

SOLID WASTE ADVISORY COMMITTEE

Notice of Meeting on **Tuesday, March 12, 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
Daliran, Taaj	Laing, Dave	Monsour, Don	Tuggle, Chad
Hillis, Jason	Latta, Elizabeth	O'Grady, Evelina	Tulloch, Glen
Isitt, Ben (Chair)	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 January 17, 2019
3. Chair's Remarks
4. Solid Waste Management Planning Process – Status Update
5. Preliminary Solid Waste Management Strategies
 - Staff Report: Preliminary Strategies for the Solid Waste Management Plan (attached)
 - Presentation
 - Group Exercise
6. Backgrounder on Resource Recovery Projects
 - [Landfill Gas Utilization – Alternatives](#)
 - [Organics Processing – Regional Capacity](#)
7. Next Meeting
 - April 9, 2019 - CRD Headquarters
8. Closing Comments
9. Adjournment



Making a difference...together

**REPORT TO SOLID WASTE ADVISORY COMMITTEE
MEETING OF TUESDAY, MARCH 12, 2019**

**SUBJECT TECHNICAL MEMORANDUM - PRELIMINARY STRATEGIES FOR THE SOLID
WASTE MANAGEMENT PLAN**

ISSUE

To present a technical memorandum with preliminary strategies for the Solid Waste Management Plan.

BACKGROUND

In October 2018, the Capital Regional District (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.

At the November 15, 2018 meeting of the Solid Waste Advisory Committee, Tetra Tech staff presented a comprehensive long list of strategy options for consideration. The strategy options were further discussed and refined at the January 17, 2019 meeting. Additional comments were invited and received after the January meeting.

Tetra Tech and CRD staff examined all suggestions and grouped them into themes. These themes were restructured and short-listed into thirteen preliminary strategies with associated actions as presented in Appendix A.

The refinement of solid waste management strategies will continue at the March 2019 meeting, when the Solid Waste Advisory Committee will be asked to further discuss the strategies and actions.

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: Preliminary Strategies for the Solid Waste Management Plan

To:	Anke Bergner, Tom Watkins, Russ Smith	Date:	March 7, 2019
c:		Memo No.:	003
From:	Wilbert Yang, Melissa Nielsen, and Claudia Castro	File:	704-SWM.PLAN03075-01
Subject:	Preliminary Strategies for the Solid Waste Management Plan V2		

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 the preliminary strategies and actions proposed for consideration in the SWMP. This tech memo will also describe the Evaluation Process that will be used to further refine the strategies.

The CRD's Solid Waste Advisory Committee (SWAC) was presented with an initial long list of potential strategy options during meetings on November 15, 2018 and January 17, 2019 and provided feedback during these meetings.

1.1 CRD SWMP Revision 3

The proposed process and timeline to review, evaluate and select strategy options for Revision 3 of the SWMP is illustrated on Figure 1.

Notably, some changes have been made to the timeline:

1. The dates of the third, fourth, and fifth SWAC meetings have been changed to the dates shown on Figure 1, below.
2. The third meeting, now on March 12th, 2019, will be used to present preliminary strategies.
3. The fourth meeting, now on April 9th, 2019, will be used to present the Strategy Evaluation which will assist in identifying preferred strategies, actions and timelines.

