD has had an agreement with Recycle BC to contract the collection of PPP on their behalf. A three-stream recycling system is used.

Recycle BC is also responsible for PPP from the multi-family sector and offers financial incentives to pick up the material. In the Capital Region, the multi-family sector is served by private collectors. Only a few contractors have signed on to the Recycle BC program, and the majority of multi-family buildings receive recycling services from haulers who do not have contracted to Recycle BC.

The provincial PPP recycling program (Recycle BC) applies only to the residential sector, thus, private haulers collect from the ICI sector with varying levels of service. The CRD uses disposal bans to incent the ICI sector to recycle – haulers are fined if they arrive at the landfill with loads that contain recyclable materials.

3.3.2.1 Challenges and Opportunities

The challenges and opportunities relating to recycling of PPP in the CRD can be summarized as follows:

SWAC
Item

- *There is a lack of consistency of recycling service levels in multi-family buildings;*

- There is a lack of consistent recycling in the ICI sector;

SWAC
Item

- *There may be insufficient support for recycling in some areas, for example, private depots, multi-family residences, and ICI sector;*

- Recycle BC's funding does not cover the full costs of the Gulf Islands recycling depots; and
- The National Sword (China) policy is restricting markets for recyclables. This is a challenge but may encourage local processing capacity and markets.

3.3.2.2 Options

Options relating to recycling of PPP in the CRD may include:

1. Expand education programs for multi-family and ICI sector.
2. Implement ICI and multi-family source separation requirements.
3. Support ICI and multi-family recycling:
 - Design guidelines for multi-family waste management areas; and
 - Monitor and track recycling activities.
4. Review enforcement levels for material disposal bans, subject to recycling market conditions
5. Review funding options for Gulf Island recycling depots.
6. Encourage local markets for recyclables to address National Sword Issue.

3.3.3 Recycle – Extended Producer Responsibility (EPR)

BC uses EPR as a regulatory tool that aims to shift the responsibility for end-of-life management of products to the producer and creates an incentive for producers to consider environmental concerns when designing products. The range of products managed by EPR programs has expanded in the last decade, and the Ministry has recently announced its intention to include more items in EPR programs (e.g., textiles, mattresses).

Recycle BC is the EPR steward that manages PPP in BC. PPP challenges, opportunities, and options were discussed in Section 3.3.2. This section focuses on challenges, opportunities, and options for other EPR materials, which are typically collected at depots.

3.3.3.1 Challenges and Opportunities

The challenges and opportunities relating to recycling of EPR materials in the CRD can be summarized as follows:

- Different materials are collected by different stewards who often collect their items in different locations. Thus, multiple drop-off locations can lead to consumer confusion and frustration;
- Siting of depots can involve multiple jurisdictions and can be resisted at the community level;
- PPP in the ICI sector is not in an EPR program; and
- Some household hazardous waste (HHW) (e.g., glue, unlabeled materials) are not currently part of an EPR program. These materials are currently accepted for drop-off at Hartland and are costly to handle.

3.3.3.2 Options

Options relating to recycling of EPR material may include:

1. Advocate to the Ministry for expansion of EPR programs, including:
 - PPP for ICI sector;
 - Additional household hazardous materials (e.g., glues, cleaning products);
 - Bulky items (furniture and mattresses); and
 - Asphalt shingles.
2. *Increase consumer awareness about EPR programs and use behavior change strategies to incentivize them to use EPR programs:*
 - Maintain database of drop-off locations for EPR (and other) materials at myrecyclopedia.ca; and
 - *Improve instructions for consumers on how to use EPR programs.*
3. Maintain landfill bans on EPR-managed materials and update disposal ban list as new EPR programs are launched.

SWAC
Item

SWAC
Item

3.3.4 Recycle – Organics

The CRD has been diverting organics from Hartland landfill by using landfill disposal bans: yard and garden material have been banned since 2006 and kitchen scraps have been banned since January 2015. The CRD also supports the Victoria Compost Education Centre as backyard composting is an effective method to divert waste from the landfill.

