



Notice of Meeting and Meeting Agenda Environmental Services Committee

Wednesday, July 15, 2020

1:30 PM

6th Floor Boardroom
625 Fisgard St.
Victoria, BC V8W 1R7

D. Blackwell (Chair), N. Taylor (Vice Chair), B. Desjardins, L. Helps, M. Hicks, G. Holman, J. Loveday, C. McNeil-Smith, J. Ranns, D. Screech, R. Windsor, C. Plant (Board Chair, ex-officio)

1. Territorial Acknowledgement

2. Approval of Agenda

3. Adoption of Minutes

3.1. [20-424](#) Minutes of the February 19, 2020 Environmental Services Committee

Recommendation: That the minutes of the Environmental Services Committee meeting of February 19, 2020 be adopted as circulated.

Attachments: [Minutes - February 19, 2020](#)

4. Chair's Remarks

5. Presentations/Delegations

5.1.1. [20-434](#) Delegation - Alon Soraya; Representing the South Island Mountain Bike Society: Re: Agenda Item 6.1.: Solid Waste Management Plan - Phase One Engagement and Next Steps

6. Committee Business

6.1. [20-415](#) Solid Waste Management Plan - Phase One Engagement and Next Steps

Recommendation: The Environmental Services Committee recommends to the Capital Regional District Board:
That this report be received for information.

Attachments: [Staff Report: Solid Waste Mgmt Plan - Phase 1 Engagement Next Steps](#)
[Appendix A: SWAC Staff Report](#)

6.2. [20-395](#) Solid Waste Management Plan - Traffic Impact Analysis

Recommendation: The Environmental Services Committee recommends to the Capital Regional District Board:
That the Stantec opinion of probable cost for the Willis point Road truck passing lane and the Bunt and & Associates Hartland Landfill Alternate Access Transportation Impact Analysis be received for information and that no further work be done on a passing lane for Willis Point Road.

Attachments: [Staff Report: Solid Waste Management Plan - Traffic Impact Analysis](#)
[Appendix A: Hartland Alternate Access Analysis - Bunt & Associates](#)
[Appendix B: Willis Pt Rd Truck Passing Lane Class D - Probable Cost \(Stantec\)](#)
[Appendix C: Willis Point Road Truck Passing Lane Concept Drawings](#)
[Appendix D: Hartland Landfill Access Route Profiles and Grades](#)

6.3. [20-392](#) Response to Environmental Resource Management 2019 Progress Report Follow Up Questions

Recommendation: The Environmental Services Committee recommends to the Capital Regional District Board:
That this report be received for information.

Attachments: [Staff Report: Response to ERM 2019 Progress Report](#)
[Appendix A: Extended Producer Resp. Product Mgmt in BC](#)

6.4. [20-390](#) Regional Greenhouse Gas Inventory Study

Recommendation: The Environmental Services Committee recommends to the Capital Regional District Board:
That this report be received for information.

Attachments: [Staff Report: Regional Greenhouse Gas Inventory Study](#)
[Appendix A: CRD 2018 GCP BASOC+ Community GHG Inventory Report](#)
[Appendix B: Energy & GHG Emissions Inventory Report](#)

6.5. [20-412](#) Capital Region Coastal Flood Inundation Mapping Project Update

Recommendation: The Environmental Services Committee recommends to the Capital Regional District Board:
That the results of the Capital Region Coastal Flood Inundation Mapping Project be received for information, be referred to all CRD municipalities, electoral areas and First Nations, and inform future emergency planning efforts.

Attachments: [Staff Report: Capital Region Coastal Flood Inundation Mapping Project Update](#)
[Appendix A: Executive Summary - Coastal Flood Inundation Mapping Project](#)
[Presentation: Capital Region Coastal Flood Inundation Mapping Project](#)

7. Notice(s) of Motion

8. New Business

9. Adjournment

The next meeting is September 16, 2020.

To ensure quorum, please advise Sherri Closson (sclosson@crd.bc.ca) if you or your alternate cannot attend.

Meeting Minutes

Environmental Services Committee

Wednesday, February 19, 2020

1:30 PM

6th Floor Boardroom
625 Fisgard St.
Victoria, BC V8W 1R7

PRESENT:

Directors: D. Blackwell (Chair), N. Taylor (Vice Chair), B. Desjardins, L. Helps, M. Hicks, M. Richardson (for G. Holman), J. Loveday, C. McNeil-Smith, K. Kahakauwila (for J. Ranns), D. Screech, R. Windsor

Staff: L. Hutcheson, General Manager, Parks and Environmental Services; G. Harris, Senior Manager, Environmental Protection; R. Smith, Senior Manager, Environmental Resource Management; E. Gorman, Deputy Corporate Officer; S. Closson, Committee Clerk (Recorder)

Regrets: Board Chair C. Plant (ex-officio)

The meeting was called to order at 1:30 pm.

1. Territorial Acknowledgement

Chair Blackwell provided a Territorial Acknowledgement.

2. Approval of Agenda

MOVED by Director Loveday, **SECONDED** by Director Helps,
That the agenda for the February 19, 2020 Environmental Services Committee meeting be approved.
CARRIED

3. Adoption of Minutes

There were no minutes for adoption.

4. Chair's Remarks

The Chair wished everyone a Happy New Year, as the January meeting was cancelled due to snow, and welcomed everyone to the Committee.

5. Presentations/Delegations

- 5.1. [20-155](#) Delegation - Scott Richardson; Representing the Highlands District Community Association: Re: Agenda Item 6.6.: Millstream Meadows - District of Highlands Correspondence

Scott Richardson spoke to proposed mining site application by OK Industries and District of Highlands Community Association's concerns.

- 5.2. [20-156](#) Delegation - David Mackas; Representing the Highlands District Community Association: Re: Agenda Item 6.6.: Millstream Meadows - District of Highlands Correspondence
- David Mackas spoke to proposed mining site application by OK Industries and District of Highlands Community Association's concerns.

6. Committee Business

- 6.1. [20-050](#) Environmental Services Committee - Terms of Reference
- L. Hutcheson introduced the Terms of Reference.
- MOVED by Director Desjardins, SECONDED by Director Taylor,
That the Terms of Reference for the Environmental Services Committee be approved.
CARRIED**
- 6.2. [19-861](#) 2019-2022 Parks & Environment Service Planning
- L. Hutcheson spoke to the 2019-2022 Parks and Environment Service Planning.
- Discussion ensued on the following:
- greenhouse gas regional inventory 2018
 - solid waste management and targets
 - procurement processes
 - alternative fuel to fossil fuels
- MOVED by Director Windsor, SECONDED by Director Helps,
The Environmental Services Committee receives the report for information.
CARRIED**
- 6.3. [20-049](#) Appointment of Chair - Solid Waste Advisory Committee (verbal)
- MOVED by Director Windsor, SECONDED by Alternate Director Kahakauwila,
That Director Ned Taylor be appointed as Chair of the Solid Waste Advisory Committee.
CARRIED**
- 6.4. [20-105](#) Association of Vancouver Island and Coastal Communities - Special Committee on Solid Waste CRD Representative (verbal)
- MOVED by Director Windsor, SECONDED by Director Taylor,
That Chair Blackwell be appointed as the CRD representative on the Special Committee on Solid Waste for the Association of Vancouver Island and Coastal Communities.
CARRIED**
- 6.5. [20-040](#) Victoria Plaza Hotel - Debris Disposal
- R. Smith spoke to the Victoria Plaza Hotel - Debris Disposal.
- Discussion ensued on regional coordination for disaster related processes.
- MOVED by Director Helps, SECONDED by Director Taylor,**

The Environmental Services Committee recommends to the Capital Regional District Board:

That this report be received for information.

CARRIED

6.6. [20-098](#)

Millstream Meadows - District of Highlands Correspondence

G. Harris spoke to the staff report on the Millstream Meadows remediation site.

Discussion ensued on the following:

- testing for on-site contamination
- risk management
- Provincial government authority
- Highlands request for CRD assistance
- status of government application review

MOVED by Director Helps, **SECONDED** by Director Hicks,
That staff meet with Highlands residents to hear their concerns.

CARRIED

MOVED by Director Helps, **SECONDED** by Director McNeil-Smith,
That the Environmental Services Committee recommends to the CRD Board:
That the report be received for information.

MOVED by Director Desjardins, **SECONDED** by Director Loveday,
That the motion arising be amended to add the words "...and that pending additional information on public consultation to date that the CRD Board Chair write to the Minister of Mines supporting the District of Highlands in their concerns." after the words "That the report be received for information".

CARRIED

OPPOSED: Blackwell, Helps, McNeil-Smith, Screech, Windsor

MOVED by Director Helps, **SECONDED** by Director McNeil-Smith
That the Environmental Services Committee recommends to the CRD Board:
That the report be received for information, and that pending additional information on public consultation to date that the CRD Board Chair write to the Minister of Mines supporting the District of Highlands in their concerns.

CARRIED

OPPOSED: Blackwell, McNeil-Smith, Screech, Windsor

7. Notice(s) of Motion

Notice of Motion: Directors Taylor and Helps: Climate Emergency - CRD Accelerated Response

That staff be directed to report back with options for accelerating the CRD's response to the climate emergency, including consideration of additional investments through the 2021 budget process and options for increasing regional collaboration to reduce GHGs.

8. New Business

There was no new business.

9. Motion to Close the Meeting

9.1. [20-151](#) Motion to Close the Meeting

MOVED by Director McNeil-Smith, **SECONDED** by Director Helps,
That the meeting be closed for Appointments in accordance with Section 90(1)(a)
of the Community Charter.
CARRIED

The meeting was closed at 2:11 pm.

10. Rise and Report

The Committee rose from closed session at 2:12 pm without report.

11. Adjournment

MOVED by Director Windsor, **SECONDED** by Director Taylor,
That the February 19, 2020 Environmental Services Committee meeting be
adjourned at 2:12 pm.
CARRIED

Chair

Recorder



**REPORT TO ENVIRONMENTAL SERVICES COMMITTEE
MEETING OF WEDNESDAY, JULY 15, 2020**

SUBJECT **Solid Waste Management Plan – Phase One Engagement and Next Steps**

ISSUE SUMMARY

To present the results of the first phase of public engagement on the Solid Waste Management Plan (SWMP) and outline next steps.

BACKGROUND

At its July 3, 2020 meeting, the Solid Waste Advisory Committee received the Phase One Public Engagement Summary Report for information (see Appendix A).

The Capital Regional District (CRD) has engaged Judith Cullington & Associates (JCA) to provide communication and consultation services for the SWMP. The public consultation process took place between October 18 and December 1, 2019, and included a media launch event, public open houses, stakeholder meetings and extensive social media outreach. Staff created a dedicated web page where people could sign up for project updates, review background information, and fill out a feedback form. A total of 1,030 responses were received, with 946 respondents completing the form online and 84 people submitting a hard copy. Six email submissions were also received.

CONCLUSION

The provincial Environmental Management Act requires regional districts to develop plans for the management of municipal solid waste and recyclable materials. In the fall of 2019, the CRD conducted the first phase of public consultation to develop a new Solid Waste Management Plan. The results show a high level of support for the proposed waste reduction target; guiding principles, goals and objectives; and strategies. Staff will work with the Solid Waste Advisory Committee to prepare the draft plan, which is expected to go to a second phase of public consultation later this year.

RECOMMENDATION

The Environmental Services Committee recommends to the Capital Regional District Board: That this report be received for information.

Submitted by:	Russ Smith, Senior Manager, Environmental Resource Management
Concurrence:	Larisa Hutcheson, P. Eng., General Manager, Parks & Environmental Services
Concurrence:	Robert Lapham, MCIP, RPP, Chief Administrative Officer

ATTACHMENT(S)

Appendix A: Solid Waste Advisory Committee Staff Report: Solid Waste Management Plan – Phase One Public Engagement Results and Next Steps (June 5, 2020)

**REPORT TO SOLID WASTE ADVISORY COMMITTEE
MEETING OF FRIDAY, JUNE 05, 2020**

SUBJECT **Solid Waste Management Plan - Phase One Public Engagement Results and Next Steps**

ISSUE SUMMARY

To present the results of the first phase of public engagement on the Solid Waste Management Plan (SWMP) and outline next steps.

BACKGROUND

The provincial Environmental Management Act requires regional districts to develop plans for the management of municipal solid waste and recyclable materials. Work on Revision 3 of the Capital Regional District's (CRD) SWMP started in 2012 but was put on hold from 2015 to 2018 to investigate integrated resource management opportunities. In November 2017, the CRD Board directed staff to resume work on the plan. A Solid Waste Advisory Committee (SWAC) was appointed in February 2018.

In October 2018, the Board approved the guiding principles, objectives and goals developed by SWAC for the new plan. In September 2019, the Board reviewed SWAC's proposed strategies and waste reduction target for the SWMP and approved the following motion:

1. *That staff initiate the first round of public consultation on the proposed strategies and targets for the new Solid Waste Management Plan, and*
2. *That staff bring back a report on a high level cost estimate of a passing lane on the steep 1.5 km section of Willis Pt. Rd. adjacent to Hartland Landfill*

The CRD has engaged Judith Cullington & Associates (JCA) to provide communication and consultation services for the SWMP. The public consultation process took place between October 18, 2019 and December 1, 2019, and included a media launch event, public open houses, stakeholder meetings and extensive social media outreach. Staff created a dedicated web page where people could sign up for project updates, review background information, and fill out a feedback form. A total of 1,030 responses were received, with 946 respondents completing the form online and 84 people submitting a hard copy. Six email submissions were also received.

Appendix A provides the Executive Summary of JCA's Phase 1 Public Engagement Summary Report. The feedback received indicated that there was a high level of support for the three plan elements: target and timelines; guiding principles, goals and objectives; and strategies and actions.

Appendix B provides the full Public Engagement Summary Report with detailed information on the level of support for each plan element component and a listing of all comments. The vast majority of respondents were residents, with only a few identifying themselves as businesses. CRD staff plan to build on the stakeholder outreach conducted, and initiate direct conversations with the business sector over the next couple of months. A parallel engagement process with First

Solid Waste Advisory Committee – June 5, 2020
Solid Waste Management Plan - Phase One Public Engagement Results and Next Steps 2

Nations was conducted by CRD First Nations Relations staff and Appendix C provides a summary of those activities. There was extensive engagement related to solid waste management in 2019 with local area First Nations, but limited uptake on the development of the plan.

Many respondents commented on the importance of waste reduction and reuse and the role of consumer responsibility. They expressed support for more education, and an interest in local solutions. Interest in recycling was high, with requests for convenient, accessible service, and concern about what happens to recyclables. A number of respondents indicated that multi-family and business recycling could be improved and identified the need for more corporate and producer responsibility. There was support for landfill gas utilization and recognition of the need for more landfill space with a preference for reducing waste instead.

The SWMP is a strategic planning document that provides oversight of how solid waste is managed in the region. Since the province mandated regional districts to develop these plans, roles and responsibilities have shifted significantly. Many respondents did not seem to have a clear understanding of the regulatory powers of various levels of government or the role of producers for extended producer responsibility. They asked for specific and actionable strategies that are predominantly outside the authority and mandate of the CRD. CRD staff will produce additional educational materials to clarify roles and responsibilities.

Respondents also asked for additional measures and timelines to track the progress of goals and strategies. There was a lack of understanding how the waste reduction target was calculated. Many commented that their personal household garbage was already significantly lower than the 250 kg per capita target. The per capita disposal rate is a provincial standard that measures the total amount of garbage disposed by all sectors. The residential sector in the capital region contributes about 25% to the overall waste stream. Staff will provide more information about the target in their educational materials and work with SWAC to review additional sector and material specific targets.

The following specific stakeholder topics were identified:

1. *Mountain Bike Trails*: The CRD's Environmental Resource Management and Parks staff met with representatives from the South Island Mountain Bike Society, went for a bike tour of the impacted mountain bike trails and collaborated with the Society to organize an open house for the mountain bike community at Hartland Learning Centre. Fifty-two respondents provided 85 comments regarding impacts on mountain biking and other recreational activities. Some opposed any expansion of the landfill within the landfill property, with the majority wanting to ensure that closed trails would be replaced by new ones. CRD staff will continue to work with the mountain bike park users.
2. *Willis Point Road Access*: CRD staff attended a community meeting at the Willis Point Community Hall and received 120 comments from 73 respondents via the feedback form. The issue of largest concern was traffic, followed by potential environmental and recreational impacts of the landfill footprint expansion. CRD staff are currently conducting a traffic impact analysis study and will report on the results in a future report.
3. *Cruise Ship Waste*: A significant number of respondents (90) commented on the acceptance of cruise ship waste with comments ranging from refusing all cruise ship waste to increased recycling requirements for the ships to charging a higher tipping fee for this waste.

Solid Waste Advisory Committee – June 5, 2020
Solid Waste Management Plan - Phase One Public Engagement Results and Next Steps 3

4. *Human/Wildlife Conflicts:* The Coexisting with Carnivores Alliance asks to include the reduction of human/wildlife conflicts as an education and awareness opportunity in the SWMP. Similar provisions have been made in other plans in the province. This will be reviewed by SWAC as part of the development of the draft plan.

Over the next months, staff will work with SWAC to prepare the draft SWMP, which will consider all input provided during the first phase of the engagement process. It is anticipated that the draft plan will be presented to the Environmental Services Committee and CRD Board in July of 2020 for a second round of public consultation in early fall 2020.

CONCLUSION

The provincial Environmental Management Act requires regional districts to develop plans for the management of municipal solid waste and recyclable materials. In the fall of 2019, the CRD conducted a first phase of public consultation to develop a new Solid Waste Management Plan. The results show a high level of support for the proposed waste reduction target; guiding principles, goals and objectives; and strategies. Staff will work with the Solid Waste Advisory Committee to prepare the draft plan which is expected to go to a second phase of public consultation later this year.

RECOMMENDATION

That the Solid Waste Advisory Committee recommend to the Environmental Services Committee that this report be received for information.

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

ATTACHMENTS

- Appendix A: Executive Summary Public Engagement Summary Report – Judith Cullington & Associates
Appendix B: Public Engagement Summary Report Phase 1 - Judith Cullington & Associates
Appendix C: First Nations Engagement Executive Summary

Executive Summary

The Capital Regional District (CRD) is developing a new Solid Waste Management Plan (SWMP)—the plan that guides how the region will manage solid waste in the coming years. Solid waste includes recyclables, compostable materials and garbage from homes, businesses, institutions, and construction and demolition sites.

Solid waste management planning is a regional district responsibility, guided by the provincial *Environmental Management Act* and the provincial [Guide to Solid Waste Management Planning](#). Public engagement is an important aspect of the development of a SWMP.

In October 2018, the CRD Board approved guiding principles, goals and objectives for the new plan. In September 2019, the Board approved a waste reduction target and 15 proposed strategies with associated actions and directed staff to conduct a first round of public consultation.

Public engagement

The public engagement process was conducted between October 18 and December 1, 2019 and included a media launch event, public open houses, stakeholder meetings, social media outreach and background materials. The CRD created a dedicated web page at www.crd.bc.ca/rethinkwaste where people could sign up for project updates, review background materials and fill out a feedback form. Hard copy feedback forms were also available at open houses. A few submissions were received by email. Participation highlights include:

Number of open houses/meetings	21
Unique webpage views	3,841
Social media reach	19,378*
Social media engagement	330**

*Facebook reach: 13,469 + Twitter followers: 5,909

**Facebook Likes & Shares: 210 + Facebook comments: 57 + Twitter Likes, retweets, replies, clicks: 63

Participants

More than 1,000 feedback forms were received, either online or in hard copy. More than half the respondents identified that they lived in either Victoria or Saanich, and almost all identified themselves as residents (rather than business or industry).

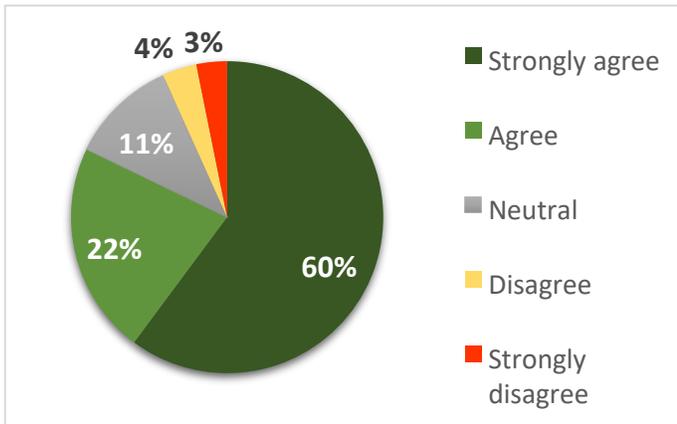
Results

Participants were given the opportunity to indicate their level of support and provide feedback on three plan elements: target and timelines; guiding principles, goals and objectives; and strategies and actions. Respondents also had the option of providing general comments. All feedback and comments were sorted and themed under the above three topics.

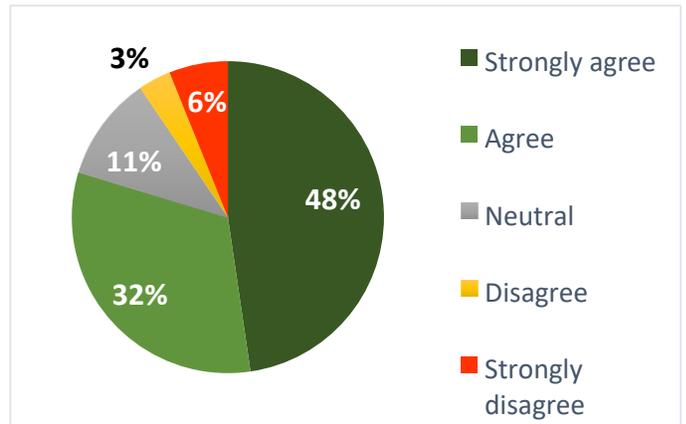
Respondents seemed to have a varied level of understanding regarding how the target was expressed, some of the terms used during the consultation (e.g. residuals, circular economy, extended producer programs), and aspects of waste management within the CRD's mandate.

Overall, there was a high level of support for all plan elements.

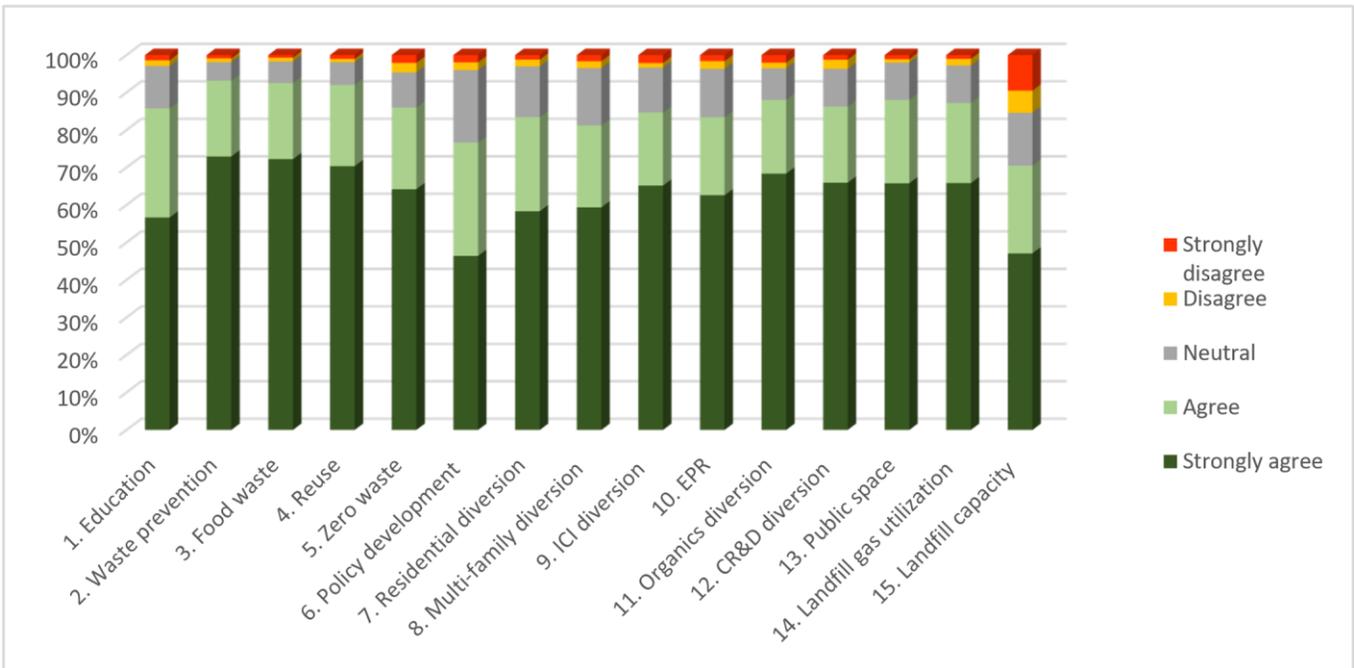
*Level of support for proposed target
(% of respondents)*



*Level of support for proposed principles, goals and objectives
(% of respondents)*



Level of support for proposed strategies (% of respondents)



The Consultation Report includes an overview of the responses and suggestions made. Many of the comments and suggestions are beyond the scope of the CRD mandate in relation to solid waste; however, all have been included as they provide a more complete picture of the public’s desires in relation to waste management in the region. An attachment includes the complete text of all comments received.

All the information gathered during this first phase of consultation provides important input for consideration during the development of the draft Solid Waste Management Plan.

An aerial photograph of a waste management facility, likely a transfer station or recycling center. The facility features several large green and blue recycling bins, a paved area with various vehicles including trucks and cars, and a building with a green roof. The facility is surrounded by dense evergreen forests and a road with a roundabout. In the background, there are rolling hills and mountains under a clear sky.

Capital Regional District Solid Waste Management Plan

Public Engagement Summary Report Phase 1: Target, Principles, Goals, Objectives, Strategies and Actions

February 2020

Front cover image: Capital Regional District

Executive Summary

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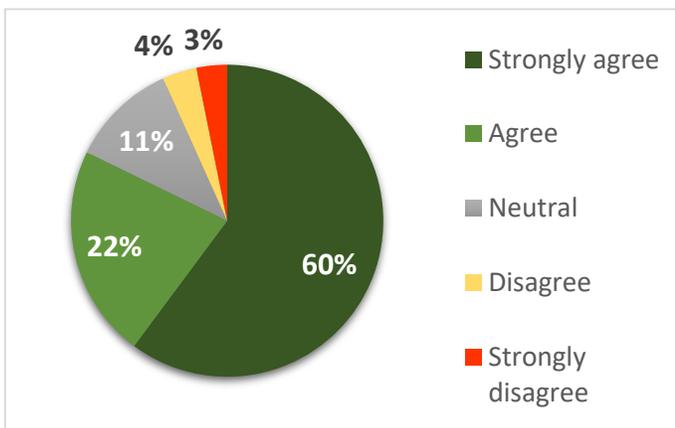
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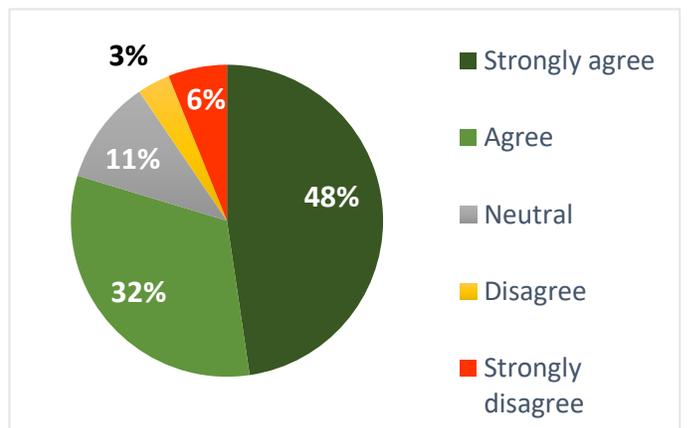
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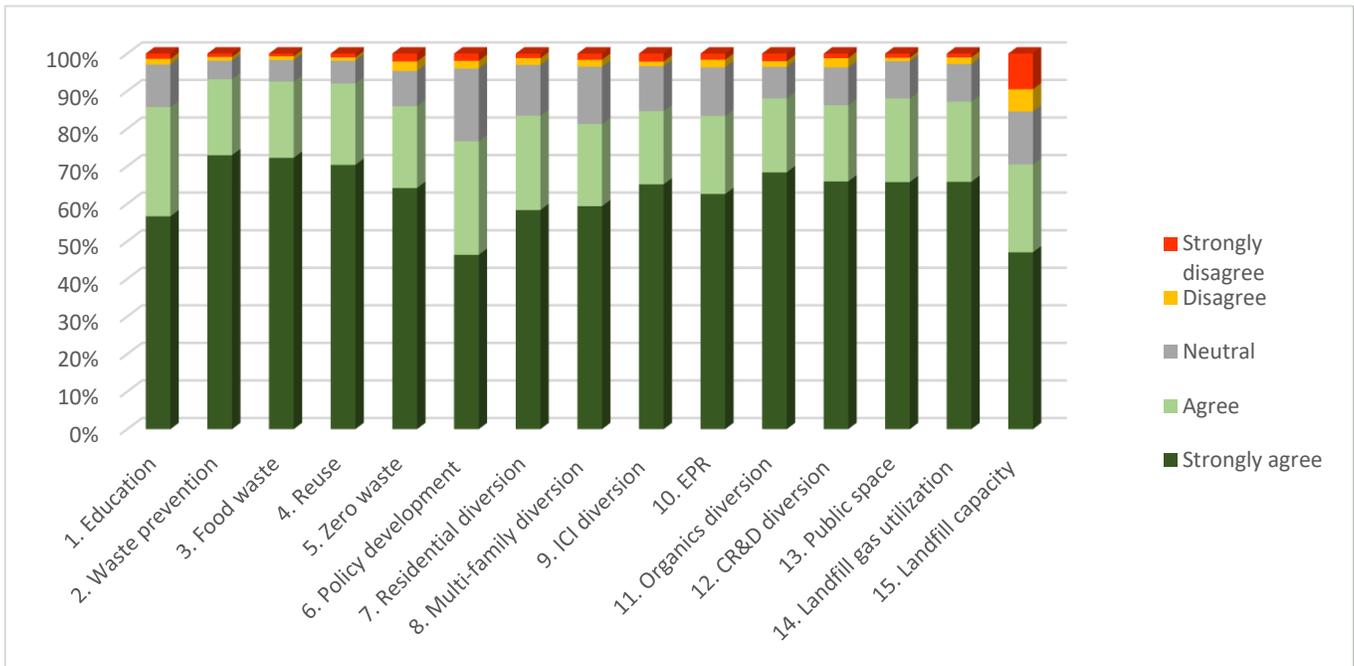
*Level of support for proposed target
(% of respondents)*



*Level of support for proposed principles, goals and objectives
(% of respondents)*



Level of support for proposed strategies (% of respondents)



The Consultation Report includes an overview of the responses and suggestions made. Many of the comments and suggestions are beyond the scope of the CRD mandate in relation to solid waste; however, all have been included as they provide a more complete picture of the public’s desires in relation to waste management in the region. An attachment includes the complete text of all comments received.

All the information gathered during this first phase of consultation provides important input for consideration during the development of the draft Solid Waste Management Plan.

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1. Introduction

The Capital Regional District (CRD) is developing a new Solid Waste Management Plan (SWMP)—the plan that guides how the region will manage solid waste in the coming years. Solid waste includes recyclables, compostable material and garbage from homes, businesses, institutions, and construction and demolition sites.

Solid Waste Management Planning is a regional district responsibility, guided by the provincial *Environmental Management Act* and the [Guide to Solid Waste Management Planning](#). Public engagement is an important aspect of the development of a SWMP.

The CRD’s first SWMP was approved by the Province in 1989, updated in 1991 and 1995, and has had several amendments since then. The development of this new SWMP began in 2012 but was put on hold in 2015 to investigate integrated resource management opportunities. In 2018, the work was restarted with the assistance of a new Solid Waste Advisory Committee (SWAC) (Attachment 1).

The CRD’s SWMP guiding principles, goals and objectives were approved by the Board in October 2018 and provide a framework for proposed strategies and related consultations. SWAC worked with a consultant (Tetra Tech Ltd.) to review waste management options. This led to a proposed waste reduction target and 15 proposed strategies with associated actions to achieve this.

Public engagement took place during October and November 2019. A parallel, consultation took place with local First Nations communities and is the subject of a separate report.

This report provides a summary of the first round of public engagement. Information from this engagement will be used in the development of a draft Plan, which will be the subject of a second round of public engagement.

Figure 1: Consultation process



2. Public and Stakeholder Engagement Process

The engagement process provided the public and stakeholders with an opportunity to review and comment on the proposed target, principles, goals, objectives, and strategies.

Promotion

The public and stakeholders were made aware of the opportunity to provide input through a variety of promotional materials, including:

- ♦ Paid advertising in the Times Colonist, Black Press newspapers, local radio stations, Used Victoria, Salt Spring Island Exchange, and Facebook
- ♦ Social media (Facebook and Twitter)
- ♦ Promotional bookmark (directing people to the website)
- ♦ Listings in online event calendars
- ♦ Notifications in the CRD Climate Action newsletter, via the Coast Waste Management Association information updates, and information on the CRD Recollect app

Attachment 2 provides details and samples of the promotional materials.

Stakeholder outreach

Outreach included emails, letters, presentations, meetings and open houses:

- ♦ A media event, which resulted in some print and radio coverage
- ♦ Email to more than 200 stakeholders, encouraging them to share this information with their networks
- ♦ Letters to municipal Chief Administrative Officers, neighbouring regional districts, two provincial ministries, Islands Trust, and Island Health
- ♦ Staff report/presentation to the Electoral Area Services Committee
- ♦ Presentations to Metchosin Council, View Royal Committee-of-the-Whole, Port Renfrew Local Services Commission, Southern Gulf Islands Recycling Coalition, and Coexisting with Carnivores Alliance
- ♦ Meetings with the Local Government Solid Waste Liaison Group, Solid Waste Industry Liaison Group, Non-Profit Recyclers Group, and South Island Mountain Bike Society
- ♦ Open houses at various locations around the region (including the Gulf Islands), attracting over 350 attendees

Attachment 3 provides details about the outreach activities and media coverage.

Background information

Background information on the SWMP proposals was provided through:

- ♦ A dedicated website (www.crd.bc.ca/rethinkwaste) with links to an online feedback form, open house details and the ability to subscribe for project updates
- ♦ Four backgrounders (available online and in print) providing information on the proposed target, principles, goals, objectives, strategies and actions
- ♦ Open house display boards

Attachment 4 provides examples and links.

Results

Almost all feedback was received through a feedback form (Attachment 5). There were 946 feedback forms completed online and 84 people filled out a hard copy. Six emails were received.

Verbal comments from the open houses and meetings and comments on social media were not tracked as part of the formal feedback.

Demographics

More than half the respondents live in Victoria or Saanich, and most live in single-family residences (Figures 2 and 3). Almost all were responding as a resident (Figure 4).

Victoria	363	Sooke	18
Saanich	267	View Royal	18
Southern Gulf Islands	52	Colwood	16
Juan de Fuca	50	Metchosin	9
Central Saanich	46	Beecher Bay First Nation	1
Highlands	37	Esquimalt Nation	1
Esquimalt	31	Pauquachin First Nation	1
Oak Bay	27	Songhees Nation	1
Langford	26	Tsartlip First Nation	1
North Saanich	25	Tsawout First Nation	1
Sidney	22	Not provided	17
		Total	1,030

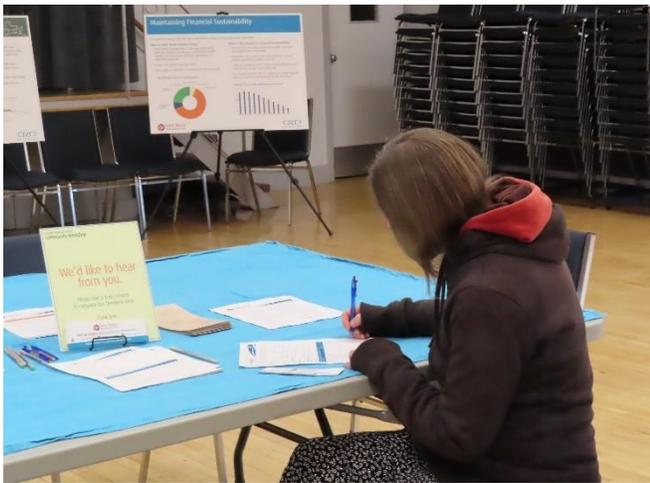
Figure 3: Number of respondents by dwelling type

Single-family home	722
Multi-family home	267
Other	8
Not provided	33
	1,030

Figure 4: Number of respondents by respondent type

Resident	987
Business	14
Non-government organization	8
Local government	2
School	1
Other	3
N/A	15
	1,030

Figure 5: Images from open houses



3. Summary of Comments

Over 1,000 feedback forms were completed, many including detailed comments for consideration. This section provides a high-level summary of the types of comments received, together with some representative quotes from respondents and suggestions for consideration in the Draft Solid Waste Management Plan. Attachment 6 provides a complete list of all comments received via the feedback form and emails, which have been themed and sorted for analysis and ease of summary.

The feedback form responses are not statistically valid, as they only include input from those who were informed about and chose to participate in the engagement process. It is not a representative sample of the community; however, it provides valuable insights and ideas from a great many individuals.

Some of the comments and suggestions are outside CRD's mandate to implement, but have been included for completeness. Quotes (shown in blue) are indicative of the comments and suggestions received.

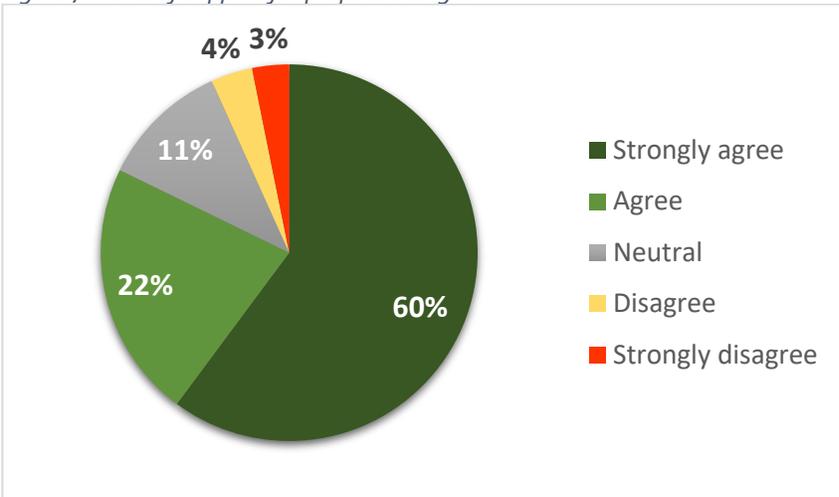
3.1. Proposed Target

In 2018, waste disposal at Hartland (from residential, business, industrial, construction and all other sources) averaged 380 kg per person. The proposed target is to reduce this by at least one-third, to an average of 250 kg per person, by 2030.

Figure 6: Proposed target



Figure 7: Level of support for proposed target



What we heard

Explain how the disposal rate target is calculated

- ◆ There should be more context for the target figure. Does this include all sources or just residential disposal? How was this amount measured, and what is the breakdown of disposal from various sources?
- ◆ Many commented that their personal household garbage was already far lower than the 250 kg per person target figure.

The target needs to be more aggressive in a shorter timeframe

- ◆ More than 100 respondents commented that they felt the target was too low, and/or the timeline too long.
- ◆ Some proposed a reduction of one-half, with a future goal of zero waste.
- ◆ Even if per person disposal decreases, this will be offset by the growing regional population.

The target is appropriate

- ◆ Many felt this was an appropriate target, even if ambitious.

The target may be unachievable

- ◆ A few respondents felt the target was unachievable or unrealistic.
- ◆ There were concerns that waste not going to Hartland would end up dumped by the roadside.
- ◆ There were concerns that meeting the target would result in tax increases.

Achieving the target will require support from many sources

- ◆ Support from others—including manufacturers, food industry, construction industry, retailers, multi-family buildings, and other levels of government—will be needed to achieve reductions.
- ◆ Make it very simple to recycle in order to meet the target.

Ideas and suggestions

- ◆ Interim targets should be identified to track progress towards the 2030 target.
- ◆ Provide information on the sources of waste going to the landfill.
- ◆ Set a per-person target for household waste as well.

" Even a 33% reduction is too modest, given how wasteful our society is.

" Would like to see a stronger target!

" The sooner the better. These strategies need to be implemented now.

" Ambitious target but hopefully it will work.

" Let's be ambitious! We can be leaders in the country.

" I would rather see a smaller target by 2022 and then increments from there.

" Unlikely to reach a target like that.

" I support the goal to reduce what's sent to Hartland, as long as it doesn't encourage people to dump their garbage elsewhere.

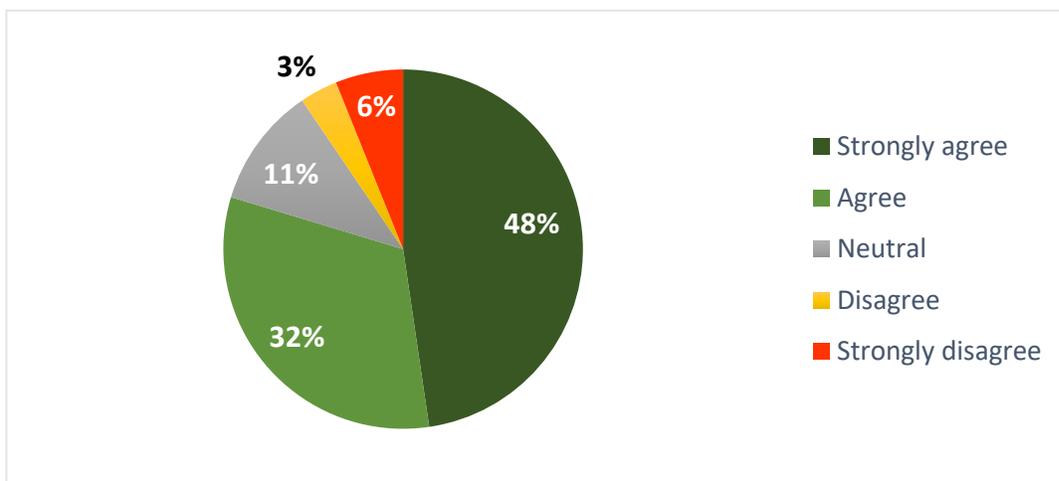
3.2. Proposed Principles, Goals and Objectives

The proposed principles, goals and objectives and level of support are shown below.

Figure 8: Proposed principles, goals and objectives



Figure 9: Level of support for principles, goals and objectives



What we heard

General support for the principles, goals and objectives

- ♦ Many respondents expressed support for the effort to reduce waste, and the proposed principles, goals and objectives.
- ♦ Expand the 3Rs to include others, most notably Refuse.
- ♦ Avoid being too bureaucratic; goals should serve the public.
- ♦ Increase efficiency and avoid tax increases.
- ♦ Commit to greater inter-governmental cooperation.

The principles, goals and objectives need to be more specific and stringent

- ♦ Wording is too vague; needs detail to be meaningful.
- ♦ Language should be more action-oriented and measurable.
- ♦ Some terms are confusing (e.g., “level the playing field”)

" All common sense reasonable and good

" Anything that can be done to reduce waste should be explored.

" Why settle for just surpassing the provincial target, take a leading position and set your own goal beyond this. What can you REALLY achieve if you stretch?

" While I support the principles, goals and objectives, these are high level and vague. I am pleased to see you get into more detail with actions.

" The goals are not specific enough. Most should specify a measurable target. The "strategies" or general principles are mainly motherhood statements - it would be difficult to argue against them.

3.3. Proposed Strategies and Actions

Fifteen proposed strategies, each with a series of supporting actions, were presented for review and comment (see Attachment 4 for a full listing including actions).

Figure 10: Proposed strategies

Strategies		
REDUCTION AND REUSE	RECYCLING	RECOVERY AND RESIDUALS MANAGEMENT
1. Continue and Enhance Education Programs	7. Increase Residential Diversion	14. Optimize Landfill Gas Management
2. Encourage Waste Prevention	8. Increase Multi-Family Diversion	15. Enhance Hartland Disposal Capacity
3. Support Reduction of Avoidable Food Waste	9. Increase Industrial, Commercial and Institutional Diversion	
4. Support Reuse Activities in the Region	10. Support Existing and New Extended Producer Responsibility Programs	
5. Support Local Governments in Working Towards Zero Waste and a Circular Economy	11. Increase Organics Diversion and Processing Capacity	
6. Continue and Enhance Policy Development	12. Increase Construction, Renovation, and Demolition Material Diversion	
	13. Encourage Proper Public Space Waste Management Activities	

General Comments

The strategies need to be more specific and actionable

- ◆ The proposed strategies are too vague and lack sufficient detail and substance to be effective.
- ◆ Words such as “promote” and “encourage” are too soft, when real action is required.
- ◆ Information should be in plain English (avoiding jargon like “diversion,” “residuals” and “circular economy.”)
- ◆ The impacts of implementation should be identified
- ◆ The ideas are good, but details and actual implementation are critical.

Identify and set priorities for sectors and materials

- ◆ Identify the greatest waste producers and focus effort on these groups (e.g., industry, construction).
- ◆ Identify the materials that could most easily be diverted (e.g., organics and paper) and focus on these.
- ◆ Place primary responsibility on producers.
- ◆ Place greater emphasis on “reduce” (even more than on “reuse” and “recycle”).

Ensure that implementation is affordable and costs are transparent

- ♦ There should not be increased costs to taxpayers.
- ♦ Concern was raised about the overall cost of implementation, and the need to make clear what each strategy will cost

Create energy from waste

- ♦ Explore waste-to-energy options such as incineration or gasification. This would also avoid the need to expand the landfill.

Recognize the climate impacts of solid waste decisions

- ♦ Include the climate implications of proposed actions and aim for carbon neutrality.
- ♦ Consider the carbon footprint of people driving to Hartland.
- ♦ Manage materials in-region to avoid the carbon footprint of sending them elsewhere.

Provide more enforcement

- ♦ Provide details on how enforcement will occur.

Rebuild trust and transparency about what happens to recyclables

- ♦ There is concern that materials put into recycling are not in fact being recycled, but end up in the landfill or become waste piles in other countries.
- ♦ Some reported that they no longer bother to recycle, as they feel it is wasted effort.
- ♦ Create an audited and transparent process, so there is confidence knowing where the recycled materials end up, and that they are being put to a productive end use.

Lead by example

- ♦ CRD corporate waste management actions should “walk the talk.”

Improve waste management systems

- ♦ Provide more frequent (weekly) organics pick up and less frequent (bi-weekly) garbage pick-up.
- ♦ Provide hazardous waste collection (noted particularly in regard to the Southern Gulf Islands).
- ♦ Manage the waste collection system to minimize/avoid conflict with wildlife
- ♦ Standardize the garbage/organics/yard waste collection services across the CRD to reduce confusion.
- ♦ Standardize recycling opportunities (the same for single family, multi-family, businesses).

Recognize that much of the implementation is beyond CRD's control

- ♦ Many of the actions are outside CRD's control, notably manufacturers and the ability to influence packaging.

Look at best practices in other jurisdictions

- ♦ Consider best practices from other areas (e.g. Sweden, Edmonton).

- " *I support all these actions.*
- " *You are too polite. Forget the "encourage and support" – just do it!*
- " *The plans are vague and do not include detailed actions on implementation.*
- " *All sounds fine, the devil is in the implementation details.*
- " *Stronger focus on reduce over reuse and recycle.*
- " *Reduce Reuse Recycle ... should be expanded to include at a minimum Refuse and Recover ... and even Upcycle.*
- " *I strongly support reduction of waste at source, in every way possible. We should not have to be expanding the dump space if we followed must stricter guidelines.*
- " *Be clearer on how you are going to accomplish all your strategies.*
- " *I keep hearing about how much of the stuff put out for recycling ends up in the landfill anyway, so more factual information should be put out, so I don't feel like I'm wasting my time sorting and washing.*
- " *We need better feedback to confirm recyclables are actually being recycled. Give name and location of facilities. What are they making out of recyclables? How do we know stuff we recycle isn't just being burned or sent out of Canada?*
- " *A bigger issue is perhaps beyond the CRD's ability to implement but which they could give voice to on behalf of residents. This is the whole cycle of manufacturing, marketing and use of virtually all the things we consume.*
- " *Policies should consider not only the environmental impact, but the costs they impose on businesses and consumers.*
- " *Please make good data available to the public.*
- " *The total carbon footprint and what is going on outside Hartland must be taken into account.*
- " *Without enforcement will be a waste of taxpayer money.*

Ideas and suggestions

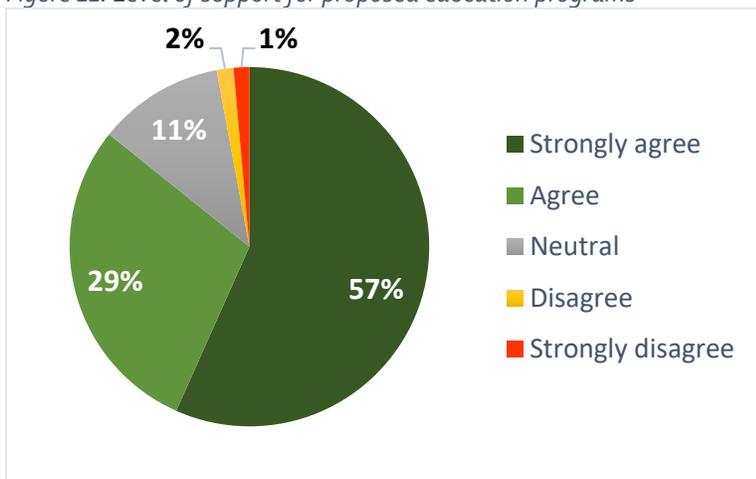
- ♦ Provide incentives to encourage the "right" behaviour, such as rebates, awards, contests and tax breaks.
- ♦ Waste management trucks should switch to electric vehicles.

Strategy 1: Continue and enhance education programs

- *Ensure up-to-date education resources*
- *Use a variety of strategies to effect behaviour change*
- *Expand education to multi-family and business sector*
- *Enhance K-12 school programs*
- *Collaborate with stakeholders on education*
- *Continue supporting recognition programs*
- *Consult with residents, as appropriate*



Figure 11: Level of support for proposed education programs



What we heard

Provide clear information and frequent updates

- ♦ People want to “do the right thing” and make sure they are recycling appropriately. However, many are confused (e.g., changing rules for glass). There is a need for clear information that reaches all residents.
- ♦ There should be frequent reminders and updates. People forget, people move, and the information keeps changing.

- ♦ It can be very hard to know what product goes into which bin (for example, what about products with mixed materials, what is “soft” plastic or “flexible packaging”, whether to include lids?)
- ♦ Provide good information on sorting plastics (this is very confusing).
- ♦ Provide clear information on how to prepare materials for recycling.
- ♦ People should be made aware of the impacts of “poor behaviour,” with images.
- ♦ Provide education for those new to the region (e.g., university students).
- ♦ Terminology on online sites is inconsistent (e.g., between MyRecyclopedia and Recycling Council), information can be hard to interpret.

Educate to support behaviour changes

- ♦ Some advocated more information through social media; others cautioned not to rely solely on this.
- ♦ Provide feedback to let people know how they are doing.
- ♦ Provide information on the economic impacts of not reducing waste, e.g., fast fashions, impacts on taxation.

Work with schools

- ♦ Provide programs for school children (all age-groups), including ways to pack waste-free lunches, education on zero waste.

" Education is needed to bring the citizens up to speed on what should be prevented, and how materials should be separated.

" CRD needs to actively engage schools to integrate compost and recycling .

Ideas and suggestions

- ♦ Put clear information (e.g., stickers) on garbage/recycle/compost bins to show what goes where.
- ♦ Create Public Service Announcements using local sports teams (e.g., Victoria Royals) and advertise on buses/bus shelters, at JumboTron.
- ♦ Use the principles of nudging¹ and create social, fun and competitive events to encourage waste reduction.
- ♦ Use TV infomercials.
- ♦ Challenge UVic Engineering students to find creative ways to implement recycling.

¹ Richard Thaler.

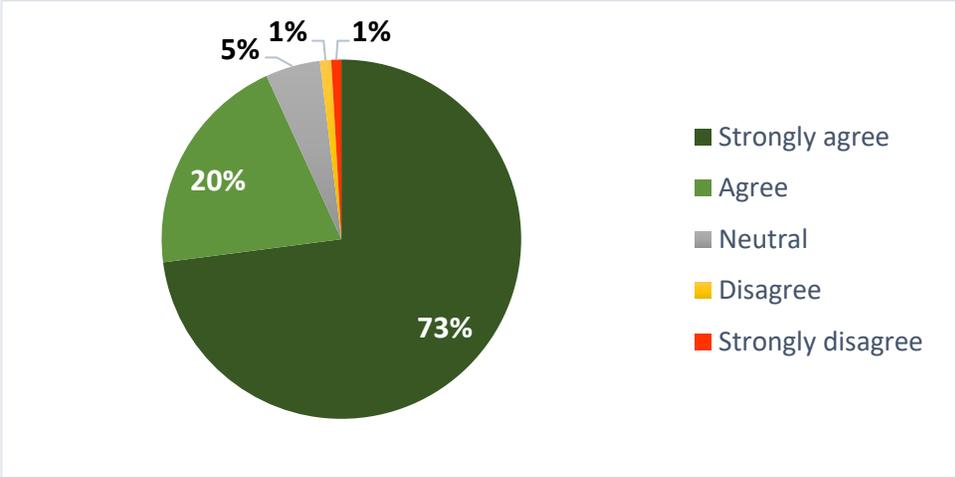
- ◆ Start a Speakers Bureau, with a small budget to pay for volunteer training and materials.
- ◆ Provide opportunities for residents to share their ideas with the CRD.

Strategy #2: Encourage waste prevention

- *Promote less consumption*
- *Establish a new waste reduction grant program*
- *Support single-use item reduction efforts*
- *Promote sustainable purchasing options*
- *Advocate to limit single-use items*
- *Advocate for sustainable product design*



Figure 12: Level of support for encouraging waste prevention



What we heard

Emphasize “reduce” over “reuse and recycle”

- ◆ “Refuse” should be the first of the Rs.

Promote reduced consumption and greater consumer responsibility

- ♦ As a society, we need to focus less on consumerism, or we won't reduce waste.

Reduce or ban single use items

- ♦ Implement bans on single-use plastics (bags, straws, etc.) and use of Styrofoam trays for meat.
- ♦ Take-out food and drink containers should be clearly labelled so consumers know how to recycle them properly.

Support packaging-free purchase options

- ♦ Support shopping choices that are packaging-free (or at least use minimal and recyclable packaging).
- ♦ Encourage and incentivize stores to allow people to bring their own refillable containers for bulk goods; discourage wrapping fruit and vegetables in plastic.
- ♦ Create penalties for excess packaging.

Advocate for more sustainable design

- ♦ Respondents recognized that less/more sustainable packaging is beyond the CRD's ability to control—this needs to be done by manufacturers.
- ♦ Ban the use of non-recyclable packaging (e.g., shipping envelopes made from bubble wrap with a paper covering).
- ♦ Require manufacturers to include recycling symbol on all plastics.

Provide incentives for waste reduction

- ♦ Create incentives such as rebates for participating in waste reduction projects or using smaller garbage cans.
- ♦ Create fun contests to encourage waste reduction.

Place the onus on government and business (not individuals)

- ♦ Focus the plan on action for the CRD, municipalities and businesses. (Individuals are already doing their part. Governments and business should be doing their part to make it easier to reduce waste.)

Ideas and suggestions

- ♦ Work with local businesses to develop guidelines on the use of compostable packaging products.

- ◆ Bring together groups like Diverters Victoria with entrepreneurs to develop ideas for effective diversion.
- ◆ Ask local media personalities to talk about how they re-use products.

" Recycling is great, but ultimately, reducing consumption is a far more effective way to reach our zero-waste goals.

" We are bombarded with BUY BUY BUY. So we create a lot of garbage.

" It would be good to have a Canada wide ban on Styrofoam and single use plastic.

" I am especially angry about the constant vigilance required since almost any form of consumption is accompanied by unnecessary and inappropriate packaging.

" Waste reduction goals should not mainly be aimed at consumers and households but targeted at producers and suppliers, with policies to significantly minimize resource consumption in the first place.

Strategy #3: Support reduction of avoidable food waste

- *Support residential food waste reduction*
- *Support business food waste reduction*
- *Continue to support food recovery organizations*
- *Advocate for regulation to clarify food expiry dates*

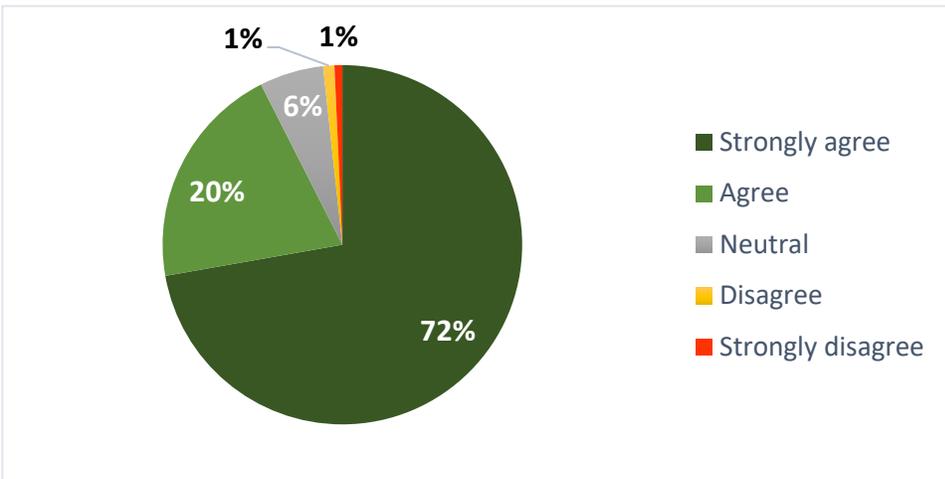


What we heard

Reduce food waste from homes

- ◆ Provide information on meal planning, use of older produce to create soups, etc.
- ◆ Explain best-before dates to avoid products being discarded unnecessarily (while keeping people safe).
- ◆ Support local produce that is not wrapped in plastic.

Figure 13: Level of support for reducing avoidable food waste



Reduce food waste from grocery stores and restaurants

- ◆ Enable people to buy oddly-shaped produce and products at their 'best-before' date at reduced prices.
- ◆ Encourage restaurants and grocery stores to donate left-over food or ingredients to shelters.
- ◆ Ensure grocery stores follow food safe practices when boxing donations (to make sure the food is actually usable).

Work with food recovery organizations

- ◆ Support organizations that are assisting with food recovery.

" I think it's very important to keep food waste out of landfill. It is a wonderful source of valuable nutrients that should be added back to our farmland.

" My daughter worked at [grocery store] and was appalled by the amount of food which went straight into the dumpster every day.

Ideas and suggestions

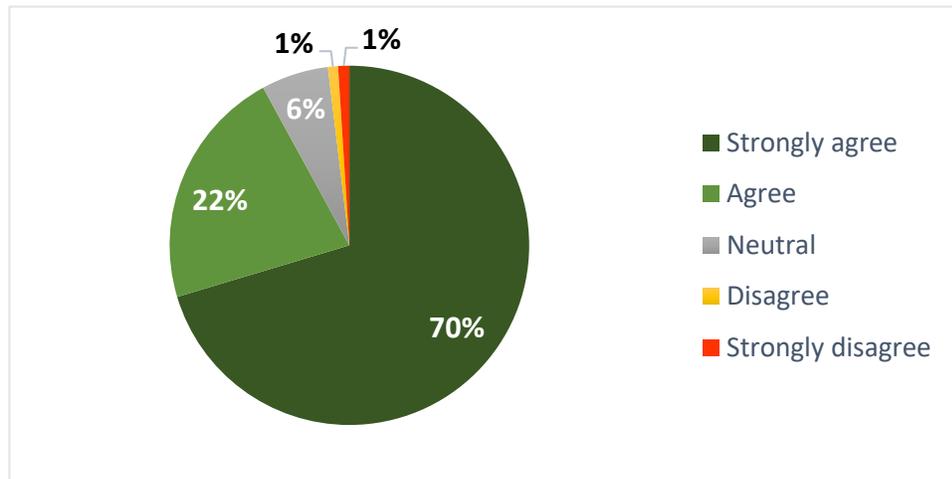
- ◆ Make donation of left-over products a business licence requirement for restaurants and grocery stores.

Strategy #4: Support reuse activities in the region

- Continue to offset garbage fees for non-profits
- Continue to support donations for reuse
- Support reuse, renting and sharing programs
- Investigate free stores at local facilities



Figure 14: Level of support for reuse



What we heard

Investigate free store(s) at Hartland and other locations

- ♦ Many supported the concept of a free store at Hartland.
- ♦ Free stores should be in multiple locations throughout the region, as the people who need them most will be least able to get to Hartland or transport goods home. Place where the items are protected from the weather.

Support reuse/renting/sharing programs

- ◆ Host repair cafes; provide tax breaks for repairs. Make a right-to-repair mandatory for digital items.
- ◆ Support sharing programs like a Tool Library.

Promote donations to reuse establishments

- ◆ Donate bikes for repair and resale, and allow bike stores to pick them up from Hartland.
- ◆ Encourage donations to Habitat for Humanity, ReStore, etc.
- ◆ Require that returned merchandise be donated for reuse rather than landfilled.

Provide options for textile reuse and recycling

- ◆ In addition to options for donating good used clothing, provide a simple way to donate fabrics and other textiles.

" I love the idea of the free store at Hartland.

" I would also like to see ways to recycle or donate items that may be fixed for further use.

" There are many entrepreneurial opportunities linked to repair and reuse and the products involved can be very diverse.

Ideas and suggestions

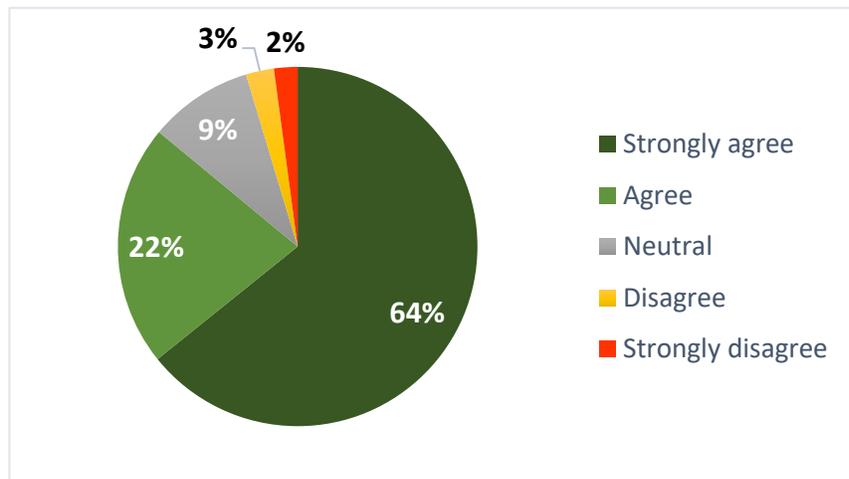
- ◆ Provide government funding to kick-start a second-hand mall.
- ◆ Create an initiative to highlight businesses like Zero Waste Emporium, thrift stores, and repair cafes.

Strategy #5: Support local governments in working towards zero waste and a circular economy

- *Develop model language for use by municipalities*
- *Help identify the need for solid waste facilities and zoning*
- *Investigate “Paying-As-You-Throw” principles*
- *Investigate use of clear bags for garbage and recyclables*



Figure 15: Level of support for zero waste/circular economy



What we heard

Zero waste is an important goal

- ♦ Local government should support discussions regarding zero waste producers and programs.
- ♦ Clear bags could help, but there was caution about neighbours seeing personal hygiene waste.
- ♦ Focus should be on zero waste at source (manufacturers).

Consider 'pay as you throw' approaches

- ♦ The more you dispose, the more you should pay (and conversely if you don't produce garbage, you should not have to pay for garbage removal).
- ♦ A concern is that increased cost will encourage illegal dumping.

Create new business opportunities in the circular economy

- ♦ Encourage businesses to use waste materials, such as using rigid plastics for benches. Several specific ideas were provided.

" My hope is for the day when we don't need a Hartland Landfill.

" A circular economy is essential. We must take responsibility for our actions (especially producers).

" Paying the true cost will change people's behaviour.

" Provide incentives to reduce waste and charge household by the can, bag or weight.

Ideas and suggestions

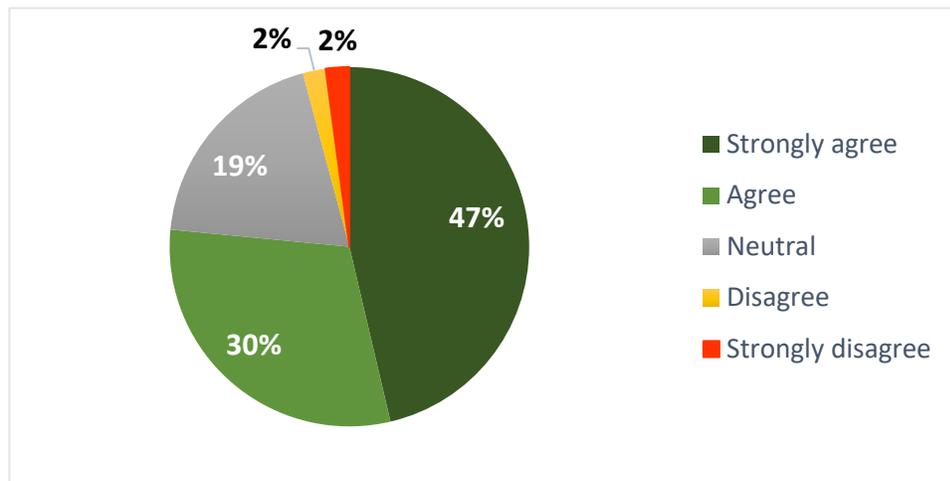
- ♦ CRD should buy goods with recycled material and locally-made compost.
- ♦ Provide residential garbage cans with a bar code; the can is weighed and resident charged per kg of garbage.

Strategy #6: Continue and enhance policy development

- *Develop model procurement policies*
- *Continue to expand material bans*
- *Investigate licensing waste management facilities*
- *Investigate regulatory mechanisms to manage materials*
- *Investigate options for debris from extreme weather*



Figure 16: Level of support for policy development



What we heard

Create regulatory requirements for recycling

- ◆ Make recycling mandatory, with fines for those who do not comply.

Expand the range of materials banned from landfill

- ◆ Ban wood waste and large furniture from the landfill.

Advocate for municipal laws, not just provincial and federal

- ◆ Some argued for stronger municipal bylaws; others suggested that the CRD should be authorized to create a region-wide standardized system.
- ◆ Some expressed concern that waste management facilities were not already licenced; others cautioned that licencing could threaten the viability of smaller operations.

Mandate recycled content/recyclability of packaging

- ◆ Create requirements or incentives for manufacturers to reduce packaging.
- ◆ Require that all packaging be labelled showing what is recyclable.

" I feel that the CRD and Victoria have done considerable education on the need to improve our waste management system. I believe that now is the time for action in the form of laws.

" Push harder on municipal councils to create strong bylaws.

" Force producers to use only recyclable materials.

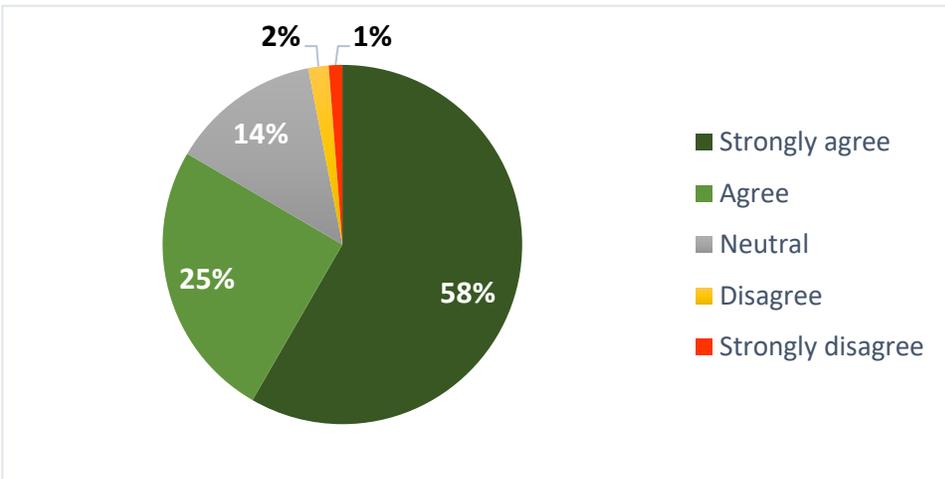
" We need mandatory recycling bylaws with deterrents to those who do not comply. This cannot be a choice. Putting a significant extra cost at the time of purchase to be followed by a refund upon return provides a strong incentive.

Strategy #7: Increase residential diversion

- *Continue to promote diversion*
- *Support depot diversion of non-curb-side materials*
- *Encourage local processing and markets for recyclables*
- *Develop tools to support event recycling*



Figure 17: Level of support for increased residential diversion



What we heard

Make recycling convenient

- ♦ Make it easy to recycle plastics, e.g., increase the range of plastics that can be accepted in the blue box or provide good information on convenient drop off places.
- ♦ Provide convenient options for recycling Styrofoam, glass, and textile waste.
- ♦ Provide options to recycle used books.
- ♦ Provide a system for recycling diapers and feminine hygiene products.

- ♦ Consider a single-stream recycling program (everything in one bin with no sorting required), as occurs in some other communities.

Reduce contamination

- ♦ Educate people to avoid contamination of recyclables.
- ♦ Provide information on how to recycle—e.g., clean items into blue box.

Accept more materials in the blue box

- ♦ More than 50 respondents asked for the blue box program to include Styrofoam, soft plastics, foil packaging, and glass (for multi-family).

Establish more local depots and accept more materials (sub-regional eco depots)

- ♦ Provide local drop-off areas or depots around the region. For many, Hartland is too far away and inconvenient, or they have no means of getting materials there (not accessible by bus). Depots should accept a full range of recyclable/returnable products, hazardous wastes, electronic wastes, and bulky items.
- ♦ Provide subsidies for local recycling societies to encourage community participation.

Ensure there are markets for recycled products

- ♦ Find local markets for recycled products, to reduce transportation and GHG costs.
- ♦ Avoid shipping materials offshore.

Other comments on recycling

- ♦ Do not collect items that have no market value (e.g., glass).
- ♦ Consider options for using crushed glass (examples included sound insulation panels, a glass foundry for bottles).
- ♦ Provide easy options to dispose of hazardous waste, such as local opportunities for drop-off, curbside pick-up on specified days.
- ♦ Many respondents regretted the loss of recycling opportunities at bottle recycling depots.

Ideas and suggestions

- ♦ Provide a different tip each week with the recycling reminder, or a weekly newspaper column.
- ♦ Provide “did you know” ads on the buses and at bus stops.

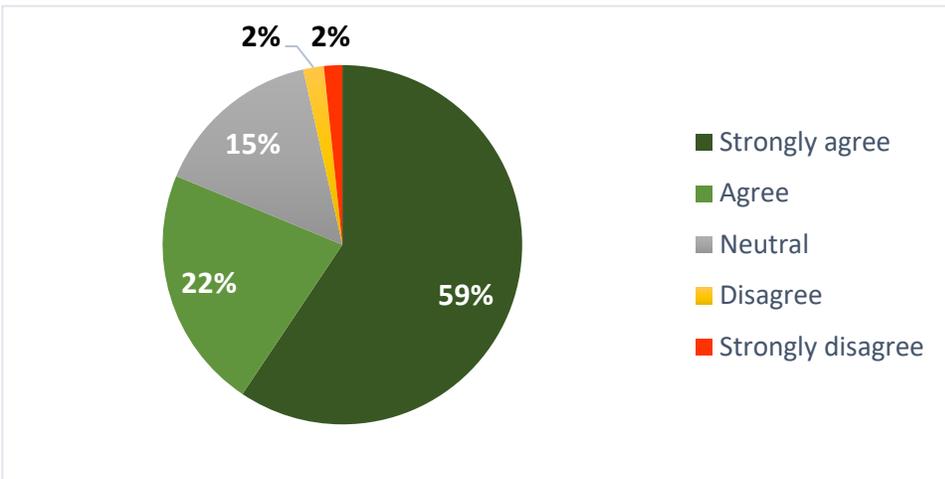
- " *Happy to sort, sort, sort, just want to know that I'm doing it right, with clear and easy to understand information.*
- " *I encourage development of any educational information that will make it clearer and simpler for residents handling the various materials and organics they sort into recycling and composting streams.*
- " *You need to clarify much more specifically what can and cannot be recycled. Soft and foil-lined plastics are particularly confusing.*
- " *Soft plastics? So many aren't labeled it's hard to know if they can be recycled.*
- " *More effort needs to be made to educate residents of how to dispose of waste properly. Contamination rates are WAY TOO HIGH.*
- " *Need to provide more drop off sites so people can recycle and dispose of without driving out to Hartland.*
- " *There need to be more options for recycling on Pender Island.*
- " *Develop or find markets for recycled materials preferably as local as possible to encourage new businesses and reduce transportation costs/pollution.*

Strategy #8: Increase multi-family diversion

- *Allocate resources to support multi-family recycling*
- *Develop waste source separation requirements*
- *Develop building space and access guidelines*
- *Support recycling, e.g. develop "Train-the-Trainer" program*



Figure 18: Level of support for increased multi-family diversion



What we heard

Improve recycling opportunities in multi-family buildings (organics, glass)

- ◆ Make recycling and organics collection in multi-family buildings a priority.
- ◆ Provide more recycling options for multi-family buildings, including glass and organics.

Provide education for multi-family residents

- ◆ A challenge for multi-family buildings is making sure all residents know how to recycle, and do not contaminate recycling loads. Good education and signage are required.

" I would like to see better, stronger and more successful programs being developed for condos, apartments and multi-unit buildings for composting and recycling.

" Apartments are the worst for not having food scrap bins!

Ideas and suggestions

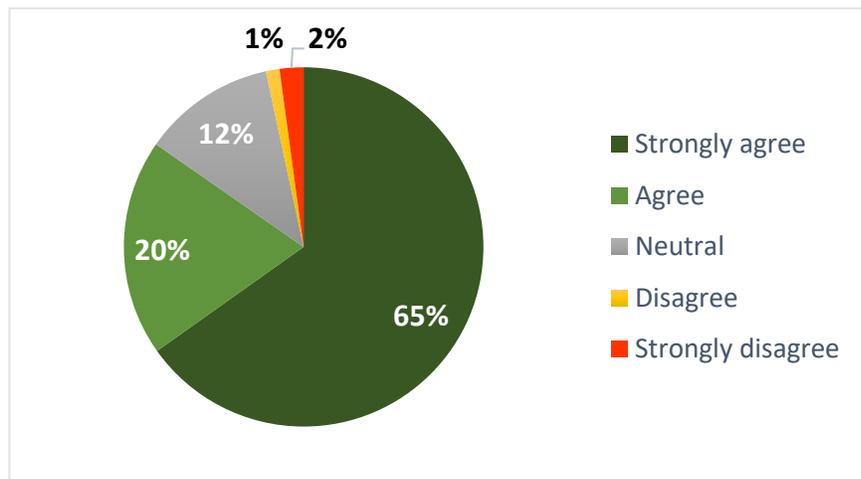
- ◆ Prepare and post signage above bins in multi-family buildings with pictures of what goes in and what doesn't.

Strategy #9: Increase industrial, commercial and institutional (ICI) diversion

- *Allocate resources to increase ICI diversion*
- *Advocate to expand paper/packaging product stewardship to ICI sector*
- *Create a business waste reduction toolkit*
- *Ask to tie waste management plans to business licenses*
- *Develop building space and access guidelines*
- *Develop waste source separation requirements*
- *Investigate enforcing bans at the generator level*



Figure 19: Level of support for increased ICI diversion



What we heard

Increase Industrial, Commercial and Institutional (ICI) diversion

- ♦ There are significant opportunities for waste diversion from the ICI sector.
 - Hospitals are a significant source of waste, including biohazards.

- Airports, airlines and hotels are a significant source of wastes, especially single-use plastics.
- Restaurants (especially fast-food ones) need to be legislated/encouraged to sort and recycle their waste.

Make it easier for businesses/schools/non-profits to recycle

- ◆ Educate staff at businesses on ways to compost and recycle.
- ◆ Make it easier for businesses to recycle.
- ◆ Provide free curbside pick-up for non-profits.

Enforce ICI diversion

Provide penalties for businesses who do not properly recycle wastes.

" A lot has been done for residential programs, but commercial and industrial practices are generally lacking.

" Strongly support penalties for businesses not taking responsibility for the waste they produce

Ideas and suggestions

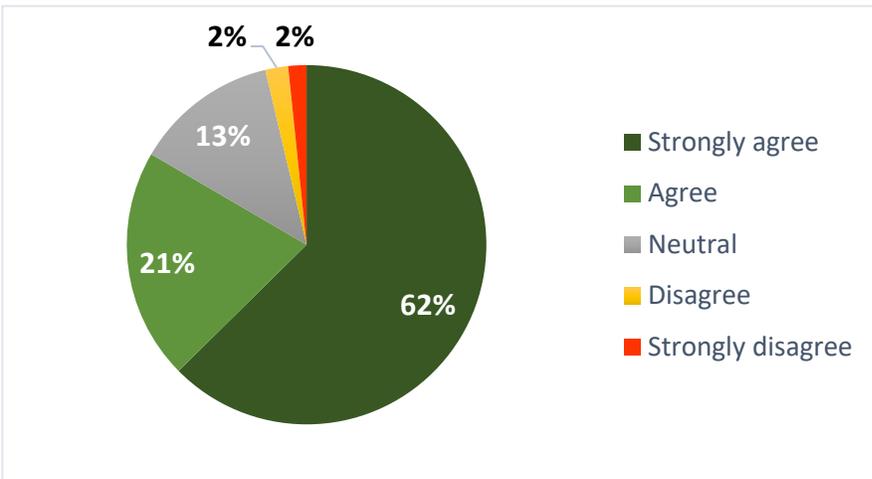
- ◆ Charge businesses a yearly recycling fee based on their size.

Strategy #10: Support existing and new extended producer responsibility programs

- *Advocate to the Province to expand EPR programs. Note: The Province is currently conducting an EPR gap analysis and considering adding new materials*
- *Collaborate with product stewards to increase consumer awareness*
- *Advocate for increased return-to-retailer opportunities*
- *Advocate to standardize EPR programs across Canada*



Figure 20: Level of support for expansion of extended producer responsibility



What we heard

Explain what extended producer responsibility (EPR) is

- ◆ There were very few comments on the EPR programs. Some noted that they did not understand how this works.

Expand range of EPR products

- ◆ A few suggested that there should be more products covered under the EPR or similar program.

" EPR program is good, put a recycling fee on more items.

" Any expansion of extended producer responsibility programs is essential as are regulations intended to make plastic recycling more feasible - more standardization of allowable packaging, better labelling, etc.

Ideas and suggestions

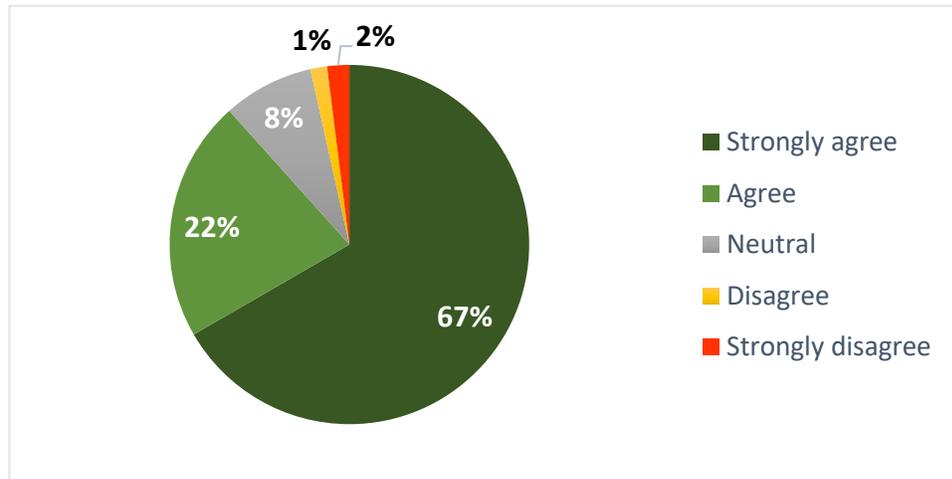
- ◆ Require higher deposits on bottles, cans, batteries, etc. and require deposits on items such as plastic and foam packing materials.

Strategy #11: Increase organics diversion and processing capacity

- *Continue to promote organics waste diversion*
- *Investigate developing local organics processing. Note: The CRD is currently investigating developing a processing facility at Hartland Landfill*
- *Support compost markets by purchasing back materials*
- *Help develop guidelines for compostable products*



Figure 21: Level of support for increasing organics diversion and processing



What we heard

Promote organics diversion

- ♦ Strong support for organics diversion.
- ♦ Work with local farmers to ensure organics are used locally.

Investigate local organics processing infrastructure

- ♦ Support for local processing of organics at either a region-wide scale or even neighbourhood scale.

- ◆ Concerns about odours from composting facilities.
- ◆ Establish an organics processing facility on Salt Spring Island.

Support compost markets by purchasing back finished material

- ◆ Allow individuals and businesses to buy the finished compost.

Simplify organics pick-up

- ◆ Make the green bin program region-wide (some do not want to pay for pick-up so they place organics in their garbage).
- ◆ Provide more frequent (e.g., weekly) pick-up to avoid odours.
- ◆ Provide good information on “compostable” bioplastics.
- ◆ Provide options for people who cannot compost because of bear (or other wildlife) issues.

Encourage at-home composting

- ◆ Promote at-home options like worm composters, Green Cones and closed compost bins.
- ◆ Support funding for learning about composting, e.g., through the Compost Education Centre.

Provide for disposal of yard waste

- ◆ Provide curbside pick-up of yard waste (in green bin or other), or at least more local drop-off locations. Not everyone has a suitable vehicle to remove yard waste.
- ◆ Allow burning of yard waste when weather is suitable. (Others spoke against burning of yard waste.)

Develop a regional approach to invasive plants species disposal

- ◆ Provide safe in-region options for disposal (e.g., thermophilic composting, expanded list of invasive species that can be taken to Hartland).
- ◆ Disposal of invasives should be free to encourage responsible disposal.
- ◆ Develop and share region-wide best practices for invasives removal and disposal.

Develop dog waste disposal options

- ◆ Alternatives for dog waste disposal would be welcomed.

Ideas and suggestions

- ◆ Have a drop-off for spoiled food donations for use by chicken and pig farmers.
- ◆ Encourage neighbourhood compost piles.

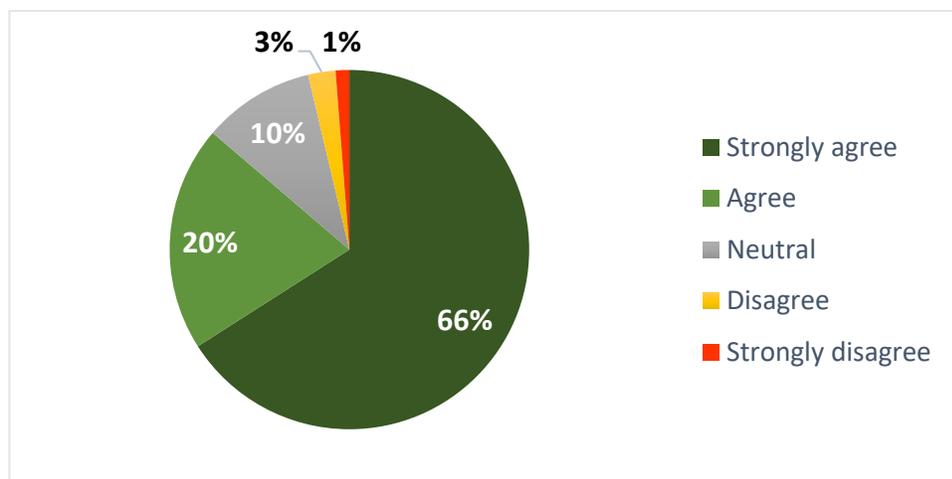
- " *The composting program for kitchen waste is excellent.*
- " *Keep nutrients in region and on ALR lands*
- " *I would like to be able to put grass clippings etc. into the green bin.*
- " *Compostables should be processed locally instead of being sent to the mainland.*
- " *Promote organics pick up and/or drop off where composted soil can be returned at no cost to residents.*
- " *The plan should support an invasive species disposal program that makes it easier (or possibly free) for community members to dispose of invasive species (especially high-risk invasives) responsibly.*

Strategy #12: Increase construction, renovation and demolition material diversion

- *Develop a comprehensive strategy*
- *Develop and disseminate educational tools*
- *Promote green building standards*
- *Develop and use policy tools*
- *Investigate end uses, including a clean wood waste ban*
- *Investigate banning or surcharging mixed loads at the landfill*
- *Develop programs to manage hazardous materials*



Figure 22: Level of support for construction waste diversion



What we heard

Incentivize salvage or retention of existing structures

- ◆ Increase demolition permit fees.
- ◆ Increase cost for disposal of construction waste, to encourage renovations and diversion.
- ◆ Encourage and provide incentives for renovations (instead of demolition and reconstruction).

Provide options for diverting construction/demolition waste

- ◆ Provide incentives for homeowners/construction companies to divert construction waste.
- ◆ Offer discarded construction materials (including end cuts) at low prices to salvage companies and then public.

" Make renovation materials easier to recycle. Provide screening services to allow more reno materials to be diverted. Set up free reno store.

" Demolition is not environmentally sustainable.

" I would like to see homeowners encouraged not to do unnecessary major renos as they are so wasteful.

Ideas and suggestions

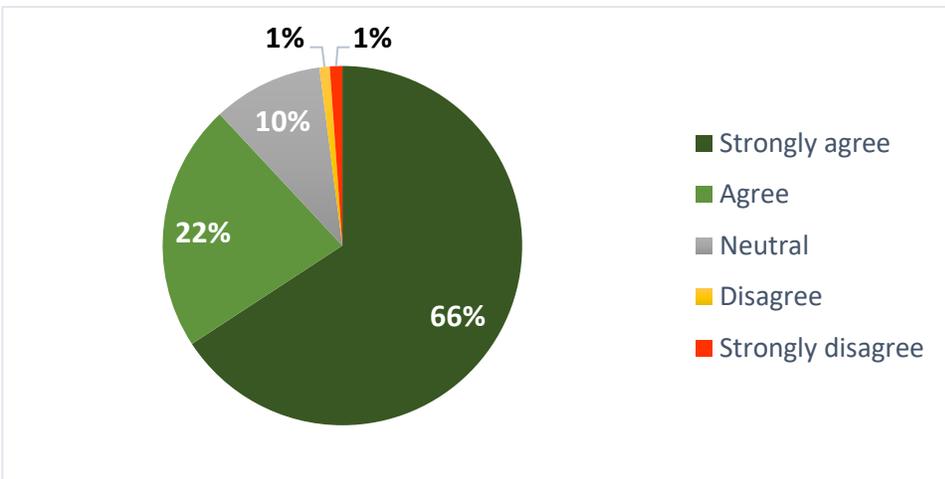
- ◆ Vancouver's Unbuilders provides examples of good salvage and recycling methods.
- ◆ Challenge Camosun's construction facility to find ways to use unneeded construction materials.