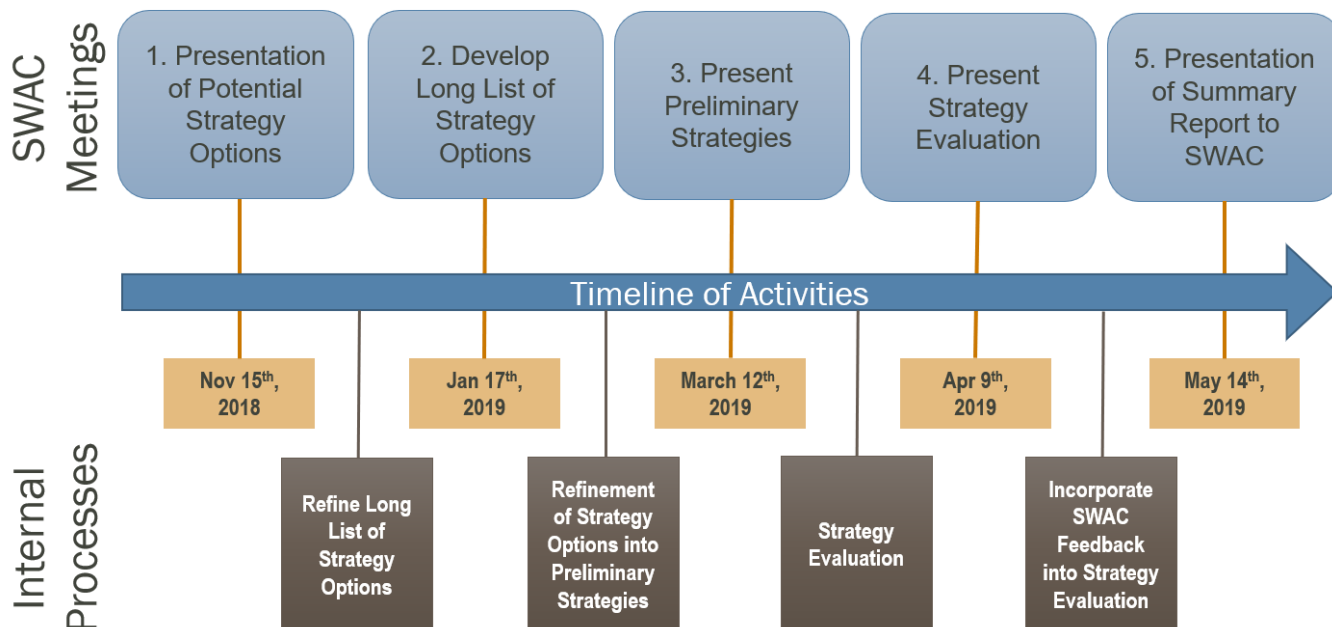


Figure 1: Timeline of SWMP Revision Process (From Strategy Options to Strategies: Review, Evaluate and Select)

The list of proposed preliminary strategies in this tech memo forms a basis for discussion for the March 12, 2019 SWAC meeting. At this meeting, the SWAC will be asked to further elaborate and refine the strategies and actions. After this meeting, Tetra Tech will use an evaluation process (further described in Section 3.0) and work with the CRD to evaluate strategies. The evaluated strategies will be presented at the SWAC Meeting on April 9, 2019.

2.0 STRATEGY REFINEMENT PROCESS

2.1 Strategy Groupings

A long list of strategy options was presented at the January 17, 2019 SWAC meeting. The Ministry Guide recommends describing plan strategies and actions for each tier in the pollution prevention hierarchy, with the expectation that strategies are maximized to reduce, reuse and recycle. The Guide recognizes that certain strategies, such as educational programs, could be summarized separately or integrated into other broader strategies. The Guide also asks regional districts to encourage opportunities that will contribute towards the establishment of a circular economy and to consider upstream as well as downstream environmental impacts of products, from production to end-of-life management.

Based on this guidance, the long list of potential strategy options was organized into the following groupings:

- Circular Economy (including education and behavior change, advocacy, and policy development);
- Reduce and Reuse;
- Recycle (including increasing overall diversion, printed paper and packaging [PPP], extended producer responsibility [EPR], and organics); and
- Recovery and Residuals Management (including recovery, residuals management, construction, renovation and demolition waste, and illegal dumping).

The grouping of the strategy options was intended to:

- Transform the mindset of the plan to a Circular Economy context in the CRD to encourage a shift in thinking from waste as a residual requiring disposal, to waste as a material/resource that is a valued commodity that should only be consumed when necessary and utilized in closed-loop systems, as stated in the Ministry's guiding principle (Ministry Guide, 2016);
- Incorporate strategy options that do not fit into one of the 5 R categories of the Pollution Prevention Hierarchy into the Circular Economy grouping to recognize that some options could work at multiple levels of the hierarchy and throughout different areas in the system. (e.g., education and behaviour change);
- Incorporate suggested strategy options from the 2012 to 2014 SWMP Update in a straightforward way, as all previous options were grouped according to the Pollution Prevention Hierarchy; and
- Demonstrate the preferred order of strategy options according to the Pollution Prevention Hierarchy. As per the Ministry Guidelines, options at higher levels in the Pollution Prevention Hierarchy should be prioritized because "actions taken at higher levels in the pollution prevention hierarchy can eliminate or reduce the environmental management costs of actions at lower levels."

During the January SWAC Meeting, it was noted that the 'Circular Economy' grouping was confusing and that more discussion was needed about the term and how to incorporate Circular Economy principles into the SWMP.

Circular Economy is defined by the Ministry as "An alternative to a traditional linear economy (make → use → dispose). The circular economy keeps resources in use for as long as possible, extracts the maximum value from them while in use, then recovers and regenerates products and materials at the end of their service life." Circular Economy approaches typically take into consideration supply chain management and manufacturing of goods. For this reason, it is thought that framing the CRD's entire SWMP Revision in the context of the Circular Economy may

not be appropriate; rather, it is proposed to identify Circular Economy opportunities into the strategies as appropriate.

Thus, the strategy options have been regrouped to simplify the intent of the Strategies according to the following themes, which are also aligned with the Pollution Prevention Hierarchy:

- Reduce and Reuse;
- Recycle;
- Recovery and Residuals Management; and
- Financial Management (not a focus of this Tech Memo).

2.2 Refinement of Strategy Options into Preliminary Strategies

The SWAC provided feedback on the long list of strategy options that were presented in the November and January SWAC Meetings. An extensive amount of feedback was received, and all feedback was incorporated into a comprehensive long list of strategy options (over 100 options were included). Appendix A provides a list of additional suggestions and comments recorded on a flipchart from the January 2019 meeting. Comments received from three SWAC members after the meeting have been considered and incorporated into the Strategies as appropriate.