3.3.4.1 Challenges and Opportunities

The challenges and opportunities relating to 'Recycle – Organics' in the CRD can be summarized as follows:

- Currently, there is no in-region composting facility (a procurement process to determine interest levels has been initiated);
- SWAC Item ▪ *There are limited options for food scraps collection for multi-family and ICI sector buildings; most efforts to reduce organics disposal have been focused on the SF sector;*
- Kitchen scraps and leaf and yard waste collection services vary widely between municipalities; and
- SWAC Item ▪ *There is confusion over what materials are accepted in food scraps collection systems, which has been exacerbated by greenwashing efforts which confuse biodegradable vs. compostable plastics.*

3.3.4.2 Options

Options relating to 'Recycle – Organics' may include:

1. Continue to search for an in-region or near-region processing facility for kitchen scraps (RFEOI issued):
 - SWAC Item – *Consider a CRD-owned or -operated facility, possibly on Hartland Landfill.*
2. Investigate opportunities to standardize organics diversion and collection services for:
 - Kitchen scraps, and/or;
 - Leaf and yard waste.

3.4 RECOVERY AND RESIDUALS MANAGEMENT

The options in this section relate to recovery and residuals management: the bottom two Rs of the pollution prevention hierarchy (Figure 3-1).

This section also includes all options relating to construction, renovation, and demolition (CR&D) waste. These options include those relating to all five Rs in the pollution prevention hierarchy.

3.4.1 Recovery

Recover, the fourth level of the pollution prevention hierarchy, is the recovery of material and/or energy from the waste stream by applying technology. Currently, the CRD recovers landfill gas (LFG) from Hartland, which is used to make electricity.

3.4.1.1 Challenges and Opportunities

The challenges and opportunities relating to recovery in the CRD can be summarized as follows:

- Hartland landfill gas utilization could be maximized; and
- Markets may exist for clean wood waste for fuel.

3.4.1.2 Options

Options relating to recovery in the CRD may include:

1. Continue to work towards provincially mandated LFG capture rate at Hartland.

2. Explore and implement best options for use of landfill gas; options may include:
 - Use as electricity;
 - Inject upgraded renewable natural gas (RNG) into Fortis grid;
 - Use RNG to power collection vehicles; and
 - Use RNG to power CRD facilities.
3. Explore markets for clean wood waste.
4. Continue to monitor new technologies.

3.4.2 Residuals Management

Any material which is not reused, recycled, or recovered must ultimately be disposed. In the CRD, this material is currently disposed at Hartland Landfill which is the only municipal solid waste facility in the region. The Highest Landfill is also located in the region and included in the CRD's SWMP. It is licensed to accept up to 22,500 tonnes for non-putrescible waste per year.

3.4.2.1 Challenges and Opportunities

The challenges and opportunities relating to residuals management in the CRD can be summarized as follows:

- It is desirable to maximize airspace at Hartland landfill to extend its life beyond 2100; and
- There is currently limited lifespan for CR&D disposal at Highest Landfill, after which it is expected that an increased quantity of CR&D material will be directed to Hartland Landfill.

3.4.2.2 Options

Options relating to residuals management may include:

1. Continue to operate Hartland landfill according to the fill plan and best practices.
2. Encourage waste diversion to maximize landfill life.
3. Explore design options to maximize disposal capacity until 2100 and beyond.
4. *Increase monitoring at historic dump sites.*
5. *Re-mine and process residuals for additional recovery.*

3.4.3 Construction, Renovation and Demolition (CR&D) Materials

This section addresses Construction, Renovation and Demolition waste (CR&D). This is the second largest component of the CRD's waste stream. These options relate to all Rs of the pollution prevention hierarchy as they relate to CR&D waste.