Strategy #13: Encourage proper public space waste management activities

- *Develop educational materials to prevent/reduce littering*
- *Educate about proper management and disposal*
- *Collaborate on a regional approach to prevent illegal dumping*
- *Investigate developing regionally-aligned bylaws*
- *Develop pilot methodologies to “observe, record and report”*
- *Investigate options for large bulky item disposal*



Figure 23: Level of support for public space waste management



What we heard

Develop educational materials

- ♦ Promote the reuse/recycling of large household goods.

Provide options for disposal of bulky item disposal

- ♦ Make it easy for people who do not have access to trucks (and can't afford to pay a disposal company), or are a long way from Hartland.
- ♦ Create a once-a-month (or quarterly or annual) day when all items can be placed at the curbside. Allow people to take any items they want at no charge. The following day, all remaining items are collected and taken to the landfill.

Balance tipping fees with making disposal affordable

- ♦ Do not make disposal too costly, or it encourages roadside dumping.
- ♦ Make disposal affordable, or the costs of removal are passed on to municipalities (aka taxpayers).

Consider enforcement options

- ♦ Create stricter regulations for leaving old furniture on the roadside for "free."

Provide more recycling options in public spaces

- ♦ Provide recycling and organics options (not just garbage) in public parks, schools, shopping malls, tourist areas, bus stops, public washrooms, businesses, etc.
- ♦ Provide places to dispose of cigarette butts.

" Standardize garbage and recycling container sizes and designs for public spaces and include pictures to help with sorting.

" All the garbage, recycling containers in public spaces should all have sections for garbage, paper, and plastic.

Ideas and suggestions

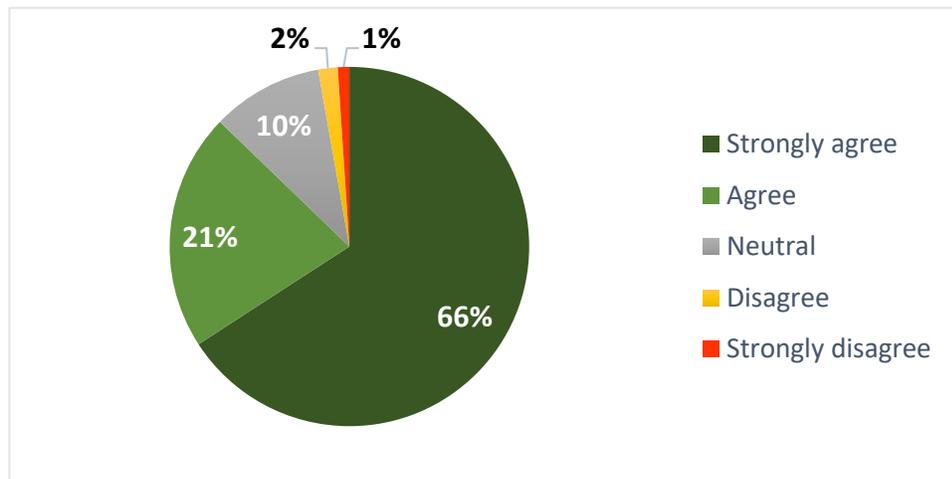
- ♦ Have a CRD truck parked once a month in denser neighbourhoods for residents to deposit items not currently included in blue box, including larger items.
- ♦ Have neighbourhood "swaps" and opportunities for disposal.
- ♦ Provide options for students (and others) moving out of accommodations (e.g., temporary warehouse where new students can find items they need).
- ♦ Encourage the local Chamber of Commerce to sponsor roadside and beach clean-up days.

Strategy 14: Optimize landfill gas management

- Continue to capture landfill gas for beneficial use. Note: The CRD is currently investigating landfill gas utilization options
- Investigate collaboration with educational institutions



Figure 24: Level of support for optimizing landfill gas management



What we heard

General support for utilizing landfill gas

There is a high level of support for optimizing landfill gas management, but very few comments specifically related to this strategy. One respondent spoke in favour of converting landfill gas to electricity (rather than renewable natural gas) to avoid supporting ongoing use of hydrocarbons.

" I also think the generation and use of methane is important.

Ideas and suggestions

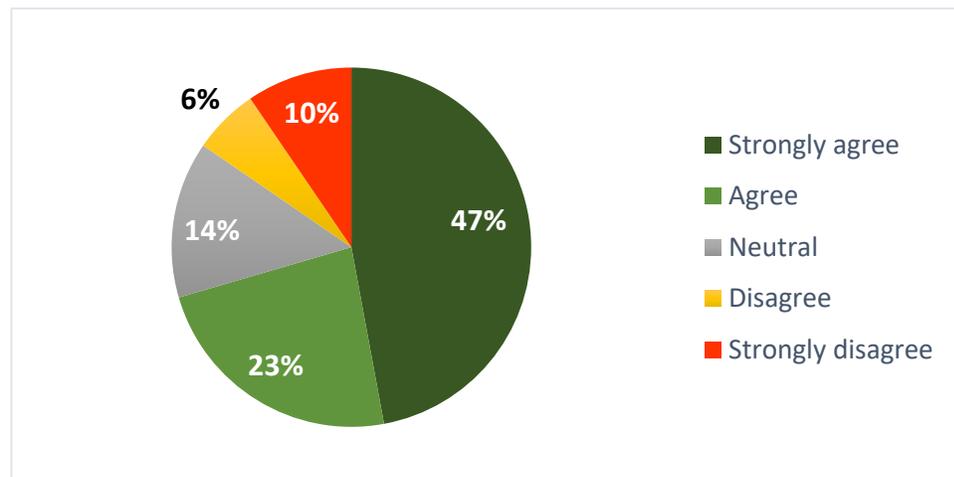
- ♦ Explore conversion of captured methane to solid nitrogen fertilizer.

Strategy #15: Enhance Hartland disposal capacity

- *Review ban enforcement levels*
- *Continue to operate Hartland using best practices*
- *Maximize disposal capacity until 2020 and beyond*
- *Research and investigate emerging technologies*



Figure 25: Level of support for enhancing landfill capacity



What we heard

Reduce waste instead of expanding landfill

- ♦ The focus should be on reducing waste so that there is no need to expand the landfill.
- ♦ Use waste as a resource (e.g., for incineration or gasification) instead of enlarging the landfill.

Do not expand the landfill

- ◆ Concerns were raised regarding the impacts of aggregate removal and impacts to local watersheds.

Provide an alternate landfill site

- ◆ There should be a new landfill site, perhaps near growing west shore communities.

Consider impacts on recreational users (especially mountain bikers)

- ◆ There were more than 80 comments (provided by 52 respondents) regarding impacts on mountain biking and other recreational activities. Some opposed any expansion of the landfill footprint; most wanted to make sure that any trails closed would be replaced by others that were equally challenging and fun.
- ◆ Some noted appreciation of the CRD willingness to work with the mountain bike community.

Concerns from Willis Point residents

There were more than 120 comments from 73 respondents regarding impacts on the Willis Point neighbourhood. Significant concerns included the following.

- ◆ The proposed re-routing of large trucks and addition of gravel trucks along Willis Point Road is a problem because traffic corridors are not designed for truck use, and would decrease safety for other vehicles, school buses, cyclists and pedestrians.
- ◆ Need for a full (independent) traffic survey, a passing lane from Wallace up Willis Point Road, and a left-hand turn lane into the landfill.
- ◆ Loss in property values from the increased traffic and noise/smell from the expanded landfill.
- ◆ Landfill expansion will affect creek/stream patterns, groundwater and drinking water wells.
- ◆ Loss of ecological and recreational values of nearby places such as Durrance Lake.
- ◆ Increased illegal dumping in the area.
- ◆ Willis Point should have been included as an option for place of residence in the survey.

Do not accept cruise ship waste

Cruise ship waste was also a “hot button” issue, with more than 90 respondents commenting on the acceptance of cruise ship waste. Suggestions included:

- ◆ Refuse all cruise ship waste, make them deal with this at their home port.
- ◆ Require the cruise ships to have high levels of reduction and recycling.
- ◆ Charge high fees for accepting cruise ship waste.

- " If we achieve reduction of waste increasing capacity may be unnecessary.*
- " Do not increase capacity at Hartland. We will simply fill it to whatever capacity exists.*
- " The dump's life should end in 2045 as previously planned.*
- " Ensure space for public use around Hartland Landfill is maintained or expanded as landfill land use increases.*
- " I do not support expanding Hartland Landfill space, we need to keep the green space intact.*
- " Do not use Willis Point Road!*
- " I wish to express in the strongest possible terms my vehement opposition to the proposed uses of Willis Point Road.*
- " I oppose the blasting and aggregate as it destroys nature and is working against our community plan.*
- " I understand that one day you're going to need to expand into the mountain biking area, and that's not the CRD's fault, it's all our fault (for producing garbage). It sure would be great if CRD could allocate some more space for new trails when that does eventually happen.*
- " As the landfill is running out of space, we should definitely not be accepting garbage from cruise ships.*
- " Make sure the ships are doing the upmost to minimize waste and maximize reuse.*

4. Conclusion

There was a high level of support for all of the plan elements (Figures 7, 8 and 25), as well as a great many comments and suggestions for consideration in the development of the draft SWMP.

Figure 7: Level of support for proposed target (% of respondents)

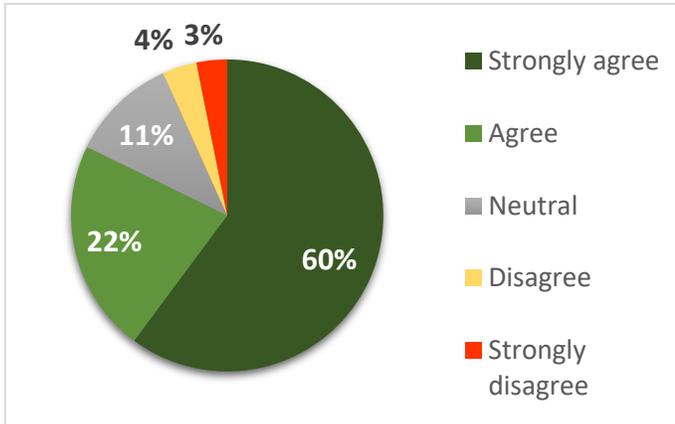


Figure 8: Level of support for proposed principles, goals and objectives (% of respondents)

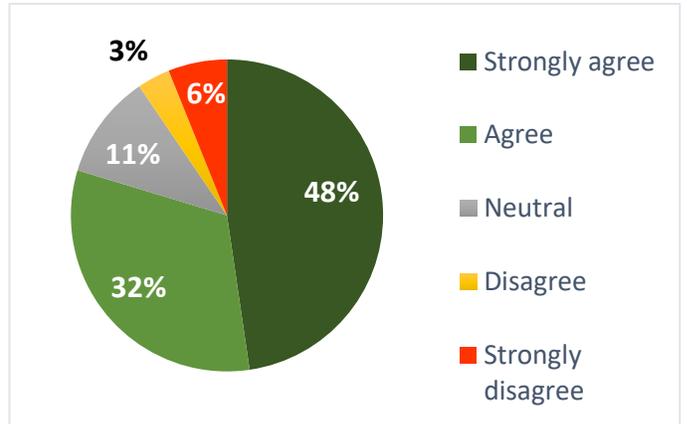
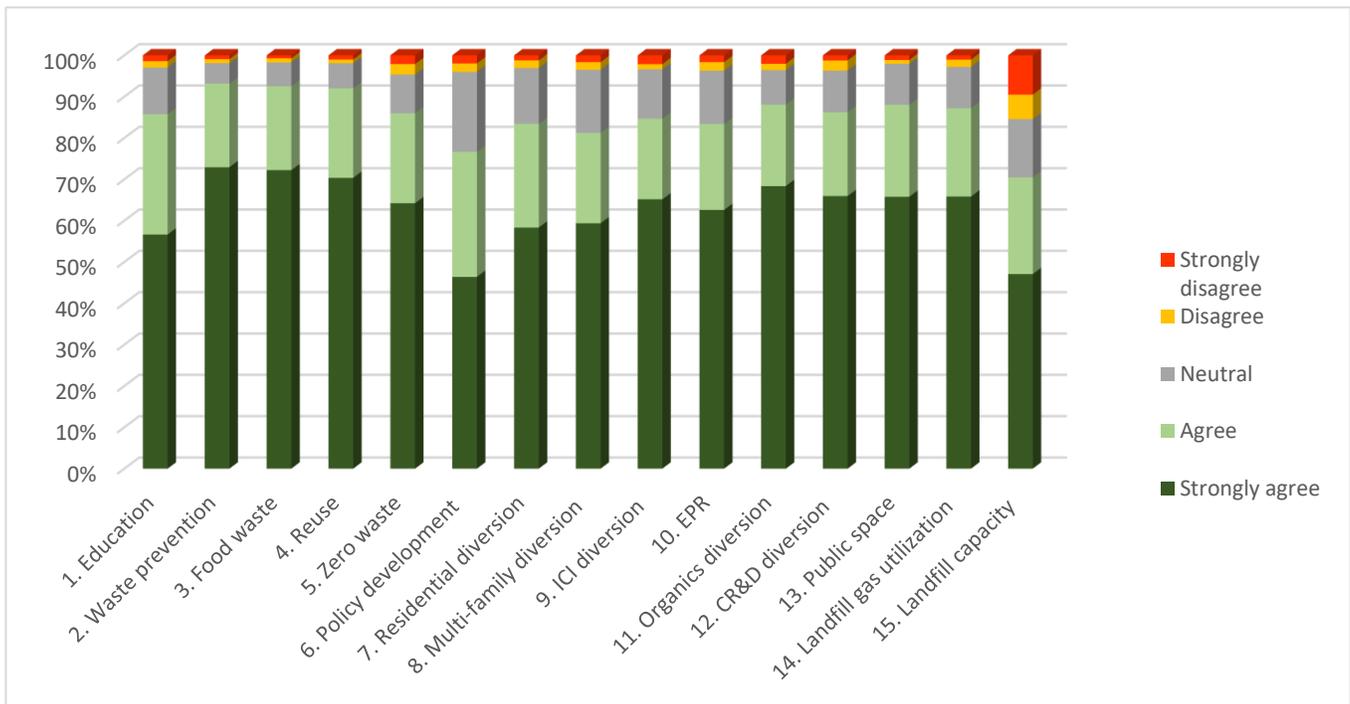


Figure 26: Level of support for proposed strategies (% of respondents)



Attachment 1. Solid Waste Advisory Committee

The list below reflects October 2019 membership.

Sector	Member
REGIONAL DISTRICT DIRECTOR (Member of Parks and Environment Committee) (1)	Director Ben Isitt
MUNICIPAL ENGINEERING STAFF (staff who are involved in solid waste collection) (2)	Taaj Daliran, City of Victoria
	Steven Wiebe, District of Saanich
ELECTORAL AREA REPRESENTATIVE (1)	Elizabeth Latta, Galiano Islands Recycling Resources Society
FIRST NATIONS (2)	Vacant
ENVIRONMENTAL ORGANIZATIONS (1)	Vacant
BUSINESS GROUPS (1)	Don Monsour, BC Victoria Restaurant Association
NON-PROFIT GROUP WITH AN INTEREST IN SOLID WASTE (e.g. reuse organization) (1)	Kelly King, Habitat for Humanity ReStore
LARGE WASTE GENERATORS (industrial, commercial, institutional) (2)	Nadia Ariff, University of Victoria
	Rachel Speller, Department of National Defense
OWNERS/OPERATORS OF PRIVATE WASTE MANAGEMENT FACILITIES (2)	Stew Young Jr., GFL Environmental
	Chad Tuggle, Waste Connections of Canada

Sector	Member
PRIVATE SECTOR INDUSTRY COLLECTION SERVICE PROVIDERS (2)	Aaron Lawson, Atlas Junk Removal Inc.
	Jared Smith, Waste Management
COMPOSTING INDUSTRY REPRESENTATIVE (1)	Dave Laing, DL's Bins & Recycling Centre & Fisher Road Recycling
PRODUCT STEWARDSHIP AGENCY (1)	Mark Kurschner, Product Care Association
COMMUNITY REPRESENTATIVE (representing Prospect Lake/Hartland area) (1)	Jeff Shaw, Prospect Lake District Community Association
PUBLIC REPRESENTATIVES, AT LARGE (3)	Axel Meisen
	Vacant
	Michelle Coburn
WILLIS POINT REPRESENTATIVE (1)	Jason Hillis
DISTRICT OF HIGHLANDS REPRESENTATIVE (1)	Vacant

Attachment 2. Promotional Materials

Paid advertising

Paid advertising was placed in the Times Colonist, Black Press newspapers, and local radio stations.

Sample print ads are provided below, and a copy of the media plan overleaf.

Public feedback opportunity

 **Solid Waste**
Management Plan

Working Together to Rethink Waste

The CRD is developing a new solid waste management plan and your input is important! Residents can learn more about proposed strategies and provide feedback online or by attending one of the following open houses:

Tuesday, November 5 from 3-7 pm
Ambrosia Centre
638 Fisgard Street, Victoria

Thursday, November 7 from 4-8 pm
Sooke Community Hall
2037 Sheilds Road, Sooke

Wednesday, November 13 from 4-8 pm
Mary Winspear Centre
2243 Beacon Avenue W, Sidney

Saturday, November 16 from 12-4 pm
Juan de Fuca Senior Citizens Centre
1767 Island Highway, Colwood

Tuesday, November 19 from 4-8 pm
Esquimalt Recreation Centre
527 Fraser Street, Esquimalt

Thursday, November 21 from 4-8 pm
Greek Community Hall
4648 Elk Lake Drive, Saanich

To learn more, please visit
www.crd.bc.ca/rethinkwaste



Public feedback opportunity

 **Solid Waste**
Management Plan

Working Together to Rethink Waste

There have been significant changes in the way we think about and manage solid waste in recent years and it's time to update the CRD Solid Waste Management Plan.

Please visit www.crd.bc.ca/rethinkwaste to:

-  Learn about the plan
-  Provide your input
-  Find an open house

**Help us to rethink waste and
plan for a sustainable future.**



Social media posts

The CRD promoted the open houses through its Facebook and Twitter feeds. Sample postings are shown below.

Capital Regional District
November 8 at 3:00 PM · 🌐

Solid Waste Management Plan Strategy #11: Increase Organics Diversion and Processing Capacity

Do you have ideas about managing organic waste in the region? Share your feedback on this and other proposed strategies in person or online by December 1.

Want to learn more? Join us at our next open house on November 13. Details at www.crd.bc.ca/rethinkwaste... See More



CRD @crd_bc · Nov 12

Solid Waste Management Plan Strategy 4: Support Reuse Activities in the Region - have suggestions about this strategy? Join us at an open house tomorrow at the Mary Winspear Centre and share your ideas with us! Details at crd.bc.ca/rethinkwaste #CRDrethinkwaste



CRD @crd_bc · Nov 15

Thank you to everyone who has attended an open house so far. If you have ideas to share about how we can meet our waste target, the next open house is tomorrow at the Juan de Fuca Senior Citizens Centre. Get the details at crd.bc.ca/rethinkwaste. #CRDrethinkwaste



Capital Regional District
November 22 at 1:00 PM · 🌐

Going to be out on the trails tomorrow in the Mount-Work Hartland area? Stop by the Hartland Learning Centre between 10am—2pm to learn about the proposed Solid Waste Management Plan strategies, including plans to extend the life of Hartland Landfill. www.crd.bc.ca/rethinkwaste #CRDrethinkwaste



Capital Regional District
November 29 at 9:25 AM · 🌐

Solid Waste Management Plan Strategy #2: Encourage Waste Prevention – one of the actions for this strategy is to promote less consumption. Have other ideas?

Celebrate International Buy Nothing Day by providing your feedback online about this proposed strategy and others online by December 1: www.crd.bc.ca/rethinkwaste – only a few days left! #CRDrethinkwaste



Bookmark

The bookmark was printed in large quantities and distributed widely to direct people to the website.



 **Solid Waste**
Management Plan

Visit us online: www.crd.bc.ca/rethinkwaste

 Learn about the plan  Provide your input  Find an open house

Rethink waste: Use and reuse this bookmark!



TARGET: Reduce the amount of waste going to the landfill

 **FROM**
380 kg
per person



 **TO**
250 kg
per person
(by 2030)

Help us plan how we get there


Making a difference...together

Other promotional materials

Additional promotional materials included:

- ◆ Listings in online event calendars
- ◆ Promotion through stakeholders, e.g., social media postings from interested parties such as Zero Waste Sooke and the South Island Mountain Biking Society, distribution of emails to members of stakeholder organizations
- ◆ The CRD Recollect app included an outreach message to encourage engagement



- ◆ Videos showing a flyover of Hartland Landfill and a timelapse video of the landfill filling over a one-year period.

Attachment 3. Stakeholder Outreach

Stakeholders contacted

Sector	Stakeholder
Provincial government	Ministry of Environment and Climate Change Strategy (via SWAC) Ministry of Municipal Affairs and Housing
Neighbouring regional districts	Nanaimo Regional District Cowichan Valley Regional District
Electoral areas	Electoral Area Committee
	Port Renfrew Local Services Commission
	Islands Trust
Local government staff	Local Government Solid Waste Liaison Group
Special waste generators	Island Health Department of Natural Defence, Maritime Forces Pacific
Waste haulers and depots	Solid Waste Industry Liaison Group
Waste/stewardship associations	Recycling Council of BC
	Southern Gulf Islands Recycling Coalition (Galiano Recycling, Mayne Recycling, Pender Recycling, Saturna Recycling, Salt Spring Island Recycling Depot)
Waste management associations	Vancouver Island Recycling & Waste Industry Coalition
	Coast Waste Management Association
	Air & Waste Management Association
Product stewardship agencies	Product Stewardship Agencies of BC – BC Recycles
Community associations	Community Associations throughout the capital region
Business organizations	Greater Victoria Chamber of Commerce
	Esquimalt Chamber of Commerce
	Sooke Chamber of Commerce
	West Shore Chamber of Commerce
	Downtown Victoria Business Association
	Greater Victoria Harbour Authority
Industry - restaurant	Good Food Network
	Victoria Restaurant Association
Industry - tourism	Tourism Association Industry of BC (local contact)

Sector	Stakeholder
	Destination Greater Victoria (Greater Victoria Visitors and Convention Bureau)
Local non-government organizations	Repair Cafés
	Non-profit Recyclers Funding Program Group
	Compost Education Centre
	BC Healthy Communities
	Building Resilient Neighbourhoods
	Sooke Transition
	Sierra club
	Dogwood
	City Green
	Creatively United for the Planet
	Lifecycles
	Surfrider
	Synergy-ProjectZero
	Salt Spring Transition Society
	Salt Spring Island Conservancy
	Habitat for Humanity, ReStore
Zero Waste Victoria	
Binnars Project	
Public	Hartland landfill customers and network
	Subscribers to CRD Recollect App (single family, owners/renters)
	Subscribers to CRD Climate Action newsletter
	Metchosin/East Sooke Mailing List
Cultural communities and associations	Inter-Cultural Association of Greater Victoria
Food/agriculture	Peninsula and Area Agriculture Commission
	Capital Region Food and Agriculture Roundtable (CRFair)
	Salt Spring Farmers Institute
	Saanich Organics
	Gorge Tillicum Urban Farmers
	Urban Farmers' Alliance of Victoria
	Haliburton Farms
	City Harvest
Metchosin Agricultural Advisory Committee	
	Vancouver Island Construction Association

Sector	Stakeholder
Construction, renovation and demolition industry (CR&D)	Victoria Residential Builders Association
	Canadian Home Builders Association - Vancouver Island
	Urban Development Institute - Capital Region
Industrial, commercial and institutional sector (ICI)	Post-secondary institutions (UVIC, RRU, Camosun)
	School districts
	Malls/Commercial

Sample email to stakeholders



Making a difference...together

Parks & Environmental Services
625 Fisgard Street, PO Box 1000
Victoria, BC, Canada V8W 2S6

T: 250.360.3078
F: 250.360.3079
www.crd.bc.ca

Working together to rethink waste - we want to hear from you!

The Capital Regional District (CRD) is developing a new Solid Waste Management Plan—the plan that guides how the region will manage solid waste in the coming years, including recyclables, compostable material and garbage from homes, businesses, institutions, and construction and demolition sites.

There have been significant changes to the way in which we think about and manage waste since our last plan was developed. We are looking at ways to extend the life of the Hartland Landfill beyond 2100, by significantly reducing waste and reusing/recycling materials as much as possible, and considering future landfill design options. The aim is to reduce our waste from 380 kg per capita (2018 levels) to 250 kg per capita by 2030. We have 15 proposed strategies to help achieve this target and now we want to hear from you.

Please visit us at crd.bc.ca/rethinkwaste to:

- Learn more about the plan and proposed strategies
- Find an open house where you can talk with staff
- Sign up to be notified when updates on this project are available
- Provide your input online by filling out a feedback form to share your views and ideas

We respect your privacy. If you do not want to hear more on this topic, take no action. But if you would like to learn more please subscribe to our email list (which is only used for information about the Solid Waste Management Plan) by clicking [sign up](#) to be notified.

Please forward this email to others in your networks who might be interested in learning more about the Solid Waste Management Plan and providing their input. As well, you may wish to include the following in e-newsletters or other communications with your members: *"Working together to rethink waste: please provide your input! The Capital Regional District is preparing a new Solid Waste Management Plan that guides how the region will manage solid waste. Please review the information online at crd.bc.ca/rethinkwaste and fill out the survey before December 1, 2019."*

Thank you! Managing solid waste is a responsibility shared by all of us and we look forward to hearing from you. The deadline for submissions is December 1, 2019.

Connect with us on Twitter at [@crd_bc](#) and follow us on [Facebook](#).

Russ Smith
Senior Manager, Environmental Resource Management
Capital Regional District
625 Fisgard St, PO BOX 1000,
Victoria, BC V8W 2S6
T. 250.360.3080 | F. 250.360.3047

Meetings with stakeholders

Date	Location	Type of engagement
Friday, Oct 18 Noon	CRD Centre for Engagement	Media launch
Wed, Oct 23	Westin Bear Mountain	Stakeholder group: SGI Recycling Coalition
Wed, Oct 23	Port Renfrew Community Hall	Stakeholder group: Port Renfrew Utility Services Commission
Tue, Oct 29 1:00pm	CRD Fisgard via Skype	Orientation SGI community liaison staff
Thu, Nov 12 3:30pm	View Royal Town Hall	Presentation to Committee of the Whole
Thu, Nov 12 7:00-9:00pm	Willis Point Community Hall	Stakeholder group: Willis Point Community Association
Thu, Nov 14 11:00-12:30pm	Central Saanich Firehall	Stakeholder group: Local Government Solid Waste Liaison Group
Thu, Nov 14 1:00-2:30pm	Central Saanich Firehall	Stakeholder group: Solid Waste Industry Liaison Group
Fri, Nov 15 10:00-12:00pm	CRD Fisgard	Stakeholder group: Non-profit recycling organizations
Mon, Nov 18 7:00pm	Metchosin Hall	Presentation to Council
Thu, Nov 21 1:00pm	Metchosin Hall	Stakeholder group: Coexisting with Carnivores
Sat, Nov 23 10:00-2:00pm	Hartland Learning Centre	Stakeholder group: Mountain bike park users

Open houses

Date	Location	# Attendees
Tue, Nov 5, 3-7 pm	Victoria: Ambrosia Centre	35
Thu, Nov 7, 4-8 pm	Sooke: Sooke Community Hall	11
Wed, Nov 13, 4-8 pm	Sidney: Mary Winspear	29
Sat, Nov 16, noon-4 pm	West Shore: Juan de Fuca Seniors Centre	38
Tue, Nov 19, 4 -8 pm	Esquimalt: Esquimalt Recreation Centre	44
Thu, Nov 21, 4 -8 pm	Saanich: Greek Hall	29
Mon, Nov 25, 2 -6 pm	Pender Island	18
Tue, Nov 26	University of Victoria (pop-up event)	86
Wed, Nov 27, 4 -7 pm	Prospect Lake Community Hall	32
Thurs, Nov 28, 2 -6 pm	Salt Spring Island: Legion – Meaden Hall	25
Totals		347

Media coverage

Print media

Launch October 18, 2019:

- ♦ Times Colonist: <https://www.timescolonist.com/news/local/have-your-say-as-crd-tries-to-extend-life-of-landfill-1.23981824>
- ♦ Victoria News: <https://www.vicnews.com/news/crd-aims-to-reduce-solid-waste-going-to-hartland-landfill-by-a-third-by-2030/>

Other:

- ♦ <https://www.vicnews.com/news/hartland-landfill-expansion-plans-inspire-concern-from-neighbours/>
- ♦ <https://www.vicnews.com/community/crd-hosts-saanich-open-house-on-solid-waste-management/>
- ♦ <https://www.saanichnews.com/opinion/editorial-we-need-to-step-up-our-recycling-efforts/>
- ♦ <https://www.nexusnewspaper.com/2019/11/06/news-briefs-november-6-2019-issue/>
- ♦ <https://www.gulfislandsdriftwood.com/news/crd-works-on-new-solid-waste-plan/>

Radio and television

Launch October 18:

- ♦ CFX: (Oct 21 interview; link no longer live)
- ♦ CTV: <https://vancouverisland.ctvnews.ca/video?clipId=1801784&binId=1.1777487&playlistPageNum=1> (story at 6:00)
- ♦ CHEK: <https://www.cheknews.ca/crd-seeks-public-input-to-help-reduce-solid-waste-with-new-plan-614637/>

Other:

- ♦ CTV: <https://vancouverisland.ctvnews.ca/crd-looking-to-expand-hartland-landfill-as-dump-nears-capacity-1.4728047>
- ♦ CTV: <https://vancouverisland.ctvnews.ca/video?clipId=1854724>
- ♦ CFX: <https://www.iheartradio.ca/cfx-1070/news/could-hartland-landfill-be-expanded-to-extend-its-life-span-1.10340169>

Social media

Social media posts results:

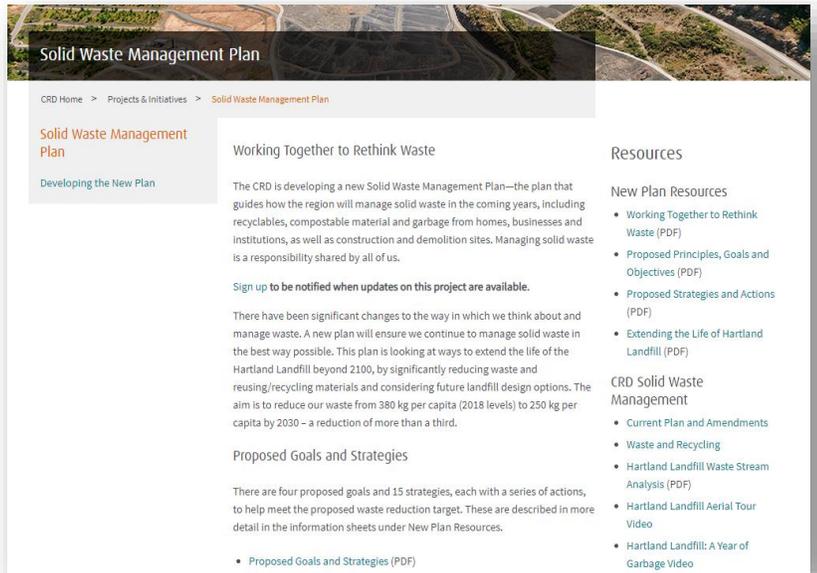
	FACEBOOK			TWITTER			
Date (2019)	Reach	Likes & Shares	Comments	Likes	Retweets	Replies	Clicks
Oct-22	0	0	0	7	7	2	12
Oct-22	4,349	86	38	8	7	2	0
Nov-04	1,543	24	0	1	1	0	0
Nov-08	1,855	22	3	4	3	0	0
Nov-12	1,141	18	5	0	0	0	0
Nov-15	1,001	20	4	0	0	0	0
Nov-18	1,236	15	1	2	1	0	0
Nov-22	736	7	2	0	0	0	0
Nov-29	1,608	18	4	3	3	0	0
TOTAL	13,469	210	57	25	22	4	12

- Independent tweets by others from October 18 to December 1: **17**

Attachment 4. Background Information

Website

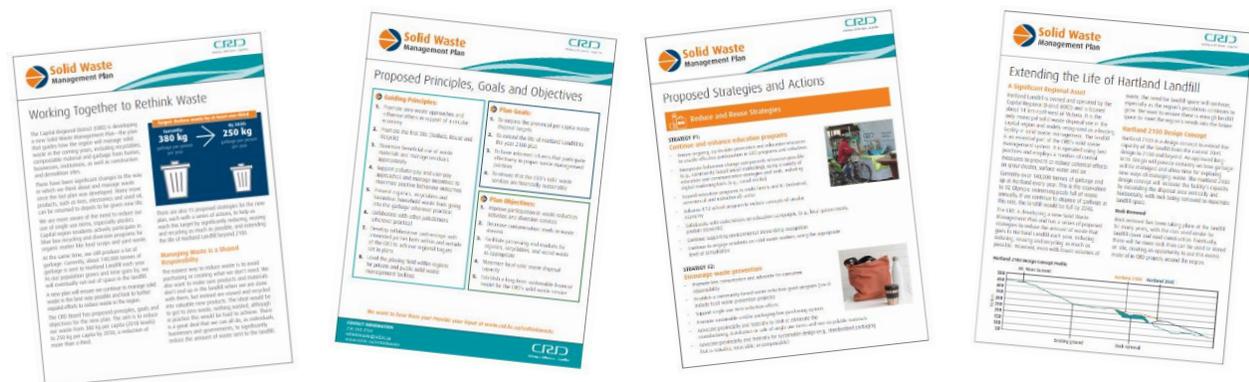
The CRD website www.crd.bc.ca/rethinkwaste was used to house all SWMP-related information (see screenshot). The website provided links to open house information, backgrounders, and a link to the feedback form. People could also select to sign up for additional notifications.



Backgrounders

Four backgrounders were prepared to provide information on the Solid Waste Management Plan proposals:

- ◆ [Working Together to Rethink Waste](#) (information on the Plan and targets)
- ◆ [Proposed Principles, Goals and Objectives](#)
- ◆ [Proposed Strategies and Actions](#)
- ◆ [Extending the Life of Hartland Landfill](#) (information on Hartland 2100 and impacts)



Open house display boards

Solid Waste Management Planning

- It's time to update our Solid Waste Management Plan.
- BC's Environmental Management Act requires regional districts to develop plans for the management of municipal solid waste and recyclable materials.
- The Capital Regional District has prepared principles, goals and objectives for a new plan, together with draft strategies and actions for review and input.
- Tell us what you think — your input will help us to develop the draft plan.

WE ARE HERE

Solid Waste Management Plan

CRD

Working Together to Rethink Waste

- Waste management has changed significantly over the years. It is a shared responsibility.
- A new plan will ensure we continue to manage solid waste in the best way possible.
- The plan is looking at ways to extend the life of Hartland Landfill beyond 2100 by:
 - significantly reducing waste;
 - reusing and recycling materials; and
 - considering future landfill design options.

Target: Reduce Waste by at least one-third

In 1998: 380 kg per capita per year

By 2020: 250 kg per capita per year

Solid Waste Management Plan

CRD

Hartland Landfill Waste Stream Analysis

Solid Waste Management Plan

CRD

Proposed Guiding Principles and the 5R Hierarchy

The CRD Board has endorsed these guiding principles for the plan, based on provincial guidance:

- Promote zero waste approaches and enhance others in support of a circular economy.
- Promote the 5Rs (Reduce, Reuse and Recycle).
- Maximize beneficial use of waste materials and manage residuals appropriately.
- Support polluter-pay and user-pay approaches and charge residuals appropriately.
- Prevent organic, recyclable 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.
- Level the playing field within regions for private and public solid waste management facilities.

The plan follows the 5R pollution prevention hierarchy:

Solid Waste Management Plan

CRD

Proposed Strategies

GOALS	STRATEGIES	RECOVERY AND RESIDUALS MANAGEMENT
Have informed citizens who participate effectively in proper waste management practices.	7. Increase Residential Diversion	14. Optimize Landfill Gas Recovery
Reduce the provincial per capita waste disposal target.	8. Increase Multi-Family Diversion and Institutional Diversion	15. Enhance Hartland Disposal Capacity
Extend the life of Hartland Landfill to 2100 plus.	9. Support Existing and New Extended Producer Responsibility Programs	
Ensure that the CRD's solid waste services are financially sustainable.	10. Support Local Governments in Working Towards Zero Waste and a Circular Economy	
	11. Municipal Organics Diversion and Processing Capacity	
	12. Increase Construction, Renovation, and Demolition Material Diversion	
	13. Encourage Proper Public Space Waste Management Activities	

Solid Waste Management Plan

CRD

Reduce and Reuse

Strategy 1: Continue And Enhance Education Programs

- Ensure up-to-date education resources.
- Use a variety of strategies to effect behavior change.
- Expand education to multi-family and business sector.
- Enhance K-12 school programs.
- Collaborate with stakeholders on education.
- Continue supporting recognition programs.
- Consult with residents, as appropriate.

Strategy 2: Encourage Waste Prevention

- Promote less consumption.
- Establish a new waste reduction grant program.
- Support single-use item reduction efforts.
- Promote sustainable purchase options.
- Advocate to limit single-use items.
- Advocate for sustainable product design.

Solid Waste Management Plan

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Reduce and Reuse

Strategy 3: Support Reduction of Avoidable Food Waste

- Support residential food waste reduction.
- Support business food waste reduction.
- Continue to support food recovery organizations.
- Advocate for legislation to clarify food expiry dates.

Strategy 4: Support Reuse Activities in the Region

- Continue to offset garbage fees for non-profits.
- Continue to support downtown reuse.
- Support reuse, recycling and sharing programs.
- Investigate local facilities at local facilities.

Solid Waste Management Plan

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Reduce and Reuse

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

- Develop model language for use by municipalities.
- Help identify the need for solid waste facilities and zoning.
- Investigate "Pay-As-You-Throw" principles.
- Investigate use of clean bags for garbage and recyclables.

Strategy 6: Continue And Enhance Policy Development

- Develop model procurement policies.
- Continue to expand material bans.
- Investigate licensing waste management facilities.
- Investigate regulatory mechanisms to manage materials.
- Investigate options for debris from extreme weather.

Solid Waste Management Plan

CRD

Recycle

Strategy 7: Increase Residential Diversion

- Continue to promote diversion.
- Support depot diversion of non-curable materials.
- Encourage local programs and markets for organics.
- Develop tools to support event recycling.

Strategy 8: Increase Multi-Family Diversion

- Allocate resources to support multi-family recycling.
- Develop waste source separation requirements.
- Develop building space and access requirements.
- Support recycling, e.g. develop "take-the-liner" program.

Solid Waste Management Plan

CRD

Recycle

Strategy 9: Increase Diversion from Industrial, Commercial and Institutional (ICI) Facilities

- Allocate resources to increase ICI diversion.
- Advocate to expand paper/packaging product stewardship to ICI sector.
- Create a business waste reduction toolkit.
- Ask for waste management plans to business licenses.
- Develop building space and access guidelines.
- Develop waste source separation requirements.
- Investigate enforcing bans at the generator level.

Solid Waste Management Plan

CRD

Recycle

Strategy 10: Support Existing and New Extended Producer Responsibility (EPR) Programs

- Advocate to the Province to expand EPR programs.
- Help the Province to identify priority EPR programs and consider adding new ones.
- Collaborate with product stewardship to increase consumer awareness.
- Advocate for increased return-to-retailer opportunities.
- Advocate to standardize EPR programs across Canada.

Strategy 11: Increase Organics Diversion and Processing Capacity

- Continue to promote organics waste diversion.
- Investigate developing local organics processing facilities.
- Investigate regulatory mechanisms to manage materials.
- Support compost markets by purchasing back materials.
- Help develop guidelines for compostable products.

Solid Waste Management Plan

CRD

Recycle

Strategy 12: Increase Construction, Renovation and Demolition Material Diversion

- Develop a collection strategy.
- Develop and disseminate educational tools.
- Promote green building standards.
- Develop and use policy tools.
- Investigate and use, including a clean wood waste bin.
- Develop binning or curbside mixed loads at the landfill.
- Develop programs to manage hazardous materials.

Strategy 13: Encourage Proper Public Space Waste Management Activities

- Develop educational materials to prevent, reduce littering.
- Educate about proper management and disposal.
- Collaborate on a regional approach to prevent illegal dumping.
- Investigate developing regionally-aligned laws.
- Develop pilot methodologies to "observe, record and report".
- Investigate options for large bulky item disposal.

Solid Waste Management Plan

CRD

Recover and Residuals Management

Strategy 14: Optimize Landfill Gas Management

- Continue to capture landfill gas for beneficial use.
- Review CRD recovery inventory and/or environmental reports.
- Investigate collaboration with educational institutions.

Strategy 15: Enhance Hartland Disposal Capacity

- Review ban enforcement levels.
- Continue to optimize Hartland using best practice.
- Maximize disposal capacity until 2100 and beyond.
- Research and investigate emerging technologies.

Solid Waste Management Plan

CRD

Hartland 2100 Design Concept

Hartland 2100 is a long-term design concept to extend the capacity of the landfill from the current 2015 design to 2100 and beyond.

The concept proposal is:

- Expand the disposal area both horizontally and vertically within the existing property boundary (this includes some mountain biking trails within the landfill boundary).
- Continue rock extraction to create landfill space; store the rock for reuse and remove excess rock as needed.
- Transition access for larger trucks to Willis Point Road.

Planning for Hartland 2100 needs to start now to ensure the most effective design.

Solid Waste Management Plan

CRD

Maintaining Financial Sustainability

The goal is to ensure that the CRD's solid waste services remain financially sustainable.

How is Solid Waste Funded Today?

- Solid waste management is currently self-funded with the majority of revenues coming from landfill tipping fees and service delivery agreements for stewardship materials.
- It does not require local tax dollars.
- Any surplus is added to a Sustainability Reserve Fund.

What is the Impact to Financial Sustainability?

- With less waste going to Hartland Landfill, revenues from tipping fees will decline.
- Proposed new programs are anticipated to increase annual spending by about \$350,000.
- There are sufficient funds in the Sustainability Reserve Fund for the 10 year span of the plan.
- The financial model may be impacted by major projects that are currently contemplated by the CRD district.

Solid Waste Management Plan

CRD

Target

In 2018, waste disposal at Hartland (from all sources) equated to about 380 kg per resident per year. The proposed target is to reduce this by over one-third to 250 kg per resident per year by 2030.

Principles, goals and objectives

Guiding Principles

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

Plan Goals

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

Plan Objectives

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

Strategies and actions

Strategy #1: Continue and enhance education programs

- A. Ensure ongoing, up-to-date promotion and education resources to enable effective participation in CRD programs and initiatives
- B. Incorporate behaviour change components wherever possible (e.g., community-based social marketing); using a variety of education and communication strategies and tools, including digital marketing tools (e.g., social media)
- C. Expand education programs to multi-family and ICI (industrial, commercial and institutional) sector
- D. Enhance K-12 school program to include concepts of circular economy
- E. Collaborate with stakeholders on education campaigns, (e.g. local governments, product stewards)
- F. Continue supporting environmental stewardship recognition
- G. Continue to engage residents on solid waste matters; using the appropriate level of consultation

Strategy #2: Encourage waste prevention

- A. Promote less consumption and advocate for consumer responsibility
- B. Establish a community-based waste reduction grant program (could include food waste prevention projects)
- C. Support single-use item reduction efforts
- D. Promote sustainable and/or packaging-free purchasing options
- E. Advocate provincially and federally to limit or eliminate the manufacturing, distribution or sale of single use items and non-recyclable materials
- F. Advocate provincially and federally for sustainable design (e.g., standardized packaging that is reusable, recyclable, or compostable)

Strategy #3: Support reduction of avoidable food waste

- 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 and educate accordingly

Strategy #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. Support reuse, renting and sharing programs, such as tool libraries, repair cafes, and sewing hubs, and other materials exchange activities
- D. Investigate free store at Hartland landfill or other facilities

Strategy #5: Support local governments in working towards zero waste and a circular economy

- A. Develop model language for bylaws, best practices, official community plans, and economic development strategies for use by local municipalities using research and collaboration to guide this process
- B. Work with local municipalities to identify the need for solid waste facilities and zoning for waste management activities
- C. Use policy tools to enable local recycling infrastructure
- D. Investigate 'Pay-As-You-Throw' principles to use as tools to incent less waste disposal
- E. Investigate use of clear bags for garbage or recyclables collection to encourage proper recycling of materials, where practicable and enforceable (e.g. at events)

Strategy #6: Continue and enhance policy development

- A. Develop model procurement policies for use by local governments, non-profits, etc.
- B. Continue to expand material bans when viable alternatives exist
- C. Investigate licensing waste management facilities in the region to encourage transparency, consistency, and a requirement that all facilities protect public health and the environment
- D. Investigate regulatory mechanisms to manage municipal solid waste and recyclable materials in the region
- E. Investigate options for debris from extreme weather such as community chipping days or special burning allowances in electoral areas

Strategy #7: Increase residential diversion

- A. Continue to promote diversion of recyclable materials (including organics), ensuring that education strives to minimize contamination in these streams
- B. Collaborate with municipal and private sector service providers to support depot diversion efforts in the region for non-curbside materials
- C. Encourage local processing and markets for recyclables
- D. Develop tools, such as a guide, to support event recycling

Strategy #8: Increase multi-family diversion

- A. Allocate resources to support multi-family (MF) recycling, for example, by developing standardized education materials
- B. Work with local governments and private sector service providers to develop waste source separation requirements
- C. Develop policy guide for recycling, composting and garbage space and access in multi-family developments
- D. Collaborate with stakeholders (e.g., private haulers who service MF buildings or MF property managers) to implement support for MF recycling, such as a 'Train-the-Trainer' Program

Strategy #9: Increase ICI diversion

- A. Allocate resources to increase ICI diversion, for example, a business waste reduction liaison
- B. Advocate to expand the packaging and paper product EPR program to the ICI sector
- 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 local governments and private sector service providers to develop ICI waste source separation requirements
- G. Investigate shifting disposal ban enforcement to generator, rather than hauler

Strategy #10: Support existing and new EPR programs

- A. Advocate to the province to expand extended producer responsibility (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. Advocate federally to standardize EPR programs across Canada

Strategy #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. Support compost markets by purchasing back materials

- D. Collaborate with service providers and users (e.g., local businesses) to develop guidelines for use of compostable products and packaging

Strategy #12: Increase construction, renovation and demolition material diversion

- A. Develop a comprehensive CR&D strategy, including characterization of materials, best practices, and pilot projects
- B. Develop and disseminate educational tools to support CR&D material diversion, e.g., create an industry toolkit, a deconstruction guide, and/or guidelines for diverting and utilizing reused materials
- C. Promote green building standards
- D. Continue collaboration with local governments to develop and use policy tools (e.g., construction permits, building codes) to maximize diversion and to align management plans
- E. Investigate beneficial uses of CR&D waste, including a clean wood waste ban
- F. Investigate banning or surcharging mixed CR&D loads at the landfill to encourage source separation
- G. Further develop programs for managing hazardous materials, like asbestos

Strategy #13: Encourage proper public space waste management activities

- A. Develop educational materials to prevent and reduce litter and abandoned materials in our neighbourhoods and public spaces
- B. Continue promoting alternatives to abandoned materials and illegal dumping by educating about proper management and disposal
- C. Collaborate with stakeholders, including local governments and private sector facilities, to develop a regional approach to prevention of illegal dumping
- D. Investigate developing regionally-aligned bylaws
- E. Develop and pilot methodologies to 'observe, record, and report' on abandoned materials and illegal dumping incidents throughout the CRD
- F. Investigate options for large bulky item disposal, e.g., free drop-off days or large item pick-up days

Strategy #14: Optimize landfill gas management

- 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.

Strategy #15: Enhance 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.

Attachment 5. Feedback Form



Feedback Form

Comments received will be summarized and shared with the CRD Board and Ministry of Environment & Climate Change Strategy as part of the Solid Waste Management Plan's approval process. Please do not provide any information that could identify yourself or others in your responses. No individuals will be identified and no comments will be attributed to any individual in any reports or communications resulting from this survey.

A. About you

Where do you live?

- | | | | |
|--|---|---|---|
| <input type="radio"/> Beecher Bay First Nation | <input type="radio"/> Juan de Fuca | <input type="radio"/> Pauquachin First Nation | <input type="radio"/> T'Sou-ke Nation |
| <input type="radio"/> Central Saanich | <input type="radio"/> Langford | <input type="radio"/> Saanich | <input type="radio"/> Tsartlip First Nation |
| <input type="radio"/> Colwood | <input type="radio"/> Metchosin | <input type="radio"/> Salt Spring Island | <input type="radio"/> Tseycum First Nation |
| <input type="radio"/> Esquimalt | <input type="radio"/> North Saanich | <input type="radio"/> Sidney | <input type="radio"/> Southern Gulf Islands |
| <input type="radio"/> Esquimalt Nation | <input type="radio"/> Oak Bay | <input type="radio"/> Songhees Nation | <input type="radio"/> Victoria |
| <input type="radio"/> Highlands | <input type="radio"/> Pacheedaht First Nation | <input type="radio"/> Sooke | <input type="radio"/> View Royal |

What type of dwelling do you live in?

- Single family home
 Multi-family home
 Other (please specify) _____

Are you responding as:

- Resident Business Producer Retailer
 Local government Non-government organization Other (please specify) _____

B. Proposed Principles, Goals and Objectives

Rate your overall support for the principles, goals and objectives for the new solid waste management plan.

- Strongly oppose Oppose Neutral Support Strongly support

C. Proposed Strategies

The CRD is considering 15 strategies, each with a series of actions, to help meet the proposed waste reduction target.

Rate your support for each strategy	Strongly oppose	Oppose	Neutral	Support	Strongly support
#1: Continue and enhance education programs					
#2: Encourage waste prevention					
#3: Support reduction of avoidable food waste					
#4: Support reuse activities in the region					
#5: Support local governments in working towards zero waste & a circular economy					
#6: Continue and enhance policy development					
#7: Increase residential diversion					
#8: Increase multi-family diversion					
#9: Increase diversion from industrial, commercial and institutional facilities					
#10: Support existing and new extended producer responsibility programs					
#11: Increase organics diversion and processing capacity					
#12: Increase construction, renovation and demolition material diversion					
#13: Encourage proper public space waste management activities					
#14: Optimize landfill gas management					
#15: Enhance Hartland disposal capacity					

Over...

D. Proposed Target

The target is to reduce solid waste from 380 kg per person per year to 250 kg by 2030. Rate your support for this target.

Strongly oppose Oppose Neutral Support Strongly support

Comments and suggestions:

By choosing to submit your response, you provide the CRD with your expressed, written consent to use this information for the purposes of engaging and consulting with the public in association with this project. Any personal information collected by this form is in accordance with s.26 (d) and (e) of the Freedom of Information and Protection of Privacy Act. Inquiries about the collection or use of information in this form can be directed to Russ Smith, Senior Manager, Environmental Resource Management, Capital Regional District, 625 Fisgard St., PO Box 1000 or 250.360.3080.

Attachment 6: Input Received

1. Comments related to Target and Timeline

Explain how the disposal rate target is calculated

- ♦ Measurements of the objectives are lacking so the targets are unclear and it's not apparent how we will determine whether we've been successful
- ♦ I would like to see more specifics about targets.
- ♦ Are your measures strong enough to do this?
- ♦ I have no idea what a reasonable amount is.
- ♦ Don't have enough knowledge of volume to comment on what's reasonable
- ♦ I have no information to assess how realistic this is
- ♦ Are these figures annual numbers?
- ♦ Is the 380kg per capita based on one year or? Not clear to me.
- ♦ I cannot believe the average person has 380 kg of solid waste per year. That is over a kilogram a day. There is no way that much is in my garbage can!
- ♦ Do you mean per year?? "The amount of waste going to Hartland Landfill is 380 kg per capita (or per person)."
- ♦ Is this target per year? Does it include industrial waste? Of course, I think it's always great to aim to reduce waste, but this target is confusing. How much of this are individual residents responsible for (i.e., how much of it is household waste?). Is this target telling people to reduce their individual waste by a third?
- ♦ Does this target take into account the amount of material that ends up in the landfill from corporations? (Construction & manufacturing industries?)
- ♦ Does this include ICI waste? Is this a fair comparison with other communities that do include ICI waste in the per capita estimate?
- ♦ Does this refer to all waste going to Hartland divided by the number of residents? Or all residential waste (separate from commercial and construction waste) divided by the number of residents? You have to have good accounting of waste streams to craft adequate targets and policy
- ♦ And does the figure above include construction waste from destructive over-development rabidly pursued by local governments? I would consider making it very difficult for retailers to market, ship, or sell useless, low-quality, plastic crap on us in southern Vancouver Island.
- ♦ How do you arrive at 380 kg per capita? Is it all the waste (residential and ICI) divided by the number of residents in the CRD? Our household of 2 generates about 20-30 kg per year without any hardship, so I am amazed at the 380 kg figure.
- ♦ It would be useful to know what the breakdown of types of waste and quantity tends to be across individuals according to demographics and municipality. This way it would be easier to identify how the various actions can play a role for individuals to reduce their waste output - and to increase diversion.
- ♦ Your figures are misleading if they include commercial operators in the targets. My household is nowhere near 380kg/person. It's hard to support the CRD in their objectives if they give false/misleading information to the public.
- ♦ Are these numbers based solely on waste collection from households or are these numbers based on the cumulative collection of waste from all sources and then assigned a per capita. If so, this is misleading and for people to be more on board a more transparent process should be in place. For example, how much waste is generated from institutions, public facilities, etc. How much waste is generated from households? How much waste is generated by the CRD through its own facilities (CRD occupied or leased)? Citizens (and in particular, taxpayers) need to see clearly where the most waste is being generated and by which group before making an informed opinion on the proposed target.
- ♦ We generate 1 bag of garbage in 3 months for a family of 3 - by recycling everything we can, including what is NOT accepted in the blue box - without making huge sacrifices. So what I wonder is this number including all the commercial

and industrial waste that comes to Hartland and what is the CRD doing to curb that? It's expressed as per capita - but what percentage is households?

- ♦ I don't understand what the implications are in the proposed target, further contextualization of that amount would help me to understand why that amount is significant to the CRD.
- ♦ This number means very little to me. Could it be expressed in garbage can equivalents or something everyone could relate to visually? I am currently paying by the container that I picked but my garbage is only full a few times a year and often then it's because we take our neighbour's bags if his container is full. We usually only have about 2 small bags in our container except at Christmas. The organics one is usually full of food and garden waste.
- ♦ How does this translate into garbage bins per week? I've seen the x-number of Olympic swimming pools, but a volume measurement equal to the bin I use would be informative. Does this mass per capita include commercial waste?
- ♦ This means little to me as I'm unclear what it would take to reduce my garbage by weight. I know how big my garbage can is and how many times it is picked up for disposal.
- ♦ I don't understand the need for the target (e.g. what are the consequences if waste continues to be 380 kg per capita), nor do I understand how realistic it is to reduce waste by one third. Some waste is avoidable, but a lot of waste is probably inevitable.
- ♦ Without the proper data and research done to come up with these figures, the numbers are irrelevant.
- ♦ Note: These are not targets as they are not measurable. All you seem to have presented are general goals.
- ♦ Where did this target come from? Is it based on research at all, or just selected based on what might be feasible? Just curious about how this target was selected. Overall, I'm very supportive of this whole initiative!
- ♦ At 380kg per capita we are already meeting provincial recommendations. What would happen if we are unable to meet the almost 25% reduction in waste and what impact would that have on the proposed landfill expansion plan?
- ♦ How does this target fit in with the current climate change scenario where the world as we know it will have ground to a halt by 2030?
- ♦ Though I am not sure what this means in terms of actual waste management. I suspect those who have already reduced their waste will be the easiest group of residents to work with and reduce their waste even more. It will be more difficult with those who create more waste and do not think too much about what happens to it (or care).
- ♦ I may be able to reach this goal easily in my household, but I think it needs to be a flexible goal based on a family, couple, or individual needs. There are also so many houses that don't have legal suites and share garbage limits already in place. I think this ends up spilling over into other public garbage collection. Perhaps families with children (thinking diapers and general more garbage) need to have flexibility or options.
- ♦ Is this a realistic target, based on projected savings from strategies 1-14? Or is there another component to this plan? It should not be at the expense of the environment, the neighbourhood, or the surrounding communities. Clearly explain the plan to stakeholders and proceed only after extensive consultation with communities which will be affected by the plan.
- ♦ Where is the "saved" 130kg of waste going to end up? And if it includes human excrement how is that going to happen?

The target needs to be more aggressive in a shorter timeframe

- ♦ BUT THE TARGET IS TOO LOW OF A STANDARD!
- ♦ Maybe this is too modest a target. It doesn't take much effort to divert 98% of plastic waste away from landfills.
- ♦ Could increase the above target
- ♦ Could reduce target further
- ♦ Overall support but want more aggressive.
- ♦ I am interested to hear more about initiatives that will help execute these targets.
- ♦ Also, 250 kg is too high an acceptable figure. Hold public demos, ads on TV, helpful hints. We must do better.
- ♦ I am afraid that even a 33% reduction is too modest, considering how wasteful our society is. But this should be a realistic goal.

- ♦ I believe it is a step in the right direction, but it would be great if we could see leaps being taken rather than steps. we need to look at not just the management of waste we are creating today but also the management of waste we have already created and how we plan to clean up the ecosystems because of this waste,
- ♦ Please lead the region into a regenerative tomorrow and thus sustainable 2030. Propose and then show us a new way. Please don't merely incrementally tweak current 'waste management' operations and programs.
- ♦ Ideally, it would be much better to reduce the amount of waste by much more than a third.
- ♦ I think that is still a ridiculously large number. I may be ignorant of the issue and the feasibility of further reducing but I personally produce almost no garbage.
- ♦ I think we can reduce by even more if all the strategies proposed are adopted.
- ♦ I urge you to find ways to reduce the amount going to Hartland than your present goals. If we have less on Pender, then it proves it can be done. The question you should ask yourself is what steps do we have to take to get to the per capita rate in the CRD to Pender levels?
- ♦ I wonder if we can do better than 1/3 reduction in ten years. It sounds like a good start.
- ♦ Increase the reduction.
- ♦ I'd like to see it even lower.
- ♦ Reduce it even more!
- ♦ target could be higher
- ♦ Target is not ambitious enough and permits too much waste generation per capita.
- ♦ Target needs to be more aggressive.
- ♦ Target seems low- we should try to do much better in terms of lowering kg/capita
- ♦ We should be able to do better than this
- ♦ I hope the reduction will be even greater than quoted.
- ♦ Would like to see stronger target.
- ♦ But I think we need to be even bolder with our target.
- ♦ Be more ambitious!
- ♦ Is this per year! I should think people could throw away far less than 250kg
- ♦ It might not be aggressive enough.
- ♦ How about lower?
- ♦ It needs to be more. Rule of thumb when it comes to climate change issues, it always needs to be much more than estimated. We've been wrong before.
- ♦ Aim for even lower target. This is still too high.
- ♦ 250kg/person/year seems very high. I produce one shipping bag of garage at home every 3-4 months. Everything else are composted or recycled. Of course this doesn't include the waste that I'm responsible indirectly such as eating out, etc.
- ♦ Could it be made even more ambitious? Have an intra-city competition? What would a per person ambitious target look like?
- ♦ We need to be far more aggressive.
- ♦ Go higher :) Reduce even more!
- ♦ Would like to see an even larger reduction of waste!
- ♦ Hopefully these efforts will reduce per capita waste by even more.
- ♦ Hopefully, we can do better than the proposed target.
- ♦ Your targets are too low and over too long a time frame. Most of this could be achieved in 2 years if everyone got behind it. Look to see what other countries like Germany have done, No need to reinvent the wheel and waste tax payers money.
- ♦ Would love to see us get even better than that!!!!
- ♦ We need to do this now. We are drowning in garbage
- ♦ WE CAN EVEN DO BETTER
- ♦ We could actually try for a much lower amount. 'A person's reach should exceed his grasp...'
- ♦ We could and must do better.

- ♦ We absolutely have to do this.
- ♦ Totally possible and then some!
- ♦ While overall reduction of waste per capita is desirable, this target is unambitious and vague.
- ♦ Too little and too slow
- ♦ Though I think it could be reduced further!
- ♦ The more decreases the better!
- ♦ Should be even lower!
- ♦ Should be even lower.
- ♦ Should be less!
- ♦ Not aggressive enough.
- ♦ I think we could do even better than that. But 250kg/capita is a good starting point.
- ♦ I think we should be as aggressive as possible to create foundational change,
- ♦ I think we should have less... but the elephant in the room is our culture and you have already built the education and shifting message into the plan.
- ♦ I would prefer to see lower targets.
- ♦ I would support a much lower per capita target. Hydro gives incentives for lowering power consumption. It would be great if there could be a similar scheme for waste reduction, but it would be very difficult to detect cheating (dumping waste anonymously).
- ♦ I'd like to say we could shoot for greater reductions... but that may be idealistic...
- ♦ I would support a more radical plan that decreased waste to under 50 per capita with the end goal of a zero-waste community by 2030.
- ♦ I would like to see the proposed target even lower!
- ♦ I would love to see as big a reduction of possible of course, be as aggressive as necessary Not enough.
- ♦ I think we can do better than 250 KG per capita by 2030
- ♦ I support this 100 percent. Would love to see it far below 250 kg per capita.
- ♦ I think if we saw significant behavioral changes this could be even lower!
- ♦ Should be way less.
- ♦ It would be nice to think that garbage could be reduced even more.
- ♦ Should go further!!
- ♦ Make it tougher.
- ♦ Make the target smaller.
- ♦ Maybe the target should be more ambitious. What are similarly progressive communities around the world targeting?
- ♦ Probably a realistic target though the situation requires urgent action before we drown the planet in a sea of plastic
- ♦ It's a good goal, but why not even lower?
- ♦ I support a reduction. The more we can reduce that number the better.
- ♦ The proposed number is still way too high to be sustainable. If we believe that Victoria will exist as a desirable community for as long as many other cities have done so during the past few millennia, we need to plan on accepting waste for several thousand years. Since our city is less than 200 years old and Hartland is less than half that age, we will need at least 10 Hartlands to serve the city during our expected city life span even if we reach the proposed 50% reduction in solid waste and our population our population does not increase throughout that time.
- ♦ This is the key area, develop actions around known garbage resources, planning is great but can become a means unto an end. Action is key This is a very weak target. Reduce to 50kg or less - new technologies etc. should make this possible by 2030. All garbage should be a resource, not a landfill number except for a very few items. As a last resort, get an incinerator to burn most of the Hartland materials with appropriate emissions capture Plan to never have Hartland full
- ♦ Since plastic waste and other waste issues are so impactful, I think the proposed target seems low; i.e., the target should be to reduce by 50%.

- ♦ I'm neutral as I'm not sure how you get to 380, and it's per day per person, per week per month...but whatever the new goal must be more aggressive. Try reducing at least by half...it's too easy.
- ♦ I'd like to see it halved by 2030.
- ♦ Would like to see target of 1/2, not 1/3
- ♦ It should be at least halved. It should probably be closer to 120Kg per capita. I can propose this based on experience. Having moved to Pender Island in 2018, I know that MOST of my "waste" now goes to the recycling depot. Or I sell it or give it away online. I produce 1 - 2 bags of "trash" per month, which is probably about one eighth of the amount I produced when I lived in Vancouver. The key is to GET PEOPLE TO PAY PER KG or LITRE OF TRASH THEY PRODUCE but to enable this, they need to have access to very comprehensive recycling facilities.
- ♦ I would like to see an even bigger target, to reduce by half. I know it is possible because we hardly produce any garbage at all. We have one small grocery-sized bag every two weeks for two people in our household.
- ♦ It should be half or less of what it is today, because "business and progress as usual is no longer good enough!!!" Have a look at this: <https://lenews.ch/2016/12/23/swiss-fact-switzerland-sends-no-urban-waste-to-landfill/> Swiss fact: Switzerland sends no urban waste to landfill! PS: Swiss people produce a lot of waste, BUT about 50% is recycled AND about 50% is incinerated in 30 regional 'High-tech' incinerators, that produce about 3% of all electricity and a lot of 'heat' for local heating of numerous dwellings. Also as a by-product the 'collect' about 200 to 250 kg (= kilograms) of GOLD from the 30 incinerators - now you know why Switzerland is so rich!
- ♦ Seems too high, residential waste should be possible to reduce < 50 kg per person quite easily. Industry is harder but more effort needed to identify where the waste is coming from.
- ♦ I don't think this number is a strong enough goal...how about striving to get it down to 50 kg by 2030! Let's aim high! Humans are producing too much waste and we need to take drastic measures to save the planet!
- ♦ That's a huge amount of waste. Our household's annual total is probably less than 50 kilograms, quite possible less and we don't create even one kg per week. The target could be lower.
- ♦ 250 would be an improvement, but not a sufficiently ambitious target. Try, instead, for something like 150 kg.
- ♦ A target of 100 kg per person is perfectly reasonable.
- ♦ The target must be 90% - we must set this high bar and do everything in our power to achieve it. The time is ripe and the time is now.
- ♦ I support additional reductions, sooner. Enough with the engaging and consulting!
- ♦ The goals need our urgent attention, but this plan is long on policy and educating (it sounds like months of meetings) and short on action. It's long past time to move on this, and I encourage you to act rather than schedule reviews and draft educational materials.
- ♦ I suggest focusing on the most impactful strategy for each to pour your focus and attn on rather than spreading your efforts and momentum so thin. This plan looks to me like it will move REAL slow as there are so many strategies.
- ♦ 2020 is too long a time for this goal of getting to 250 kg.
- ♦ Don't commit or advertise the goal of 2030 - makes people think they have lots of time! It will take everyone years to get used to the new reality.
- ♦ I believe that I can reach that target and hopefully sooner than 2030 I will set my goal to 2025 The planet is in urgent need of change and help and I would like to do anything I can to help Everyone has to remember to bring their own recyclable bags to all types of stores Plastic is a larger problem than just banning plastic bags from grocery and other stores I have to buy plastic garbage bags now which defeats the whole premise of banning these plastic bags Everything is made of plastic that we currently purchase - my shower nozzle is plastic and not stainless steel as I originally thought it was - I could not believe it is hard to find anything made from glass, ceramic or original materials Toothpaste, medicine, cosmetics of all types everything seems to be made of plastic I sign myself as a concerned citizen
- ♦ We must do this much sooner. It should not take us 11 years to get clued in to what we ought not to either buy in the first place or find some other use/owner for it
- ♦ Timeline for 33% reduction should be reduced, e.g. 2025, or per capita amount of waste reduced to 50% by 2030.
- ♦ I would support a much faster action to move to that target and would prefer to see a target of reduction by 1/2 by 2030
- ♦ It's understandable that things take but 10 years is extremely generous when we should be looking at solutions that can be implemented right away.

- ♦ Make this target for 2025
- ♦ Great idea if it were to be reduced by next year. 2030 is much too far away. More appropriate to the current garbage overproduction would be to reduce it to 250 kg. per capita by 2021 and to 150 kg. per capita by 2030.
- ♦ Bump up that timeline. 250kg of garbage per person is plenty!! I don't see why that needs to take 10 years.
- ♦ I think we could aim to reach this target sooner with a good education campaign and supports. If you look at new policies being considered in Europe and how cities are incentivizing non-packaged goods and driving the management of waste both through the individual consumer and also through the producers, we would be able to effectively cut our waste much more. Although I'm sure this target is well calculated and thought out, I think we could aim even higher....zero waste!!
- ♦ The sooner the better - these strategies need to be implemented now.
- ♦ Sooner is better
- ♦ Isn't this kicking the can down the road?
- ♦ Should happen sooner.
- ♦ Sooner is better
- ♦ Not moving fast enough. Taking too long and wasting tax money in talk.
- ♦ Far too long.

Consider effect of population growth on garbage generation

- ♦ Will population growth outpace any benefit from the per capita reduction?
- ♦ Not sure how your number calculate the population increase in the area, if we increase the number of people by 10% by 2030 and dropping the number to 250 . Would not the increase of population nullify that target?
- ♦ Basing on per capital would still enable increase in waste as our population grows. Suggest both a per capita reduction (as in this target), AND an overall entire population yearly reduction target.
- ♦ How effective will this proposed target be if the CRD is also promoting continued population growth and housing development?
- ♦ Difficult to assess without more information, however with a growing population the target is likely not ambitious enough.
- ♦ We need to have higher targets for reduction as the population growth in CRD is also increasing and we leave on a finite island in a finite world.
- ♦ With the predicted increase in population, we will need to reduce more, if any dump is to be viable
- ♦ Should be lower, but I don't see how the CRD can do it given population growth, lack of meaningful action by senior government.
- ♦ I cannot see where you allowed for an increasing population in the area.
- ♦ Stop encouraging people to move to southern Vancouver Island - as we are clearly now beyond a healthy realistic carrying capacity.
- ♦ The population in the CRD is increasing so we need to consider that.
- ♦ While I agree with most of the principles (i.e. promoting less waste) I find the principles, goals and objectives to be lacking in one key area - how they integrate overall with the region's existing infrastructure (roads, traffic, unchecked development and population growth plans, for example).
- ♦ The CRD's strategies are in conflict with the unchecked development and population growth strategies (i.e. Langford). If municipalities are allowed to promote constant growth, the CRD strategies will fail. None of these strategies address and target water quality impact of an increased landfill capacity. None of these strategies address and target the impact on the infrastructure caused by unchecked development in places such as Langford.
- ♦ The objectives appear to omit any reference the ultimate goal - against which all other goals should be measured; namely "to ensure that a realistic and comfortably healthy carrying capacity for the planet for all living species is respected and protected". Flowing from this, and measured against this ultimate objective, one would expect to see your list of goals include things like: (i) ascertain how many people the area can support in a healthy manner, such that each household has comfortable amount of living space with attached green space for their vegetables and for playing and resting on - and that they can walk to work and groceries - thereby reducing the creation of waste - and striking the right balance between

amount of waste in relation to amount of space to process it; (ii) spend our tax dollars to lobby the federal and provincial to transfer money to the municipal/regional level so that our elected officials and public servants aren't desperate for the income provided from development fees, building permits, and increasing the tax base. It is sickening to see local government obliterating communities, displacing people, increasing density like forced-laying chicken cages, no increase to green space, disrupting long established community networks of support, encouraging business to drive towering buses and speeding taxis through neighbourhoods that were once walkable, encouraging cruise ships to spew their passengers, waste, smoke, shuttles on what was once a walkable, quiet, healthy neighbourhood - and all along local government spends how much money on communications teams to tell us how great this all is and that it's actually helping people! It appears that we've long since hit our capacity in the southern Vancouver Island, but I regularly hear public servants and elected officials saying, "the sky is falling" "millions of people are moving here and we must accommodate them". "We can't control the number of people who are living here, we must destroy healthy neighbourhoods to accommodate all this people." "People who have worked their fingers to the bone for a little old house in their retirement must clear out so we can build condos for others who want to live here". "The growth factor of capitalism is king, there is no other solution!" It seems to me that no amount of smarmy communications lines can hide the fact that local government is focusing on growth and thereby destroying communities, ecosystems, air, water, people and living things in order to produce cash flow. Please get focused on the real objective - healthy and realistic carrying capacity. Through your weight behind alternate sources of operating funds; and instead of communications team - hire people to work on alternatives to focusing on the growth factor of capitalism. People are smart - they will find a way if asked to do so.

- ♦ Would consider a development freeze on all of Southern Vancouver Island.

The target is appropriate

- ♦ I am neutral because we do everything we can to recycle before it was even called recycle. garden, compost, make do, reuse, etc.
- ♦ I am very hopeful that this target will be reached. We need to change our solid waste management to match the ever-present environmental contamination that we are currently subject to.
- ♦ Perhaps reduce more in implementing the strategies but it is a reasonable target, with further reduction proposed for 2040?
- ♦ This is easily achievable. Quit fearing that waste will leave the region if you get too rigid on landfill bans and enact higher disposal tipping fees. Give CRD residents credit for wanting to do the right thing, they will follow.
- ♦ We live in a new condo in Vic West. We have multiple streams of solid waste leaving the building; garbage, paper, glass, plastics, batteries, tin cans and kitchen waste. Obviously there are facilities accepting the various streams. I hope those receivers can be expanded and utilized for those residents and buildings that don't currently separate their waste. A 30% drop shouldn't be a stretch.
- ♦ Let's be ambitious! We can be leaders in the country.
- ♦ That is a realistic target for a 10 year horizon. I hope we can exceed the target!
- ♦ Making sure you are reasonable in targets assuming many will be late adopters of anything you plan / propose / implement
- ♦ Ambitious
- ♦ Ambitious target but hopefully it will work
- ♦ Without knowing the reasonable chance for success, I think these targets re excellent.
- ♦ Who could argue?
- ♦ Go for it!
- ♦ Of course
- ♦ Once again, it's about time.
- ♦ Love it! DO IT!
- ♦ I strongly support the proposed target!! A positive move to address climate change and support a clean environment!!
- ♦ Laudable
- ♦ Whoopy do!

- ♦ Less waste is great! Very proud of this initiative.

The target may be unachievable

- ♦ Given the rate of recycling and diverting that we already do, I wonder if reducing the waste stream by another third is practical.
- ♦ Unlikely to reach a target like that.
- ♦ I find this an unrealistic goal.
- ♦ How are you going to get people to reduce waste by that much! People are probably going to be turned away at the entrance. you'll probably find more garbage being dumped on the roadside.
- ♦ It's already a struggle to deal with the small bins and infrequent trash pickups.
- ♦ Unless you revise the entire world's disposable economy there will always be an increasing amount of waste.

Achieving the target will require support from many sources

- ♦ Seems unrealistic without the **support of manufactures** to reduce unrecyclable or provide recyclable alternatives.
- ♦ More needs to be done with **construction, restaurant and manufacturing** waste.
- ♦ My support for this would depend on how you're planning to achieve this. If you're looking at **stopping the source of waste**, like over packaging and/or by-products from industry, I am in favour. If you are focusing on consumer action only, then I'm less in favour.
- ♦ If the CRD is willing to **accept more recyclable items at the curb side** (see my list on page 1 of this survey), this target is doable. However, if your idea of getting residents to reduce their garbage by increasing the garbage fee, you are going to end up with more illegal dumping.
- ♦ I hope you meet your target, but not on the backs of the citizens of James Bay. The most densely populated real estate in the who CRD.
- ♦ I support the goal to reduce what's sent to Hartland, as long as it doesn't encourage people to dump their garbage elsewhere. I used to own land in the Blenkinsop area and we constantly had people dumping their old mattresses, sofa's BBQ's, etc.
- ♦ I support this as long as the waste avoided does not end up in local areas.
- ♦ I support the proposed target to reduce the amount of waste each household/individual creates. That being said, I mountain bike at Hartland multiple times a week and to lose some of the trails would be pretty sad for the biking community. If we could find a way to decrease the waste going to the landfill and slow down the need to expand the waste facilities that would be awesome!
- ♦ I would like to see more specific targets identified so that we can tell when we have succeeded.
- ♦ I believe this is only possible if **solutions on the purchasing and recycling end** are found and supported. It will be hard, if not impossible for the average person to achieve this admirable goal without **more explicit directions and incentives**.
- ♦ I am in full support of this initiative but feel that, without **major industry cooperation and federal government commitment**, it will fall short of what's needed to stem the climate emergency.
- ♦ The number mean little to me and it would seem to me that the amount of waste generated is a direct relation to the **amount of packaging** used by manufacturers and the **recyclability of that packaging**.
- ♦ This may not be achievable, given the increases in the fast food, cheap imported clothing economy. There doesn't appear to be any reduction in the aforementioned, nor in the **reduction of packaging** etc.
- ♦ I feel the target is only possible with the **involvement of retailers who will accept the leftover packaging** from their merchandise- like what London Drugs does. If **stores would be stricter about what packaging they accepted** in their stores from manufacturers there would be less waste. There is no need for cucumbers to come wrapped in plastic!
- ♦ I like setting this target, but this would be more doable if only **recyclable packing was offered at the retail end** of things. It's time to make that happen.
- ♦ If stores get on board by **offering alternative packaging** (such as allowing customers to bring their own containers), if the blue box program expands to accept a greater variety of products and if the boxes improve by being larger and coming with a lid to avoid spillage all over the city, I am convinced that it will be easy to meet that target.

- ♦ We support the target however **only if it does not result in increased costs to homeowners.**
- ♦ It might be worth encouraging householders to weight their landfill garbage and figure out how much they're actually contributing; then they could take action and see the effect for themselves. Our family of 4 has 1 medium bag of garbage a week because we are able to participate in **Styrofoam and soft plastics** recycling at our workplaces. If this was **supported at curb-side** I am sure more families could decrease what goes into the landfill.
- ♦ Recognize that without **simple to use processes** (e.g. convenient pick up/ drop off of materials, automated materials sorting, minimization of waste at source, reduction of packaging, return to source solutions, etc. etc.) that the goals will not be met.
- ♦ I feel that this statistic is meaningless. What we need to know is the amount of residential waste per capita, which I feel is actually quite good (low) the culprit for waste is **commercial and construction waste as well as larger condo and apartment buildings** which have a lot of waste and cross contaminated recycling which turns out to be just expensive waste. I feel that small holding residential waste is largely well managed and the recyclables are quite well managed with the separation occurring at the pick-up point, targeting increased efficiency at the residential level is working at trying to increase an already quite efficient programme, in such circumstances it is marginally much more costly to make further improvements when you are already at a high level of efficiency. You need to target the larger scale disposers of unsorted waste if you want to make real headway on increasing the overall efficiency of the system.
- ♦ If this does not target **condos and construction**, you are wasting your time.
- ♦ I would rather see a smaller target by 2022 and then **increments** from there. I feel it's more effective to be consistently monitoring short term targets and that they will ultimately lead into a larger decrease in a long term period. An example: 345 by 2022 310 by 2024 275 by 2026 240 by 2028 200 by 2030
- ♦ If this is going to happen, you have to give people the tools and opportunities and fully explain why it needs to happen. Getting **buy-in** will be very important.
- ♦ In order to achieve this objective, the CRD needs to **make it easier** for householders to dispose of, recycle or re-use. Currently a great deal has to go into the landfill because there are no other options.
- ♦ In order to reach this goal, we need **support or tools to help us assess where we are individually (resident or business) with our current waste production and then simple strategies** to start improving waste reduction. And check ins, or check-ups need to be ongoing. I.e. what does a 33.3% waste reduction look like for my family or business?
- ♦ This is a CRD target but much of the responsibility for getting it done will at the municipal level who again will impose new costs for new services. what is linkage and what role must municipalities play if this is to be achieved.?

2. General comments related to guiding principles, goals and objectives

General support for the principles, goals and objectives

- ♦ Agree to decreasing waste.
- ♦ Any reduction of garbage disposal would be welcome
- ♦ I commend the efforts to reduce waste.
- ♦ The principles, goals, and objectives are good and address our current state of affairs well. However, in order for the CRD's Waste Management Plan to remain competitive it should focus on the 7 principles of stewardship: reduce, reuse, recycle, repurpose, rot, repair, and return.
- ♦ Particularly support #8 #9 #10 #12
- ♦ The principles, goals and objectives fully express MY principles, goals and objectives. I just hope CRD finds effective ways of communicating acting these and the many methods that will be used to achieve them, to everyone in our community. Not everyone accesses the same media.
- ♦ Thank you so much for doing this. It is so past time to get serious about our waste decisions.
- ♦ Thanks
- ♦ Thank you for the effort
- ♦ In general, I think the CRD is doing an excellent job managing the landfill and the recycling programs.
- ♦ Tricky project!

- ♦ Overall, the plan is great, and I'm thrilled to live in a place that has such a plan. Keep being great CRD!
- ♦ Really happy you guys are making efforts to reduce waste in our community. Thank you for all your hard work!
- ♦ Good luck
- ♦ Good luck!
- ♦ All common sense reasonable and good.
- ♦ Anything that can be done to reduce waste should be explored
- ♦ Creating a waste management system that is responsible for all the waste collected is key to ensuring a healthier environment.
- ♦ Need to educate, involve and measure improvement
- ♦ The planet needs our help, starting at the basics of waste reduction and management. Your efforts here to do more and educate the public are to be congratulated.
- ♦ After a lot of confusion, it looks like reducing waste is doable.
- ♦ Congratulations on an excellent report and the principles, goals and objectives it represents!!
- ♦ I believe the goals and objectives are achievable.
- ♦ I love all these goals! Great stuff.
- ♦ Great principles, goals and objectives but not nearly aggressive enough.
- ♦ Why settle for just surpassing the provincial target, take a leading position and set your own goal beyond this. What can you REALLY achieve if you stretch?
- ♦ These all seem fine, and seem like a kind of optimization of, incremental improvements to, the status-quo other than #5 this doesn't seem to get to the root causes of "waste" in our society. This initiative has much potential as you are showing. We need much more of this and these priorities. Thank you.
- ♦ The language used in some of the principles, e.g. # 4 is not committed enough. It should say: "Always prevent organics, recyclables and hazardous household waste from going into the garbage" and not just "wherever practical". We need real commitment for zero waste from our governments and citizens.
- ♦ Although the proposed principles, goals, and objectives are a step in the right direction they are not all that needs to be done and only addresses some issues we face today and not ones we will be facing in the futures as waste increases. We need to look not simply just towards reducing, reusing and recycling, but also looking at refusing. In this capitalist society people feel they NEED more and more but this all ends up in the landfill and contaminates many ecological systems. If one refuses items before they simply reduce, reuse and then recycle less will have to enter the waste management system in the first place. additionally, more emphasis needs to be put on reducing and reusing rather than recycling. Recycling should be ones last resort in modernized waste management. Managing our plastic waste especially is important and the CRD should look at ways we can clean up plastic pollution in our ocean and other ecosystems. We need to take ownership of mistakes and address them as serious ecological issues rather than pointing fingers at who is to blame.
- ♦ To Principles #1, 2, 6, 7, more should be done to not only educate citizens but actually facilitate the changes needed. Putting all the responsibility onto the citizen is exactly what the bottling industry did in the 70's by promoting recycling-- put all the onus on the citizen to clean up the mess while industry continued pumping out plastic. The biggest flaw in penalizing citizens and instituting bans is that it breeds frustration/backlash and doesn't actually make it any easier for "good" behaviours to be adopted. Imagine if the grocery stores had a UV sterilizer where your brought-from-home containers could be sanitized before filling up from a bulk milk or honey dispenser or using at the deli.
- ♦ Any and every Business, either Corporate, Industrial, small and individual, plus all residences of any category must equally contribute to the overall goal, principles and objectives. Not only looking fair but regulated to be fair by a new department of enforcement, paid by penalty payers. We have to be serious and look serious about our climate and waste
- ♦ Prevent waste from going into the garbage wherever practical (?) - it needs to be demanded. Otherwise too easy to ignore.
- ♦ Have the feeling that the PGOs are a bureaucratic perspective, safe, may not question why our society produces and then attempts to hide its waste
- ♦ While I agree with the principle of being increasingly aware and responsible in waste management, some of the proposals seem redundant as a duplication of provincial planning. Others seem 'policy heavy'.

- ♦ Goals are not focussed on serving the public. CRD needs a change in attitude and direction.
- ♦ Each Government agency or institution tend to focus in isolation on operating within economic boundaries. Nobody should disagree with the motherhood approach identified in the principles, goals and objectives however, there is only one source of financing programmes or changes in programmes. Unfortunately, this is the taxpayer and consumer, who are one and the same. Efficiency within Government administration has got to be reviewed and duplication in services is a luxury the taxpayer can no longer afford. CRD provide services to whom and for whom? Amalgamation is necessary to reduce duplication to free up financial resources to enable a strategic approach to effectively move forward to meet the principles, etc., etc., without further hardship on the taxpayer.
- ♦ Very concerned if objective 4 means distributed solid waste disposal & processing in neighbourhoods. Think economy of scale. Fine to encourage 3 R's and waste diversion locally, but waste disposal requires a coordinated approach. "Plan Objective 4. Maximize local solid waste disposal capacity"
- ♦ I strongly oppose the entire venture as a whole.

The principles, goals and objectives need to be more specific and stringent

- ♦ Principal 8 comes off as a vague political point rather than an action based principal
- ♦ I wish the P, G & Os were better defined. I would be inclined to give a higher rating, if that were the case.
- ♦ Principles and Goals are too vague - say what you mean!
- ♦ Principles 3, 7 and 8 are vague and feel read like loopholes for less than sustainable industry options for solid waste management.
- ♦ Why do we have to await the complications of these principles etc.?
- ♦ I support the principles, goals and objectives but they are nothing without solid executables which need to be drastic and above the norm. By that I mean, the general populace already reuse and recycle for the most part and we need to move away from the same old, tired 3 Rs.
- ♦ The 15 stated goals are vague in specific action. These could be interpreted to mean anything. They are political double speak. These principles, goals and objectives will at best kick the can down the road.
- ♦ The goals and objectives sound good, but there isn't enough meaningful detail (specific outcomes measure, etc.) to be able to judge for certain.
- ♦ The goals are not specific enough. Most should specify a measurable target. The "strategies" or general principles are mainly motherhood statements - it would be difficult to argue against them. But they are so vague as to be useless.
- ♦ The PDF has "principles" but as far as "objectives" go, and goals even more so, I think the statement is rather vague. For example (of an "objective") I would like to see the CRD to promote "living waste systems" (ponds and marshes built to process liquid waste) instead of shipping all the liquid waste to Victoria.
- ♦ The principles, goals and objectives are not clearly defined as principles, a goals or objectives. The objectives should be based on the goals and support the goals, the goals should be precise, and time based and measurable. Anyways, it seems that you could just switch the titles and the document would read the same. Try it!
- ♦ Prevent waste from going into the garbage wherever practical (?) - it needs to be demanded. Otherwise too easy to ignore.
- ♦ Collaborate with other jurisdictions wherever practical. Wording here, CRD should collaborate on the highest standards and seek the highest level of jurisdiction. Not just when practical.
- ♦ While I support the principles, goals and objectives, these are high level and vague. I am pleased to see you get into more detail with actions.
- ♦ These are all feel good objectives that nearly everybody will support .but how are they to be implemented and how much will it cost??
- ♦ This objective is fully supported and would like information of how this can work.
- ♦ My level of support is dependent on costs to me and the community
- ♦ I want to see plain language and costs associated with the Guiding Principles as stated.
- ♦ The overall thoughts are good but too many of the suggestions talk about "encourage", "educate", "promote", etc., but there is no mention of "how" these things are going to be done. It's a bit too vague in many cases.