Tetra Tech and CRD staff examined each suggestion and grouped them into themes. These themes were restructured and short-listed into thirteen preliminary strategies with associated actions presented in this technical memorandum. Most options were incorporated into themes. The strategy options that were not considered were the ones that met the following reasons:

- The intent of two or more options were the same (in this case, only one option was kept);
- The option suggested was outside of the CRD's jurisdictional authority; and/or
- The option was very vague and not actionable or would be a piece of other strategies (e.g., "Review CRD Bylaws" was removed because this would be a required implementation piece in other strategies but does not constitute an option in itself. For example, if a new material ban is proposed, this would result in a revision of the CRD Hartland Landfill Tipping Fee Bylaw.).

As the themes were revised into preliminary strategies, the specific wording of most strategy options was changed. These changes were made to:

- Enhance clarity;
- Combine the intent of multiple similar strategy options; and/or
- Ensure that the revised strategy included only actions which were within the CRD's jurisdictional authority (e.g., "Mandate collector to provide bags for organics collection" became "Develop guide for use of compostable products and packaging to reduce the impacts of compostable plastics in processing").

The preliminary Strategies are presented in Section 4.0.

3.0 EVALUATION PROCESS

The objectives of the Evaluation Process will be to:

1. **Gather SWAC feedback on the Preliminary Strategies and Associated Actions.** This will be reviewed during the March SWAC meeting.
2. **Assess the Strategies according to the Evaluation Criteria.** The evaluation criteria have been adjusted slightly since the last meeting and are presented in Table 1. An example of how the evaluation process would be conducted has been included in Appendix B. This step will assist in prioritizing the strategies

Table 1: Evaluation Criteria Modifications

Old Evaluation Criteria	Modified Evaluation Criteria	Reason for Change
Technical Criteria	Technical Feasibility and Effectiveness	Enhanced clarity – the intention of this criteria is to determine: <ul style="list-style-type: none"> ▪ Is this technically possible? ▪ If implemented, would this strategy be effective?
Environmental Criteria	Environmental Impact and Benefits	Enhanced clarity
Social Criteria	Social Impact	Enhanced clarity
Impact on Disposal Capacity	Effect on Waste Disposal	Enhanced clarity
Economic Criteria	Cost Considerations	Enhanced clarity

3. **Determine high-level cost considerations and resource requirements for each strategy.**
4. **Identify how strategies would be implemented according to the CRD’s resources over the next 10 years.** Based on cost considerations and conceptual ranking, Tetra Tech will work with the CRD to identify a suitable timeline for the strategies.
5. **Create a 10-year disposal target.** Based on the proposed timeline, a diversion potential analysis will be performed, which will result in the ability to set a disposal target, and interim disposal targets, if desired. The Ministry’s current 2020 disposal target is 350 kg/capita.

The results of the Evaluation Process will be presented at the April SWAC meeting.

Figure 2 outlines the proposed evaluation process.