SWAC
Items

3.4.3.1 Challenges and Opportunities

The challenges and opportunities relating to 'Construction, Renovation and Demolition in the CRD can be summarized as follows:

- Per-capita disposal rates increased in 2017; this is assumed to be mostly due to CR&D activity;
- *Building and demolition permits vary between CRD municipalities and most do not require any deconstruction;*
- Markets may exist for some clean wood waste for fuel;
- Recyclable building materials are being landfilled;
- Asbestos-containing materials require special handling and management protocols making it expensive to manage properly; and
- Highest Landfill (which accepts CR&D materials) is expected to close by 2023.

SWAC
Item

3.4.3.2 Options

Options relating to Construction, Renovation and Demolition may include:

1. Investigate and quantify CR&D waste management practices in the region.
2. Explore markets for materials, including:
 - Clean wood waste;
 - Urban wood waste (i.e., painted and treated wood);
 - Asphalt shingles;
 - Concrete and asphalt;
 - Plastics and cardboard;
 - Metals;
 - Carpet underlay; and
 - Reusable materials.
3. Explore regional processing capacity for CR&D recycling:
 - Investigate new recycling processors for additional CR&D materials;
 - Establish one or more centralized processing facilities; and
 - Authorize reuse/recycling/resource recover facilities.
4. Support reduction of CR&D waste:
 - Support re-purposing of buildings (i.e., not demolishing buildings, moving buildings).
5. Support deconstruction:
 - Educate and inform residents and contractors;
 - Vary permit fees to encourage deconstruction;
 - Work with municipalities to prohibit demolition without some element of deconstruction; and
 - Develop a local deconstruction guide which could include a list of reuse/recycling opportunities for various materials and best practices for using materials.

6. Support recycling of building materials:
 - Promote a region-wide deconstruction assessment for all properties to be demolished; and
 - Use municipal demolition permit system to encourage deconstruction by requiring a waste management plan.
7. Promote green building standards (e.g., LEED).
8. Continue to develop programs for managing hazardous-containing materials.
9. Develop municipal bylaw templates for construction and demolition activities.
10. Develop a CR&D industry toolkit as part of a targeted educational/promotional campaign.

3.4.4 Illegal Dumping

Illegal dumping is an ongoing challenge in the CRD and most jurisdictions. The CRD has a strong approach to reduce illegal dumping, which includes support to non-profits who collect at clean-up events, supporting reuse non-profits which have illegal dumping issues on their property, and educating residents about how to properly dispose of commonly illegally dumped items.

3.4.4.1 Challenges and Opportunities

The challenges and opportunities relating to illegal dumping in the CRD can be summarized as follows:

- Illegal dumping of bulky items is an issue (mattresses, furniture, etc.); and
- The CRD surveyed municipalities in 2011 on illegal dumping and learned that the most commonly dumped materials were furniture and mattresses. The most frequent dumping location for abandonment of materials was on municipal boulevards.

3.4.4.2 Options

Options relating to illegal dumping may include:

1. Maintain comprehensive approach to deal with illegal dumping.
2. Enhance bylaws that target waste generators.
3. Support establishing illegal dumping enforcement capacity within the municipalities and electoral areas.
4. Establish a stakeholder group to "observe, record, and report" problem areas for illegal dumping and assist enforcement.
5. *Increase bylaw enforcement for illegal dumping.*
6. *Gather data on illegal dumping in BC and the CRD.*
7. *Make legally disposing of bulky items more convenient and/or cheaper for residents by hosting a drop-off day or having a large item pick-up day.*
8. *Back-charge pick-up costs for abandoned materials if you can identify where they come from.*

4.0 FINANCIAL MANAGEMENT

The financial implications of new waste diversion programs and/or initiatives need to be assessed to ensure the effects on the financial management system are sustainable or to determine whether new funding programs or increased program costs are required to balance the CRD's annual solid waste management budget.