- ♦ Concern with the wording of Guiding Principle #4 - who is the "polluter" and the "user"? Is it the end-user who wants to make better choices but is limited to the options provided by industry and retailers? Where is the regulation and penalties on the actual polluters who manufacture and distribute cheap crap, i.e. the makers of household appliances that now have a lifespan of 5-10 years, the grocery stores who continue to use inordinate amounts of Styrofoam and plastic shell packaging for produce.
- ♦ I'm not sure what this means: "Level the playing field within regions for private and public solid waste management facilities"
- ♦ It's unclear what "Level the playing field within regions for private and public solid waste management facilities" means. Not sure if I support this principle as I don't think municipalities should be restricting the ability of private waste facilities to do business.
- ♦ I have no idea what leveling the playing field is for private and public solid waste management plans would entail. What are the inconsistencies in this regard that we are trying to improve upon?
- ♦ What does it mean 'Level the playing field'? Lowering the standards? Towards seeking the highest levels of standards. Support mechanisms for the ones below the standards to elevate their standards. Higher levels don't mean it costs more money; it can come down to knowledge sharing across jurisdictions.
- ♦ Not clear what this means: "Guiding Principle 8. Level the playing field within regions for private and public solid waste management facilities"
- ♦ Municipalities should focus on areas of municipal jurisdiction, and not spend taxpayer dollars lobbying other levels of government for changes.
- ♦ Need to collaborate more with other levels of government (maybe implicit but should be explicit).
- ♦ Policy development - it is important for the CRD to work with other jurisdictions - especially Canada. We in the CRD can clean up our own act, but we are a very small piece of the world. What we really need to do is encourage Asia and Africa to follow our example.
- ♦

3. Comments related to Strategies and Actions

General comments

- ♦ I support all of the proposed strategies.
- ♦ Sounds good on paper.
- ♦ Plan is thorough and most make a lot of sense.
- ♦ Thanks for a very comprehensive plan.
- ♦ I think people understand the importance of the three r's for sure.
- ♦ I think they are really good
- ♦ This plan looks well thought out and comprehensive.
- ♦ Totally on side with everything
- ♦ Very well developed
- ♦ Who could argue?
- ♦ Your list is comprehensive.
- ♦ Well done. Now please walk the talk!
- ♦ 1 page pdf is colourful.
- ♦ Job well done
- ♦ You are too polite. Forget the 'encourage and support' - just do it!!!!
- ♦ I support all these actions.
- ♦ Best wishes for a successful implementation.
- ♦ It's about time, stop studying and keep going forward.

- ♦ I think they are very impressive and hope that the CRD can move forward on this important project.
- ♦ In my opinion, the CRD blue box started and continue to involve the community in thinking about the environment we live in. It raised a general awareness to recycle and not unnecessarily throw away stuff to the landfill. The next stage which is the subject of the current CRD solid waste management plan is well-thought out but is definitely more challenging.
- ♦ It appears the Greater Victoria area is in dire need of plan to handle waste. Good luck to the group that is putting this together. The fact there are so many municipalities that need to buy into any plan is a detriment to moving ahead. For a population that until recently was unable to get into the 20th century and properly treat raw sewage, the handling of solid waste may be a dream for the 22nd century. Good luck to all that are working to implement something that is commonplace in other cities in the country.
- ♦ Overall, I'm pleased to see the CRD addressing this critical issue. It seems to me that the CRD was a leader in recycling when it was a new phenomenon in Canada, and in the decades since not much has been done to modernize waste management in greater Victoria. There is much to improve from today's status quo, and it seems the 15 strategies outlined in this survey are a great place to start. I look forward to seeing these improvements in our community.
- ♦ I am impressed by the 15 strategies and await concrete evidence that they are being carried out.
- ♦ Since we neither add to or eliminate very, very, very little to the mass of the planet and eventually recycle essentially everything; the whole principle of waste management is what we do with everything we classify as waste until we eventually recover it and possibly reuse some or all of the atoms and molecules in what we have previously discarded. Not a very complex concept to understand but a very complex process to perform.
- ♦ It is key to work cooperatively throughout the region to achieve these goals.
- ♦ Great overall but you are dealing with humans who will not always go with the program. You need other options to deal with the inevitable amount of trash that must be disposed of.
- ♦ Instead of punishing people for having garbage and other waste (zero waste is not possible at this point in time), make it easier for people to do the right thing.
- ♦ I am not familiar with the details of the plan
- ♦ Not workable
- ♦ This mostly looks pretty useless.
- ♦ Why are you even doing this when you don't have a budget and there are no local industries to utilize the recyclables!!!

The strategies need to be more specific and actionable

- ♦ I do not feel that the proposed plan will be impactful. The plans are vague and do not include detailed actions on implementation.
- ♦ It's pretty broad and general. How can anyone not support it given the state of the regional and global environment?
- ♦ Goals and strategies are obvious and too vague to evaluate.
- ♦ This is all easy to agree with. Who would not? But it lacks the substance to make it effective. What you are proposing seems to amount only to "education" and encouraging "voluntary" action. Unfortunately, there will be many people who are not interested.
- ♦ Changing wording of "wherever practical" to "possible" would align with the intention of heading toward a zero-waste system.
- ♦ Most the activities seem to be in an advocacy role "support" or "investigate". Can the CRD do something more concrete?
- ♦ Not enough information as to how they intend to achieve their goals
- ♦ Philosophically goals sound good but short on specifics.
- ♦ Although I strongly support all of the strategies - it is possible I may not support the 'how' to go about realizing each. Education and engagement are key - the CRD board cannot afford to have political egg on their faces like the s John A Macdonald statue in any plans.
- ♦ Admirable, but useless without the strategies of 'how,' to achieve them.
- ♦ Broad, cleverly lumping a lot of things into great sounding buckets, but in practice, the strategies can't be voted on as a package

- ♦ I would also like to know more about the actual ways in which this waste management plan will be implemented. For instance, will the landfill be closed on weekends for instance to meet the targeted reductions? it is already next to impossible to get there when you work a regular job schedule like most government employees that live here. Will residents be given smaller bins for solid waste? How will these goals impact the communities?
- ♦ In any case, I support waste reduction 100%. We all need to do our part, set a goal against which we can measure our success. If we currently put 3 bags of trash into our garbage bin every 2 wks., can we reduce to 1 bag? This is our mission, should we choose to accept it!
- ♦ Please advise plan of action
- ♦ All of this is good in theory, but it requires constant monitoring of govts, businesses, and residents.
- ♦ Diversion is good with mindfulness of littering or illegal dumping problems. Policing is important. The perspective you have as a dump allows unique insights into societies practices and behaviors in real terms.
- ♦ Education and incentives needed to achieve this.
- ♦ Fully support the principles, goals and objectives but the execution plans developed must be made as simple as possible. Most people will agree with the principles, but many will not do anything in support if it requires any effort on their part. It is just a lot easier to throw everything into the garbage!
- ♦ Hopefully they will actually be enacted!!!
- ♦ I think all these ideas while admirable, need to be approached slowly, reasonably and responsibly and with a "one step at a time" approach.
- ♦ I'm not sure how someone might oppose all these suggestions, except the costs and balancing or who is responsible and might pay could be discussed/reviewed/receive input.
- ♦ The CRD management and actual resident support should be carefully evaluated as the program progresses and the inevitable problems develop. The solid waste disposal will require modification as these unplanned problems occur.
- ♦ The principles, goals, and objective are sound good; the real test is how well the CRD performs in achieving them
- ♦ These are great strategies, but it is hard to comment because I don't know how you plan to accomplish them.
- ♦ They are all "motherhood" principles and goals and very sensible. However, what is critical is how they are implemented and what that will cost. We have seen the installation of the new sewage system and treatment plants. They are ideal, but unnecessary (as demonstrated by years of study of this issue), and now it will cost residential taxpayers several hundred dollars more per year in taxes. I hope this Solid Waste Management Plan will not be driven by the socially and culturally blind politically correct ideologues who seem to find their way into the CRD and Victoria City Council. Nobody opposes the motherhood principles. We want to see them implemented without ideologies. I hope this survey is not a "whitewash" for going ahead with ideologies.
- ♦ They are ambitious and principled, but necessary and with community education and buy in, achievable
- ♦ They are now 'motherhood' objectives. The devil is in the details of HOW CRD goes about this.
- ♦ This all sounds very promising, and will of course require control & monitoring during execution.
- ♦ Well put together, covers all basis. Timelines will be added I assume.
- ♦ What explicit actions will be required to achieve these and what will they cost in both taxes and user fees.?
- ♦ What will be the ways of enforcing the strict recycling regime?
- ♦ I think attention and effort needs to target fundamental change in restaurants, grocery stores and other businesses to take responsibility of their waste (including that produced by selling goods) from cradle to grave. Germany adopted a program of this type almost three decades ago. It is time for transformative change. It is too late for gradual change.
- ♦ Planning has great ideas, lacking on real action - feel good speak.
- ♦ 'As appropriate' is a vague phrase, too open to certain people deciding whether or not something can be interpreted as appropriate or not. Same with 'if/where possible.'. Not everything is possible but almost nothing is impossible.
- ♦ The use of the language "whenever practical" makes me think this that efforts in the prevention of organics and recyclables ending up in landfill will be done when employees of CRD feel like it - I'd rather see more stringent language like: "Prevent organics, recyclables and hazardous household waste from going into the garbage"
- ♦ There are many "educate" and "explore" type strategies. It looks like too many make work, write policy type actions. It is pretty clear what needs to be done - just get on with it.
- ♦ These are good but the statements are wispy washy. I would have preferred more concrete suggestions.

- ♦ Lot of platitudes and very little substance.
- ♦ Current public consultation material for the new SWMP lacks figures. NO costed solutions offered Words such as 'investigate', 'support', 'advocate' 'help' and 'expand' do not offer concrete strategies with end state goals and associated timelines. The few figures that are discussed (380 kg to 250 kg) contain no reasoning for the choice of numbers (i.e. why not 200 kg or 150 or 300). All strategy descriptions only loosely describe 'what' the strategy hopes to achieve but no mention of 'why'. Even if the 'how' still has to be researched, the 'why' for each strategy should be clearly laid out. Otherwise the new solid waste management plan is a solution in search of a problem.
- ♦ Thank you for the opportunity to participate in this survey. Each of the strategies seems to identify an important aspect of waste management, and I strongly agree that each should be addressed. Nevertheless, I was quite concerned that the lists of possible actions were dominated by words like "promote," "encourage," "support," and "advocate." These words suggest a preference for talk and meetings over actual steps to take that would link cause and effect. We would all like to do a better job of this, but let's see some measurable targets.
- ♦ All this is talk, talk, talk.(Promote, Support, Collaborative) Do something
- ♦ Write your plans and objectives in a manner that does not sound like they were the product of a bunch of 'policy wonks'
- ♦ This document looks like it was written by someone with a PhD in garbage disposal.
- ♦ All sounds fine. the devil is in the implementation details.
- ♦ All great in theory but doesn't outline how such things will be achieved and at what cost
- ♦ Stop empire building at CRD and start being accountable!!
- ♦ DUH. all the rhetoric simply frustrates me, and I am interested in concrete actions.
- ♦ As the CRD is well aware, it is impossible to provide meaningful input on this plan. The 15 strategies cover everything but the info provided gives little insight to CRD solid waste management problems. And it's unclear what the CRD can actually control. The population is growing and that growing populations produce increased amount of solid waste. The CRD can't and won't do anything about that. It is unclear how successful our current blue box program is...how much recyclable material does it miss, how much of the material that should go and does go into the blue box is recycled and how much ends up being landfilled somewhere else? Many of the solid waste problems regional districts have to deal with are a result of inadequate packaging regulations and policies at senior levels of government - what can the CRD do about that?
- ♦ I was surprised, and a bit stunned to witness the dumping of garbage on the live face of the dump at Heartland . While it is impressive to see the raptors keeping seagulls at bay ; the gas plant creating energy for so many homes ; and the reclamation of past landfill areas ; I found it hard to watch one load after another dumping every manner of recyclable or re-usable material into the live landfill with absolutely no one checking nor stopping it ! All your plans on paper look good but are worse than useless when no one is enforcing the guidelines . WE (the public) are been given the impression that "everything that can be done , is being done , for our mutual benefit " when in reality , shameful waste practices continue . We don't need to wait for more "studies" , committees , and programmes to be implemented ; we need immediate action now , to control the immoral , if not illegal dumping of improper materials at Heartland .Please someone ! Act now !
- ♦ Be clearer on how you are going to accomplish all your strategies.
- ♦ Despite your efforts to make it so, solid waste is not that complicated. Stop studying, investigating, wasting resources on studies that the majority of respondents are not in a position to answer in a truly informed manner, including me, probably reduce your management jobs, to name a few of the obvious first steps. Just set the price according to the nature of the waste category. Price drives behaviour more than arguably any other factor.
- ♦ Don't just tax or impose fees on consumers and expect that to help them make "better choices"
- ♦ Generally, as the owner of an agricultural property on Salt Spring and someone who has resided in other RDs in BC (notably, Okanagan/Similkameen), my impression of the CRD current is that they are designed to support bureaucracy and regulation ("bans") without supporting viable alternatives which would attract waste diversion. The planned proposals contain very few ideas which might begin to change that relative perception. (e.g. Large item, appliance and unlimited yard waste days have been used in RDOS for more than 10 years!) In conclusion, my experience with the CRD in the past is one of reflexive and inadequate performance in service development and delivery to Salt Spring Island. Other jurisdictions have performed better for their rural constituents.
- ♦ I rated them all "neutral" because these "strategies" are too vague. They sound good but they are not actionable. Until you get to the point of specific actions with rationale, there is not much point in commenting.

- ♦ I would like to see more information about how the CRD intends to do this and the impact it has on the neighbourhoods.....this seems to be typical of an airy fairy way of saying things without any clear information on how and how much this will cost plus the impact it will have.....
- ♦ Less on strategic development, use other jurisdictions action plans, don't re-invent the wheel. Don't over think this...don't worry about voters because you're not voted in.
- ♦ Look into using innovative technology
- ♦ Promote entrepreneurship in reuse.
- ♦ They are all very vague, and too numerous. Vague goals should be few; if there are many, they should be more specific. For example, extending Hartland to 2100 could be accomplished several ways - more intensive recycling, pricing practices, acquiring land - support for the goal may vary with the method.
- ♦ They are too vague. Intentions need to be defined and measurable as percentage increases and decreases in desirable outcomes.
- ♦ Too much focus on policy and investigations by the CRD and not enough focus on actual tangible solutions that will produce tangible results.
- ♦ Very broad
- ♦ We have heard all this before. Quite doing studies and actually do something. We don't need more education...we need this to be handled at the landfill level.

Identify and set priorities for sectors and materials

- ♦ I am unsure of the largest solid waste producers but focus on this group initially and then go down the 'list' from highest to lowest producers.
- ♦ At the open house a chart showed organic waste and paper waste going to the land fill site were the highest % of waste material. Focus on those 2 items early and we will make quick head way
- ♦ I support and encourage all of the above suggestions. It would be difficult to say which of the above comments is most, or more, important as each is significant.
- ♦ Is there any data regarding what currently comprises the 380 kg per capita? It may be easier to reduce some forms of waste compared to others.
- ♦ We need primary focus to be on producer responsibility, followed by construction/renovation/demolition, and ICI. Optimizing landfill gases also important, but honestly, if we get producer responsibility right then it solves so many other problems downstream.
- ♦ A continuous reduction is key in the development of sustainability within the community. It will be more cost effective in the lead up to 2100 and will provide benefits to those in the future.
- ♦ Paul Connett's Ch. 2 Ten Steps Towards a Zero Waste Community might help: 1. Source separation 2. Door-to-door collection 3. Composting 4. Recycling 5. Reuse, repair and deconstruct (instead of demolition) 6. Waste Reduction Initiatives 7. Economic Incentives 8. Residual separation & research facilities 9. Better industrial design 10. Interim landfills ... especially if you read the rest of the book for all the amazing examples over the world.
- ♦ My scoring gave more support for strategies and suggested objectives that I assume will generate incrementally more benefits than 'continuing to push on a string.' For instance, encouraging new product and carbon offset streams may produce more significant behaviour changes in the overall circular economy by 2030 than supporting single-use 'waste' reduction will. Similarly, focusing on supporting and enabling change by governments, regional services as well as industrial, commercial and institutional facilities will create a faster paradigm shift than a household by household, generation by generation approach. Economies of scale and scope will determine the greatest overall success. Producing a management plan that generates the U.N. sustainable development goals to a great extent by 2030 and benefits all 13 districts better than they can achieve independently should be the product of this planning process.
- ♦ I think, that when setting priorities and allocating funds, the further diversion of organics from the landfill should be a low priority. Organics break down in the landfill so actually do not take up much space long term. In addition, they bind many chemicals and keep these in the landfill. Without organics these chemicals will leach out much faster into the leachate.
- ♦ I strongly support reduction of waste at source, in every way possible. We should not have to be expanding the dump space if we followed must stricter guidelines. Much stronger rules for packaging and plastic use reduction.

- ♦ Again, the focus should be on waste reduction and offering incentives for reusing products.
- ♦ All action related to recycling should be founded in whether or not the diverted material is usable and/or sellable. Otherwise you are spending a lot of effort and money on something that just creates fancy garbage. In general, it would seem to make the most sense to target the production of waste items, rather than focusing on end consumer education.
- ♦ I think attention and effort needs to target fundamental change in restaurants, grocery stores and other businesses to take responsibility of their waste (including that produced by selling goods) from cradle to grave. Germany adopted a program of this type almost three decades ago. It is time for transformative change. It is too late for gradual change.
- ♦ Current fee structure for disposal discourages small quantities (base fee, rates go down with volume) which is pressure in the wrong direction, particularly for large producers of waste. Need to consider how to identify the sources (probably corporations/manufacturers) that produce the most.
- ♦ Most households are probably already doing the best they can. Shift your emphasis to industrial and multi family. Don't over burden construction obligations as they just pass that along onto housing prices.
- ♦ Multifamily and EPR may have the most potential to improve
- ♦ Develop ways to require multi-family, commercial and institutional waste reduction.
- ♦ Focus on improvements to recycling & composting programs for multi-family buildings, commercial/retail, and construction sites.
- ♦ Furthermore, the presentation would be stronger if it emphasized certain significant gaps between CRD's current operating performance and those of comparable regions as well as between current participation in CRD's programs and that expected to achieve 250 kg annually per capita by 2030. To achieve this plan, what are the most essential or time-sensitive changes in behaviour or policy needed from regional districts, businesses, philanthropic entities, citizens and other stakeholders.
- ♦ Though I appreciate the strategies and objectives, the presentation of the plan would be stronger if it included comparative information and recommended prioritization according to certain measures of success. In other words, which objectives would be (a) easiest to achieve, (b) least costly to implement, (c) extend the landfill's capacity the most if successfully implemented, etc.
- ♦ I don't feel there will be much success in strategies #1-8 until there is a serious paradigm shift in manufacturing and marketing practices, and in the increase planned obsolescence in which consumer items are designed to last short periods of time and require upgrades and replacement. If that isn't solved first, targeting waste reduction strategies at the residential level will be useless.
- ♦ I would maintain Strategies 14/15 but put more resources into encouraging the community and businesses from refusing to buy wasteful products and enforcing new policies/laws on this. Additionally, put more research into cleaner alternatives for gas and conversion of remaining landfill waste into ethical and clean energy.
- ♦ Improving the capacity of our current landfill, promoting activities which reduce waste and finding ways to use energy which could be produced at the landfill seem like the most important goals.
- ♦ It was very hard to rate these because they are all so very important.
- ♦ Looking to other municipality examples would be a massive benefit. A total solutions plan needs to be discussed and addressed with the main premise being to reduce wastage as much as possible.
- ♦ Phasing out plastics at all available opportunities is the only addition I might add.
- ♦ Please put all resources into achieving the greatest reduction in waste that would go into Hartland Landfill disposal.
- ♦ We need to educate, enact and enforce until waste is treated as a resource and not a problem
- ♦ Not in favour of bans. Encouraging behaviour change is better.

Ensure that implementation is affordable and costs are transparent

- ♦ These all look good. What would make this a difficult survey would be to rank them all! What I don't think I see, however, is one added piece to pretty well every point: a cost analysis of the long-term benefits. Too often the opposition to plans like these boils down to "it costs too much". That attitude arises from short-sightedness and limited analysis of the hidden costs of the status quo. So, in order to get substantial citizen, buy-in, one needs to show how much money is currently being wasted via environmental damage, health risks, et cetera that steps like the above can reduce.

- ♦ As goals they all sound so lofty and righteous...the problem comes with implementing. The implementation of each one comes with huge costs to the taxpayer. And we the taxpayer have had it with paying for someone to reach their lofty goals. Look at alternative avenues and give us some concrete items telling us the activities and costs associated with one. Because I am tired of hearing the people support this initiative so the costs to you the taxpayer are irrelevant.
- ♦ My socio-economic circumstances privilege support of these initiatives; however, the same may not be true for others. In other words, they may have limited resources (time, opportunity, finances, etc.) to get fully behind changes.
- ♦ More information is needed and also the costs...the CRD needs to be more accountable
- ♦ Additional costs to households strongly opposed. Strongly suggest that the proposal include investigating and monitoring the disposal of recyclables by the waste management handling the disposed items. Strongly oppose dealing with those who pack up recyclables and send them to the Philippines, or other sites, so that they can be burned. Check out Marketplace episode.
- ♦ Again, what does this mean in hard dollars and actual items to achieve this. Setting a goal without ways outlined and associated costs means we are making an uninformed decision. So tired of all the infighting amongst all the differing governments making up the CRD and while I support all modes of transportation, recognize vehicles are a primary source of transportation and will continue to be the primary source for all the foreseeable decades to come.
- ♦ It is fine to say that I strongly support all these things and ideas. If, however it means coming out of increased taxes to make it happen then we need to talk more. The area is already heavily taxed, and mostly unaffordable. We are intergenerational living conditions as it is, as renting is too expensive for the wages of the area. If we need to amalgamate municipalities or get better organization of waste reduction systems via CRDs current budget, then, yes please and thanks.
- ♦ Additionally, policies should consider not only the environmental impact, but the costs they impose on businesses and consumers.
- ♦ In order to remove its ties to the market, recycling should be government subsidized.
- ♦ Keep costs in check
- ♦ I do not support any type of rate increase.
- ♦ I do not want a rate increase.
- On point 4 of the guiding principle, you are planning the polluter and user pay approach. If that means that CRD is planning to further charge taxpayers with more fees, I strongly oppose to this approach. We taxpayers are already over charged with many fees in our home taxes and water/sewage/compost and more fees. It is time CRD starts to look in lowering the fees above noted and find the funds for these programs inside the existing money intake. Thanks
- Work with the recycling depot to organize a beneficial system for low income people to collect recyclables from the waste stream as additional income for them
- The only sure way to consistently make this happen is by making this a financially viable option for people. This will need to include regulatory framework and legitimate opportunity for cost savings at the local and provincial levels.

Create energy from waste

- ♦ Incinerate it and sell the excess electricity
- ♦ Reducing the amount is fine but with more and more people coming to Victoria to live we will slowly run out of space to dump our garbage. Time for a gasification plant
- ♦ Human nature is that they will find ways around the reality to pretend that the targets are met. The statement did not say what the current weight consisted of. Just incinerate and you will have met the target without any change in weight going to the landfill.
- ♦ Kick-starting the rapid development of a carbon-controlled hydrogen-electric economy that is based on employing proven competitive/alternative technologies that could/will rapidly 'throw the municipal wastes management system into reverse' and thereby act to also continually lower the costs of waste disposal by generating profits secured by exploiting (Vanport's- identified) new markets for municipal solid/liquid wastes (and by importing more wastes to generate greater tip fees), .. as per Van-Port Sterilizers Ltd. long-proposed 'second-edition' of its TYMAC Agriculture Quarantine Control Plant for Cruise Ship Wastes and the related AQC-'Bio-solids Sterilizer Plant and JOR-Vic Commercial Sewage and Carbon reclaim-treatment pipeline for the CRD et al

- ♦ Use the waste as fuel, and then if more is collected, it is better.
- ♦ Please consider a waste to energy facility like in Vancouver/Burnaby, before expanding Hartland.
- ♦ Education programs' cannot exclude referencing competing technologies that the CRD has chosen to remain silent about, e.g. steam and/or radiation sterilizers coupled to carbon-controlled W2E incinerators and/or biofuel plants that meet minimum (federal) requirements for affecting agriculture quarantine control of wastes/soils/composts/bio-hazardous materials
- ♦ Add explore and adopt innovative and effective waste transformation technologies
- ♦ Apart a brief mention of landfill gas capture, I didn't see anything very innovative in your options and approaches. Places like Europe are using technologies to turn waste into a valuable output (like energy). This would seem to be a useful direction to consider, for a geographically isolated area, like Vancouver Island.
- ♦ Build an incineration system. Scrub and return the exhaust gases to be reburned By-product is simple ash. this should be considered seriously.
- ♦ We cannot create more landfills. Instead I suggest we use filtered incineration! Sources to consider reading: Incineration of waste: <https://www.ncbi.nlm.nih.gov/books/NBK233627/> An example why incineration is safe: <https://translate.google.com/translate?hl=en&sl=nl&u=http://edepot.wur.nl/404442&prev=search> Original: <http://edepot.wur.nl/404442> Excerpt: "(..) The burning of waste in the fire proceeds quickly and completely. With a good execution there are no bad odors and the waste products are generally either harmless (CO₂, H₂O, Na, insoluble inorganic compounds), either easily harmless (C₁ H, HF). This type of garbage destruction is preferable for the time being." I recommend visiting the incinerator in Dordrecht.
- ♦ Does Hartland incinerate? If not developing an incineration facility should be a priority.
- ♦ Although financially viable solutions are necessary, there should be space for innovative solutions that the CRD could spur using the accrued funding from waste management practices of the last 10 years.
- ♦ Build a gasification plant
- ♦ Consider gasification of garden weed waste to eliminate risk of seed and weed contamination of composted soil. Consider gasification of 'biosolids' from the core and liquid waste to eliminate contamination of land and watersheds. Gasification of such fuel stocks will produce 'biochar' of reduced volume (75%) that may be considered for cement kiln fuel and possible soil amendment under controlled use and testing for 'beneficial use'.
- ♦ Divert municipal solid waste (MSW) from landfills to companies that convert the 'feedstock' into low-carbon transportation fuels (i.e. diesel, jet fuels or Renewable natural gas) utilizing novel technologies in an innovative, clean and efficient thermochemical process. See links for more info: <https://advancedbiofuels.ca/technical/> <https://fulcrum-bioenergy.com/technology/>
- ♦ Consider Adding functionality of landfill by improving upon cogeneration and reuse of effluent
- ♦ Can we incinerate garbage to create energy? Check out other places of a similar size and see what is working
- ♦ Contrary to its stated policy the CRD continues with its broken promises to Vanport to allow it to 'participate effectively in proper waste management practices. Vanports waste reclaim systems designs will allow the province to easily surpass the stated per capita waste disposal targets and will eliminate any need to extend the life of Hartland Landfill, plus generate a healthy return on the investment(s) to ensure that the CRD,'s solid waste services are financially sustainable. 1. In order to 'Improve participation in waste control/reduction and diversion services Vanport proposes to implement online, real time monitoring of all system inputs and outputs, including to ensure that backgrounds levels of heavy metals in product mixes and final forms does not exceed the required levels in NSR forest application areas (unadulterated organics and inorganics will also be added in whatever proportions are deemed necessary to safely grow trees and to control contamination beyond that which is achievable by applying industrial sterilization-decontamination processes) 3. The CRD must revise its policy of 'no land application of biosolids,' as it has no legal authority to enforce it or to otherwise justify it in the face of identified forestry markets, steam processing and other considerations for producing 'guaranteed sterile' organics, recyclables, and wood waste as appropriate 4. A Vanport-type steam sterilizer plant is a modular design that is easily expandable to handle 1,000 t/day to 'Maximize local solid waste disposal capacity' 5. Establishing a long-term sustainable financial model for the CRD,'s solid waste service means the CRD is best advised to purchase a Vanport franchise; the CRD would lease the plant for operations under the Vanport license and trademark in return for a small upfront fee (e.g. \$100 K plus 5% of gross revenues).

- ♦ In order to 'Level the playing field for private and public solid waste management facilities the CRD must enable the development of a Van-Port-type contract steam sterilizer plant that operates under a federal agriculture quarantine control license to treat cruise ship wastes, etc. (The CRD also must break its silence on the JOR-Vic Commercial SRP for the Western Communities).
- ♦ The 'Zero Waste' Circular economy is easily achievable by employing a 'Vanport-type' steam sterilizer plant that is operated in accordance with its federal agriculture quarantine control permit and good quarantine control practices that include capture and control all GHG/plant emissions. Van-Port's contract steam sterilizer plant is fully-licensed to operate in accordance with an international (UN) 'Phytosanitary' Protocol that dictates employing a prescriptive process and system design that is long-proven (as is steam process decontamination of hazardous soils). The Vanport plant is capable of steam sterilizing/decontaminating large volumes of all types of unsorted raw wastes, including municipal, medical, bio-sludge/solids, rad wastes; oil contaminated soils (and thereby eliminating any need for a landfill) The Vanport 'shred and steam' plant design is critical to the successful development of a carbon-controlled circular economy that continually increases/expands the 'forestry soils-from-wastes forestry production distribution and application infrastructure needed grow trees on BC's 300 K ha of 'Non-Sufficiently Re-stocked Forest Areas. Arguably, there is a severe shortage of raw municipal waste materials for conversion into high quality artificial soils and/or erosion control products suitable to grow trees on NSR areas (thereby greatly increasing regional forestry employment and returns on investment from resulting increased productivity/value of NSR lands) The plant is also critical to advancing any scheme to produce advanced bio-fuels (via steam-assisted anaerobic digestion see NRCAN patent), as well as being critical to the development of any combined liquid/solid/gaseous wastes management system (see CRD files for long-proposed JOR-Vic Commercial Sewage Reclaim Treatment Pipeline and related hydraulic capture and compression device for GHG's)) In view of the above rationale/values/possible ROI the, the referenced 3 R's' concept to 'reduce' waste is no longer relevant e.g. replace/reduce' with 'control', including to control rather than to 'reduce' carbon emissions)... a Vanport-type steam sterilizer(and/or W2E incinerator) will maximize pollution control to achieve positive behaviour outcomes based on profit motives that make it more convenient to dispose all types of wastes at minimum costs. This profit motive will obviate any requirement to regulate/subsidize diverting organics, or recyclables, from going into the garbage) The principle of 'Collaborate with other jurisdictions wherever practical' must apply to collaborating with Santa Rosa, California to compare it's advanced solid/liquid wastes management system with the JOR-Vic SRP (including to compare/review the \$70 M/yr. revenue stream being generated by building the SRP for Santa Rosa for less than 1/2 the cost of the CRD's new WWTP). Given that the "submissions policy of the CRD is that any (RFP) submissions become the sole property of the CRD then there is no incentive to make a submission if all intellectual property rights are subsumed to the CRD. Therefore, the CRD cannot realistically 'Develop collaborative partnerships with VanPort Sterilizers Ltd (or any other interested parties seeking to achieve the 'regional targets set in plans'. please see also the proposed elevated public transit network that was to be concurrently co-installed with the JOR-Vic pipeline corridor, with the transit system paid for as a freight-hauling component of building the related bulk energy storage projects, etc.)
- ♦ 3Rs: - does the CRD understand that waste to energy and incineration is not recycling?
- ♦ Achieve 70% diversion and move forward quickly with Energy-From-Waste facilities.
- ♦ ALSO make use of advanced technologies - such as pyrolysis to minimize landfill use, recover materials (e.g. metals, glass) and reprocess materials such as plastics into syngas,
- ♦ Check out the incinerator in Salzburg, Austria or other places of a similar size where they have already set a plan in place.
- ♦ Consider an environmentally neutral incineration facility. There are tremendous technological facilities in use around the world (Copenhagen, Denmark has a great one). It could optimize the landfill gas use along with natural gas to produce power and eliminate the problem of expanding the Hartland site. Over its lifetime it could actually use some of the material currently buried at Hartland.
- ♦ Consider and research better ways to treat/burn waste.
- ♦ CRD must look at technological alternatives to landfill which produce energy.
- ♦ Good to extend life of landfill but look for advanced methods of disintegrating the material such as high frequency laser beams.
- ♦ Has there been any plan or best practice anywhere to mine the existing landfill to be used as biofuel for a plant to produce energy? Similar plant could accept new garbage vs landfilling it
- ♦ I know some places burn garbage and create power with the result (I know the equipment is important. Incentives for new buildings to use greener technologies is important too .

- ♦ Invest in technology to sort waste and to safely incinerate rather than cause reason to hire more bureaucrats to administer poorly thought out strategies.
- ♦ Let's get real about this matter, all you have to do is copy the program Sweden is currently following. They burn is, let me rephrase that, incinerate it, at the end of the day it produces electricity at a cheap cost. It boggles the mind to think we keep going down the same road year after year. This the same mentality/ thinking that Victoria did when I was growing up, haul the garbage out to sea / dump it and all will wonderful, out of sight out of mind. Surely, we can progress past the mentality that we are in a climate emergency, incinerating it, sell the electricity and forget about the misuse of land that we call a landfill.
- ♦ Look at 21st century advanced high-tech incinerator options, that produce energy as a by-product, many of these facilities exist in Europe, specifically in Switzerland, where landfills were BANNED on Jan. 1st, 2000 and all non-recycled combustibles waste MUST be incinerated in one of the 30 municipal solid waste incinerating facilities (Nov. 2018)!
- ♦ Look at moving to a gasification plant to generate power and eliminate the need to expand the dump
- ♦ Look into existing innovative technology and how other countries are successfully disposing of waste without harming the environment (ex. Germany).
- ♦ Want to see solid waste used for production of heat and or electricity on site at Hartland
- ♦ We are currently using up hot water, detergent, time and a fleet of trucks to collect "recycling", a lot of which is not really recycled, or costs more to recycle than to make new. Instead we should consider building one or more Waste to Energy plants in the city, as is done in Northern Europe. All the paper, plastic etc. can then simply be left in the regular refuse and incinerated, there is much less trucking involved this way, and waste heat can be used to heat public buildings and provide hot water, which is used year round.
- ♦ We should stop wasting resources and human effort to separate food, paper etc. waste, and send it all to a Waste to Energy plant.
- ♦ I am opposed to landfills in general and I am in favour of state-of-the-art waste incineration plants with energy recovery, flue gas cleaning etc.
- ♦ The answer is obvious. Build a state of the art power generating plant that burns garbage, emitting no pollutants. The technology has been available for this application for years now. It would be a win/win situation. The generation of much needed power for the South Island and eliminating the need to bury garbage. That is a worthwhile goal to work toward, not "managing" the garbage people are allowed to generate & throw into the dump.
- ♦ Please buy/build an incinerator with good filters to divert CO₂. You have to look 100 years ahead, not 15 ("the coming years"). The stuff that's in your landfill will start to seep in ground water soon enough (in next 10 years). Think of 60+ years of poorly managed battery disposal, dumb people putting all kinds of toxic waste in their garbage, etc. Soon you will have to start digging up those items...
- ♦ The region is facing a situation where the easy recycling actions have already been implemented, and the difficult actions lay ahead. Unfortunately, the curbside program has facilitated unconscious consumption and the indiscriminate proliferation of unnecessary packaging. The CRD Waste initiative cannot reasonably expect the consumer products industry to curtail their use of packaging to allow local waste goals to be attained. Education of the population will have limited success, based on past performance. The CRD should be working with local industry to identify recovery options (like waste to energy) to stop the senseless movement of materials which have no value, are not recyclable on economic terms, but still have an energy content which has value.
- ♦ Technology can sort and incineration for energy can be done and it a more realistic long term solution.
- ♦ There also needs to be more diversion of rigid plastics, perhaps through the waste to energy or recycling.
- ♦ 3Rs: make sure they understand that waste to energy and incineration is not recycling

Recognize the climate impacts of solid waste decisions

- ♦ Be wary of waste to energy technologies and always look through the lens of the climate emergency. Consider mitigation, adaptation, and resilience. Systems thinking and multi-solving. 'Green 'technologies that enable more GHGs and build in future energy dependency on waste streams are poor planning.
- ♦ Concerned about GHGs associated with rock extraction. Please calculate and make transparent the GHGs associated with the process of extracting and transporting rock to expand Hartland so we know the impact. it's likely GHG intensive.

- ♦ As mentioned, the total carbon footprint and what is going on outside Hartland must be taken into account. Without strong government policing of burning, dumping and overpackaging, the numbers will be suspect and meaningless in a rapidly growing CRD. We need real solutions, and biochar is key. New book called *Burn - Using Fire to Cool the Earth* by Bates and Draper.
- ♦ Control of municipal-sourced GHG's on a mass scale;
- ♦ Waste generation is clearly linked to our climate crisis.
- ♦ While Hartland Landfill is a regional facility, it is critical that the CRD reduce its carbon footprint by establishing a landfill site in the western communities to reduce the distance waste travels for disposal. Expanding Hartland Landfill unnecessarily increase traffic along West Saanich Road, Wallace Drive, and Willis Point Road.
- ♦ While I think this is a reasonable goal, the current focus on GHG/Climate Change has overwhelmed the public's capacity to process the current situation with respect to local climate impacts and the translation of this information into personal actions. It would be worthwhile to start translating the current waste stream components into "carbon-equivalents" and get away from the emphasis on per-capita waste weights, this might start the re-education of the population to promote understanding of the carbon/climate impact of waste (and might be enlightening for everyone operating solid waste reduction efforts). I also think this approach will show the true environmental cost of organic waste and help drive true environmental savings. It is hard to get excited by slowing the rate of filling a hole in the ground (while it is quite important overall), it is easier to get aligned with reducing the rate of GHG generation through in-house actions.
- ♦ Centralizing waste for an area the size of Victoria does not achieve emission targets and creates a very large carbon footprint for trucking. In addition, it mixes industrial trucking with residential commuters and those who are trying to access recreational opportunities. There are inherent safety risks for commuters, cyclists and regular traffic on this road who will be negotiating large tandem trucks carrying aggregate and waste.
- ♦ The CRD should provide at least one other option for increased landfill capacity (e.g. a whole new landfill somewhere else). IE LANGFORD?!!!!
- ♦ I want to know what the carbon footprint will be for the recycling - not point in reducing Hartland if you are just increasing the footprint by transporting the recycling a further distance. It all has to balance out in the end. At this point there is too much talk about the recycling we do actually ending up in landfills at the end of the day or being transported too far. Would like to see a detailed plan that clearly demonstrates how the recycling will be more environmentally friendly.
- ♦ Carbon neutral waste reduction strategies must be a priority. Cost benefit analysis must include all transport and storage costs as well as optimizing maximum benefits.
- ♦ Centralizing waste and trucking in garbage and out aggregate is not environmentally friendly (with respect to CO₂ emissions).
- ♦ Gasification of waste is NOT a sustainable GHG emission strategy, prevention of gas is needed not infrastructure to utilize the gas which defeats practices to eliminate wastes that produce gas.
- ♦ I strongly oppose an expansion of the landfill. We have to stop burying our garbage! We have to look into incineration and other means. Other countries incinerate with zero emissions. It is madness to make mountains out of garbage
- ♦ I would also like to see the goal of reducing the use of fossil fuels in managing waste.
- ♦ Organic matters managed to avoid GHG emissions
- ♦ Reducing CO₂ and methane release is not mentioned - Perhaps you have heard of climate change?? Composting is bad for climate change - releases CO₂.
- ♦ So, some concerns that short term non sustainable and not environmentally friendly practices like obtaining natural gas from waste materials, which is not a good practice can become an addictive practice and cost a lot in infrastructure when it does NOT reduce GHG emissions and is NOT the best practice to reduce garbage. The CRD should not be doing gasification of any type of wastes or garbage.
- ♦ The goals have no mention of the need for waste management solutions reducing the region's carbon footprint/GHG emissions. Without this you are opening up the solution toolbox to incineration.
- ♦ The plan should consider this and other impacts in terms of need to minimize contributions to climate change.
- ♦ The total carbon footprint has to be calculated including the Blue box trucks and the whole recycling infrastructure and I think your plan falls short on real world challenges and sticks to where some of us were 25 years ago. My 2003 Ranger truck has been carbon neutral for 3 years with the quantities of biochar I make and the system of no turn, covered compost with biochar and active microorganisms gives off very little GHG's and produces a valuable growing product. I

have had our CRD director have a look but have no replies from the CRD despite my interest and the success of the experiments.

- ♦ Trucks using Hartland can/should use landfill gas or start the switch to electric vehicles
- ♦ Would also like to know how far the recycling will travel - i.e.: is it being shipped to the mainland somewhere?? It makes no sense to create a larger carbon footprint in an attempt to recycle materials.

Provide more enforcement

- ♦ No mention of enhancing/improving/increasing enforcement capabilities. How will companies, haulers, generators 'people generally' be made to adhere to the new/improved requirements? Case-in-point: in Saanich we have many by-laws. They are enforceable but there seems to be one by-law enforcement officer to cover a huge area. The result is that most people know they have a better-than-good chance of infringing any by-law. Change in behaviour doesn't happen voluntarily.
- ♦ Spend more money on actionable activities like one recycling truck for the district and one garbage truck for each district. Inspection for non-compliance, summary judgement on an increasing rate per offense. Must have enforcement, as well as initial warnings. Drivers learn really fast when they mess up,
- ♦ Strong enforcement will also help.
- ♦ Stronger enforcement of residential diversion to recycling and EPR for major appliances, mattresses etc.
- ♦ The region should also crack down on recyclers who do not really recycle the materials they collect and/or are untruthful about their processes. These businesses do a great dis-service to the overall recycling effort by diminishing the magnitude of challenge involved in actually recycling the materials they collect under less than honest terms.
- ♦ The CRD communication plan involves a massive education plan, but without enforcement will be a waste of taxpayer money.
- ♦ I am not sure how you enforce this...it is not like I get a free 350kg now...so how would you measure this
- ♦ Certain areas of the city could also benefit from increased enforcement of residential recycling/composting.

Rebuilt trust and transparency about what happens to recyclables

- ♦ Audit and ensure that the materials that have been collected for recycling are IN FACT appropriately recycled and not directed into someone else's landfill.
- ♦ We need transparency about recycling. I washed my Styrofoam, stored it, drove it to the mobile recycling depot, and paid to leave it there. I've heard that Styrofoam is not recyclable. Glass, which is heavy, is picked up curbside, and I also hear that it's not recyclable. Citizens need to know the truth about recycling, and updates when markets change. Let's work on this together.
- ♦ We need better feedback to confirm recyclables are actually being recycled. Give name and location of facilities. What are they making out of recyclables? How do we know stuff we recycle isn't just being burned or sent out of Canada? How is the province checking on this?
- ♦ I have lost faith with what happens with the recycled materials. I used to recycle diligently and religiously, but after reading news stories about: - compostable recyclables not being handled locally and getting put on a barge to Vancouver.... - glass not getting properly recycled - recyclables being shipped to Asia and then getting rejected there.... - soft plastics not being processed correctly and just getting dumped with the normal garbage.... It makes me lose interest in recycling at all. So, education is required to make people feel that their extra efforts are having any meaningful effect at all.
- ♦ I keep hearing about how much of the stuff put out for recycling ends up in the landfill anyway, so more factual information should be put out, so I don't feel like I'm wasting my time sorting and washing.
- ♦ I think you need to convince us that recycled material is not going into the landfill. Recent news articles are indicating that most plastic recycling eventually ends up in land fill. If it can't be reused or recycled perhaps, we should burn it for power or heat.
- ♦ It's appalling to hear most of our recycling is being bundled up and shipped off, only to be placed in a dump somewhere else. We will never win to the extent we need to. You must tell the public what is BEING MADE FROM recycled products.,

that will bring 100% support . Then we have accomplished what recycling is all about. REUSE. Until then, we are just sorting for no reason! And people are getting fed up with it and losing interest.

- ♦ I would add the following: - "Transparency as per the shipping of landfill waste, compostable, and recycling". More community members would appreciate knowing where their contents are going and being used for.
- ♦ We also have generated more recyclables than industry has capacity to recycle - having individuals separate waste only to have it end up in a landfill because there is no market or 'it was only a pilot to see if people would separate waste' is frustrating
- ♦ Obviously, if people think there is no point in taking care because there is no market for any of these things to be repurposed then the whole effort is a waste. So, developing more industry to handle the streams is of major importance. That is not the CRD's responsibility, however there may be some opportunity for being involved in developing such businesses. It is a complex situation indeed, but I think getting more folks to care about their 'garbage' footprint and how to change it is very important.
- ♦ I have great trouble evaluating our solid waste management based on the information released to the public. We dutifully put our recyclables into the blue box but never have any idea what happens afterward and how effective the efforts are. I worked in recycling policy with US EPA a few decades ago; in many ways, we seem to have moved backwards. It's very frustrating. Please make good data available to the public, not just press releases. You might get some surprisingly good advice.
- ♦ You must make recycling of soft plastic and batteries much easier - and give consumers confidence they are actually being recycled.
- ♦ Developing collaborative approaches with interested parties within and outside the CRD. The CRD does not follow its own principles, goals and objectives when it comes to solid waste management in its own facilities and those facilities leased to third parties. It is imperative that the CRD follow and uphold these new principles, goals and objectives by setting the example within its own facilities and requiring third parties that lease CRD properties to also follow and uphold the same.
- ♦ Educational materials are a waste of money and resources. As part of reducing waste it's important that you don't create it. A bi-annual newsletter outlining all of waste management and resources is sufficient as long as it includes expectations for residence to hold onto it for future reference or better yet create a website and ask residents to register per household. This is a channel that can be leverage and updated as needed and residents could be emailed with any updates (should they register). Leverage social media to get information out to people. Postings at local rec centers and malls to educate. Don't raise my taxes unless you are doing more for me. Straws and plastic bag initiatives should come AFTER looking at Saanich business and enforcing best practices with them.
- ♦ Ensure that the CRD is fully accountable to the public for the disposal of waste by ensuring full transparency for contracts for recycling collection and sale. Ensure that there is a long term market for any materials that will be recycled.
- ♦ Give 100% transparency on where these recyclables end up (not in a garbage dump or shipped to Asia)
- ♦ I have been told that plastic put out in the blue box is not in fact recycled but ends up in landfills, burned, or sent to Asia where it is dumped or ends up in the ocean. I have recycled for years but now I have lost confidence in the system. Please let citizens know exactly what is being done with the blue box contents. If we are just diverting it from our own dump and it ends up not being recycled, the blue box program is not worth the cost or effort and I will just put plastics in my trash.
- ♦ I was shocked to learn, last summer, that all the efforts to recycle plastic was fruitless because most of it goes to landfill anyway. All the money spent on recycling collection, only to have it go to landfill, is hard to understand.
- ♦ I would like to know for sure that the solid waste we take to the recycle facility on Salt Spring is really being recycled. Where does it go? How is it used? A display with this information at the recycles center would be very helpful.
- ♦ Inform residents how and where things are recycled. I don't trust where and what happens to our blue box recycle.
- ♦ It would be great if CRD would be transparent about where recyclables are going and what is being produced through the recycle process. This would mean disclosure by organizations acquiring recycled material. It would also be interesting to see recycled material trend volumes by year.
- ♦ No tax or rate increase find money within current programs or cut current programs to find money to start new programs. Find redundancy internally and cut staff or departments, new equipment purchases. Stop dealing with mother issues.....make effective changes and move on. Banning plastic bags and then charging a fee for a bag that causes more pollution to make is a joke. fee's collected for bags goes into municipal pockets to do what. Like I said it's a joke.

- ♦ Objective #3 "Facilitate processing and markets for organics, recyclables, and wood waste as appropriate" stands out for me as an important one. Many people I speak to are disillusioned about recycling because it just gets shipped off to be someone else's garbage.
- ♦ Please respond to the Marketplace story about recycling being burned. I feel like recycling might be a waste of my time and waste of water. I feel distrustful that my hard work is all for not.
- ♦ The community is a partner in the goal of landfill diversion. As such, CRD must do everything to minimize their frustration that can happen when they realize that their effort to cooperate in the recycling goal is fruitless as previously collected materials summarily ended up in the landfill.
- ♦ The proposed goals and objectives are comprehensive and should be attainable. I am concerned with management and the local govt. ability to perform the program. Recently CBC reported a devastating review of the current recycling programs and the incredible problems that were not being corrected. The CBC reported the recent Philippine fiasco and the local BC failure to recycle many products. They were sent to landfills where they were set on fire. So, ideally you should publish a list of the total program and a conscientious follow-up.
- ♦ There is no mention of where the recyclable materials are going to go....we continually here that a great portion of the recycling simply ends up in a land fill.
- ♦ Your goals are realistic, but unless the public knows what is being remade from our work, you will not win over the public. What good is recycling if it's just packed up and shipped off to another destination?
- ♦ Strategy 1 talks about continuing and enhancing education programs and how community based management is extremely important but in NONE of the 15 points that were provided were first nations people addressed in any manner. If we are to work towards reconciliation with indigenous people, we must include them in all community projects and look to them for advice as they have immense amounts of knowledge about the Victoria areas ecosystem. When first nations people lived all over the coast freely, they would fish salmon from the waters. When they were done eating the salmon, they would bring the bones back to the water as they believed it would continue to bring fish. This in a way was a great form of waste management in our history. Including first nations tribes in all work is extremely important and quite frankly it is very disappointing not seeing any recognition for them in these documents. Especially in the education and community relationship section

Lead by example

- ♦ CRD AND OTHER GOVERNMENT OFFICES NEED TO WALK THE WALK. I THINK THIS IS A TRUST ISSU MORE THAN ANYTHING. CAN SEEK OUT AND MOVE. Please Reach out to the Legislative Assembly to ask them to start recycling and composting more. They are exempt from local regulations, but they are the source of provincial decisions. The Legislature isn't composting!!
- ♦ I don't see on your strategies very many actions. Actions is what matter. One action I suggest is that CRD have an ACTION PLAN to REDUCE waste at its Victoria and other offices, such as: - have each department and satellite office appoint a recycling, waste reduction coordinator. - hold training and annual meetings of coordinators with recognition - adopt policy of putting all documents double sided or only purchasing copies that print double sided and have the double sided action the default. - direct white paper to be bade into other similar office paper. - recycling bins on each floor. - no bottled water available on site. - ensure printer cartridges are recycled. - you can probably think of more.
- ♦ CRD owned facilities should be included even when those facilities are leased to a third party. Apply #1 to those facilities to ensure staff or educated on waste management programs, apply #3 as I have personally witnessed an obscene amount of food waste in one CRD owned facility. I would also suggest better policing of the CRD facilities as I have watched CRD staff dispose of construction materials in the trash bin many times (these items should be taken to a proper disposal site) and have found outside organizations dispose of their waste (carpets, lamps, etc.) in trash bins located on CRD property (staff with affiliations with these groups allow for this disposal). This is costly not just for the CRD but also the taxpayers.
- ♦ CRD should have its own solid waste reduction and recycling strategy including recycling at CRD facilities, printing all documents double sided, not selling bottled water, etc.
- ♦ Please also inform the staff on Salt Spring (and other outlying offices) about your other reduce waste policies, such as using reusable plates, cutlery, water bottles, etc.

- ♦ I suggest that CRD employees be encouraged to print all documents double sided unless there is a reason why not to. It helps to have a recycle coordinator on each floor, or in each department to make sure people are recycling their paper and other items.

Improve waste management systems

- ♦ Make waste collection a municipal service and get out of for profit models for commercial and multi-unit housing
- ♦ I attended the project event at the Juan de Fuca Seniors Center today (Sat. Nov. 16) and was pleased to see the overall scope of the plan. I did note several things that I think can be achieved with minimal costing impact and the prime one is the mention of either banning and/or adding a surcharge to mixed waste loads, and this was pertaining to non-residential users such as business, construction, restaurant, etc. I think out-right banning would not be as effective as adding a surcharge primarily as that would directly impact the user, and the cost to do this would be minimal. Doing this would also be educational for the users to separate waste appropriately and thusly save them added costs to dumping.
- ♦ The areas with more rural and country setting need access to purchasing "bearproof" cans. I have thought of bringing one back from Nelson but never have the space and the card not using them or offering their sale is promoting poor garbage practice by not promoting the right tools for rural use by insisting on the little useless bins and straps. We are being encouraged to habituate wildlife by these practices and policies and being poor neighbours to wildlife.
- ♦ Reinstate the hazardous waste collection days on each of the SGI
- ♦ Switch garbage and recycling pick up - weekly recycling pickup and biweekly garbage pickup - encourages more recycling and less garbage!
- ♦ Upgrade and modernize household recycling. Bins are too small. Should be replaced with rolling totes.
- ♦ I already re-started composting after stopping with the introduction of the green waste program. I should be compensated, or at least my green bin fee reduced if I don't use it.
- ♦ That should be achievable if all parties become educated, if recycling methods are made simpler and standard across the CRD. Recycling now is complicated and already takes up a lot of a householder's time. It is definitely not simple and often not logical. Help us by thinking from a resident's point of view, by looking at what we must do 'IN' the house to achieve the targets you have in mind.
- ♦ Standardize recycling in BC and preferably Canada as it's always a challenge when we get together with our families in different parts of the country as it varies so much.
- ♦ There needs to be increased standardization with the recycling pick up between public/private offerings (i.e. single family dwellings vs multi-family). In particular, I'm referring to the recycling of glass. It's incredibly frustrating that glass was recently removed from the recycling pick up for condominiums and apartments in the Westshore area. While I am assertive in taking my glass to a proper recycling facility, it is not ideal. I also know that many people have just begun throwing their glass in the garbage since this "ban" began.
- ♦ All communities should have the same services. Langford does not have a free yard waste drop off but Colwood does (for Colwood residents only) nor does it pick up soft plastics (have to take it to the landfill site, so most people just throw it in with the garbage).
- ♦ Currently the various communities and supporting waste businesses have very poor communication strategies and many inconsistencies in directing people and business to how and where to dispose/recycle various items.
- ♦ I would like to see some strategic planning within the CRD region so that consumables are treated in a consistent manner across all service providers (either municipal waste pickup, or private contractors working with condo and apartment buildings).
- ♦ Make sure all forms of residency and businesses are included, regardless of the current private or public collections.

Recognize that much of the implementation is beyond CRD's control

- ♦ Probably half of your strategy depends on actions beyond control of CRD - change behavior of residents, manufacturers, recycling companies. You need major response by province and Canada to change regulations.
- ♦ Providing tax or financial incentives for private industry to take on many of the tasks which are worthy and clearly identified in this plan will result in quicker and more innovative solutions to our waste minimization and diversion needs. Local and regional government simply does not have the economically viable tools to make this sort of thing come to

reality. Only when working with the Provincial and Federal government agencies can these tasks be accelerated without unnecessary and inefficient burden on the local taxpayer and businesses.

- ♦ It appears as many of the strategies are specifically intended to increase the reach of the CRD. While many of the goals are worthy of reach, many are also covered extensively by provincial mandate and regulatory framework. As such, simply increasing staffing and programs to provide programs that should be mandated at a provincial and federal level is an unnecessary duplication of efforts. I am strongly opposed to the involvement of the CRD into further areas of the waste management business. Their intrusion into the business of the private market has not proven beneficial to the taxpayer in the past and is not responsive to market conditions.
- ♦ We need leadership and education to get everybody on board. Hopefully at the provincial level or better yet federally. I find it hard to comprehend why with the composition of government both provincially and municipally that these things have not already occurred. Thanks for taking the time to read this. If I can be of any help with this problem, let me know.
- ♦ Develop collaborative partnerships with interested parties both within and outside of the CRD to achieve regional targets set in plans Comments: For this I would like to see the involvement of businesses (local and chain) to refuse the purchasing of socially and environmentally unethical products. I understand that this is easier said than done, especially in terms of financing. I think there could be a proposal made in the future to provide these businesses with tax incentives for buying and selling more environmentally and socially ethical products
- ♦ If more plastic containers came with peel-off labels, they would be reused more often as compared with printed on labelling. Also, clear rather than solid coloured containers where possible to reuse for storage of food items or other household / hobby items.

Look at best practices in other jurisdictions

- ♦ Communicate with other cities elsewhere in BC/Canada/North America to share ideas, successes, challenges, and learnings.
- ♦ I think it would be valuable to cite examples used elsewhere of how these things are successfully applied.
- ♦ Sweden can do it - so can we.
- ♦ Show the public examples of successful waste management such as in Sweden
- ♦ I think it would be valuable to highlight programs and jurisdictions that have had success in implementing similar strategies and associated actions.
- ♦ Look at other jurisdictions where waste management is much more efficient than the CRD with its comparatively small population. City of Toronto picks up green bins weekly, and alternates garbage and recycling.
- ♦ Collaborate with other jurisdictions wherever practical. Wording here: 'They should collaborate on the highest standards but seek the highest level of jurisdiction'. Not just when practical.
- ♦ We have recently returned from Tokyo the cleanest major city we have ever visited. Smoking on public streets is prohibited and cleanliness of the city is a responsibility of all citizens. These two factors could go a long way to improving the CRD.
- ♦ Strengthen statement about facilitating processing and markets - lets support local processing and markets with a goal of reducing overseas shipments of material that we have less control over what is done with it. Strengthen support for community-based waste management solutions - look to gulf island depots as examples of facilities that educate through participation (as opposed to curb-side model) and encourage reuse (free stores) before end of life at landfill.
- ♦ In 1994, I received a CRD award for my contribution to solid waste reduction (designing, building and running the Salt Spring Island depot for 7 years) and with a subsequent career in construction and a passion for organic growing, have a wide practical sense of the issues we as a society face. Deja vu, as extending the life of Hartland was a priority with CRD engineers in the 80's and 90's, and the main reason they accepted Blue Box and recycling. I make biochar with a flame curtain kiln, www.saltspringislandbiochar.com and have done numerous experiments with burning tree trimmings, pallets and construction wood waste. Also, I have done a 5 month experiment with anaerobic/aerobic composting of food waste (with and without meat products) biochar, hay, cardboard and activated compost. I would like to have some opportunity to demonstrate how this can help to reduce solid waste in our region.
- ♦ <https://www.cbc.ca/news/technology/reduce-waste-economic-1.4638670> (2) Follow Sweden's steps:
<https://www.independent.co.uk/environment/sweden-s-recycling-is-so-revolutionary-the-country-has-run-out-of-rubbish-a7462976.html>

- ♦ Have a goal of searching out and experimenting with various tools and options. Example: <https://www.surfertoday.com/environment/city-of-kwinana-collects-815-pounds-of-garbage-using-drainage-nets>
- ♦ Check out the BBC World Service Podcast three part series 'Plastic Fantastic'
- ♦ The Living Downstream strategy needs integrating.
- ♦ Needs to integrate the Living Downstream strategy. Watch free online with your GVPL library card through this link: <https://www.hoopladigital.com/title/11043083> If a compound isn't proven safe by its producer it is banned from sale. Plastic that harms the environment for any reason would be banned from sale. Watch www.LivingDownstream.com/trailer. Break Free From Plastic Global Campaign with video: <https://storyofstuff.org/blog/building-a-global-movement-to-breakfreefromplastic/>

#1 Continue and enhance education programs

Provide clear information and frequent updates

- ♦ We really need to try to get more things recycled and clearer information on where things are recycled.
- ♦ Bringing in separated garbage bins and educating residents will help over time, but humans are a stubborn species. Most the people on my street still don't realize that glass can no longer be put in same blue bins as plastics. When the malls first put in the separate waste bins, even with labels most people either couldn't figure out what to put where, or didn't have the patience, and now you'll notice all the food courts have a surely low-paid garbage attendant to take the tray and separate the waste. Practical and efficient solutions always work best.
- ♦ Education is needed to bring the citizens up to speed on what should be prevented, and how materials should be separated.
- ♦ I recycle so much more these days - I try to read everything I can to learn what to recycle. Simple educational materials about what can be recycled and where to recycle different items help so much!
- ♦ While I do get the email notifications from the CRD regarding blue boxes because I opted into them, I think we could benefit from a more consistent widespread guide on what is accepted in curbside pick-up and where other types of recycling not able to be picked up at curbside can go. Having a website is a good resource, but I think it might be worth a (recyclable! :D) flyer every six months that ensures anyone who gets a blue box and lives in a certain residential area knows what can go in it, and thus is regularly updated when the list of recyclables changes
- ♦ I feel more education is needed to make people aware of places they can take their products.
- ♦ MAKE IT EASY FOR PEOPLE TO CHANGE.
- ♦ Education: show ppl the facilities, processes, impact of poor behavior.
- ♦ Present a visual representation of what our waste stream would look like if we carry on with our current practices. Pictures of our accumulated waste in relation to where it is, where it is going and where it could be in future. A picture is worth a thousand words!
- ♦ I would suggest introducing the concept of sorting waste to users, perhaps in information on how to save money at the landfill and maintaining a non-confrontational exchange with users. Helping them save costs through education is key, in my opinion.
- ♦ Better information- tell people about free drop off of paint, mattresses etc. at Hartland, to reduce dumping.
- ♦ Continue and enhance educational programs.
- ♦ Convince and educate people to use and reuse stuff longer, repair and pass on to avoid a big amount of throw away items. That would also help to manage debt.
- ♦ Education around better recycling and waste habits is extremely important to me, and the best way to encourage better practices in the home and commercially.
- ♦ I think education is key but also clear guidelines for all levels.
- ♦ I think that the CRD must make changes to how it communicates evidence and best practices. Frequently information is designed as 'best in class'. That is to say, if a product can be recycled it is described as such. Unfortunately, many products can be recycled 'in theory' but in practice cannot or finding a location to recycle products is very difficult and unclear. The CRD should collect this information and provide this to residents.

- ♦ In regard to #1, education needs to be more explicit and readily available. I often have to scroll through the recyclopedia in order to find out what to do with one item.
- ♦ In theory supportive of the reduction of any waste possible as an absolute necessity and better yet to turn negative wastes into positive products (i.e. energy, etc.) but there must be support for citizens when materials need to be disposed of. Even now, I'm not entirely sure what to do with materials (broken terracotta pizza stone??) when Alpine won't take them and still have materials, I've read are recyclable (toothbrushes...all plastic) being left behind on recycling day. Clearly outlined policies and widespread access to them are so helpful. thank you
- ♦ It seems to me that we could find ways to improve communication about the issues, both to and from those in our community. I'm not completely knowledgeable about what waste goes where and think we all need more education that is easily available, through many media.
- ♦ It's challenging to get our household waste to zero. Not obvious how to recycle many common items. Plus, takeout food is a huge producer of garbage.
- ♦ Keep educating citizens and encouraging sensible recycling, re-use about safe disposal methodology. Thank you!
- ♦ More education is one of the key elements. Although I consider myself a recycler, I have a difficult time finding out about where/how to recycle. The CRD could have public information booths at local markets, with examples of how to recycle. In fact, any public event could have a "Recycle" booth. Stationing staff where the trash receptacles are located and directing people to the correct one would be a great way to teach. A website that has a list of as many types of packaging as possible would be really helpful, to learn what is recyclable and not.
- ♦ Need more education and accessible information about how to properly sort/clean curbside recycling, and enforcement for violators
- ♦ Misallocated resources. People don't need to be educated. The CRD and City are not leading in their actions and are not supporting resident/business reduction in a meaningful way.
- ♦ Provide more information on what can be recycled.
- ♦ Residential and multi-family diversion is a problem due to the lack of education available to residents. Many are confused as to what can be recycled or composted and how. In our apartment, composting is mandatory, and management provided green bins for the residents, but many residents will not but compost bags as they can be expensive, so they use regular plastic bags which contaminate the waste stream. Also, residents will often throw recyclable materials in the compost bin or trash bin or vice versa. For those residents who are ardent composters and recyclers, it is a source of endless frustration. Additionally, some recycling facilities now take other recyclable items (candy wrappers, fruit bags, etc.). This would be a great opportunity for another bin to be incorporated in the waste management plan.
- ♦ Saanich recycling is too complicated and onerous. In my opinion Making it simpler, like in other mainland cities would be beneficial, and boost participation.
- ♦ We as private residents needs to have more information as to locations where you can take things.
- ♦ We found the open house at we attended at Mary Winspear Centre very helpful in terms of the staff and information boards. We picked up a very information Guide put out RecycleBC titled Recycling Guide Recycle BC Depots that I cannot find on your website. As part of your Education Programs you may want to make it easy for residents to find. Thank you.
- ♦ All education components of all strategies are missing a "consultation" component and therefore seem to take a very top-down approach with regard to what is to be learned (by residents, business owners, etc.). Many times, the individual in question knows best what the issues are, for example where most of their waste is coming from and asking them for input for the education programs would be helpful. This will make all education programs more relevant for people, therefore increasing the likelihood that they buy in.
- ♦ Also why do the blue bin instructions say you can't put plastic container lids in? Same plastic, they should also be recycled.
- ♦ I encourage development of any educational information that will make it clearer and simpler for residents handling the various materials and organics they sort into recycling and composting streams. In our house we do our very best to direct everything we can to the correct stream -- especially things like various types of plastics, things like tin foil, Styrofoam, different types of paper. Happy to sort, sort, sort, just want to know that I'm doing it right, with clear and easy to understand information. With the recycling, we are happy to sort everything we can, but I hate the thought that I'm doing anything wrong and perhaps contaminating a load of recycling or otherwise putting something where it shouldn't be. Also -- anything that can be done to reduce the amount of packaging and plastics at the source, so much the better. I am 60 years old, and there was far less packaging when I was young.

- ♦ Better signs on all trash/recycle/compost bins. Specify if items must be cleaned, very clear directions on what is accepted and what isn't. So many people just honestly don't know. (For instance, throwing wet paper towel into the paper section when it now has to go into compost).
- ♦ More clear info and education on what is recyclable where would be helpful! bottle depot, Hartland, Ellice, curbside, it's all a bit confusing (but I'm always willing to take the time to figure it out!)
- ♦ As a resident, I would welcome greater information as to how to prepare materials for recycling. For example, what do we do with mixed foil and plastic packaging? Exactly what can be accepted in soft plastic recycling? What do we do with yard waste when our local yard is closed for 3 months!
- ♦ put guides/educational stickers on garbage bins, compost and recycling bins. This is an easy way to 'educate' really quick instead of hoping people remember and are mentally equipped to remember all the decision or look it up.
- ♦ I got to this survey from here: <https://www.sookenewsmirror.com/news/majority-of-household-trash-going-to-the-hartland-landfill-is-recyclable-compostable/> My question about recyclable waste entering the landfill that I set out to answer as a result of reading this article is: is there a facility available that will take it for recycling if it doesn't go in curbside blue bins, and should I be filling a separate bin with non-curbside plastics such as stand-up pouches, plastic bags and other mixed materials like foil-lined paper or plastic-lined grocery store boxes, etc. and bringing them somewhere? I have been using the curbside pickup list as my guide to what is recyclable and what is garbage: https://www.crd.bc.ca/docs/default-source/recycling-waste-pdf/curbsiderecyclingprepsheet.pdf?sfvrsn=ef306dca_20 Particularly because it contains a section called "drop off at depot" and then in that section has a list of things "do not include" making me think that these things are garbage. For example, I'm eating a single-serving yogurt in a coloured plastic container right now. Already not the best choice, I acknowledge, but now that I have it, what should I do with it? I heard in the news that deeply coloured plastic is harder to recycle, but the curbside guide doesn't mention this and the pictures of things to include are in black and white. Recycle BC's waste wizard brings up the following information: "Yogurt containers Plastic containers for yogurt with foil lids, or plastic seal tops. The container must be empty and rinsed before recycling. Clean foil lids can also be recycled with containers. Clean plastic seal tops are accepted with Other Flexible Plastic Packaging at Recycle BC depots or London Drugs." On one side of this information is a symbol of a car, and on the other side is a picture of cheese... I don't know if the top is foil, plastic or foil-lined plastic and all of these have a different instruction. So, should I guess and include it in one of the recycling streams, possibly adding contamination, or toss it? Curbside recycling says to take plastic bags to a depot but not, among other things: Crinkly cellophane wrap, Zipper-lock bags, potato chip, snack bags, Kitchen stretch wrap or plastic wrap for meat, poultry, fish, or cheese Recycle BC says that "other flexible packaging" can be taken to a depot: Other Flexible Plastic Packaging includes stand-up and zipper lock pouches, crinkly wrappers and bags, flexible packaging with seal, woven and net plastic bags, and non-food protective packaging. So, it seems like there are things in the "do not include" list in the curbside recycling guide that can get recycled elsewhere, but these are mixed in with straight up non-recyclable things(?). It's not clear from the wording from Recycle BC if crinkly bags mean potato chip bags or not, and is it the same as the crinkly cellophane wrap referred to on the curbside recycling list? When I use the waste wizard on recycle BC, there is no entry for stretch wrap, but there is one for shrink wrap, in this case it says to return it to a depot as other flexible plastic packaging, are these two items the same thing? It probably sounds stupid to someone that I'm asking this, but I certainly don't know what cellophane is and recycle BC does not categorize that as flexible plastic packaging, yet the picture on the waste wizard looks like a roll of stretch (shrink?) wrap. And again, with the symbol of a car - what does that mean? Padded envelopes, on the "do not include" list of the "drop off at depot" section of the curbside guide, when entered into the waste wizard refers me to the recycling council of BC website's recyclopeda, at which point I cannot get a result in their search engine. What should I do with those? So, my point is that there is a lot of terminology that is not consistent across platforms, and the images included with search results are not sufficient (try looking up yogurt container on recycle bc, it will be a picture of cheese). There is a lot of info on the curbside pickup website that makes it look like stuff is not recyclable when possibly it is, and there is a lot of stuff that seems difficult to categorize, and the online search tools don't do a very good job sometimes. Thanks for all your work
- ♦ Acceptable plastics & soft plastics information is challenging to understand.
- ♦ Add a tip to each reminder notice on recycling days especially if something new is being accepted somewhere in the CRD- take your TV to ____, the library is accepting old cell phones,
- ♦ I disagree strongly with many of the points. The CRD already has many truckloads of plastic that has no market. Meanwhile, we all know that many people ignore the principles. It is offensive to expect people to follow your recycle rules. Make it easy for everyone. People will stop dumping garbage where they should not.

- ◆ Instead, give the public places, nearby, where a person could sort and recycle. For instance, Sidney work yard. A place for metals, heavy lawn chairs, Styrofoam that is close to population centres, maybe every municipality... I. A flyer in the invoice telling info. like where pull tabs of pop cans, inside safety paper/plastic pulls or frozen orange juice cans (half paper. half metal etc. would be helpful. Disposal of sharps, batteries, dental floss could be publicized also in invoices. Also, it seems to me for me to clean yogurt containers, a plastic or glass jar of coconut oil or peanut butter it would take more resources. Maybe tell the public what they are doing correctly would be encouraging.
- ◆ Sounds great. More education is needed to inform people about what they can and can't recycle. How about a weekly newspaper column? Or a changing "Did you know?" ad on buses, with one important fact outlined each time.
- ◆ The current residential recycling information is confusing for residents - what can they recycle and where? I think detailed information (with pictures of sample items) being sent annually to residents is necessary in order to keep them up to date on current practices to recycle as much as possible. Residents are frustrated that CRD no longer has a live person answering calls on the Hotline. Victoria's large population of seniors do not understand apps or how to access this information online.
- ◆ The education plan has to include more emphasis on putting CLEAN things into the blue bin. I see neighbours who are otherwise very intelligent putting unwashed containers such as salad boxes into the bin. I have to believe that they just didn't get the message. Occasionally, the driver leaves something behind which I assume is telling me that it is not recyclable. Example, a plastic hanger from Walmart clothing. I'd appreciate a note telling my why it is not appropriate. This is part of the education process.
- ◆ While I do believe that we need to encourage source separation, some things I am aware of: Hoarding behaviors because people cannot figure out how to discard of something 'without get into trouble for putting it in the wrong stream'.
- ◆ You need to clarify much more specifically what can and cannot be recycled. Soft and foil-lined plastics are particularly confusing.

Educate to support behaviour change

- ◆ Perhaps getting city people who are so far removed from Nature out into the wilderness might help - and taking people out to see what is happening at Heartland to open their eyes to the problem - or video and bring it to them somehow. Like an infomercial on TV.
- ◆ Use examples from WW11, home fires to educate consumers about what should/could be reused and creative ways to reuse materials. have contests to promote reuse of materials discarded as waste. engage students/artists/etc. to apply their creativity.
- ◆ Promote your policy and let the public know how they are doing.
- ◆ Success depends on the change of habits. I can remember when any kind of recycling seemed to take too much of my precious time. How naive was that! But now I have to put out my grey garbage bin only about once every 3 months. I think university students from outside the region need to be educated. I think they are often coming from areas with fewer waste reduction policies and options. From what I see their rental home bins are full to overflowing on pick up days.
- ◆ Advise taxpayers more often on how their responsible recycling participation is needed and how their diligence will keep taxes lower and reduce impacts to the environment.
- ◆ Education is the key to compliance. Too many of us do not realize the critical importance of reducing waste and managing what we do/must create.
- ◆ Make it more personal – reward low use, neighbourhood competitions to reduce, videos of what happens once it leaves your curb
- ◆ When informed, "old dogs can learn new tricks."
- ◆ You could create a huge and positive change by acting immediately with "policing" the live face at the dump . I know there are employees just standing around watching this whole thing unfold right in front of them ! Time to speak to the drivers , get their routes , determine who's putting the wrong stuff into their garbage , knowing no one will challenge them on it , and start issuing ticketsIf people still don't care or are still ignorant ; then it's time for some behaviour modification .
- ◆ If people want to get involved in this initiative, how can we come forward? Who should we be talking to?

- ♦ As some people are more rigorous with compliance and others less so, it's entirely possible with education and other strategies to accomplish this reduction if it's made a priority and inducements are presented so we all appreciate the benefits to everyone's neighbourhood.
- ♦ Education is needed. As a possible method of getting the word out to younger people who can't be bothered to recycle, compost, etc. I suggest having PSAs using the Victoria Royals players created and aired locally on media, buses/ bus shelters, but also at the rink on the JumboTron. Believe me, these boys are not familiar with the CRD guidelines (many are from out of province and haven't grown up with them). Their influence could help get that age group to start thinking about reducing waste. I've seen it done at other rinks with their teams.....
- ♦ How is your data collection - I think in today's techno-literate and data obsessed climate you could use some of the principles of nudging (see Richard Thaler) and ideas like social to encourage individuals, blocks and neighbourhoods to reduce. It could become a competition and fun and meaningful rather than doom and gloom.
- ♦ Need more education and more often. Not just on social media. Too much dependence on social media. Too much info too fast gets skimmed and mentally dumped.
- ♦ The CRD should make an even larger effort to educate the communities on these issues and to implement creative and diverse strategies to minimize waste and maximize resource recovery.
- ♦ To readily reach this goal, obviously a vast increase in educational support for each person is necessary -- so everyone can be both inspired and knowledgeable about why and how to meet this goal.
- ♦ I believe that creating legislation and changing/augmenting CRD rules will do less to increase diversion from Hartland landfill than involving local people in FUN events. Zero Waste events (with printed list of criteria for Zero Waste events printed on local CRD signage...), CRD-supported Repair Cafés (Sooke has 2 a year!) and fairs, supporting local Earth Day Celebrations, initiating district-wide competitions (could be art or writing competitions) ... all could raise awareness of the problems that the CRD is facing vis-a-vis waste management.. Your Public Education department might be tasked with offering help to municipalities to some of the above.
- ♦ While enhancing the education programs many of the strategies will come in place.
- ♦ Education is definitely required and is key.
- ♦ Enhancing education is meaningless unless there is corresponding service support.
- ♦ Read the 'one thing' book/lectures.
- ♦ Education should be the first priority and should happen on all levels and linked to very diverse spaces (schools, kindergartens, community centres, etc.). These should be continuous efforts. One campaign does not make the necessary shift in behaviour that we want to see in our community. For the time I have been living in Oak Bay, e.g., I have not received any education related to proper waste disposal. The CRD is not doing enough on this front. Awareness building is a continuous task.
- ♦ Go both ways: have informed citizens by CRD. But citizens also have creative solutions and support their voices. Engage the community in having a participatory feedback loop. Financially sustainable: gas from landfill, tipping fee. Neoliberal logic or commodified. How do we rebalance that into more of a circular economy? There is also a social and environmental economy. It's not just about profit making. Life enhancing.
- ♦ Also, education materials are generally a waste of time and create an enormous amount of waste - people know better, they just don't care! There needs to be incentive to the individual - either via saving money in some respect or a penalty.
- ♦ Also, get the message out that swilling coffee out of disposable cups all day hurts the planet and your budget. You could show the manufacturing process of the cup from start to finish (right down to getting the paper and plastic/petroleum out of the ground. Then show the cups being recycled and how energy intensive that is, i.e., shipped to Mexico, separated into its component materials etc. Ask people to "do the right thing." Maybe give out/sell at reduced rate CRD travel mugs with that call to action on it.
- ♦ Challenge the Engineering faculty at UVic to come up with creative ways to meet most of the recycling proposals.
- ♦ Climate change science should be integrated into promotional materials in order for residents and industry to understand how their singular actions can have a greater impact.
- ♦ CRD could audit heavy garbage users and provide education and support to decrease waste.
- ♦ CRD should do a much better job of educating residents about what happens to their waste including recyclables.
- ♦ Educate on wastefulness of fast fashion

- ♦ Education is the first step towards seeing these suggestions become reality
- ♦ I believe this has to be a group effort where everyone can see the results as they are involved
- ♦ I have listened and suggest contact-October 17th ,Community-Based Social Marketing (CBSM) for Sustainability Doug McKenzie-Mohr, former Professor of Psychology at St. Thomas University in Fredericton NB. For over three decades Dr. McKenzie-Mohr has been applying behavioural science to the design and delivery of sustainability programs. He is the founder of community-based social marketing and the author/co-author of three books on the topic. He is the recipient of the American Psychological Association's inaugural award for innovation in environmental psychology and the World Social Marketing conference's inaugural award for contributions to the field of social marketing. He is currently an adjunct professor in Psychology at the University of Victoria. Here is his website, you can look at his book or any of the resources. <https://www.cbsm.com/>
- ♦ I strongly believe that free, barrier reduced options for learning why waste reduction and diversion is essential to our well-being and the well-being of our environments is crucial to people making personal value shifts, which translate into action and shifts in cultural norms.
- ♦ I think education should be explicitly stated in the goals or objectives section - education is the key to compliance and waste diversion/reduction!
- ♦ It concerns me as I walk down the street how much recycling is done incorrectly or not at all. Education and sadly, incentivization needs to be bigger, louder, and easier otherwise people will not do it.
- ♦ Lastly, I think it would be good, as recommended, to expand education programs all around and to include businesses apartments and the commercial sector.
- ♦ More education and publicity will be required to slowly change attitudes and behaviour.
- ♦ More public education....For example -garden composting; making your own soil
- ♦ More publicly promoted information on what is making up our waste, so people know and can take steps to reduce.
- ♦ Perhaps put commercials on the local radio and news that encourage how to recycle, the importance of being mindful when choosing items at stores, etc. I came from Prince George where people don't ever seem to consider these things because they don't necessarily know any better. Sometimes public education can go farther than we think.
- ♦ Please run a video contest with a significant prize for those who make catchy educational videos about diverting waste.
- ♦ Promote awareness of wasteful packaging and provide ideas for viable alternatives to suppliers.
- ♦ Promote proper waste disposal management.
- ♦ Promotion/Advertising/Small Competitions, FUN and community goals must be a large part of OUR CRD venture into Zero Waste if the CRD is to meet its goals: How to ... ,rite weekly newspaper articles on how to reduce waste in homes using ideas from Bea Johnson in the ZERO WASTE HOME; ,Write articles on Zero Waste strategies in other cities (Reference THE ZERO WASTE SOLUTION by Paul Connett (Chapter 2) making public some of the plans already place across the planet; ,Ä write an article on recycling to remind people that it is only third best way to reduce waste (REFUSE AND RE-USE being the best); small or large goals presented to the public as small competitions to be enjoyed along the way; host local repair cafes and legislation to support them with "Right to Repair" legislation. Involve community newspapers and create more local waste resource-sharing buildings in which items are put to be re-used, both as is or after being repaired.
- ♦ Public education is so very important. I watched a woman put a plastic container from roasted chicken with the chicken bones into a park garbage container. The blue box would take the packaging and the bones go to the green bin. This person is an intelligent and otherwise sensible woman but has a park next door to her home. Easier to put it there than doing it properly. I fear this type of carelessness happens a lot. How to keep the public informed of the consequences of such thoughtless treatment of what otherwise could be recycled (not the landfill)?
- ♦ Spending on education of young people is also certainly worthwhile. This is so annoying! Why are you asking the citizens these questions? The answers are clear. Are you just looking for a press release to announce your new plans? So annoying. Just do your job well! Is that too much to ask?
- ♦ The CRD is probably one of the best situated waste management operators in Canada in terms of dealing with a public not only willing but desirous to do more for the planet, you really should be taking advantage of this.
- ♦ The CRD should publish lists of approved products for the purchase and preservation of food such as re-usable produce bags and bee's wax wraps. Perhaps have a Facebook page where people could share tips for waste reduction.

- ♦ The curbside blue box program is never going to achieve the levels of waste reduction needed. There is too much contamination and the processing markets are too uncertain. Curbside pickup doesn't require enough effort or participation from residents/institutions. It is a false feel-good effort as it is out of sight, out of mind but ultimately doesn't change consumer behaviour and is an energy intensive process. CRD should play a more active role in achieving waste reduction. 'soft/passive' role of educating, encouraging and supporting should be secondary to 'active' role of leading the region to zero waste, reducing our ecological footprint, developing local markets for processing material, and creating hands-on local community-based opportunities that change behaviour.
- ♦ The education programs and encouraging waste prevention continue to be important although the social media world of today has shortened people's attention span and deep thinking capabilities.
- ♦ The principals, goals and objectives sound good. However, I don't think the general public knows much about the particular challenges of managing a landfill and dealing with waste. Maybe a series of online articles, news stories on tv and in the paper, would help people understand and support a more sustainable waste management system.
- ♦ We need to step BACK in time and re-educate people about home compost to garden soil, use of shopping bags and baskets, elimination of Styrofoam made from non-compostable petrochemicals and reintroducing controlled burning in larger properties to eliminate invasive plants spreading.
- ♦ What about education? How is the CRD planning to educate the public (engagement strategy) so residents can expand their understanding in turn feeling inspired to change their habits and take part of the process. One of the goals should be addressing our desire, as an environmentally conscious city, to be waste leaders versus simply managing the waste. Isn't that what we should be striving for?

Work with schools

- ♦ I'm a teacher and teachers and students want to promote re-useable options and do recycling and composting options. However, it COSTs to have paid CUPE people doing this so often it becomes passionate teachers and students doing this work or removing the materials, taking them to their appropriate centres and sorting waste. While this is great education its hard work and these groups deserve to be celebrated and encouraged as some staffs decide it is simply too much work. I'm the president of a local CRD based Environmental Education Provincial Specialized Association (Salish Sea EEPsA). We would love to find strategies for moving this kind of thing forward in schools
- ♦ CRD needs to actively engage schools to integrate compost and recycling facilities. Schools do not have the capacity to purchase bins.
- ♦ Don't forget about the schools!
- ♦ Please require schools to develop appropriate waste reduction strategies.
- ♦ Work with school districts to create school field trips to Hartland and anywhere else where they can see what happens to materials after they are done with them.
- ♦ Great goals! I suspect that I was on your mailing list because I run Repair Cafe Victoria, and/or because I wrote a children's book promoting zero-waste (Trash Talk: Moving Toward a Zero-Waste World, Orca Book Publishers, 2016). I'd really like to see CRD reach out to schools to promote both the idea of zero-waste and the questioning of consumerism, as well as promoting repair, bartering, "thing libraries," etc. (I'd be happy to help with that.)
- ♦ I would like to see more education on the importance of reducing waste at the consumer level with presentations in schools and community centres
- ♦ Public education is important to decrease the contamination in both the recycling and garbage streams. There needs to be free public education programs in the schools (both public and private) preferably a primary , upper elementary , middle and high school. This way you educate the young but include handouts so you can encourage parental/ adult participation. Encourage kids to volunteer both at school and at home (parents and teachers will love that). Right now, there is ignorance out there are many items (such as potato chip bags, toothpaste , etc.). People want to do the right thing they just don't know how.
- ♦ Recycle - CRD needs to provide blue box pickup from schools, this is currently not provided - it all ends up in the trash unless a dedicated staff member takes it all home. This is recycling + education - 2 for 1!
- ♦ I think it would be beneficial to have a program for interaction with school children - I watched a doc recently re plastic on Netflix and thought it should be shown in classrooms. My daughter is very "reduce" conscious and recycles - involving my grandson who is 5 yrs. old -and I think most people are similar but I still see garbage (fast food containers etc.) thrown on

the road and caught in bushes along sidewalks which makes me wonder how these people were brought up! Why not also start a program for schools re growing vegetables etc. I also think a lot of people think mainly about recycling instead of reducing - can we get some better "advertising" re reducing?

- ♦ A key to long term change is getting into the schools, every school, every year. And don't wait for an invitation, be pro-active. My daughter, some 20 years ago, attended a presentation by Anke B. on the 'environmental footprint, came home and announced that she would become a vegetarian. Inspired by her the whole family to this day is vegetarian. Reduce and reuse are the much neglected "R's". Any efforts to encourage those two are fully supported by us.
- ♦ Included in your education programs for schools. Teach children and parents how to pack lunches and picnics with non-plastic items, i.e. use reusable flatware, wrap sandwiches in wax or parchment paper-teach wrapping/folding techniques, use aluminum foil for damp items, use small glass jars for puddings, purchase a camping cutlery set which fits together and can be washed, carried in pocket, car or lunchbox, reuse glass rather than plastic. Like back to the 50s in attitude toward storing food - not everything has to be stored in plastic! use the freezer more to store products which can't be used by the best before date.