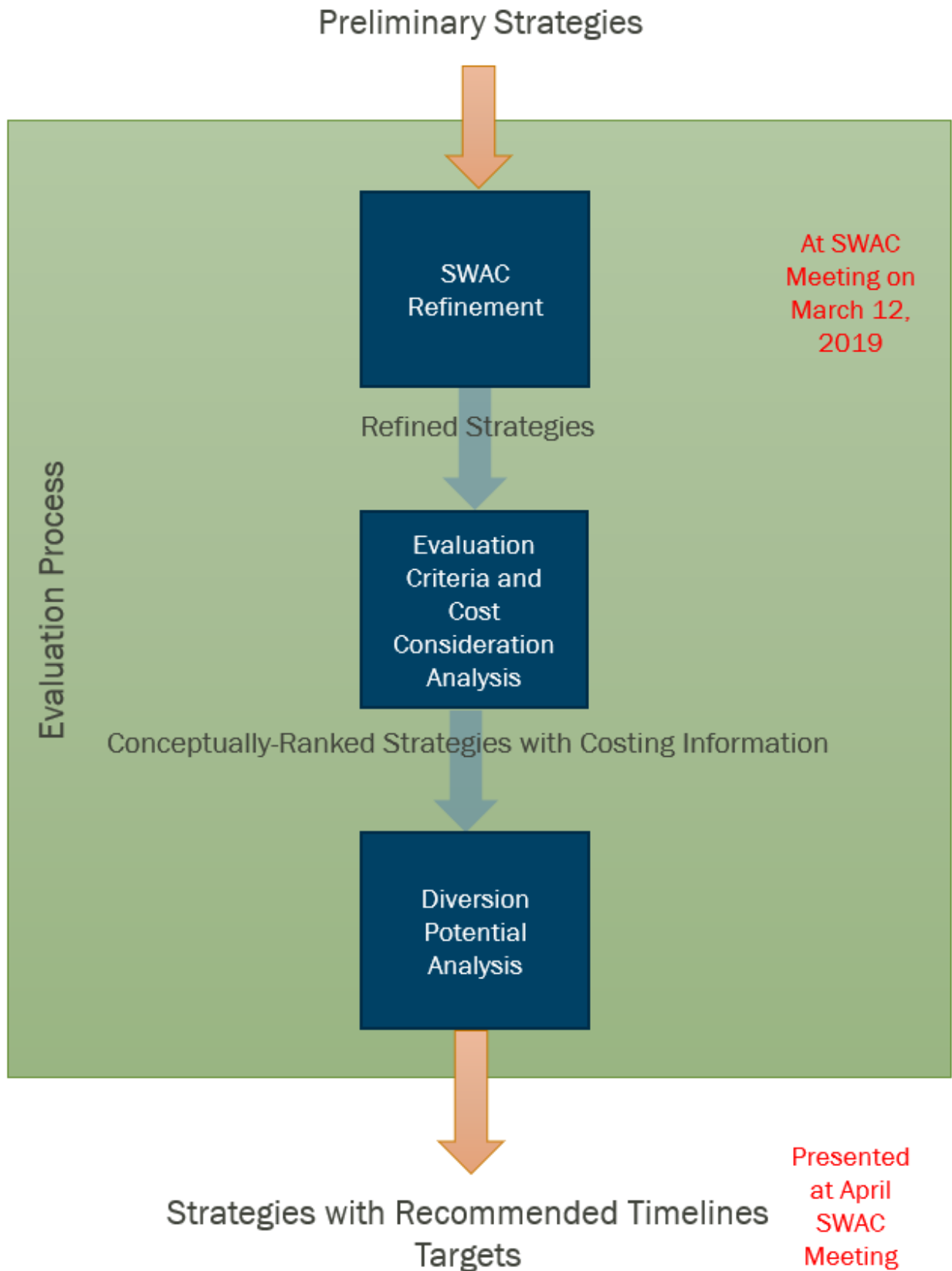


Figure 2: Evaluation Process Flow Diagram

4.0 STRATEGIES

The preliminary strategies that are presented for SWAC Review are outlined in this section. Figure 3 presents the summary of strategies. Strategies are presented with their action items in Sections 4.1, 4.2, and 4.3.

Reduction and Reuse	Recycling	Recovery and Residuals Management	Financial Management
<ol style="list-style-type: none"> 1. Continue and Enhance Education Programs. 2. Encourage Waste Prevention. 3. Support Food Waste Reduction. 4. Support Reuse Activities in the Region. 5. Support Local Governments in Working Towards Zero Waste and a Circular Economy. 6. Continue and Enhance Policy Development. 	<ol style="list-style-type: none"> 7. Increase Residential Diversion. 8. Increase Multi-Family Diversion. 9. Increase ICI Diversion. 10. Support Existing and New EPR Programs. 11. Increase Organics Diversion and Processing Capacity. 	<ol style="list-style-type: none"> 12. Maximize Capture and Beneficial Use of Landfill Gas. 13. Optimize Hartland Disposal Capacity. 	<ol style="list-style-type: none"> 14. TBD – out of scope of this tech memo

Figure 3: Summary of Strategies

4.1 Reduction and Reuse

1. Continue and Enhance Education Programs.

- a. Ensure adequate CRD promotion and education resources.
- b. Incorporate behaviour change components wherever possible; using a variety of education and communication strategies and tools.
- c. Expand education programs to MF and ICI sector.
- d. Enhance K-12 school program to include concepts of circular economy and explain 'wish-cycling'.
- e. Promote less consumption and advocate for consumer responsibility.
- f. Collaborate with stakeholders on education campaigns, e.g. municipalities, product stewards.
- g. Continue supporting environmental stewardship recognition.
- h. Continue to engage residents on solid waste matters; using the appropriate level of consultation.

2. Encourage Waste Prevention

- a. Establish a waste reduction community grant program (could include food waste prevention projects).
- b. Support single-use item reduction efforts such as plastic bag bans.
- c. Advocate provincially and federally to limit or eliminate the manufacturing, distribution or sale of single use items and non-recyclable materials.
- d. Advocate provincially and federally for sustainable product design.
- e. Promote sustainable and/or packaging-free purchasing options.

3. Support Food Waste Reduction.

- a. Support residential food waste reduction, for example, by continuing Love Food Hate Waste Canada program.
- b. Support ICI food waste reduction, for example, by encouraging stores to donate edible food.
- c. Continue to support food recovery organizations.
- d. Advocate for regulation to clarify use-by versus Best Before dates.

4. Support Reuse Activities in the Region.

- a. Continue to provide funding to non-profits to help offset garbage tipping fees for unusable donated items.
- b. Continue to support and promote donations to reuse establishments.
- c. Promote reuse events, such as community swaps.

- d. Support renting and sharing programs, such as tool libraries, repair cafes and sewing hubs.
- e. Support enhancement of materials exchange activities, such as online swaps.
- f. Investigate free store at Hartland landfill or other facilities.