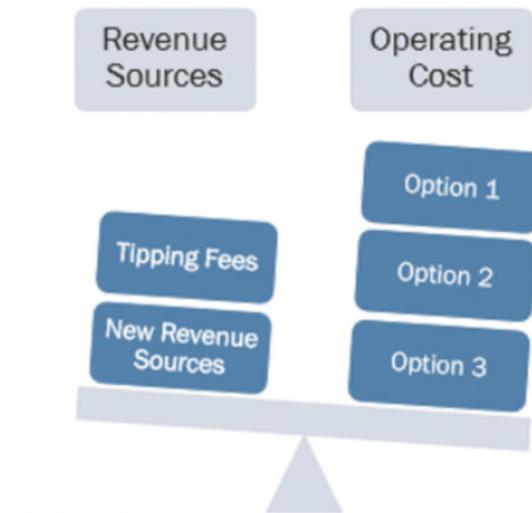


Figure 4-1: Balancing of Revenues and Operating Costs to ensure financial sustainability of solid waste management practices in the CRD.

The diagram above (Figure 4-1) illustrates how program option costs needs to be balanced out against revenue sources for the CRD.

5.0 LIMITATIONS OF REPORT

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6.0 CLOSURE

We trust this technical memo meets your present requirements. If you have any questions or comments, please contact the undersigned.

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APPENDIX A

NOVEMBER SWAC MEETING NOTES

CIRCULAR ECONOMY

- Cultural shift re: CE most difficult But most impactful

- Opp to try virgin products to grow recyclable markets?

REDUCE

← "throw"

• "pay as you ~~throw~~ policy in munis
Weight vs. volume

→ doesn't necessarily
incent behavior

- pickup schedule > organics weekly / garbage Biweekly

• Paper cup Ban? Regulation?

REFUSE

- explore more options to reduce/promote reuse of singleuse items beyond plastic

EDUCATION

- visibility of MyRecycle on CRD website

CE

CRD to support Businesses with CE philosophy
- to get it once practice in place:

Terminology issue \rightarrow impersonal / \uparrow spiral
Advocacy re: ICI inclusion in EPR

REDUCE

- Food waste (use By dates education / regulation)
 \rightarrow retail program support for recovery progs
- Bulk purchasing / BYO container
- Suburban promotion (wood vs drywall)
- corporate resp. for waste
- pay as you throw / collection schedules

REUSE

- Building regs in EAs / demo permits
- repair workshops
- Beyond plastic re: single use

EDUCATION

- how do you reach ICI if out of EPR?
- visibility of resource
- kids educating parents
- consumerism education
- community associations

CIRCULAR ECONOMY

REDUCE REUSE + EDUCATION

CIRCULAR ECONOMY (K-12)

curriculum, internal/procurement, provincial regulations

↳ opportunity to advocate for LCI inclusion in provincial programs.

REDUCE (promotion, rent/share progs, food waste, single use)

REUSE
(non profit support) + food recovery

- Building regulations in electoral areas
(local regs getting in way of reusing items)

- demolition permits
→ have you thought about reuse?

EDUCATION

- largest waste producers outside of EPR / how do you reach? eg construction industry
- emphasis on impact of consumerism / influence parents
- opportunity of kids educating parents
- tax assessment opportunity to communicate?

CIRCULAR ECONOMY

- CED policy/procurement with businesses that support CE philosophy

Terminology issue > important factors effort to understand
↳ why important at personal level?

→ profitable for all players?

REDUCE

- education re: "use by" date (+ advocate for regulation)
- support/encourage ↳ true expiry date
- Retail reuse/return programs re: food waste
- Corporate responsibility for waste - incentives?
- support munis

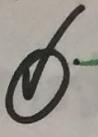
REUSE

- promotion of repair workshops. (non-profits have limited \$ to provide)

EDUCATION

- focus on consumerism in education.
- work with community associations to promote messaging/programs.

CIRCULAR ECONOMY

- institutional practices ^{CEO}  opp with local partners like DND + Uvic?
 - ↳ develop toolkit
- terminology issue > impersonal / takes effort to understand
 - ↳ why important at personal level?
- Circling upwards to increase value of products?

REDUCE

- support Business that promote reduced packaging/
Bulk purchasing (BYO container)
- promote substitution (eg wood vs drywall)
to reduce consumption of complex materials
 - need to incent
- processing of unsellable food into animal food or ?
Other product?