#2 Encourage waste prevention

Emphasize 'reduce' over 'reuse and recycle'

- ♦ Better to reduce consumption
- ♦ You should be asking for (in order): actions people think that the government could take to 1) reduce waste, 2) reuse waste, 3) recycle. Everyone is for recycling. The REAL question is how to do that. For example, should the government require non-recyclable packaging to be phased out.
- ♦ I think there needs to be a significant emphasis on Reduce and Reuse.
- ♦ Even more emphasis should be on the first two words of Reduce, Reuse and Recycle.
- ♦ Add two Rs - refuse and repurpose, used to be in there and are stronger tools in some ways
- ♦ Stronger focus on reduce over reuse and recycle
- ♦ Focus on zero waste and refuse (instead of recycling) by discouraging single use plastics.
- ♦ Much greater emphasis on REDUCE is needed.
- ♦ Consider upgrading the three Rs to the 4 R's: REFUSE, reduce, reuse, recycle.
- ♦ Reduce Reuse Recycle ... should be expanded to include at a minimum Refuse and Recover ... and even Upcycle I agree with the "Reduce, Reuse and Recycle" focus; however, we are sadly lax in reuse and recycle supports
- ♦ I also believe that less attention should be placed on recycling and more on reducing and reusing.
- ♦ I am all for promoting the 3 Rs, Reduce, Reuse, Recycle.
- ♦ I am strongly opposed to encouraging recycling over encouraging reuse.
- ♦ I think you should be promoting the 5 R's REFUSE (this is zero waste #1 and a systemic issue) and Rot (the composting and organics diversion), Not just the 3.
- ♦ Promote the first 'R,' 'Reduce,' should be the main priority
- ♦ Promoting the first 3 R's. We have completely forgotten about the first 2: reduce & re-use. We've become very focussed on recycling and it's not enough AND it's not working.
- ♦ Promotion of three R's should be more targeted on reduce/reuse rather than recycle (as these are not determined by global market activity).
- ♦ Question resources for recycling - I am an avid recycler - but emphasis really needs to be-rethink- and reduce.
- ♦ Refuse should be first on list of reduce, reuse, recycle.
- ♦ More of a focus on reducing and reusing in the 3 r,'s and collaboration with local organizations/businesses to reduce waste and raise awareness

Promote reduced consumption and greater consumer responsibility

- ♦ Higher premiums for bottled water. Encourage stores to carry canned water. Perrier makes them. Actor Jason Mamoia has come out with his own. Bring your own bottled water. Who doesn't have their own? It's about establishing a routine. By 2050 there will be more plastic in the ocean than fish. People don't have time! Don't believe it. It's a change of mindset. Plastic bag bylaws took off pretty quickly and successfully.
- ♦ How can you live in a consumer society - "BUY more, keep the economy moving" "Renovate and improve your house" "Move to a bigger more modern house" "Get new furniture and appliances" "Your appliances are designed for a 7 year lifespan" AND Reduce waste? You see it now - garbage on the sidewalks and dumped on people's lawns. The landfill is the proper place for waste!
- ♦ Further, I believe that we continuously focus on recycle over reduce and reuse and that certain single use items are getting shafted by unreasonable policies.
- ♦ Really, truth be told we are too much into consumerism. We have to get ourselves off the capitalist dream of the castle for everyone. It does not do well for our environment. Now that is a trick for sure - there is a lot invested in it. It is killing us though. That is the long and the short of it. We have to get back to just what we need and not our wants and desires. They are never ending and are filling the garbage dumps around the Globe. Light to that for the highest good of all concerned. Thanks for all you are doing to alleviate some of the mess.
- ♦ Waste prevention is a partial but important solution. Think about the amount of packaging and how recyclable it is. Choose the most environmentally friendly alternative.
- ♦ We all need to produce less waste which means consuming less and reusing and repairing more material goods.
- ♦ Consciousness is the number one ingredient in reducing waste and so much progress can and will be made as more and more people get with it.
- ♦ We have to go to the source - and that is that our markets are flooded with "stuff" and that we live in a consumer driven society. We are bombarded with BUY BUY BUY. So we create a lot of garbage. So much stuff from Walmart ends up in the garbage a few months later because it is not well made - cheap stuff doesn't last and it has to go somewhere. We need to start at the beginning and not have so much stuff that people will then throw away. That is why we have so much junk and unusable clothing and other junk that has to go somewhere - usually in the landfill. We must educate people about buying junk. We have to stop allowing so much junk to be sold - all this cheap junk that comes from China for example! If we didn't have so much junk available to people, we wouldn't have so much junk to get rid of. It's a difficult task but I think it can be done - at least some people will understand. And the first thing is to make people see that their buying habits are creating these problems
- ♦ We really have no idea what's recyclable and what isn't, or even what can be done with the things you're collecting already. I think better to try to encourage and support leaner purchasing and packaging.
- ♦ It's not hard. I'm at almost zero waste. We've gotten rid of plastic grocery bags, for the most part. I rarely see anyone without their own bags. Compostable bags instead of single use plastics. E.g. Dog poop bags. I only find them at Red Barn and Walmart. They should ALL be compostable. All household bags should be compostable. They don't cost any more than regular. E.g. pre-washed salads. Saanich farm using compostable bags for their product. With the amount of food waste, has anyone made it thru a Costco sized pre washed salad without having to toss some? Think of how big that container is. Recyclable, yes. But there is an environmental cost to that as well. Buy smaller quantities and local.
- ♦ Number one strategy to reduce waste is a need to change packaging - eliminate waste by bringing less home from the store!!!
- ♦ A bigger issue is perhaps beyond the CRD's ability to implement but which they could give voice to on behalf of residents. This is the whole cycle of manufacturing, marketing and use of virtually all the things we consume.
- ♦ But we need to address consumerism and the producers of the material as well. The public is the end of the chain and has only the control of their consumer choices to make wise decisions. Help them to become wise consumers.
- ♦ I think the focus on reducing the amount of solid waste and 'recyclables' consumers bring home is critically important, I'm very glad to see that addressed in the strategies.
- ♦ I'd like to see more support for the reduce and reuse Rs as well. We don't need to recycle or rot or throw away if we produce less waste to begin with.
- ♦ Laziness and over-consumption are a common problem for lack of recycling and over-production of garbage which is a difficult problem to control.

- ♦ One of the best ways to reduce waste, is to consume less (packaging). This may be a hard one to sell, but very effective and does not require new technology. It also encourages better health. For example, real food generally comes without plastic or paper packaging, is whole food the way nature designed it so also nutrient dense and generally healthy. Processed foods come with heavy packaging, few nutrients, and is generally not healthy.
- ♦ Please consider promotion/public education of consumer/consumption habits. The real diversion of materials to the landfill is to not purchase or bring the materials into the household in the first place. (Zero waste shopping containers, elimination of single use plastics, bags, packing materials.)
- ♦ Recycling is great, but ultimately, reducing consumption is a far more effective way to reach our zero-waste goals.
- ♦ Reducing waste should be one of the first aims. We need to start looking at how much we consume and facing the fact that nothing we "throw out" has disappeared. It's just been relocated. Maybe we should call it "landfilled" or something that makes us face the fact that is still here somewhere. I think I've seen the label "Landfill" on trash containers somewhere.
- ♦ The general public needs to be accountable for their waste creation.
- ♦ These are great strategies for tackling waste reduction, it's important to communicate the timelines and the capacity and sustainability of our landfill and recycling facilities and how they work to the general public. This will empower them to take their own responsibility for their waste.
- ♦ Encourage waste prevention
- ♦ Happy to see plans in place to reduce landfill waste. .
- ♦ YES! If we avoid creating the waste in the first place many of the principles would be achieved!
- ♦ Increase deposits or other meaningful actions to keep resources out of the waste stream (without illegal dumping)
- ♦ The CRD should multiply and diversify its actions to minimize waste generation and to maximize waste diversion. This also means to involve grassroots initiatives, such as e.g. the "Diverters Project", which brings together Binners and seeks to expand the capacity of these workers in collecting and separating recyclables.
- ♦ What about reducing waste? Penalties for excess packaging, better circles of use, etc.
- ♦ We need to encourage people to take the initiative to buy products with less hard plastic (cans and glass are more recyclable).
- ♦ Stop shipping our waste elsewhere.
- ♦ Given that there is nothing in the solid waste stream that cannot be effectively converted into soils and/or erosion control products that can also be cost-affected distributed and applied to grow trees in remote areas for an insatiable market then there is no logic in 'preventing waste'
- ♦ The materiality of our waste has become so extremely complex and environmentally damaging, that much more needs to be done to prevent waste generation from the first place.

Reduce or ban single use items

- ♦ Is anyone working on reducing the diaper problem? They amount to a large part of the waste. Our grandson has finally completed his toilet training and we have reduced from two to one bin! So for the past four years 50% of our waste going to the landfill has been disposable diapers. Makes you wonder what could be done, as it would solve the bulk of the 380kg problem.
- ♦ This might be one for the CRD Board but why can't we encourage more families to use cloth diapers? We should be giving families who use cloth a major deal and help with paying for diaper services. I've heard diapers take up a significant percentage of the landfill. We used cloth and the costs were really expensive up front but probably paid off over time.
- ♦ 6.9% of the 'garbage' on the landfill chart is from 'household hygiene': disposable diapers, feminine hygiene products and adult continence products. In the UK, Italy and Ontario. These products are collected, broken down and recycled. When the populations of all the South Island regional districts are added together, there is a sufficient threshold population to collect, break down and recycles these products here as well. what steps can be taken to initiate such a process? In the meantime, collectively we must education our communities to use more biodegradable products. This only goes a small distance to our goal b/c biodegradable products are difficult to find, most are only partly biodegradable, and they are (indistinguishable). Cloth diapers need to be washed - locally water is limited - adults won't wear cloth diapers because

they are bulky, and women are not about to start using rags. All levels of government (local, regional, provincial, federal) must create incentives to start recycling these products.

- ♦ Discourage use of, and divert from landfill, disposable diapers (adult and baby), filled with toxic human waste, prescription drug residue, etc. from the landfill! (Don't be naive and think that feces are dumped into the toilet -they are not.). Add a disposal fee to the cost of these diapers. Support use of reusable diapers and companies that collect, wash and return fresh, clean diapers.
- ♦ Enhance #2 by discouraging the use of single use products such as disposable diapers.
- ♦ It would be good to have a Canada wide ban on Styrofoam and single use plastic.
- ♦ An important step (which strangely the CRD and City of Victoria have not undertaken) is the banning of plastic bags, synthetic coffee cups and plastic straws. Other jurisdictions (like the City of Montreal) are doing this. Several businesses have taken measures like this on their own initiative. Why is it taking the CRD and City of Victoria so long? We are past the time of ideological lip service. I hope that the CRD will initiate doable, practical, specific realistic measures that can have measurable results.
- ♦ As I mentioned before, I think you should go after the grocery stores to find alternatives to using Styrofoam, use compostable bags in there produce and bulk food product areas, and eliminate using hard plastic containers for muffins, cookies etc.
- ♦ Ban packaging that is not recyclable. Tax products more that are difficult to recycle at their end of use.
- ♦ Ban the use of black or coloured Styrofoam containers by groceries. There is no reason why this product is used other than it makes the meat look more appealing. There are techniques for dealing with it, but it just shouldn't be used.
- ♦ I think that producers/manufacturers should be required to use materials that can be recycled. If new materials are produced, they should not be released until they can be recycled. They should also be required to reduce the amount of packaging to the minimum.
- ♦ Add another Goal: Be involved in creative ways to reduce packaging through policy. Reduce single-use packaging, more refill stations for different products, reusable packaging in circulation in the city. Incentives for people who bring their own containers (either by the city or by local businesses)
- ♦ In some ways, I feel like the plastic bag situation is just another expense for customers and some may not have easy access to wash and maintain the bags. I think they should still be free but give a rebate of .25 for each bag that customers bring in to carry out their groceries. Reinforce the behaviour that you want instead of penalizing people who carried home the groceries and then used the bags in their garbage cans.
- ♦ I'd support bans on non-reusable packaging. The plastic bag ban was a good start.
- ♦ Insist that groceries stores stop using Styrofoam trays and moisture pads.
- ♦ Legislating the disuse of plastic bags is a good start.
- ♦ Less packaging provided by retailers would greatly help. Food service seems to contribute hugely to garbage. I would love to see food providers encouraging or even allowing clients to bring their own reusable containers
- ♦ Like many citizens in Victoria, I already do whatever I can to reduce personal and household waste. Long before the present recycling bins were set up, I buried all organic food scraps in my garden. I do not use plastics. I always carry cloth grocery bags. I recycle old electrical devices. I recycle all my wine and beer contains, and juice containers, and newspapers and cardboard, and glass and plastic and metal. I donate used clothing, appliances and furniture to charities. Virtually all of my garden waste is composted. I hope your target is not some ideological goal set without realistic consideration of conscientious practices followed by thousands of people in the region. If you want us to do more, then explain realistically and practically and specifically what we actually can do. A major daily difficulty is dealing with the increasing amounts of plastic and synthetic packaging of food products that we have to buy every day. It is getting more difficult to buy large sizes, as supermarkets now are breaking those products into many smaller sizes, each with their own packaging. The amounts of packaging seem to be constantly increasing. This is something that we consumers have almost no control over, and it impacts our daily lives and the landfill.
- ♦ My current landfill waste is almost entirely single-use plastic packaging.
- ♦ Also support the plastic ban and encourage food providers to use reusable containers where possible
- ♦ Perhaps a surcharge on single use items would be accepted, if consumers can see the, say 10 cents, going to funding waste stream improvements. E.g., the paint surcharges. Thanks for asking!

- ♦ Stop single use things (possible exceptions *some* medical items)!! c) recognize as an island we must be leaders in eliminating waste storage as we recognize our limits in space in storage that has no end if we do not eliminate waste!
- ♦ This also applies to all new businesses, in particular, the fast-food industry. Some have gone to paperboard take-out containers and paperboard plates, straws, etc. Restaurants that use china and metal cutlery can also stop using any plastic such as straws and plastic or Styrofoam take out containers.
- ♦ A complaint about the plastic bag ban. In our household, they were never 'single use.' Used to hold many things around the house, take things in the car, and the best trash bags, easy to tie, not too large. Now I buy trash bags that are plastic, the compostable ones fall apart too soon, Or I use the huge paper bags the store sends with my online grocery order. Is the stack of paper bags I now have an improvement? (Yes, I have and use carrier bags when I can shop in person, but look at them, they are plastic!)
- ♦ Also, more legislation that prevents single use plastics, including bags and cutlery
- ♦ As a resident. We have the ability to cut down on waste for landfill. Institutionally the produce market and retail markets need to be addressed as to single use packaging. This could be done locally; however, it still needs to be addressed nationally and indeed internationally.
- ♦ Charges for single-use items and packaging
- ♦ Don't like clear bags for garbage-already trying to use up existing and reuse plastic bags for garbage.
- ♦ Encourage retail outlets to STOP packaging fruits, vegetables, baked locally goods, and meats in plastic , Styrofoam, etc. Fruits can be sold individually! Check out outdoor markets in Europe!
- ♦ Encourage Thrifty's to reduce plastic even more and use paper bags for produce and bulk items.
- ♦ Fully support your ideas to continue the controversial one use item ban. I feel these have work out very successfully for bags and some places with straws. -I wish more take out food and drink containers and wrappers were more clearly marked recyclable or not
- ♦ Get rid of plastic bags.
- ♦ Glasses and mugs should be sold in coffee shops, restaurants, ceramic, pottery or as above.
- ♦ I am in favour of producing single use compostable products in place of Styrofoam and other such products.
- ♦ I see so many take-out food containers and drink containers littering our city that I think we should look at how we could encourage fast food and drink businesses to do things differently.
- ♦ I think you have to take some of the responsibility away from the consumer and on to the producer and supplier. Too much of what we buy is prepackaged, and the packaging is quite unnecessary. I try to shop with my shopping bag and take off any plastic and cardboard and give it straight back at the till.
- ♦ I think you should go after the grocery stores (they are a large contributor to polluters - I'm fed up seeing Styrofoam primarily under meat products, and muffins and other assorted sweets in hard plastic containers. Get the grocery stores to find alternatives.
- ♦ Local government initiative to stop retailers issuing plastic shopping bags overturned by court challenge - this issue should be lobbied to be taken up by appropriate jurisdiction - the provincial government - as they seem sympathetic.
- ♦ One of the worst contributors to non-biodegradable waste is meat packaging with styrene and plastic wrap. What can be done to make grocery stores come up with an alternative to using this packaging ? Buying from the meat deli counter is far too expensive and few will buy there just to limit this kind of waste.
- ♦ Plastic bags didn't exist before 1950. 80-90% of my residential waste is plastic wrappings and bags. In our household we collect plastic and drop it off at local stations. Sometimes I pay a few \$\$ for it and hope it doesn't get shipped to the Philippines. It would be good to get another garbage bin/bag that collects this plastic on a larger, regulated scale. In the Netherlands residents use big transparent plastic bags and hang them on poles along the street when its plastic collection day. Not an ideal solution (think of wind) but it works for now. As long as we contain it and burn plastic using filters that catch the toxins, we can get rid of it safely. One of the main benefits of plastic packaging is that it keeps food fresh longer. Without this basic method of food preservation, a lot of our food would need to be raised or grown locally, something that we all want!!! Eating strawberries in winter is a pure luxury that we don't need. No plastic bags would encourage us to eat only what's available seasonally!! In 50 years, Vancouver Island will have 2-5 million people living here ...
- ♦ Please ban or limit single-use coffee mugs, bags, plastic utensils unless compostable.

- ♦ Stricter guidelines for restaurants and other food based commercial businesses in how they dispose of food waste as well as plastics used for 'take away'.
- ♦ Then you have to look at the number of recyclables there are. We need to look, not just at the plastic bags we got our groceries in, but the amount of packing of those grocery bags. Single serving foods, processed foods and packaging amount to a lot more waste than one grocery bag. If people think they're doing well to use cloth grocery bags and reusable straws, they need to learn more about waste. Really, we need a whole major shift in our thinking about consuming if we're going to have an impact. But it has to start somewhere.
- ♦ What about the first R -- Refuse? How about a plastic bag ban?
- ♦ While acknowledging the primary mandate is the management and recycling of waste including plastics, recommend working with authorities on strategies to promote reduction in use of single use plastics.
- ♦ While the individual household is getting behind recycling and reducing, the Fast food restaurants are getting off Scot free. I have been to McDonalds and Wendy's lately, and they make no attempt to recycle - all these fast food outlets must produce tons of garbage. Can we encourage/legislate them to recycle?
- ♦ As a consumer, I want more product options that don't have packaging, or paper packaging vs plastic. It's astonishing how much soft plastic we accumulate and it's difficult to recycle.
- ♦ Packaging from stores fills our bi weekly bin.
- ♦ We have to also work with grocery stores.....the insane amount of packaging and food waste at that level is crazy.
- ♦ You can't reduce the amount of waste that people create. That has to been done at a manufacturing level. We buy products that have too much packaging...is that our fault? We have to deal with the waste that is being created. It is easy to take that waste and reuse it again in the manufacturing process. If that technology does not exist right now then create it!!!!!!
- ♦ The ultimate goal should not be allowing more space for garbage to pile up, rather it should be in reducing the amount of stuff that we use daily. Promotion of low-waste should be the biggest priority. We already have enough stuff; we need to be able to use it more than once.
- ♦ I am very concerned about the excessive amount of packaging used for groceries in particular. Recycling plastic is expensive so restrictions limiting this would be helpful.
- ♦ We need to get companies to stop using so much packaging (for example Costco) Also the big grocery stores with their wrapping of vegetables and especially meat products. We need to encourage people to bring containers to the store and buy meat products unwrapped in plastic and Styrofoam.
- ♦ My concern is the amount of plastic waste I produce and there is nothing I can do about it. Here are some suggestions to lower plastic waste. These things have already been done in Germany years ago. Ban bottled water in plastic containers. Ban all plastic bags. Ban Styrofoam cups and containers. Ban all plastic plates utensils and cups. All pop bottles made of plastic should be banned.
- ♦ My concern is the amount of plastic waste I produce and there is nothing I can do about it. Here are some suggestions to lower plastic waste. These things have already been done in Germany years ago. Ban bottled water in plastic containers. Ban all plastic bags. Ban Styrofoam cups and containers. Ban all plastic plates utensils and cups. All pop bottles made of plastic should be banned.

Support packaging-free purchase options

- ♦ I wish there were more options for taking our refillable containers to suppliers.... this would reduce so much waste.... I try to reuse many containers for different purposes.
- ♦ I want more choice of buying products without unnecessary packaging. I currently am attempting to make many of my own products, to avoid buying more plastic containers. Otherwise, I shop at bulk and zero-waste stores when possible. We need more of those in the CRD.
- ♦ There should be a strong objective to change the products that are sold in order to align with this objective. Hard to make the plan stick when the products
- ♦ Encourage businesses to allow shoppers to bring their own containers for deli products. I believe all products must be fully recyclable (unless the CRD adopts the Copenhagen model and builds a giant incineration plant).
- ♦ I believe it is covered but we absolutely need to move to zero plastics and Styrofoam.

- ♦ I think you should make the stores accountable for zero waste, we have no option but to purchase items that have too much packaging etc.
- ♦ Need to support bulk sales of products to limit packaging waste.
- ♦ Please increase support for refillable, bulk store sales - tax incentives or something like that to support stores that are doing the ethical thing. Right now, buying bulk isn't any cheaper and you could do something about that. Support this new style of business.
- ♦ What about incentivizing programs? I do think that polluter-pay and user-pay is important, but can we incentivize businesses, like grocery stores, that provide options for bringing reusable containers? (i.e. like Bulk Barn and Zero Waste Emporium) or businesses using a reusable/returnable container system (i.e. like Avalon Milk)
- ♦ Keep the education going, but maybe help local governments do something so that people can afford to purchase "zero-waste" products, or products without much packaging. Remember that many people in the region cannot afford to purchase such items. There should be incentives for events to go zero waste. Currently, there are very few benefits to organisers of large events to actually reduce waste.
- ♦ I am so happy to see Victoria is supporting zero waste stores, but the prices of items in the stores is still quite high. Could the CRD help address the high prices by offering financial help to these businesses somehow?

Advocate for more sustainable design

- ♦ Can we investigate making compostable takeaway packaging required?
- ♦ Another thought - Compostable plastics are a nightmare, whether in the recycling bin, landfill or food scrap bins, consider education programming around this!
- ♦ Advocate to provincial and federal governments for reducing packaging related to retail of cannabis products.
- ♦ I would like to see the CRD encouraging companies to reduce the amount of packaging used on their products, e.g. plastic clips, hard moulded plastic coverings, large staples, and excessive cardboard. Encourage companies to use compostable packaging or less packaging.
- ♦ Need to work with government to help promote change to allow consumers more choice when it comes to sourcing goods with less packaging.
- ♦ Encourage manufacturers to stop overpackaging items - we don't need 3 cucumbers wrapped in plastic and rewrapped in plastic or toys with 20 zip ties holding them into the box.
- ♦ Pressure put on retailers to reduce the use of plastic in their stores - i.e.: grocery stores that have every little object wrapped in plastic, let alone the plastic bags for produce.
- ♦ Concentrate on reducing/eliminating the influx of non-recyclables into the CRD.
- ♦ Reduce the recyclable products going to the landfill by advocating for changes to packaging at source.
- ♦ And recognize that multimedia packaging is the bane of recycling!! For instance, coated paper and coated aluminum defeat successful recycling of the paper and aluminum. That products like tetra litres and gable top containers are not really recyclable but seem like it to consumers so that false sense of accomplished in programs with deposits of returning (gable tops) and recycling programs accepting it (tetra packs) when we MUST phase out packaging wherever possible and eliminate packaging that is still use and eliminate packaging that is not recyclable.
- ♦ But we also need to sell things and buy things with less packaging. And use more sustainable packaging for items.
- ♦ Discourage liquid laundry and dish soap for granulated in paper bags or boxes.
- ♦ Have paper bags available at produce departments for dry produce such as tomatoes and potatoes. Use waxed paper plates for meat departments and use paper towel to soak up any juices. Paper works just as well, and people can use their home cutlery. All restaurant containers should be paper including the cup straw and top. If you go to Dairy Queen for instance all the containers should be paper. In Deli department at stores meat should be wrapped in waxed paper like the old days. Salads should be in paper container with paper lids. Glass should be used instead. In the US they even have aluminum beer bottles.
- ♦ I am especially angry about the constant vigilance required since almost any form of consumption is accompanied by unnecessary and inappropriate packaging.

- ♦ Most garbage sent to the landfill is garbage which cannot be recycled, plastics (i.e. packing material), construction materials, etc. Better management and a conscious effort to reduce the above waste. For example, the Royal Canadian Mint uses paper packing, instead of plastics, so everything is recyclable.
- ♦ Charge manufacturers for irresponsible packaging.
- ♦ Home deliveries of packaged products has actually increased the waste stream and often in suburban or rural properties, the packaging is often burned in the incinerator.
- ♦ I think plastic bags of all types be collected and I think companies that use plastic wrap and containers should be pressured to change their use of them.
- ♦ I would also like to see more recycling options for things such as toothbrushes, other "non-recyclable hard plastics" such as the blade of a snow shovel that broke last year. I can't imagine where all the plastic items from dollar stores end up - we need to focus on items that are better designed that last decades if not generations.
- ♦ Improve waste prevention - packaging generally needs to be reduced and better defined for recycling. Products should be rated for the degree and recyclability of the packaging. Purchases can include the packing impact in their buying decision.
- ♦ Incentivize packaging minimization by retailers
- ♦ Increased pressure on govt and corporate entities to reduce or eliminate excess packaging and move to consumer supplied reusable packaging were appropriate . stem the problem before it comes into the CRD, big challenge , probably take more kahunas than CRD has mind you, should go to the top levels of govt and corps, this is a global issue. consumers may have to skip some convenience to save their kin in the long run
- ♦ Influence manufacturers to create packaging that can be dismantled into recyclable components instead of mixed packaging. Examples of problem packaging for me are plastic coated paper and containers made of foil, paper and metal such as cocoa tins.
- ♦ Let's talk to retailers about how much packaging they're forcing on us.
- ♦ Many people want to reduce their waste but the infrastructure of status quo of consuming food does not support easy 'good' choices.
- ♦ More effort and funds need to go into reprocessing plastic and more standards for less plastic use in packaging, such as clam shell packaging for produce.
- ♦ Rule against grocery stores packaging up fruits and vegs and meats on Styrofoam trays.
- ♦ Suggest a free store at landfill which has proven very successful in the Cowichan Valley.
- ♦ Support consumer groups to campaign for standardized packaging materials that simplify recycling.
- ♦ There should also be a strong disincentive for plastic waste at the source-look at ways to reduce packaging and to encourage zero/minimal waste packaging options.
- ♦ This strategy especially appeals to me: Working with local businesses to develop guidelines on the use of compostable products (there seems to be no option for this currently other than the landfill)
- ♦ Add to this the amount of plastics that do not have a recycling symbol on them - where are they supposed to go? If it's not clearly listed on the packaging, then I typically will toss it in the garbage.
- ♦ I don't always know what goes into the recycling bin, or what plastics go where. It would be helpful if that information were given by number - #2 plastics go here, #6 go there.
- ♦ And the Province needs to add further credence by implementing legislation that makes it mandatory for manufacturers of said soft plastics to incorporate the recycling symbols on all packaging. Only then will you truly be able to reach your goals and reduce the amount of garbage going into the Hartland Landfill.
- ♦ Focusing on the individual and the businesses to balance out and decrease our waste is starting at the wrong end. We (government) need to force big business to use less packaging, less products that aren't recyclable and reusable and hit them in the pocketbook, before it gets passed on to us. We are such a small part of this very large issue.
- ♦ We need support from the industries that sell the products that we purchase. So many items I purchase are over packaged or packaged with material that is not environmentally friendly. Industry needs to step up so that we can meet the goals you are setting for us.
- ♦ Once again, more emphasis on at source packaging decisions rather than end user disposal options.
- ♦ Put more pressure on company packaging practices.
- ♦ The biggest challenge is convincing consumer product manufacturers to reduce the packaging on new goods.

- ♦ Would love to see the producers of waste forced to make their products have way less packaging.
- ♦ It should be producers/ sellers of water and soft drinks, to the stores that need to make bottles that disintegrate - come up with a solution.
- ♦ Producers have to do more to reduce packaging and take responsibility for getting rid of their packaging.
- ♦ Look at getting manufacturers and shipping companies to look at excess packaging. Padded shipping envelopes, Styrofoam beads.
- ♦ More emphasis should be on the producers of the waste- not necessarily the consumers. The producers should create better packaging. All effort is being v placed on residents and not manufacturers to reduce waste.
- ♦ Doable if we target creators not users. The 3 Rs seems to largely apply to users and as a strategy this has got us to today which is great, but that avenue is exhausted. We need to look toward creators.
- ♦ More reusable containers would help. Also less food waste. Oh yes and the plastic.....
- ♦ Addressing the over packaging of goods by manufacturers, perhaps by a fee directly to the manufacturer.
- ♦ This is essential.
- ♦ #10 is critical, we need to place more responsibility on the companies that create waste through over-packaging their products, this is one area where I believe levying fines/fees will be more effective than education.
- ♦ #10 is most important! While families can try to reduce their consumption or try for zero-waste, grocery stores often have their best deals when buying pre-packaged items. Perhaps apples should be a better price per lb when loose than wrapped in plastic, for example.
- ♦ I support continued efforts to reduce waste that ends up in the landfill. I particularly support legislative change that forces better management / ownership of products from manufacturer through to end user so that producers are not encouraged to make the cheapest possible products that end up in the trash (i.e. Starbucks cups).
- ♦ Strongly support producer responsibility programs (similar to those in place in Germany and elsewhere).
- ♦ Whenever possible, emphasis on strategy #10. Producers must take responsibility for the type of packaging used, the ability to reuse or recycle, and hopefully to develop a circular process
- ♦ Emphasis of the entire program should be to avoid the generation of all types of waste, and to make producers responsible for reuse or recycling wastes from all of their products and processes.
- ♦ Cost of recycling should be borne by producers more than consumers. Producers should have requirements to ensure their products can be dismantled for reuse/recycling. CRD needs to advocate and partner with Province to ensure this policy shift. Individual residents bear the brunt of regulations when businesses are off the hook.
- ♦ I do not know what it costs taxpayers for producer programs, but it should be their responsibility to stop the waste. The people who make a living from recycling should give out info. about what, where. etc.
- ♦ #10 is problematic because, so far, I observe that producers are not fulfilling their duties to take responsibility for the things that they produce. They took over recycling and it seems that we actually recycle less than ever, in spite of diligently separating materials, such as plastics, and putting them into the blue box. It is a sham. We need MORE deposits/returns on packaging, so that people will return them. Then, we need to be sure there is somewhere to actually recycle them.
- ♦ I also think it is worth writing to common companies used for most common household purchases and strongly urging them to package in materials other than plastic/Styrofoam.
- ♦ Again, move away from the 3 Rs falling in a large sense on users and place more emphasis on creators to come up with better solutions.
- ♦ Ban helium balloons
- ♦ Encouraging waste prevention requires some responsibility on the part of the manufacturers. Manufacturers should be required to use as little packaging as possible. Junk food packaging is a big problem, and legislators need to work with manufacturers to reduce unnecessary packaging.
- ♦ I would like to see something more about regulations on packaging that I am seeing in stores and shopping centers everywhere. That is not sustainable in my eyes.
- ♦ Food companies should be given a time limit to change from plastic containers back to glass and be recycled and reused. The whole packaging system is obsolete.

- ♦ I believe that there is a lot to be done to reduce waste. Plastic recyclables need to be the type that ARE recyclable. Producers of plastic packaging need to make their products recyclable. I recently had some take-out food and the package had changed from Styrofoam to paper/bamboo.
- ♦ I feel municipalities should contact manufacturers and amazon etc. to reduce their packaging . No one likes waste and throwing out materials
- ♦ I wish there was more pressure on the makers of waste. There is so much excess packaging. I am trying to go Zero Waste, but still end up with a lot of soft plastic junk
- ♦ I would like to see more focus on incentives for industry to eliminate the production of fossil fuel based products and disincentives for doing so. Consumers should have more choices of products that do not pollute.
- ♦ I would like to see something about also encouraging businesses and/or manufacturers selling or distrusting products in our region to be responsive for ensuring all packaging is biodegradable/compostable or easily recycled.
- ♦ I, am especially excited about initiatives that reduce packaging and waste that is passed on to consumers.
- ♦ Legislate responsible industrial packaging -best practices - we have no time to be 'less bad' - we have to be better!!
- ♦ Manufacturing and the food industry need to work on their packaging. I understand containers for cherry tomatoes and berries, but many other products are over packaged.
- ♦ Much more emphasis needs to be directed to at source packaging decisions with less emphasis on end user disposal decisions.
- ♦ Packaging of some products is beyond the absurd in terms of overpackaging, often using non-recyclable materials. As a society/planet, we need to change the entire system of manufacturing and consumption for all goods so that nothing is created that doesn't have a way to be recycled. Of course, this is a huge task with many costs, but we should move in that direction. There are individual businesses which have undertaken some of these kinds of measures to encourage customers to consume in a way that reduces waste. They should be encouraged to continue and expand these efforts. Education and promotion will help raise greater awareness and citizen support. Our goal should be to virtually eliminate the need for landfills. It's a 'big ask' but just one of many changes our society/species need to address if we are to survive.
- ♦ Source control would eliminate the most, less packaging and single use. people need to understand that convenience comes at a higher and higher cost and that some inconvenience will have to be shouldered by all including corporate producers
- ♦ Strong emphasis, creativity and planning on reducing plastics and glass at source.
- ♦ The focus should be more on producer-pay. The consumer often has very little choice if the producer has not given them one. When I go to Thrifty's to buy tomatoes, literally almost every "choice" comes in plastic packaging. So, I shouldn't pay for that.
- ♦ To reiterate my initial comment, until the products are designed to be recycled without negative impact, they should be banned, e.g. plastic recycling. Plastic products cannot be turned into something else without expending energy and are not safe for the environment in any form. Currently local merchants have adopted a "no plastic bag" initiative however, the vast majority of their products are packaged in plastic. Wherever possible, there should be strong disincentives for industry to use plastic.
- ♦ Waste management needs to start with governments and policies in how items are packaged. Consumers are responsible in the end, but the responsibility should shift to producers and retailers to limit the packaging waste.
- ♦ We need to place responsibilities for plastic and wasteful packaging onto the corporations and producers.
- ♦ What is absent are the responsibilities of the creators of the things filling up our landfills - for example superfluous packaging of goods. Why are stores and their suppliers not pressured more to come up with alternatives.
- ♦ Work with suppliers to ensure that they are responsible for recycling products and packaging of those products that they sell. Work with producers to find ways to stop using plastic around so much of our food - there must be better ways. It is super disheartening to walk into a grocery store and see so much of what is available, is wrapped in plastic (and multi layered). Why does the mattress protector that I just purchase have to be packaged in a poorly recyclable vinyl plastic product?
- ♦ Would be nice to see some pressure put on the companies and retailers creating excessive/bad packaging.
- ♦ Would like to see manufacturers & large retailers absorb costs of recycling. Costco is a prime example of "over packaging" and they should be required to "clean up their act" and to pay for all the excess packaging that they produce.

- ♦ Would like to see producers more responsible for packaging choices that are environmentally friendly.

Provide incentives for waste reduction

- ♦ A community based waste reduction grant is mentioned. How would that be implemented: a tax rebate? More detail required here.
- ♦ Manage incentives to maximize positive behaviour outcomes.
- ♦ I would also like to see some specific actions on the table that might provide incentives for better compliance and innovation. Examples might include rebates for participating in waste reduction projects, awards for businesses and neighbourhoods that demonstrably lead the way, contests and draws for diversion compliance and/or innovation, tax breaks for green businesses, etc.
- ♦ There is a section that mentions "Support polluter-pay and user-pay approaches and manage incentives to maximize positive behaviour outcomes". Although I am supportive of this principle, what about incentives/penalties for producer wastes and more Extended Producer Responsibility programs? This is where a lot of waste is generated.
- ♦ There is no mention of what incentives (other than money) could be offered to these sectors to get them to reduce the waste they produce.
- ♦ Education programs-- are great if there are strong incentives that encourage the behavior OR strong incentives to NOT do certain behaviors. There are so many people on our street who do not use the compost bins and do not recycle the stuff that can be that doesn't go in the blue bins. Getting people to change their buying behaviors means either there needs to be options and subsidizing perhaps to encourage these changes by making products cheaper, at least at first.
- ♦ Please do not increase costs for residents or businesses - use incentives to promote waste reduction, rather than cost-based penalties and disincentives.
- ♦ Incentives should be provided for people to reduce their waste generation.
- ♦ Residents need incentives to do this. Even friendly neighbourhood competitions might work. Or individual goal setting such as reduce waste by one bag in a 6 month period and increase to 2 bags in a year.
- ♦ I believe we need stronger incentives for waste reduction and stronger dis-incentives for waste production.
- ♦ I believe incentives are the way to change behaviours and I think if we make it easy for people to recycle (e.g. pick up at the curb) they will be more likely to get on board.
- ♦ What about incentives for smaller or NO garbage cans? Right now, if we moved into a place with the largest size garbage can--we looked at the cost of switching to small and it wasn't worth it for years. Really, we only need monthly pickup of a tiny container, but we still pay the fee for the largest size.....

Place the onus on government and business (not individuals)

- ♦ Additionally, waste reduction goals should not mainly be aimed at consumers and households but targeted at producers and suppliers, with policies to significantly minimize resource consumption in the first place.
- ♦ Don't push individuals harder, they are already overburdened. Focus on corporate and municipal responsibility and obligation.
- ♦ I would also like to see greater pressure put on businesses, municipalities & municipal offices for separating waste at the source. In many places, it is still just the black garbage bin available. Although services exist to sort through the waste & separate it after the fact, I think having people separate it themselves from the beginning will help educate & increase mindfulness & awareness.
- ♦ Let's jack taxes way up on homeowners who can barely afford their payments now while big business keeps getting bigger.
- ♦ Stop thinking of ways to make it more difficult for the public to manage their waste and start doing what governments are supposed to do...manage our garbage. And don't even think about privatizing this because that is not what is needed. To many of our services are being sold to the lowest bidder and that is never a good idea. They are only concerned about how to reduce costs. We need to think about how to do things differently not put the problem back on the people. We are currently over taxed and under serviced.
- ♦ For example, banning Styrofoam from Hartland doesn't actually make the stores use less, it just moves it to the consumer to find a way to dispose or recycle of it, which is next to impossible. I guarantee you majority of folks would accept

environmentally cleaner packaging, but they sure complain when their house is filling up with Styrofoam that they didn't ask for in the first place and no recycler will accept. Society needs solutions not feel-good Band-Aids. It's so warm and fuzzy to ban all the straws and save the turtles, when really, we need a list of approved suppliers of vegetable-based straws from which retailers can order. Efficiency works. Rather than ask the thousands of businesses to independently research and source out each possible alternative option, why doesn't the CRD be the regional leader that it is and really facilitate solutions both for business and consumers; if change is made easier rather than as a penalty, there will be more buy-in by the citizenry and the end goals will be achieved quicker.

- ♦ Also, all plastic bags should be biodegradable. We charge 5 cents, but they still go to the landfill. should be 5 cents but biodegradable.
- ♦ I would also like to see more advocacy and support for getting government policy to change to help make all these principles, goals and objectives easier to achieve. For too long citizens have been made to feel guilty and responsible for environmental degradation - let's put the onus back where it needs to be (not saying individuals shouldn't change but the only way to make the change we need happen quickly enough is through policy and institutional change).
- ♦ In all strategies great inconvenience for residents and business.
- ♦ The CRD should buy goods with recycled material and locally made compost.
- ♦ There should be more focus on how the CRD, and municipalities can support local groups that aim to increase diversion. One example is Diverters Victoria, a local group which brings bottlers together to increase diversion and give more opportunities for CRD residents. The CRD should use its information and communications capacity to gather like-minded people, businesses, and entrepreneurs to develop ideas that can be turned into effective diversion programs.
- ♦ Unless I'm interpreting these goals incorrectly, initiatives like these always seem to be aimed at the homeowner/citizen. Like restrictions on water-use, now household organics and uncontaminated recycling items. But what about the commercial businesses? Are there any goals or initiatives for them to reduce/reuse/recycle? And how about making composting a little more accessible i.e. I go to the Dump almost every week but would be charged to drop off my yard's organic waste. (Garbage I understand, but organics?)
- ♦ What you're going to end up doing just like always is making the little guy pay instead of the criminal mega corporations making millions. But that was your plan all along I'm sure.
- ♦ Where are the government initiatives to make new business' out of our recycled materials. .? .? Where are the products we can use and buy made from all of this.? The public is doing their part, why isn't the government doing theirs? Let's get to the real part of recycling, and reuse!

#3 Support reduction of avoidable food waste

General

- ♦ Food waste by businesses and individuals is a tragedy. What are your ideas to reduce this? I would like to know.
- ♦ I think it's very important to keep food waste out of landfill. It is a wonderful source of valuable nutrients that should be added back to our farmland.
- ♦ Encourage food waste being used to feed livestock
- ♦ Encourage food retail outlets, chains, etc. to purchase and sell locally grown or produced produce/ products. We can do without imported from California, carrots, kale! , beets, etc. Etc. Encourage clothing from locally produced fabrics - I know we cannot grow cotton.... but. Hemp, Tencel, wool...designed locally, and sewn by very talented individuals in First Nation communities instead of overseas.... Maybe then governments could send athletic coaches to work with young First Nations children, (prepare them for Olympic competitions, teams, etc. teenagers, instead of social workers, psychologists etc. . to deal with the mental health problems they develop from wandering the Main Street in town with nothing to do.... I know these last suggestions have nothing to do with R.R.R. But First Nation people are more concerned with preserving our environment than our current politicians!
- ♦ Support local agriculture so that we don't have to purchase so much food imported from off the island and wrapped in plastic. Consumers find it very difficult to connect with local farms. But shopping at local farms lets us purchase food that is not over-packaged and shipped in from California. Similarly, with other local products -- if it doesn't need to be transported in long distances by truck, it often doesn't require the same level of packaging. So please help us sustain local

communities and built the local economy within the CRD but helping consumers source products -- not only food but also furniture, building supplies, etc. -- that is produced by local businesses.

Reduce food waste from home

- ♦ Buying no more than you'll use is important for consumers and requires forethought and meal planning. A campaign to help people meal plan, shop, save could be helpful. Some patterns of behaviour can be learned. For example, every month I go through my cupboards and check best before dates on non-perishable canned and packaged foods. If the best before date is within a month or two and I know it's unlikely I'll use the food item in that time, I donate it. I'm a good shopper and often buy at case lot sales. However, if a 3 week holiday is coming up and I have non-perishable foods that will expire shortly after my return, I donate those foods before I go away. As for perishable foods, people need to plan...and then do a quick inventory of their fridges every couple of days. Create fun projects for using up food: an all green meal, a meal using whatever is left in the most appetizing way, etc.
- ♦ Public education is required to assure support of all the strategies identified. Start a Speakers Bureau of volunteers you train in sustainability strategies and advertise that the speakers are available to speak at community association meetings, to church groups, at schools and for any group who requests a speaker. There will be a small budget required to pay for volunteer training and any materials the volunteers use.
- ♦ Supporting reduction of avoidable food waste is a multi-level problem. Education of grocery store clerks and customers in the stores is an important step.
- ♦ Support reduction of avoidable food waste
- ♦ Food. Educate about the meaning of 'best before' as things don't need to be discarded the next day.
- ♦ Education on food waste such as using suboptimal veggies in soup stock, what use by and best by dates really mean, don't just throw out after reading a date. Consequences of using after best by date, i.e. chances of becoming ill vs not. Dollar value associated with wasting food as incentive not to. Consider taking food you'd throw out to a soup kitchen to feed less fortunate.
- ♦ I am particularly supportive of this - the lack of clarity endangers my health and that of my family!

Reduce food waste from grocery stores and restaurants

- ♦ My biggest pet peeve is the food waste generated at restaurants and grocery stores
- ♦ I also think k people would buy weird shaped fruits and vegetables at a reduced cost saving client money and does not end up in landfill.
- ♦ I definitely support organizations being allowed to glean usable produce from grocery stores and restaurants. My daughter worked at Fairway deli and was appalled by the amount of food which went straight into the dumpster every day. There may be some potential health issues with heated items but surely something could be done to capture all this food safely.
- ♦ Restaurants should be able to easily provide left-over foods to shelters etc.at end of each day. Grocery stores esp. Walmart, should offer day-old food items at greatly reduced prices for their employees who get minimum wages. Encourage restaurants to give left over food (edible) to the homeless. Best before and/or best buy expired grocery items should be made available to individuals on site, or go to free distribution, non-profit groups. They must not be disposed of in bins. This should be a requirement of their business license.
- ♦ Encourage (or make mandatory) all restaurants, cafes, and grocers to donate excess edible food to food banks, shelters and the poor.
- ♦ I volunteer at the Mustard Seed's food security distribution centre. Grocery stores need to improve their Food Safe practices when boxing food donations. Too often they are sending products that are already unusable or containers are damaged and contaminated by the time they arrive at the warehouse. Grocers are saving money at the expense of a non-profit. - Restaurants, caterers and institutional kitchens should be encouraged to donate excess food or ingredients when possible
- ♦ Best to let the market (and starving souls) deal with 'avoidable food waste'
- ♦ Reach out to restaurants to help them identify sources and ways to reduce/recycle more. Great example is Big Wheel Burger.

- ♦ Legislate that all local businesses and especially targeting fast food establishments MUST provide separate bins for compost, different streams of recycling, and landfill waste. Public events also.

Work with food recovery organizations

- ♦ Supporting organizations like Lifecycles and the Mustard seed, who are both involved with food recovery, is vital!
- ♦ Support the programs developed by Rotary and others.
- ♦ Encourage all food to be moved on not thrown out and I would prefer if it was used to feed people over animals - I was on a tour of Our Place recently and encouraged to hear of their relationship with Save on Foods

#4 Support reuse activities in the region

Investigate free store(s) at Hartland and other locations

- ♦ There should have always been a free store at Hartland, with smaller satellites throughout Greater Victoria.
- ♦ I like the idea of a free store at Hartland.
- ♦ A Free Store at the Landfill is a terrific idea.
- ♦ I love the idea of the free store at Hartland.
- ♦ I love the idea of a Free Store; I have seen this in some communities in the Gulf Islands and it seems to work well. Keep these things out of our landfill and hopefully prevent a new purchase for someone else!
- ♦ A free store at Hartland or in the community would be a great way to reduce waste going to the landfill.
- ♦ I would love to see more of a "free store" type set up to encourage re-use of items before they become landfill. While it seems unrelated, things like lending libraries, tool libraries could be supported to reduce waste.
- ♦ Start a free store at the Hartland dump like the ones they have on the gulf islands or Oak Bay
- ♦ Open a 'free store' where people could donate and pick up free items. Extended producers have no motivation to reduce ... 'Solutions' that make money may be prioritized
- ♦ The free store at Hartland is a great idea. Stuff is already being brought there and much of it may be re-useable by others but how do you prevent it from becoming a dumping ground for stuff that people just want to get rid of?
- ♦ Have free stores at locations in addition to Hartland. The people who will most use and need a free store will not easily be able to get to Hartland nor transport things home from Hartland (unless of course good public transit is added to make Hartland more accessible but even then, transporting things long distance on public transit is not easy).
- ♦ Definitely support development of free stores! Properly traded used stuff through both profit and NPO outlets - Thrift Stores, Salvation Army, Value Village, Used Victoria, so many great stores in Sidney, Russell Books (phenomenal!) - greatly reduces landfill waste. Free stores support the goals of almost all strategies listed above. Public education needs a new spin on Re-Use, making it very classy to proudly show off your third hand coat or kitchen dishes! Also, the upper socio-economic layer should be encouraged to donate unwanted stuff and of course to not buy so extravagantly to begin with - yahoo to the marches today protesting Black Friday !!!! Here on Salt Spring, the Blackburn Transfer Station has a 'free store' but it's by donation to a good cause being the high school scholarship fund and others. I am positive there's some skimming method going on, taking good stuff to second-hand consignment stores. There was a special metal storage unit keeping resalable stuff - maybe has stopped now. The other problem is that everything is in the open on MUD! So beautiful highchairs, sofas, electronics are thrown out if not taken by a resident. There needs to be a place closer to town so economically struggling folks can access easily and carry items by foot/bus. Needs properly managed and good shelter. Our tiny thrift stores can't handle 10K people's stuff. The Salt Spring Exchange also does a good job of moving stuff away from landfill but it's time consuming to search for an item and arrange to meet. Government funding to kick start a really great second-hand Mall would so help divert landfill items - and be soooo much fun. Way more community involvement than going to a big impersonal mall. Let's start a ReTuna https://www.huffingtonpost.ca/entry/recycled-mall-sweden-retuna_n_5bfd0762e4boeb6d931346b3?ri18n=true including repair shops!!!
- ♦ Would like to see a recycling centre where people can take their usable furniture and other big items. Unfortunately, a lot of great furniture is considered out of fashion and impossible to sell. basically, a space where usable items are left for others. too much furniture is just thrown away these days. thanks.

- ♦ Large furniture items such as mattresses and upholstered living room items must be accepted for re-sale or free if they are still usable. (There was a "free store" on West Saanich Road years ago and many people used it to drop off and pick up unwanted furniture.) This should help to prevent mattresses being dumped in ditches, etc. And prevent old couches soaked by rain decorating our boulevards for weeks. Unfortunately, second-hand stores refuse these large items if there had been a smoker in the house, a pet in the house or for no reason at all. Did they ever think that a smoker or pet owner might not mind? Failing re-use, let a charitable organization dismantle these items into component parts and re-cycle separately.
- ♦ A free store at Hartland would be great as that is where all the 'stuff' ends up. It would be also great to have a satellite depot in town, so that people don't have to drive all the way out there. You also don't want to put existing thrift stores etc. out of business. Maybe enhanced collaboration with those organisations would be a better way to go. Staff at Hartland could divert 'good stuff' into a holding facility, local charities could 'shop' there. Any residuals can then easily go back into the waste stream. Not free, but maybe more sustainable in the long run. Stewardship programs are great in many respects, except the people running those programs are not interested in reuse and reduce. As a matter of fact, they prohibit re-use once an item arrives at a recycling facility. It would be up to the provincial government to address that issue.
- ♦ Also, we should allow (and even encourage) full scavenging at the waste collection sites.
- ♦ Create used furniture depot to give or take as needed. No \$\$\$ simply need. Rebuild old furniture into new and dynamic styles.
- ♦ I also support the idea of recycling usable old furniture and appliances. It would be helpful if the city picked them up for free and then interested citizens could take away them away from some central location or have them delivered. If non-working appliances can be fixed, it would be a good idea to provide a place to drop them off so they can be fixed and then sold or given away. I also think it would be good idea if people were allowed to take away lumber off-cuts and other usable items left at Hartland. I also think furniture stores could levy a deposit on mattresses and furniture etc. to offset the cost of collection and recycling, as happens with barbecues, small appliances, tires and so on.
- ♦ We really need to establish a free store where people can drop off unwanted furniture instead of leaving it on the street to get wet or cat-sprayed. It would prevent Hartland dump from filling up so quickly. Sometimes people just dump things because they have no time to explore other options.

Support reuse/renting/sharing programs

- ♦ Education (goes both ways, not just CRD to community) - creating spaces for the community to come together, share ideas. Ex. Mug library at Moss street market. Utensils. Bag library (donate reusable bags to be used by the community)? Toy library example in Vic West.
- ♦ Host 'repair cafes'
- ♦ Support Re-use Activities. The Victoria Tool Library is such a resource but they're only in Esquimalt and it's obvious that they could use some funds to expand and get better.
- ♦ Yes again, there are so many valuable organizations that are working to re-use materials, I do support this strategy!
- ♦ Provide supports to entrepreneurs prepared to operate reuse businesses (not everything can be volunteer driven)
- ♦ Tax breaks for repairs
- ♦ Collaborate with existing groups, as well as those that advocate for no food waste. Perhaps there are possible jobs that can be created as well.
- ♦ I think a whole lot of this is about education and getting people to think about what we're actually doing to the planet when we buy something with throw-away packaging or is itself disposable or soon-to-be-broken or obsolete. The more education the better, I think, and once again, I'd be happy to help with this as Repair Cafe Victoria's coordinator, a children's author, and environmental educator. Thank you for these fantastic initiatives!
- ♦ I would like to see bikes being given to ReBuyCycle in Langford. They want them and yet they are being blocked from fixing up bikes that have been discarded at the landfill. They do really great work in the community. They are real life heroes! They drop off free bikes for kids in Hillside Quadra and donate bikes across the city.
- ♦ I'd also love to see an initiative that highlights businesses and organizations that go the extra mile such as the Zero Waste Emporium, thrift stores, and Repair Cafes. Perhaps there could be a webpage mapping these businesses?
- ♦ Promote and hold more repair cafes. Make right to repair mandatory for digital items

- ♦ Support reuse activities in the region
- ♦ You should be promoting more R's than 3. "Repair" for instance could keep lots of stuff away from Hartland.
- ♦ The CRD should support reuse and repair in an unseen scale. There are many entrepreneurial opportunities linked to repair and reuse and the products involved can be very diverse. This also requires educational and awareness programs involving our society.
- ♦ We have to REUSE, and that is not happening.
- ♦ Be active in promoting reuse schemes for the most items.
- ♦ Further investment/adoption must be made in reuse/recycle to limit waste loading
- ♦ Can businesses that encourage reusing materials be provided with some sort of credit that can be passed on to the consumer.
- ♦ Offer rewards and prizes for inventive ideas. Ah the list could go on forever.
- ♦ That should also be for boats. Go get the derelict boats and fix them up and sell them...at least recoup the money spend to go get the boats and there again create jobs.
- ♦ Supporting reuse activities in the region is pointless if you continue to oppose the development of artificial soils to grow trees and/or development of a combined solid/liquid/gaseous wastes management system that is able to earn an early return on the investment as per the long-proposed JOR-Vic SRP and related transit, soils, biofuels and hydrogen-electric economy developments

Promote donations to reuse establishments

- ♦ Encourage residents to donate broken or out-of-date household items to facilities where they can be repaired and reused rather than thrown away.
- ♦ Habitat for Humanity can be used for recycling/re-using building supplies, unwanted furniture/appliances...etc....there are a lot of facilities in the area that are doing a good job
- ♦ I have also witnessed, materials that could be salvaged, being put into the garbage.
- ♦ I understand that operations such as Costco still dispose of their returned merchandise. I am not sure if it is sent to Hartland or another facility but regardless it should be against the law for businesses to throw out returned merchandise. I know a dedicated dumpster diver. It is mind blowing how many new and very lightly used things are thrown away by residents. From just a few dumpsters, in James Bay, he collects tons a year and donates much of it to charities. This indicates that an easier way to donate these items is needed or at least more education to promote donation.
- ♦ I would also like to see ways to recycle or donate items that may be fixed for further use. Especially appliances - I'm very disappointed with the overall lack of expectations around redundancy, poor quality and high cost of repairs. (and also, in cases items that are designed not to be repaired) I believe we likely have some talent in Victoria regarding fixing items but would be ideal to have this better supported and possibly funded.
- ♦ Saw a man tipping a really nice sofa, what a waste!

Provide options for textile reuse and recycling

- ♦ Think of the Navajo blankets made from British army uniforms and create business that use old clothing made of cotton, silk wool and hemp reworked and redesigned.
- ♦ I would like to see a sensible way to dispose of/reuse fabric remnants. I use every scrap of what is left at our house, either by making it into new pieces like quilts, using it to stuff pillows, and cutting up for braiding. I donate everything that has any use left in it to charitable programs for reuse, but it isn't enough! Is there any way fabric and textiles can be reused for insulation or building supplies here in BC?
- ♦ Add textiles diversion
- ♦ Note that synthetic and blended fabrics may be problematic to recycle even when diverted from the landfill and sent to a recycling facility.
- ♦ Reuse activities have increased and that may be more an indication of poverty or alternative fashion.
- ♦ Expand the availability of textile recycling.
- ♦ Textiles are a growing problem in the landfill. Come up with ways to divert them and discourage fast fashion.

- ♦ As a taxpayer on many levels (property tax, provincial tax and federal) I believe it is time to demand that all packaging sold on goods in Canada must be recyclable in Canada. No more shipping of our unwanted clothing to countries like Malaysia for example. Thank you
- ♦ We need a place to recycle clothing that would be rejected by thrift shops if that is what most of garbage containers hold.
- ♦ A 'marketing' approach often works better than a regulatory / education approach. Example: Elaine Fisher's program to return cloths to the retailer so they can be repurposed.

#5 Support local governments in working towards zero waste and a circular economy

Zero waste is an important goal

- ♦ Hugely supports #5.
- ♦ My hope is for the day when we don't need a Hartland Landfill.
- ♦ Overall, I believe that there should be much more open dialogue between the local government and the local citizens, by promoting open discussions, workshops and encouraging the participation of local grassroots and third sector organizations to become involved in being active actors for zero waste
- ♦ Definitely encouraging reduction of waste/recycling by subsidizing zero waste producers and programs. this seems like a HUGE needle mover if you can make this possible.
- ♦ Please make all public events zero waste (see Boulder County ordinance here: <https://bouldercolorado.gov/zero-waste/special-events-boulder>).
- ♦ The circular economy is a non-starter without the application of steam (technology)
- ♦ A circular economy is essential. We must take responsibility for our actions (especially producers). And remember waste is wealth (turn our waste, for example solids from the wastewater treatment plant, into energy)!
- ♦ Yes, I agree with this. I buy many used items from thrift stores, knowing less is discarded to landfill. Plus, they are good quality items at a fraction of the cost. Unsure about general stigma attached to this, but personally that doesn't bother me.
- ♦ Make sure that municipalities transition to zero or near zero waste approaches (including electrification of all government vehicles to remove hydrocarbons such as oil, filters, etc. from the waste stream)
- ♦ Along with my previous comments about making sure the wording of these goals is distinct and in line with heading toward a circular economy, I'd propose that these strategies are great ideas in theory but need to be followed up by supporting local initiatives that are heading toward these goals already. With funding and policy support, producers can be encouraged to reduce potential waste for their products, and consumers can get more involved in local community initiatives. Policy change that would encourage the recyclability of product packaging could increase the potential for businesses to make product out of recycled material, spurring the local economy.
- ♦ I love the idea of clear bags!
- ♦ Clear bags for 'black' garbage make me nervous about my neighbours seeing my personal hygiene waste.

Consider pay as you throw approaches

- ♦ Our waste bins are far too big, which promotes wastefulness. In some countries the waste generated is weighted (bins come with a bar code and trucks come with a scale) and the individual pays for the amount generated per period. Usually, in these systems, the collection rate for waste is also reduced.
- ♦ Targets are useless. Personal responsibility is necessary to decrease waste. **Provide incentives to reduce waste and charge household by the can, bag or weight.** I dispose of 1 small bag of garbage ever 2 weeks. I pay for private garbage pickup in Langford. The more you dispose of the more you pay.
- ♦ Charge for overages.
- ♦ Charge for waste collection by weight and/or by volume (and switch to collecting recycling and/or compost weekly and keep garbage collection at biweekly or even less often.)

- ♦ Pay-as-you-throw fees <https://www.cbc.ca/news/technology/reduce-waste-economic-1.4638670pa>
- ♦ The system on Pender Island works well - the more waste you produce to throw away, the more you pay. This is the best and only way to educate people to create less waste; make them pay more for throwing things away. This will encourage them to reuse/restore/recycle. In a city, where you have a bin that you can fill up every week, with no cost implications, there is NO incentive to reduce the amount of waste you create. If the Pender system, where you pay per volume, was implemented, then people would focus on reducing the waste they throw out. We have no idea what this would require to be achieved. If you add "at a cost of a 10% increase in your property taxes" responses will change.
- ♦ Would fines come to play for anyone or any business producing their added share of garbage?
- ♦ Yes in favour and I will participate BUT what do I do with stuff I want to dispose of, stuff that I bought or stuff that I own? Where will this go. Maybe I have to pay more to get rid of it and that might be OK (User Pay) for me, But others in the same boat as I am may not want to pay and may just chuck their stuff into a public park or something?
- ♦ "polluter-pay and user-pay approaches and manage incentives to maximize positive behaviour outcomes" Since we already have fees for environment and deposit fees, it would be wrong to increase charges, increasing charges could result in people circumnavigating and dumping regardless.
- ♦ I also think that heavy users or users who leave stuff that could be reused or recycled in the landfill should be paying more/fines.
- ♦ Also, CRD should identify a way to have the paper that is recycled made into new paper, and not a lower quality use
- ♦ Make the polluter pay - unsure how this can be done
- ♦ Need stronger emphasis on zero waste by reducing waste at the source; pressure manufacturers and retailers to reduce packaging, etc.
- ♦ Polluter Pay has to become the normal mindset.
- ♦ Polluters-pay and user-pay: Is there value/support people who are proactive? Is there a way to measure/weigh garbage/compost outputs? Can there be incentives for those who produce less waste, to pay less property taxes/utilities bills? Separate better? Consume less?
- ♦ Re. residential diversion: create a system where each residential garbage can have a bar code that gets read by the garbage pick-up truck. The garbage collection truck is fitted with scales that weigh each garbage can before emptying it. The resident gets billed for each kg of garbage. This creates an incentive for residents to reduce garbage.
- ♦ The fact that we have to pay for our garbage pick-up is another hurdle. Why do you think there is piles of garbage in vacant lots...if it's too expensive to dispose of their garbage they will just dump it anywhere? And that is not their fault it is the fault of our government that can't deal with garbage. This is not rocket science. If you make it easy to dispose of garbage...people will do it. If you make it difficult to dispose of garbage...people will dump it anywhere. One way or another the government will have to pay either to pick up what is dumped anywhere or to develop a system at the landfill level. The landfill level will pay for itself because people will come to buy the product at a discounted rate. And create lots of jobs.
- ♦ User-pay may cause people to dump illegally.
- ♦ We are (at least) 40 years behind thinking in systems and reducing our footprint. I think we need to educate of course, but a) we adults need to model best practices, and stop expecting the younger generations 'deal with it' (as I have heard) b) implement the following strategies: (1) Pay-as-you-throw fees:
 - ♦ Charge on volume or weight basis for disposal.
 - ♦ Encourage waste reduction by pricing waste similar to carbon - the more you waste, the more you pay.
 - ♦ Having a focus on zero-waste is the most important thing, I think. Encourage people to reduce their waste at the source by buying in bulk with reusable containers rather than packaged goods. Encourage grocery stores to offer a reusable container program and have way more bulk purchase options.
- ♦ I agree with most of the principles but if you continue to charge people to dump household items i.e. furniture, you will continue to have it sitting outside on curbs and looking like an eyesore. We in the end pay for it, anyway, don't understand the question about public/private disposal you can do anything with numbers!
- ♦ I agree with the principle to make polluter pay/user pay approaches, but look forward to hearing more about what this actually entails, and whether it's rigorous enough?
- ♦ I like the concept of a circular economy.

- ♦ I would like to see more details on your plan to promote zero-waste and a circular economy - how will you do that? What targets will you set?
- ♦ I would replace the term "zero waste" with "waste reduction"
- ♦ If you want to reduce waste, raise the price. I do see that user-pay is one of the principles. Use the profits from over-charging for garbage to pay for recycling and educational efforts.
- ♦ If you're too expensive for people to drop off at the landfill, then people will dump illegally.
- ♦ Mostly semantics... 'zero waste' is technically an inaccurate depiction of what we're currently trying to achieve, 'minimum waste' is a lot more accurate. This becomes an issue once we get people on board to this level you're currently working at and we no longer have the correct language available to describe the next step.
- ♦ Net zero, zero waste seems a bit ridiculous at the same time as the country is actively pursuing trade with China, the greatest creator of pollution and plastic. how about support more local and ethically sourced products?
- ♦ Paying the true cost will change people's behaviour.
- ♦ Support polluter-pay and user-pay approaches
- ♦ The Plan does not address or mention equity and/or equal access for all citizens to the new SWM plan. Specifically, for user-pay or polluter-pay systems, these systems can unfairly penalize lower-income households who do pollute but do not have the means or access to reduce/reuse/recycle. Zero-waste approaches can often require an up-front cost that is not easily borne by those living on the poverty line. People with mobility impairments may not be able to adopt all zero-waste actions (for example making a special trip to refill containers).
- ♦ I'm concerned about the "user-pay" portion of the principles. I already pay taxes - won't this become double-taxation?
- ♦ The proposed prices for bags at stores in Saanich are outrageous. Our taxes are increasing substantially year over year especially considering the huge increases in property values. This council ran on fiscal prudence ad to date I have not seen any prudence in their spending. Start thinking outside the box of "we will just charge more and more money to discourage use" .
- ♦ User-pay in a world where companies are not required to reduce their packaging is unfair.
- ♦ Working towards less consumer waste is important. I am pleased that promoting zero waste is the first guiding principle.
- ♦ Zero waste and circular economy is a good goal, but it needs real action. Start with collection of all plastic that includes all plastic bags, meat wrappers, Styrofoam, the plastic wraps that are used for meat, plastic food wrapper and etc. Once those are taken care of, there should be very little to no waste. The rest should be compostable. It will take education, but I believe citizen will support it.
- ♦ Zero waste is clearly a good idea. But it needs to start with the grocery stores and retail shops.
- ♦ Zero waste is where we need to be, sooner the better.
- ♦ There is no way that I produce that much waste - and this is because I don't very rarely buy or collect useless, low-quality, plastic retail crap. I buy very little; I buy used and good quality; I make it myself, mend, and repair. Why wouldn't you demonstrate how little waste many people produce?
- ♦ Also reward the home owner for volume reduction.
- ♦ FYI that we barely manage to HALF fill 1 small size grey Saanich bin every 2 weeks. Household is 1 indoor cat and 2 adult people.
- ♦ Polluters-pay and user-pay: value/support people who are proactive? Measure/weight garbage/compost outputs for those who produce less waste, to pay less property taxes/utilities bills? Separate better? Consume less? Truck has a scale (Germany), bar code is on your bin. Scanned.
- ♦ Reinforce people who do recycle faithfully - and try to partner up seniors who may need a little help coping with the bins
- ♦ I produce less than 3 small grocery store-sized bags of garbage per year and I do wonder why other people have so much to throw out. Certainly, any initiatives to expand the items which can be recycled and the ease with which they can be recycled would be beneficial.
- ♦ it would be cool to incentivize these targets beyond the obvious benefit to the planet- parties, recognition of stellar waste diversion etc.???
- ♦ This "average" calculation appears reasonable however it does not acknowledge those that are good at reducing/recycling (like I believe our multi family dwelling is) vs those that are not effective in their efforts. In order to better achieve this

target there needs to be some random samplings and/or some public "shaming" as to how well places are doing --- perhaps an "achiever of the month" acknowledgement or something similar.

- ♦ We could ask for neighbourhood leaders to communicate with others. There would have to be some incentive for them to participate. But a one-on-one conversation can be more effective than hit-or-miss advertising.
- ♦ I personally would love to see what happens to our blue box items when they are picked up. Videos should be made available.
- ♦ We generate about 1 coffee bag of garbage every 3 weeks. Could the City develop a very small container that could 'piggy-back' on the Green Bin for pickup.

Create new business opportunities in the circular economy

- ♦ Divert organics/recyclables/hazardous household waste from landfill - take advantage of opportunities for small initiatives. Create opportunities for small-scale social/environmental entrepreneurs. Involve communities. Improve participation. Zero Waste World Cafe Sparkle exchange. Have neighborhood targets, contests? Support Door-to-door collection initiatives
- ♦ Fantastic! One that I would mention and maybe it would be included with another, such as zero waste. Perhaps funding innovation in business, encouraging businesses to use materials that may otherwise be thrown in the garbage, I'm thinking the old business on Keating that turned rigid plastics into benches and building materials etc. We should be encouraging innovation in our community to help keep this material out of the landfill. Wood diversion would be another, funding products that use reclaimed wood.
- ♦ Encourage thinking outside the box - through competitions to develop new methods of reusing material.
- ♦ I know that plastics are not the most easily sold thing that the CRD collects, and I wish that this hard to recycle material could be utilized or re-manufactured some way into a product that would be wanted by consumers in this local area. If the CRD was to establish a plant to melt plastics into durable plastic lumber for park benches or fencing, I'm sure that it would be commercially viable, and it could be kept out of the environment by being re-used.
- ♦ I would like to see more emphasis on supporting local initiatives for the re-use of waste. For example, there used to be a great local business turning plastic into decking materials. With large scale (Emterra) this company went out of business because they lost their access to raw material.
- ♦ I would like to suggest using re-cycled plastic mixed with asphalt for paving and roofing. We need to find a use for recycled waste as an alternative to disposal.
- ♦ Anaerobic digestion at the Hartland landfill site would also contribute to the circular economy, provide a place for organics diversion for the region, allow methane to be captured and potentially sold, and produces fertile soil that can go back into the region's food production systems. This can be in the form of farms, community gardens, or urban food production initiatives.
- ♦ As an island community is must take the lead on recognizing most waste is not waste but actually reusable resource be it water, organics or metals
- ♦ The CRD could consider a partnership with industries that take recycled material and remake it into something to resell and hence, reuse.
- ♦ One option is to look into commercial opportunities to convert non-recyclable plastics back into oils which can be back into the starting chemical which can then be used to convert back to plastic/fuel. One such process is from Licella holdings based out of Sidney, Australia. Canfor is already using their technology for pulp waste. Given my background in process engineering in the mining industry, I could assist to evaluate how and if this could help the CRD achieve its goals on behalf of the CRD. Regards
- ♦ We need to change the way things are done to encourage repurposing of used materials in as many ways as possible.
- ♦ Provide materials recovery pilot project capacity/space at Hartland.
- ♦ The largest items that are being disposed of need to be "re-thunk". Large appliances need to go to companies that can repair or re-purpose them first. Failing that, find contractors who are able to dismantle them into their component parts for re-cycling. E.g. make old refrigerators into food smokers.

- ♦ I would like to see those materials that are not recycled locally to be sent to the nearest facility that will handle the materials appropriately. For example, there are multiple facilities in Alberta that are using soft plastics to create bio-diesel. See Corbella, Enerkem, and more.

#6 Continue and enhance policy development

- ♦ Ok, if we keep budget in mind.
- ♦ Enhancing policy development is vague. Give specific examples.
- ♦ What use are principles, goals and objectives if not supported with a thorough follow throughusing bylaws to encourage and support ethical behaviours and discourage the careless....

Create regulatory requirements for recycling

- ♦ We need mandatory recycling bylaws with deterrents to those who do not comply. This cannot be a choice. Putting a significant extra cost at the time of purchase to be followed by a refund upon return provides a strong incentive.
- ♦ Heavy fines for illegal dumping
- ♦ Multifamily dwellings must be forced to compost food waste: provide indoor compost devices, landlords held responsible for hold information meetings and paying for educational meetings, and monitoring compliance. There has to be a cost to people. Condo bldgs. held to the same standard, although I think they are likely to be much more compliant already. And what about air bnb bldgs.? Bottom line, hitting people financially is the main way to change behaviour and get compliance.
- ♦ Develop policies - get the offenders to pay for the new programs.
- ♦ While I am a firm believer in education - I feel that the CRD and the City that I live in (Victoria) have done considerable education on the need to improve our waste management system. I believe that now is the time for action in the form of laws.
- ♦ Policy development must consider both the legal and process advantages associated with agriculture quarantine control regulations (federal)

Expand the range of materials banned from landfill

- ♦ Take bolder steps to landfill ban materials including wood waste, and large furniture.
- ♦ Nothing should go to Hartland if this is a climate emergency. Maybe it's not? Plastic requires an abolitionist approach. If the producer can't close the loop themselves now, it shouldn't be sold or consumed in the CRD.
- ♦ I don't want to live in a country that believes it's the government's place to tell me what I can buy and what I can throw out. Or for that matter, that I must recycle. I do my part to behave responsibly, but to use the power of municipal government to dictate what is good and acceptable behaviour with regard to garbage and recycling, is an over-reach of their mandate.

Advocate for municipal laws, not just provincial and federal

- ♦ Waste management facilities are not licensed. Yikes. I don't understand why we have the mess at South Island Aggregates in Shawnigan?
- ♦ It's time to make the waste contractors responsible for doing the right thing. They are too profit driven, and to be in an industry with this much environmental impact they need to be responsible.
- ♦ There should be some regulations or penalties to the companies making profit off of charging for recycling - not the condos. They don't provide feedback or report to us on contamination of the recyclables.
- ♦ Secondly, hold the company that bid for the contracts. I find it ridiculous that glass is not being taken care of by the same company that are recycling the paper and can.
- ♦ Excessive licensing etc. requirements could potentially threaten the survival of smaller operations. I am thinking in particular of the non-profit run recycling facilities on the gulf islands. And it's not where problems are likely to arise as all those facilities are operated by people who have the environment foremost in mind.

- ♦ Exercise care in looking to federal standards for such initiatives as legislation governing single/multi use containers. It may be desirable to customize for local conditions & priorities. Also, may lead to delays in developing and implementing changes.
- ♦ For uniformity and continuity, local Governments should be removed from the equation. The CRD must have the ability to impose the programmes on all governments as the Heartland Landfill is the landfill for the greater Victoria area for all taxpayers and consumers. Consequently, the practices and costs are consistent across the board will be for the betterment of the populous now and in the future.
- ♦ Push harder on municipal councils to create strong bylaws.
- ♦ Recycling being easy is important however but our attitude there needs to change there too to reduce. Local, provincial and federal government policy needs to help there.
- ♦ No new policies are needed, we have enough policies in place already. It just sounds like another way to increase taxes.
- ♦ Need policy /regulation barriers to reducing plastic, etc. changed. For example, shoppers drug mart disposes in garbage the items past expiry. They are not legally (or at least they say this) to donate expired skin locations etc. Store in royal oak says they throw bags of product away.
- ♦ I disagree with paying for CRD staff advocacy to senior governments. This is a waste of resources. On Salt Spring, with no municipal government to 'support', we get all stick and no carrot.

Mandate recycled content/recyclability of packaging

- ♦ Include incentives for manufacturers to reduce waste or charge them for over packaging.
- ♦ Force producers to use only recyclable materials
- ♦ The CRD should also become actively involved in policy making to help diminish the production of non-recyclable materials and to implement reverse logistics with producer responsibility. We should be much more ambitious, given the scale of our environmental problems.
- ♦ Some materials should be outright banned, but others are harder to put a blanket on, despite being huge single-use culprits. I personally feel stronger policy would be to mandate that any packaging regionally distributed must also be regionally recyclable.
- ♦ To reduce waste, we need producers of waste to stop producing it. That means we need laws that limit packaging and production of other wasteful materials, not "encouraging waste prevention".
- ♦ It would assist all of us if manufactures would clearly label what is recyclable and what is not. Some plastics and paper items are recyclable, and others are not. If all packaging that was available was recyclable - that would solve many problems. To ensure that - I would think that this would need to be a law at the federal or provincial level.
- ♦ Refuse to import over packaged foreign goods such as tooth paste in plastic tube and cardboard box. Ban Amazon and other delivery business from huge cardboard boxes fill with non-edible fillers such as Styrofoam pellets. Fillers can be popcorn, puffed wheat, hemp, straw, wool.
- ♦ Regulations on businesses to reduce packaging.

#7 Increase residential diversion

Make recycling convenient

- ♦ I think that people in the CRD are generally very supportive of waste reduction and are willing to do more. The easier it is made for people to participate in increased diversion the more uptake there will be.
- ♦ I would like to see an increase in the recycling of different types of plastics. I believe there are certain plastics which currently may be recycled for a fee at facilities in Victoria, but not at curb pick up, and possibly others which cannot be recycled locally.
- ♦ Illegal dumping is also a huge issue in our neighborhood. I would like to see more easily accessible and well communicated opportunities for free or low cost waste/recycling to occur in each municipality.

- ♦ Need to make recycling easy for people. There should be easy recycling of soft plastics and development of ways to reuse this plastic locally even if it has to be subsidized for a time. Once a moth drop-off that you have to pay for is not good enough.
- ♦ Consider a 'no questions' waste rate for non-business sourced items disposal.
- ♦ Provide subsidies for each recycling society on the SGI to encourage community participation in recycling at a high level of commitment and involvement by residents.
- ♦ Whatever steps are actually implemented it's of critical importance that they increase rather than diminish convenience for individual citizens.
- ♦ Giving us more recycling opportunities for glass, textile waste, soft packaging, Styrofoam and hard plastics will help. The majority of my peers want to keep these things out of the landfill, but we have limited opportunities and are relying on spotty coverage of places to take those things. Especially if we are encouraging residents to rely less on cars. Education is not what's missing. Opportunity to recycle is missing. Overall, I am thrilled with the proposed plan.
- ♦ In our household, with separating organics (digester in garden), soft plastics & other curb side recyclables, we have cut our monthly garbage down to no more than 1 small grocery bag-full per month (often not totally full). As a household of just two people, we understand this may not be possible for everyone but, feel that with continued public education & more convenient disposal points, more people may be inclined to start better separating their waste. Convenience, as with everything, is a significant factor when it comes to community uptake & something becoming routine.
- ♦ The current method of recycling is not very user friendly. Separating Glass, Organic Kitchen Waste and Paper and Plastics. I would more strongly support a single stream Recycling program such as <https://zerowastemarin.org/how-recyclables-are-handled-in-marin-county/>. I understand this requires the correct infrastructure but it is very user friendly and very efficient.
- ♦ While I was travelling in Europe, I noticed that some countries collect all waste and containers for recycling in the same trash bin. The city hires people who sort through the trash, clean containers that can be recycled and ensure each item gets where it should to be properly recycled or disposed of. It breaks my heart to hear how many recycled containers must be discarded because something contaminated them, or people didn't understand how to dispose of things properly. I truly think this is a solution worth considering and would likely prevent a lot of unnecessary garbage ending up in landfills.
- ♦ There need to be more options for recycling on Pender Island. The recycling depot is only open 3 days a week, for 5 hours each day. It is a very cumbersome and time-consuming process to take all recyclables there. The result is that people put recyclables in the garbage because it is so challenging to recycle everything properly.
- ♦ I think to reach this target, recycling of more things needs to be easier. It's hard to recycle large bits of Styrofoam, packaging, plastic bags.
- ♦ I, and most people I speak with about this, are willing to do more. But we need to be supported and guided in our efforts. For example, I currently collect Styrofoam and soft plastics from my neighbours and then take it all to be recycled (at the recycling centre in Esquimalt on Ellery St.) But knowing how to properly separate soft plastics is no easy task. And we certainly don't want to contaminate our offerings due to improperly prepared or separated items. There's got to be an easier way.
- ♦ More outlets for recycling Styrofoam and soft plastics should be developed.
- ♦ I recycle soft plastics, but I know most people do not. Education in this area is needed and it needs to be easier for people to do so. Perhaps add it to the blue box program or have monthly drop-offs at municipal yards? I drive to Hartland to recycle mine every few months, but some people don't have storage space that allows them to wait and it's just easier to put it in the garbage. It's astounding how much soft plastic one person uses in a week! More education on this please.
- ♦ Soft plastics? So many aren't labeled it's hard to know if they can be recycled.
- ♦ Recycle Styrofoam.
- ♦ Soft plastics and Styrofoam and composite materials: encourage a facility that can responsibly recycle these, alternatively, ship to the nearest facility that can.
- ♦ I was surprised to see that glass is no longer being recycled ... As a tenant in an apartment block, we must now throw glass in the garbage. Unbelievable!
- ♦ More outlets for recycled glass should be developed and some use should be found for crushed glass, e.g. sound insulation panels.

- ♦ It would be refreshing if the CRD (and the regional politicians) actually took action on avoiding the senseless collection of glass in the recycling program. Glass does not have readily available recycling options and the excessive handling during curbside collection only adds to the carbon footprint of the material; the only reason it is still included is because it is an emotional issue (not a practical one).
- ♦ (leadership potential) Glass collection, All of North America would benefit from reducing glass bottles to the molecular level rather than being crushed for cullet. In the U.S.A., Canada and Mexico, householders are choosing to use glass instead of plastic for food storage. In so doing, we may improve the health of ocean ecologies, but we already have a problem disposing of glass, even where glass crushing facilities exist. I notice that there are solar concentrators (such as the one in Japan's centre for experimental energy projects) from which the solar beam achieves heat much greater than the melting point of glass. The CRD could put our Island on the world "zero waste" map by initiating an international project to build a glass foundry and send its output to bottling plants. A likely place is a city such as Mexicali or Tecate, Baja California, where the solar intensity is high and bottling facilities for cola and beer already exist. Glass to repurpose might come not only from residents and commercial enterprises but also from the computer glass recycling facilities in southern California, notably in a city coincidentally called Ontario. I say "coincidentally" because the name is a reminder that Canada is not unique even in its place names, and less so with its waste reduction issues. In past Internet searches, I have run across a reference to funding available from Ottawa for projects that serve the joint interests of Canada, the U.S.A. and Mexico. Unfortunately, I have not been able to relocate this information. Perhaps CRD specialists have knowledge of such funding sources. I'd love to see some energetic Canadians do a push on the fundamental barriers to a future of MUCH less waste.
- ♦ Sometimes I think if people just dumped their Styrofoam box waste back to Best Buy, and meat foam trays back to the grocery chains etc., we'd see changes pretty quick. We have to stop accepting all the responsibility and costs for these giants who care more for their profits than the waste they manufacture and distribute.
- ♦ Encourage/Develop/Enhance easy local waste drop off (e.g. Fairfield plaza, Thrifty's take soft plastics, home hardware accepts light bulbs/batteries). Establish visible drop off like this at plaza centres. Drop off waste where you picked it up in the first place
- ♦ How can soft cover and hard cover books be recycled or reused?
- ♦ As a volunteer with a by-donation bookshop, I am increasingly aware of the need for strategies to repurpose both hard and soft-cover books. We do our bit by accepting donations, but inflow greatly exceeds outflow!
- ♦ Not sure if #1 and #2 above will be effective if there isn't a system in place to make recycling easy.
- ♦ The basic take home is that waste disposal HAS to be easy for the general public. If it's not, then they will just throw it out and not bother. A small number of advocates for recycling (like myself) take the time to sort and drop off items that can't be picked up at curb side, the rest just chuck it in the bin.
- ♦ The CRD is talking about what residents should do but not making it easier.
- ♦ There also needs to be an easy way to re-cycle plastic bags, batteries and electronics otherwise most people will continue to dispose of them in the landfill.
- ♦ There needs to be a way to help those people who do not have cars or do not drive and cannot take materials to a location away from their home.
- ♦ Triple your efforts to make recycling of batteries and soft plastics easier
- ♦ I would like to know of another program for the proper disposal of batteries I currently bring them to Hartland but would like it easier for my neighbours
- ♦ I would like to see more opportunities for recycling as the Bottle Depots are no longer accepting soft plastics, Styrofoam, etc. Some rental/condo owner building do not accept glass.
- ♦ To get widespread buy-in procedures will need to be simple and convenient.
- ♦ I note the phrase "where it is practical" as regards the future recycling of items now un-recyclable. I would particularly encourage that some method, practical or not, be found to deal with hardcover & softcover books that now end up in the landfill. A common problem for charity fundraisers is how to get rid of the boxes and boxes of books that are unwanted, outdated or in too poor a condition to sell. On any given day at the place I volunteer one could recycle a cartful of books of it were possible. Imagine the quantities leftover from the Friends of the Library sales or the Times Colonist sale. If nothing else, could they not be collected as sold as fuel source? It is such a waste to simply dump them.
- ♦ Paint stores should be required to collect old paint and brushes and canisters. (add recycle charge to paint)

- ♦ Sure. Providing household support in completing this task i.e. having the capacity to complete this, is difficult for a lot of homeowners.
- ♦ The more alternatives to waste disposal, easily accessible, understandable - the less we are inclined to "throw it into the garbage." E-waste, lightbulbs, batteries etc.
- ♦ A lot of people don't recycle because there is an overly complicated and restrictive system.
- ♦ Facilitate processing locally to reduce transport of waste.
- ♦ We need more recycling facilities locally.
- ♦ Concept of recycling is great but shipping our waste elsewhere makes no sense
- ♦ Continuing to develop recycling and reuse infrastructures is essential
- ♦ I would like to see an increase in the types of plastics that can be recycled: for example, hard plastic. Nothing should be produced that can't be recycled.
- ♦ In general, more materials have to be recycled!
- ♦ More people need to take the time to separate their recyclables. All paper can be recycled, by removing the plastic parts and dropping metal off at the many companies that take it in for free.
- ♦ Recognize that people (left unsupervised) will typically take the easiest/laziest approach to waste disposal and Also make it more convenient for everyone to recycle (e.g. soft plastics in blue box) and less convenient to produce non-recyclable and/or one time use products.
- ♦ My goal is to make it easier for those who use Hartland, the system.
- ♦ Reducing waste is good. Pretending to recycle is not.
- ♦ Therefore, adopt technologies/processes that require minimal public effort to comply.
- ♦ My goal is to make it easier for those who use Hartland, the system.
- ♦ I would love to see "manage incentives to maximize positive behaviour outcomes" "Improve participation in waste reduction activities and diversion services" "Decrease contamination levels in waste streams" "Facilitate processing and markets for organics, recyclables" in the principles, goals and objectives applied to the growing issue of plastic waste and its varying recyclability locally.

Reduce contamination

- ♦ I find that a significant issue is sorting of waste, the more that waste is required to be sorted, the more complicated it becomes and the higher the level of error and cross contamination. This leads to a decline in effectiveness and consequentially a decline in the overall achievement of goals and targets.
- ♦ Decrease contamination in the waste stream. MAJOR education required here for the public. Simple example is the blue box program and what can go in and what cannot. Many people do not know that a given piece of recyclable product may not be fully recycle because of the different materials comprising its makeup.
- ♦ From a residential standpoint: More effort needs to be made to educate residents of how to dispose of waste properly. Contamination rates are WAY TOO HIGH
- ♦ I think making it easy for people to recycle properly is important. I feel that so much of what we recycle just ends up as garbage because of contamination. And I'm sure I don't do it properly all the time, even though I am concerned and conscientious.
- ♦ I believe that often the stuff we put into "recycle " ends up in the landfill because of contamination or the questionable factors i.e. we think we are participating but we are still part of the problem
- ♦ Ask local media to run info interviews with local "personalities" about how they have re-used products. Try to get believable interviewees to relate personal stories of re-using goods. It is important to make it ok to do and to take away the negative stigma of buying and using used goods. Get stats on how much is saved in the manufacture of new goods. And how more savings are raised if the cost of disposal is taken into account. I was dismayed to hear from outfits that were asking for donations to help folks set up their own apartments were not accepting used goods- like dishes, pots and pans, bedding, etc. Many people who are setting things up for themselves and paying for it themselves can't afford new goods. This seems very snobby. Do they want help or not?