5. Support Local Governments in Working Towards Zero Waste and a Circular Economy.

- a. Develop model bylaws and best practices for use by municipalities and electoral areas.
- b. Develop model language for OCPs and Economic Development strategies.
- c. Work with municipalities and electoral areas to identify the need for solid waste facilities and increase zoning for waste management activities.
- d. Use policy tools to enable local recycling infrastructure.
- e. Continue user pay refuse collection.
- f. Investigate use of clear bags for garbage or recyclables collection, where practicable (e.g. at events).

6. Continue and Enhance Policy Development.

- a. Develop model procurement policies.
- b. Continue to expand material bans when viable alternatives exist.
- c. Investigate licensing waste management facilities in the region.
- d. Investigate regulatory mechanisms to manage municipal solid waste and recyclable materials in the region.
- e. Work with municipalities and electoral areas to investigate open burning restrictions.

4.2 Recycling

7. Increase Residential Diversion.

- a. Continue to promote diversion of recyclable materials.
- b. Support depot diversion efforts in the region for non-curbside materials.
- c. Encourage local markets for recyclables.
- d. Develop a guide to support event recycling.

8. Increase Multi-Family Diversion.

- a. Consider allocating resources to support MF recycling, for example, by developing standardized education materials.
- b. Work with municipalities to develop waste source separation requirements.
- c. Develop policy guide for recycling, composting and garbage space and access in multi-family developments.

9. Increase ICI diversion.

- a. Consider allocating resources to increase ICI diversion, for example, a business waste reduction liaison.
- b. Advocate for ICI PPP.
- c. Create a business waste reduction toolkit, including education about how to apply Circular Economy principles.
- d. Encourage municipalities to require waste management plans with business licenses.
- e. Develop policy guide for ICI space and access requirements.
- f. Work with municipalities to develop ICI waste source separation requirements.
- g. Investigate shifting disposal ban enforcement to generator, rather than hauler.

10. Support Existing and New EPR Programs.

- a. Advocate to the province to expand EPR programs.

Note: The Province is currently conducting an EPR gap analysis and considering adding new materials.
- b. Collaborate with stewards to increase consumer awareness about EPR programs.
- c. Advocate for increased return-to-retailer opportunities.
- d. Create a CRD/EPR “interface plan” to define the role of stewards in solid waste management.
- e. Advocate federally to standardize EPR programs across Canada.

11. Increase Organics Diversion and Processing Capacity.

- a. Continue to promote organics waste diversion.
- b. Investigate developing a resilient local organics processing infrastructure.

Note: The CRD Board has directed staff to issue a RFEOI for an in-region or near-region organics processing facility.

- c. Investigate options to standardize organics collection services.
- d. Support compost markets by purchasing back materials.
- e. Develop guide for use of compostable products and packaging to reduce the impacts of compostable plastics in processing.

4.3 Recovery & Residuals Management

12. Maximize Capture and Beneficial Use of Landfill Gas.

- a. Continue to capture landfill gas for beneficial use.

Note: The CRD Board has directed staff to investigate landfill gas utilization options.

- b. Investigate collaboration opportunities with educational institutions to research new beneficial uses and technologies.

13. Optimize Hartland Disposal Capacity.

- a. Review ban enforcement levels, subject to recycling market conditions.
- b. Continue to operate Hartland landfill using best practices.
- c. Develop design options to maximize disposal capacity until 2100 and beyond.

Note: A new fill plan is in development. Design and aggregate management options could extend landfill life significantly.

- d. Continue to conduct research and investigate emerging technologies.

4.4 Financial Management

14. Develop a Sustainable Financial Model.

TBD – pending CRD Board decisions on concurrent projects and results of evaluation of strategy options.

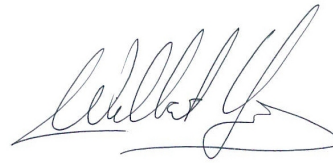
5.0 CLOSURE

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

Respectfully submitted,
Tetra Tech Canada Inc.



Prepared by:
Melissa Nielsen, E.I.T.
Project Engineer-in-Training
Solid Waste Management Practice
Direct Line: 604.608.8638
Melissa.Nielsen@tetrattech.com



Reviewed by:
Wilbert Yang, P.Eng.
Senior Planning Engineer
Solid Waste Management Practice
Direct Line: 604.608.8648
Wilbert.Yang@tetrattech.com

/tv

APPENDIX A

JANUARY 17, 2019 SWAC MEETING FLIPCHART NOTES ON LONG LIST OF OPTIONS

Solid Waste Advisory Committee – January 17, 2019

Flipchart Notes

CRD Longlist Options

EDUCATION

- We need to provide more detail on current waste management practices while at the same time also look to the future.
- We need a clear definition of circular economy.
- More could be done with the multi-family and ICI sectors.
- Modify K-12 programs to reflect differences between different programs/sectors: ICI versus residential.
- Move from education to behavior change.
- Educate consumers about products and their recycling options.
- Education of citizens is missing, e.g. we need to reach parents, not just children.
- “Wish cycling” education is important; starting with children.
- How can we reach the 10% who don’t care?
- Generational change requires an evolving toolkit.
- We need more environmental assessment/rating tools for various products e.g. how much recycled content a product contains.
- We need to develop contract language to improve environmental performance.