REUSE

- support promotion of reuse/share
resources into the region

EDUCATION

- CE > once CEO has in practice - develop/
provide toolkit

EPR

- CONSUMER awareness about take back programs
- mattresses → new EPR?
- incentive for ~~the~~ return to retailer
 - electronics
 - mattresses

Recycle

- SFD/MFD PPP
- EPR programs
- Organics

+garbage

Construction, Renovation, Demolition

PPP

Lack of consistency example S

- glass in, glass out, NO glass services
- multiple service providers
- Subsidy to SFD (glass curb) + ^{some} depots. no support for ~~new~~ MFD residents

Garbage

- Generator ~~&~~ targeted ban enforcement

Focused on ICI

mandating

- ~~&~~ clear bags for garbage
- collector's ^{to} providing ~~the~~ bags
(garbage, recycling, compostable)

Organics

- ~~Research~~
 - Focus has been on SFD services
 - Hartland Facility for processing OM + capturing nutrients + energy as a viable economic & sustainable nutrients cycling (compost sales) using in-vessel (AD) + aerobic
 - local processing
 - compostable bag confusion (greenwashing)
-
- circular economy example
green burial → tree

CR&D

- inconsistency in permits require deconstruction
 - deconstruction assessment
- building code inconsistency
 - ~~allowance~~
 - allowance ~~to reuse material~~ to reuse material!
- Deconstruction Guide (eg.)
 - eg H&H services
 - asphalt recycled
 - crushed ~~glass~~ concrete, glass

Recovery

- Mkt for wood re-use
- deconstruction

- LFG Capture

- LFG Utilization

- no immersion
- solids instead

- Mkt for clean wood waste

- Hoq Xuel

- New technology

- wood composites (innovation)

- energy recovery (WTE, gasification)

- chip + use as additive

- chip + use

biochar

Residual Mgmt

- Full plan

- Diversion Max

- Maximize disposal capacity

- Existing Landfill

- re-mine + process

Bins et al.

Wood Waste
+
Sewage Sludge



Easel Pad
Tableau à feuilles mobiles
Block de Hojas Reposicionables

Super Sticky
Super Collant
Super Adhesivos



5.2 in (13.2 cm) x 2.08 in
5.2 in (13.2 cm) x 2.08 in
Cont. 1 block de 30 hojas

3M

Regulations

→ enforcement

historic dumpsite & monitoring — lack of
municipal demolition permits.

overlapping jurisdictions

revisit biosolids application policy

Landuse Planning

AUR - PFML → landuse planning

expand Burgoyne — multi purpose

Illegal Dumping

on AUR land — vehicles, telephone poles
PM FL lands

look containers, surveillance

CRD non profit funding

Regulations

→ enforcement

historic dumpsite & monitoring — lack of
municipal demolition permits.

overlapping jurisdictions

omit biosolids application policy

Landuse Planning

AUR - PFM L → landuse planning

expand Burgoyne — multi purpose
broaden to IRM

Illegal Dumping

on AUR land — vehicles, telephone poles
PM FL lands

look containers, surveillance

CRD non profit funding

Regulatory Approaches

Regs → enforcement

regionwide licensing → WSML

regulate producers nationally,

encourage bulk purchasing ^{eg. labelling, more envir. friendly packaging}

more bylaw officers → enforce at the source ^{eg. Los Angeles ICF}
work w. haulers
charge double if no organics bin → haulers' initiative
Prohibit non-recyclable
→ education (start in schools)

Landuse Planning

more bans → wood waste when viable alternatives

Gov't initiated infrastructure → responsibility

→ do it ourselves + do it locally

no landfill siting (sewage project example) will get people involved

Illegal Dumping

ads on buses
Schools

label on mattress

get stricter - more education re management abandoned materials - coaches

BC - wild west? We need data. Why?

Resident awareness

Enforcement

~~the~~ "Amnesty Day", Large Item plu day

Charge residences at Wic