Accept more materials in the blue box

- ◆ Our community in Willis Point is already well below these numbers. With composting and better recycling systems, there are tons of ways to lower these numbers, by even more! I moved to this region 5 years ago from Surrey BC, where the recycling programs are amazing. the black, blue and green bins work so well. the blue bins allowed ALL plastic, and were incredibly successful and simple. back in Surrey I produced almost zero garbage, because 80% of my waste went into the blue bin for processing. The green bins helped a lot too. Moving here to our incredibly restrictive recycling system has been an eye opening challenge. I thought moving to a "green" region among hippies and green voters would mean more actual green action, like reducing waste and proper recycling. Look to Surrey for guidance, their system works. Now, to recycle properly, I have to physically go to the dump and do it myself, not a lot of people are willing to make that effort, especially because when they do, the people working there can be incredibly rude.
- ◆ The blue box should include all types soft plastics. It is difficult to get this material to a recycle centre.
- ◆ The thin plastics(bags and package containers) should be reduced BUT ALSO ACCEPTED IN THE CURBSIDE PICK UP SYSTEM.
- ◆ There will need to be better recycling pick up - soft plastic for starters.
- ◆ This can't be done without making it easier for every resident to recycle. The types of items that will be picked up at our houses needs to be expanded. Banning types of items from household pick up and making it our responsibility to take it to a depot won't work. Especially if there are different depots for different types of products. It will just result in more illegal dumping.
- ◆ We need a glass recycling program again!
- ◆ Would be easier with the other things being able to be recycled like Styrofoam or non-soft plastics.
- ◆ Get all plastic into blue box!! including plastic with food contamination.
- ◆ Styrofoam pickup at curb side.
- ◆ Soft plastics taken at roadside. There are municipalities in the UK that have amazing (yet simple) sorting systems for all this waste. There is no reason why the same can't happen here.
- ◆ Please implement a soft plastics pickup at curbside recycling. This is a massive issue; most people are throwing soft plastic in the garbage. CRD must make it easier for residents/businesses to recycle soft plastics. Drop off sites are not an option for many people, whether they do not have a vehicle, or simply can't be bothered. If soft plastics were picked up curbside people would actually collect and put the soft plastic out instead of tossing it in the trash.
- ◆ Recycle more items curb side, primarily soft plastics and Styrofoam.
- ◆ Added soft plastics to the curb-side pickup program. This is the number one thing that I still throw out because I can't get it to a recycling centre.
- ◆ Have a curbside program and a program for businesses to recycle waste like Styrofoam and non-soft plastics (like food). There should be a soft plastics recycling program. Preferably a program which includes soft plastic pick up with the blue box program.
- ◆ 90% of my 'garbage' is soft plastics. they should go in blue box.
- ◆ Don't forget that these principles are funded by the residents of these neighborhoods so enforcing compliance is important as well as bringing back services that have been taken away. The ability to recycle Styrofoam, milk containers and yard waste.
- ◆ I am interested in knowing why foil packaging and plastic wraps are often left in my blue bin and why it is so hard to get rid of Styrofoam.
- ◆ Increase curb side pick-up to include ALL Styrofoam.
- ◆ Increase number of items allowed in blue box - allow soft plastics and non-clear plastics
- ◆ Would like to see more items picked up curbside in blue boxes. Most important would be soft plastic and Styrofoam. Soft plastic is something people deal with almost every day and it is tempting for people to throw it out instead of trying to figure out where to take it now that the Bottle Depot is no longer accepting these items.
- ◆ A program for pick up and recycling of soft plastics (i.e. bags) and Styrofoam is needed. Both these should be picked up at the household, whether single or multi family. This waste represents large volumes and is very inconvenient for the public to recycle otherwise, so is likely ending up at the landfill.
- ◆ Pick up Styrofoam materials (meat trays, packing materials etc).

- ♦ More items picked up at the curb.
- ♦ As seniors, it's sometimes difficult or impossible to drive items to a recycling facility. As an example - plastic wraps and food bags that need to be taken on a Saturday to a collection depot. Styrofoam and foam trays... What to do with the other thin plastic items? My trash is full of plastic bags not eligible for recycling - zipper bags, flower bouquet wrap, those with mixed layers, etc. Either collect them or work on companies to use something else.
- ♦ Provide an easy way for householders to dispose of (recycle) soft plastics, bags and product wrap. Possibly create a separate stream for these products. Most of us would not object to paying a reasonable amount for this service.
- ♦ bring back glass recycling to the curb and into multiplexes as too difficult to bring to recycling depots - how do people with all sorts of disabilities, and/or without a vehicle take their glass for recycling?
- ♦ Add expanding recycling pickups to include products such as soft plastics and Styrofoam
- ♦ Expand curbside recycling options: should have soft plastic and flexible plastic packaging.
- ♦ Expand curbside recycling to include all household recyclable materials, i.e. including foam and plastic film.
- ♦ From the perspective of a resident of a single-family dwelling, I think the curbside pick-up is working very well. However, it's not enough. Education is important, for sure, but making recycling easy(ier) to do is paramount. The two key changes I would like to see are: 1. Expand the scope of items being picked up at curbside; in particular, include soft and flexible plastics. We are diligent about collecting and recycling ours, but I was stunned to learn recently from a highly respectful friend of mine that she doesn't recycle these because it's too difficult to do.
- ♦ here are too many rules re curb pick-up...
- ♦ However, once these are in our homes, the recycling options offered in Victoria are abysmal. Please investigate expanding the variety of recyclables accepted at the curb. Currently, so many of these items are unnecessarily sent to the landfill. You need to make waste reduction easy and simple for busy families, or for those who don't drive, have limited space or mobility, etc. (to return to a depot requires the space to store it, and a means to transport it. These are big hurdles).
- ♦ I am surprised I did not see more focus on recycling program enhancement . Would like to see more picked up as part of curb-side recycling. Styrofoam, plastic bags etc.
- ♦ I think the standardization of recycling is a key to success. If it has a recycling number on it, we should be able to return it. If you buy a bottle in the states, they don't want to refund any money to you. We should be accepting them in Canada and vice versa. If it has a number on it, we should be able to recycle it in our blue bins.
- ♦ I would add the support the promotion of more materials from the category of waste to recyclable so that it reduces how much is in the landfill. For example, you currently include in blue box collection glass items but light bulbs, neon tubes and similar are not taken. With the proliferation of electronic devices and the use of more and more batteries of different compositions, I think there is merit in including these in the blue box collections
- ♦ I would like to see the CRD picking up other metal (other than tin cans) and aluminum. They have real value compared to the little money, if any other than from cardboard, from the current program.
- ♦ If the items listed below cannot be included with the bi-weekly pick-up, then have a separate pick-up date (once per month) for these items (see list below). Yes, these can be taken to specific places already for recycling, however that's not an option for all residents if they don't have a vehicle or don't want to spend 30 mins. driving there.
- ♦ If these specific recycling places can take these items, then the CRD should also be able to accept them at the curb side: - metal cookie/chocolate tins - plastic bags of all kinds - Styrofoam of all kinds - Rocks/stones from your garden area - tetra pack soup cartons - milk cartons
- ♦ Improve ability to recycle Styrofoam trays and packaging. These used to be collected by bottle return centres but that was discontinued.
- ♦ Include curbside pickup of soft plastic recycling.
- ♦ Increase return of re-usable waste items in the Blue box collection program by adding new items. e.g. light bulbs, batteries
- ♦ Increased options for curbside pickup of recyclables would be very nice. Not everyone is willing or able to drive out to Hartland to recycle something.

- ♦ It's all fine and dandy to put together these strategies but at the same time both the CRD and the Province needs to step up to the plate and put their money where their mouth is and expand the blue box program to include everything not just select items.
- ♦ More should be accepted at curb side so that residents don't end up put them in the garbage.
- ♦ My home is an aggressive recycler including Styrofoam, soft plastic and foil packaging - but those streams take much more work than curbside. I rolled out recycling and composting at my work (400+) people office - and our landlord is supportive, but I see businesses every day putting compost and recyclables into garbage bags.
- ♦ Plastics are not going to go away, so we need to manage and recycle them. I support SENSIBLE approaches to address this challenge, not bans.
- ♦ From the standpoint of someone who has worked at Hartland Landfill: More material needs to be diverted from the landfill, which means banning more items from entering the facility. Especially reusable items or items that could have another life. Too many loads of everyday items (like what is found at thrift stores) is ending up in the landfill.
- ♦ Styrofoam is now recyclable, and we should be doing that
- ♦ The CRD seems to forget that a lot of people - including myself - rely exclusively on the blue box program for recycling. Many of us don't have the space to store recyclables nor can we drive to Hartland (or any other depots) to dispose of what is not accepted in the blue box or in the compost bin. It is not from lack of education but from lack of practical and convenient ways to recycle that a lot of materials end up at the Hartland Landfill.
- ♦ The problem right now is it is EXTREMELY difficult to recycle right now because even if something is not ACCEPTABLE for the recycle trucks to take, they will leave it behind so where do you think it ends up...in the garbage.
- ♦ There should be way more curbside recycling available, and rules on separating should be clear, easily accessible, and actually enforced! At the moment it is confusing and hard to find info on what goes where and so often I see people toss everything together unwashed in the same box week after week.
- ♦ Why has the recycling of glass been removed from the bin pick-up program?
- ♦ You are setting awfully lofty goals. Why not start slowly and go up from there? Starting with expanding the blue box program to include all plastics including those not marked with the recycling logo.

Establish more local depots and accept more materials (sub-regional eco depots)

- ♦ Local transfer station needed in Sooke.
- ♦ As a member of Transition Sooke's Zero Waste Group we hope to see a recycle reuse centre in Sooke as part of a Solid Waste Management Plan.
- ♦ MRF in Sooke. Smithers system is a great example.
- ♦ I would support this if there was a CRD curbside, or even neighbourhood, collection system on Salt Spring. Otherwise these provisions just impose large time, money and motion costs disproportionately on rural residents.
- ♦ Your proposed program seemed to be directed at concentrated urban areas with little recognition of the problems facing isolated rural areas that do not have garbage pickup of any sort, and no services like hazardous waste disposal, even though we pay an environment fee or should I say TAX when we buy the hazardous materials. What are we supposed to do with the stuff, dump it in the back 40 with all the crap that our community recycling facility cannot accept? I propose that we should start a program to dump all the stuff that we cannot dispose of in our community on a designated property owned by the CRD thereby putting the problem of disposal squarely in the hands of the people that are mandated to provide the services and solutions.
- ♦ Rural communities need a different kind of strategy for garbage, we can't just keep everything on the back step. Disposal needs to be less about paying and more about disposing properly. If it's easy and cheap, people will do the right thing. If you make it hard and expensive, they'll not do it and dump it in the park. That's the way it is, we see it on Willis Point Rd every day, junk dumped because the landfill was closed or too much money. Burnaby has a free couch, mattress and appliance pickup service and it works.
- ♦ Consider possible satellite municipal land fill sites to take pressure off Hartland. They can be recycling reuse sites providing enhanced sorting and diversion practices.
- ♦ Expand recycling programs. There are tons of stuff that can be recycled that isn't in our blue boxes. The places that took the additional items have closed because it was too expensive to run.

- ♦ I think more drop off points that "accept everything" are critical. If it's not convenient, people won't recycle, and it will end up in the garbage.
- ♦ I think this doesn't go far enough. It is incredibly frustrating how difficult it is to recycle in this city, especially now the bottle depots have stopped accepting soft plastics and other items.
- ♦ I would use a recycling centre on a weekly basis that accepted soft plastics. Such a facility would also decrease my waste by about 90%.
- ♦ I'm upset that I can no longer take Styrofoam to my local bottle return depot. Hartland is a fair drive and gas prices are outrageous!! I will do what I have to in order to keep it from the landfill, but I think there should be an easier solution for disposing of this material!
- ♦ Increase the range of disposal options. The bulk of my waste is non-recyclable plastics/contaminated food wrapping.
- ♦ Lastly, an objective should be to provide options for people who don't have vehicles or who live downtown and don't have an easy means to get themselves and their special or hazard products to the landfill. There needs to be a plan in place to help those who don't have a convenient method of transport so they can also be enrolled.
- ♦ Many of your recent decisions do not live up, for example: reduced locations for recycling drop off means items go in the garbage if driving to Heartland is the only option.
- ♦ More deposit return programs
- ♦ My issue as a resident is there are less and less locations to take materials not allowed in my garbage. Used to go to Glanford to take Styrofoam - no more. Used to be able to take my paint to Saanich recycle site - no more. Used to take old coil to Canadian tire - no more. cost of \$10 just to get to Hartland discourages people from bringing small loads. SO, what do they do? Dump it in my boulevard.
- ♦ Need more soft plastic drop off and melt locations. a melt location is where the soft plastic is turn at lower temperatures into plastic ingots.
- ♦ Need to provide more drop off sites so people can recycle and dispose of without driving out to Hartland.
- ♦ Neighbourhood recycling drop-offs
- ♦ Would love the places that sell this garbage to take more responsibility for what they sell and have drop off locations. Maybe deposits on the items, to ensure safe return.
- ♦ Rather than 'educate' the CRD needs to make disposal easier. Each neighbourhood of about 10,000 should be able to dispose of goods no longer useable easily - within their neighbourhood. Listened to CRD presentations last summer at community meetings. . . a true waste of taxpayer money. . . actually, insulting presentations . . . beyond simple. . . not useful . . . embarrassing for those who were present.
- ♦ Neighbourhoods should have depots where residents have to take responsibility to sort their waste, understand the products they consume and where they go after end of life, experience social pressure to reduce/reuse. Depots should have a free store component. The success of bottle depots is an example - residents see the value in returning their bottles. Let's expand the range of items that have 'value'. Collecting bottles is a form of income and a way of more alienated members of society to participate in collective good.
- ♦ Provide ferrous/non-ferrous metal pick up/drop-off dates for the community to divert materials to recyclers.
- ♦ Provide single stops that are relatively close to home to recycle items that are not picked up curbside. There are too many destinations required to recycle everything that can be (one place for bottles/cans, another for soft plastics/batteries/etc., another for metals, another for wood) and driving out to the Hartland Landfill is not a practical answer for most people. The withdrawal of the Recycle-It Depots from the program has exacerbated this situation.
- ♦ Styrofoam, household paint, and many other minor household items need to be kept out of the garbage stream; however, there are very few places to take these items in neighbourhoods so many people just slip them into the garbage bins. Please consider establishing a mobile recycling unit (semi-trailer with staff that moved from neighbourhood to neighbourhood on a regular schedule (e.g. 1 day every 2 weeks). Such convenience would encourage people to take items there rather than put them into the garbage.
- ♦ The CRD need a BETTER recycling program! Two things I put into garbage the most is plastic from food packaging and Styrofoam! I have switch to a SodaStream to stop using plastic bottles and cans. When those bottles expire, they go into the blue bin. Going to Heartland is far out of my way to do drop off. I am not going to burn my \$1.699 liter fuel to drive out of my way! When I live in Shawnigan Lake. There where drop off bins on each side of the lake, easy to drop off. Make it

easier for the people to recycle or fill the land fill faster with stuff we should have recycle. I pay enough money for garbage and recycling that doesn't cut it! IT IS YOU THAT NEEDS TO CHANGE NOT USE!!!

- ♦ There appears to be consumer misunderstanding that if they don't allow an item in the blue bin then it is not recyclable, and it should go in the garbage. There is lots of good material out there on how to sort and what can go in the bins, but not enough to the consumer that they CAN and should take their Styrofoam, flexible plastic, and chip bags and the like to designated places for recycling. There should be more funds made available to MORE central and well used recycling centres such as Bottle Depots to take the materials that are recyclable yet cannot go in the blue box. We were disappointed to see the Bottle Depot at Glanford stop taking these recyclables this year. Bottle depots seem an excellent place to take these types of recyclables given most consumers are aware of where they are. Living in Cordova Bay to recycle these items we now need to go to Sidney, Hartland, or downtown - that's a long way to go.
- ♦ There is a major need for recycling of some plastics which have become no longer part of the ways to recycle. Specifically, Styrofoam and soft plastics (bags) which I could formerly take to the bottle depot, are no longer taken anywhere. Until that happens, my garage will slowly be filling up with these waste products until they are again accepted for recycling.
- ♦ We need ways to get rid of Styrofoam and crunchy plastics, too, as right now London Drugs is the only option where to take these things. Also, have an option at businesses for this is SO important. The amount of waste I see at work is astounding, from packaging, mostly.
- ♦ And in objectives you stated increased engagement with waste management services: I offer that an equal factor here is accessibility of those services.
- ♦ Have appropriate sorting in all areas and locations, create incentives for companies and resident for proper disposal. Make sure landfill/recycling/compost facilities are abundant enough and well equipped to deal with all waste properly.
- ♦ EVERYTHING should be recycled, and it should be at the landfill location. Not only would that almost eliminate 90% of the waste going into the landfill it will provide jobs on a many level. There are other countries that will reuse almost everything that comes to the landfills...they have a buyback program for items that have been fixed or re-purposed which in turn pays for that service. Those countries have almost 0% waste that goes into the landfill. It can be done, and millennials are waiting for those types of jobs...they want to save the world.
- ♦ Provide satellite sorting and reusing facilities rather than expand and centralize at Hartland.
- ♦ Create at least 13 local area sorting stations, 1 for each municipality. A sorting station is a facility that temporally holds ALL types of waste and sorts it into the appropriate containers to be removed daily/as needed and brought to the appropriate places for proper 'recycling'. A fee would only be charged for the level of 'unsortedness' of the garbage delivered to this facility. All sources (residential, commercial, institutional, industrial) would be handled at this facility. By having all materials handled locally, it would be visible daily for the public to see. Those looking for extra income should be able to work at the facility sorting out the 'garbage' as others would pay for it. No fee for totally sorted 'garbage'.
- ♦ I recommend that you look at Edmonton's waste management and recycling system, especially their conveniently located Eco Stations where people can dispose of their dangerous goods, appliances, mattresses, etc. close to where they live. Resident outside of Edmonton can also use these facilities unlike here in Victoria. Not knowing better as a new resident in Victoria I tried to dispose of some items at Ellice Recycling and was turned away because I wasn't a resident of Esquimalt and if I did want to use their facility it was going to cost me at least \$16.00 for the 2 small bags I had. I went back home and simply put my items in the garbage instead. If you want to reduce dumping make it easier for people to dispose of their unwanted items I should be able to go anywhere within the CRD and properly dispose of anything and simply charging people more as you propose is simply going to make illegally dumping even more prevalent and put more in the landfill.
- ♦ Investigate hiring garbage/recycling separators to ensure that everything goes into the correct 7E We need to do anything within our power to reduce plastics at the source - retail packaging, food packaging, this is urgent and requires large scale governmental bans and influence.
- ♦ Hire waste sorters!
- ♦ Recycling depots specializing in electronics or clothing or appliances might be able to give employment to several fixers - either retirees or on full-time basis.
- ♦ I do believe, however, that the lack of appropriate recycling opportunities that there is a continuation of the "it's not my problem" mentality when it comes to disposing of waste.

- ♦ It is very achievable with more education on recycling and more depots for non-blue box items. Our actual black bin waste is mainly soiled soft plastic and mixed materials like those irritating paper bread bags with plastic windows. We had been recycling Styrofoam and clean soft plastics at Bottle depots but unfortunately they aren't doing it any more-this sort of thing needs to be reinstated
- ♦ It won't happen without more convenient facilities that take ALL recycling materials. Also, it is less convenient to recycle than to put in the garbage. You have to take steps to change that. Maybe all recycle goes into one bin, like garbage, and you have a sorting facility. Also, the recycling pickup companies won't take a lot of items.
- ♦ London Drugs should be more publicly lauded as a partner in recycling. I thought they were providing the recycling station as a responsible store that they are. I saw on the CRD website that is in conjunction with the CRD. if I didn't shop at LD, I wouldn't know about it. I routinely use it. Grocery stores should make it known that it is ok to bring your containers. For example, the meat counter. Have them put it directly into a container instead of choosing pre-packaged in plastic wrap, plastic liner, Styrofoam tray (all of which I wash and recycle at LD). But I'm going to try to create a meat counter byoc trend. Deli too.
- ♦ Maybe a mobile recycling station can be explored that would bring the services that little bit closer to home? There is one that comes to Central Saanich monthly but, there is a fee for disposal. At Island Return it, soft plastics can be dropped off for free.
- ♦ My waste has increased since the Return It depot stopped accepting some items. You need to find other ways to divert materials
- ♦ I would like to see more stores lead by example - for instance, London Drugs has an excellent program for flexible plastics, I fill a large reusable bag monthly with all sorts of plastic wrappers and packaging that otherwise would go to landfill, this program needs to be in every grocery store and major shopping place to make it easier and a weekly habit for people. I go out of my way to find recycling solutions, but I have the time, energy and resources to do it - many don't.
- ♦ Work with places such as the bottle depot to re-instigate the service of accepting clean Styrofoam, plastic bags, etc. Since the CRD stopped it's arrangement with these places, my clean Styrofoam from meat packaging, etc., it's going straight into the garbage can. I am not willing to drive out to heartland or any great distance to drop off a small handful of Styrofoam trays.
- ♦ Please have place for disposal of both Styrofoam and soft plastic in Victoria area where I don't have to drive 15km each way.
- ♦ As a homeowner what I find increasingly frustrating is taking items such as light bulbs or soft plastics to a facility for recycling only to find that they no longer accept them and now one has to try and find another facility that will. In some cases where we've cleaned out our garage and found old fertilizer or silver cleaner, we've had to drive from Esquimalt all the way out to the Hartland landfill just to dispose of a small box of items similar to these. I for one am tired of driving all over this city just so I can dispose of these items in a proper manner. If you truly want to expand on the 3 R's, then why not have a facility or drop off area closer to Greater Victoria such as municipal works yards where folks can drop off these items for proper disposal?
- ♦ You indicate that you will do more to encourage recycling, though you recently stopped recycling Styrofoam and plastics at the bottle depot. My neighbours used to take their plastics and foam to the local bottle depot. Now, they are throwing them into the waste. I go to London Drugs like a bag lady with my big bundle, then notify the front end staff who call for staff to come to the grey door in the back, where I stand waiting. Not many people are as determined as I am to recycle if it isn't easy.
- ♦ increase number of facilities to recycle plastics, there is only the Esquimalt facility currently. Create public in-town services for recycling. Current private recycling facilities are expensive and very busy.
- ♦ London Drugs as the ONLY option. Subsidize the bottle depots to take these things in again, otherwise.
- ♦ An additional goal would be to add to the materials that can be recycled. Since return-it depots have stopped accepting Styrofoam and other materials, my garbage has gone up considerably. I typically drove my foil lined bags, other bags and Styrofoam's to the depot twice a year, but now there is nowhere for these to go but the landfill.
- ♦ Don't make the additional diversion sorting difficult for homeowners it will only lead to more waste in general garbage. Since the bottle recycling depots have stopped taking plastic waste there in only one option requiring sorting, then taking to a once a month collection, and paying as well.

- ♦ Set up recycling centres that we can once again return everything, hard and soft plastic, Styrofoam Add you do not need any more money, no more tax increases. If you are adding a new program you have to cut a current program.
- ♦ Currently most public works yards do not take hazardous items such as old fertilizer or silver cleaner - Esquimalt being one of them, nor does Ellice Recycling. How do you expect seniors and/or other individuals who do not drive to dispose of similar items? Some folks are not comfortable driving all the way out to Harland - what then? I can see them simply saying bugger it and disposing of these items in their regular garbage.
- ♦ Establish a 'toxic round up' program to facilitate disposal of household hazardous materials; current disposal options are not user friendly for everyone. Check Alberta for examples of how to do this!
- ♦ I would like to see satellite drop off locations for hazardous waste and oversized waste items, to discourage people from putting either in their curb side bins, or on the curb. And more levies for hazardous waste at points of purchase.
- ♦ The CRD needs to build one or two significant facilities or hire a contractor to do so (one in South Saanich or Victoria, and one in the Western Communities) that will take ALL Recycle materials. We currently have a quilt work of bottle depots who take some items, but far less than they used to, London Drugs taking other materials, and who knows where else. You waste a lot of gas driving around to all of the facilities. If CRD is serious about recycling and reducing what goes to the landfill, it will build conveniently located full-service facilities.
- ♦ We need more recycling facilities locally.
- ♦ Continuing to develop recycling and reuse infrastructures is essential

Ensure there are markets for recycled products

- ♦ Develop or find markets for recycled materials preferably as local as possible to encourage new businesses and reduce transportation costs/pollution.
- ♦ Whenever possible find markets for recycled materials, e.g., single use plastics until they are eliminated in the CRD. Transport the single use plastics to the Canadian manufacturer of plastic wood, he is running short of feed stock. Do not send plastic off-shore to be burned in some poor country.
- ♦ Reducing waste is good. Pretending to recycle is not.
- ♦ My concern is how much, if any, recyclables are sent offshore, or will be. I make every effort everyday not to bring home plastics etc. that cannot be disposed of in a way that is not damaging the environment.
- ♦ Unless recycle means no additional carbon emissions, recycle must be the last option.
- ♦ Unsure how you are going to achieve more diversion when recycling remains tied to market forces.
- ♦ I would like to see an increase in the types of plastics that can be recycled: for example, hard plastic. Nothing should be produced that can't be recycled.
- ♦ Concept of recycling is great but shipping our waste elsewhere makes no sense
- ♦ A lot of people don't recycle because there is an overly complicated and restrictive system.
- ♦ Facilitate processing locally to reduce transport of waste.

Other

- ♦ In general, more materials have to be recycled!
- ♦ Also, while agreeing with user pay initiatives, consider residential waste pick up as part of property tax or water bill and evolve it into a public vs private enterprise.
- ♦ Enforce compliance of separation with fines. This will involve checking the waste.
- ♦ I think that the theories behind the goals are great however having lived in other areas I find the dump prices high, and the accountability low due to good garbage pickup by the CRD. I found I was less likely to waste if garbage disposal wasn't easy and I had to take my own garbage to the dump. It is why I have not set up garbage services.
- ♦ An example of how a person could cut their waste per week would also be helpful
- ♦ In our two person household we compost most of our food waste and put out the smallest black garbage container about once a month. It is rarely full. It is possible to reach the target of 250kg. I am hearing more people complaining of too much packaging and too much plastic. Awareness is rising as to where our "stuff" goes.
- ♦ Our family already makes efforts to be well below the average per capita waste production.

- ♦ This is how my household has reduced our garbage 1. Collect all soft plastics in a kitchen bin, wash in washing machine, hang to dry, reuse vegetable bags and zip locks, collect the rest for soft plastic recycling. 2. Put all used Kleenexes, paper towels and other compostable in green bin. 3. Recycle all item that can go in the blue bin
- ♦ I find our street has 5 different waste trucks which all add issues of carbon emissions. Encouraging one day and one provider per street with bulk recycle plastic containers for soft types will reduce Hartland volume.
- ♦ I would like to have all fees for recycling all products that are recycled charged up front at time of purchase. Currently I take my soft plastics, Styrofoam packaging, etc. to a Saturday drop off and pay to recycle it. Many people won't do that...they just put items they can't put in their blue boxes in the garbage. If the fees were charged on the products at time of purchase and if there was a drop off spot for the Styrofoam, etc. that we've already paid for, if the merchant who sold the item was required to take back the wasteful packaging, etc....then more people would recycle. Education about the importance of doing so would be important.
- ♦ It all comes down to what are our individual, personal definitions of what is usable and what needs to be disposed (i.e. what we consider to be waste). Since we paid good money at one point for what has become worthless to us or even something, we are willing to pay to have it removed from our immediate environment (it has a zero or negative personal value to us).
- ♦ My waste is 10% of what it used to be, and I continue to do better, and am helped by other efforts to reduce waste. If 90% of people did what I did, we would not have to increase the disposal capacity at Hartland.
- ♦ Provide a separate, or larger bin for household soiled paper waste. An education program for this type of waste would be helpful.
- ♦ Some products are not plastic container compatibles. We need to have aluminum foil products picked up and recycled or sent for recycling off island.
- ♦ I recycle all I can right now and additionally recycle soft plastics, aluminum foil, Styrofoam, and packaging. I only have 1/3 of a can of garbage each month.

#8 Increase multifamily diversion

Improve recycling opportunities in multi-family buildings (organics, glass)

- ♦ More needs to be done with Multi Family homes like condos and apartments
- ♦ Finally, multi-family dwellings need more options.
- ♦ A multi-unit housing fills the street with 20 plus blue boxes. I remember in Chilliwack in the 60,'s being paid for tin, as my parents taught us how to recycle.
- ♦ Considering the intense development in Victoria, and single family homes being a smaller percentage each year. As a consumer I don't have a choice to avoid this packaging and the burden shouldn't be all on me because I live in a condo. All municipalities are encouraging high density housing so local governments need to make recycling in condo a MUCH higher priority.
- ♦ I would like to see better, stronger and more successful programs being developed for condo's, apartments and multi-unit buildings for composting and recycling, I have conversations often with friends and strangers who are frustrated that they don't have access to composting, and that they don't have confidence in the recycling program because of contamination etc.
- ♦ More environmental options are always good practice but the cost of such practices cannot simply fall on the backs of homeowners and tax payers. Costs need to be outlined in more detail and such costs need to be spread proportionately among everyone. E.g. All rental buildings as well as condo buildings tend to be the worst offenders in terms of abusing 'common' garbage and recycling areas'. There are some buildings that are paving the way and are a shining example to others but they are currently doing this under their own initiative and volunteered time. If it was easier everyone would do it, not just a select few
- ♦ There should be free curbside pickup of recyclables for all multi-family residences
- ♦ At this building people just dump their glass in the dumpster now that it's no longer allowed in the blue bin.
- ♦ When I lived in Korea, there was a recycling day for apartment complexes. You brought you recycling down and put it in the bin for the appropriate number.

- ♦ Living in a condo, I am very worried about recycling. When I see plastic bags in the bin, I am sure the waste contractor will just dump the whole thing in landfill rather than sort it.
- ♦ I don't agree that space should be a limiting factor in introducing recycling and composting in Multifamily buildings. Garbage bins for multifamily buildings take a lot of space - couldn't a series of smaller specialized bins fit in the same space? Similarly, bin pickup trucks are generally much larger than recycling and compost pick-up trucks.
- ♦ I could email you shocking photos of the waste in my condo building and on construction sites. Bags full of beer cans, electronics, cardboard are the norm in my condo dumpster.
- ♦ Having lived in rental apartments, I was very discouraged at how few items are diverted from the standard dumpsters.
- ♦ Fine condo buildings to the max for recyclable items in the trash. That's how they manage residents after all, Strata won't do anything if it costs them nothing. I have been on strata eight years, so I know. Multifamily buildings should be required to provide recycling. Single family houses are not the main problem. They don't generate the volume of the former and most are good at recycling.
- ♦ Multi-family buildings should HAVE TO separate their garbage into paper/cardboard, plastic, Styrofoam.
- ♦ Apartments are the worst for not having food scrap bins! And it's often so hard to reason with Property managers, as they aren't the ones that get fined! Maybe they could be fined for not providing a green bin, or maybe the waste haulers could get fined more so that they are actually motivated to force property managers to have a green food scrap bin?
- ♦ Assure that contracted disposal firms, who collect from multifamily sites, indeed properly separate and dispose of recycling (I have watched a contracted firm take plastics, that were already sorted by residents in the blue soft plastics bin and throw them into the green "garbage" container. That is not correct --- perhaps a "snitch" line could be implemented.
- ♦ This can be reached if everyone is onboard. Langford, in particular, is growing quickly and every condo or apartment building that has or will go up, must comply with CRD requirements for recycling areas and the owners of the buildings should be encouraging their tenants to recycle properly and extensively.
- ♦ As an apartment dweller I am discouraged to see our recycling bins misused and obviously used incorrectly. There needs to be more effort put into getting apartment bldg. managers telling tenants that they are required to recycle properly. Where plastics, tin and glass are concerned all items should be clean with lids removed - not rocket science at all when you think about it. In the case of glass, why is there not a separate bin required for that only?
- ♦ Why can't we require multi-family dwellings to use the same contractor(s) that the CRD does?
- ♦ Also, being in a condo my space is limited. Our waste contractor doesn't pick up much of what is recyclable (crinkly plastic, Styrofoam, soft plastic, etc.) so I have all these items in my condo, and it makes recycling too difficult.
- ♦ I would like to see the CRD support improved glass recycling/processing for condo buildings in the downtown core. Our private waste contractor has stopped accepting glass in their recycling bins. This is distressing as glass is a (relatively) easy material to recycle.

Provide education for multi-family residents

- ♦ Multi-family: prepare and post really good signs above bins in multi-family buildings with lots of pictures of what goes in and what doesn't.
- ♦ Multifamily diversion requires someone to lead the initiative.
- ♦ Also have noticed that in condo garbage and recycling people are horrible at sorting and so I feel like the way condo garbage is handled needs to be changed. Not sure how that would be done but at my condo I see plastic and all kinds of stuff in the compost and recycling.
- ♦ All of these are important. But it must be as simple as possible to enact them. Multifamily buildings need a clearly defined and accessible recycling facility within their buildings. There is no use in educating people if they cannot act.

#9 Increase industrial, commercial and institutional (ICI) diversion

- ♦ I am quite concerned with (A): the liaison role would further strain the CRD payroll and potentially be a target for lobby or corruption.

Increase ICI diversion

- ♦ I think #9 is especially important.
- ♦ Airports and airlines and hotels are another HUGE source of unnecessary waste. We need to work with airlines to discourage the use of single use plastics. We should be promoting the hotels that don't use single use plastics.
- ♦ Need to increase diversion from hospitals
- ♦ Hospitals are a HUGE source of waste - both toxic biohazard stuff but also benign stuff like plastic cups, straws, plastic cap ends etc. I didn't see any mention of working with hospitals. Whenever we are there it's shocking to see how much waste there is. This can't go unchecked.
- ♦ I believe industry and business need to take significantly stronger actions to improve waste management and that this area needs stronger regulations and support.
- ♦ In many commercial buildings there is no recycling program at all.
- ♦ It has come to my attention that food stores in our area do not recycle plastics that are wrapped around pallets of products.
- ♦ More needs to be diverted from businesses (retail, restaurants, offices etc.). More pressure needs to be put there.
- ♦ Residential waste does not appear to be the biggest opportunity for reduction, however. Industrial producers seem to be the low hanging fruit. Broadcasting to the public when these large producers are stepping up to the plate and working to reduce their waste could be a public relations boon to these companies and I would think that they would be keen to participate.
- ♦ A lot has been done for residential programs, but commercial and industrial practices are generally lacking.
- ♦ This is where the business community needs to step up to the plate
- ♦ I assume that the biggest waste-producers are industry, and if you can deal with their output, we will have a significant drop in the per capita waste.
- ♦ There is a marked difference in recycling/compost pick up for small commercial properties.
- ♦ This is probably the biggest area for diversion but again need to incentivize. Need to watch budget on this one, such as the business waste reduction liaison.
- ♦ Some business use of hazardous waste or contaminated packages will exceed targets sooner.
- ♦ Industry has the money to make the changes that will help bring the citizen along a new path, education isn't enough.
- ♦ Industries, commercial businesses, and institutions should be forced to use less plastic (paperboard or canned products instead of plastic bottles) and to recycle all paper, plastic, and metal in order to protect our environment. Positive enticements or negative charges for non-compliance are always options.
- ♦ Fast food restaurants - total lack of recycling. They need to be encouraged/legislated to sort and recycle their mountains of waste.

Make it easier for businesses/schools/non-profits to recycle

- ♦ I know of many businesses that are looking for ways to re-cycle, but it is very frustrating!
- ♦ There should be free curbside pickup of recyclables for all non-profits. Businesses should be charged a yearly recycling fee based on their size and that would include curbside pickup every two weeks. Currently many businesses are just throwing all their recyclables (and food waste) in with their garbage.
- ♦ Educate staff at businesses i.e. food waste, computer parts / packaging etc. that are sent to landfill instead of composting and recycling centres.
- ♦ Engage in commercial operations (officer, etc.) about composting organics (i.e. coffee grounds, expired lunches).
- ♦ Enhanced recycling opportunities - user pay - education programming
- ♦ Find ways to make it easier (not harder) and cheaper (not more expensive) for residents and Commercial Business to dispose of waste.

Enforce ICI diversion

- ♦ Shopping malls that have garbage and recyclables separated bins need to be held way more accountable for the items. For instance I know for certain that shopping centers like Uptown in Saanich just throws all the garbage and recyclables away in the garbage because the Uptown management is far more interested in the saving money and time to sort it. I have heard this directly from employees.
- ♦ Strongly support penalties for businesses not taking responsibility for the waste they produce
- ♦ The only thing that works where commercial entities are concerned is strict regulation. Consultation, encouragement, advocacy, investigation -- these things have zero effect. I'd like to see specific proposals for legal requirements imposed on commercial entities, including detailed penalties and enforcement provisions. Anything less than this is meaningless.

#10 Support existing and new extended producer responsibility programs

Explain what extended producer responsibility (EPR) is

- ♦ Didn't understand
- ♦ I don't really understand the EPR program as it exists. I need more info.
- ♦ I don't totally understand what EPR is, maybe you need to have a clearer definition and elaborate on what this is in the strategy.

Expand range of EPR products

- ♦ EPR program is good, put a recycling fee on more items.
- ♦ Any expansion of extended producer responsibility programs is essential as are regulations intended to make plastic recycling more feasible - more standardization of allowable packaging, better labelling, etc.
- ♦ It would be better to have much higher deposits on bottles, cans, batteries and plastic packaging and foam packing material etc. for refund at refund centres.

Other

- ♦ The PPP EPR program is a very thinly veiled program which enables consumer goods manufacturers to continue the indiscriminate use of unnecessary packaging materials and avoid the use of refillable containers or other waste reduction solutions. The downloading of costs on consumers, without the necessity of listening to and educating consumers, is an endless negative spiral.

#11 Increase organics diversion and processing capacity

Promote organics diversion

- ♦ With proper organics diversion and local food production, waste production will be reduced from both ends of the spectrum: less landfill waste=fertile compost=local food with no packaging
- ♦ Encourage (indistinguishable) composting of organics.
- ♦ We have backyard chickens that eat any spoiled food. Could we have places to drop off food donations for local farmers to feed to pigs and chickens?
- ♦ I also have my own compost which should be mandatory for each household.
- ♦ Promote composting Nor does the CRD make provision for organic waste at its own facilities, including Centennial Park, which attracts thousands of people in the summer. Many of those people using the park eat food from to-go containers that could be composted if receptacles were provided and there was somewhere to take the material. Right now, that organic waste is going to Hartland.
- ♦ It seems to be part of the master plan that the digestion of bio-solids will also include the mixing/addition of locally sourced/collected organic waste. I am concerned that the residual product of this process will be sold/supplied into the

local market as fertilizer. The underlying science does not support the use of this material as a fertilizer for food production (and presents potential risk in field water run-off). In this way, the region is destined to consign a valuable stream of clean organic waste and mix it with pharmaceutical-laced bio-solids and create a risk-laden product. This is a flawed strategy which has not been fully debated and accepted by the local population.

- ♦ Keep nutrients in region and on ALR lands
- ♦ Strongly support anaerobic digestion of green bin materials and yard waste, to create renewable natural gas.
- ♦ Work with agriculture sector to improve recycling and waste reduction on farms; also explore how to improve the quality of on-farm composting to benefit the farmer and reduce harmful emissions.
- ♦ The composting program for kitchen waste is excellent.

Investigate local organics processing infrastructure

- ♦ A more general problem is there is no solid waste plan for Salt Spring. The current exercise seems to deal mainly with the municipalities. There needs to be a plan and possibly a new service create that could deal with garbage collection, organic waste/composting and recycling under one umbrella.
- ♦ Green waste processing at Hartland, will it smell as bad as the failed facility in Central Saanich?
- ♦ I live near the Central Saanich compost facility that was absolutely a horrific experience. And not to be rude - but it doesn't seem that the compost plan that was rolled out by the CRD has yet been solved /executed adequately. Are we still putting our compost in Hartland or barging or trucking it away??? So perhaps you need to succeed one step at a time before you bite off a giant initiative?
- ♦ I support the development of a resilient local organics processing infrastructure that could include neighbourhood scale waste to energy plant and local compost production.
- ♦ One of the most important issues is connecting the compost and urban food production cycles. Increase opportunity for compost use in the region. Work with local initiatives (NGOs) to stimulate compost sales within the local economy. Incentivize local food production.
- ♦ Incorporating anaerobic digestion: collect gas (methane) from it. One easy thing to implement. Process compost closer to farms, goes back to the farms more easily, closing the loop on that.
- ♦ Supporting the work of organizations like the Compost Education Centre would certainly support this strategy. We need a food scrap processing plant which makes COMPOST not fuel in the CRD! it seems so silly that we barge our food scraps to the mainland! It's a very energy intensive process to do this barging, but also, we are losing valuable soil nutrients that could go back into the food system here on Vancouver Island!
- ♦ The CRD does not have any provision for dealing with organic waste on Salt Spring Island. There has been effort to reduce the organic content allowed at Hartland, but nothing done about how to deal with it locally other than some discounts on home food digesters and compost bins.
- ♦ The CRD has supported the good food summit food security and regenerative agriculture. Our community services have a great plan for composting here on the farmlands trust parcel. We must do this - now! Local food and local handling of waste is the way we need to work together.
- ♦ Perhaps enhanced kitchen scraps combine with extreme weather materials, paper and invasive could solve several issues. The very recent uptick in community scale/ municipal scale rotary composters (Ecodrums) offers an energy efficient option that promotes the goal of creating more compost resources for the region.
- ♦ Compostable should be processed locally instead of being sent to the mainland.
- ♦ I'm glad you are addressing the problem of organics processing. Shipping all that waste to the mainland is just plain wrong although I appreciate you may not have had many other options. So yes, please investigate the local processing of organic waste. I have an acreage, so I take care of my organics by burying them but many people in my area use organic pick-up.
- ♦ Increase the use of garburators and garburator facilities to improve solid waste management and compost redistribution.
- ♦ Need to make organics processing more extensive and sustainable by building a composting plant on-island and creating more composting plants locally in each region overall, as well as mandating proper sorting and handling of food waste as much as possible and making strict regulations to prevent large, rich companies from disposing of materials wastefully (either due to laziness, cost, or lack of education or apathy)

- ♦ It is unclear what "organics processing" means. Industrial composting operations involving food waste are problematic with respect to odors as we have learned in Central Saanich, Cobble Hill, and Richmond. Yet, the final product could be a very good soil conditioner and perhaps aid in soil carbon sequestration. We don't have a satisfactory long-term solution for what we will do with the residuals from anaerobic digestion even though that is clearly organic waste and if processed properly (pyrolysis?), could also contribute to soil carbon sequestration. Compost and biochar combined are often better soil conditioners than either alone.
- ♦ Salt spring needs a LOCAL composter for kitchen scraps since they cannot go into the landfill. We need to add items such as hard plastic to the recycling stream. Manufacturers should not be able to sell materials if they are not recyclable.
- ♦ Support the development of composting facilities on Salt Spring Island for organic waste and work with local NGOs. For example, the Burgoyne transfer station could be a potential site for composting. The plan seems to ignore the needs of the islands.
- ♦ This strategy especially appeals to me: support local organics composting (maybe offer discounted/subsidized composters on Earth Day?)
- ♦ we are very committed to composting salt springs organic waste. Since the CRD banned kitchen scraps, we feel that the CRD should set up a system to support composting on island. Thank you.
- ♦ Whatever is decided, make sure you don't do what Delta did with their compost recycling. They turned it over to GFL to operate on farmland less than 1 km from a large residential area. The odour has been going on for decades and the company has been allowed to expand. We are appealing the Air Quality permit as it has no teeth and does not protect the residents. We are concerned about the pollution and because of the putrid odour, can't enjoy our homes especially in the summer.
- ♦ The composting program you are developing is hopefully not like the Coast Chemainus system that emits CHG's and produces a dead soil devoid of microorganisms. Hard not to support any of the strategies as I indicated on the previous pages. However, the "elephant in the room" point is that by 2045 we will have much more to worry about than a full landfill. I would like to see composting garbage with biochar and essential microorganisms as the 'endgame'. That means making throwaway/single use products, paper products, all food waste, some clothing, diapers, agricultural waste and constructing/forest waste either composted or made into biochar.

Support compost markets by purchasing back finished material

- ♦ Sell or market biosolids & organics composting to garden shops & landscapers
- ♦ Circular: put some in compost but can we grab compost (given to Emterra)
- ♦ The organic waste (kitchen scraps) needs to be mixed with a high carbon material (sawdust or wood shavings) immediately so that the N is locked up and it can be turned into high quality compost without the ammonium smell. Either by giving out re-useable bags of sawdust/shavings and having homeowners mix it or by having staff mix it immediately. We can and should make black gold to feed our region's soils, which will increase hydrological function, increase soil moisture, reduce wildfire risk and help to feed the region. The cost of imported sea soil is \$110 / yard - surely, we can make a better compost product with our local kitchen scraps in an economy of scale that works. The key is getting carbon mixed in early, before N is lost to ammonia gas. Also, we need to figure out how to re-integrate animals into nutrient cycling. Pigs, chickens & goats in particular. Our backyard compost system integrates chickens and it could be massively scaled up to speed up nutrient cycling.
- ♦ Focus on the Circular: not only contribute kitchen scraps to program, but is there a way to somehow get compost back for personal use? (from Emterra or whoever?)
- ♦ No information on getting compost back onto farmland. this is critical as soil is being lost exponentially in part due to weather changes, poor cover cropping practices and complete indifference at the CRD dept responsible for these activities, many of whom have significant salaries with which to purchase nutrient dense food while others barely able to afford a box of KD
- ♦ No issue with organics going to the dump if mixed with soil and composting which can be reused and trucked elsewhere for landscaping.
- ♦ Promote organics pick up and/or drop off where composted soil can be returned at no cost to residents. In many areas of CRD we cannot compost due to bears.

- ♦ Remove the ban on applying organics (esp. biosolids) to land. both compost and biosolids are valuable nutrient sources which should be re-used (the 2nd of the 5 Rs)
- ♦ Strongly support land application of digestate from anaerobic digestion on any land where food crops are not grown - such as on highway medians and margins, bank stabilization projects, reforestation areas and parkland.
- ♦ Use compost locally in city parks and garden beds or sell to residents. Multifactor saving as people will not buy compost in plastic bags that has to go to the landfill. Link it up with garden waste disposal days. Come with a truck full of trees and branches leave with a truckload of compost for the garden. Saves on fuel as well.

Simplify organics pick-up

- ♦ Add a regional green bin collection program
- ♦ Festering organic waste for 2 weeks is unpleasant and discourages people from using their green bin.
- ♦ Household compost pick up weekly, not bi-weekly, its revolting having it sit around in a bin that long.
- ♦ It would be a big help to have compostable (green bin) materials collected weekly instead of every two weeks.
- ♦ In the kitchen waste bins, can you put your contribution in a plastic bag, or else what?
- ♦ Last I heard we were not allowed to send organics to the landfill. But I've never understood what we are supposed to do with organics that cannot be broken down as compost, such as bones. I heard on NPR this morning about a new mandatory recycling program for Singapore. You might take a look at it.
- ♦ homeowners need to be able to have unlimited organic waste disposal and restricted non-organic waste disposal
- ♦ Being in north Saanich they don't provide a municipal waste /green pickup, so we have to get it ourselves. While not a problem, it would be much simpler if it was municipal run like Sidney where it is picked up by 1 company on the same day/days. Right now our neighborhood has pickup all days of the week for a couple homes here and there... imagine how resource heavy this is in time, gas and efforts.
- ♦ Not easy to recycle compost stuff. We have a garden composter for vegetables but wish to place bones and fats in the pickup. The huge bins we have in Oak Bay are far too large for a single house, and 2 weeks between pickups is too long, especially in the summer. My freezer is full of items waiting to dispose. Often, I get impatient and it goes in the trash. The huge bin, if soiled and smelly, is beyond our ability to clean out.
- ♦ Reduce cost to residents of participating in organics collection and composting. We should want everyone to divert organically at household. Right now, cost is a significant consideration.
- ♦ My personal concerns have a great deal to do with educating the public about the true requirements around 'biodegradable' plastics, such as PLA and creating facilities for the proper marking, disposal, and composting of these plastics.
- ♦ Please provide education about compostable bioplastics. There is tremendous confusion on this issue and a large amount of greenwashing. People are unclear which compostable are actually compostable and whether that is possible in the CRD region. So: education people about compostable but do not promote these as a viable alternative in the region; strengthen the 'reduce' program in way that doesn't encourage use of compostable. Also support salt spring's composting facility project in whatever ways are possible. Thanks for the detailed plan and good luck.
- ♦ Recognize that many things claiming to be 'compostable' are not in home based or commercial hot composting, and some are simply new non-fossil plastics that are in fact chemically plastics from made from plants that are equally damaging to the environment.

Encourage at-home composting

- ♦ I think the CRD needs to have better at home reduction promotions like worm bins and green cones to encourage personal responsibility of waste and teaching the next generation of good practices. How far can policy get us?
- ♦ I would love to see a pilot where residents are given compost bins (closed rolling ones off the ground) to compost their own food waste.
- ♦ You need to invoke a policy that demands every single family home install 1 or more Green Cone Solar Digester Systems on their property for all food wastes: <http://www.compostec.ca/> We have had 2 on our property for 17 years. They work. They last forever. No Maintenance. Just dump your kitchen waste in them. Done. THAT will solve a huge problem for you. I cannot believe Green Cone Solar Digester Systems have not become mandatory.

- ♦ Maybe think about how many people are interested in gardening and how composting goes with it.... gardening, food waste, and sustainability are all connected.
- ♦ Support residences to compose food waste in their own yards. Provide compost bins free.
- ♦ As someone who composts virtually every garden and kitchen scrap possible and then returns the compost to the earth, I dislike in the extreme that I must pay the City of Victoria waste collection people to look in my empty green bin every collection day and leave the empty bin where it stands. Since the City can't/won't allow compostable yard waste to be put in those bins, householders should not have to pay for a service that is not wanted or provided. I make this effort to do the right thing, and then I subsidize lazy folks who don't. Where is the sense in that? That only ENCOURAGES people to let the City take care of their compostable waste.
- ♦ Also, #11 is more widely needed as I live out in Central Saanich where composting is not offered unless the homeowner is willing to pay for (which is the same as our waste disposal as it is not included from our municipality). Being a gardener though I have my own backyard compost system, as do many others with yards, so having a system that still encourages backyard composting would be ideal.
- ♦ Food composting should be done primarily at residence to support enhancing soil quality. Transporting to another location is expensive and polluting. I support some organics diversion but believe that we each must take greater responsibility where we can to reduce/reuse/compost at home and not expect someone else to do it for us.
- ♦ I would like to see residents continue to be encouraged to compost food on their properties, as trucking it around is wasteful.
- ♦ As for food waste, we use a couple green cone digesters lined with hardware cloth. They work great and feed my soil.
- ♦ Please consider increasing funding for local non-profit organizations that provide these crucial hands on learning initiatives, like the Compost Education Centre. These community learn-by-doing hubs are essential to making meaningful connections between soil, food, water and waste.
- ♦ Please support programs and organizations that encourage at home, backyard, front yard and balcony composting. This alleviates so much of the resources dedicated to the food scrap collection program at curbside and supports healthy soil when the compost is returned to our gardens!
- ♦ No cost compost bags would be nice to have as too costly for people with very limited financial resources.

Provide for disposal of yard waste

- ♦ I was shocked to find out that city of Victoria residents can't put garden waste in their green bins.
- ♦ Permit garden waste to be included in curbside compost pickup in City of Victoria.
- ♦ Organics should include garden waste for single family houses. It is a carbon nightmare that people have to drive their weeds into the city yard to dispose of them, while trucks are going door to door to pick up food waste that could be composted in their yard.
- ♦ Also a Green Waste Container could be implemented for Organic Yard waste - Leaves, Branches etc. It is almost impossible to get rid of Garden waste in Victoria.
- ♦ We pay for a private composting pick-up service, because we can put yard waste in the bin (and receive compost in return; we don't own a car, so taking it anywhere is hard for us). We also put what we can into the city compost system (e.g., cooked foods, etc.)
- ♦ Make it easier for residents to put garden waste into the food scraps container for pick up at residences like they do in Vancouver.
- ♦ Encourage yard compost piles or one neighbourhood compost pile to be shared. (with appropriate, lids and rodent control.) Organic recycling is great but messy, I find I must thoroughly wash bin each week after bag is changed.
- ♦ Compost collection. The ornamental gardens and street trees in Victoria produce biomass by the tons all year long -- not just during the leaf collection period in late autumn. Could the green bins not be used to collect soft yard trimmings, excluding twigs and branches? Surely the kitchen scraps from most households come nowhere close to filling a green bin.
- ♦ Provide cheap composting bins for utilizing compostable for personal yard use.
- ♦ With respect to yard debris BAN leaf blowers and encourage organic mulching
- ♦ Allocate "burning" days when weather permits in proper bins. i.e. fast heat no smoke
- ♦ Allow controlled burning on suitable days and encourage home compost bins into garden soil.

- ♦ Allow people to burn more frequently to help reduce waste
- ♦ We do not support allowing debris burning or leaf burning. Controlled burns debris in forests for reducing the risk of forest fires is however a good policy that should be increased.
- ♦ CRD should facilitate regional "yard waste" management programs to cut down on burning.
- ♦ Develop a separate stream for the convenient disposal of wood and wood products. Grinding and composting?
- ♦ Encourage, assist, educate etc. re backyard composting plus making use of the leaves that fall on each property (rather than expecting that someone else comes along and takes away these valuable leaves)
- ♦ Extended curbside compost to include ordinary garden waste is essential if you want to reduce amount of compostable material going to landfill.
- ♦ I support #6E because it is compatible with viable alternatives, especially in an emergency. I have about 500m forested driveway which undergoes several emergencies a year.
- ♦ In addition, multi-family dumpsters often contain yard waste from apartment buildings. This is banned from the landfill but much of it is getting through to the landfill.in these dumpsters.
- ♦ Increase access for homeowners to compost/chip garden materials. Doesn't seem to me that driving loads of garden material out to Hartland is particularly eco-friendly. What about bins (similar to Oak Bay Public Works yard) in a variety of locations to increase accessibility and minimize driving out to Hartland
- ♦ Increase capacity for yard waste composting.
- ♦ Perhaps we could have more global yard waste recycling like Saanich does for everyone to use.
- ♦ Victoria area residents should be allowed to add yard waste to their compost bin as in other regions.
- ♦ We adhere to all the waste management objectives in our home, as regards recycling and kitchen scraps. Victoria does not want us to put garden waste into the green bin, I find that odd. I would like to be able to put grass clippings etc. into the green bin.
- ♦ Yard waste and food waste that cannot be composted easily at home, like bones, animal fats, citrus peels, sticks, twigs, etc. would be better in a landfill area away from residential housing where they can decompose without attracting wildlife.

Develop a regional approach to invasive plants species disposal

- ♦ There needs to be a means to harmonize the disposal of various weed species including invasive, across the region. Presently the different acceptance of various "garden" waste and invasive is an issue which causes confusion for residents, and the disposal of species that that are invasive.
- ♦ We support polluter-pay and user-pay approaches in general; however, there should be an exception when it comes to invasive species disposal. The updated plan should support an invasive species disposal program that makes it easier (or possibly free) for community members to dispose of invasive species (especially high-risk invasives) responsibly. Responsible disposal of invasive species is a community service that saves municipalities and regional districts from costs related to infrastructure damage, devaluation of properties, ecosystem degradation and biodiversity costs, and risks to human health and safety.
- ♦ Do you have a plan for disposal of invasive plant species such as knotweed or giant hogweed?
- ♦ Build a public composting facility that effectively deals with all organics including invasive species like English ivy.
- ♦ Not sure where this would lie... UBC has been undergoing trials of thermophilic composting of invasive species.
- ♦ Updates to the CRD's solid waste management plan is the best opportunity to improve how invasive species are responsibly disposed of in the CRD. The impacts of continued introduction and spread of invasive species in our region include (but are not limited to): human health and safety, increased municipal costs (management and damages), infrastructure damage, impacts to property values, impacts to recreation options, ecosystem degradation and biodiversity loss. It is important to note that the term 'invasive species 'covers two categories of species¹) high priority species with severe human health risks such as Giant Hogweed or significant ecosystems and infrastructure impacts, such as Knotweed species and ²) common and well established invasive such as Scotch broom, English ivy, and English holly. Effective disposal of invasive species is an important element of invasive species management. Disposal challenges can lead to the following issues, which are especially of concern for local governments: - Lack of disposal options reduces participation in removal of invasive species - Lack of disposal options (or easy disposal) contributes to dumping on public

lands and increased invasive spread and impact - Disposal and processing that doesn't effectively deal with invasive can become another vector for the spread and impact of invasive - Currently, any yard waste collection is very likely to include invasive species and can be contributing to further spread through transportation, ineffective processing and sales or re-use of composted or mulched materials We have identified the following concerns (but not limited to these): 1. Regional disposal management: there is much confusion for local residents, businesses and landscaping professionals about how to dispose of invasive species due to limited disposal options and inconsistent management across the region (public vs private, etc.) 2. Disposal fees: the fee charged to dispose of invasive species is a deterrent to some. In BC, some regional districts have decided not to charge for invasive species disposal. Could the CRD consider the options for accepting free invasive species for disposal, such as in support of community stewardship efforts and potentially for small loads? 3. Disposal Practices: we are concerned about verbal reports of declared invasive species being refused at the Hartland gate, and others with anything labeled 'invasive' being accepted. How can standards for disposal be improved and made more consistent? 4. Hartland Bylaw: The Hartland Bylaw lists invasive plant species as those set out in the Schedule to the Spheres of Concurrent Jurisdictions - Environment and Wildlife Regulation, BC Reg. 144/2004. This list has been out of date for some time and the out-of-date restriction impacts local governments' work to limit the spread of these species. We need a list that can be updated easily as new invasive species appear in our region. The species currently accepted at Hartland is very limited and does not meet priority needs in the region. We support exploring alternative options to invasive disposal due to: (1) potential risks of species like Knotweed in the landfill, (2) current risks due to (confirmed) OMRR regulations not addressing invasive species and this vector risk, and (3) potential for the bio-waste to be processed effectively with other waste in proposed future energy capture technologies. Can invasive species be addressed as part of the current work underway by the CRD related to organics processing? In many cases, yard waste and kitchen scraps are comingled and, thus, we need to assume that viable invasive species seeds will be in organics heading for processing. Will that processing ensure inactivation of any seeds? Municipal garden waste drop-off stations have not been equipped to provide separate disposal for invasive species. This is especially a concern for species of high risk (e.g. high difficulty in processing, high-impact species if spread further), like knotweeds, and species that could be also harmful to human health (such as contact by staff) like Giant Hogweed. Potential Solutions: • Develop an effective, regional approach to invasive species disposal (benefits residents and local governments, reduces costs and impacts due to further introductions and spread) • Include a plan that makes it easier (and possibly free) for residents to dispose of invasive species (especially high-risk invasive) • Standardize best practices for invasive disposal at municipal and private yard-waste drop-offs • Lead regional collaboration to develop new disposal options, such as: (1) potential future options for effective disposal through new organic waste processing (such as energy capture options being explored) which reduces or eliminates risk and results in a useful resource; (2) options for local incineration of specific, appropriate invasive plants; (3) consider closed in-vessel hot compost system that meets temperature thresholds proven to inactivate invasive species seeds; (4) develop Best Management Practices and Guidelines for Disposal for a region-specific approach and to provide guidance for other options, such as on-site treatment and disposal where appropriate; (5) offer rotating free invasive disposal at staffed temporary bins, on an 'event' type basis, including public education and potentially sending for incineration; (6) consider options for free invasive disposal at Hartland (or at least situations where invasive disposal could be offered for free); (7) Provide education and support to public and private solid waste staff in regards to invasive disposal and risks (including staff health risks from contact); and (8) collaborate on efforts currently underway with the provincial-local government Soil & Invasive Species Working Group (working to address vector reduction options for soil, compost, mulch, turf and aggregates).

Develop dog waste disposal options

- ♦ I also want to see more done about dog waste, which is currently put into bags and sent to the landfill. There should be a greener option. Has anyone ever estimated how many tons (or swimming pools) of dog waste are put in the landfill every year?
- ♦ What will you do about managing dog waste?
- ♦ I didn't see any mention of a strategy for dog waste. I've been reading about Vancouver's pilot project.
- ♦ Find an alternative to doggy bags - that is one single use item that takes some thought
- ♦ The Toronto green bin program also allows for the inclusion of pet waste (dog feces in biodegradable bags, cat litter etc.). The CRD requires that this raw waste goes straight to the Heartland dump.

#12 Increase construction, renovation and demolition material diversion

Incentivize salvage or retention of existing structures

- ♦ Building demo projects need to be carefully scrutinized to explore alternatives such as removal of the building for other purposes, modifying the building, remodeling the structure and/or letting "scavengers" remove any useful parts/materials. Rules must apply and be reinforced.
- ♦ This strategy especially appeals to me: Collaboration with local government for policy tools to reduce construction waste (yes please! get Nickel Bros to the front of the permit line when they are trying to "re-use" a whole house!)
- ♦ I would like to see stronger support for Heritage and Vintage buildings, and in cases where they do need to be torn down for new development, I would like to see more "re-use" of materials, we have recently lost some of the great salvage businesses in the CRD. Rather than see items go to Landfill. I don't believe a system is in place, recently the church at Fairfield and Moss was torn down with all the windows in place, and fixtures still hanging from the ceiling - doesn't seem right.
- ♦ Do not make renovation and demolition easier. Demolition is not environmentally sustainable. Require significant increase in demolition permit fees with requirement to demonstrate why demolition is required as opposed to salvage, recycling or moving existing structures.
- ♦ There should be a hefty fee for removing and creating solid waste from buildings and other types of structures. For example, removal of decorative elements that are functional and still in good condition but no longer in fashion. Those that choose to preserve such elements should be rewarded monetarily to encourage change in social behavior toward creating waste. We also contribute positively to helping our planet not adding solid waste to the landfill.
- ♦ My personal contribution to the landfill is certainly less than 250 kg at present. This tells me that a lot is going into the landfill from sources like demolitions. What is being done to address this? For example, are there incentives for home owners to leave existing structures standing? What are the requirements for salvage in construction projects? I am looking through the website to see if I can find more specific information about what, exactly, we are putting into our landfill.
- ♦ Construction Waste. The problem here is the classic time vs money problem. I've worked in this industry for years and getting contractors to practice the 3 R's is incredibly difficult. Quite simply put there's no money in it. Paying an employee to reduce, re-use or recycle simply isn't profitable.
- ♦ Could construction and demo waste cost more for disposal, to encourage renovations and re-using rather than outright tearing down buildings and homes?
- ♦ Increase the cost of tearing down buildings.

Provide options for diverting construction/demolition waste

- ♦ Once a demolition has cleared a building of any hazardous materials, it should be offered to salvage companies first and then the public.
- ♦ Can you support and encourage homeowners or construction companies to offer for re-use salvageable construction material? If a person gets new flooring/kitchen/lighting put in, could you offer incentives for construction companies or homeowners to find another outlet for the flooring/cupboards etc. Maybe the CRD could hire someone specifically for this purpose, they could be the contact person for anyone wondering how to handle their construction materials...
- ♦ I would like to see a reduction in renovation/construction wastes encourage as well.
- ♦ I would like to see more construction materials re-used. Fewer crushing demolitions and more deconstruction/re-use instead. I would like to see homeowners encouraged not to do unnecessary major renos as they are so wasteful.
- ♦ Construction and demolition waste has to be handled differently, so most of it needs to be up-cycled or recycled! The construction industry needs NEW RULES! I know it is possible, because I know of a Vancouver de-construction company called Unbuilders, have a look here, with highest recorded salvage and recycle rate at 97%!!! <https://unbuilders.com> (excerpt from home page): "Homes don't belong in landfills" Unbuilders is Canada's foremost deconstruction company. Based in Vancouver, British Columbia, we unbuild homes by hand and salvage almost everything, including irreplaceable old growth lumber, windows, doors, cabinets, fixtures and appliances. "We unbuild them all" Unbuilders maximizes salvage to minimize cost, hassle and environmental footprint. We are proud to hold the City of Vancouver's highest recorded salvage and recycle rate at 97%. "Saving history" We salvage and recover old-growth lumber. This wood was

milled from 500- to 1,000-year-old trees, rarely seen today. Unbuilders recaptures this history, keeping irreplaceable lumber in the supply chain. We document all our projects with pictures and video to record every home's story. phone: 1.833.UNBUILT info@unbuilders.com

- ♦ Construction waste needs to be regulated for the recycling of the various materials involved. Biggest waste increase
- ♦ A lot of construction materials are discarded because they were not cut to the right length or are slightly damaged. These should be offered to the public at really low prices for use. No wood should be put in a landfill when it can be reused or burned in a wood stove or campfire.
- ♦ Potential problem is illegal dumping. A lot of used building materials such as old barn wood, is quite desirable for refurbishing. Needs to be an outlet to sell these items, perhaps a free store
- ♦ Make renovation materials easier to recycle. Provide screening services to allow more reno materials to be diverted. Set up free reno store. This will reduce the need to buy materials and divert better. Make drywall a lot easier to recycle. The current process of paying for an asbestos test is a big barrier to effectively dealing with the common renovation materials.
- ♦ We did a renovation and were sickened by the waste of the wood, etc. that was removed but were helpless to do anything about it. Please give homeowners options when they are building or renovating, so they can insist that contractors reduce waste.
- ♦ We need to be more circumspect with new construction and especially when an old building is torn down and all the materials are taken to the dump.
- ♦ New outdoor burning rules by the Province (40 years too late) will hopefully deter some of the burning/smoke but it is usual to see construction sites with a fire going burning offcuts that could be reused or at least turned into biochar.
- ♦ CRD has done a very good job of diverting waste to the landfill. The one area I'm very concerned about is the waste from the demolition of existing homes. Whereas a perfecting good house can reduce to waste and on its way to the landfill within hours. I believe that whoever is demolishing should be forced (recycle and reuse) to minimize the amount of waste they create. With changes to zoning in many of the older neighbourhoods with in the CRD ,this issue will only grow to be a greater problem. Meanwhile many residents of the CRD are working very hard to reduce their amount of waste, sometimes one little piece of plastic at a time. I have no idea what amount demolition waste contributes to the landfill each year, but I'm pretty sure it would be significant . I hope that you are successful in dealing with issue and your plan moving forward.
- ♦ I notice construction sites often have quite well defined separated waste bins, however when I notice constricted downtown renovations of offices, I notice appreciable consolidated waste due to the severely limited amount of space available on the street for waste bins, consequently all waste goes into one bin, having 3 or 4 6 cu m bins is just unrealistic: the disruption of the street, sidewalk notwithstanding the cost to the contractor for all the street rental space and the multiple truck pickups is impractical. Consequentially I think that destination sorting has to be considered and that cost has to be LESS than just dumping even though it may cost more to do the sorting at the disposal site. Finally, there is the issue of complex durable materials such as carpet, roofing material, as well as doors and windows, most of which are not reusable as it is practically impossible to remove without damage. furthermore, the reuse of energy inefficient and obsolete materials is environmentally counterproductive.
- ♦ Construction demolition waste isn't helped by OTT regulations about asbestos in drywall, how much dangerous material is actually being produced ? (hint: it takes more than an optical microscope test to determine if fibres are dangerous and yet too often this is all that is used, condemning useable gypsum to be double bagged and landfilled)
- ♦ I fully agree, especially on redirecting some of the building/renovation, etc. products. Recycling or reusing, even if costly, is essential.
- ♦ I think it would be great to see encouragement of consumers to reduce construction waste - maybe the CRD could offer a contrasting viewpoint to the modern mentality of ripping out dated fixtures and furniture in your home and replacing it with new, crappy quality, but good looking cupboards flooring etc. Using humour in a campaign like this could help.
- ♦ That drywall testing fees for very small drywall disposal can be frustrating -- consider an untested drywall (assumed containing asbestos, wrapped accordingly) rate with a quantity limit. (a limit of an amount of drywall equal to one or two sheets I think would make sense) Consider allowing residents to re-use test results that have previously shown that their house drywall contains asbestos for future renos of the same property

- ♦ Need to make it easier and less expensive to dispose of old possibly but not probably asbestos containing materials. I have spent over \$200 having material from my home tested. No asbestos found. I now know that there is no asbestos in my home. Still I need to have the next drywall scrap tested. This is probably contributing to illegal dumping.
- ♦ Establish combustion processing for paper wood and wood products and generate electricity from it. –
- ♦ I think a ban on wood waste would definitely be a good one to look into. Support for businesses using materials that would otherwise be landfilled as their input materials (wood from construction projects, rigid plastics etc. would be beneficial.
- ♦ Develop programs to divert construction waste. Work with builders. Think big
- ♦ Construction debris would need support from management of these companies - make it a source of pride like good energy construction.
- ♦ Challenge Camosun College's construction faculty to come up with ways to reuse a lot of the construction materials that end up in the landfill. This could even be done at the high school level.
- ♦ Construction dumpsters are full of cardboard and metal and wood that could be easily diverted. Tax taking a backhoe to a house to the max and give use the money to give tax brakes to those who deconstruct instead.
- ♦ In my opinion construction demolition waste should be charged heavily with a fee and there should be some incentive/reward for recycling and reusing construction demolition materials in general, rather than have it landfilled!
- ♦ Plus, incentives so that not so much debris goes to the dump from construction and destruction of buildings. Waste waste waste.... Good luck!

#13 Encourage proper public space waste management activities

Develop educational materials

- ♦ There was a news story recently that reported the lack of a market for used furniture in the Victoria area, with the result that perfectly usable furniture was being taken to the Hartland landfill and dumped by local furniture retailers. There should be some mechanism to promote the re-use or recycling of large household goods rather than just dumping unwanted pieces in the garbage.
- ♦ The second type of dumping are those items that people think they are being 'ecological' about by putting out on boulevards for others to pick up. This is usually absolute junk.....broken plastic flowerpots, broken stereos, etc....they are often left out there for weeks, get blown around often enough, picked through, etc., and the end result is that those items stay out there. The people never come back to take back the things that others did NOT want. There is a 'known' Blvd. near where I live that is the go-to place to dump these sorts of things, and it is a continual eyesore and looks ugly. Nobody wants your broken plastic pots.
- ♦ I am glad to see this in the plan. Victoria is increasingly looking like cities in developing countries, so much littering!

Provide options for disposal of bulky items

- ♦ Get smart and once a month in every community host a curbside pick-up of unwanted materials like furniture.
- ♦ Offer solutions for Residents who do not have appropriate vehicles (or don't drive) with alternative ways to dispose of waste (i.e. - quarterly curbside free pick up).
- ♦ Once a month – have a CRD truck parked in most dense neighborhoods (James, Bay, Fairfield, Fernwood, etc.) for residents to deposit items not currently included in pickup recycling (furniture, electronics).
- ♦ Pickup programs.
- ♦ Maybe offer once a month curbside pick-up of items currently not included in blue box or blue bag. Anything that would normally be taken to Encorp facilities. This could include larger bulky items. We used to have a district- wide pick up day for such items as lawn chairs etc. This could reduce illegal dumping.
- ♦ Regularly scheduled curb pickups of unwanted items are the only sensible way to reduce the eyesores beside our roads. If people knew when the next pickup was, and they were regular enough, the stuff would appear at the right time. Unofficial recyclers would also appear in their pickups.

- ♦ Each municipality have a twice a year program where people can put out their unwanted items and others can take them (Residents' Reuse & Recycle Day). At the end of the day have trucks come and take away what's left - 1 truck for garbage and 1 truck for reusable items
- ♦ There is a lot of illegal dumping of furniture and household appliances because residents either don't have a vehicle or their vehicle can't accommodate taking these items to the dump, or they don't wish to pay a high fee to have a "junk removal" company show up for just one or two items. To minimize illegal dumping such as furniture and household appliances, etc., left at the curb or in a park, implement a service where residents can call or completed an online form to arrange pick-up of these items. The resident would leave these items on the curb side (as like garbage/recycling day) or in their lane way for pick-up. The fee for picking up the items could be added to their garbage/recycling/water bill.
- ♦ Many of us don't have cars any more by choice, and it is difficult to dispose of things like paint cans, but also larger items. Could we have a small container at the end of our street every three months or something like that?
- ♦ Addressing the abandoned articles is important. Items as furniture and mattresses are difficult to dispose of. If the cost is prohibitive or they lack transportation to a landfill for an item, people will just leave these things on the side of the road. It is irresponsible but not everyone has the resources to take care of them. Make it easier to do the right thing for large and small items.
- ♦ Make it easier for people to deal with the furniture and items abandoned along the roads. Students, seniors and renters usually don't have a truck or time to take large items out to Hartland. We need to re-establish a place like Goodwill used to be, where people learn to reupholster, mend, and sell these items. With an easy pickup service. It's a ridiculous waste of things that could be used again.
- ♦ Strategy 13 shows couches on street side. This happens every May virtually in all city areas. This usually corresponds with the end of a school term. Could UVIC and Camosun be encouraged to take responsibility for this? i.e. they should warehouse all this furniture through the summer and make it available to students in September.
- ♦ One other thought ... we have 3 low rise apartment buildings on our block, plus some social housing, I understand the limitations of those having budgets for disposal, but it's often shocking how many couches and furnishings that are past the point of reuse end up on our street. I think it would be ideal to have neighbourhood event "swaps" and opportunities for disposal, I think this could also help individuals that have needs, help those that need to get rid of items for "upcycling", repairing for reuse and give an opportunity to do out reach for social agencies.
- ♦ You have my heartfelt gratitude. I particularly like #12 because of the sofa issue on CBC news this summer. I would add there a clause about retailers dumping these potentially recyclables (you might have put this somewhere else :-) THANK YOU!
- ♦ ILLEGAL DUMPING is a big problem in my neighbourhood (James Bay). Large items that people don't want to pay for to have properly disposed (old couches, bed mattresses, broken items, old electronics)...as soon as they get rained on, they are worthless, and the City (taxpayers) pays to have them removed/disposed. Also, whenever there are some construction garbage bins (near construction sites, or a building undergoing renovations), there are always people coming under cover of darkness and illegally dumping household items.....this is a sign that their normal channels of dealing with garbage are not effective.
- ♦ Since moving to Victoria from Edmonton 4 years ago it never ceases to amaze me as to how people in the greater Victoria area treat their streets like a landfill. Illegal dumping in my neighborhood of burned out microwaves, urine stained mattresses, busted up particle board furniture and more is a constant issue. I attribute this to not only laziness and a general disregard for the place where people live but to the difficulty in being able to dispose of these items. The Hartland landfill is too far away, and the hours are inconvenient for a lot of people. In terms of reuse - how about curbside reuse day. We can put furniture etc. curbside and people can pick it up. Create clear rules - like materials can only be curbside from 7 am to 8 pm. It takes place once a month, perhaps the first weekend of every month. Etc. And you would be responsible for advertising it yourself. All items would need to be free.
- ♦ Address the residential dumping of garbage issue. Saanich staff have a waiting list to pick up illegally dumped garbage.
- ♦ Add helping prevent illegal dumping by make large household items disposal more accessible and convenient
- ♦ As for #13 - the garbage that is being left on boulevards is predominantly university students in our area and they quite frankly don't give a damn. Again, this is not about educating, it is about figuring out how to provide a solution for the students to get rid of furniture when they leave every April. Free dumping won't work, because the issue is that they don't have a vehicle to transport the stuff! Everyone knows that you aren't supposed to dump your furniture on the street corner or in Mt Doug etc., they don't need to be educated, they need a solution to their lack of transportation to take the

furniture to a drop off site. Therefore, more useful would be a free pickup day once or twice a year - and make one of those days to coincide with the end of university!

- ♦ Consider strategies to provide alternatives for large item pickup and recycling.
- ♦ Have a big garbage day like they do in Kingston where all the students put items on the street on a certain day and anyone can take them. If they aren't picked up by someone then it's a big garbage pickup but maybe that would stop people putting items on the corner year round.
- ♦ Have a day each year when everyone puts their unwanted goods at end of driveway. People can help themselves to free stuff! At the end of the day, the municipality picks up all the remaining items for disposal.
- ♦ I have seen many items dumped in my neighbourhood, meaning the city has to pay staff, likely out of my taxes, to pick them up and probably dump them. I therefore support the suggestion that municipalities provide free pick-up of these items.
- ♦ I love your ideas about dumping days for larger items. I would like to see there be a day for mattress pick-ups across the city.
- ♦ It would be valuable for citizens to have a place on property once yearly to display goods no longer useful to the homeowner for anyone to remove for use in their own home. ONE DAY ONLY, with perhaps a penalty for leaving it on the boulevard after that day.
- ♦ Make it illegal to dump trash (e.g. old furniture and other household goods) onto city streets and sidewalks, under the guise of "freecycling".
- ♦ Making people drive to Hartland to dispose of common household waste is stupid. Develop a plan to prevent old furniture and mattresses littering our sidewalks. Pike these up as garbage - like Ottawa does.
- ♦ Simultaneously, devise some low-cost method for residents in transition, to easily dispose of their old furnishings by using municipal pick up services at fixed, low rates. These items can then be rehabilitated by unemployed individuals and re-sold as refurbished items. Thank you.
- ♦ This strategy especially appeals to me: free pick up days (this would be great for couches etc. that students don't have the resources to deal with when they move out). You could time it to coincide with the end of the school term.
- ♦ We already pay for garbage and recycle service. heavier fines for dumping on roadside of garbage and furniture. signs with free are usually just garbage.

Balance tipping fees with making disposal affordable

- ♦ However, the CRD is hard and expensive to dispose of large things. There is so much more dumping of goods roadside because of this.
- ♦ Find a way to stop illegal dumping and remember high fees will encourage illegal dumping.
- ♦ Just don't make it harder to get rid of waste or more people will be dumping on street corners and on side roads off prospect lake road, etc. More drop-off facilities around city would help along with pick-up options... as long as cost is high then people will illegally dump. any way to spread the cost around better to prevent small businesses/contractors/home renovators from dumping their junk and paying a paltry fee instead?

Consider enforcement options

- ♦ I would like to see stricter regulations for leaving old furniture and other junk on the curb for 'free'.
- ♦ Levy serious fines on those who continue to litter public spaces.
- ♦ Yes. CCTV in known dumping areas prospect lake rd., humpback road etc.
- ♦ Dumping used furniture or appliances on the curbside should be banned and enforced.
- ♦ Getting the public to "observe, record & report" is basically asking them to "rat" on a neighbour. Most won't do it. Many simply just don't care. Some will fear possible repercussions (I have personally experienced this).
- ♦ Illegal dumping of waste simply comes down to time versus money. Most do it because they can't be bothered or don't want to pay to dispose of that old sofa. This is connected to bulky item disposal. I think many would happily properly dispose of that old sofa instead of dumping it at the side of the road but if you have no way of getting it to where it's supposed to go on the day it's supposed to get there what are you going to do...?

Provide more recycling options in public spaces

- ♦ One of the most ubiquitous, and subversive ways to accomplish the aims of #1.
- ♦ It would be great to see something here, like encouraging and installing more recycling and compost bins, in partnership with municipalities in park spaces. e.g. like the green cone food waste digester.
- ♦ More public garbage cans, more public recycling bins etc. will help to alleviate this problem.
- ♦ I would urge the CRD to take a look at Vancouver, and the greatly expanded number of containers for different recyclable items.
- ♦ Put out more diverse recycling choices on downtown streets. Even Toronto is better organized than Victoria in this regard.
- ♦ Make better garbage cans - organic sections versus garbage versus recycling Put these items at parks and places where families gather so tourists can help our city by recycling too.
- ♦ I still can't understand why Greater Victoria doesn't have separated garbage bins on the streets. Even the malls only started this in the last couple years with the organics ban from landfill, but how inconsistent that I have to separate my garbage inside a mall or coffee shop, but then can walk outside and dump all my waste into 1 bin. Will these principles only cover public bins? Why not work with business community to identify appropriate bins and enter into a bulk-buying agreement so there is consistency across the region. Imagine how much better people would use separated bins if the same ones were found throughout.
- ♦ All the garbage, recycling containers in public spaces should all have sections for garbage, paper, plastic.
- ♦ Although difficult to manage, I feel that #13 needs much attention. I've only seen in a few small locations around town (such as near Whole foods and a few other locations) where they actually have public recycling bins for non-refundable and organics. As much as I would love to just see people taking their items home for disposal as it could be easily recycled there, we are far from having this done by the majority of society; therefore, recycling/composting options are needed in public locations.
- ♦ All these initiatives are laudable, however when I look at the multiple recycling bins at most locations either public spaces, apartment complexes I observe that almost every bin contains incorrect materials; every bin is cross contaminated. Furthermore, there are so many categories of diverted waste that most casual discarders really don't know what to do. For example, with a takeaway hot beverage cup, is the cup itself paper recyclable or is it waste/ or is it compostable? is the wood stir stick compostable or waste? is the corrugated collar recyclable paper or is it compostable? and then there is the plastic lid? and what about the partially remaining contents, does that make a difference? And is it reasonable to expect consumers to spend a minute or so separating the drink cup into the various recycling bins? Do you think that a busy shopper who has stopped by a Starbucks or Tim Hortons for a quick hot drink really will get all the waste from that takeaway drink into the correct disposal and recycling bins?
- ♦ Encourage each Chamber of Commerce on SGI to sponsor or co-sponsor annual road-side waste clean-up and beach clean-up days.
- ♦ Encourage municipalities to offer recycling and compost options wherever there are public garbage cans.
- ♦ Ensure that each marina on SGI has a waste dumping station to reduce marine pollution (this is not solid waste but I'm adding it anyway).
- ♦ Ensure that every bus stop has a waste bin and add one bin at every street corner.
- ♦ I also would like to see if policy can support the reduction in cigarette butt littering through increased cigarette canisters/stricter regulations for butt disposal.
- ♦ I see an incredible amount of garbage at places like food courts, the ferry terminal, the airport, and events. How can we help those places to reduce the amount of garbage they produce in the form of food containers, cutlery, drink containers, etc.?
- ♦ Improve public waste bins. The majority of bins in Victoria are just "garbage", not even a separate slot for plastic bottles and cans. No one is going to carry their garbage around all day so that they can sort it appropriately when the opportunity present. They will either throw it in the garbage which goes to the landfill or they will toss it on the street. Replacing with modern bins that are available in every other major city in Canada with options for sorting your waste into appropriate streams would be a significant improvement.

- ♦ Mandate that all spaces, outdoors and indoors, used by the public must have easily accessible, easily seen multiple receptacles to separate unwanted items into the streams they belong in--compost, paper recycling, other recycling, return for deposit, true garbage (a smaller container than the others so people get the point that almost nothing should be garbage). And all washrooms that use paper towel must have a paper towel recycling bin and another bin for other stuff.
- ♦ Most times I can't even find a garbage to throw things away and then everyone is shocked at the amount of garbage in the streets.
- ♦ Proper recycling bins and labeling in retail and institutional facilities including public schools, universities, hospitals etc. would help. The recycling bins at UVic show in big print their Styrofoam and chip bags (of which there are a lot given the number of vending machines in the area) are landfill material. Not true. This misinformation means the student then also puts in the garbage the Styrofoam and plastic and metallic plastic they use at home.
- ♦ Recycling and compost receptacles should be prevalent at Centennial park and every ferry terminal. People want to recycle or compost but the only disposal available is a garbage can.
- ♦ Something needs to be done about the garbage cans around the downtown core, along Dallas Road and the Legislature. There are no recycling options and when there are, I've watched city workers combine both bins (recyclables and waste) together in one bin, because they are so badly tainted. These are high traffic areas with visitors. A pilot project to better manage and educate even tourist is needed in these places.
- ♦ Standardize garbage and recycling container sizes and designs for public spaces and include pictures to help with sorting. there should always be at least one multi disposal station in each park and at each bus stop and car park.
- ♦ Even though smoking is not allowed in the parks, people still smoke and leave their cigarette butts everywhere. More of those butt recycling containers anywhere there is a bench might help or have more bylaw officers issuing tickets for littering!
- ♦ Start a refund offer for cigarette butts, though they are small they wind up washing into the ocean if they aren't properly disposed of
- ♦ TerraCycle in Vancouver will let you download a shipping label for free to send them cigarette butts. Although they are not big in the sense of volume added to the landfill. They are a graphic example of our wasteful, disposable society and are toxic, as a lot of stuff in the landfill: 'how well does the liner prevent leaching of toxins?' is a very good question.

#14 Optimize landfill gas management

General support for utilizing landfill gas

- ♦ Yes, minding the budget. Potential to save money if diligently managed
- ♦ Please do all you can to capture the landfill gas emissions and use, or at least burn them.
- ♦ With regard to 'Landfill Gas Management' In order to optimize both physical (volume) and economic returns the (physical) objective must be to increase the use of steam and/or pressure... whereby the steam is self-generated (from sterilizer plant operations related to collection/treatment of WWTP sludge) with steam used to; accelerate/maximize output from an anaerobic digester operation; or, to reform the raw gas to produce carbon-controlled hydrogen/electricity; or, to 'frac' ligno-cellulosic bonds under pressure in order to accelerate/maximize gas migration (the collection/migration process can also be enhanced by adding the weight of a small pumped hydro plant atop the landfill... as per the log-proposed SEATERRA HYDROLIFTER see related JOR-vic bulk energy and carbon reclaim technologies which themselves would significantly increase the economic return from gas management by instead using it to baseload the bulk storage plants and thereby greatly increase market value of system outputs).
- ♦ Landfill gas - understanding the impacts of BC Hydro not guaranteeing renewal of energy purchase contracts I understand the desire to create a hydrocarbon to use within existing Fortis infrastructure. My concern is multiple: Based on 2013 IPCC AR5 and 2018 SR(1.5) it clear states in the carbon budget allowances that we only have 8.5 years to be off burning hydrocarbons of any type (RNG and LNG). Any investment in an RNG plant may look good at this moment but out past the near future it quickly becomes a stranded asset. Just seeing Berkley ban gas connections to new residential buildings to address this issue (50 other cities following suit) - the writing is on the wall. BC Hydro will buy electricity back at a lower price, they will also help find third party purchasers if requested. Captured methane is being converted by chemistry to a

solid nitrogen fertilizer thus taking it out of the gas stream and providing some opportunity to grow biomass... perhaps CRD can expand its vision on this topic.