ADVOCACY

- Municipalities and Regional Districts should collaborate on a joint approach and act as a single voice to strengthen the process.
- Advocate to EPR stewards to provide more data, etc.
- The EPR gap analysis by the province is a positive step.
- How can citizens become a voice? Can we collect all concerns and create one voice?

POLICY DEVELOPMENT

- Bans should be based on environmental merit as opposed to economic impacts.
- Some current CR&D policy approaches restrict recycling.
- How can we use policy to address weather impacts such as the recent wind storms on Salt Spring Island, e.g. reduce air pollution through burning regulations, replace slash pile burning with chipping, permaculture?
- Franchising could eliminate smaller companies, may reduce competition.
- Licensing: adds extra financial burden for operators.

- OCP's: the intention is to create language as the CRD is not responsible for OCPs.
- We need policies that are adaptable to address changing technologies.
- Are education, advocacy and policy sufficient for a circular economy?
- Could we frame the whole SWMP in terms of circular economy?
- Licensing may deter new facilities and create overlapping jurisdictions e.g. provincial Organic Matter Recycling Regulation (OMRR) vs. regional district regulations and impacts on neighboring properties.
- Address lack of data: municipalities could require waste management plans when businesses are applying for a business license.

REDUCE/REUSE

- Is there a possibility of a free store at Hartland – e.g. reuse furniture, share shed, redirect reusable items.
- Consider the full life cycle impact of single use items vs multiuse items.
- Educate people about responsible donation of gently used items.
- Look at all alternate uses e.g. for glass.
- Recycling often results in lower quality materials/end uses.
- Are there local reuse options for glass?
- Definition of end use can be a challenge and there is also a challenge what to do with glass.
- How to deal with incidental/small pieces of metal e.g. bits of fencing. Are there enough scrap metal bins within the community?

RECYCLE – INCREASING OVERALL DIVERSION

- Enforcement at generator level is difficult. There are too many generators to inspect. Possibly conduct generator audits.
- Audits of loads may be more realistic; however, many loads contain waste from a number of customers.
- Make it a requirement that generators have bins for banned materials – if they do not, charge a higher rate to pick up or dispose of their garbage.
- Private sector role is different from government. Government should create the landscape to incent private sector investment.
- Proposal to use clear plastic bags like in other jurisdictions.
- Use of clear plastic bags depends on collection method. There are different operational approaches, for example, many collectors use totes. Drivers already do a visual check.
- Allowing use of compostable bags undermines compost industry efforts and affects compost quality.
- Expand waste diversion efforts to the ICI sector – shift the focus from residential.

RECYCLE – PPP

- The multi-family (MF) and industrial, commercial, institutional (ICI) sectors receive service by private sector companies – more education is ok/needed.
- There seems to be a technological gap in handling flexible packaging.
- Educate about the impact of contamination on recyclability of materials.
- Flexible packaging lets producers off the hook. They should design for recycling. We should consider advocacy for better environmental design.
- Local governments (LG) can support local recycling – for example, they can bridge the gap through green procurement practices.
- Federal government funding for plastics recycling is happening.
- Can LG fund infrastructure? Procurement is an option.

RECYCLE – EPR

- What is the definition of producer: first to import into the province.
- Most first import manufacturers/retailers would be outside of CRD; we need to get local stats.
- Advocate for other provinces to adopt the EPR model.
- Increase return to retailer opportunities.
- The Council of Canadian Ministers of the Environment (CCME) already has an action plan for national EPR programs.
- EPR waste categories: what are we looking for? They should be based on cradle to cradle, circular economy principles.
- The Province of BC approves stewardship plans, not the CRD.
- People don't know what materials fall under EPR.

RECYCLE – ORGANICS

- Existing facilities on the island can handle feedstock and need more volume.
- The worksheet should list that the organics facility Request for Expression of Interest (RFEOI) included Salt Spring Island (SSI).
- The challenge is to move finished compost products – municipalities and regional district should take back compost made from their own kitchen scraps and yard waste materials.
- Volume: supply and demand is currently insufficient; however, in the future there may be an oversupply. Require municipalities take back equivalent to what they send in.
- The province has tools/options to increase demand through policy requiring e.g. re-vegetation and highway restoration.
- Large vs. smaller facilities – which is preferable?

- Size of facilities is based on economies of scale.
- Concern that high-volume facilities can cause issues.

RECOVERY

- Use existing education institutions to investigate/research new technologies.
- Go beyond 'monitoring' new technologies as clean wood waste markets exist (Harmac, Catalyst).
- How to get it to market is an issue – the challenge is the cost of diversion.

RESIDUALS MANAGEMENT

- No comments.

CR&D MATERIALS

- How much is there? We need to estimate future CR&D quantities.
- Conduct a capacity analysis, including future trends.
- Volume estimation should be based on future population estimates and projected housing needs.
- Q: What is the intent of a centralized processing facility mentioned in the worksheet? A: The intent of the language is to ensure processing capacity. Comment: We already have facilities.
- The preferred way to deal with CR&D materials is to separate materials at the construction/demolition site. Accepting mixed loads of CR&D at the landfill competes with this approach and undermines separation.