- ♦ Since landfill gas is collected by other jurisdictions routinely, it seems strange that the CRD has a goal to study this proposal.
- ♦ I also think the generation and use of methane is important.
- ♦ Reduce/divert waste methane materials from landfill

#15 Enhance Hartland disposal capacity

Reduce waste instead of expanding landfill

- ♦ Extending the landfill should not be as much of a priority - put more pressure on reducing per capita waste production
- ♦ Expansion may not be the ideal situation, however, may be necessary with expanding population within the CRD. Education and partnerships with local producers and retailers are ultimately important. A well rounded development of solutions is needed with action to be taken at various levels. Recreation will take a hit on expansion; however, this may be the ideal situation to investigate and plan ahead for the population spending more time outdoors.
- ♦ I strongly supported everything but the last one. Perhaps I am misunderstanding but it seems contrary to everything else stated. The first 14 seemed like they would be cutting down on waste/garbage and then the last one is increasing the ability to handle garbage? Slightly confused. Yes, I believe Hartland could last forever, if we minimize what is going to landfill!
- ♦ What Material will Hartland receive when all recyclable material is diverted elsewhere? What would be the purpose of it if all material can be recycled elsewhere? Could it then be closed?
- ♦ If we achieve reduction of waste increasing capacity may be unnecessary
- ♦ Instead of expansion, better means would be to share in the responsibility of waste management over a couple of the municipalities so others can experience, be aware and deal with waste management.
- ♦ The region also must expand the landfill capacity, as establishing a second site will prove to be impossible.
- ♦ Let's be leaders for a change instead of followers. There are so many ways to reuse what is currently in our landfills. Use the existing plastic to create products that are meant to be outside...fences, decks, roofs, siding, etc. And give companies who make these products subsidies so that the product is affordable for the public. Governments will end up saving money in the long run because there will be nothing in the landfills. We will be looking for plastics to be used instead of drowning in the waste we are creating right now.
- ♦ Reduce the intake as much as possible - Reduce at the source. Soft plastic processing on the island instead of exporting? Needs to be regulated for recyclability (companies creating them).
- ♦ Reshape the goal of "extending the life of the Hartland landfill" where we should be working to phase it out. This can be accomplished through waste reduction at the source with public policies that limit the amount of packaging on products.
- ♦ I think the expansion of the Hartland facility is a poor solution to the problem of waste management. I was disappointed by the decision to bring wastewater to this area and feel it was not a cost effective remedy to the problem. It seemed to me that the CRD took the path of least resistance at huge cost to taxpayers. I urge the CRD to look for a more suitable option to the huge expense and disruption of blasting and removing tons of rock and the impact it will have on the environment of a beautiful Provincial Park. Surely the current thinking is that we should preserve such spaces for future generations.
- ♦ Find ways to reduce dumping rather than enlarging capacity.
- ♦ Seriously expansion for the purpose of reduction, seriously my math says you don't need to expand when you plan to reduce.... Focus your efforts on reduction and making it the greater community's responsibility to deal with the waste problem, let every community have a bit in their back yard perhaps the heightened awareness in their community would sharpen their community spirit to eliminate and reduce...
- ♦ SERIOUSLY, did you say that strategy out load to yourself??? Because it took me 5 seconds to be insulted by it... Expansion for reduction is ridiculous + ZERO DUMPING, I invite you to steal that strategy from me. And put every minute of your working day, every penny of my tax dollars and fees paid into dumping to this strategy. REALLY ZERO DUMPING....think about it intelligently. by not expanding at Hartland, requiring other communities to support the issue

more can be done to achieve the reduction goals you are hoping to achieve. Hiding it and placing the weight of the decision on one community, THE ENVIRONMENT AND SURROUNDING COMMUNITY THAT LIVES THERE is irresponsible, unacceptable, disrespectful and the easy way out. Time to make it the responsibly of the greater community that needs the use of a dump rather than just the one for the many.

- ♦ Why are you expanding if your targets are to reduce.
- ♦ You also need a strategy for removing waste from the landfill or reducing its volume. At some point in the future the growth of the landfill should be reduced to zero or reversed. Plasma waste reduction should be actively considered.
- ♦ The key to strategy #15 is HOW CRD plans to achieve that enhancement. It should not be at the expense of the environment, the neighbourhood, or the surrounding communities. Strategies 1-14 sound fine.
- ♦ Water safety and environmental impact concerns.
- ♦ Hartland has a finite life of 2100 but hopefully longer; therefore, every effort must be made to reduce the rate at which it is filling up.
- ♦ I encourage all areas of enhancement with regards to reducing the amount of material entering Hartland, there should be an inspection area for all materials entering the site. (This is done in many other regions - Australia, Japan and USA for example). New technologies and other regions, both locally within BC as well as worldwide also have this problem as well (let's not rebuild the wheel rather use existing practices).
- ♦ Why just extend Hartland life to 2100? What happens after 2100? Why not modernize to make Hartland the place to dump stuff in perpetuity?
- ♦ Looking forward to hearing more about where the solid waste is being used and when the gravel hauling starts. Surprising the all the gravel could not be used on the site to prepare more of the site for the future.
- ♦ When the landfill started, the area was more rural, but today the landfill is surrounded by many communities and it is now used for recreation. I suggest a better idea is to find another landfill now, while there is still land closely available, (by 2100 there won't be any land left) and begin transitioning now to the new location and stop the Hartland expansion and preserve this important nature area for recreational use. Please, take a more proactive approach and preserve this special ecosystem for the people of Victoria.
- ♦ In addition to reducing waste to be managed also need more innovative and effective management practices.
- ♦ Immediate Build-out of a high quality (sterilized/decontaminated) soils-from-wastes for forestry industry
- ♦ I am opposed to the plan of investing into the long-term operation of Hartland Landfill.
- ♦ I would like to see a long term objective for recovering space/volume in the landfill. Plasma waste reduction should be actively considered.

Do not expand the landfill

- ♦ I do not support the extension of the Hartland dump. I believe other options including innovative technologies should be explored before expanding the dump further
- ♦ I opposed expanding or enhancing the Hartland Landfill facility. It is too far from the major population in the Greater Victoria area to be effective.
- ♦ I remember when Heal Lake, a lovely small Highlands lake, was sacrificed for expansion of the landfill. No more natural areas should be abused for landfill. I worry about leaching and really hope you are on doing all that is possible to stay on top of that.
- ♦ I strongly disagree with extending the life of Hartland Landfill to 2100. I noticed that you squeezed that goal in with other goals that I would agree with. A big NO to your very destructive half-baked nonplan to extend the life of Hartland Landfill when it was to be retired in 2045!!
- ♦ I am vehemently opposed to you "enhancing" the Hartland Landfill disposal capacity through the means of blasting and removing aggregate. The dump's life should end in 2045 as previously planned. It is in an area of beautiful, natural habitat and many uses it for recreation. There seems to be no data from the CRD and no concern as to how the proposed
- ♦ Object completely to the expansion of the LANDFILL off of HARTLAND and to the creation of a new aggregate plant
- ♦ Disagree with "Maximize local solid waste disposal capacity" in that I do not want capacity expansion in the direction of park. Leave existing undeveloped land within property that is bordering in park as is (ideally transition it to be included in MW park).

- ♦ I think this needs to be better thought through as far as expanding capacity.
- ♦ More expansion options should be made available to the public
- ♦ extension will affect the lakes, Saanich Inlet, and Willis Point. NO NO NO to your ridiculous unresearched plan.
- ♦ This is a backward step. Instead of increasing the size of the dump, investigate other alternatives.
- ♦ Do not increase capacity at Hartland. We will simply fill it to whatever capacity exists.
- ♦ Also, is this the CRD's only waste management option? Should there not be alternative options for residents to consider?

Provide an alternative landfill site

- ♦ Why is it "impossible" to find a new landfill site? Hartland is no longer in the boonies, it's a desirable area, you have to move it further away. Perhaps closer to the largest growing communities out by Colwood etc.
- ♦ Close the landfill and transition to a new site now. Preserve the remaining sensitive ecosystem for the enjoyment, recreation and health of the community.
- ♦ Consider the housing density of the area before adding disposal pits.
- ♦ I am a little concerned with the landfill being used for another 80 years. At some point it must be full, and we will need an alternative site. Perhaps we could start looking to move some elements to other locations and transitioning to another site?
- ♦ I think it is unacceptable that Hartland landfill expansion is being offered as the only waste management option. If residents were given only one option for the Sewage Treatment plan there would be community uproar. The CRD should be obligated to provide multiple case scenarios. One option isn't really an option at all. Shame on you.
- ♦ I visited the Hartland landfill recently. There was tons of plastic in the garbage. During the tour it was mentioned that there is not enough budget to sort through the garbage to ensure that all recycling is actually recycled. To me this is crazy because it will force the landfill to close sooner and its dumping the problem on future generations.
- ♦ My only concern with the plan goals is that #3, "to extend the life of Hartland Landfill to the year 2100 plus," places a very specific focus on Hartland Landfill, rather than the more broad "to extend the CRD regional landfill capacity to 2100 plus."
- ♦ Regarding the landfill expansion, I believe it is only ethical that the CRD provide at least one other option for their waste management plan. Why is the CRD looking to expand already crumbling infrastructure rather than investing for the future? Why not build a new landfill in a different location where there is a higher demand for waste disposal rather than transporting? The distance alone doesn't seem very eco-friendly.(i.e. the Westshore which is exploding and pressuring the infrastructure/systems).
- ♦ Some of the goals may come with too high a cost, for example getting the site to 2100 may require a lot of sacrifices to be made by local residents and maybe there should be a plan B or C that includes eventual relocation to a more remote area from the population expansion of the CRD
- ♦ I would hope that the CRD is looking at a 'used quarry' or similar space for future landfill when Hartland is full.
- ♦ The CRD should provide at least two other options for increased landfill capacity (e.g. a whole new landfill somewhere else). Langford is developing fast...CRD should think of having a Landfill there instead.
- ♦ The CRD should provide at least one other option for increased landfill capacity (e.g. a whole new landfill somewhere else).
- ♦ You must plan past 2100. Better start acquiring land for the next landfill to us after 2100, when Hartland really is full
- ♦ support the goals but not the location at Hartland Landfill.
- ♦ Only concern about location

Consider impacts on recreational users (especially mountain bikers)

- ♦ There are so few mountain bike trails in the greater Victoria area, but a ton of hiking trails. Plus, hikers are allowed on the mtn bike trails. If we are to lose some of the trails in the Hartland area, it would be really nice to have access to other areas that could become part of the Hartland trail system. Thank you.
- ♦ Although I support the plan moving forward, how will the CRD mitigate the effect on park users adjacent to the landfill? Specifically, the removal of some mountain bike trails. Will the CRD in fact support the construction of new trails, or take the approach of merely sanctioning the already existing unsanctioned trails? The approach of sanctioning leaves the

mountain bike community at a definitive loss since the actual number of trails will not be increasing, while the popularity and utilization of the park for these activities is only on the rise.

- ♦ Concerned about the loss if mtb trails.
- ♦ I agree that the dump needs to be expanded, but as an avid mountain biker, I don't think it should be at the cost of the trails, and if so, we need a solution to compensate for the lost mountain biking regions.
- ♦ I do not want to see the mountain bike trails at Hartland taken over by the landfill.
- ♦ I love the bike trails
- ♦ Anything you can do to enhance the MTB community around the Hartland Landfill will go a long way. Hartland MTB area is the central hub for Victoria and area. It's success and use represent something that is working and very positive. Thanks - keep MTB areas and expand please
- ♦ I strongly disagree with Hartland landfill expanding into the recreational area of the biking trails. I understand the purpose of the landfill but let's make sure that any trail that is lost is replaced and there continues to be a strong focus on recreation in the CRD.
- ♦ Thank you for working with the mountain biking community to build trails to replace the ones that will be closed to accommodate the larger landfill area.
- ♦ Here are just a few different interest groups that I will be actively getting in touch with to bring to their attention what is being planned with their recreational area: mountain bikers, Olympic cyclists who train on Willis Point Road, birders, hikers, swimmers, native plant groups, environmentalist, dog walkers, trout fisherman, native groups in the area, neighbour schools and families who want safe roads, parks and lakes for their families. In this day and age of reducing waste talking about expanding, and in one area is insulting, disrespectful, and shameful for anyone involved, and government for condoning it. It's time to be accountable, not just when you are at home but CRD, and all levels of PEOPLE who hide behind the words government employee to do what's right and equitable.
- ♦ Expanding the landfill and taking away mountain biking trails is not an option! Regional Trail, Trillium, Who's Your Daddy Trail and Nightshift are super popular. Regional Trail is a major artery for accessing other trails. It's outrageous that we're thinking of taking away precious recreation opportunities for landfill space.
- ♦ In my household of two adults, we generate one 80 L garbage can about every four months. We recycle. We compost. We buy very little processed food in packages. We are also mountain bikers. We ride at Hartland and Harbourview. We do not want to see the loss of trails at Hartland. This is an exceptional place to ride. If the SWMP ends up consuming trails, some expansion of Harbourview would at least benefit the many citizens who use the parks. Harbourview is already lacking trails to ride up (as opposed to riding the road). I think all the trails are "down only". This doesn't mean pushing new trails deeper into the wildlife area. It means connecting the existing trails with ways to ride to higher elevations from the parking area. It would be good for Sooke business, as it would bring more riders from Victoria. It would be good for the riders, as it would provide diversity and opportunity to explore nature further west. The growing population in Langford and Sooke might ride/walk/hike more at Harbourview as opposed to driving to Hartland (Good for people to be active in nature, better for traffic and better for the climate).
- ♦ I think that the Hartland landfill is doing an awesome job as a community steward. When I take new friends riding at the dump, they balk at what that might mean. I then explain all the innovative reclamation and diversion programs in place, as well as encouraging them to come to your Dump Days, to actually see the great work being done. With that said, I understand that one day you're going to need to expand into the mtn biking area, and that's not the CRDs fault, it's all of our fault (for producing garbage). It sure would be great if CRD could allocate some more space for new trail when that does eventually happen.
- ♦ No mountain bike trails = no support. While the goals are favourable, the methods used to reach these goals are questionable.
- ♦ Please build new trails at Hartland to compensate for the future loss of Who's Your Daddy and Nightshift! Thank-you
- ♦ With regard to "Enhance Hartland Landfill disposal capacity". I agree that landfill expansion is inevitable. The SIMBS mountain bike park within Mt. Work and including peripheral areas around Hartland are a major concern for me as a recreational mountain biker. I would like to see the CRD work with SIMBS to allocate additional areas for mountain biking in the event areas are lost to Hartland expansion.

- ♦ I am a Hartland Mountain Bike Park user and feel very strongly that I don't want to see a loss of park land to a growing 'dump. That being said if there was an offset where other land became legal to use for mountain biking in place of lost park land then I would be fine with it! Thanks for listening to my concern.
- ♦ Please leave the Hartland trail network as a last resort for the facility. These trails are vital for the region's growing Mountain bike population. Many thanks!
- ♦ I am very concerned about expansion of landfill with resultant loss of very important recreation infrastructure = mountain bike trails at Hartland. Mountain biking is a clean, low impact, accessible recreation activity that is growing in popularity. Trails are becoming more crowded. Increasing urbanization is limiting access in relatively accessible areas. Any loss of trails due to landfill expansion should be offset by adding additional access in Mount work park for mountain bike trails, and increased access to other park land for mountain biking in the Region (for example above Durance Lake. thank you
- ♦ I'd also like to support consideration to the loss of outdoor recreation through the landfill expansion in regard to loss of mtn bike trails. the landfill will need to expand but should encourage more trail development so outdoor users are not losing valued riding space.
- ♦ Hi. I have no problem supporting the initiatives to improve the landfill but am a bit disheartened to learn that parts of the Hartland mountain bike park may be affected, including the loss of two extremely popular mountain bike trails. I would hope that, as part of this plan to expand the landfill that appropriate measures (funding to design and additional land to build replacement trails) could be extended to the South Island Mountain Bike Society to replace those two trails.
- ♦ For #15 I strongly support but want to qualify that with not at the expense of recreational opportunities just next door. In creating more space for the land fill there should be consultation as to how that can happen without removing trails that are highly used. In particular two trails that boarder the landfill is two of the highest used and best bad weather trails in the park. They take a significant amount of traffic in the worst weather and do not show much wear for it. We will need these replaced with similarly built trails if they are lost.
- ♦ For Strategy #15 - I support expanding Hartland Landfill's disposal capacity, however, there needs to be new mountain bike trail access in Mount Work Park and other areas in the CRD to offset the impacts to the mountain bike community of losing mountain trails at Hartland due to the landfill expansion.
- ♦ Enhance and maintain mountain bike and hiking trails at Mt Work and area should be priority over increase of waste land use. Alternative areas for waste disposal should be explored as having one facility for such a large area that requires so much driving and road use to get to should be discouraged and alternative areas towards the west shore should explored as most growth is in that area
- ♦ Ensure space for public use around Hartland landfill is maintained or expanded as landfill land use increases.
- ♦ Don't wreck the mountain bike trails at the Hartland Bike Park by expanding the landfill through them.
- ♦ Don't want the plan to destroy bike trails at Hartland
- ♦ Although I support many of the proposed waste management strategies, I would hope that they could be implemented without negatively effecting the local mountain biking trails. The CRD could (should) consider working with SIMBS to help develop new trail systems on Mt. Work to replace those that will be lost with landfill expansion. Limiting mountain bike trail access results in people either riding/building trails in unsanctioned ways or results in them driving further resulting in increased traffic, air pollution, and traffic accident potential. Mountain biking is a healthy leisure activity that should be encouraged and grown in a sustainable way by having both the CRD and SIMBS working together as the landfill expands in the future.
- ♦ Avoid encroachment on bike trails
- ♦ Continue to expand mountain biking and hiking trails as the landfill expands
- ♦ Any changes which impact the existing mountain bike trails would significantly impact the availability of recreational mountain biking in the area. Any solutions which do not impact on existing trails should be looked at as a priority. Removing mountain bike tracks is contrary to all the CRD efforts , who are trying to expand the mountain biking areas in the district. I fully support the efforts to divert as much garbage as possible, but we cannot just destroy recreational areas because we are not doing a good enough job at that reduction effort.
- ♦ Harmony with adjacent CRD crown lands and access points for multi-use trails, fire management with water reservoirs. Allow mtn bike society use in CRD with machine made trails
- ♦ Ensure new trails are built to make up for mountain bike trails lost to expansion

- ♦ Greater Victoria has an exceptional park that is used by cyclist, and in the development of the increased capacity plan, it is important that the mountain bike community needs new trail access in Mount Work Park and throughout the CRD to offset the impacts of the SWMP
- ♦ I support all strategies, if Hartland disposal capacity must be expanded, and consequently decommissioning some of the existing mtn bike trails, I would propose that the trail network be expanded into mount work and partridge hills to avoid overuse / habitat erosion of current network. outdoor recreation is so important to the well-being of our community!
- ♦ The mountain bike community needs new trail access in Mount Work Park and throughout the CRD to offset the impacts of the SWMP.
- ♦ Although I support the strategy, I believe that any expansion of Hartland Disposal capacity must avoid destruction of existing trails already established within the Hartland area.
- ♦ I also support continued development of mtn bike trails in the CRD.
- ♦ As an avid mountain-biker I also would like to see new trails built in the Hartland bike park to compensate for the loss of two (maybe more) of our favourite trails due to the future expansion of the landfill. Of course, I understand the need to expand the landfill. Hartland is one of the best places in all of BC to ride bikes and is one of my favourite places in the world. Please consider enhancing this wonderful playground too :)
- ♦ If an area of Hartland mtn bike trails are to be affected by dump expansion, CRD needs to provide alternate areas to build trails on that are adjacent to existing trail network. Existing mtn bike trails are overused and overcapacity and an important resource for residents, and businesses.
- ♦ If landfill expands towards Hartland mountain bike park and this results in a loss of established mountain bike trails, please open up other areas in Mt Work to allow for comparable replacements.
- ♦ if reducing trails for this, pls open up more of mount work for multi-use trails including mtn biking
- ♦ if trails are lost in one spot, it would be great to gain more in other spots. A net increase in trails would be great
- ♦ I want to see new areas opened up to mountain bike within mount work park and elsewhere to offset the loss of some of the most popular trails at Hartland. I support waste reduction/diversion over landfill expansion.
- ♦ I was linked into this form via the South Island mountain biking community and their concerns towards restrictions towards the use of the mountain biking trails adjacent to Hartland landfill. Though I am an avid user of this area I do see the perpetual growth in southern Vancouver Island and understand that this puts increasing pressure on waste management departments in the region. I've taken tours of the Hartland facilities in the past and trust that those who are managing the area are doing their best to divert as much waste from entering into the landfill as possible. Though it makes me sad to potentially lose space for recreational purposes I understand that it is part of a bigger picture and would like to thank those who operate and manage the landfill for implementing a waste diversion program that is accessible to anyone who chooses to use it.
- ♦ I think that mountain biking is extremely beneficial to the community and has been an institution and tradition in British Columbia for many decades. Any plan to encroach upon existing trails would be a grave mistake. We cannot expect to contribute to healthy people, healthy communities, and successful international athletes if we do not provide space for these expectations to come to fruition. Really, where do you think Olympians come from? They come from our own backyards! I'm highly disappointed that the CRD is considering wiping out mountain bike trails when all other options should be considered instead.
- ♦ I do not support expanding Hartland landfill space, we need to keep the green space intact, I don't see eating up more land that borders so close to Mt work as moving forward with zero waste.
- ♦ I hope the Hartland/Mt Work trail system is considered when planning to expand landfill capacity. I understand popular trails located along the landfill boundary are going to be impacted. One solution would be to allow the expansion of the bike park higher up the mountain.
- ♦ with the proposed movement toward solid waste management, the residents and locals that ride (mtn bikes) will lose their trails - this impact should be seriously considered.
- ♦ Please continue your work with the mountain biking community to develop a policy and plan to replace the trails that will be lost due to the needed landfill expansion. Thank you for this opportunity to provide feedback.
- ♦ I strongly oppose taking away recreational trails for an expanding landfill. Hartland 2100 will have major impacts on the Hartland Mountain Bike Park. CRD needs to remain committed to offsetting these impacts with new and expanded

access area for mountain bikes within Mount Work Regional Park as well as more natural surfaced multi use trails throughout the CRD.

- ♦ Mount work and it's trail network is very important to me. I would like to see other options for capacity growth, rather than just the one proposed.
- ♦ Thank you CRD for approving the mountain bike strategy! Please enhance our ability to build new trails given that some of the best ones are going to be lost when Hartland expands. CRD please find other places for us to ride before decommissioning these trails! Thanks
- ♦ Please provide access to new areas within Mount Work Park and throughout the region to offset the impacts of the SWMP
- ♦ Re strategy#15 The mountain bike community needs new trail access in Mount Work Park and throughout the CRD to offset the impacts of the SWMP.
- ♦ Re: #15 The mountain bike community needs new trail access in Mount Work Park and throughout the CRD to offset the impacts of the SWMP.
- ♦ In order to offset the impacts of the landfill expansion, the community needs access to more multi-use bike trails within Mount Work Park and elsewhere in the CRD.
- ♦ please ensure that any loss of mtn bike trails due to facility expansion is compensated and an equal amount of new trail development is funded if losses occur
- ♦ Please consider opening more CRD park area to mountain bike users and bringing trail maintenance and trail signage up to date and on par with Cumberland Forest bike park, for example.
- ♦ With regard to Strategy #15, The mountain bike community needs new trail access in Mount Work Park and throughout the CRD to offset the impacts of the SWMP. As a resident of the Highlands, a neighbour to Mount Work Park, and a member of the mountain biking community, I strongly believe there needs to be new trail access through this area to support the growing mountain biking community and to ensure the construction and maintenance of sustainable trails in this area. The current space allocated for mountain biking in at Hartland is already too small for this growing community so to shrink it further would ignore the needs of this group of trail users. Further, the mountain bike community is strongly engaged in advocacy for sustainable trail construction and in promoting outdoor physical activity for all ages. Models of successful cooperation between trail user groups has been demonstrated in other parks on Vancouver Island (Cumberland, Cobble Hill) and these frameworks could provide guidance for implementing a similar approach in the CRD.
- ♦ With respect to item #15: Although I support the plan moving forward, how will the CRD mitigate the effect on park users adjacent to the landfill? Specifically, the removal of some mountain bike trails. Will the CRD in fact support the construction of new trails, or take the approach of merely sanctioning the already existing unsanctioned trails? The approach of sanctioning leaves the mountain bike community at a definitive loss since the actual number of trails will not be increasing, while the popularity and utilization of the park for these activities is only on the rise. This large influx of park users is creating an economic benefit for local business of all types.
- ♦ Re. Strategy #15 The mountain bike community needs new trail access in Mount Work Park and throughout the CRD to offset the impacts of the SWMP. I along with hundreds of others are regular users of Mt Work park. The mountain biking trails within the park have had many hours of sweat equity from myself and others to build and maintain a safe trail system for mountain bikers. Reducing mountain biking trail access would have many negative effects including more use of ungoverned and illegal trail systems, higher risk on the trails due to increased users per trail, and an economic impact of less mountain biking events being hosted at Mt Work park. Please consider this important stakeholder group when looking at expansion of the active landfill area.
- ♦ Please try to minimize the removal of mountain bike trails. Who's your daddy/night shift trail is the only one of its kind in the Hartland Mountain Bike Park. There are no other downhill primary trails that are over a kilometer in length and no other downhill primary trails period that are accessible directly from the regional trail.
- ♦ pls continue to allow us to bike on mount work and increase our trail system
- ♦ What are the consequences of enhancing Hartland? If expansion is required that affects the surrounding areas use will there be actions taken to balance the effects? Mt Work is used for many recreational activities. With the growing population allowing further use of the park would be beneficial to Victoria. But as a resident in the Highlands there is minimal parking, which already overflow onto our streets. Expansion of parking near the landfill would help. Plus, new

trails to the top to allow hiking, not just biking from that area. And if the expanded landfill removes biking trails, compensation for those lost trails should be made.

- ♦ On behalf of South Island Mountain Bike Society, Thank you to CRD staff for the inclusive consultation process. The open house at the Hartland Learning Centre was greatly appreciated by the trail user community. SIMBS strongly opposes strategy #15 because it will result in the loss of recreation trails. These trails are a valuable asset to the broader community and Hartland 2100 will have major impacts on the Hartland Mountain Bike Park. Some of trails being lost are among the most popular in the park. We are hopeful and optimistic that CRD will remain committed to offsetting these impacts with bike access to new area within Mount Work Regional Park and elsewhere in the CRD. We look forward to working together as the SWMP moves forward.
- ♦ The mountain bike community needs new trail access in Mount Work Park and throughout the CRD to offset the impacts of the SWMP. As resident neighbor of the park (Fork Lake entrance) we are seeing issues with respect to a small footprint for sanctioned trail use and further use of unsanctioned area. The region needs a multi-use trail Management plan.
- ♦ The mountain bike community needs new trail access in Mount Work Park and throughout the CRD to offset the impacts of the SWMP.
- ♦ I do not support strategy 15 to expand the landfill. The impact on the greenspace surrounding the site should be protected. There must be alternative industrial sites in the CRD which would be more appropriate and provide a longer waste management lifespan. Also, not sure why access to the landfill is being proposed. This change would impact a lot more people than the current access does as there are very few residents living on Hartland Ave. Many people commute and utilize Willis Point rd. for recreation access.
- ♦ The mountain bike community needs new trail development and access in Mount Work Park and throughout the CRD to offset the impacts of the SWMP, particularly on Night Shift and Whose yer Daddy. This will facilitate healthy and connected communities, recreational opportunities for people of all ages, tourism development, and engagement with nature.
- ♦ I strongly oppose expanding Hartland's boundary at the expense of mountain bike park/trail/greenspace. Hmm... a landfill, or recreational greenspace?! Hartland is the CRD's/Victoria's mountain bike area and is already too small for the number of users.
- ♦ strongly support the development of more recreational areas most importantly mountain bike trails. I have ridden here at Hartland since 1990 and there needs to be a larger area developed.
- ♦ You should not be trading landfill capacity at the expense of greenspace, in particular the mountain bike trails at Hartland. Victoria has too few mountain bikes trails as it is. Choosing a garbage dump over forested trails is ridiculous and should be stopped immediately. If this is deemed not possible, then a land swap or mountain bike park addition (example, into mount work or the partridge hills) should happen. Any trees cut down from this, logging proceeds should go directly to SIMBS society to rebuild lost trails elsewhere. I support the vision and plan overall but definitely not this expansion into green spaces.
- ♦ As a weekly user of Mt Work/Hartland Bike park I would encourage any conversation to consider how we can protect the natural resources surrounding the landfill area. For all citizens, whether they are biking, trail running, walking their dogs etc. By diverting our personal waste and especially the waste from commercial and industrial contributions we can work together to limit the damage/loss of natural terrain in Saanich.
- ♦ I strongly oppose development of landfill expansion that affects the mtn bike trails. This improves health and well-being of residents and use of environmentally friendly transportation - biking. Please expand into another area that doesn't affect trails.
- ♦ I strongly support waste reduction management and responsibility. But to expand the Hartland landfill I would like to see mount work open to trail building and mtn bike use to make up for loss of trails to dump expansion or possibly open partridge hill as a mountain bike area.
- ♦ I really just wanted to comment on the loss of mtn bike trails at Hartland. I like all the plans to encourage the minimization of our impact on our environment.
- ♦ Maintain existing and expand recreation on Hartland site (hiking and mountain biking)
- ♦ As well the current expansion of the dump and the access from Durance/Willis point rd. is going to strongly impact the people that currently use that area to hill train for running or cycling.

- ♦ Decrease need to expand into natural areas including the areas used by heartland mountain bikers, hikers and horseback riders
- ♦ Disagree with "Enhance Hartland Landfill disposal capacity" in that I do not want capacity expansion in the direction of MW park. Instead convert the existing undeveloped Hartland Landfill land that borders MW park into park land and, if needed, purchase land to the north and/or east and expand in that direction.
- ♦ Expand available access to suitable terrain for mountain bikers as part of the long term use plan for Hartland landfill.
- ♦ Hartland landfill is surrounded by a sensitive ecosystem, including municipal, provincial and federal green space. There are many people who utilize the area recreationally. It would be a shame and possibly disastrous to expand the landfill site immediately following the large scale biosolids infrastructure. We don't yet have any idea of how this project will affect the surrounding area.
- ♦ It would be great to be able to reduce further. The population of Victoria has been and will continue to increase yet park space isn't expanding to the same extent as many other communities on Vancouver island. Many people choose to live in or near the CRD to be able to enjoy all the natural space (parks) yet development continues to expand and increase population and increase waste. would be great to see more expansion of park land. thanks for continued education to assist people in making better choices to produce less waste and reuse more!
- ♦ Not mentioned is the impact on local area to Hartland and other users of the area.
- ♦ Save who's your daddy!!!
- ♦ The Harland landfill was never intended to grow to the extent it has now. The original plan was to close it decades ago, but instead the continued expansion has spilled into and affected the quality of hiking, biking, swimming and other recreational activities. This natural forested area is extremely important for promoting the health and well-being of our community. People living in Greater Victoria visit this area by the thousands. I wonder if anyone has counted the actual number of people visiting the area each year? People come to the Hartland area to enjoy untouched nature, take forest walks, hike Mount Work, swim in Durrance or Prospect Lakes, and bike through the forested paths.

Concerns from Willis Point Residents

- ♦ Environmental issues not mentioned
- ♦ Increasing the size of Hartland landfill will have a negative impact on wildlife habitat and environmental lands and waterways. Risks to local lakes and streams from pollutants from the landfill site will increase. This area has become more populated and there are a great many more families that live in this area who will be affected by any expansion of this landfill site. The area is not the rural wilderness it once was and the lands and waterways around the landfill are occupied and/or enjoyed by many people from many locations, including tourists from around the world.
- ♦ ECOLOGICALI am deeply concerned about the effect of so much blasting in quarry on our water. You MUST do a study and publish results on what the potential problems could be and have a plan in place to rectify the problem before you begin blasting. If your undisclosed well monitoring shows a problem, when will we find out about that? We want more transparency from CRD, more truth. Not empty promises. You really don't have a very good record of living up to what you say.
- ♦ There isn't anything about investigating old landfills that could be polluting the environment or drinking water.
- ♦ Do not reroute trucks and vehicles using Willis Point road
- ♦ I do not agree with any plan to put more traffic or the tentative plan to put the dump road on Willis point road.
- ♦ I do not support the loss of green area for the new landfill, nor do I support moving the entrance for access to the landfill to Willis Point Rd.
- ♦ Willis Pt Rd as access road into the dump is very poor choice!
- ♦ With all the traffic this plan will add to Willis Pt road, there must be an additional lane installed asap
- ♦ With all the traffic this plan will add to Willis Pt road, there must be an additional lane installed asap
- ♦ Consideration should be made to upgrade the existing Hartland Ave access to meet provincial guidelines. NOT use Willis Point road.
- ♦ An independent traffic study MUST be done on Willis Point rd., Wallace Dr and West Saanich rd. where trucks are proposed to be routed, and a comparable one on Hartland Ave in order to determine societal impact. This should also include historical incident reports for all roadways to ensure public safety. From our record there are approx. 30+ residents

on Hartland road vs WP more than 150 who commute. Also, those residents on Hartland knew that the trucks go to/from the landfill and chose to live there whereas Willis pointers chose to live in their community because of what it stands for (quiet and around nature with no businesses operating, etc.).

- ♦ I have already responded to the questionnaire but could not answer the first question as it did not list Willis Point as a choice. I looked for other areas that I could respond with a note but there were none. As a long-time Willis Point resident, I feel not heard many times over even though I have attended almost all public information sessions since I have lived here. After the meeting held at my community hall, I thought that there would be a place for me to respond about the suggestion that the commercial entrance to the Hartland Landfill be moved to Willis Point Rd. I am strongly opposed to having that happen. I believe that the planners are not aware of neither the variety of users nor the density of traffic on that section of road. A full traffic study would have to be done with consideration year round weather impact, types of users and volume of traffic. With weather, there have been many times that the road has been closed or impassible due to icing up. The road is being used by both recreational, residential and non-commuters, cyclists (both recreational and commuters), commercial deliveries, commercial builders, school bus, walkers, runners, etc. The other morning, for example, at the corner of Wallace Dr. and Willis Point Rd, there were ten vehicles, some turning left and some right, a cyclist on Wallace coming straight through and a dump truck turning left from Wallace onto Willis Point Rd. When you get to West Saanich, there is a hill that makes it a challenge to turn left off of Wallace, the end of the Interurban Rail Trail, left turn onto Wallace from West Saanich. This intersection is a huge challenge to navigate if there is heavier traffic. It is also used by a variety of users. While I like the green initiatives being planned for our region, it feels like there is a big impact on our community. Leaving the entrance to Hartland for all traffic, impacts fewer households. We were not heard when the sewage line was brought up our road. We were told that the construction would only be for a short time with minimal impact. Wear and tear on our vehicles alone has been huge not say the time spent in line ups waiting to be allowed to continue on our way. I do not believe that it would in any way improve in our future. As far as removing aggregate, that would not be necessary if the landfill plans were not changed. What other considerations have actively explored as alternatives for places to send waste and not extending the life of the Hartland Landfill?
- ♦ NOTE saying Juan de Fuca as the place that I live does not give you enough to weigh my/our opinion. Juan de Fuca covers several divergent areas and possibly opinions. I live at Willis Point, 7 kilometers from the site and drive by it daily. Someone living out past Shirley may not care as much about access and traffic to and from the site.
- ♦ Regarding the access change, I believe Hartland Ave should be repaired/upgraded to meet provincial guidelines and appease stakeholders concerns about truck wear and tear. Most importantly, I believe an independent Traffic Study MUST be done on Willis Point Rd, Wallace Dr, and West Saanich Road where trucks would be rerouted. There should be a comparable report done on Hartland Ave to see the societal impact of increased industrial traffic.
- ♦ Expansion – concerns re Willis Pt Rd as access road into the dump is very poor choice!
- ♦ Water safety and environmental impact concerns.
- ♦ Stop blasting at the dump. Keep traffic off of Willis Point Road! My well water depends on it.
- ♦ The proposal to expand Hartland landfill directly impacts my life as a Willis Point resident. In particular, the rerouting of traffic and the plan to mine and sell aggregate will impact environment, traffic, safety, recreation, and likely property values.
- ♦ Please do not move the dump entrance to Willis Point Rd. I own a home in Willis Point, and do not want to drive by the massive amounts of extra traffic and smell that this would create. I would not have bought my home in Willis Point if I knew that it would be the new dump entrance, and this would DEFINITELY affect the property values of hundreds of homes and families in our area, and Highlands as well. Please keep the dump entrance where it is, the system works. Willis Point has already had to suffer over the last 2 years of endless road construction Victoria's new solid waste sewage lines. Our commute has gone from 30 minutes to often an entire hour both ways, not to mention the added fuel and wear and tear costs on our vehicles from the deplorable state of the road. When the construction is finally finished, we won't be able to enjoy the fruit of all that labour either, because now our water sources will be at permanent risk of being contaminated by the one of the most toxic materials known to man, own chemically laced concentrated sewage. Meanwhile, Willis Point residents have to rely on our own septic systems, and fragile wells. The aquifers under Mt. Work are all connected, there is a real possibility of our entire community getting sick, losing our wells, and destroying our property values, and therefore our lives. You've already put us in a considerable amount of danger to our health and well-being, I implore you to reconsider and find another plan. Hartland was supposed to shut down eventually, not grow and become even bigger. The surrounding area around Durrance lake and MT. Work and Mackenzie Bight are well used by

locals and travelers alike, for hiking, mountain biking, and all sorts of outdoor recreation. The extra noise, pollution, and smell that you're going to create with this plan put all of that in jeopardy. It's time to find a new dump site, look West to Langford (or Sooke) where all the sewage and population growth is coming from.

- ♦ Make changes to the existing road and do not involve a new community (Willis point area).
- ♦ I support most of the principles, goals and objectives, but object to the current plans to extend the lifespan of the Hartland Landfill. The effect this will have on the residents of Willis Point and the Highlands has not been taken seriously by the CRD as far as I can see.
- ♦ I oppose heavy truck traffic up Willis point road and the carbon footprint that this will undoubtedly bring to the area. As a resident who is in close proximity to the expansion of this new heartland development I see no positive gain to my area but fear that with this expansion adverse environmental potentials risk my personal health and safety, as well as the financial implications to my home as a landowner as well as the multitude of wildlife, wetlands, watersheds and the natural environment as a whole; and that this outweighs the ambiguous results that are proponent to the CRD,'s Assertive assumption that the heartland site needs to be a financially secure venture benefiting most of all the CRD itself carrying long into the unforeseen year of 2100.
- ♦ I strongly disagree with the take-over of Willis Point Road by the Hartland expansion and resulting road use by heavy trucks. This new section of Willis Point Road was created for Willis Pointers and the community as a means to avoid driving through the dangers of Healy's rifle range. The road was created for residents, not for this new Heartland expansion. The expansion would create a new hazard for residents - taking us back to similar dangers as when we had to drive through Heals rifle range. I strongly oppose this new expansion. Don't force us to share our only safe access with hundreds of heavy trucks every day. There are families using this road. There are school buses using this road. This is a road for residents, not commercial enterprise.
- ♦ I live at Willis Point. It is obvious that you took no time to investigate what area would be affected the most from your proposed strategy to expand (not enhance!) Hartland's disposal capacity. You managed to include 9 First Nation groups but forgot to include Willis Point, so are feedback is now lumped in and washed out by the feedback from all of Juan de Fuca. Was this ignorance, lack of concern or, perhaps, done on purpose?
- ♦ I live at Willis Pt and will be impacted negatively. If I put I live in Juan de Fuca it would be incorrect. Without more detail, how do you expect. I can agree with lofty goals but be strongly opposed to the negative results.
- ♦ I live on Ross Durrance Rd, in the Highlands and we are deeply concerned about increased traffic, especially trucks on Willis Pt Rd and on our single lane local traffic only road. We have seen rapidly increasing and dangerous traffic on Ross Durrance/Millstream Lake rd. I fear that Increasing traffic to the dump site off Willis Pt rd. could exacerbate that problem. Our local road is already not safe at peak traffic hours and many large trucks and pick-up trucks. Willis Pt road is the access point for many Highlands residents to go to West Saanich and Victoria or other destinations.
- ♦ I just wanted to point out that Willis Point Road isn't just the one way to a community, but also major parks such as Mt. Work, McKenzie Bight, and Durance lake. Regardless of the gnarly traffic we'd see on the road from trucks and visitors, imagine the disruption that would be caused if a truck had an accident on the road? We'd be trapped! I would also like to point out that, in the next 80 years or so, it is highly likely that the human race will create a more efficient method of waste management. Maybe we'll have something similar to the matter reclamation units from Star Trek by then?
- ♦ We live in Willis Point. There doesn't seem to be a spot on your location for Willis Point. We attended the open house at Willis point Fire Hall. We were alarmed to hear that the new plan involved moving the inroad to the dump from Hartland rd. to Willis Pt. rd. We oppose this idea for the following reasons. We have Durrance Lake, Mount Work and bicycling trails using this road. Many bikers come up Willis point to train for marathons. The addition of many dump trucks would ruin all that is the reason we moved to Willis Point. We pay taxes that excessive to keep our area beautiful. Please rethink this terrible idea. We do not support the idea of Willis Point Rd. as the entrance to the dump.
- ♦ We moved to Willis point three years ago because of its quiet community. Willis Point Road is used by all residential vehicles (the only entrance/exit for 350-400 Willis Point residents), their visitors, service vehicles, SCHOOL BUS for our children, snowplow and other road maintenance vehicles, dog walkers, bicycles and motorcycles, runners & joggers, and recreational traffic to Durrance Lake and Gowland Tod park. We are opposed to the added to traffic of approx. 100 garbage trucks daily (drove my both ways on our small road), and perhaps hundreds of gravel trucks exporting gravel for sale, and you have many accidents waiting to happen. I oppose Hartland using Willis Point Road for their truck traffic for reasons of safety for our residents!
- ♦ We oppose using Willis point road!

- ♦ We STRONGLY object because you are planning on moving the road access from Hartland to Willis Point, mining of aggregate at the dump for sale as a separate business from the dump and not for the sole use at the dump, and further contamination of an ecological sensitive area that is vastly used by the lower island community as parks and recreation. This area has Durrance Lake, Mt Work Park, Gowland Todd park, Kilarney Lake all very ecologically diverse and sensitive to the invasion of humans pollution. It's irresponsible in this day and age where we have means to deal with these issues that we even consider such changes and uses.
- ♦ Again, worthwhile goal, but achieving it by any means possible is stupid. You must consider resident safety, environmental casualties, and the well-being of the community in which you exist.
- ♦ I already filled in the form but didn't realize this was the last page to comment so didn't put anything in this area. First off, your form doesn't even include Willis Point when asking where we live so I put down Highlands. Willis Point will be the most affected area and once again we are not even considered. With over 300 residents in our area our concerns should definitely be taken into consideration. Many residents are very concerned with all that is being done right now and especially what is proposed. Recently we had a meeting at our Hall supposedly for us to state our concerns. The man in charge knew nothing, answered no questions and no one seemed to be taking notes. Many excellent questions and concerns were presented but once again we feel the whole exercise was futile. IF (or should I say WHEN because I'm sure things have already been decided without our input) more large trucks use Willis Point Road to dump, get rock or whatever it'll be an accident waiting to happen. The danger for us driving to and from our homes on the only road we have will increase substantially. We fought hard years ago to get this road and away from the rifle range and now this present situation will be as bad if not worse. We did not move out to the country to live only to be forced years later to have to drive through an industrial sight in order to get home. Leave all the garbage trucks on Hartland Rd. where they are now and have been forever. Our traffic has increased so much these past few years especially with so many using Ross Durrance Rd it's incredible. We do NOT need big trucks as well. Our safety should be first...or at least considered. Thank you.
- ♦ I am shocked that your survey did not address the proposal to divert truck traffic currently going to the Hartland Dump to Willis Point Road and the plan to truck aggregate out of the dump. The community consultation processes that have been conducted by Russ Smith were unprofessional and inadequate. He did not come prepared; he could not answer basic questions about the impact of the proposed change, and he seemed to find the whole community discussion amusing rather than taking an interest in the community's response. Furthermore, it was evident from my discussions with the broader CRD community that many public members are completely unaware of the proposal to increase the size of the dump and to push truck traffic including aggregate removal to Willis Point Road. The proposed increased traffic will impact not only Willis Point Road but also West Saanich. The process to date does not meet even the minimum requirements of good governance.
- ♦ I am well aware that there is a bit of a NIMBY attitude from some Willis Point residents but agree that we do owe some responsibility and duty towards the Regional District to which we belong, but it is a 2 way street.
- ♦ Rural areas where we PAY for our garbage pickup....we can educate folks who see it as nothing more than throwing it into a communal skip and then it is forgotten.....we who are working on reduction as it costs us more on our bin size get upset by being the ones dealing with the urban misuse of garbage disposal....by having extra truck traffic put on our rural roads.....and many city dwellers come out here more and more for recreational use....look into the excessive overuse of Durrance Lake and how it is being overused in the summer months....a lot more traffic there!
- ♦ The CRD should spend more time looking at alternative options to the landfill expansion. This option isn't very creative and doesn't appear to be well thought through.
- ♦ The strategies to reduce waste are supported, changing the landfill entrance to Willis Point Rd is not, reasons include the number of users on the road including many west shore commuters, there are already a large number of accidents on Willis Point Rd. Adding truck and landfill traffic will endanger other user groups such as bikers and hikers. There is also an increased threat to wildlife, including the mass migration of frogs that cross Willis Point Road at certain times of year. The loss of the green space to increased size of the landfill will reduce area for wildlife and mountain bike/recreation.
- ♦ Very opposed to the use of Willis point road as a refuse entrance. This is a recreational and residential road. Your trucks do not mix well with current users of bikers, hikers, lake users school buses and Willis Point residents. It is very prone to black ice. It is very prone to speeding and passing It adds at least 10 more minutes to each trip increasing gasoline consumption. The left turn onto Wallace is busier and dangerous at the bottom of a hill. Traffic volume is growing rapidly. Trucks will be stopped with traffic turning left into the Red Barn market. The argument that it is easier on trucks than Heartland is very

obviously incorrect and contrived to mask the true reason of cost saving for the Heartland facility. The implications of this plan have not been considered. It is a large increase in risk, not a decrease as suggested by Heartland management. The other issue of gravel mining will also be opposed for similar reasons. You could consider a very slow sales process of 5 trucks a day using on site storage.

- ♦ While we support the decrease of waste, We do not support the proposed plan to use Willis point road. There are six people in our household who ALL feel the same. Please use this number in your addition when you consider those opposed to this plan.
- ♦ I have no problem increasing the Hartland disposal capacity as long as the ROAD SAFTEY is addressed. Willis Point road Wallace Drive West Saanich Road and Hartland road must be brought up to standards of safety reflecting the anticipated increase in traffic as a result of the expansion of the gravel and garbage operations. Road safety on Hartland road is questionable now and any increase in size and volume of vehicles must be addressed in future planning. Thank You
- ♦ I live in Willis Point Enhancing the landfill disposal capacity to 2100 and beyond at this site seems problematic. I am wondering about the carbon footprint required to haul away existing gravel/ mountain to be able to put more garbage in. It seems from the discussions that two trucks minimum go out for every truck in. Looking at more local sites around the CRD would potentially have a smaller carbon footprint. You can do a lot of education, however having a visible dump facility in your own neighbourhood would have a greater impact for many people. Any expansion of this dump would have to look at traffic flow not only down Willis point road but also along West Saanich Road. Any problems or delays along this road cause severe congestion to this whole side of the peninsula. I have followed double trucks as they have tried to turn left off of West Saanich onto Royal Oak. This will cause a backup going up that hill and become extremely problematic in the very near future. Willis Point Road, from the dump down is slick on frosty mornings, and will be difficult for the heavy trucks to manoeuvre safely. Considerations need to be given to passing lanes, turning lanes as well as bicycle lanes on this road from the dump down. Taking out of service any mountain biking route in that area will have an impact on current hiking trails as the volume will shift to these. Consideration could be given to developing trails down to Todd Inlet, which would connect with the point. As always, I am concerned about our water in the Point. I would ask the CRD to publish (with permission) the locations of the monitored wells, and their current and previous status, so that all can see them and monitor. Behind my house is a large fractured rock cliff, we are constantly monitoring its status, I am not sure what ongoing blasting will do. Neighbours have had large rocks roll down and the potential is for serious damage (knocking houses off of foundations or injuring / killing people). Will the CRD put in place a recording and monitoring system to see if the blasting impacts the rocks on this side. The dumping of garbage from people not wanting to pay landfill fees has always been a problem out our area. The Landfill is looking at changing its entrance (commercial only now) but is also open to the idea of changing the public entrance. This will only increase the illegal dumping in this area. The CRD must put in place a system for picking this up at the dumps expense and not small the small communities around the dump such as Willis Point. It really does seem a shame that this small area of the Peninsula that offers so much to the people of Victoria in terms of natural parklands, lakes, mountains and ocean, which supports multiple outdoor recreation opportunities and is a jewel for this entire area is being turned into an larger and larger industrial and waste facility. Once this is gone, it is gone for good. The cities and larger towns have already altered the landscape greatly, and we need to consider how to manage their waste within this already altered environment.
- ♦ you use the word enhance for Hartland Landfill, but you need to promote more confidence in the local population by listening harder, promoting and sharing information re. watershed studies, traffic impacts...which were never done until locals demanded it....you have no idea on the traffic on the ross durance road which all comes down to back road users trying to avoid the Colwood crawl.....very dangerous situation on a one track road....and now you want to add more trucks to Willis Pt road....it does NOT just affect the people who live at Willis Point as you will see when you really look at the situation.
- ♦ While I definitely believe in decreasing waste, I do not see that the solution is to change the existing road for the trucks commuting. I believe strongly that changes should be made to the existing road! Or a study done to build a new landfill in another area such as Langford.
- ♦ While Hartland Landfill is a regional facility, it is critical that the CRD reduce its carbon footprint by establishing a landfill site in the western communities to reduce the distance waste travels for disposal. Expanding Hartland Landfill unnecessarily increase traffic along West Saanich Road, Wallace Drive, and Willis Point Road.
- ♦ The Hartland landfill is surrounded by parks and recreational areas. It is a shame to expand and bring greater risk so such a finite resource such as clean water and outdoor wetlands and forest. Additionally, changing the road access will have a huge impact on access to recreational areas and the families that utilize the road as their only access such as the

highlands, Willis point community members and those who commute from Langford to the peninsula. There must be a study done on the usage of Willis point road compared to the current Hartland access.

- ♦ Consideration should be made to upgrade the existing Hartland Ave access to meet provincial guidelines.
- ♦ Willis Point and Highlands residents as well as cyclists are likely to suffer the consequences of problems with the pipeline and increased truck traffic on Willis Point Rd.
- ♦ We STRONGLY object because you are planning on moving the road access from Hartland to Willis Point, mining of aggregate at the dump for sale as a separate business from the dump and not for the sole use at the dump, and further contamination of an ecological sensitive area that is vastly used by the lower island community as parks and recreation. This area has Durance Lake, Mt Work Park, Gowland Todd park, Kilarney Lake all very ecologically diverse and sensitive to the invasion of humans pollution. It's irresponsible in this day and age where we have means to deal with these issues that we even consider such changes and uses. A better means would be to share in the responsibility of waste management over a couple of the municipalities so others can experience, be aware and deal with waste management. Here are just a few different interest groups that I will be actively getting in touch with to bring to their attention what is being planned with their recreational area: mountain bikers, Olympic cyclists who train on Willis Point Road, birders, hikers, swimmers, native plant groups, environmentalist, dog walkers, trout fisherman, native groups in the area, neighbour schools and families who want safe roads, parks and lakes for their families. In this day and age of reducing waste talking about expanding, and in one area is insulting, disrespectful, and shameful for anyone involved, and government for condoning it. It's time to be accountable, not just when you are at home but CRD, and all levels of PEOPLE who hide behind the words government employee to do what's right and equitable. In our home at Willis Point I have a tiny bag of garbage once every 3 or 4 months and to be perfectly honest I could reduce it to zero.... If as an extremely busy business owner I can do this in my home and office without being pushed, fined, encourage I think it will take very little to get everyone on board. Work on making all sources of recycle, reuse, composting easier, accessible, a requirement of all residences including condo/apartments. Zero dumping should be your only goal expansion for reduction is insulting....
- ♦ We feel strongly that you should look at making changes to the existing road and not look at using a new road such as Willis point. And if you need to use a different road, look at somewhere in Langford. Many people Use WP toad to commute to and from Langford daily. The people around Hartland moved into their community clearly knowing the usage on their streets of the trucks coming to and from the landfill and the busyness. Their home values I'm sure were reflective. Willis point community thrives on being a quiet, natural area and residents feel this would create extreme issues for the people of their community and those that come visit the areas around WP such as durance lake (very busy is summer especially), gowland tod, Mackenzie bight, etc. We strongly feel the values of the homes would decrease as well.
- ♦ An independent traffic study MUST be done on Willis Point rd., Wallace Dr and West Saanich rd. where trucks are proposed to be routed, and a comparable one on Hartland Ave in order to determine societal impact. This should also include historical incident reports for all roadways to ensure public safety.
- ♦ STOP the EXPANSION of HARTLAND LANDFILL! RESIDENTS DO NOT WANT IT!!! IT WILL DESTROY THE QUALITY OF LIFE FOR WILLIS POINT RESIDENTS! THIS IS NOT PART OF THE OCP.
- ♦ Strongly disagree with using Willis Point Road as entrance to Hartland Landfill Site
- ♦ Using Willis point road should NOT be the solution.
- ♦ Concerns about traffic on millstream lake road/ ross durance road if public access moved to Willis point road. Concerns about large trucks, and traffic and speed on local roads.
- ♦ support the ideas but it is in the wrong location!! I have a serious concern concerning the SWMP proposed for Hartland. As a professional engineer (retired), I believe, strongly, that there will be a large spill at or adjacent to the site. In my experience, an installation with the vast amount of equipment, pumps, processing units, etc.; a break somewhere is bound to happen. my concern is in regard to the aquifer supplying potable water to my pump and all my neighbours pumps at Willis point. without potable water availability, our properties would be totally valueless! what are CRDs plans to provide for a potable water supply (at no cost) to the Willis point area, when this disaster occurs?'
- ♦ We agree with making Hartland usable for as long as possible but use Hartland Road for all the trucks NOT Willis Point Rd.
- ♦ We are from Willis Point - identify us on your form, we are directly impacted, not someone from the city who gets to throw it "away" into our neighbourhood. Not everything is single use. If charging for single use, ensure the fee goes to waste programs. Do more to discourage excess packaging, start at the source of the garbage instead of the end. Too much consumer pays rather than manufacture and distribute responsibly. We often don't have much choice in product,

too many things come with excess packaging. That's not a municipal issue but it's the most important issue. Stop the crappy products from China, the dollar store junk that lasts for a week and breaks, the Costco packaging, the clamshells. This is not our fault, but we end up paying for its disposal. Don't prevent and punish if you don't have a good plan for disposal that is easy to use, you can't make our lives about finding places to put garbage and compost, people will take the easy road and dump it in a park instead. -+If you're collecting it, make sure you know how to use it. NO landfill expansion without extensive geotechnical and water study. It isn't enough to "monitor" wells, by the time you see a problem it is too late, and our property is worthless. You won't be able to rectify the water situation in time. The "commitment" to providing us water is worthless without a plan. How quickly can you execute? YOU MUST HAVE A TECHNICAL STUDY TO ASSESS THE IMPACT OF BLASTING ON OUR WELL WATER. Provide public access to the information gathered from the wells you are monitoring, their location, frequency of testing, results and the expert opinion on the results. Try to imagine it as YOUR back yard. NO INCREASE IN LANDFILL IF WE CAN'T EVEN USE IT like the rest of Victoria. Provide Willis Point with municipal garbage pickup at the very least. Everyone gets to take advantage of our back yard and toss their crap out here, and we have to pay for it. We are impacted, we shouldn't have to pay privately. NO LANDFILL EXPANSION WITHOUT ROAD IMPROVEMENT, passing lanes, longer left turn lanes - there's no way the roads can support the current traffic with an increase in slow moving heavy trucks trying to turn. You need to plan for 5 trucks backed up on West Saanich and Wallace Dr, how are we going to get around them? Do you have any idea how much traffic there is on those roads? Commuter traffic is huge. Add the recycling truck and the school buses and no one gets to work on time. Rural communities have a hard time with composting, rats and other pests just love it, not to mention bears.

- ♦ Very opposed to the use of Willis point road as a refuse entrance. This is a recreational and residential road. Your trucks do not mix well with current users of bikers, hikers, lake users school buses and Willis Point residents. It is very prone to black ice. It is very prone to speeding and passing It adds at least 10 more minutes to each trip increasing gasoline consumption. The left turn onto Wallace is busier and dangerous at the bottom of a hill. Traffic volume is growing rapidly. Trucks will be stopped with traffic turning left into the Red Barn market. The argument that it is easier on trucks than Heartland is very obviously incorrect and contrived to mask the true reason of cost saving for the Heartland facility. The implications of this plan have not been considered. It is a large increase in risk, not a decrease as suggested by Heartland management. The other issue of gravel mining will also be opposed for similar reasons. You could consider a very slow sales process of 5 trucks a day using on site storage.
- ♦ To the Project Safety Manager Hello During an informative visit to the Open House , Russ Smith mentioned that it may be possible for the tandem axle trucks to arrive at Willis Point Rd. access and depart at the Hartland Avenue access. Just to distribute the traffic volume. Other ideas; Many single axle trucks exceeding 5500 kg are not in compliance as commercial vehicles as they are choosing to travel on restricted roads. These trucks are too wide to be sharing rural routes that need only be used by local delivery on the particular road. As Safety is important to the Project Charter would it be considered a positive community relation act if the Rethink Waste Solid Waste Management Plan did audit the routes trucks took to the facility. It seems single axle trucks exceeding 5500 kgs are travelling on non-truck route roads leading to the facility. No shipping dangerous goods placards displayed, travelling through residential and parkland. When operators arrive to the facility having violated the Saanich truck by-law and or the Commercial Vehicle Safety and Enforcement regulations, they should be aware use of the facility for their business can be ended. In the concern for the resident's right to peace and enjoyment commercial truck traffic on Willis Point Road and Hartland Avenue could limited to 40 km/h and strictly enforced. Also, there is a piece of folklore that Hartland Avenue was to be compensated with a sidewalk many years ago. Resident in the Prospect Lake Community District Area
- ♦ There is no rationale for using Willis Point Road as a new entrance to the dump when the old one is still in use and working well. If it's for easier pushing the garbage down instead of up, that should not be held in priority over safety for drivers on Willis Point Road. If this is really an "idea" rather than a plan half executed already, then you need to do a traffic survey on affected roads, you should develop other possible ideas, and most of all, consider the safety of residents and other drivers among 200 or more daily commercial trucks that will share a road. What is your priority? I have never seen a gravel truck where pieces and chunks are not flying off onto the roadway or onto other vehicles. This is totally unacceptable. How long do you estimate before a serious collision when trucks must turn left off West Saanich Road onto Wallace, then left onto Willis Point Road, and then left again at the proposed entrance to the dump. Put your thinking caps on!! Your points above on this survey are all apple pie and who can dispute the lofty goals, but this survey should include your IDEAS on moving the entrance, blasting rock, selling gravel, and eliminating recreational facilities in and around your site. Those

are the real issues for the PEOPLE whom you are consulting. Your present idea or "plan" is anti-resident, not well thought out, ill-informed and costly. Try again and consider people first.

- ♦ The CRD should provide at least one other option for increased landfill capacity (e.g. a whole new landfill somewhere else). 2. Consideration should be made to upgrade the existing Hartland Ave access to meet provincial guidelines. 3. An independent traffic study **MUST** be done on Willis Point rd., Wallace Dr and West Saanich rd. where trucks are proposed to be routed, and a comparable one on Hartland Ave in order to determine societal impact. This should also include historical incident reports for all roadways to ensure public safety. 4. Water safety and environmental impact concerns.
- ♦ Questionnaire is very poorly designed by forcing single rating of each Strategy which comprises multi issues. Also, no option provided for Willis Point input when it is most affected of all areas. Traffic study should have been undertaken in summer, not winter as traffic is majorly impacted by Durance Lake users including swimmers and fishermen, as well as hikers, mountain bikers, major cycling events, naturalists, etc. This is in addition to the daily commuters from Willis Point, the Highlands, Western Communities and up-island as well as our local school buses. Expanding the Hartland landfill is only postponing the inevitable reality that additional landfills will be required and should be pursued now while affordable suitable land is still available in the Western Communities. This would also help to alleviate ever-increasing traffic congestion and urban pollution. Willis Point and the Highlands have already had an unwanted sewage plant and by-products export business shoved down their throats and now are expected to have a major dump entrance and traffic crossing our road along with the unwanted and unnecessary noise pollution of blasting out a quarry, ongoing rock crushing and yet more heavy traffic. Along with this comes yet additional threats to the quality of our wells which we rely on. The recent presentation by the CRD was totally unconvincing as to why the existing Hartland Ave access cannot be used if the dump is to be expanded. Any loss of parkland and the resultant impact on recreation and wildlife would be a major concern to the many users of the area if they were aware. This proposal will also have a substantial negative impact on the quality of life for the families who chose to live in this pristine area of beauty and seclusion.
- ♦ Make Hartland Road more friendly to the landfill capacity. Use ideas put forward to allow Hartland Road to continue as the Dump entrance. Leave Willis Point out of your plans. We as Willis Point Landowners bought our houses here in Willis Point because of the outdoor activities we can take part in. We pay taxes. Surely our voices should be heard. There are many reasons to keep the dump in its present location. Come up with more ideas to increase the capacity within the existing Hartland road area.
- ♦ Please note - as a resident of WILLIS POINT, I find it an insult that we are not listed as a community on the first page of your form - I checked HIGHLANDS however, WP looks to be one of the most impacted by your outdated plans to just keep increasing the footprint of HARTLAND LANDFILL. It appears that the CRD has no regard for the residents of this large swath of SAANICH Penn. as they are prepared to: - expand the landfill (larger and higher) for use until 2100 - ridiculous - a NEW TECHNOLOGY and placement of a facility should be examined - This is so outdated it is insulting - the creation of an aggregate mine is absurd - it will impact all parks, wildlife, noise, well water in the highlands, etc.. THIS IS A RURAL AREA with farms and extensive park systems - NOT AN INDUSTRIAL SITE - The increase in traffic on either Willis Point Road or Hartland if this plan is approved will be massive and create an extremely dangerous situation affecting the lifestyle and, more importantly, lives of residents, recreational users, etc. on Willis Point Road - In addition, where are these hundreds of large commercial size trucks going once they get out of the landfill area? Onto West Saanich Road? Another road/area to be destroyed completely As homeowners, do we not have any expectations of consideration from the CRD concerning: - health and wellbeing ? - safety, potable water, noise reduction, etc. - home values to be protected and not destroyed by the govt agencies paid by us??? My suggestion is that this entire project not be ratified and that , as your supposed marketing tag suggests, the CRD actually: Think together to RETHINK waste
- ♦ Please do not move the dump entrance to Willis Point Rd. I own a home in Willis Point, and do not want to drive by the massive amounts of extra traffic and smell that this would create. I would not have bought my home in Willis Point if I knew that it would be the new dump entrance, and this would DEFINITELY affect the property values of hundreds of homes and families in our area, and Highlands as well. Please keep the dump entrance where it is, the system works. Willis Point has already had to suffer over the last 2 years of endless road construction Victoria's new solid waste sewage lines. Our commute has gone from 30 minutes to often an entire hour both ways, not to mention the added fuel and wear and tear costs on our vehicles from the deplorable state of the road. When the construction is finally finished, we won't be able to enjoy the fruit of all that labour either, because now our water sources will be at permanent risk of being contaminated by the one of the most toxic materials known to man, own chemically laced concentrated sewage. Meanwhile, Willis Point residents have to rely on our own septic systems, and fragile wells. The aquifers under Mt. Work are all connected, there is a real possibility of our entire community getting sick, losing our wells, and destroying our

property values, and therefore our lives. You've already put us in a considerable amount of danger to our health and well-being, I implore you to reconsider and find another plan. Hartland was supposed to shut down eventually, not grow and become even bigger. The surrounding area around Durance lake and MT. Work and Mackenzie Bight are well used by locals and travelers alike, for hiking, mountain biking, and all sorts of outdoor recreation. The extra noise, pollution, and smell that you're going to create with this plan put all of that in jeopardy. It's time to find a new dump site, look West to Langford (or Sooke) where all the sewage and population growth is coming from. Mike Hicks told us at our last community meeting that we should please ask for a passing lane if this new dump entrance proposal moves forward. So, I am here asking for a passing lane. but MORE than that I am asking that you do not move the dump entrance at all! Do not expand the dump, find another site, or barge it somewhere else. Our community produces almost zero waste as it is, yet we have to deal with the entire region, and other regions waste! Thank you for your time and consideration. Please hear our voice this time.

- ♦ Other than this form has nothing to do with the concerns of the Willis Point Community. To start out Willis Point is not even on your map nor your radar as to what should happen out on Willis Point Road and its effects on our community. Your credibility has been shot by previous meetings with your members and what we have been told and then not delivered, you just went through the motions and as a community this is what we feel is going on now. By the comments of some of the municipal "leaders?" about Willis Point being nothing but whiners it is obvious the decisions are already made. Not to long ago we were told by CRD under NO circumstance would Willis Point road be used to access the dump but here we are a couple of years later and that is just what you are doing. Now as the decisions has been made. To help out you could add two more lanes onto the road as by your calculations there will be 200 to 300 more trucks moving up and down the road. This does not include the traffic coming from the highlands, Willis Point, the many contractors and their trucks and vans, Bikers, hikers and runners. The runners and bikers use the road for training for world class races in all seasons, then you have during the summer upwards of 200 vehicles along the road at the lake not counting the vehicles in the two parking lots which could add another 200 vehicles. To accommodate this increase in traffic along West Saanich Road, Wallace Drive then onto Willis Point those roads will have to be upgraded for left turns and the right turns to access the dump . Would it not be cheaper in the long run to just upgrade Hartland? As we were told Hartland's grade was a safety concern but with hardly any accidents. one was specified when asked how many there were. Put that against Willis Point road and we have more accidents in one year than you have over a five year spread So no safety concerns on Hartland other than a scare tactic. It's nice to know that you are monitoring the wells around the dump. but truth be told by the time you discover a problem Then figure out a solution at the rate you move it would be years. Then as per your agreement you would pipe water into Willis Point at NO charge?? Again years. One last thought has you included the first nations in on the destruction of their ancestral homes and hunting grounds. If not best do as they can come after you big time. If you have ,have you told them the total destruction you are contemplating with your mining proposal. Oh, one more last thing did you get a mining license, or do you not have to follow the Provincial guidelines. Ok that's about it time for supper Take care and have a great day or at least what's left of it.
- ♦ Must reconsider where trucks will enter and depart from dump and huge increase in traffic on Willis Pt Rd! Must at very least look at current volume of traffic on Willis pt. Rd and impact the increase of trucks will have on Willis pt. residents, bikers and recreational users of local parks. Must have additional lanes for traffic if this were to go ahead!
- ♦ I would like to highlight that traffic and safety issues will be greatly exacerbated by this plan. CRD is not forward thinking on this aspect, rather it appears it has selected a plan that follows the path of least resistance and the cyclists and residents of Willis Point are those most vulnerable. I have a suggestion that might appease the safety and traffic concerns and that would be to truck the aggregate out during non-peak hours. Ideally in the evenings from 10pm-2-3 am or at the very least for a couple hours in mid-morning and mid-afternoon. This would reduce the exposure of our community to these trucks and would also lessen the burden of traffic. If Willis Point Road is selected for this project, then I would urge the CRD to undertake improvements to this road including 2 additional lanes for truck traffic, a separate bike path if possible and regrading the road so that icy temperatures and frost are less of a safety impact. I would strongly recommend that CRD staff come drive up to the proposed entrance and then down to Wallace road some frosty morning around 7:30 am. Perhaps then you will see how this road can be treacherous with regular cars, let alone semis and tandems carrying rock. A final concern is the threat to our aquifer. Expansion of the landfill will have an environmental impact but the extent of that remains unclear. Prolonged blasting of aggregate will also have an impact and might be harmful to our water. I am opposed to this plan for fear that one day I may no longer be able to drink a glass of water from my taps. Of course, as someone who lives in Willis Point, I do not agree with this plan and wish you had another. I do not wish to worry about my water quality from the expansion of the landfill. I also do not want to fear for my safety during my

daily commutes in and out of this amazing community. Lastly, I do not wish to feel bullied by the CRD with these projects because this is the easiest, most cost effective plan for them and the one that will meet the least opposition.

- ♦ I think the landfill expansion is a bad idea. Aren't there any alternatives to this option? I am surprised the CRD can only come up with one solution for the future waste management. Perhaps the Westshore would be a better place to route garbage considering they have outgrown the number of residents on the peninsula and have a higher population density while still continuing to grow. A new landfill site would be a better use of taxpayer dollars in the long term and would be more environmentally sustainable as far as transport emissions and potential impact on the ecosystem. Also, no one on the Westshore utilizes a well as far as I understand. Willis point road is dangerous. A study of the area and current traffic patterns should be completed before considering this as an option. Perhaps an alternative would be to just fix/repair the current access on Hartland. This would have less impact as there are fewer residents living on that road and it is not utilized as heavily by recreationalists.
- ♦ I support the overall goals of the program to reduce the volume of waste, increase recycling and divert materials from the Landfill wherever possible. However, I have serious concerns about one element of Proposal 15, which is not even mentioned in these materials yet is part of the plan for "enhancing" Hartland's disposal capacity. This is the proposal to reroute heavy garbage trucks, some 80 per day, from Hartland Road to Willis Point Road. This proposal makes no economic or logical sense. The argument for rerouting is, allegedly, that the grade on Hartland Road is too steep. Yet Hartland Road has served as the access for the Landfill for the past years with no problem. The other argument is that it is better to bring waste in from high ground (via Willis Point Road) rather than from Hartland Road. If this is the concern, temporary access roads can be constructed through the Landfill (as occurs today) to allow trucks entering from Hartland to dump their load at a higher elevation. The trucks have to go up by one route or another. Using Willis Point Road to do this has a number of negative elements. First, Hartland Road is the designated access road for the Landfill and terminates there. Apart from a few houses en route, the only traffic on Hartland Road is traffic headed for the Landfill. Willis Point Road, however, is the sole access road for the community of Willis Point (some 400 residents), plus access to the heavily used (in summer) Durance Lake Provincial Park, McKenzie Bight and Mt Work Parks and parts of Gowland Tod Provincial Park. Moreover, it is the "back road" to Millstream and Langford via the Highlands through Ross Durance Road and Millstream Lake Road. This diversion is attracting a high volume of traffic (notwithstanding the narrowness of the road) owing to growing traffic problems of getting from the West Shore to the Saanich Peninsula. A traffic survey will document the increasingly heap use of Willis Point Road. It makes no sense to divert slow, heavy garbage trucks to this road (which itself has a 9% grade) when a perfectly usable and proven current alternative (Hartland Road) exists. If garbage trucks were diverted to Willis Point Road it would be necessary to construct a passing lane uphill, at considerable cost, all of which can be avoided by leaving access to the Landfill as is.
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- ♦ I support all of this but in a different location! I oppose the expansion and feel it should be CLOSED. Willis point is a recreation area and impacts healthy lifestyles. I oppose big trucks disrupting the ecosystem. I oppose the risks to our well water. Develop Plan B to relocate the dump now. More people live in Willis point than live on Hartland ave. redirecting the access to Willis point road affects 100s more people. I oppose the blasting and aggregate as it destroys nature and is working against our community plan. The community needs health areas in nature to live and enjoy. Plan B = NEW DUMP.
- ♦ My main concern is the increased heavy truck traffic on Willis Point Road. The 2 kilometer up hill will seriously impact traffic for the 400+ residents as well as the innumerable vehicles from Highlands and Western Communities using Ross Durance and Willis Point Roads as a shortcut to the Saanich Peninsula. I strongly suggest that a traffic study be done, particularly at that intersection. I also suggest that a left turn lane into the facility off Willis Point Road run the entire 2 kilometer length from the Interurban Road intersection, or at least from the base of the hill.
- ♦ Moving the Hartland access point to Willis Point road seems without much fore thought. And requires a very serious and complete traffic study as Willis Point road gets many times the traffic Hartland Ave does. Due in part to the fact that Hartland Ave is a dead end road with a finite number of residents, whereas Willis Point Road is used as a thoroughfare from the Langford area through to Saanich, as well as Willis Point Residents. Willis Point Road is all so used extensively for cycle training/recreation and access the Durance lake and Mount Work and McKenzie Bight Park areas. It is also 65% farther to access the top of the Hartland site via Willis Point Road as compared to Hartland ave. which when extrapolated over 400 vehicles a day for the additional 50 years goes in the exact opposite direction of the proposed plan of reducing waste/pollution.....
- ♦ but do this, as you have outlined, by changing behaviour, especially re packaging, not by putting more trucks on a country road leading to a small village which has resisted even having a shop!
- ♦ It's hard to support any targets when we see the proposal is to use Willis point road to bring the trucks in/out. This is NOT supported by the surrounding communities. There hasn't been enough research done, and we believe there are other better solutions such as improving the existing road, or doing it out of Langford. Much of the garbage comes from there anyways.
- ♦ NO EXPANSION that harms the environment, the animals and the drinking water. CONDUCT SOME RESEARCH, PLEASE! NO TRUCKS ON WILLIS POINT ROAD. NO MORE BOGUS MEETINGS, when the person conducting the meeting claims to have no answers to any questions at all. WE NEED ENVIRONMENTAL RESEARCHERS IN ON THIS.
- ♦ Please note - as a resident of WILLIS POINT, I find it an insult that we are not listed as a community on the first page of your form - I checked HIGHLANDS however, WP looks to be one of the most impacted by your outdated plans to just keep increasing the footprint of HARTLAND LANDFILL. It appears that the CRD has no regard for the residents of this large swath of SAANICH Penn. as they are prepared to: - expand the landfill (larger and higher) for use until 2100 - ridiculous - a NEW TECHNOLOGY and placement of a facility should be examined - This is so outdated it is insulting - the creation of an aggregate mine is absurd - it will impact all parks, wildlife, noise, well water in the highlands, etc.. THIS IS A RURAL AREA with farms and extensive park systems - NOT AN INDUSTRIAL SITE - The increase in traffic on either Willis Point Road or Hartland if this plan is approved will be massive and create an extremely dangerous situation affecting the lifestyle and, more importantly, lives of residents, recreational users, etc.. on Willis Point Road - In addition, where are these hundreds of large commercial size trucks going once they get out of the landfill area? Onto West Saanich Road? Another road/area to be destroyed completely As homeowners, do we not have any expectations of consideration from the CRD concerning: - health and wellbeing ? - safety, potable water, noise reduction, etc. - home values to be protected and not destroyed by the govt agencies paid by us??? My suggestion is that this entire project not be ratified and that , as your supposed marketing tag suggests, the CRD actually: Think together to RETHINK waste
- ♦ Strongly opposed to changing up access road into and out of the dump. Please keep as is. Thank you
- ♦ While I understand from a business perspective you are in search of solutions which will make your expansion a success. Something you have yet to fully grasp is the negative impact that others will have to incur because of these "solutions." By switching the access point for the commercial trucks traveling to the dump over to Willis Point Road, you are taking our ONLY road in and out of Willis Point, which is used by over 400 residents, as well as those that live on Ross Durance Road. It is extremely clear that these proposals were done with little to no traffic studies having been completely, otherwise you would know that this route is also heavily traveled by other patrons that enjoy Durance Lake, Mackenzie Bite, Gowland Todd Park and various hiking and biking trails. You already plan to take over the land that is currently used by the large mountain bike community, and on top of that you expect the entire surrounding community to endure the

negative impact as a result of your expansion. Years ago, when the landfill was developed, people later choosing to purchase land on Hartland Road did so fully knowing that the price of their property would reflect the location of the dump and the fact that it was a well-traveled road. It is not the responsibility of Willis Points residents and the surrounding neighbourhoods to endure the changes you plan on implementing. It is understandable that changes will have to take place in order to successfully manage the regions waste in our ever expanding world, but we will not sacrifice the safety of our community in order to see your business proposals through. Willis Point Road, as well as Wallace Road, are not adequate streets to be traveled so heavily by the industrial trucks you are proposing use it on a daily basis.

- ♦ While we support many/most of the initiatives, we strongly disagree with using Willis point road as the new road for any of the proposed plans for trucks/vehicles commuting anything. We moved to this area of Willis point because it was known as a serene, quiet area and definitely would not have moved here if we knew this was going to happen. We strongly feel that the values of our homes would go down drastically if this plan were to take place. We feel that more time should be taken to assess and look at OTHER options.
- ♦ As a Highlands resident living on a very narrow winding road, that was designed for local traffic only, we have seen a massive increase of traffic, larger trucks, who take up the whole road, and dangerous aggressive driving. I fear more trucks with the main access to the dump being off Willis Pt rd. I understand that this is a waste management issue that you are dealing with, and I champion that and your work, and believe reduction of waste must be increased. We are nowhere near where we need to be yet. But along with your plans, the CRD must deal with the already dangerous traffic situation that we are dealing with and which is increasing. thank you for your attention to our concerns.
- ♦ As you are aware no provision was made for Willis Point residents to identify where they reside. I am a Willis Point resident having resided for over fourth years. The increase in traffic and safety issues are my main concern. There is need of proper left hand turn lanes on West Saanich rd. , Wallace Drive and Willis Pt rd. as well as widening of Willis pt. rd. for slower truck traffic and bike lanes.
- ♦ After much consideration we propose that another solution is used other than using Willis point road. What about somewhere in Langford? Many of their residents use the backroad and already create backlog of vehicles on the road and having the 100+ vehicle going back and forth (both ways!) would create even more backlog. Or why don't you keep the existing road and upgrade? The Willis point road is used by a few hundred people daily and would create much new hazard and new issues.
- ♦ Do not attempt to wreck our neighbourhood with excess traffic on Willis point road. The highlands road to millstream is dangerous enough without adding massive dump trucks hauling gravel. I strongly oppose this plan.
- ♦ As a Willis Point resident, I was prompted to respond as on my drive to work I see yet another dump of garbage on Willis Point Road. I see someone has already been there to pick it up today, however they neglected to pick up the 2 couches near Wallace Dr that have been there for several weeks. Maybe we will come and put them on your street and see how you appreciate it? The more expensive you make it to dump garbage, and the harder you make it, the more garbage will end up in our rural areas, dumped in ditches and secluded areas. People are pathetic, they do what is easy. Charging more for these things will not help. We live in a beautiful place; you need to think about what people will really do in response to your policies. They tend to try to get away with things and do the wrong thing, the easy thing. Fines won't help, how can you police illegal dumping. And why is it OK to leave everyone's garbage on Willis Point Rd? I want our community to have city garbage pick-up. I want safe passage on my way to and from my house, I don't want to drive behind a constant stream of dump trucks, that's not why I paid a lot of money to buy a house here. How are you going to fix the traffic problems, the lineup of cars and heavy trucks when someone wants to turn into the Red Barn? Will folks be able to exit from that parking lot? The Red Barn is a lovely long time institution, I would hate to see its business destroyed by truck traffic, people not able to get out or having to wait too long to get in, so much that they stop going. Keep the trucks on Hartland. I really don't care about the few haulers that have to maintain their trucks. It's a business, we are a community, we are families. Why do we have to suffer so that the haulers can have it a bit easier? Safety and beauty not noise and garbage. Find an alternative.
- ♦ Hi Willis point resident. 30 minute time out a distractor for thoughtful consideration. Close your eyes say your street name and then add dump or landfill to it> Do you see your property values plummet. Consider the name. how about Parkland or Emily Carr. Have a plan B build a different road buy land. Consider we are a community that is passionate about Parkland. Put in a truck lane> Give us more well information. Don't come to us with done deals.
- ♦ I believe there should be some consideration to alternative plans for landfill expansion including new infrastructure in areas that are growing, such as the west shore. Changing landfill access to Willis point road is a huge mistake. a traffic

study must be done to better understand the large volume of residents and recreational users that utilize the road including the impact on the Wallace road turn off and the left turn off west Saanich. Consideration for historical vehicular and pedestrian incidences on both roads should also be considered before redirecting industrial traffic as Willis point road and both intersections off Wallace drive and west Saanich rd. are dangerous and have a high incidence of vehicles going off the road due to bad weather and speed. Regarding this change, the CRD is citing provincial guidelines to endorse road access while avoiding the fact that they aren't meeting many of the suggestions in the guidelines such as proximity to regional, provincial or federal parks, environmentally sensitive areas such as a wetland or lakes (Killarney), or impact on wildlife. The Provincial guidelines around the grade of road access are just that, a suggestion, there is no municipal requirements to meet these especially on existing infrastructure. This just seems like a nice thing they are hoping to do for stakeholders (haulers) and is neither safe nor required. Another option should be looking to bring the Hartland Ave access up to guideline standards, this would further benefit those living on Hartland Ave with a safer/better road. I also have concerns about the safety of the aquifer around the landfill. Blasting on an existing landfill site must come with an increased risk to leachates and emergency situations. The Provincial guidelines put environmental impact as their top priority. This should also be the CRD's top priority. Water is a precious resource and all residents in the immediate area would be impacted in a number of ways including health and declining property values. I find the expansion plan to not only irresponsible, inconsiderate to the local residents health and safety but also poorly executed. Surely there must be more if not better alternatives than this.

- ♦ Hello... As there appears to be no way to highlight our geographic location on the questionnaire as being Willis Point I will direct you to my comments below that I sent to the general CRD mailbox in the hopes that Willis Point can be added as a button on the questionnaire to ensure our residents comments are attached to the correct geographic location. A further comment box indicating the appropriate place to place comments such as mine would be of great assistance to those unfamiliar with online questionnaires To follow up on the point below highlighting the fact that Willis Point Road is our ONLY road access I strongly request that a comprehensive traffic management study be completed prior to the proposed suggestion that Willis Point Road be used for continual heavy truck traffic. Traffic counters should be placed West of the proposed landfill entrance to capture all of the vehicle traffic from our community and more important capture the tremendous upsurge in traffic from Westshore using Ross Durance as a short cut to the Peninsula and beyond. Counters should be placed on Wallace Drive South ahead of West Saanich and Hartland itself to capture the traffic leaving Willis Point road and the vehicle traffic on the current landfill route. Simple math will demonstrate the significant impact this proposal will have on the safety and well-being of local residents and the recreational community at large who use this corridor to access multiple parks and facilities with increasing frequency and volume which should be easily compiled by the CRD Parks department. If all other considerations are off the table I myself and the Community as a whole would expect at a bare minimum a suitable passing lane be designed, engineered and constructed to permit commuters adhering to the posted speed limit to safely pass multi axle and proposed multi component waste and possibly gravel haulers and manage to some degree the avoidance of inevitable associated solid waste and organics "drool" and would also expect that vehicle comprehensive damage to windshields and paint be addressed with the high likelihood of tramp debris from the gravel haulers using the road. I have no idea if this will be read or an answer given but I would hope that an open line of communication can be established for myself, my family and my Community. Thank you for your consideration and attention to this matter "As a 40 year resident of Willis Point I am finding the continual lack of preparation and availability of facts at the CRD's public consultation meetings for the Residual Solids Conveyance Line/Treatment Facility and now the Solid Waste Management plan both frustrating and completely insensitive to our Community needs. At the November 12th public information meeting we as a Community were asked to complete an online questionnaire to provide input on the project. Of all of the tabs there is nowhere to input the respondents residency as Willis Point. Regardless of Electoral districts this questionnaire does not reflect the geographic location of our Community of 150 households. There appears to be no field to register public concern on the proposed significant alteration to traffic flow to our only access to our Community . as a resident of the CRD I am in favour of waste management strategies and participate in this on a daily basis working for a large property management firm. However, as a Community member we must have a platform that enables us to identify ourselves as Willis Point residents to ensure our concerns are validated and that we are a strong part of the consultation process." I look forward to your reply
- ♦ According to the Provincial solid waste guidelines, ecological impact should be the first consideration when looking at a landfill site, including expansion/retrofit. I can't believe the CRD is citing this document to allow for the access to be changed to Willis point road when the primary reason for the guidelines is being pushed under the rug. Clearly, this excuse is only beneficial to the haulers and their financial relationship with the CRD and NOT the local citizens or the land

and water. The current landfill is on provincially documented ecologically sensitive area surrounded and encroaching on wetlands, standing lakes, wildlife habitat and provincial, federal and municipal parks. Why is the CRD NOT considering the impact blasting and expansion will have on the environment and public safety? In order for this project to be successful you not only need to expand the site but have huge reductions in waste production, I don't believe this will be as successful as anticipated as the Victoria area already exceeds provincial standards for waste production person. The goals to cut it even further seem excessive to make a project like this feasible. A more thoughtful solution would be to look at a longer term site for solid waste management, perhaps closer to where waste is being produced to cut greenhouse gas emissions from trucking waste to Hartland. Langford has grown exponentially in the past decade and continues to grow at an alarming rate. Perhaps it's time the Westshore take on an infrastructure project and start contributing to the CRD's long term sustainability. The CRD needs to provide another option to landfill expansion/capacity. We've (Willis Pointers/Highlands/Prospect lake) already have to put up with the sewage treatment plant, we will not put up with this bullying as well.

- ♦ Consideration should be made to upgrade the existing Hartland Ave access to meet provincial guidelines 3. An independent traffic study MUST be done on Willis Point rd., Wallace Dr and West Saanich rd. where trucks are proposed to be routed, and a comparable one on Hartland Ave in order to determine societal impact. This should also include historical incident reports for all roadways to ensure public safety. 4. Water safety and environmental impact concerns. I attended the CRD presentation at Willis Point Hall. I was shocked by the lack of preparation: lots of question with no answers, but the evidence of never having thinking of another plan/option is chocking. So, this was more a way to check a box "we consulted the WP residents" not a consultation. CRD needs to provide at least 3 viable plans. We, resident of WP, showed up in big numbers at the CRD consultation and we STRONGLY disapprove the Extension plan of Hartland Landfill.
- ♦ What are the regulations of big truck traffic in an intense recreational community, with nature/wildlife loss and habitat loss? - more traffic studies that consider and address the community needs and input - this traffic study needs to consider future impact on community as the dump expands as the greater community of Victoria dump needs increase. - people bought at Willis point homes at a higher value due to no truck traffic and the dumping of garbage, so with change in use property will devalue and who compensates the community? - CRD should come to meetings with more than a Plan A, other plans should be brought to community because the community can help with a final plan. -Olympic athletes use Willis point road for training along with greater Victoria's use of the land, among any other riders. - Wells - open, clear transparent monitoring with the community involvement. - Wells being lost need a better plan than a commitment of piped land. Immediate action will need to be in place because loss of wells will happen, its already happened in other communities across Canada. - Why aren't there other regions supporting landfills - it's not possible for Hartland to continue to support growing communities (Langford). - Our household has one super small bag of garbage every 3 mons without charging me or pushing us - it is doable!
- ♦ With regard to #15, I strongly oppose using Willis Point Road for the garbage and gravel trucks for several reasons: The increased number of heavy trucks will impede the traffic on this road which is the only road to and from Willis Point which must be used by the 400 hundred residents who live here. In addition, many commuters from the West Shore regularly access it via Ross Durance Road. As well, for at least 8 months of the year cyclists, hikers, mountain-bike riders and users of Durance Lake use this road in ever increasing numbers as areas such as Gotland-Tod provincial park, Mt. Work and McKenzie Bight continue to become more popular. Hartland Road was built for the purpose of accommodating these large trucks and has been successfully used for that purpose for many years. It doesn't make sense to have them use a road that has a lot of traffic on it already. Whereas Hartland Road doesn't have a lot of traffic other than garbage trucks and terminates at Heartland. From a safety point of view, I don't believe that other traffic will be safe with these trucks either behind, in front of, or beside them on this very steep and winding road. When one looks at the number of trucks that have spun out of control, jack-knifed across the road, etc. on the Malahat over the years with tragic results, I absolutely do not have a lot of confidence in the safety of these trucks. The regular use of Willis Point Road by a school bus would also be a safety concern if there were to be so many extra trucks on the same road. In conclusion, the residents of Willis Point already drive on a challenging road that receives minimal assistance with regard to the driving conditions during the winter months and do not need the added stress of navigating this road as well with large, heavy trucks.
- ♦ WILLIS POINT completely ignored as an area on this survey, I am a resident of the area where the dump is. I am in angst and tears that you would consider all this blasting without a proper technical assessment of the impact on our wells. To monitor a few wells isn't enough, by the time you realize our water is affected, how can you possibly come up with remediation in time? our homes will be worthless. Realtors are already speaking negatively about our area saying it's

risky. I bought my house because of the beauty, not because I thought I would be on the way to the dump trying to get to work fighting traffic delays with dump trucks and rock quarry vehicles. This used to be the boonies, but it's not anymore, land use changes, this land is needed more for residential, not industrial. Landfill needs to be further away. Let us know how you will compensate for reduced property value Langford can find a place for its own waste. Willis Point shouldn't have to pay for private garbage pickup and be happy about accepting everyone else's garbage Not just a traffic study is needed - you must make road improvements to West Saanich and Wallace, how are we going to manage all these trucks backed up waiting to turn? Keep CRD promises. We had a list of promises from the pipeline plan, almost none were kept. Keep your word. Provide an alternative, you don't even have a plan B. What were the other plans back then? Why aren't you even looking into alternatives? There's too frequently a couch or other garbage left on Willis Point Rd, that's because the dump isn't open long enough or it's too expensive. Make it easy and people will use it properly. Publish how you are weighting public response when only the area around Hartland cares about Hartland. Our voices can't compete on a 1-1 basis

- ♦ Reduce the burden of waste management on the local communities surrounding the Hartland Dump who experience a higher proportion of risk and disruption caused by the dump. While not addressed in this survey - the plan to divert industrial truck traffic (both waste management trucks, industrial users and aggregate trucks) to Willis Point is inconsistent with the existing CRD community plan for the Willis Point area. It will create a significant safety risk for Willis Point residents who are reliant on the Willis Point Road as their ONLY point of access to their homes. It will create a safety risk for emergency vehicles such as ambulances attempting to reach the Willis Point area. It will increase the industrial and GHG emissions in the area. It will irreversibly destroy the natural ecosystem of the Willis Point area that includes protected species. It will have direct and negative impact on the regional communities use of the unique natural recreation area of Willis Point.
- ♦ As a resident of Willis Point, I wish to express in the strongest possible terms my vehement opposition to the proposed uses of Willis point Road. 1.It is completely unacceptable for increased traffic in the form of heavy trucks accessing and exiting from Hartland to use WP Road. The existing access to Hartland has operated for many years with no accidents. In fact, in the same period of time there have been more accidents from existing traffic on WP Road. These can only increase. The traffic has already increased substantially with vehicles coming from Langford and the Highlands, . 2. Residents of WP have already suffered substantial inconvenience from the laying of the pipelines. Another project that was bitterly opposed by the Community, but which went ahead anyway. There is zero tolerance for more inconvenience to be thrust upon this community. 3.The expansion of the landfill site with the eventual of large and increasing quantities of aggregate as the plans for expansion proceed, will exacerbate the problem with even more heavy traffic on WP Road. 4.The question of safety was raised in connection with the existing access to Hartland and no concerns were expressed. In contrast, existing road conditions on WP Road, particularly in winter, but not only in winter, have been found to be dangerous with many areas known to have obscure but very icy conditions. 5. It may be that you have failed to appreciate the level of displeasure felt within the community over its general treatment and more specifically with the proposal to add to the problems associated with the WP route. In fact, in some quarters feelings are very high indeed bringing to mind the civil disobedience which arose over the activities on the DND lands which prevented residents from gaining timely exits from their homes. Given the tenor of the feelings of many residents it might not be far-fetched to see blockades of trucks to prevent them from turning off Wallace to WP Road, should their wishes go unheeded.
- ♦ As I expected, none of this touches on the changes that will take place in order to make these strategies a reality or the important implications on the surrounding communities. Instead it highlights the great intentions that the CRD has, and by manipulating the wording of your proposed plan you insult the people that you are pretending to inform. As you know, this facility isn't called Willis Point Landfill! Having your industrial sized vehicles travel the one and only road in and out of our Community of Willis Point rather than Hartland Road, as it currently does is, only highlights the true intentions and values of the CRD. It is extremely obvious that the members of your team that have come up with these proposals live nowhere near the affected area. You expect the surrounding neighbourhoods to endure the negative impacts solely for the purpose of your expansion, not only by changing the access point but also by adding traffic to that access point by trucking out aggregate. I sincerely hope at the next information session that is held some actual information makes it to the meeting! Maybe an alternate plan? If you come back to merely 'take our temperature' again you're going to be met by a red hot crowd of community members ready to strongly oppose this ridiculous proposal!
- ♦ The number of families living close to Hartland Landfill has grown significantly since the landfill was first established. Residents are concerned about potential pollution of their water wells from contaminated runoff from the landfill and increasing the size of the landfill will only increase that threat. Residents already contend with the smell of the landfill and

increased traffic of large vehicles on local roadways. Increasing the size of the landfill will make those problems worse. Local lakes and waterways are in jeopardy of becoming polluted. Increasing the size of the landfill will affect the recreational areas nearby which are widely used by residents and visitors alike. Changing the entrance to the landfill for large commercial vehicles will increase exhaust pollution in the area where families live and play. Safety of the local roadways by families and visitors will be jeopardized if commercial vehicle traffic is increased.

- ♦ The plan for enhancing landfill capacity has not been adequately discussed, and there are no details provided in this survey. The understanding here is that the decision has more or less been made. At Willis Point, we were subjected to a presentation by a CRD accountant who repeatedly said he was only an accountant and could not answer our questions. We have concerns about endangering the water quality of our well water, a topic no one at the CRD has addressed at any of the public presentations. It probably should be mentioned in this survey that the plan includes not simply developing the capacity of the landfill, but also running a profitable quarry. It could also mention that there has been some discussion of removing a section of the CRD park at Mt. Work. Everything related to the quarry will lead to dramatic changes for people living in the region and those who use the parks and will certainly lead to a decline in the quality of life. Our representative, Mike Hicks, seems to all appearances to have signed on to the plan without seriously canvassing opinions. This seems to more of a technocratic decision than one taken with real consideration for the environment and for the citizens of the CRD.
- ♦ I strongly oppose the proposed expansion of the Hartland facility, including the proposed re-routing of landfill traffic onto Willis Point Road. I am a resident of Willis Point, and it was not possible for me to note this at the start of this questionnaire. As a resident of the primary location that would be impacted by changes to the landfill facility, I find this troubling, particularly following the poor level of consultation that was provided to CRD residents over the residual solids facility. The community of Willis Point was founded by people who enjoy the natural environment. The expansion of the landfill, and addition of traffic onto Willis Point road is contradictory to those values and will directly impair the values that the residents of Willis Point and surrounding areas place in living in this area, and indeed, in their investments in properties in this area. In the last couple of years, the Hartland Landfill has been identified as the location for the residual solid waste processing facility. Willis Point residents did not receive appropriate consultation by the CRD on this development and have been directly and adversely impacted by the construction on Willis Point Road in 2019. I would encourage the CRD to consider other locations for a landfill, including close to the high-growth areas of the CRD (such as Langford) or further up island. Hartland is adjacent to Gowland Tod Park, the communities of Willis Point, Highlands, and the agricultural areas of Saanich. Further expansion of the facility is not in the interests of these areas and is contradictory to the values of the residents of these areas. Willis Point Road, Wallace Drive and Ross Durance Road are not able to support additional traffic that would be required if access to the landfill was re-routed to Willis Point Road.
- ♦ Re Willis Point Resident and road usage for waste trucks, rock removal and sewage waste. I do strongly oppose the use of Willis Point rd. as an access for any industrial/garbage/sewage/composting/rock removal trucks. - Hartland rd. has been the main access to the dump and should remain the access. Community plans have been built around this route over the years as well the residents making a choice to live there are willing and knowing of the dump and its traffic associated when going to live there. This road is a dead end road with no thru traffic unlike Willis Point rd. Fix Hartland rd. to suit grades required by BC standards for larger industrial trucks and use it for fulfill the landfills proposal. - What are the impacts of wildlife in the area? Heals Rifle Range has a sensitive ecosystem and bird nesting ground with many endangered birds. Constant heavy traffic of large trucks and blasting would have a serious impact for generations. - What about riparian areas around the dump and sensitive aqua furs? Blasting could seriously change creek/stream patterns as well our water supply since we are on wells. On that note a fix of piping water to Willis point if our wells are compromised is ridiculous. - Willis Point rd. is an alternate route for the western communities via Ross Durance rd. / Millstream and has seen a high increase in traffic over the past decade. This would increase the chance of an accident and traffic congestion. - As a recreational area its busy year round Mount Work area and in the summer Durance lake is very busy with cars parked up and Down Willis Point rd. Not to mention the biking community that uses the road and trails. -Willis Point's road new road when developed in 89/90 there was a clear understanding there would never be access to the dump or meant for heavy truck traffic. This isn't the case anymore? What else is going to change that was said to be never to happen? . - Maybe some of the other communities can carry the burden of their own consumption and refuse. The western communities are expanding rapidly and their mayor who owns Alpine Disposal would like to profit from his garbage from his community....Open a dump out there. - I believe a lot of study will be required to move forward not to mention the federal lands around the dump i.e. Heals Rifle Range. I do not want any traffic to do with the dump on our local roads. Other options should be looked at as well.

- Comments In particular regarding transitioning vehicles to Willis Point Road & expanding Hartland's mandate. It is obvious that the main strategy proposed to extend (not enhance!) the life of the Hartland Landfill is to expand its capacity. A major issue for all residents of Willis Point and the thousands of other people using Willis Point Road on a daily basis is safety. SAFETY Your brochure ,Extending the Life of Hartland Landfills' indicates that trucking significant amounts of excess rock out of the Landfill via Willis Point Road, rather than using your 'Purpose built' Hartland Avenue, will be safer. Safer for who? Certainly NOT for the current and rapidly increasing number of people on Willis Point Road and not for the truck drivers either! I am very opposed to the use of Willis Point Road as a refuse entrance. This is a recreational and residential road. Your trucks do not mix well with the current users of this road: local residents; school buses; hikers (Mt Work/McKenzie Bite parking lot is frequently full and overflowing onto the road); and, the thousands of young people heading to Durance Lake in the summer. The biggest, most recent change, has been the huge influx of traffic from the Western Communities and Up Island, attempting to avoid the Colwood crawl. I estimate this group is in excess of five thousand vehicles a day, heading back and forth to work on Willis Point Road. A large percentage of these vehicles are work trucks, travelling at excessive speeds on an unfamiliar road. Adding to this traffic, is the plan for Hartland to start sending commercial garbage trucks up Willis Point Road, I have been a resident of Willis Point since 1984 (35 years) and have had two vehicle incidents in the last year resulting from the increased volume and usage of Willis Point Road. My windshield was broken, caused by excess gravel on the road and, recently I was hit (while stationary) by a large work vehicle resulting in \$10,000 worth of damage to my car: both directly a result of work being performed for the CRD on Willis Point Road. The road is already becoming more dangerous with increased activity. In the winter months, Willis Point Road is prone to black ice, resulting in numerous accidents. On the other hand, Hartland Avenue has reported few, if any accidents in the last 60 years! Hartland Avenue is a purpose built, dead end road with limited residential traffic. The number of trucks on this road has decreased substantially in the past twenty years, and vehicles are built better, resulting in a safer environment. Routing traffic up Willis Point Road will directly impact negatively the safety of Hartland Landfill and Willis Point traffic and increase the frustration of all involved. Trucks will have to stop to allow substantial volumes of traffic to enter The Red Barn; then wait to turn left onto Wallace Drive, crossing West Saanich at the bottom of a steep hill where traffic speed is increasing; stopping again to turn left across traffic onto Willis Point Road and a forth stop to cross traffic into the Heartland Landfill. All this, with traffic backing up behind them, dodging bicycles etc. I cannot see how this can be safer than one left turn onto a dead end road with limited residential traffic. Have waste management firms been canvassed to obtain their expert opinions on the future safety of their vehicles? I would like to see the results.

AGGREGATE MINING, I am also opposed to the development of a large, ongoing mining operation within the Hartland Landfill. Residents will be constantly bombarded with the noise of blasting (will Willis Point Road be closed?). Suddenly we are living in the midst of an industrial park. I am concerned how this affects the overall environment in the area. Have there been any environmental studies completed to see the effects of this strategy (i.e. affects to the aqua fare)?

PROPERTY VALUES I would never consider purchasing property on Hartland Avenue. I am sure property values are severely depressed because of the issues surrounding the access/traffic to the landfill. Property owners purchased lower priced homes fully aware of this issue. This strategy will be putting Willis Point Residents in the same position as the residents of Hartland Avenue if landfill traffic is routed up Willis Point Road. I would like to know how you are proposing to compensate residents for their loss in property values.

ADDITIONAL NEW DEVELOPMENT PROJECTS Development of Organics Processing Facility (strategy #11): Why is Hartland considering the development of an organic processing facility at the landfill? I thought there is an issue with space. Shouldn't CRD strategies preclude further 'other' development in the landfill such as this or putting in a Free store at Hartland (strategy #4). Isn't this initiate better left in the hands of the private sector? The landfill has already developed a gas plant as well as taking on the Sewage Treatment Facility for all of greater Victoria. No wonder there is no space left for its business ... managing a landfill!

SUMMARY I was recently at an open house to review the CRD's Waste Management Plan in Willis Point. In my opinion, 14 out of the 15 strategies are fairly boiler plate and should already have been implemented by a proactive landfill management team. The real issue/strategy the CRD appears to have already made a decision on, is to extend (not enhance!) the life of Hartland Landfill, and the fallout from this decision. It is unfortunate that so little research has been done and was not available at the open house for discussion or to answer pertinent questions. In summary, my major concern is the strategy to transition vehicle access to Willis Point Road. The implications of this strategy have not been considered, even at a superficial level. There will be a substantial increase in risk for anyone travelling Willis Point Road, not a decrease as suggested by the CRD. Considering the large and ever increasing volumes of varied traffic already on Willis Point Road, it seems ludicrous and extremely risky to divert traffic from Hartland Avenue- a short, purpose built, dead end road with decreasing volumes, and limited varieties of traffic.

- ♦ I fully support the strategies proposed above, however, as a resident of Willis Point am very concerned about the use of Hartland and how it may impact the surrounding neighbourhoods. While I support optimizing the use of Hartland Landfill, I strongly oppose the use of Willis Point Road for access to Hartland, whether it be for waste disposal vehicles or aggregate. The proposed use of Willis Point Road to access Hartland will negatively impact: Willis Point and Highlands residents, users of Gowland Tod Provincial Park and Mt. Work Regional Park, cyclists using Willis Point Road to train, and commuters that use Willis Point Rd to Ross Durance Road as well as Wallace (Butchart Gardens). An independent traffic assessment of Hartland Avenue/West Saanich Road and Ross Durance Road/Willis Point Road/Wallace Road/West Saanich Road must be commissioned. The use of Hartland Avenue to access the landfill is a logical choice as it is a dead-end road, the use of which impacts approximately 50 residences and users of Hartland. The use of Willis Point Road impacts significantly more residents and all the users noted above. Additionally, I would request historical incident reports be pulled for both roads. My understanding after attending the meeting on November 12th at Willis Point Community Hall was that there has never been a traffic incident involving a dump vehicle on Hartland Avenue, yet on poor weather days in the winter we have often daily incidents on Willis Point Road. Additionally, Willis Point Road is already the location of regular police check points for speeding and driver impairment.
- ♦ I have many objections to the ideas put forward by the CRD re Hartland Dump expansion. However, my most adamant feedback concerns the use of Willis Point Road for their new entrance to the dump by the dump trucks, gravel trucks and related traffic to the dump site. This portion of Willis Point Road is used by all residential vehicles (the only entrance/exit for 350-400 Willis Point residents), their visitors, service vehicles, SCHOOL BUS, snowplows and other road maintenance vehicles, dog walkers, bicycles and motorcycles, runners & joggers, and recreational traffic to Durance Lake and Gowland Tod park. Add to that traffic 100 garbage trucks daily, and perhaps hundreds of gravel trucks exporting gravel for sale, and you have many accidents waiting to happen. I oppose Hartland using Willis Point Road for their truck traffic for reasons of safety for our residents! No trucks on Willis Point!!!
- ♦ I have questions about the proposal to increase aggregate production at Hartland and the proposal to use Willis Point Road for transport. Both proposals will impact the residents at Willis Point. Perhaps this can be rethought, and a plan worked out to help with this? Thanks
- ♦ I live at Willis Point which is not listed on the first page of this survey, but could ultimately receive the biggest impact if the Hartland Landfill is expanded, as per reference #15 I have strong concerns about the impact of potential contamination or disruption to my/our water source if the Hartland Landfill is expanded since we are all on wells here. The proposed long term blasting could very negatively impact our wells. The proposed increased truck traffic will definitely negatively impact our road travel, whether we are traveling via vehicle, bicycle or on foot. It will also potentially affect the resale value of our homes if Willis Point Road becomes the main road entrance to the landfill.
- ♦ I live at Willis point; we have to deal with the increased activity and trucks at the landfill. Not impressed with the fact that there's no alternative presented. Our property value declines without even being given garbage pickup.
- ♦ If expanding the Hartland facility means increased traffic on Willis Point Road, then I and many others who live in Willis Point are converted from all-out supporters of CRD environmental initiatives to strong opposition to CRD because strategy #15 is flawed. The road is one lane each way only, very steep and curved, slow and dangerous as it is with just local traffic. Residents moved out here prepared to manage with this road in order to achieve the quiet living this access route offered. To have more trucks on this road would be insupportable from any aspect - whether they be bringing waste in or taking end products out, or any other products the site may eventually offer, considered as a source of revenue e.g. gravel. This would convert our access point into a major industrial complex - something totally out of character with the rural area, an entrance to parkland. All Willis Point residents I know fear and will vigorously oppose any expanded use of our access road. We have learnt to fear it particularly in light of the experience we have undergone with the advent of the sewage pipeline and the new access road from Willis Point Road to the waste disposal site. This new access should not be the main access for Hartland, rather the access should be via the current Hartland Road. Residents there knew what they were buying into in terms of traffic, and house prices reflected that. We in Willis Point would be unfairly subject to parachuted in damage to our lifestyle and to reduced property values in consequence. In short, the CRD must not damage our environment and attempt to greenwash the consequences.
- ♦ If your presentation to our community is at the "idea" stage, then you need go back to the drawing board because it is wrong in so many ways. If the plan is already halfway to approval, then your "consultation" is an insult of unheard of proportions. Have you no respect? There is no GOOD reason and so many BAD reasons for diverting commercial traffic to Willis Point Road. On Safety issues alone, are you ready for the multiple of law suits you will face when there is an accident in our community? Large trucks carrying gravel will result in flying pieces cracking windshields and damaging any

vehicles that share the road with them. (and that is ALL of us, as we have no other route) Large trucks turning left multiple times in route are a drivers' nightmare and accidents waiting to happen. Bikers and walkers will have no chance for safety. Where is your decency in valuing truck maintenance over human safety, our recreation areas and environmental responsibility? Most of all, do a thorough traffic study and you will see that Willis Point Road cannot safely bear the number of trucks that you propose adding. Willis Point will fight for our safety, and you don't want to go there. Willis Point is not an industrial roadway and we strongly object to it becoming one, just because you don't like the Hartland road. Fix the Hartland Road and make it work!!

- ♦ Add a passing lane up Willis Pt rd. from Wallace
- ♦ As long as Willis Point doesn't become the new road to the dump I look forward to your new ideas.
- ♦ Do not use Willis point road!
- ♦ Disagree to the proposal of using Willis Point Road.
- ♦ Do not use Willis point road. Please take more time to assess and look at other, better options. We really do hope that Willis Point comments and suggestions are SERIOUSLY looked at and considered and that you will propose a new solution other than using our road.
- ♦ Further Comments: I live in WILLIS POINT, a community directly suffering the impact of the Hartland landfill expansion and biosolids facility, yet the consultation with this community has been non-existent. I find it disturbing, and a portend of things to come, that this feedback form does not include my community on the list of "Where do you live?". I very strongly oppose the proposed plan to expand the Hartland landfill and to divert industrial traffic onto Willis Point Road. The Willis Point community (along with the Highlands community) is currently suffering the negative impact of increased industrial traffic and the construction process. The current increases in traffic have caused accidents and residents have been harassed and threatened by industrial workers associated with the Hartland expansion currently taking place. The CRD has so far done nothing to ameliorate this problem and ensure the safety of families who live in Willis Point and the Highlands and who travel Willis Point Road daily. The accidents, near accidents and the harassment continue. I strongly oppose the plan to reroute industrial traffic up Willis Point Road (80-100 large industrial trucks per day, as per your documents and representatives). The immediate traffic corridors (West Saanich Road, Wallace Drive, Willis Point Road) are rural and not designed for heavy traffic use and I find it unacceptable that the CRD wishes to risk the safety of farm workers (they frequently drive slow-moving trackers along these roads), school children (these roads have 4 school busses per day traveling on them) and residents. The need for increased landfill capacity is being driven by unchecked development in outlying areas (such as Langford). If all the increased waste generated by those ever-expanding municipalities is to be transported to Hartland, the traffic corridors, namely Trans-Canada Highway, Helmcken, Wilkinson, Interurban, will suffer from the increased load in industrial traffic. These corridors are already struggling to support the current traffic load and it is clear that any increase caused by routing the increased waste generated by Langford, and other areas of heavy development, along them will worsen an already growing problem. It will also reduce emergency access to the Hospital and reduce the ability of first responders to effectively travel these main access corridors. I don't see any mention in your strategies to address these issues. I am seriously concerned that the CRD is not taking the safety of children and residents into consideration. I have not seen or heard any plans from the CRD on how school buses, emergency vehicles and residents will be protected from increased industrial traffic on rural roads, especially when there is already an existing and accepted access road into Hartland landfill and an existing road within Hartland landfill into the planned areas for expansion. I suggest that this road be upgraded as it does not impact anyone as it is already within the landfill site. I strongly suggest a new landfill be developed in Langford to more effectively manage the need for waste management generated by the massive housing and semi-industrial developments in that area while also ensuring a better plan for traffic management by reducing the need for increased industrial traffic along already overburdened commuter, residential and emergency vehicle corridors. The CRD's current plan is short-sighted and lacking in comprehensive thought. Willis Point is a beautiful, rural community, Gowland Todd Park is a treasure that many CRD residents access and Willis Point Road is a semi-wilderness corridor with a significant wildlife population. What is the CRD doing to protect these? I find it appalling that the CRD has not taken any of this into consideration and, rather than protect these assets and the safety of the CRD residents who live and recreate here (including the wildlife that frequents Willis Point Road), is purposefully putting us at risk with what strikes me as a lazy, poorly thought through plan. I do not appreciate that my family's, my community's and the resident wildlife's safety is being put at risk and I will do everything I can to ensure our safety is protected by actively and publicly opposing the CRD's plan.
- ♦ By not expanding at Hartland, requiring other communities to support the issue more can be done to achieve the reduction goals you are hoping to achieve. Hiding it and placing the weight of the decision on one community, THE

ENVIRONMENT AND SURROUNDING COMMUNITY THAT LIVES THERE is irresponsible, unacceptable, disrespectful and the easy way out. Time to make it the responsibly of the greater community that needs the use of a dump rather than just the one for the many.

- ♦ If there's going to be a lot of trucks on WP Rd and there's nothing, we can do to prevent that, then you'd better do something to remedy the traffic problems that's going to cause. It will be awful. We'll need longer turning lanes.
- ♦ It will also have an increased chance during the summer of the lake traffic having accidents. Perhaps if you made it a circuit route having traffic entering on one side and exiting on the other you could split up some of the traffic.
- ♦ Local input seemed to be ignored and done with great disdain for local residents as they will have to contend with marked increase in traffic.
- ♦ Of course, the idea to educate the public on waste management and come up with more productive ways for us as individuals to contribute to the success of these ideas is a great goal in theory. But writing down your nice objectives and leaving out the sacrifices that they will entail for the surrounding communities is only going to lose our respect, similar to the few presentations the CRD has put forward, like the one in Willis Point.
- ♦ Plans don't seem to consider heartland landfills neighbours
- ♦ Putting this in a small populated area is unfair to residents who do not have a strong enough voice to be heard. Shame on CRD- many of us feel bullied.
- ♦ To continue the Hartland expansion in my opinion, interferes with human enjoyment and health, it disrupts the enjoyment for those living nearby, including the 300 homes in Willis Point, who smell the garbage during the hot summer months as they drive by.
- ♦ While the idea of having 'informed citizens that participate effectively in proper waste management practices,' is a positive thought, I think it more important to inform the citizens of what these objectives and changes being made to the landfill will mean to their daily lives. If this survey is going to inform me only of the CRD's hopes and wishes of a waste free world and none of the actual plans and the repercussions that would come along with it, I will leave feeling as disappointed as I did after the Willis Point information session that the CRD held.
- ♦ With an entrance already in existence, there is no rationale for creating a different entrance to the dump.

Do not accept cruise ship waste

- ♦ Life of the landfill ... I haven't seen yet the projected life of Hartland Landfill. Whatever it is, it won't be helped by cruise ship waste - we should not be taking this stuff from the US
- ♦ Also include waste that is dumped in the ocean before docking, need strong enforceable rules for cruise ships.
- ♦ As we are taking the cruise ship waste, we are going against all of the CRD,'s supposed principles, goals, and objectives. It is so wrong that they do not contribute in a positive way to the CRD and dump their passengers,' waste!
- ♦ Difficult to take any proposal seriously when you accept foreign garbage from cruise ships
- ♦ Do NOT accept FOREIGN cruise ship garbage if you want me to believe you're serious about cutting waste.
- ♦ Does this include CRD internally generated waste. What about external resources (such as cruise ships) that can leave waste in the CRD and filling our landfill. This covers waste from CRD users
- ♦ Farcical to suggest CRD will be maximising local waste disposal when CRD is accepting "foreign" garbage from other countries on half of the multi-billion \$ cruise industry
- ♦ Feel cruise ship waste is not responsibility of Victoria and especially James Bay .Send it back to cruise ship registered country at their expense.
- ♦ Cruise ships must be forced to pay us for taking their waste and recyclables. Has the GVHA been charging for this? If so, what or how has the GVHA contributed to the CRD to offset costs? If the GVHA has not charged cruise ships for these services, the GVHA must be forced to do so. Further, are the cruise ships sorting their garbage from recyclables, and sorting recyclables as per our requirements? Who is checking all this? As a taxpayer I don't think Victoria truly benefits financially from the cruise ship industry no matter what Tourism or the GVHA says. And only now people are being made aware of heretofore unseen implications of having more and more cruise ships stop in Victoria. The wrecking of our environment worldwide and climate change has to be taken seriously by Everyone and that comes with a cost.
- ♦ I am VERY unhappy with cruise ships that do not provide for the proper disposal of their own waste and that leave an enormous carbon footprint everywhere they go.

- ♦ I live in James Bay and would like to see it done at Ogden Point so there is not a lot of extra hauling involved. And I would like to see the cruise ships involved somehow (designated personnel) in disposing of their own waste.
- ♦ I live in James Bay. I strongly disagree with accepting and handling of cruise ship garbage or recycling of their waste. James Bay wants to retain its quiet neighbourhood. We already deal with buses transporting cruise ship passengers along Dallas Road... we are not a throughway. I strongly oppose.
- ♦ I oppose cruise ship garbage dumping in Victoria
- ♦ I reside in James Bay and am very concerned about garbage from the Cruise ships being off-loaded and transported through James Bay. 150 tonnes per month of foreign cruise-ship garbage are transported through James Bay streets and many more tonnes of cruise-ship recyclables are transported from James Bay rather than being handled by their countries of corporate or ship registry. I believe that these ships should be managing this garbage themselves or finding a more appropriate place than a residential area to offload it. I would appreciate a response.
- ♦ I support these objectives, but not through a facility to process this waste in James Bay. The most densely populated area in Victoria would own have a garbage processing area because of cruise ships. Cruise pollution just in water and the air is bad enough. We are adding more cruise ships and then we are going to process the garbage James Bay. Are you thinking that this will bring some sort of benefit to an already impacted part of Victoria? Are there tons of jobs and finances besides the tons of garbage and fumes? Are you building this at Ogden Point where the ships come in or are you perhaps going to tear down EMILY Carr,'s house and build it there? Really are you guys trying to make James Bay, which is constantly revered by tourists, not just in the cruise ships, for its old buildings and beauty, into a CRD dockyard at the expense of the citizens that live here?
- ♦ I think we should not be taking waste from cruise ships and putting it in our landfills
- ♦ If one of objectives is to eliminate waste where we can, I would suggest stopping accepting foreign waste from cruise ships in Victoria.
- ♦ Insist on licensing any refuse from cruise ships, collecting fees, transparency in what is being brought ashore. Make sure a substantial premium is charged for bringing these wastes on shore. Make sure these wastes are safe to handle. Make sure the ships are doing the utmost to minimize waste and maximize reuse. This is important work, please engage the CRD, provincial and federal governments in this. Do not let the GVHA control this as they are found to be not trustworthy.
- ♦ Please ensure the cruise ships maintain a high standard of recycle, reuse and above all we need the ships to cover the costs of their pollution
- ♦ Should include do not accept waste from sources external to the region (e.g. cruise ships, imported waste, etc.)
- ♦ Stop cruise ship garbage at Hartland
- ♦ Stop accepting waste from Cruise ships
- ♦ The CRD should stop accepting the massive quantities of garbage unloaded from the cruise ships.
- ♦ As the landfill is running out of space, we should definitely not be accepting garbage from cruise ships.
- ♦ Also, accepting tonnes of cruise ship waste contracts many of the stated principles, goals, and objectives - how can this contract be justified.
- ♦ very concerned about the transport of cruise ship & foreign waste through James Bay - companies should not be allowed to use Victoria as dumping ground
- ♦ You should ensure that the cruise lines can continue to use BC facilities where the requirements are stricter than in the USA. This is good environmental management
- ♦ Oppose only because in good conscience you cannot ask residents to cut down while accepting garbage form America floating resorts - tons and tons of it.
- ♦ Targets hypocritical Let ships to dump in USA where their head-offices are.
- ♦ Accepting cruise ship garbage is surely contradictory to reducing the burden on Hartland and makes the commitment to the proposed strategy questionable.
- ♦ Cruise ship garbage should not be going to our landfill
- ♦ Cruise ship waste will blow through these numbers if it is allowed to be dumped here.
- ♦ foreign waste (e.g. cruise ship garbage) should be charged a much higher tipping fee to encourage reuse and recycling.
- ♦ I do not support trucking waste from cruise ships through James Bay and disposal in our country. These large ships should be offloading their waste in their own country for disposal.

- ♦ I understand that 150 tonnes per month of foreign cruise-ship garbage is being transported through James Bay streets and many more tonnes of cruise-ship recyclables are transported from James Bay, rather than being handled by their countries of corporate or ship registry. I oppose the licensing of a cruise-ship garbage/recycling centre in James Bay. (I FORGOT TO MENTION THE ABOVE COMMENT WHEN I FILLED OUT MY ORIGINAL SURVEY). FYI This is a second submission.
- ♦ I will only have any belief in your goal if you STOP accepting FOREIGN cruise garbage
- ♦ If this means you move it elsewhere instead of actual reduction that's a problem, unless cruise ships take away their own garbage who is better
- ♦ No cruise ship rubbish.
- ♦ One way to reduce it immediately would be to cancel the cruise ship garbage contract as the thousands of cruise ship passengers traveling outside Canada for all but 4 hours in Victoria are dumping 100% of their waste into the CRD system. I suspect this change would instantly reduce the per capita waste by 50 kg to 330.
- ♦ Opposed only because of the hypocrisy of accepting cruise ship waste. Surely the CRD learned something from the Canadian garbage being sent to the Philippines. Victoria should not be accepting garbage for this multi-billion dollar foreign (U.S.) based business. Setting up a garbage/recycle centre in the middle of a residential community is farcical.
- ♦ Stop accepting garbage from cruise ships.
- ♦ Stop the cruise ships from off-loading their wastes in Victoria. This should be at their point of origin.
- ♦ There is no room for cruise ship garbage, stop accepting foreign trash....
- ♦ Very concerned that we dispose of cruise ship garbage of all kinds. I think Victoria should charge a very large disposal fee for each ship.
- ♦ Why are we taking international waste from commercial cruise ships and dealing with it in OUR facility? That makes no sense whatsoever. If you want to reduce our waste, why in the world would you accept FOREIGN waste for processing here?
- ♦ You should ensure that the cruise lines can continue to use BC facilities where the requirements are stricter than in the USA. This is good environmental management.
- ♦ I would definitely like to see the cruise ships deal with their own waste instead of leaving it here for Victoria to deal with.
- ♦ We can do all of this as a community and should not be accepting ships into our waters that do not comply.
- ♦ It is ridiculous that the CRD is allowing the GVHA and Cruise Ship companies to dump cruise ship waste into our landfill thereby reducing its life expectancy. If the public knew about this there would be an uproar.
- ♦ Do not accept Landfill from Cruise Ships except by imposing a proper tax to compensate the community
- ♦ Evaluate and critique impact of tourism and cruise ship industry on our local waste stream.
- ♦ Cruise ships should pay the cost of all disposal, removal and education programs, as well as other costs of their being in our neighbourhood. A few tourist dollars do not cover the immense cost of the ships' pollution.
- ♦ CRD should stop accepting the garbage from cruise ships. I think it is unreasonable for cruise ship companies to dump cruise ship garbage on our island. Cruise ship garbage should be dumped on the mainland.
- ♦ Stop accepting foreign waste from cruise ships If you don't do this nothing you say will be taken seriously
- ♦ Concerned about solid waste facility at Ogden Point. James is already close by the Wastewater Facility being built at McLoughlin Point. So, either building another facility in James or transporting tons of garbage through James Bay isn't a particularly smart thing to do. I would support Solid Waste Management Facility at original port of departure/final port of arrival, rather than off-loading cruise ship garbage at ports of call during the cruise. If Victoria does become a departure port - i.e. an end destination, not just a port of call, then I might consider supporting building a solid waste management facility at the cruise ship terminal. Otherwise, I am against this. By the way, I believe Victoria is the first port and last port of call for ships coming out of Seattle. So, the cruise ships themselves do not load perishable product. Why do we have to accept their garbage?
- ♦ Stop accepting foreign waste from Cruise ships. Why should Canada or Victoria be taking garbage from foreign cruise ships when none of it originated in Canada? are we the dumping ground for foreign waste.?
- ♦ Fees should be strategically applied to encourage and discourage certain behaviours (i.e. foreign waste from cruise ships should be charged a higher price than that of local taxpayers).
- ♦ Stop accepting waste from cruise ships

- ♦ STOP the cruise ship pollution of both air and waste. AND NOISE pollution. It's terrible in Victoria.
- ♦ A recycling facility in James Bay to deal with Cruise Ship waste.
- ♦ As Hartland has finite capacity, why does the CRD accept refuse from cruise ships. Doesn't seem prudent.
- ♦ as noted earlier - an unclear which strategy is relevant - the fact cruise ship waste is unloaded and transported through James Bay must be stopped
- ♦ Need to take in consideration the 150 tonnes per month of foreign cruise-ship garbage are transported through James Bay streets and many more tonnes of cruise-ship recyclables are transported from James Bay rather than being handled by their countries of corporate or ship registry. Something needs to be done to encourage waste prevention, not treatment. The cruise-ships need to be accountable for all the waste.
- ♦ We should not be accepting garbage/recycling from the cruise ships. This produces more traffic to an already overloaded neighbourhood. Unless an independent study finds to the contrary, common sense strongly suggests that the practice costs the city's taxpayers and shortens the life span of Hartland.
- ♦ We do not believe it appropriate to "accept" cruise ship waste in Victoria - if the media report is correct at 150 tons per month (for six months of the year) that is quite a bit of waste that should be disposed of in their "home" port (not a visiting port). Thanks for allowing this input.
- ♦ I am so very concerned about the business of taking in cruise ship waste. This has to be counter to any good practice ... no local or Canadian government should be taking waste from another country ship it across the strait to Port Angeles! The so-called authority, the Greater Victoria Harbour Authority, has absolutely no right to be saddling us with waste from their clients, the cruise lines. I think the big business cruise lines should be able to do better than this! Who is liable when something unacceptable - hazardous or biomedical waste - makes its way into our landfill? Will the GVHA and the cruise lines step in to find more landfill space for us when, oh dear, our landfill is suddenly out of space? What about the 'transfer station / recycling facility' at Ogden Point? Is this a CRD responsibility or provincial government responsibility? Either way I would posit that neighbour consultation and permits haven't been carried out in advance with due diligence. I certainly didn't hear about this in advance. And the final insult of this possibly illegal activity, is the transportation through the city of the very large waste trucks with US-owned waste. For shame!
- ♦ I am a James Bay resident and wish to add a comment about the cruise ship industry's impact on waste management in the Victoria area generally, and also specifically in James Bay. This industry already impacts James Bay negatively, to a degree far above what another residential neighbourhood experience. I understand that a garbage/recycling operation is in the (re)development stages (with activities ongoing). I strong feel that the responsibility for waste management and recycling -- both costs and physical disposal -- should be carried out by the cruise ship companies themselves in the jurisdiction where these ships are owned and/or registered. This type of tourism is a blight, in my opinion, disgorging thousands (literally) of people for the span of a few hours in this small, bottleneck area of the city (where James Bay meets the inner harbour). It is so different from the regular, welcome stream of tourist visitors we get -- people who come for a day, a few days or more, and get to know the city on its own terms, staying locally, at a human pace. The mass tourism of the cruise ship industry is just the wrong way to go, in my opinion, not at all what Victoria is about, and as a James Bay resident, I truly resent it. I can't imagine any other neighbourhood wanting to put up with it. **PLEASE DO NOT ALLOW WASTE MANAGEMENT AND RECYCLING BY CRUISE SHIPS TO FURTHER IMPACT OUR NEIGHBOURHOOD. PLEASE ENSURE THAT THIS INDUSTRY, IF IT CONTINUES (AND AS IS EVIDENT, I'D BE HAPPY IF IT BECAME A SUNSET INDUSTRY, QUICKLY) IS RESPONSIBLE FOR ITS OWN GARBAGE.**
- ♦ I am against the cruise ship industry taking advantage of the CRD by dumping their international waste on our island. This waste can't even be treated in the same way as local waste and is burdening our landfill resources more and more every year. These monster ships pass through Victoria for a mere few hours yet bring in significant waste from international sources. Victoria is not even a home port/cruise origin point for A SINGLE ONE of these ships. It is an unnecessary burden to our local environment and a disgrace to the health of our urban area. Not allowing ships to offload garbage here would send an important message to the cruise ship industry about how the CRD is moving forward with its goals for the new solid waste management plan.
- ♦ I am opposed to the City of Victoria - in any area - taking and processing waste of any kind from any of the cruise ships. The cruise ship lines should deal with their own waste - not dump it in Victoria. We already have enough problems, challenges and expenses looking after our own waste without taking waste from other countries! There must also be safeguards in place to make sure the cruise lines do not dump their waste into the water.

- ♦ I am vehemently opposed to the cruise ship dump at Ogden Point. It was put in with no consultation which is shameful and brings pollution (noise, air) and increased truck traffic through the James Bay neighborhood which is not equipped to handle it, or the garbage facility in any way. It should be removed from this residential community.
- ♦ I have heard that there may be a proposal to regularize the recycling and disposal of cruise ship waste. This goes against all the outlined CRD principals. We want buy-in from the public to deal with our waste, but not so we can accommodate waste from offshore. I have lived across from Ogden Point for 24 years, and I have only seen one case when produce was actually brought to a ship in Victoria. The interesting thing was the truck came from California, our local produce was obviously not up to par. What I have seen was countless trucks with logos of a waste management company coming and taking waste away. Additionally, there have been many trucks taking sewage away from Ogden Point. I don't want to be working toward waste management while garbage and feces are imported. This is not a circular economy.
- ♦ If you continue to accept FOREIGN cruise ship waste, please modify all my replies to "don't support" - this issue will NOT go away
- ♦ Insist the cruise ship industry eliminate/reduce the solid waste they bring into our community.
- ♦ It is reported that there is a proposal to construct a recycling/garbage disposal facility in James Bay to service the Cruise Ship industry, although there is no mention of this in this survey. I am strongly against any construction of a recycling/disposal facility in James Bay to service the Cruise Ships. These ships should dispose of their own waste or pay to have it trucked to an existing facility. The Cruise Ships create numerous problems for James Bay residents as it is without loading more disruption on this small, residential community.
- ♦ Keep cruise ship terminal garbage out of Hartland or at the very min make them meet city objectives re waste management. Reduce cruise ships, if necessary
- ♦ Keep the cruise ship waste out of our region.
- ♦ No cruise ship garbage in our landfill areas.
- ♦ Please do not allow cruise ships to dump garbage in James Bay no matter how much money they offer as a bribe. Becoming a garbage dump for the cruise ship industry is inconsistent with CRD's goals and strategies and will more than wipe out material and land resource savings achieved as a result.
- ♦ Reduce cruise ships and increase their fees for use
- ♦ Refuse to accept waste from cruise boats, or insist that their materials be properly sorted, and pass all costs of accepting these materials on to the cruise lines themselves.
- ♦ Restriction of garbage and recyclable collection & processing from the CRUISE SHIPS which visit Ogden Point. The impact on local residents, including the additional heavy-truck traffic in the neighbourhood, is unacceptable.
- ♦ the CRD, and the City, cannot ethically ask any residents to reduce garbage or fund the CRD program while the CRD accepts garbage from a \$60+ billion foreign based industry (Cruise-lines).
- ♦ This is a repeat of my beginning remarks which I do not believe are covered in the above objectives: I reside in James Bay and am very concerned about garbage from the Cruise ships being off-loaded and transported through James Bay. 150 tonnes per month of foreign cruise-ship garbage are transported through James Bay streets and many more tonnes of cruise-ship recyclables are transported from James Bay rather than being handled by their countries of corporate or ship registry. I believe that these ships should be managing this garbage themselves or finding a more appropriate place than a residential area to offload it. I would appreciate a response.
- ♦ This whole approach assumes two things I disagree with 1) it assumes we (the public) needs educating 2) it assumes we are blind to hypocritical policies The CRD is forcing us, residents of Victoria, to de facto subsidise the cruise industry as it takes 18 wheelers through our communities full of cruise-ship debris. Just as Canada should have been embarrassed for the Canadian garbage on the Philippines, the CRD, and especially Victoria, should be embarrassed by its acceptance of garbage from American companies - cruise-ship industry.
- ♦ Waste from cruise ships should be handled at their home ports.
- ♦ Please make sure the cruise ship industry deals with its waste management through the port of registration or through the corporate ownership. We don't want all the waste trucked through James Bay!!
- ♦ We need to not allow cruise ships to dump their garbage at Hartland.
- ♦ I don't know if you take cruise ship waste, but we on an island and can't afford to have more dumped here. They can dump on the mainland where there is more room.
- ♦ Again - do not accept waste from external sources even if it is proportionately a small amount.

- ♦ Oppose the movement of solid waste onshore from ships without significant charges and penalties
- ♦ Reduce tourist garbage impacts on local residents

Other

- ♦ Support regional industrial treatment facility by 2025
- ♦ The last time that I went to Hartland landfill, scrap lumber and hard plastics were no longer being separated from general garbage.
- ♦ Very concerned about odor levels from new Waste processing plant!
- ♦ This seems like a bad option. Is it safe to blast and excavate around a landfill site? Sounds like it's asking for trouble.
- ♦ It can be argued that the landfill can and should be removed because a), it is both obsolete (non-competitive/carbon-spewing v. Van-Port) and, b), is nothing more than a huge toxic mess/time-bomb that contains enough dioxin to kill everything in the Salish Sea/Saanich Inlet. NOTE; This argument does not preclude any effort to convert the landfill into an eco-oasis/eco-industrial complex, nor does it preclude to maintain/reinforce/ expand the status quo for the truckers/waste collection vehicles local employment scheme, including to expand operations to include import/treatment/reclaim of extra regional waste streams and to thereby obviate prevent the current (illegal) export of wastes off Vancouver Island

Additional Comments

- ♦ Does solid waste include sewage? What about contamination from hospitals and other such facilities? How do you propose on this island to separate that waste? Today we have sewage trucked off-island
- ♦ I didn't see any mention of the Class A biosolids resulting from the sewage treatment facility. How does this factor into the strategies? It seems the processing plant will take up quite a bit of the already limited space.
- ♦ CRD should not be delving into delivery of waste disposal not currently covered under their landfill programs. With its history of dubious financial management, the CRD and the municipalities have proven that private industry can deliver much more responsive and cost effective waste disposal methods for wood waste, organics, and other wastes. Expanding into these areas is an overreach by government and will likely result in competition challenges and increased costs for all taxpayers.
- ♦ I know this is a "solid" waste plan, but Salt Spring could use CRD support to find a way to dispose of liquid waste on our island. When we suggested a Reed-bed system in 2015, CRD would not even look at it and wouldn't tell us why.
- ♦ Plan needs to include sewage recycling solid waste. Should already have a placeholder in the plan.
- ♦ I would consider an adjustment to the criteria to run for elected positions - such that candidates are more competent, realistic, creative, objective, and honest.
- ♦ Quit blindly following agenda 21...
- ♦ With assistance from other, senior levels of government, develop and implement a strategy for a completely self-contained facility, that diverts recyclables and reclaims them into reusable products, fuels etc.
- ♦ What is "diversion"? Support recycle industry on the island. The one plastic recycle industry we had on Keating you shut down by diverting plastic supply to someone else.
- ♦ In case you wonder where I am coming from, I am 71 and have lived most of my life in Victoria. I have an agricultural degree and practised as a Veterinarian. These Ideas I am writing about have been implemented in many countries around the world when they were forced to lower waste. I can assure you people out here know we have a serious problem and want something done now.
- ♦ Cleanup the Hartland toxic wastes site/and abandoned toxic mines (SUNRO at JOR and Britannia Mines)
- ♦ Approve the plan...sure...but nowhere did it feel like I could offer or suggest that the CRD's electoral areas should be strongly encouraged to implement waste services managed by the CRD. Put another way, if the residents of the Gulf Islands within the CRD seek solutions to waste management issues - the CRD says "not our problem." I strongly encourage that the expert staff of the CRD waste management division be proactive in addressing waste management issues despite not having established services but instead, a true desire to help ALL residents within the region achieve the obviously supportable goals of the plan. But if you can't bring the electoral areas into the fold - why bother asking us about the plan.

- ♦ Pender Island has a very good recycling service. As a result, I understand Pender on a per capital basis has way less garbage than all other areas in the CRD. If this is true should not your goal be to ensure all other areas of the CRD develop the same approach? If not, why not? It is a lot more work I agree but with heightened awareness of climate change issues I suggest it has to become part of the new normal.
- ♦ There is no mention in here of how you intend to ensure these strategies are also rolled out on Salt Spring.
- ♦ Lately, the success of community involvement has been negatively impacted when recyclers have been turning away items that were previously accepted for recycling. It's telling that there is a need to find creative ways to deal with materials collected for recycling. In my opinion, the CRD should work with post-secondary institutions in the area to research and find solutions for difficult materials that are collected. Perhaps, CRD should establish a research fund devoted for the said purpose The focus would be to look at what other jurisdictions are doing and the economic implications of increased diversion.
- ♦ Support existing recycling facilities so that things like glass recycling are not cost prohibitive!
- ♦ The policies and practices need to be implemented across the CRD, not just Vancouver Island.
- ♦ There are fewer categories of recyclables, people who are paid to follow through, lots of informative materials, etc. I know we're not China and I don't want to be China. But we really ought to be looking at least some "sticks" and much more effective "carrots".
- ♦ Consider funding for international waste reduction projects, \$\$\$ spent in Asia would make a much bigger global impact than spending it here.
- ♦ Do more to assist people who could lose their present jobs find another job to ease their transition.
- ♦ I LOVE this, all the ideas, except I don't have an opinion about Hartland because I am ignorant about it.
- ♦ What does "Review Ban etc..." mean?

Process/Survey

- ♦ I have not read a lot about the proposed solid waste management plan in newspapers or heard much on local radio stations.
- ♦ Again, all these "strategies" are applicable and practical, but so generalized that they really say very little about what is involved here. I hope approval of the strategies will not be an approval or endorsement of whatever the CRD does to implement the strategies. Your generalized "ideal" list really doesn't inform the public and taxpayers about what you plan to do and how.
- ♦ As stated earlier, I do not have access to any detailed information that would make rating of the proposals possible.
- ♦ I'd like to know more, understand some of the strategies that are being considered. Apparently, my chance to so was on November 5th in the Victoria area. I received the email stating such the morning of November 16th! Hard to comment in the absence of further information.
- ♦ Plus tell us in advance, not at the last moment, re your plans. FYI, I have lived at 1 address for more than 45 years, watch local TV, listen to the local CBC, read the Times Colonist DAILY, am active in my local Community Association etc., BUT today, 28 Nov 2019 at 11 am approx. is the very first time I have heard about these plans and this survey. If I had known, I would have tried to attend whatever meetings you had in Saanich.
- ♦ Where are your stats to understand the depth/impact of the different problems and strategies? Also, this process of community facilitation equals 'read all these docs to understand and form an opinion' excludes a lot of people who have 'time', are likely uneducated, etc., not families and working multiple jobs. I suggest more infographics or more visual explanations and questions for people to provide feedback. Or break it down into sections to vote on.
- ♦ Yes, we agree to the many proposed objectives however we DO NOT feel enough planning and consideration has gone into options. Other solutions should be strongly considered.
- ♦ After realizing what little research has gone into these proposals, I don't have faith that these numbers are accurate or have even been studied. The way this information is being presented has left me feeling like the people behind these proposals are not those of Victoria residents and perhaps live somewhere else completely. Maybe somewhere that won't bear the brunt of any negative impact.
- ♦ Each question raises too many other questions, so I could have checked "neutral" for each. Of course, your universe of responses isn't random or representative, so your summary of responses is unlikely to reflect overall popular opinion. I suggest you present a series of analyses, drawing on OECD countries' studies and practice, showing the broad costs and

benefits of waste management initiatives in areas such as pricing, technology, capital investment, and regulation. Then ask for comments. Done as a series asking for public input everyone would learn a lot more and you could draw some useful conclusions. Important subject!

- ♦ Re-issue survey with an opportunity to comment after each section. Providing extra comments here makes the whole thing very cumbersome. Poorly designed survey. Providing the numbered strategies above without links back to remind us about content is UNHELPFUL! Most of your respondents are unlikely to remember everything listed.
- ♦ Re-issue survey with much more time for distribution and participation. This is an important issue and I think I read that this is the first update of the plan since 1995. Can't confirm that as I dare not risk losing my input thus far by going back ... enough said. If 1995 is true what on earth has the CRD's waste department been doing for the last 24 years? How dare they make decisions impacting us all financially and otherwise without knowing their plan is currently acceptable. Someone asleep at the wheel - whom we are financing!
- ♦ It is impossible to answer this without any idea of how the CRD is proposing to implement processes and changes. This question should be AT THE END, when people have an idea of what it really means on the ground. Putting it first (with no idea of the potential consequences that would be forthcoming) could be seen as manipulative.
- ♦ About the survey - I really don't like that you lumped all the strategies into categories. Some individual ones I support, many I don't, but there's no way to indicate that.
- ♦ The wording was hard to understand. I would like to see more details and examples, possibly even pictures to clearly get a full understanding of each part. I someone had health issues or low attention span or low concentration or comprehension they would have no hope of understanding and retaining this info.
- ♦ Rewrite survey in non-government language to make it much more user friendly. Of course, it's understandable but not an easy read for those who don't read this 'garbage' every day. Pun most definitely intended.
- ♦ Please write in plainer English.
- ♦ How about some simple English? As examples -What is a circular economy? - I am university educated and I don't know what that means. In your guiding principles #3 what do you mean by 'residuals'. This wasn't written for the average citizen. It's like a doctor using medical parlance that you can't understand. SIMPLE ENGLISH PLEASE!
- ♦ Some of the terminology in these survey questions is hard for a resident such as myself to understand.
- ♦ This is all well and good, but the language used is outside most people's grasp. Make this info into a series of relevant points that ANYONE can understand.
- ♦ This is a slanted questionnaire
- ♦ This questionnaire asks questions that are not meaningful.
- ♦ This survey is too broad, I can't vote on "groups" of principles, each one is different
- ♦ The CRD doesn't care what the residents think.
- ♦ You don't give a shit about what the public thinks.
- ♦ This questionnaire appears to be more focused on whether people support the idea of reducing waste rather than requesting serious input and solutions into how we as a community can aid in reducing solid waste.
- ♦ In general, the proposed goals are very broad and superficial. Feedback should be solicited for more specific, attainable goals and clearly defined numbers for "financial sustainability".
- ♦ Survey is well meaning and well-intended but self-fulfilling - who is opposed to your strategy - but needs more info!! How will it be done, how much will it cost?
- ♦ When bringing up the various lists of proposals it is impossible to get back to the questionnaire without going back to the beginning if the survey
- ♦ What about some focus groups with your audience to discuss some of the ideas you receive, those of us affected and left to carry out what CRD deems the best way forward?
- ♦ How will you measure and address the comments you receive here? Or will they be ignored
- ♦ Do more long/distant planning. Search out other recycling practices that would be useful to use.
- ♦ What about seeing what other provinces do? I think Alberta has been way ahead of BC in the past. Is that still the case?
- ♦ Make things more fun in the documents
- ♦ Thank you for "engaging" the public. I appreciate the plan in all its detail. Giving feedback to the flashcard strategies was extremely annoying and hard to cross reference and felt very much like a divide and conquer approach.

- ◆ Congratulations on your efforts to reduce the amount of waste going to Hartland Road; hopefully you will receive some useful information I will be interested to hear whether you do.
- ◆ Grateful CRD is circulating this questionnaire. It's about time!!

Advertisements related to waste management

- ◆ Green Comfort Innovations. We use behavioral economics to improve waste separation at source. By making waste easier to manage, with fewer annoyances and effort, including other direct tangible benefits, the current mainframe, and a few bylaws achieving higher separation at source can be reached. Common complaint. Yuck factors such as bad odors, flies, maggots, and frequent washing, put off people from using their bins effectively. Present problem: Loss of valuable resources Organic waste contaminates and renders recyclable material garbage. 30-40% of the matter found in garbage bags is organic. Landfill capacity and sourcing Methane emissions reduction Leachate poisoning of groundwater Water wastage and contamination: On average, 100 liters of water is wasted washing a single bin. Water runoffs Waste Litter management and collection difficulty Plastic Grocery shopping bag pollution Collection route in-efficiency and cost We are thrilled to introduce Bagez; A durable steel bag holder that improves the capture of organic waste by eliminating the mess and hassle your residents face when regularly disposing of waste in their bins. Bagez a simple, solution: Works with current systems and bins used for collection Compatible material and thickness: Compostable, biodegradable, plastic, sandbags, contractor-grade, and fabric bags. Tested To secure heavy bags up to 55 lbs (25 kgs) No modification or effort required. Simply place in position & lift-off. Improve capture and collection (participant interaction w/o legislation / fines) Uses bags more effectively Reduces single-use plastic bags that commonly used for waste disposal. Cost-effective solution to improve collection rates water saving Including additional benefits. Below are links to help understand our product and an attached catalog for your consideration. How Bagez works.: <https://www.youtube.com/watch?v=tpe7z-wAipM> Clean bins while saving the environment <https://www.youtube.com/watch?v=jvNTClDwwDc&t=8s> We are confident Bagez will help in achieving diversion rates while making life more comfortable. Thank you
- ◆ Green Cone Solar Digester System MAKE Green Cone Solar Digester System MADATORY for all single dwelling homes in the CRD See details here: <http://www.compostec.ca/>
- ◆ BagEZ garbage bin bag holders help make waste separation easier by eliminating the mess and hassle associated with disposing trash at home. Securely fit any bag, and get fresh, clean bins every time your waste is picked up. It's that easy, life can't get any more comfortable. Improper disposal of household food and organic waste is a global concern. Valuable natural resources and recyclable materials are now destined for landfills or incineration because they are rendered garbage because of food contamination. Why does this keep happening? Organic waste gets yucky fast. We want it out of sight. Current disposal methods such as single use plastic grocery bags, constantly leak, and tear. Some paper products just don't hold up or turn out to be way too costly. Keeping bins clean has turned into a tedious chore. Common household cleaning methods make for extra work, this has resulted in improper bin use. There are better solutions, but for most regular 9 to 5 folks with kids, bags are the easiest and best solution. Compostable, biodegradable or plastic bags are available, but finding the right bag to fit your bins is not easy. That's just what BagEZ does - ,Make life Easy. Our Mission commits us to provide you with quality and value. Conserving water, improving hygiene and saving money are just a few of the additional benefits. BagEZ is versatile, made of steel, corrosion resistant and capable of firmly securing bags up to 55 lbs, making it the perfect bag holder for any indoor/outdoor situation. It's built to take your trash and offer years of service. From re-purposing old clothes into shopping bags, to debris collection; BagEZ makes cleaning up anywhere super easy by turning bags into portable bins. BagEZ has you covered. We all want to do our part to combat climate change, but without the right tools, most of us surrender to The Dark Side. Statistics indicate that 40 % of material found in garbage is organic by making waste management convenient, economical and effortless for you, doing the right thing just becomes the obvious choice. At BagEZ our reward is seeing positive action happen to fight climate change by making disposing waste EZ FOR YOU.

4. Emails Received

Six emails were received and are included below.

Email #1:

From Director of Infrastructure Services, North Saanich

Subject: RE: November 14 Local Government Solid Waste Liaison Group Meeting

Russ,

At the meeting the other day you encouraged us, staff from the CRD's municipal partners, to provide some feedback on the solid waste management plan. I thought I would share a few thoughts that via email.

One general comment is that the plan seems to be heavily/primarily based on education strategies. While these may be somewhat inexpensive compared to other methods, I really question their effectiveness as the primary approach in having a significant (if any) impact on the reduction/diversion of waste to Hartland.

There also seemed to be a sensitivity to the local issues immediate to the proximity of Hartland which might supersede/override the greater/common good.

- For example, changing the entrance to Hartland from Hartland Avenue to Willis Point Road would probably add about 4 km to each load from most of the region and contribute additional GHG emissions (if that is a concern of the CRD).
- The issues associated with the continued operation of the mountain bike park. Although one can understand the popularity/value of this facility, it only exists because the CRD has a reserve of land for future expansion of the waste facility, not the other way around.

There seems to be a heavy reliance on other service providers to accept certain diverted waste/recyclables/reusables. Maximizing convenience/simplicity of service is most likely to encourage customers/users to participate/comply with waste reduction efforts. Turning folks away at Hartland is likely a significant factor resulting in improper disposal. In my opinion, to the extent possible, residents should be able to bring almost anything to Hartland for disposal, recycling. Anything that can be done to assist/facilitate simplicity/service for residents should be done.

In relation to the above, disposal of drywall is problematic. Some thoughts, if it's bagged in accordance with the requirements for that which may contain asbestos, it should be received, period. It is a lot of time, effort and cost to properly bag the stuff, if that is done, it should be accepted. There should be no expiry to testing. Once a homeowner knows there is asbestos in the drywall in their home, they should be able bring it to Hartland. Clean, asbestos free drywall, should be accepted at Hartland as it is at DL Bins (for example). This balance that the CRD is trying to maintain with private contractors/haulers is difficult to comprehend/defend/manage. With respect to organics, the CRD has 'banned' kitchen scraps. Question how that ban can be effectively where organics collection is not uniform throughout the region. This would be difficult and costly to enforce effectively. Also, consider many homes have in sink garburators. With these, organics end up at the treatment plant. For those served by sewer on the peninsula, that goes to the WWTP, is treated and ends up as sludge which is then trucked to Hartland. I.e. it is not diverted or reused.

There is a lot of latent energy in all the waste, particularly in organics, which is simply wasted. Recovering this energy should be seriously considered and would reduce the volume of waste and extend the life of the landfill.

Suggest facilitating/supporting the development/operation of green waste/composting facilities in member municipalities should be part of the plan.

One of the nagging issues with recycling is the lack of real markets for most, if not all, of the recycled materials. Many in the community are painfully aware of this fact and this may contribute to cynicism and reduced participation in recycling programs. Not sure how to address this one, maybe need to look at recycling in a different manner or create local end markets for the materials. Ignoring or deceiving the population with the 'value' of recyclables and their ultimate true destination is also not effective.

A few thoughts, hopefully some of which are useful.

Regards,

Eymond Toupin | Director of Infrastructure Services
District of North Saanich

Email #2

From: Chair, Coexisting With Carnivores Alliance (CWCA), November 30, 2019

Subject: CRD Solid Waste Management Plan (SWMP) Strategy Development Summary Report dated May 2019 and Proposed Strategies & Targets for the First Round of Public Consultation

The Mission of Coexisting With Carnivores Alliance (CWCA) is to offer strategic leadership to governments, communities, and stakeholders by providing support, education and innovative tools on preventing conflicts with and increasing tolerance towards carnivores. We provide solution-based approaches that consider both, human and carnivores needs, and see governments, communities and stakeholders as the leaders in raising awareness of and willingness to coexist with bears, cougars and wolves in the long term on South Vancouver Island.

CWCA is a local non-profit organization and a registered society in BC and is composed of a wide net of interested parties; First Nations, scientists, conservation groups, farmers, landowners, businesses, government agencies and citizens. CWCA has strong environmental and social objectives as demonstrated in their Terms of Reference and the projects they implement.

In reviewing the CRD SWMP and related materials CWCA is concerned that the issue of solid waste as an attractant to wildlife is not mentioned. Approximately 60% of the calls across B.C to the B.C. Conservation Officer Service regarding black bears and attractants was due to garbage for the period 2014 to 2018 (see Appendix 1). In the CRD, between 2011 and 2016, 52 bears were killed with a majority of those kills directly resulting from having garbage as an attractant to the animal.

The CWCA would like to see this issue addressed in the revised SWMP as a means of reducing human/wildlife conflicts. These conflicts can be direct as in conditioning of wildlife like bears or raccoons to human food sources (waste) leading to conflicts, but also indirect as in the creation of vectors for pests or disease vectors related to wildlife. With regard to conflict reduction, solutions can

also be considered direct such as equipment modifications and standards (wildlife proof containers), and indirect such as improved bylaws and/or policies that facilitate increased education and compliance with best practices across the waste management system.

With regard to the current draft of the SWMP, the CWCA offers the following specific comments, suggestions and recommendations for consideration, discussion and potential inclusion into the next revision.

CWCA suggests that the Guiding Principles include “Prevent waste materials and recyclables from becoming an attractant and harming wildlife”.

CWCA suggests that the Plan Objectives include “Reduce the number of bear and other wildlife kills due to habituation to solid waste”.

Goal 3 states: “To have informed citizens that participate effectively in proper waste management practices.” CWCA suggests that Goal 3 could be broadened to:

- include businesses, agriculturalists and industries OR all stakeholders and
- incorporate strategies and policies to adopt best practices like the modification or retrofitting of waste containers (collection bins, carts, metal bins and kitchen scraps collection totes) to help reduce waste from being accessible to wildlife.

There are many good examples of standards and methods of reducing conflict that are used in other communities that are proven to work. Policies and bylaws from the Okanagan-Similkameen Regional District and the Squamish-Lillooet Regional District are given in Appendix 2 as some examples of successful options that have been implemented elsewhere. CWCA would be happy to review and recommend options that would be effective in the CRD.

The CWCA further suggests the following observations related to both Strategy 1: Continue and enhance education programs; and, Strategy 6: Continue and enhance policy development.

The SWMP include policy and/or bylaw development, in collaboration with stakeholders, toward enhanced education and compliance programs encompassing private and public industry waste collection and disposal and the kitchen scraps program to:

- Inform and educate all stakeholders regarding best practices. For example: curbside bin placement should be done only on the day of waste collection, limiting the time attractants are available to wildlife.
- Implement effective waste management such as installation of approved bear resistant waste bins for garbage, recycling and food waste at rural locations such as private, municipal and regional parks and campsites.
- Implement best practices for reducing conflict from backyard composting (a potential wildlife attractant) in rural communities.
- Provide education to the public on methods for managing garbage, compost and recyclables and other attractants in a manner that is “Bear Smart”.

- Facilitate and/or provide regional coordination for the development of Bear Smart community programs, in concert with a broad range of stakeholders, including businesses, agriculturalists, parks and recreation managers and general citizens.
- Establish set out times and / or container requirements for waste in their refuse collection bylaws.
- Install electric fencing around landfills that receive putrescible waste (landfills that receive only construction / demo waste would not require electric fencing).
- Ensure Municipal and regional Planning Departments will develop requirements for Bear Smart waste management, storage and collection systems in new developments.
- Develop a 'Wildlife Animal Bylaw' to regulate bear and wildlife attractants on all properties. The attractants to be considered for this bylaw include organic and garbage residues or stockpiles, composting, orphan and residential tree fruits and nuts, feeding of dangerous wildlife and storage of anti-freeze and paint.
- Develop model procurement policies for use by local governments for bear-resistant bins
- Investigate regulatory mechanisms to enforce day of pickup garbage/kitchen waste placement

Furthermore, CWCA suggests the following additions to the other proposed

Strategies: Strategy #3:

- Provide information to food waste reduction and recovery programs about the impacts of improper disposal of such foods due to their ability to attract wildlife.

Strategy #5:

- Develop model language for bylaws and best practices for attractant management and placement of waste/recyclables curbside on the day of pickup.

Strategy #9

- Require that all commercial and institutional facilities provide bear-resistant bins in areas where bear-human conflicts are prevalent.

Strategy #11

- Ensure all organics are placed in wildlife resistant bins.

Incorporating these recommendations noted above can be focused in rural areas but are also applicable to suburban and urban areas. These actions would increase understanding and enhance positive behaviour outcomes for humans and wildlife taking into consideration community goals, environmental protection and public safety. CWCA views this as an opportunity for positive environmental and social impacts.

CWCA would be pleased to work collaboratively with the CRD and stakeholders to:

- increase awareness and improve the impacts and outcomes of solid waste in rural communities from being potential attractants for wildlife, present relevant information to the

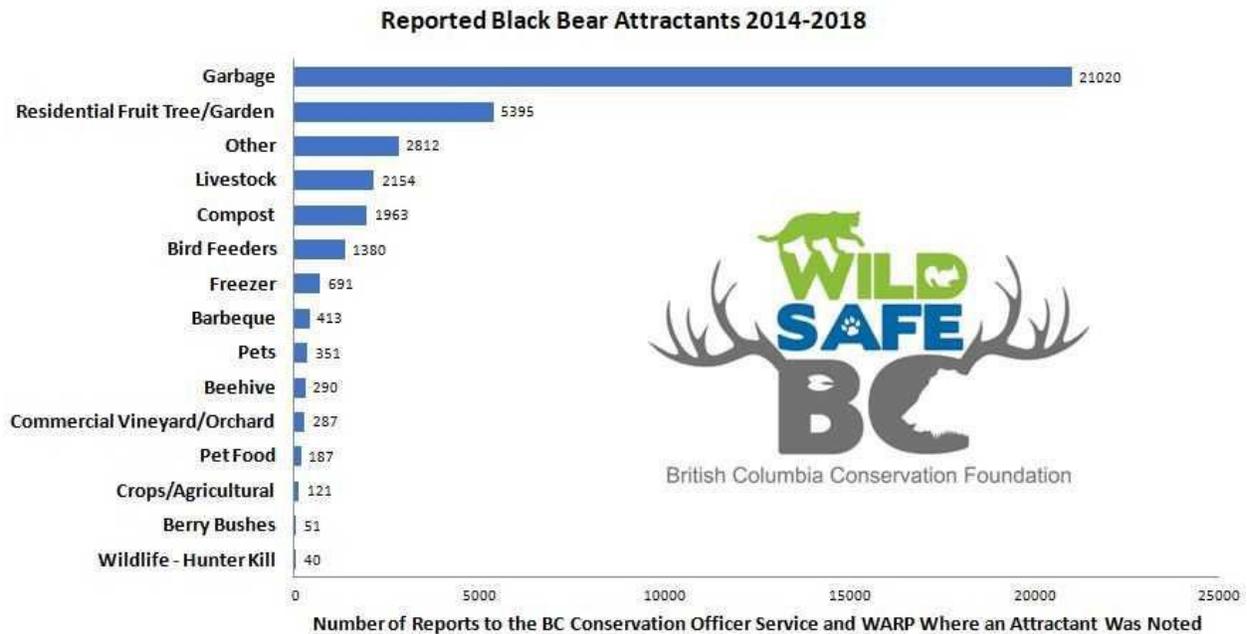
Solid Waste Advisory Committee (SWAC) and or the CRD Parks and Environment Committee to support their deliberations and to support the SWMP goal to reduce consumption and advocate for consumer responsibility. Please contact CWCA at: (email address)

You can learn more about CWCA by checking out our website at: coexcarnivores.org

Thank you for the opportunity to provide input.

APPENDIX 1

From: <https://wildsafebc.com/black-bear/>



APPENDIX 2

Okanagan-Similkameen Regional District

http://www.rdosmaps.bc.ca/min_bylaws/ES/solid_waste/SWMP/2011_RDOS_SWMP_FINAL.pdf

21. Bear-Human Conflict Management: The South Okanagan-Similkameen Human-Bear Conflict Management Plan, completed in 2010 by the SOS Bear Smart Stewardship Committee, was developed to provide a framework to assist communities in developing their own solutions for human-bear conflict management. This plan identifies a range of options and provides suggestions for implementing specific options. The plan's recommendations were considered in the context of updating the Regional Solid Waste Management Plan and consequently, the following actions will be undertaken to reduce the potential for bear-human conflict:

1. The RDOS will work with the local Bear Aware Coordinator to provide education to the public on methods for managing garbage, compost and recyclables and other attractants in a manner that is "Bear Smart".
2. The RDOS will facilitate the development of Bear Smart community programs, in concert with a broad range of stakeholders, including agriculturalists and managers of parks and recreation areas.
3. The RDOS and municipalities will establish set out times and / or container requirements for

waste in their refuse collection bylaws.

4. The RDOS and municipalities will install electric fencing around landfills that receive putrescible waste (landfills that receive only construction / demo waste would not require electric fencing).

5. Municipal and regional Planning Departments will develop requirements for Bear Smart waste management, storage and collection systems in new developments.

6. The RDOS and municipalities will develop a 'Wildlife Animal Bylaw' to regulate bear and wildlife attractants on all non-agricultural properties. The attractants to be considered for this bylaw include organic and garbage residues or stockpiles, composting, orphan and residential tree fruits and nuts, feeding of dangerous wildlife and storage of anti-freeze and paint. 7. In partnership with Provincial, Federal and non-governmental organizations, the RDOS will create a regional program to implement the above actions.

Squamish-Lillooet Regional District

<https://www.slrld.bc.ca/services/recycling-composting-waste-landfill/solid-waste-management-plan>

“Approved Waste Receptacle” means a Collection Container or other commercial or municipal container that is regularly serviced and is fitted with a Wildlife Resistant locking mechanism if the receptacle is intended for Residual Waste or Organic Material;

“Collection Container” means a container for the collection of Municipal Solid Waste in the form of Recycling, Residual Waste or Organic Material. Residual Waste or Organic Container meeting the requirements of a Wildlife Resistant Container as defined in the *District of Squamish Wildlife Attractant Bylaw No. 2053, 2009*;

“Wildlife Resistant” means resistant to access by bears or other wildlife in accordance with District of Squamish Wildlife Attractant Bylaw No. 2053, 2009;

3.0 GENERAL REGULATIONS

3.3 Every Person disposing of Residual Waste or Organic Material must, for that purpose, use only a Residual Waste Container or Organics Container that has a Wildlife Resistant lock.

4.3 The following rules apply in respect of Collection Containers:

(l) On the scheduled day of collection, Collection Containers may be unlocked and set out only between the hours of 5:00 a.m. and 7:00 p.m, but must be unlocked and set out between 8:00 a.m. and 5:00 p.m..

(m) Residual Waste Containers and Organic Material Collection Containers must be kept locked with both Wildlife Resistant locks at all times, except as described in paragraph (l).

5.0 MULTIPLE-UNIT RESIDENTIAL AND INDUSTRIAL, COMMERCIAL AND INSTITUTIONAL COLLECTION

5.1 The strata corporation of a building that includes Multiple-Unit Residential property; every Owner of a non-strata titled Multiple-Unit Residential premises; and every Owner of an Industrial, Commercial or Institutional property shall:

(e) provide written information to new residents, tenants, employees and contractors, and at least annually to all existing residents, tenants, employees and contractors on how to separate and deposit Residual Waste, Organic Materials and Recyclable Materials into the appropriate Collection Containers and **provide information on the District's Wildlife Attractant Bylaw**; and

(f) post signage, of sufficient size and number, with information on separating Residual Waste, Organic Materials and Recyclable Materials on the Premises and in the disposal area, **as well as information pursuant to the District's Wildlife Attractant Bylaw**.

Email #3

From Willis Point Community Association Executive, dated Nov 29, 2019

We are writing to express our concerns regarding the changes at Hartland Landfill proposed as important elements in the Solid Waste plan as outlined at the November 12 meeting.

While the CRD has provided an opportunity for individuals and groups to offer feedback online, because Willis Point was not listed as a geographic choice on the survey, unfortunately it is impossible to extract concerns expressed by the Willis Point community. That is one of the reasons for us writing this letter. We have been gathering opinions from our community, as it our mission, and now outline these for your consideration.

1. The expansion of Hartland to accommodate a solid waste facility will put extraordinary pressure on road systems in the Hartland area. The plan to open an additional access off Willis Point Road is rife with traffic challenges on Willis Point Road, Wallace Drive, West Saanich Road and all feeder roads in this system. Of primary importance is the potential for increased traffic accidents and interruptions to traffic flow.
2. The existing Hartland facility access is at the end of a dead end road. Not so for Willis Point Road which continues past Ross Durrance Lake, Gowland Tod Provincial Park, Mount Work and thence to the Willis Point Community. As a result, the road is relied on by a large population of residents and visitors throughout the week. Currently traffic flow is increasing on Willis Point Road. Under these circumstances, it would be wise to take a close look at the current Hartland access, which has not experienced any significant accident profile and as a dead end road experiences a decrease in traffic as it approaches its final destination.
1. The necessity for ongoing blasting at the solid waste site would raise issues of disruption for homes at the north end of Mark Lane in Willis Point where activities relating to the extraction of aggregate can be heard.
2. The preparation and operation of the solid waste facility would have a significant impact on the environment in the area. This area is an important location for wildlife (have you seen the frog migration?? Human use includes biking, hiking, road cyclists birding, (eagles nest in the area) We oppose the loss of this rich biological habitat to gravel production)
3. The community continues to be vitally concerned about the possibility of groundwater contamination, a threat which will be increased as a result of blasting and its fracturing potential.

4. The community has no appetite for a development project such as was outlined at the Nov. 12th meeting. This was amply demonstrated by the standing room only turnout. Unless significant steps are made to mitigate the many negative issues outlined in this letter, we would not be surprised to witness civil disobedience such as accompanied the DND road access discussions in 1986.

Finally, with the issues raised in this letter, is the CRD prepared to offset the inevitable downturn in property values which is an additional concern?

Email #4

From a resident of Willis Point:

Subject: Extending the Life of Hartland Landfill – Comments

I am writing this email because the feedback form for the CRD Solid Waste Management Plan did not bother to designate 'Willis Point' as a specific area to collect feedback from: the area most affected by the plan. Instead our feedback is lumped in with Juan de Fuca.

In particular; vehicles accessing Hartland Landfill via Willis Point Road; reducing the footprint of Hartland Landfill or should the name be changed to Hartland Enterprises?

It is obvious that the main strategy proposed to extend (not 'enhance') the life of the Hartland Landfill is to expand its capacity. A major issue for all residents of Willis Point and, the thousands of other people using Willis Point Road on a daily basis, is Road safety.

SAFETY

Your brochure 'Extending the Life of Hartland Landfill' indicates that trucking significant amounts of excess rock out of the Landfill via Willis Point Road, rather than using your 'purpose built' Hartland Avenue, will be safer. Safer for who? Certainly NOT for the current and rapidly increasing number of people using Willis Point Road and NOT for the Hartland truck drivers either.

I am very opposed to the use of Willis Point Road as an entrance. This is a recreational and residential road. Your trucks do not mix well with the current users of this road: local residents; school buses; hikers (Mt Work/McKenzie Bite parking lot is frequently full and overflowing onto the road); and, the thousands of young people heading to Durrance Lake in the summer.

The biggest, most recent change, has been the huge influx of traffic from the Western Communities and Up Island, attempting to avoid the Colwood crawl. I estimate this group is in excess of five thousand vehicles a day, heading back and forth to work on Willis Point Road. A large percentage of these vehicles are work trucks, travelling at excessive speeds on an unfamiliar road. Adding to this traffic is the plan for Hartland to start sending commercial garbage trucks up Willis Point Road; as well as trucking sewage byproducts in/out of Hartland I have been a resident of Willis Point since 1984 (35 years) and have had only two accidents on this road, both in the last year resulting from the increased volume and usage of Willis Point Road. My windshield was broken and, I was recently hit (while stationary) by a large work vehicle resulting in \$10,000 worth of damage to my car: both as a direct result of work being performed for the CRD on Willis Point Road. The road is already becoming more dangerous with increased activity.

In the winter months, Willis Point Road is prone to black ice, resulting in numerous accidents.

On the other hand, Hartland Avenue has reported few, if any accidents in the last 60 years! Hartland Avenue is a purpose built, dead end road with limited residential traffic. The number of trucks on this road has decreased substantially in the past twenty years, and vehicles are built better, resulting in a safer environment. Routing traffic up Willis Point Road will directly impact negatively the safety of Hartland Landfill and Willis Point Road traffic and increase the frustration of all involved.

Trucks will have to stop to allow substantial volumes of traffic entering The Red Barn; then wait to turn left onto Wallace Drive, crossing West Saanich at the bottom of a steep hill where traffic speed is increasing; stopping again to turn left across traffic onto Willis Point Road and a forth stop to cross traffic into the Heartland Landfill. All this, with traffic backing up behind them, dodging bicycles etc. I can not see how this can be safer than one left turn onto a dead end road with limited residential traffic. Have waste management firms been canvassed to obtain their expert opinions on the future safety of their vehicles? I would like to see the results.

AGGREGATE MINING

I am also opposed to the development of a large, ongoing mining operation within the Hartland Landfill. Residents will be constantly bombarded with the noise of blasting (will Willis Point Road be closed?). Suddenly we are living in the midst of of an industrial park. I am concerned how this affects the overall environment in the area. Have there been any environmental studies completed to see the affects of this strategy (ie affects to the aqua fare)?

PROPERTY VALUES

I would never consider purchasing property on Hartland Avenue. I am sure property values are severely depressed because of the issues surrounding the access/traffic to the landfill. Property owners purchased lower priced homes fully aware of this issue. This strategy will be putting Willis Point Residents in the same position as the residents of Hartland Avenue if landfill traffic is routed up Willis Point Road. I would like to know how you are proposing to compensate residents for their loss in property values.

ADDITIONAL NEW DEVELOPMENT PROJECTS

Development of Organics Processing Facility (strategy #11): Why is Hartland considering the development of an organic processing facility at the landfill? I thought there is an issue with space. Shouldn't CRD strategies preclude further 'other' development in the landfill such as this or putting in a 'free store' at Hartland (strategy #4). Aren't these initiatives better left in the hands of the private sector? The landfill has already developed a gas plant as well as taking on the huge development of a Sewage Treatment Facility for all of greater Victoria. No wonder there is no space left for its business ... managing a landfill! Should we change the name to Hartland Enterprises?

SUMMARY

I was recently at an open house to review the CRD's Waste Management Plan in Willis Point. In my opinion, 14 out of the 15 strategies are fairly 'boiler plate' and should already have been implemented by a proactive landfill management team.

The real issue/strategy the CRD appears to have already made a decision on, is to extend (not enhance!) the life of Hartland Landfill, which includes the development and ongoing operation of an aggregate mining operation.

Mr Russ Smith says it will be SAFER to use Willis Point Road for all of the mining trucks, the sewage trucks, as well as rerouting refuse trucks up/down Willis Point Road. This is a blatant lie! My guess is that it's cheaper for Hartland to use the automated scales they built by the Willis Point access, because it certainly is NOT a safer route!

In summary, my major concern is the strategy to transition a variety of vehicles use access to Willis Point Road. The implications of this strategy have not been considered, even at a superficial level. There will be a substantial increase in risk for anyone travelling Willis Point Road, not a decrease as suggested by the CRD. Considering the large and ever increasing volumes of varied traffic already on Willis Point Road, it seems ludicrous and extremely risky to divert traffic from Hartland Avenue- a short, purpose built, dead end road with decreasing volumes, and limited varieties of traffic.

I sincerely question the research, if any, that has been put into this strategy.

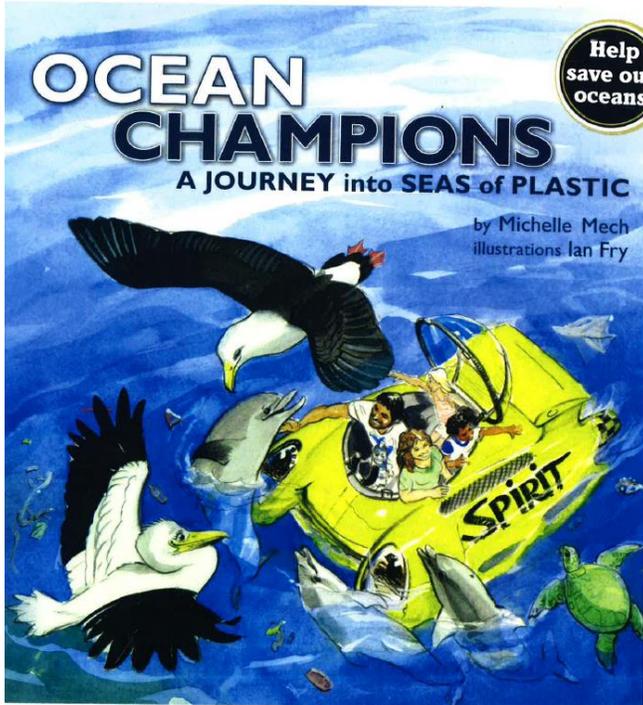
On another note, we are now going into month 11 with the implementation of the sewage pipes and pumps. This means every time I leave my home (to go to work, to go to an appointment, to catch a ferry, for a social engagement, to buy groceries) I have to leave 20 minutes early, in case of road stoppages. I may also have to wait up to 20 minutes to get home, resulting in a 20 minute grocery trip now taking up to an hour. When I asked if there was any chance to get through to catch a ferry, I was told maybe I should plan better. We, at Willis Point, will not even use the sewage plant; we have already paid for our own treatment plants. We are sick and tired of the CRD abusing our community. There is now talk of Hartland Enterprises starting blasting next year for mining operations. More road stoppages? Enough is enough!

Email #5 (given to CRD staff at Salt Spring open house)

CRD Solid Waste Management Plan - comments and suggested additions

Continue and enhance education programs

Potential for grades 1 to 7 - Ocean Champions: A Journey into Seas of Plastic Website (www.oceanchampions.ca) includes teaching aids and more information.



Encourage waste prevention

1. "Advocate provincially and federally to eliminate the manufacturing, distribution or sale of single use items and non-recyclable materials." See 1. BANS AND REDUCTIONS ON SINGLE USE PLASTICS of attached submission to Clean BC's Policy on Plastics.

Of the above, within the CRD, promote the elimination of all petroleum-based plastic products that claim to be degradable, bio-degradable, or oxo-biodegradable, which aren't truly 100 percent biodegradable and only degrade more quickly than regular plastic products, contaminate waste streams, and, once fragmented, are more dangerous to land and marine organisms than regular plastic products.

2. Work with the tourism industry (hotels, tours, etc.) in the CRD to reduce the use of single use plastics.
3. In highly populated areas on the west coast of B.C., microfibres released from washing synthetic clothing is one of the most predominant contributors to plastic waste entering the oceans. Samplings taken by Dr. Peter Ross, Research and Executive Director of Coastal Ocean Research Institute and his team off the B.C. coast in 2017 contained an average of 3,200 and up to 25,000 plastic particles and fibres per cubic meter of ocean. In a study of the wastewater treatment plant in Vancouver, Ross and his team estimated that the WWTP releases between 0.1 and 0.3 billion suspected MPs into the receiving environment on a daily basis.

Currently, for individual households, the only 100 percent fix to this problem is to install a filter to washing machines that will capture the microfibres from clothing. Filters cost approximate \$150 each and must be installed by a plumber. The CRD could implement a procurement program for bulk buying to obtain a reduced cost of these filters and also possibly establish a reduced rate with plumbers in each area to install these filters, as well as a program to encourage households in the CRD to install these filters.

Support reduction of avoidable food waste

Country Grocer on Salt Spring is already sorting their food waste to ensure that as much as possible is being utilized (food program and farms) and the rest sent for composting.

Support reuse activities

1. Advocate for programs like LOOP in supermarkets in the CRD. LOOP is being piloted by Loblaws in Toronto in January 2020.¹
2. Advocate for all supermarkets and other food and household goods markets in the CRD to implement (if not already available) the ability to subtract the tare weight of customer owned/bought containers for all of their bulk food and produce, stock an adequate supply of reusable bags and containers, and convert to as much bulk food/use-your-own-containers availability as possible.
3. Support and promote remanufacturing to produce higher quality, longer lasting, repairable goods and support and promote refurbishment and repair initiatives.

Support local governments in working towards zero waste and a circular economy.

Include recycling of post-consumer compostable packaging waste. See more under recycling.

Continue and enhance policy development

"Continue to expand material bans when viable alternatives exist." Caution must be taken in determining viable alternatives. For example:

Currently the only 'plastic' that is truly biodegradable and also marine biodegradable appears to be PHA (polyhydroxyalkanoates).²

Unless they can be home composted, compostable products are not an improvement over petroleum-based plastic products that can be recycled if there is no system in place for collection, sorting, and routing to an industrial composting facility. If this is not available, they will end up in landfills where, in most cases, they do not break down due to lack of oxygen.

Recycling strategies

Increased recycling:

1. Implement the inclusion of recyclable waste for all solid waste disposal in parks in the CRD.
2. Advocate for Recycle BC to include hard plastics in their collection and recycling programs.
3. Advocate for Recycle BC to include post-consumer waste from compostable packaging and other compostable products in their collection and recycling programs. See 2. SUBSTANTIALLY INCREASE RECYCLING - 2b.FOR PLANT- BASED/COMPOSTABLE PLASTICS in the attached.

In the interim, until Recycle BC has implemented collection and composting of compostable packaging and products into their recycling program, for Salt Spring Island: Country Grocer on Salt Spring Island (as well as the rest of the Country Grocer chain) is ready and willing to switch all of their instore packaging to 100% compostable products. However, since there is currently no way to get the post-consumer waste to an industrial composting facility, Country Grocer is holding off on this change (as per direction from Plastic Free Salt Spring). Various alternatives have been discussed, but as yet, to feasible route for this waste has been able to be established. Plastic Free Salt Spring and Mark Vekeman and Matteo Hermani of Country Grocer would be most

happy to work with the CRD in working out a solution to this problem as soon as possible.