ILLEGAL DUMPING

- We need an educational initiative on consequences of this activity aimed at citizens.
- Keep the landfill open landfill – expand to 7-day week.
- What about a free drop off day?
- Free day creates challenges – haulers get stuck in traffic for hours waiting in line.

APPENDIX B

SAMPLE EVALUATION

Strategy	Technical Feasibility and Effectiveness	Environmental Impact and Benefits	Social Impact	Effect on Waste Disposal	Score	Cost Considerations
<p>3. Support Food Waste Reduction</p> <p>a. Support residential food waste reduction, for example, by continuing Love Food Hate Waste Canada program.</p> <p>b. Support ICI food waste reduction, for example, by encouraging stores to donate edible food.</p> <p>c. Continue to support food recovery organizations.</p> <p>d. Advocate for regulation to clarify Use-By versus Best Before dates.</p>	<ul style="list-style-type: none"> ▪ Nationwide efforts exist to reduce food waste, especially as data on the enormous quantity of food being wasted comes into public view (recent estimates show that more than half of all food in Canada is being wasted).¹ ▪ Research has shown that avoidable household food waste can be reduced by up to 15% with an intensive Love Food Hate Waste campaign.² ▪ Several Canadian retailers (e.g., Save-On Foods and Walmart) have committed to reducing food waste and partners may exist (e.g., FoodMesh Food Recovery Program³) to catalyze food waste reduction in the ICI sector. ▪ Research has shown that restaurants can save up to \$7 in operating costs for every \$1 invested to reduce kitchen food waste, thus providing a powerful incentive to build upon.⁴ ▪ The National Zero Waste Council, a leadership initiative advocating for waste prevention in Canada, advocates regulating for clarity around Best Before dates. Date labelling guidance exists from organizations such as ReFed in the US and WRAP in the UK.⁵ 	<p>12% of the material disposed at Hartland is edible food waste (18,523 tonnes)⁶, and food waste disposed in landfills is a significant source of greenhouse gas emissions. However, much of the landfill gas is currently captured (61.8% in January 2016)⁷ and turned into electricity, and the landfill gas system may be upgraded, which would likely increase the capture rate.</p> <p>Additionally, wasted food embodies significant amounts of wasted resources (energy, water, etc.) that were required to grow, produce, and distribute that food. Reducing the amount of food wasted by one tonne has the equivalent effect on CO₂ emissions as taking one car off the road for a year.⁸</p>	<p>Residents directly benefit financially when they reduce food waste. Estimates of money spent on wasted food per household in Canada range from \$1,100⁸ to nearly \$1,800¹ annually. Strategy 3a directly encourages residents to waste less food, thereby encouraging consumer savings in their food budgets. Strategy 3d may indirectly result in cost savings to residents, as residents will waste less food and money if they understand when an item is truly no longer edible.</p> <p>Local non-profits benefit twofold from this strategy: Strategy 3b encourages local businesses to donate edible food, which results in an influx of food to local charities. Strategy 3c supports food recovery organizations in the region directly.</p>	<p>Edible food waste makes up a large proportion of the materials disposed at Hartland (12%)⁶. One study demonstrated that an intensive Love Food Hate Waste campaign reduced household food waste by up to 15%. With Strategy 3a, similar results in the CRD (a 'best-case scenario') could yield a disposal reduction of approximately 1,400 tonnes (a 1% reduction).</p> <p>ICI food waste reduction (Strategy 3b) could have a more significant impact on tonnage: each year, the ICI sector disposes of over 9,000 tonnes of edible food.</p>	16	<p>This strategy does not require any additional new funding.</p>
Score (High- 5, Medium – 3, Low – 1)	High	High	High	Low		

¹ Second Harvest, 2019 (<https://secondharvest.ca/wp-content/uploads/2019/01/Avoidable-Crisis-of-Food-Waste-The-Roadmap-by-Second-Harvest-and-VCMI.pdf>)

² WRAP UK, 2012 (<http://www.wrap.org.uk/sites/files/wrap/hhfdw-2012-main.pdf.pdf>)

³ Food Mesh (<https://foodmesh.ca/>)

⁴ Champions 12.3 (https://champions123.org/wp-content/uploads/2019/02/Report_The-Business-Case-for-Reducing-Food-Loss-and-Waste_Restaurants.pdf)

⁵ National Zero Waste Council, 2018 (<http://www.nzwc.ca/focus/food/national-food-waste-strategy/Documents/NZWC-FoodLossWasteStrategy.pdf>)

⁶ Capital Regional District, 2016 (<https://www.crd.bc.ca/docs/default-source/recycling-waste-pdf/WasteCompositionStudy2016.pdf?sfvrsn=4>)

⁷ Maura Walker and Associates, Capital Regional District Solid Waste Management Plan Existing Solid Waste Management System, 2018.

⁸ Love Food Hate Waste, 2017 (<https://lovefoodhatewaste.ca/about/food-waste/>)

APPENDIX C

TETRA TECH'S LIMITATIONS ON THE USE OF THIS DOCUMENT

LIMITATIONS ON USE OF THIS DOCUMENT

1.1 USE OF DOCUMENT AND OWNERSHIP

This document pertains to a specific site, a specific development, and a specific scope of work. The document may include plans, drawings, profiles and other supporting documents that collectively constitute the document (the "Professional Document").

The Professional Document is intended for the sole use of TETRA TECH's Client (the "Client") as specifically identified in the TETRA TECH Services Agreement or other Contractual Agreement entered into with the Client (either of which is termed the "Contract" herein). TETRA TECH does not accept any responsibility for the accuracy of any of the data, analyses, recommendations or other contents of the Professional Document when it is used or relied upon by any party other than the Client, unless authorized in writing by TETRA TECH.

Any unauthorized use of the Professional Document is at the sole risk of the user. TETRA TECH accepts no responsibility whatsoever for any loss or damage where such loss or damage is alleged to be or, is in fact, caused by the unauthorized use of the Professional Document.

Where TETRA TECH has expressly authorized the use of the Professional Document by a third party (an "Authorized Party"), consideration for such authorization is the Authorized Party's acceptance of these Limitations on Use of this Document as well as any limitations on liability contained in the Contract with the Client (all of which is collectively termed the "Limitations on Liability"). The Authorized Party should carefully review both these Limitations on Use of this Document and the Contract prior to making any use of the Professional Document. Any use made of the Professional Document by an Authorized Party constitutes the Authorized Party's express acceptance of, and agreement to, the Limitations on Liability.

The Professional Document and any other form or type of data or documents generated by TETRA TECH during the performance of the work are TETRA TECH's professional work product and shall remain the copyright property of TETRA TECH.

The Professional Document is subject to copyright and shall not be reproduced either wholly or in part without the prior, written permission of TETRA TECH. Additional copies of the Document, if required, may be obtained upon request.

1.2 ALTERNATIVE DOCUMENT FORMAT

Where TETRA TECH submits electronic file and/or hard copy versions of the Professional Document or any drawings or other project-related documents and deliverables (collectively termed TETRA TECH's "Instruments of Professional Service"), only the signed and/or sealed versions shall be considered final. The original signed and/or sealed electronic file and/or hard copy version archived by TETRA TECH shall be deemed to be the original. TETRA TECH will archive a protected digital copy of the original signed and/or sealed version for a period of 10 years.

Both electronic file and/or hard copy versions of TETRA TECH's Instruments of Professional Service shall not, under any circumstances, be altered by any party except TETRA TECH. TETRA TECH's Instruments of Professional Service will be used only and exactly as submitted by TETRA TECH.

Electronic files submitted by TETRA TECH have been prepared and submitted using specific software and hardware systems. TETRA TECH makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.

1.3 STANDARD OF CARE

Services performed by TETRA TECH for the Professional Document have been conducted in accordance with the Contract, in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practicing under similar conditions in the jurisdiction in which the services are provided. Professional judgment has been applied in developing the conclusions and/or recommendations provided in this Professional Document. No warranty or guarantee, express or implied, is made concerning the test results, comments, recommendations, or any other portion of the Professional Document.

If any error or omission is detected by the Client or an Authorized Party, the error or omission must be immediately brought to the attention of TETRA TECH.

1.4 DISCLOSURE OF INFORMATION BY CLIENT

The Client acknowledges that it has fully cooperated with TETRA TECH with respect to the provision of all available information on the past, present, and proposed conditions on the site, including historical information respecting the use of the site. The Client further acknowledges that in order for TETRA TECH to properly provide the services contracted for in the Contract, TETRA TECH has relied upon the Client with respect to both the full disclosure and accuracy of any such information.

1.5 INFORMATION PROVIDED TO TETRA TECH BY OTHERS

During the performance of the work and the preparation of this Professional Document, TETRA TECH may have relied on information provided by third parties other than the Client.

While TETRA TECH endeavours to verify the accuracy of such information, TETRA TECH accepts no responsibility for the accuracy or the reliability of such information even where inaccurate or unreliable information impacts any recommendations, design or other deliverables and causes the Client or an Authorized Party loss or damage.

1.6 GENERAL LIMITATIONS OF DOCUMENT

This Professional Document is based solely on the conditions presented and the data available to TETRA TECH at the time the data were collected in the field or gathered from available databases.

The Client, and any Authorized Party, acknowledges that the Professional Document is based on limited data and that the conclusions, opinions, and recommendations contained in the Professional Document are the result of the application of professional judgment to such limited data.

The Professional Document is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site conditions present, or variation in assumed conditions which might form the basis of design or recommendations as outlined in this report, at or on the development proposed as of the date of the Professional Document requires a supplementary exploration, investigation, and assessment.

TETRA TECH is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, investment or development of the property, the decisions on which are the sole responsibility of the Client.