It is important to stress that alternatives and recycling are only temporary 'band-aids' to get us to the point where we can move our dependence away from disposability. This is extremely important as even marine biodegradable waste can impact marine ecosystems.

However, since it will likely take many years to evolve to widespread and economically-viable-for-all reuse and refill availability, as well as a huge change in public perceptions and actions, more immediately attainable, short-term solutions are necessary to substantially reduce plastic waste.

A very good document on reuse models that are happening globally is "Reuse - Rethinking Packaging" which can be found at

<https://www.ellenmacarthurfoundation.org/publications/reuse>.

1 About LOOP:

Background: Tom Szaky, a 37-year-old Canadian, now based in the U.S., over 16 years of running TerraCycle, has built connections in 21 different countries with the world's biggest consumer goods companies, including Procter & Gamble, Mars Inc, Nestle and Unilever, helping them to manage their waste. Terracycle, which also works with cities on programmes such as cigarette butt recycling, and with the manufacturing industry, started out providing solutions for difficult to recycle products - "from diapers to chip bags, and everything in between", but realised that neither of these approaches, was tackling the root cause of waste and turning off the tap. So, two years ago, it partnered with those global household names, and key retail giants like France's Carrefour and Tesco in the UK, to hatch an ambitious plan to throw the entire linear business model of take, make and discard, quite literally, for a loop. Loop has been piloted in Paris, New York, New Jersey, and Pennsylvania and the pilot in Canada with Loblaws will start early in 2020 in Toronto.

The Loop system will allow global brands to sell thousands of products but retrieve their packaging, designed so they can be reused for 100 times or more, or easily recycle them. Consumers are incentivised to return the packaging because they pay a deposit.

While the Loop starts off as a standalone system, with logistics companies like UPS delivering the products and picking up empty packaging from consumers, it soon moves to being integrated into the e-commerce offerings of retailers, who will sell them alongside conventional products. Whereas today supermarket delivery trucks return to the depot empty, the same delivery trucks will also be picking up Loop empties, cutting the carbon footprint on online deliveries. Eventually they will also offer Loop products in store on their physical shelves.

So, what's in it for the consumer goods companies? Szaky says because the brands retain ownership of the packaging, they treat it as an asset rather than a cost, something that has unleashed "unparalleled innovation in packaging". In the U.S., more than 40 consumer brands have joined the Loop program, and a new brand signs up every two days. 06/2019

Loop focuses on how to integrate waste, not into low-value goods, but into very high-value goods like primary packaging. In other words, effectively move from shredding, melting, creating new polymers, etc., into sterilizing and cleaning and quality-checking to make sure that that package can go around again mechanically and from a bacterial point of view. This kind of model could really eliminate the concept of waste, or at least move us into that direction.

"In the end we will measure our success in what percentage of the world has moved from disposables to durables," says the boss of Trenton, New Jersey recycling firm TerraCycle." Tom Szaky

2 Polyhydroxyalkanoates (PHAs) are a group of naturally occurring biopolyesters that are produced by a variety of bacterial species and will completely biodegradable into simple components upon exposure to microorganisms typically found in soil, compost, and the marine environment. In aquatic environments, bacteria recognize the material as a food source and consume it, thus converting PHA to biomass, water, carbon dioxide, and naturally occurring monomers. PHAs have been developed for a number of applications and several companies produce and sell a variety of PHA formulations with varying rates of biodegradability. Production sources include methane from water treatment plants, farms, and landfills, and wastewater streams from the food industry. Thus, production of PHAs also reduces greenhouse gas emissions from these sources. In some cases, PHA can be home composted.

Email #6

A participant marked up the Strategies as follows:

STRATEGY #2:

Encourage waste prevention

- Promote less consumption and advocate for consumer responsibility
- Establish a community-based waste reduction grant program (could include food waste prevention projects)
- Support single-use item reduction efforts
- Promote sustainable and/or packaging-free purchasing options
- Advocate provincially and federally to limit or eliminate the manufacturing, distribution or sale of single use items and non-recyclable materials
- Advocate provincially and federally for sustainable design (e.g., standardized packaging that is reusable, recyclable, or compostable)



advocate for quality over quantity of items, e.g. clothes

advocate for durable items that can be maintained, e.g. electronics & appliances

advocate for smaller products, e.g. houses and vehicles

STRATEGY #3:

Support reduction of avoidable food waste

- Support residential food waste reduction, for example, by continuing "Love Food Hate Waste Canada" program
- Support food waste reduction from industrial, commercial and institutional facilities (e.g., encourage stores to donate edible food
- Continue to support food recovery organizations **or sell at reduced prices**
- Advocate for regulation to clarify use-by versus best before dates and educate accordingly



STRATEGY #5:

Support local governments in working towards zero waste and a circular economy

- Develop model language for bylaws, best practices, official community plans, and economic development strategies for use by local municipalities using research and collaboration to guide this process
- Work with local municipalities to identify the need for solid waste facilities and zoning for waste management activities
- Use policy tools to enable local recycling infrastructure
- Investigate "Pay-As-You-Throw" principles to use as tools to encourage less w
- Investigate use of clear bags for garbage or recyclables collection to encourage recycling of materials, where practicable and enforceable (e.g., at events)

investigate options for reduced waste pickup at lower costs, (with private haulers, less frequent pickups cost less)

STRATEGY #7:

Increase residential diversion

- Continue to promote diversion of recyclable materials (including organics), ensuring that education strives to minimize contamination in these streams
- Collaborate with municipal and private sector service providers to support depot diversion efforts in the region for non-curbside materials
- Encourage local processing and markets for recyclables
- Develop tools, such as a guide, to support event recycling

encourage the use of composters and digesters

STRATEGY #13:

Encourage proper public space waste management activities

- Develop educational materials to prevent and reduce litter and abandoned materials in our neighbourhoods and public spaces
- Continue promoting alternatives to abandoned materials and illegal dumping by educating about proper management and disposal
- Collaborate with stakeholders, including local governments and private sector facilities, to develop a regional approach to prevention of illegal dumping
- Investigate developing regionally-aligned bylaws
- Develop and pilot methodologies to "observe, record, and report" on abandoned materials



opportunities for reuse, e.g. post availability for free on on-line markets

APPENDIX C
SOLID WASTE MANAGEMENT PLAN - FIRST NATIONS ENGAGEMENT
EXECUTIVE SUMMARY

The Capital Regional District (CRD) is developing a new Solid Waste Management Plan (SWMP) - a plan that guides how the region will manage solid waste in the coming years. Solid waste includes recyclables, compostable material and garbage from homes, businesses, institutions, and construction/demolition sites. In keeping with the CRD's commitment to Reconciliation, and the provincial government's expectations regarding working with First Nations, CRD First Nations Relations staff wish to share this record of engagement with First Nations regarding the development of the new CRD's SWMP.

There was a lot of engagement in 2019 with local area First Nations regarding solid waste management in general. CRD First Nations Relations was proactive in seeking funding to support solid waste management education initiatives in two communities and hired an Indigenous intern to do further outreach around this topic. There was good momentum created at the community level around this work, and CRD First Nations Relations expects to maintain those connections. The Indigenous intern is currently continuing this work with Indigenous Services Canada. Despite the high level of interest in waste reduction and recycling, there was limited uptake or response to communication regarding the SWMP itself. As this was only the first round of engagement, further engagement will take place to seek First Nations input as the plan is being developed.

Below is a summary of activities that took place during 2019 related to solid waste management.

APPENDIX C

**SOLID WASTE MANAGEMENT PLAN - FIRST NATIONS ENGAGEMENT
EXECUTIVE SUMMARY**

Activity	First Nation	Description
Solid waste management education event – March 2019	Hosted by W̱JŌŁEŁP attended by other W̱SÁNEĆ Nations	<ul style="list-style-type: none"> • Over 75 people attended • 200 blue bins, blue bags and information sheets were distributed to community members
First Nations solid waste outreach intern August – November 2019	Worked with several First Nations in the capital region	<ul style="list-style-type: none"> • Positive interest from engaged communities
Solid waste management education event – October 2019	Songhees and Esquimalt	<ul style="list-style-type: none"> • Over 60 people attended the event and ensuing feast • Waste stations set up in both band offices
Emails to First Nations administrators - September 2019	All First Nations in the CRD region	<ul style="list-style-type: none"> • Follow up meetings with W̱SÁNEĆ administrators and Lekwungen liaisons • No other responses
Face to face meetings with W̱SÁNEĆ administrators - October 2019	All four W̱SÁNEĆ Nations	<ul style="list-style-type: none"> • Interest in taking information to Chief and Council and community • Common theme of seeking education opportunities for members • Follow up in progress
In person meetings with Lekwungen liaisons - Ongoing	Songhees and Esquimalt	<ul style="list-style-type: none"> • Interest in continuing to build relationships • Offer to attend February community meeting • Suggestion for targeted online engagement to community
Formal letters to all Nations - November 2019	All First Nations in capital region	<ul style="list-style-type: none"> • No responses to date • Follow up in progress
Invitation to participate on Solid Waste Advisory Committee - December 2019	W̱JŌŁEŁP	<ul style="list-style-type: none"> • Asked by administrator to send invitation to interested W̱JŌŁEŁP Councillor • No response to date, follow up is planned

**REPORT TO ENVIRONMENTAL SERVICES COMMITTEE
MEETING OF WEDNESDAY, JULY 15, 2020**

SUBJECT **Solid Waste Management Plan – Traffic Impact Analysis**

ISSUE SUMMARY

To present a report on a high-level cost estimate on a passing lane on Willis Point Road.

BACKGROUND

On September 4, 2019, the Parks & Environment Committee considered proposed strategies and targets for the first round of public consultation on the Solid Waste Management Plan. The report identified potential traffic impacts associated with eventual transition of commercial truck traffic to a Willis Point Road entrance to Hartland Landfill. At the meeting, discussion considered road and traffic issues due to increased heavy truck traffic on Willis Point Road, and staff were directed to bring back a report on a high-level cost estimate for a passing lane on the steep 1.5 km section of Willis Point Road.

In response to this direction:

1. Staff retained transportation engineering consulting firm Bunt & Associates to evaluate the traffic impacts of increased heavy truck traffic on Willis Point Road; and
2. Staff retained Stantec Consulting Ltd. (Stantec) to develop a high-level cost estimate for a passing lane on the steep 1.5 km section of Willis Point Road.

ALTERNATIVES

Alternative 1

The Environmental Services Committee recommends to the Capital Regional District Board:

That the Stantec opinion of probable cost for the Willis point Road truck passing lane and the Bunt and &Associates *Hartland Landfill Alternate Access Transportation Impact Analysis* be received for information and that no further work be done on a passing lane for Willis Point Road.

Alternative 2

That the Stantec opinion of probable cost for the Willis Point Road truck passing lane and the Bunt & Associates *Hartland Landfill Alternate Access Transportation Impact Analysis* be received for information and be included in the Solid Waste Management Plan for the final phase of the consultation process.

IMPLICATIONS

Service Delivery Implications

The results of the Bunt & Associates traffic impacts evaluation are presented in appendices A and D. The results of the Stantec cost estimate are presented in appendices B and C.

Bunt & Associates evaluated three future scenarios for heavy truck traffic accessing Hartland landfill:

1. No change in vehicle access (all vehicle access to Hartland remains the same)
2. Move commercial vehicle access to Willis Point Road
3. Move the primary vehicle access to Willis Point Road (includes residential, commercial and operations access).

The results of the multi-criteria comparison between scenarios is presented in Table 5.1 of Appendix A. Overall, the impacts of re-routing vehicles from Hartland Avenue to Willis Point Road are relatively modest compared with the number of vehicles, not related to the landfill, travelling through the area. Furthermore, the study concluded that a passing lane on Willis Point Road is not warranted and would increase speeding. District of Saanich staff shared traffic data for the purposes of the traffic impact analysis and have reviewed the findings of the report. They are in concurrence with the recommendation that the passing lane is not warranted.

Willis Point Road has a single large hill with a maximum grade of 8%, whereas Hartland Avenue has a number of rolling hills with grades up to 15%. The Transportation Association of Canada suggests a maximum grade of approximately 10% for these environments, indicating that the grades on Willis Point Road are more appropriate for large commercial vehicles. Hartland Avenue currently has more vehicles than a typical rural local street. Willis Point Road currently has less than half of the vehicles of a typical rural collector road and is forecasted to remain well below capacity, even if all landfill access is relocated to Willis Point Road.

Safety concerns were identified at the intersection of West Saanich Road and Hartland Avenue due to poor sightlines. Relocating the landfill's primary access to Willis Point Road will significantly reduce the number of vehicles turning at this intersection. Overall, the route to Willis Point Road access is safer and more suitable for larger volumes of vehicles and heavy vehicles since the West Saanich Road and Wallace Drive intersection provides improved turning opportunities (less oncoming traffic) than the West Saanich Road and Hartland Avenue, and vehicle sight-distance is better at both the Willis Point Road intersection with Wallace Road and at the Wallace Road intersection with West Saanich Road.

Environmental & Climate Implications

There is no significant incremental increase in emissions associated with moving the primary access to Willis Point Road.

Social Implications

Moving the primary Hartland access to Willis Point Road will result in a reduction in air pollution affecting the health of neighbouring residents along Hartland Avenue. Moving the primary Hartland access to Willis Point Road will benefit the mountain biking and recreational cycling community accessing the Mount Work trail head at the end of Hartland Avenue. There will be a significant reduction in vehicles along Hartland Avenue and a reduction in vehicles crossing the Interurban Trail and trail head parking lot.

Financial Implications

Stantec's opinion of probable cost for the passing lane is \$5,080,031. Based on Bunt & Associates transportation engineering analysis the passing lane on the steep 1.5 km section of Willis Point Road is not warranted and, if implemented, would increase speeding.

CONCLUSION

In response to Parks & Environment Committee direction from its September 4, 2019 meeting, staff retained two engineering firms to perform a traffic impact analysis for changing the primary access to Hartland Landfill and a costing analysis for a passing lane on Willis Point Road. Using a multi-criteria evaluation, the traffic impact analysis compared scenarios for moving the main access to Hartland. The results of the analysis found that Willis Point Road is more appropriate for higher vehicle use than Hartland Avenue, the passing lane is not warranted, it would increase speeding, and would cost \$5.08 million. These results will help inform the decision to move the primary access to Hartland Landfill to the Willis Point Road entrance in conjunction with the Solid Waste Management Plan.

RECOMMENDATION

The Environmental Services Committee recommends to the Capital Regional District Board:

That the Stantec opinion of probable cost for the Willis point Road truck passing lane and the Bunt and &Associates *Hartland Landfill Alternate Access Transportation Impact Analysis* be received for information and that no further work be done on a passing lane for Willis Point Road.

Submitted by:	Stephen May, P. Eng., Senior Manager, Facilities Management & Engineering Services
Submitted by:	Russ Smith, Senior Manager, Environmental Resource Management
Concurrence:	Larisa Hutcheson, P. Eng., General Manager, Parks & Environmental Services
Concurrence:	Kevin Lorette, P. Eng., MBA, Acting Chief Administrative Officer

ATTACHMENTS

- Appendix A: Hartland Landfill Alternate Access Transportation Impact Analysis (Bunt & Associates)
- Appendix B: Willis Point Road Truck Passing Lane Class D Opinion of Probable Cost (Stantec)
- Appendix C: Willis Point Road Truck Passing Lane Concept Drawings
- Appendix D: Hartland Landfill Access Route Profiles and Grades

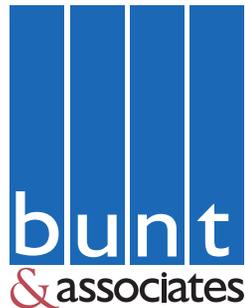


CAPITAL REGIONAL DISTRICT

Hartland Landfill Alternate Access Transportation Impact Analysis

CRD Contract No. 30.20.01-01

DRAFT REPORT



PREPARED BY:

Bunt & Associates Engineering Ltd.

Suite 530, 645 Fort Street, Victoria, BC V8W 1G2

t. (250) 592-6122

JUNE 29, 2020

June 29, 2020
04-20-0118

Genevieve Tokgoz, P.Eng., M.Eng.
Project Engineer
Capital Regional District
625 Fisgard Street
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V8W 1R7

**Re: Hartland Landfill Alternate Access Transportation Impact Analysis
Draft Report**

Bunt is pleased to provide the attached Transportation Impact Analysis which assesses the impacts of changing Hartland landfill's vehicle access. We completed a multiple-account evaluation of vehicle access options of moving either only commercial vehicles or all vehicles from the existing Hartland Avenue access to the Willis Point Road access point.

We found that moving the vehicle access location would not cause any significant impacts. We identified a few street infrastructure improvements for consideration; however, no improvements are required to accommodate changing the landfill's vehicle accesses.

Please let us know if we can be of any further assistance.

Yours truly,
Bunt & Associates

Simon Button, P.Eng., M.Eng.
Transportation Engineer

cc: Joshua Frederick, Capital Regional District

CORPORATE AUTHORIZATION

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Date: 2020-06-29
Project No. 04-20-0118
Status: Draft

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EXECUTIVE SUMMARY

Study Purpose

The Capital Regional District is developing its new Solid Waste Management Plan and is considering relocating vehicle access to the Hartland Landfill from Hartland Avenue to Willis Point Road. This study evaluates this potential vehicle access change.

Context

The landfill is in a rural area with houses on Hartland Avenue. There are also houses on Willis Point Road, over one kilometre west of the landfill. Vehicles accessing the landfill will not travel through any residential areas on Willis Point Road.

Landfill Operations

The annual weight of waste deposited has decreased since the 1990s. Additional measures planned by the CRD will maintain annual deposits at similar or lower levels for the next few decades.

Approximately 350 vehicles deposit material at the landfill each day causing 350 vehicles to enter and exit the landfill daily. Roughly one-third of this is commercial vehicles and the remainder is residential vehicles. The proportion of commercial vehicles is lower on Saturdays.

Scenarios

Three scenarios were developed to assess the positive and negative impacts of changing vehicle access from Hartland Avenue to Willis Point Road:

1. No change in vehicle access from the current arrangement with Hartland Avenue functioning as the primary access point for commercial vehicles and resident waste/recycling drop-off.
2. Move only the commercial vehicle access to Willis Point Road.
3. Move the primary vehicle access to Willis Point Road.

Multiple-Account Evaluation

Moving a portion or all 350 vehicles per day accessing the landfill from Hartland Avenue to Willis Point Road results in vehicles using intersections and streets that are more appropriate for higher vehicle use, particularly heavy commercial vehicles. This includes moving vehicles turning at the West Saanich Road & Hartland Avenue intersection with poor visibility to the West Saanich Road & Wallace Drive intersection with good visibility and the more appropriate horizontal and vertical design of Willis Point Road compared to Hartland Avenue which also has frequent driveways.

None of the scenarios require any street improvements to accommodate vehicle pattern change. Specifically, there is no need for an additional lane on Willis Point Road to accommodate additional landfill-bound vehicles. Willis Point Road only meets one of three criteria identified by TAC for adding a truck climbing lane. Most notably, the street grade does not cause heavy trucks to travel below the speed limit. Adding a lane on Willis Point Road would increase the number of speeding vehicles.

Recommendation

Moving the vehicle access causes minor impacts and there are more positive than negative impacts of moving either only commercial vehicles or all vehicles to access the site from Willis Point Road. Willis Point Road is more appropriate for higher vehicle use than Hartland Avenue.

Improvements

Regardless of if the vehicle access arrangement is changed, deteriorated pavement markings on Willis Point Road should be reinstalled following nearby construction of the Residual Treatment Facility. The District of Saanich should also review opportunities to reduce the speed of vehicles turning right from Wallace Drive onto West Saanich Road. Potential improvements could also include an improved connection to the Interurban Trail which terminates near the intersection.

1. INTRODUCTION

1.1 Study Purpose

As part of the continual evolution of the Hartland Landfill, the Capital Regional District (CRD) has identified the opportunity to relocate vehicle access from Hartland Avenue to Willis Point Road. As the CRD develops its new Solid Waste Management Plan it is integral to know where the primary access should be located in terms of public impact and landfill operations.

Bunt & Associates Engineering Ltd. has been engaged by the CRD to conduct a thorough investigation regarding the preferred location and routing for vehicle access.

1.2 Potential Access Changes

Figure 1.1 illustrates Hartland Landfill's location in the northwest portion of the District of Saanich as well as the existing two vehicle access routes. The Hartland Avenue access is currently the primary access, providing access for residential and commercial haulers as well as access to the landfill office and the Hartland Learning Centre. The Willis Point Road access currently provides access to the Residual Treatment Facility which is currently under construction. The access previously provided access to a composting facility which is no longer in operation.

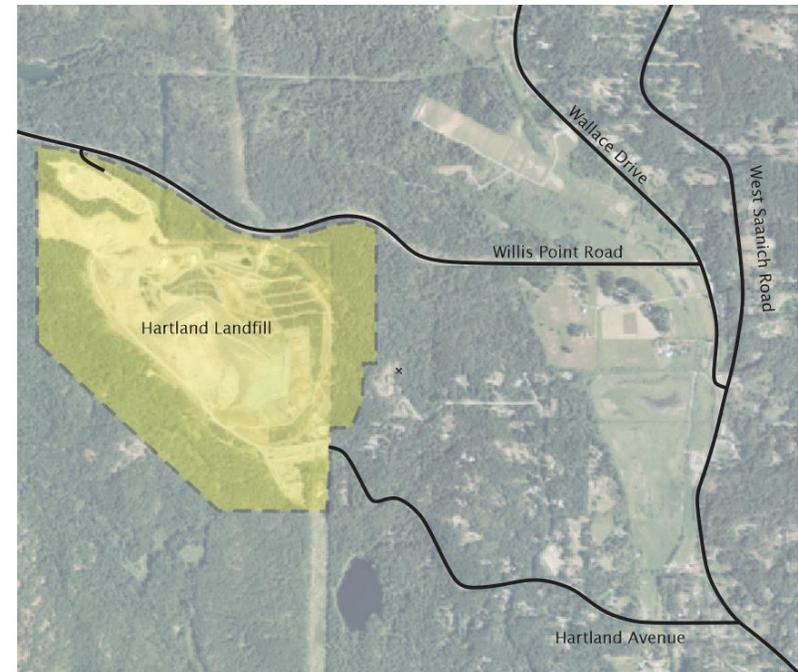


Figure 1.1: Site Location

1.3 Study Scope

This study evaluates the impacts (both positive and negative) of relocating the commercial hauling access to Willis Point Road or both the commercial and residential hauling access to Willis Point Road.

This study will evaluate the current access arrangement against the two potential alternatives described above by comparing their impacts on safety, vehicle operations, vehicle emissions and on-site landfill operations.

2. LANDFILL OPERATIONS

2.1 Facilities

The Hartland Landfill is the only regional solid waste disposal facility in the Capital Region. It is a multi-purpose facility providing collection for recycling, household hazardous waste, salvageable items as well as yard and garden waste collection and processing, controlled waste disposal and landfill service to commercial and residential customers.

2.2 Hauling Trends

Figure 2.1 illustrates the historical and forecasted waste to be deposited at the Hartland Landfill. There was a sharp increase in waste from the 1950s to 1990; however, the annual weight of waste deposited has decreased since then. Additional measures in the CRD’s Solid Waste Management Plan, currently being developed, are anticipated to maintain annual deposits at similar or lower levels for the next 20-30 years.

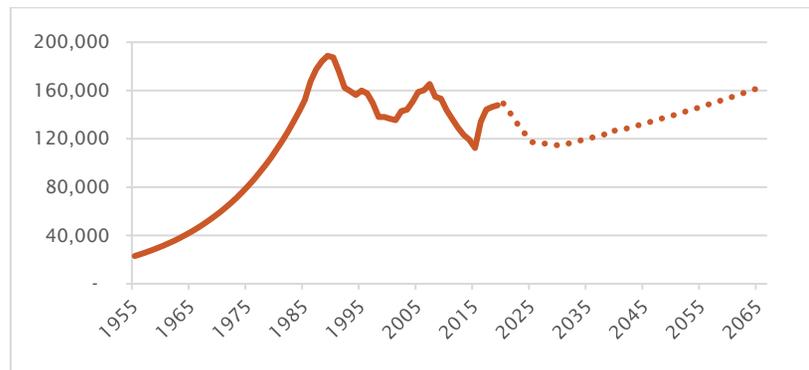


Figure 2.1: Historical and Forecasted Waste (Tonnes)

2.3 Users and Hours

Most users driving to the Hartland Landfill are municipal, commercial trucks (collectively called commercial haulers in this study) and residents arriving with household waste and/or recycling items. Commercial and municipal haulers with a registered account can use an automated scale that opens at 7 am on weekdays versus 9 am for non-registered users (typically residents). **Table 2.1** lists the facility’s operating hours.

Table 2.1: Hartland Landfill Operating Hours

USER	MONDAY-FRIDAY	SATURDAY	SUNDAY
Commercial and Municipal Trucks	7 am - 5 pm	7 am - 2 pm	Closed
Residents	9am - 5pm	7am - 2pm	Closed

In addition to depositing solid waste, CRD staff, contractors and visitors also drive to the site.

2.4 Hauling Transactions

Bunt identified several important trends from the 2019 transaction data.

Figure 2.2 illustrates the monthly number of vehicles into three streams. The number of commercial vehicles remains relatively constant throughout the year with around 3,200 vehicles per month. There is more variation with the residential streams with an average of 6,200 vehicles per month, increasing up 8,000 during August.

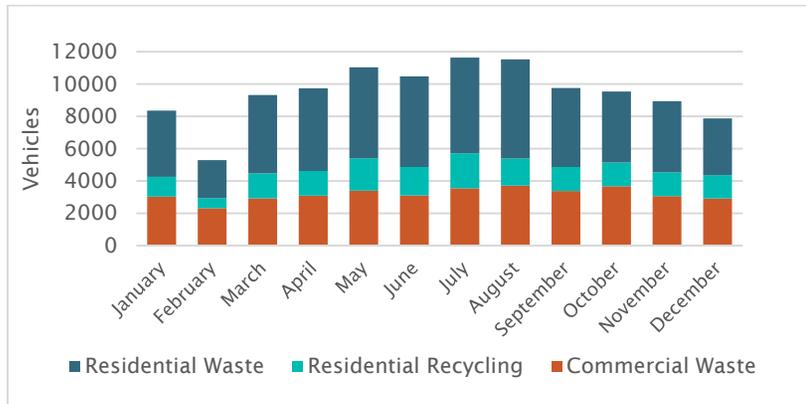


Figure 2.2: Monthly Number of Vehicles

Figure 2.3 illustrates the average daily number of vehicles which is consistently near 350. Most commercial vehicles arrive on weekdays whereas the peak day for residents is on Saturday.

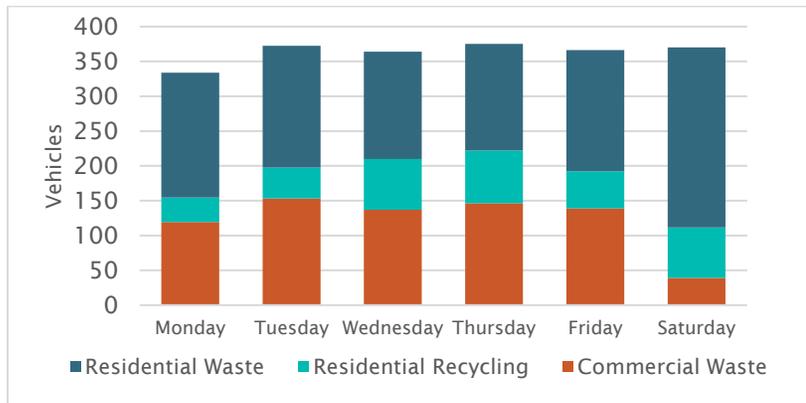


Figure 2.3: Daily Number of Vehicles

Figures 2.4 and 2.5 illustrate the hourly number of vehicles arriving on weekdays and Saturdays. The weekday number of vehicles is the average of Tuesday, Wednesday, and Thursday,

i.e., the midweek period, which is typically used for weekday transportation systems analyses. Weekdays are consistently around 45 vehicles per hour from 9 am to 2 pm and Saturday’s peak around 70 vehicles per hour between 1 and 2 pm. Generally speaking, the facility is generating on average about one inbound vehicle per minute during both the weekday and Saturday daytime periods.

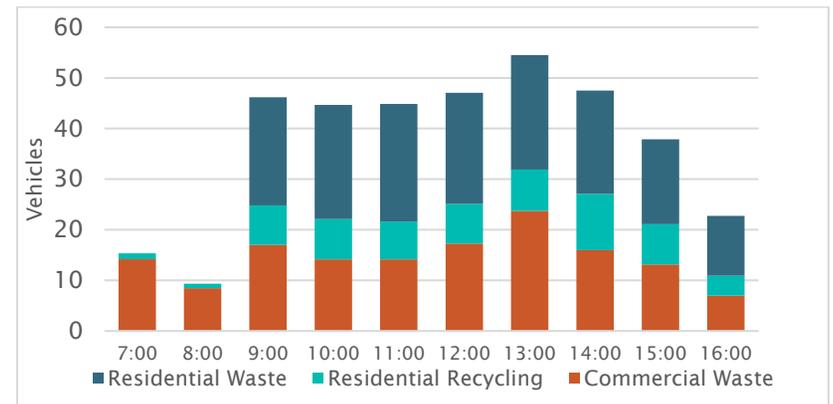


Figure 2.4: Number of Vehicles (Tuesday-Thursday)

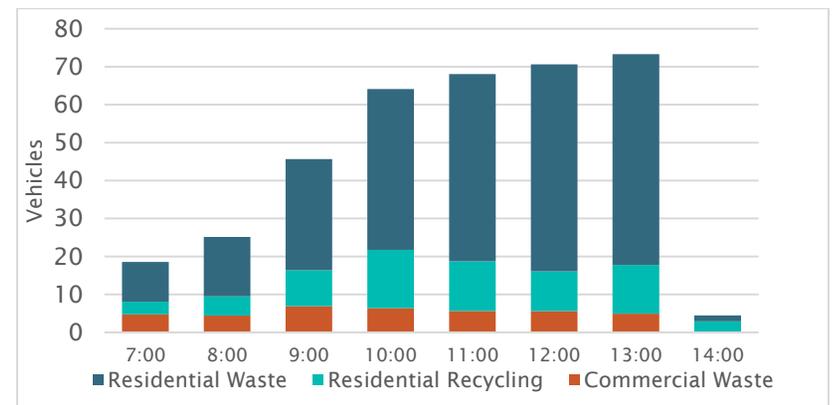


Figure 2.5: Hourly Number of Vehicles (Saturday)

3. SITE CONTEXT

3.1 Street Network

Exhibit 3.1 illustrates the nearby street network including the traffic laning at the study intersections:

- Willis Point Road & Hartland Landfill Access
- Willis Point Road & Wallace Drive
- West Saanich Road & Wallace Road
- West Saanich Road & Hartland Avenue

West Saanich Road is the primary north-south route through the area. Hartland Avenue is directly connected to West Saanich Road whereas Willis Point Road is connected to West Saanich Road via Wallace Drive. All roads one travel lane in each direction. West Saanich Road, Willis Point Road, and Hartland Avenue are designated truck routes. Wallace Drive is only a designated truck route between West Saanich Road and Willis Point Road.

3.2 Land use

The Hartland Landfill is in a rural area, outside of Saanich's Urban Containment Boundary. Nearby land uses include single-family homes with a few non-residential destinations (such as Red Barn Market and First Unitarian Church) located on West Saanich Road. Additional destinations are located further south at the Prospect Lake Road Village including an elementary school and a community hall as it forms the hub of the surrounding community.

There are a few dozen homes located on or off Hartland Avenue. There are also a number of homes located on or off Willis Point Road, beginning over one kilometre west of the landfill.

The Hartland Landfill is bounded by Mount Work Regional Park on three sides (north, west, and south). One of the park's primary trail head access points is located at the end of Hartland Avenue, adjacent to the landfill entrance. At the entrance near the trail head is a parking lot for the mountain biking community. It is a popular destination with almost 40,000 trail users during 2019. Additional secondary mountain bike trail access points are located on Willis Point Road.

3.3 Active Transportation

West Saanich Road has painted bicycle lanes through the study area. In addition, the Interurban Trail runs parallel to West Saanich Road from Hartland Avenue to Wallace Drive. Aside from the trail, there is no dedicated walking infrastructure which is not uncommon for rural settings.

As shown in the following list, West Saanich Road is the most frequently used street for cycling with over 500 cyclists per day or about 50 per hour during the peak hour (all data from April 2019). Few cyclists were observed on Hartland Avenue, likely due to the lack of road shoulders and the presence of large vehicles associated with the landfill.

- Willis Point Road: 150 bicycles/day
- Wallace Drive: 280 bicycles/day
- West Saanich Road: 550 bicycles/day
- Hartland Avenue: 15 bicycles/day

3.4 Transit Service

BC Transit operates bus route #83 on West Saanich Road with stops at Hartland Avenue and Wallace Drive being the closest locations to the landfill. The stops are 2 and 3 kilometres respectively from the landfill.

3.5 Multi-Modal Transportation Data

The District of Saanich (Saanich) provided historical multi-modal traffic data for various locations within the study area. This includes directional counts that provide three full days of data (Tuesday to Thursday) regarding the time, vehicle length, and vehicle speed on Willis Point Road, Wallace Drive, West Saanich Road, and Hartland Avenue.

Saanich also provided weekday intersection turning movement counts at the three intersections (from 2017 and 2019) which would have different vehicle travel patterns if Hartland Landfill's access shifted from Hartland Avenue to Willis Point Road:

- Wallace Drive & Willis Point Road
- West Saanich Road & Wallace Road
- West Saanich Road & Hartland Avenue

Vehicle Speeds. The average vehicle speed on Wallace Drive was approximately 60 km/h compared to the posted speed limit of 50 km/h. Higher average speeds in the high 60's were observed on West Saanich Road and Willis Point Road which have 60 km/h speed limits. Although Hartland Avenue has a speed limit of 40 km/h, the average vehicle speed at the Tod Creek bridge was around 60 km/h, likely because Hartland Avenue dips down to the bridge for traffic arriving in both directions.

Vehicle Growth. Over the past 10 years, there has been modest (1-2%) annual vehicle growth on Hartland Avenue, West Saanich Road, and Wallace Road. Vehicle growth on Willis Point Road has been higher with up to 10% annual increases eastbound during the weekday morning peak hour and westbound during the weekday afternoon peak hour. One possible rationale provided by an area resident at a previous CRD engagement event is that

Willis Point Road is increasingly being used for commuters from West Shore to reach the Saanich Peninsula.

Bunt collected supplemental traffic data on Thursday, April 30, 2020, and Saturday, May 2, 2020. The COVID-19 pandemic was on-going during these dates which will have altered the typical travel patterns for the area, e.g., "work from home" advisories, closed schools and other public facilities and limited retail activity.

The weekday data collected in 2020 was compared to the weekday data collected in 2017 and 2019. From this dataset, vehicle volumes in April 2020 on West Saanich Road, Wallace Drive, and Willis Point Road were estimated to be 70% of normal. There was no significant difference between the weekday vehicle volume on Hartland Avenue which is aligned with data provided by the CRD which illustrates a slight increase in transactions at the Hartland Landfill on Thursday, April 30, 2020, compared to April 2019. The number of transactions at the Hartland Landfill on Saturday, May 2, 2020, was 80% of the same period last year.

3.6 Study Peak Hours

Figure 3.1 illustrates the weekday temporal profiles of vehicle use on West Saanich Road (both directions) and at the Hartland Landfill (inbound and outbound). The Hartland Landfill is typically busiest during the middle of the day which is different from the nearby streets which are typically busiest during the morning and afternoon commuting periods.

8:30 - 9:30 am and 3:30 - 4:30 pm were chosen as the study's weekday peak hours as they represent the best overlap between vehicle trips generated and not generated by the Hartland Landfill. 1:00 - 2:00 pm was chosen as the Saturday peak hour as

this is the busiest time period for the Hartland Landfill. Although hourly traffic data was not available for West Saanich Road, the Saturday peak hour for many streets is between 12:00 and 3:00 pm which aligns with the landfill’s peak hour.

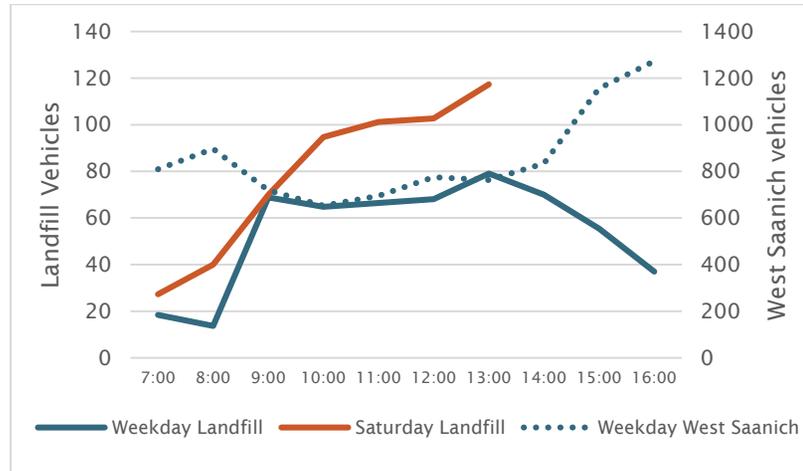


Figure 3.1: Hourly Vehicle Profiles

3.7 Peak Hour Vehicle Volumes

Exhibit 3.2 illustrates the estimated 2020 vehicle volumes for the three time periods considered in this study. The weekday morning and afternoon volumes were obtained from the data collected in 2017 and 2019 with a 1% annual increase applied to movements on West Saanich Road, Wallace Drive, and Willis Point Road which is a common average long-term vehicle growth rate for non-downtown locations. Although a 10% annual increase was previously observed on Willis Point Road in the peak commuting direction, this level of vehicle growth can typically not be sustained over the long-term. In addition, once the McKenzie Interchange is complete, driving from the West Shore to the

Saanich Peninsula via the highway system is expected to become quicker, reducing the desire for people to commute on Willis Point Road. No increase was applied to Hartland Avenue as no vehicle growth has occurred on this street in recent years.

3.8 Vehicle Operations

Exhibit 3.3 illustrates the Levels of Service (LOS) which were obtained from Synchro software. LOS measures the average number of seconds vehicles wait to travel through an intersection. Existing operations were assessed at the study intersections except for the Willis Point Road access which is currently only used for construction vehicles and workers.

For unsignalized intersections, LOS ranges from ‘A’ (0-10 seconds of delay) to ‘F’ (more than 50 seconds of delay). LOS D, E, and F can be common for critical turning throughout the region.

The analysis accounts for the observed peak hour factors, heavy vehicle percentage, and road grades. Key findings include:

- All movements operate at LOS D or better indicating there are no intersections with significant delay.
- The most critical movements are vehicles turning left from either Wallace Drive or Hartland Avenue onto northbound West Saanich Road during the weekday afternoon and Saturday peak traffic periods.

In addition to LOS, the volume to capacity ratio, and queue lengths were also assessed, however, for all scenarios they were low, indicating that there are no existing concerns for intersections operating near their theoretical capacity or substantial vehicle queues developing.

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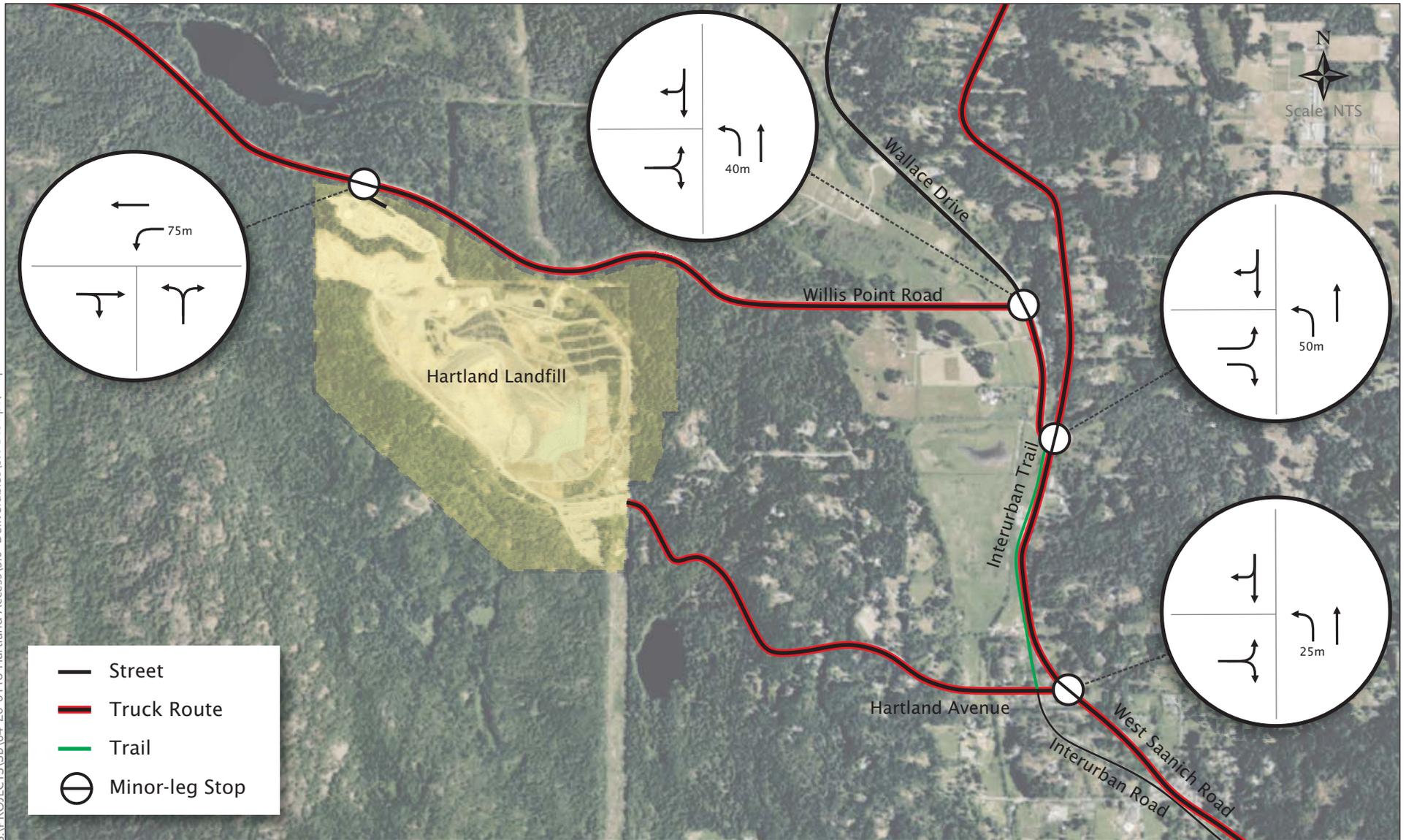


Exhibit 3.1 Transportation Network

Hartland Landfill Alternate Access Transportation Impact Study
04-20-0118
May 2020



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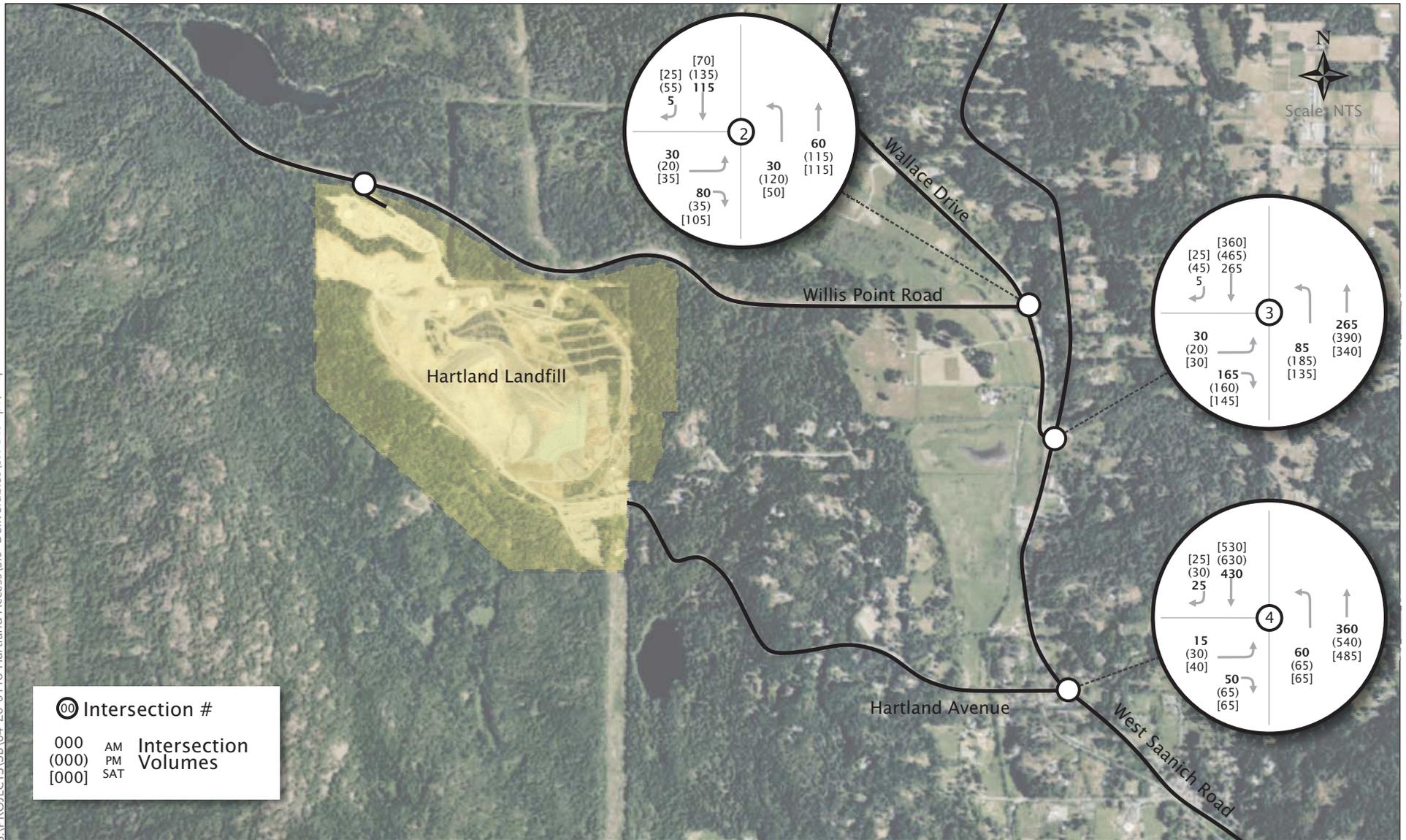


Exhibit 3.2 Existing Vehicle Volumes

Hartland Landfill Alternate Access Transportation Impact Study
04-20-0118 June 2020



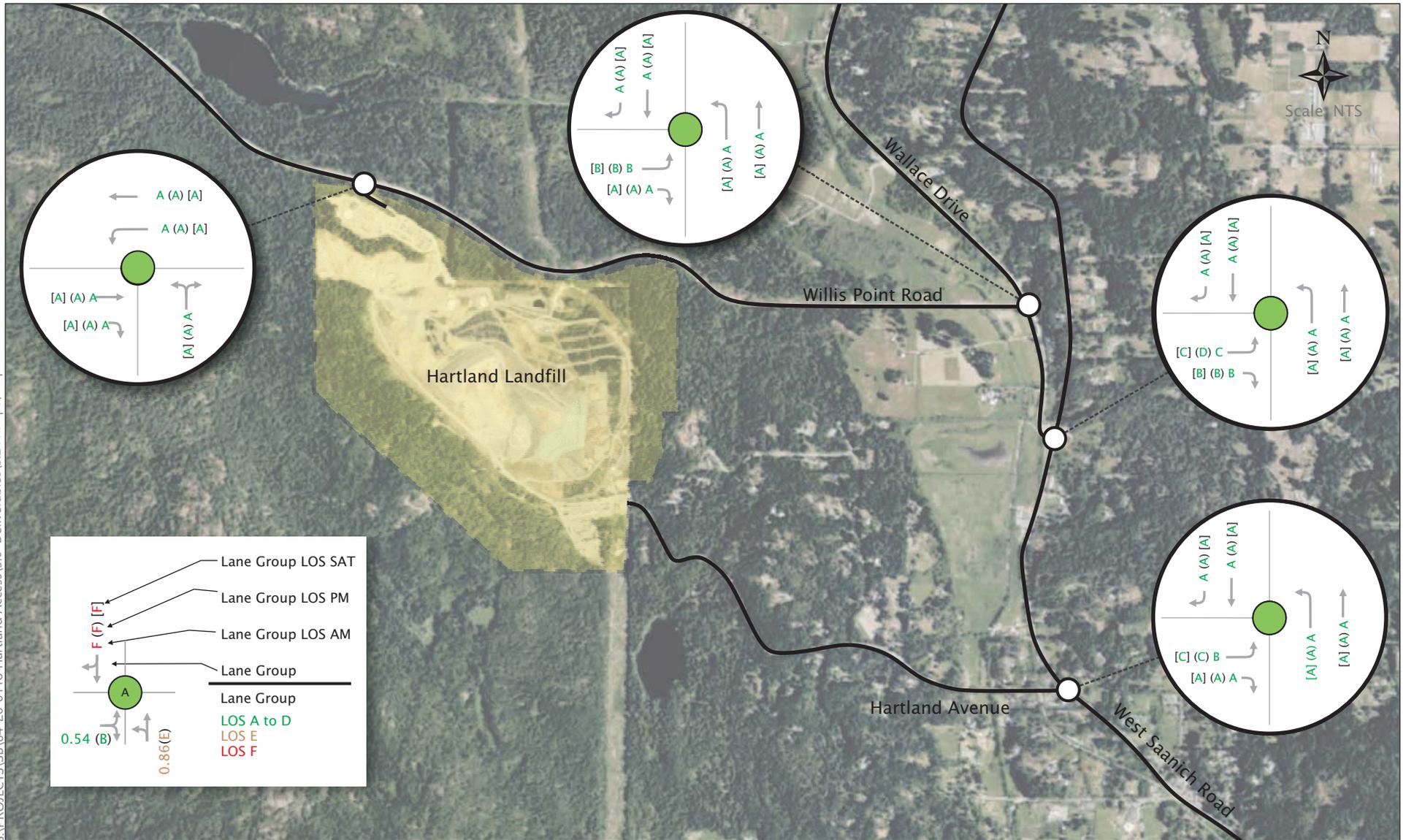


Exhibit 3.3 Existing Vehicle Levels of Service

4. ANALYSIS

4.1 Scenarios

Three future scenarios were developed to assess the positive and negative impacts of changing the vehicle access routing for the Hartland Landfill from the current condition with Hartland Avenue as the primary access to Willis Point Road becoming the primary access:

1. No change in vehicle access

- a. The vehicle access arrangement remains as-is with no changes to how vehicles enter or exit the site

2. Move commercial vehicle access to Willis Point Road

- a. The automated scale is moved to near Willis Point Road which is where all registered haulers (commercial and municipal trucks) would enter and exit the site.

3. Move the primary vehicle access to Willis Point Road

- a. The large majority of vehicles accessing the site would do so via Willis Point Road including all residential traffic and the commercial haulers. The site office would also be relocated to near Willis Point Road. The Hartland Avenue access would remain for emergency use or landfill operations only.

4.2 Vehicle Volumes

Exhibit 4.1 illustrates the 2030 vehicle volumes if there is no change in vehicle access. They were estimated by applying a 1% annual increase to movements on West Saanich Road, Wallace Drive, and Willis Point Road. No increase was applied to Hartland Avenue as no vehicle growth has occurred on this street in recent years.

For the additional two scenarios, the existing number of vehicles and their route through the study area was estimated so that they could be re-assigned to use the Willis Point Road access.

Table 4.1 summarizes the average number of vehicles accessing the landfill between March and October of 2019. The vehicle trip estimates are based on the landfill’s transaction data. Data from the winter (November to February) was excluded since there are fewer vehicles accessing the landfill during this period (see Figure 2.2).

Table 4.1: Existing Landfill Vehicle Trip Generation

TRIP GENERATOR	WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR			SATURDAY PEAK HOUR		
	Total	In	Out	Total	In	Out	Total	In	Out
Commercial Customers	28	14	14	23	11	12	10	5	5
Residential Customers	34	18	14	52	25	27	150	74	76
Staff/Contractors	12	10	2	15	5	10	4	2	2
TOTALS	74	42	30	90	41	49	164	81	83

Residential customers represent approximately two-thirds of the vehicles accessing the landfill during the weekday peak hours and almost all of the vehicles during the Saturday peak hour. The Saturday peak hour has the highest vehicle trip generation at approximately 80 vehicles both entering and exiting the landfill.

For analysis purposes, the landfill’s vehicle trip generation was assumed to remain the same over the medium-term since the weight of deposited waste is forecasted to remain at a similar or lower level over the next 30 years (see Figure 2.1).

There is a potential for additional vehicle trips caused by aggregate production at the landfill. There is a potential for up to

12 additional round trips per hour on weekdays (12 trucks inbound and outbound) to remove aggregate from the landfill. Due to uncertainty regarding the vehicle trip generation during this study's weekday peak hours (8:30 - 9:30 am and 3:30 - 4:30 pm), the impacts of additional vehicle trips due to aggregate production (or other causes) is considered within **Section 4.4 and 4.5** which illustrates the excess vehicle capacity on the study streets and intersections.

Based on observed travel patterns for existing landfill traffic, it was assumed that 70% of vehicles accessing the site were coming to/from the south (via West Saanich Road) and 30% were coming to/from the north (20% via West Saanich Road and 10% via Wallace Drive).

Exhibit 4.2 illustrates the estimated change in vehicle volumes for changing the commercial vehicle access to Willis Point Road. For this scenario, 15 commercial vehicles (one vehicle each way every four minutes) are relocated from Hartland Avenue to Willis Point Road during the weekday morning peak hour with a lower amount during other hours. **Exhibit 4.3** presents the resulting 2030 vehicle volumes if the commercial vehicle access is changed to Willis Point Road.

Exhibit 4.4 illustrates the estimated change in vehicle volumes for the primary vehicle access to Willis Point Road. In this scenario, up to 80 vehicles (inbound and outbound) are relocated from Hartland Avenue to Willis Point Road during the Saturday peak hour which is the busiest period for residential hauling. **Exhibit 4.5** presents the resulting 2030 vehicle volumes if the primary vehicle access is changed to Willis Point Road.

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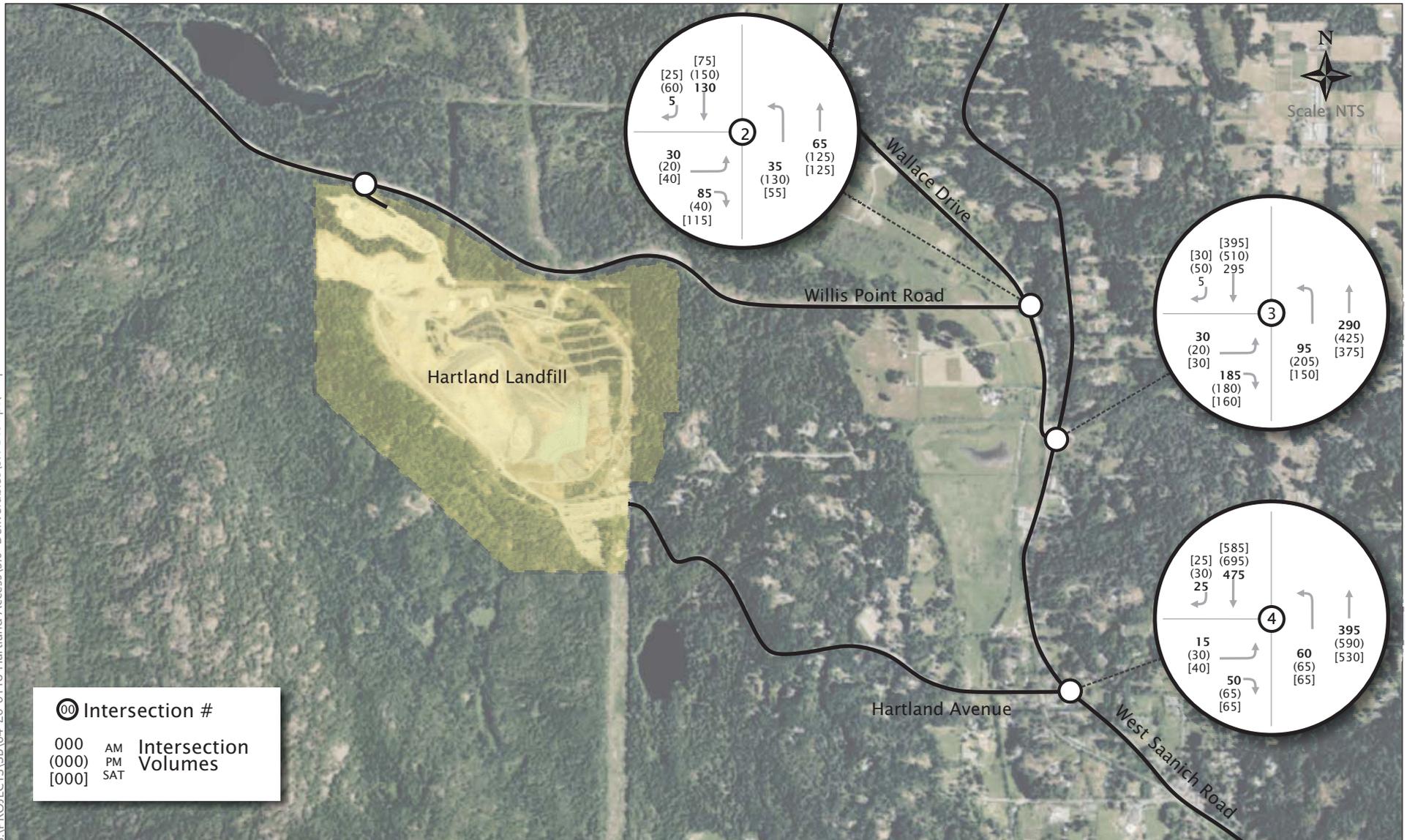


Exhibit 4.1 2030 Vehicle Volumes - No Change in Vehicle Access

Hartland Landfill Alternate Access Transportation Impact Study
04-20-0118 June 2020



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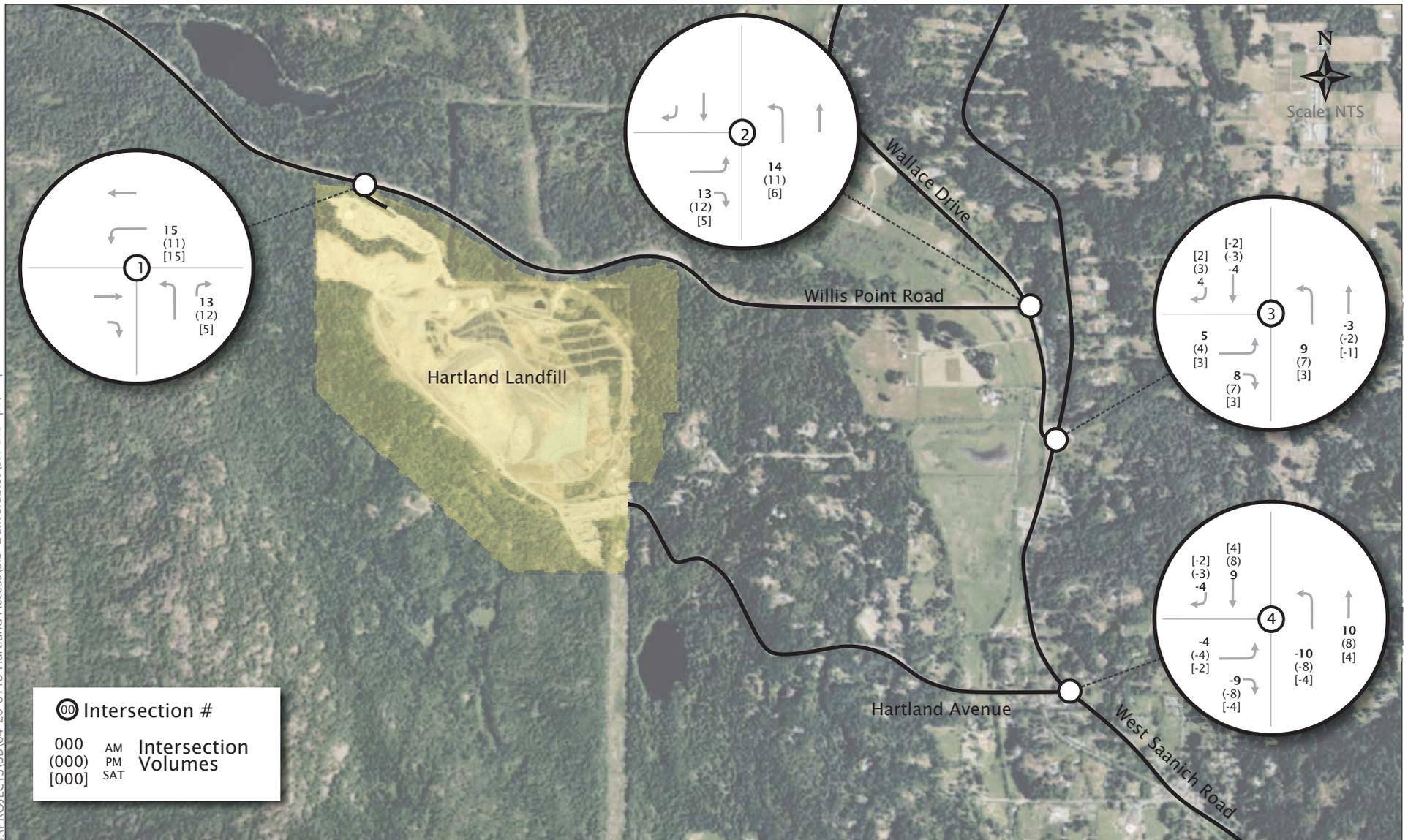


Exhibit 4.2 Change in Vehicle Volumes - Move Commercial Vehicle Access to Willis Point Road

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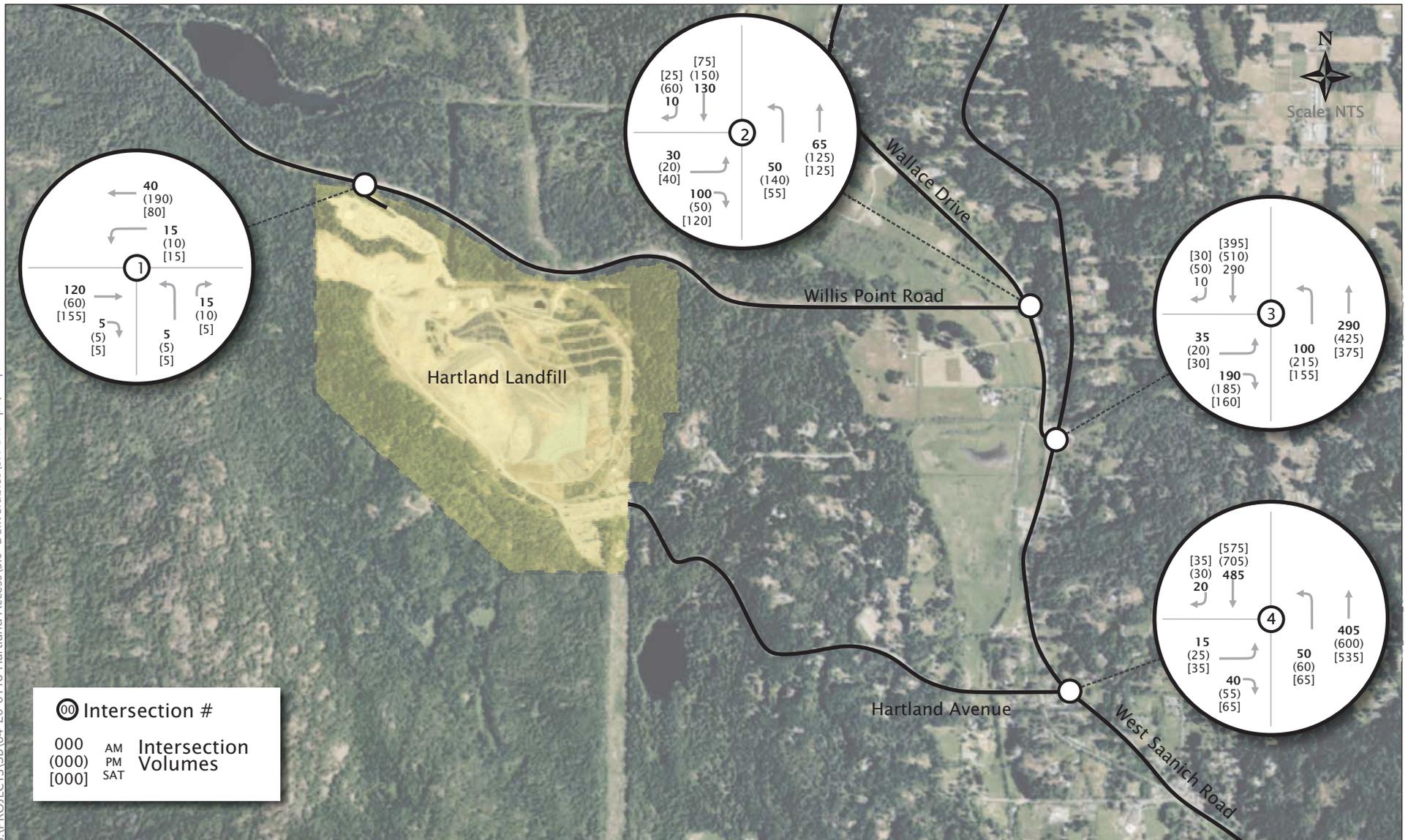


Exhibit 4.3 2030 Vehicle Volumes - Move Commercial Vehicle Access to Willis Point Road

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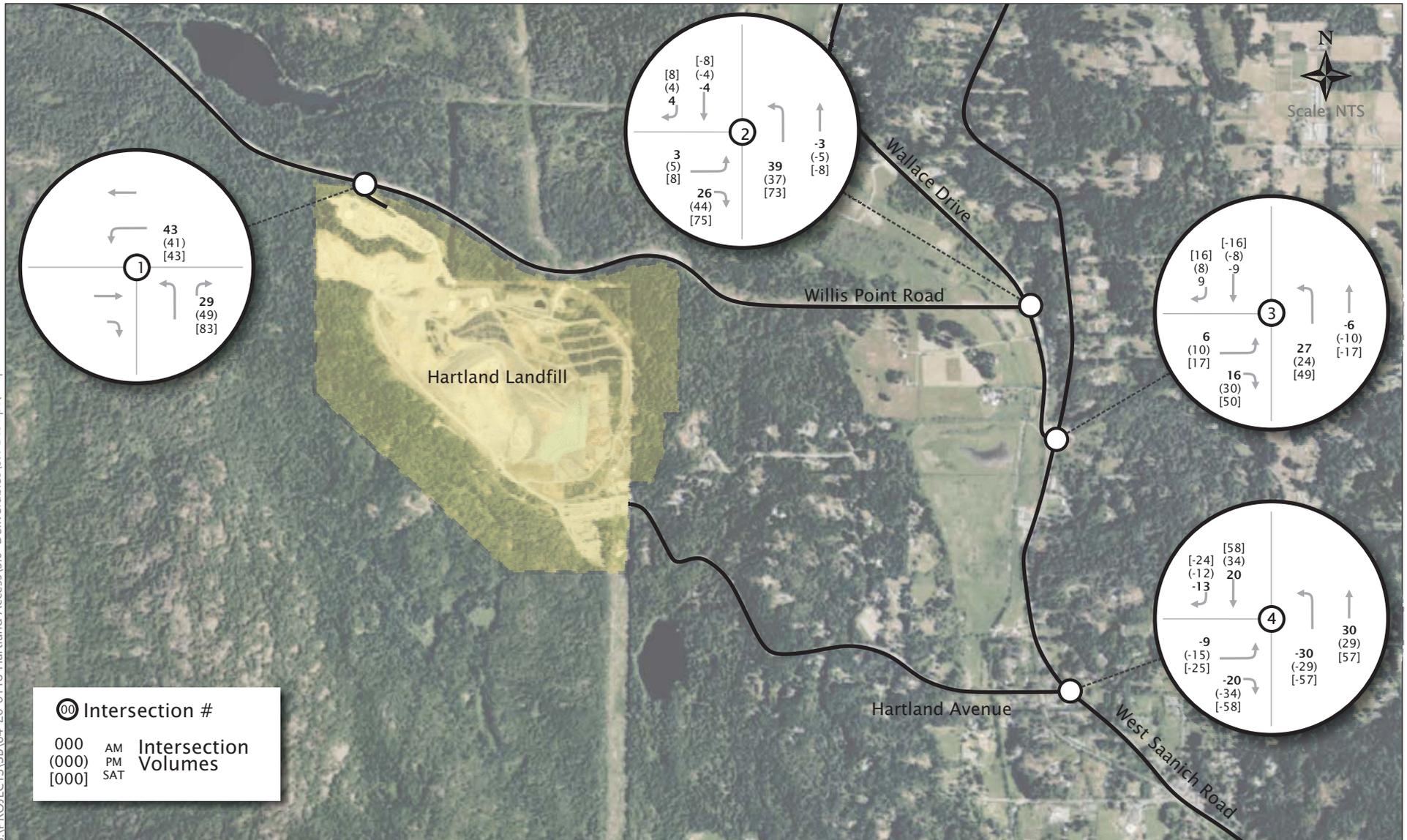


Exhibit 4.4 Change in Vehicle Volumes - Move Primary Access to Willis Point Road

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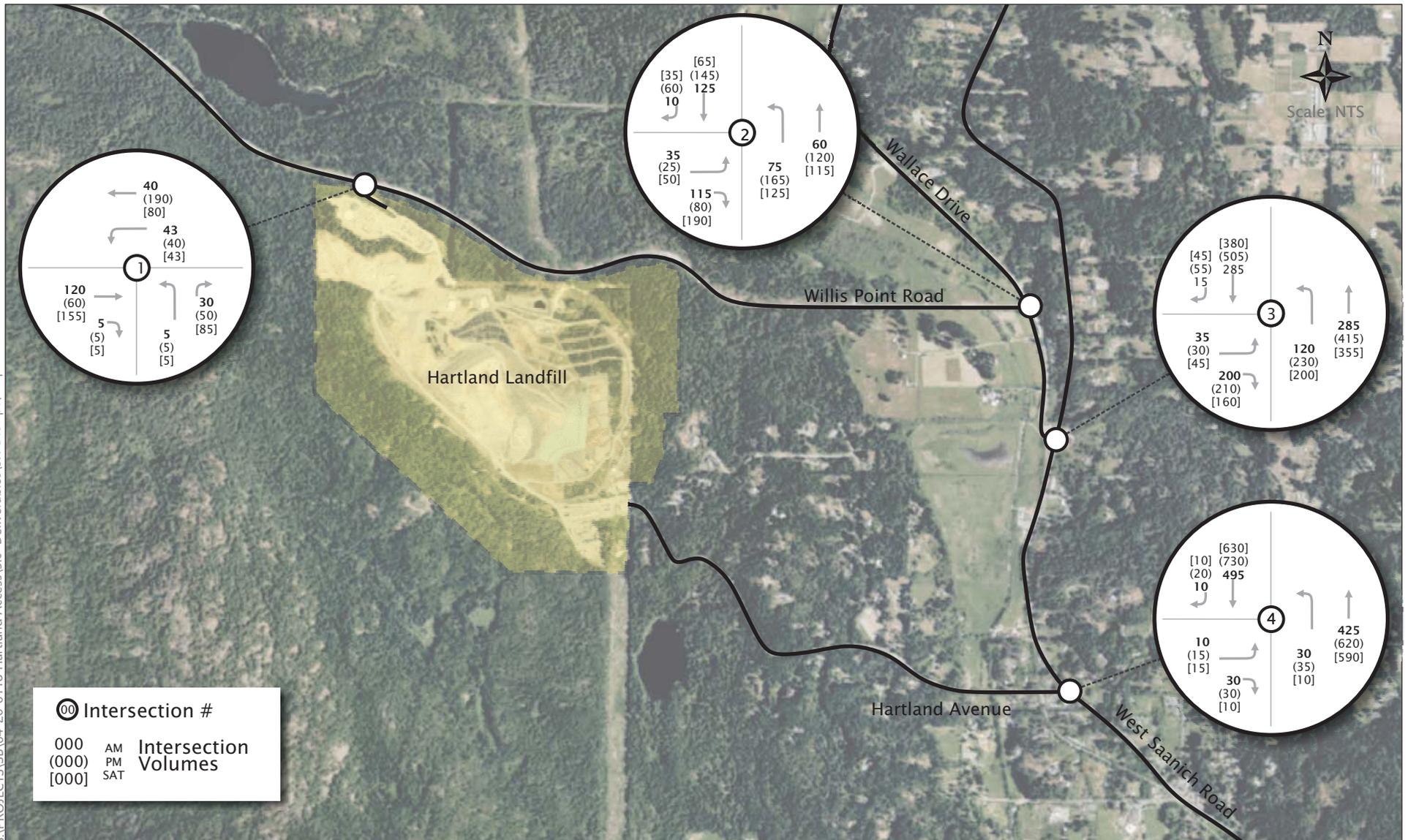


Exhibit 4.5 2030 Vehicle Volumes - Move Primary Access to Willis Point Road

4.3 Safety

4.3.1 Safety Review Process

A road safety review of the study area was completed with the goal of assessing the road safety impacts of changing local vehicle travel patterns by changing the landfill's vehicle access arrangement.

Collision data was obtained from ICBC's public website for the 5-year period from 2014 to 2018, for the different roads within the study area. Detailed collision data describing each reported collision was not available at the time of writing this report.

A site visit was completed during the daytime on April 30, 2020. Although the landfill typically does not operate when it is dark outside, for completeness, a nighttime review was completed on May 6, 2020, to identify visibility issues.

4.3.2 Collision Data

Table 4.2 summarizes the available collision data within the study area which is based on insurance claims submitted to ICBC for the 5-year period from 2014 to 2018 inclusive. There were no reported fatalities within this period. Overall, the majority of the collisions within the study area occur at the intersections of Wallace Drive with (i) Willis Point Road (four per year) and (ii) West Saanich Road (12 per year).

Table 4.2: 2014 – 2018 Collisions in the Study Area

LOCATION	TOTAL	INJURY	PDO	CYCLIST	PEDESTRIAN
Willis Point Road & Hartland Access	0	0	0	0	0
Willis Point Road	0	0	0	0	0
Wallace Drive & Willis Point Road	19	5	10	0	0
Wallace Drive	0	0	0	0	0
West Saanich Road & Wallace Drive	69	18	45	3	3
West Saanich Road	4	2	2	0	0
West Saanich Road & Hartland Avenue	3	1	2	0	0
Hartland Avenue	4	1	3	0	0

Source: ICBC

PDO – Property Damage Only

4.3.3 Audit Findings

Tables 4.3 and 4.4 summarize the audit findings for the study intersections and street segments, respectively. Pictures are provided following the audit finding tables.

The available Intersection Sight Distance (ISD) was measured and compared to the suggested distances in the Geometric Design Guide for Canadian Roads. The suggested distances were established by TAC with the goal of minimizing the speed drivers in the opposing direction must slow down to accommodate a vehicle turning in front of them. The critical sight direction is typically not the direction a driver is turning (i.e. the critical direction for a driver turning right onto the main road is looking left on the main road for oncoming vehicles).

Table 4.3: Safety Audit Findings - Intersections

INTERSECTION	INTERSECTION SIGHT DISTANCE		INFRASTRUCTURE OBSERVATIONS	BEHAVIOUR OBSERVATIONS
	Available	Suggested		
Willis Point Road & Hartland Access	NBL: 200 m NBR: 300 m EBL: 330 m	NBL: 150 m NBR: 130 m EBL: 110 m (70 km/h design speed)	Pavement markings are faded and need to be replaced. [Picture 1]	No unusual or unsafe behaviour observed.
Wallace Drive & Willis Point Road	NBL: 150 m EBL: 110 m EBR: 125 m [Picture 2]	NBL: 95 m EBL: 130 m EBR: 110 m (60 km/h design speed)	Damage to channelization island from car tires. [Picture 3]	No unusual or unsafe behaviour observed.
West Saanich Road & Wallace Drive	NBL: 190 m EBL: 250 m EBR: 160 m [Picture 4]	NBL: 110 m EBL: 150 m EBR: 130 m (70 km/h design speed)	Multi-use trail terminates 20 m from the intersection which could cause conflicts for trail users. [Picture 5] Northbound bus stop located at the intersection could cause conflicts from the bus stopping in the intersection.	Vehicles were observed turning right very quickly from Wallace Drive to West Saanich Road.
West Saanich Road & Hartland Avenue	NBL: 70 m EBL: 150 m EBR: 60 m	NBL: 110 m EBL: 150 m EBR: 130 m (70 km/h design speed)	Very poor sight distance for drivers looking north on West Saanich Road due to topography. [Pictures 6 and 7] Northbound and southbound bus stops located at the intersection could cause conflicts from the bus stopping in the intersection.	Drivers turning from Hartland Avenue to West Saanich Road were observed creeping forward from the stop bar to gain additional sight distance and accelerate quickly indicating their concern of not knowing if there is an oncoming vehicle.

NB – Northbound, EB – Eastbound, SB – Southbound, L – Left, R – Right

Table 4.4: Safety Audit Findings – Street Segments

STREET	LAND USES	DRIVEWAY & INTERSECTION FREQUENCY	WIDTH	CHARACTERISTICS	INFRASTRUCTURE OBSERVATIONS
Willis Point Road	Hartland Landfill & Department of National Defence.	Minimal	Travel Lane: 3.5 m Shoulder: 1.2 – 1.4 m	Typical rural road.	The white line on the westbound shoulder needs to be repainted.
Wallace Drive	Rural	Infrequent	Travel Lane: 3.5 m Shoulder: 1.2 – 1.6 m	Typical rural road.	None
West Saanich Road	Rural residential and commercial	Moderate	Travel Lane: 3.5 m Shoulder: 1.3 – 1.8 m	Moderate horizontal and vertical curves.	None
Hartland Avenue	Rural residential	Frequent	Travel Lane: 3.6 m Shoulder: 0 – 0.2 m	Frequent horizontal and vertical curves. Unforgiving roadside due to vegetation, rocks, and vertical changes. [Picture 8]	The white line on the westbound shoulder needs to be painted.



1: Willis Point Road & Hartland Access - Worn pavement markings



2: Willis Point Road - Looking north on Wallace Drive (reasonable visibility but could be improved by trimming vegetation)



5: Willis Point Road & Wallace Drive - Damaged traffic island



4: Wallace Drive - Looking north on West Saanich Road (good visibility)



5: Interurban Trail trailhead located near West Saanich Road & Wallace Drive intersection



6: Hartland Avenue – Looking north on West Saanich Road from the stop bar (very poor visibility)



7: Hartland Avenue – Looking north on West Saanich Road from in front of the stop bar (only the roof of the oncoming vehicle is visible)



8: Hartland Avenue – Frequent horizontal and vertical profile changes. No shoulders.

4.3.4 Key Issues and Recommendations

Key issues and recommendations to improve safety include:

- The pavement markings at the Hartland Landfill access on Willis Point Road should be repainted following construction completion of the adjacent Residual Treatment Facility.
- The westbound white edge line on Willis Point Road should be repainted.
- Vegetation should be trimmed on a regular basis surrounding the Wallace Drive & Willis Point Road intersection to improve sight distances.
- The multi-use trail terminates at Wallace Drive, 20 metres from West Saanich Road. Two collisions involving people walking and cycling were reported to ICBC during the 5-year collision history which may be due to people accessing the trail without any connecting active transportation infrastructure. Saanich should investigate opportunities to allow people to cross Wallace Drive safely either at the West Saanich Road intersection or further away from the intersection.
- Drivers make the eastbound right turn from Wallace Drive to West Saanich Road very quickly. This could cause collisions either when vehicles merge onto West Saanich Road or if drivers need to stop abruptly and cause a rear-end collision with the vehicle behind them. This is potentially the reason for the high number of collisions reported to ICBC at this intersection. Saanich should consider options to reduce vehicle turning speed by reducing the turning radius while still providing sufficient space for large vehicles.
- There is very poor visibility of southbound vehicles on West Saanich Road approaching Hartland Avenue. Saanich should consider opportunities to reduce southbound vehicle speeds. Note, relocating the landfill's access to Willis Point Road will

significantly reduce the number of vehicles turning at this intersection.

- A white edge line should be painted on Hartland Avenue in the westbound direction to improve nighttime visibility. The lack of shoulder on Hartland Avenue and unforgiving roadside containing many obstacles will increase the severity of collisions if vehicles depart from the travel lane

4.3.5 Comparison

Overall, the route to the Willis Point Road access is more suitable for larger volumes of vehicles and heavy vehicles since the West Saanich Road & Wallace Drive intersection provides improved turning opportunities (less oncoming traffic) than the West Saanich Road & Hartland Avenue, and vehicle sight-distance is better at both the Willis Point Road intersection with Wallace Road and at the Wallace Road intersection with West Saanich Road.

In addition, compared to Hartland Avenue, Willis Point Road has a more consistent horizontal and vertical road profile as well as providing road shoulders.

4.4 Street Capacity

The Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads notes that Rural Local Streets (the most applicable category for Hartland Avenue) typically have fewer than 1,000 vehicles per day and Rural Collector Streets (the most applicable category for Willis Point Road) typically have fewer than 5,000 vehicles per day. The difference between the categorization is due to Hartland Avenue primarily providing local access to locations on the street (i.e. frequent driveways), whereas Willis Point Road primarily provides vehicle travel through the street segment being evaluated (i.e. infrequent driveways).

Table 4.5 summarizes the average weekday vehicle volume on these streets compared to the typical maximum volumes noted by TAC (1,000 and 5,000 vehicles per day, respectively).

Hartland Avenue currently has more vehicles than a typical Rural Local Street (1,000 vehicles per day) and will operate below the threshold if the landfill’s primary access is relocated to Willis Point Road (Scenario 3). Willis Point Road currently has less than half of the vehicles of a typical Rural Collector Street (5,000 vehicles per day) and is forecasted to remain 45% below the typical threshold even if all landfill access is relocated to Willis Point Road (Scenario 3).

Table 4.5: Ratio of Typical Street Classification Volume - Saturday

SCENARIO	VEHICLE GENERATOR	HARTLAND AVENUE	WILLIS POINT ROAD
Scenario 1	Landfill	70%	0%
	Non-landfill	71%	40%
	Total	141%	40%
Scenario 2	Landfill	42%	6%
	Non-landfill	71%	40%
	Total	113%	45%
Scenario 3	Landfill	0%	14%
	Non-landfill	71%	40%
	Total	71%	54%

4.5 Intersection Level of Service

Table 4.6 summarizes the vehicle operations for the three scenarios being analyzed. The LOS and volume/capacity (V/C) ratio is shown for each movement. A V/C ratio greater than 1.0 indicates that the movement is above its theoretical capacity. V/C ratios of 0.8-0.9 are common in urban settings. All movements are estimated to remain under 0.4 for all scenarios, indicating that they are forecasted to operate well within capacity.

The LOS does not vary between scenarios indicating that changing the landfill’s vehicle access will not significantly impact the time it takes to travel through an intersection.

Table 4.6: 2030 Vehicle Level of Service

INTERSECTION	MOVEMENT	WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR			SATURDAY PEAK HOUR		
		Scenario 1	Scenario 2	Scenario 3	Scenario 1	Scenario 2	Scenario 3	Scenario 1	Scenario 2	Scenario 3
Willis Point Road & Hartland Access	EBT/R	-	-	-	-	-	-	-	-	-
	WBL	A, -	A, 0.01	A, 0.04	A, -	A, 0.01	A, 0.03	A, -	A, 0.00	A, 0.07
	WBT	-	-	-	-	-	-	-	-	-
	NBL/R	A, -	A, 0.02	A, 0.04	A, -	A, 0.01	A, 0.05	A, -	A, 0.01	A, 0.11
Wallace Drive & Willis Point Road	EBL	B, 0.05	B, 0.06	B, 0.07	B, 0.05	B, 0.05	C, 0.07	B, 0.08	B, 0.08	B, 0.12
	EBR	A, 0.11	A, 0.13	A, 0.15	A, 0.05	A, 0.06	A, 0.10	A, 0.14	A, 0.15	A, 0.23
	NBL	A, 0.03	A, 0.04	A, 0.06	A, 0.11	A, 0.11	A, 0.14	A, 0.04	A, 0.04	A, 0.10
	NBT	-	-	-	-	-	-	-	-	-
	SBT/R	-	-	-	-	-	-	-	-	-
West Saanich Road & Wallace Drive	EBL	C, 0.10	C, 0.11	C, 0.13	E, 0.15	E, 0.18	E, 0.25	D, 0.17	D, 0.18	D, 0.30
	EBR	B, 0.28	B, 0.29	B, 0.30	C, 0.35	C, 0.36	C, 0.40	B, 0.28	B, 0.28	B, 0.36
	NBL	A, 0.08	A, 0.09	A, 0.11	A, 0.22	A, 0.23	A, 0.25	A, 0.15	A, 0.15	A, 0.2
	NBT	-	-	-	-	-	-	-	-	-
	SBT/R	-	-	-	-	-	-	-	-	-
West Saanich Road & Hartland Avenue	EBL/R	B, 0.15	B, 0.012	B, 0.08	C, 0.32	C, 0.28	C, 0.16	C, 0.33	C, 0.32	C, 0.08
	NBL	A, 0.06	A, 0.05	A, 0.03	A, 0.08	A, 0.07	A, 0.05	A, 0.08	A, 0.07	A, 0.01
	NBT	-	-	-	-	-	-	-	-	-
	SBL/T	-	-	-	-	-	-	-	-	-

Notes:

- NB – Northbound, EB – Eastbound, SB – Southbound, L – Left, T – Through, R – Right
- Scenario 1 – No change in vehicle access
- Scenario 2 – Move commercial vehicle access to Willis Point Road, residential access to remain via Hartland Avenue
- Scenario 3 – Move the primary vehicle access to Willis Point Road for all vehicle streams arriving/departing the landfill
- The eastbound left-turn movements from Wallace Drive and Hartland Avenue are highlighted in grey since they are the movements most impacted by relocating the vehicle access to Willis Point Road. As shown, the impact is insignificant.

4.6 Street Grade

The steepness of a street can affect how fast vehicles travel as well as safety, particularly for larger vehicles, such as the commercial vehicles accessing the landfill. Within the study area, Willis Point Road and Hartland Avenue both have significant elevation changes of approximately 100 metres.

Willis Point Road has a single large hill with a maximum grade of 8% whereas Hartland Avenue has a number of rolling hills with grades up to 15%. TAC suggests a maximum grade of approximately 10% for these environments, indicating that the grades on Willis Point Road are more appropriate for the street's use, particularly for large vehicles.

4.7 Climbing Lanes

On two-lane roads, short segments of a third lane can assist with overtaking and reduce the amount of time vehicles trail other vehicles. When this is caused by trucks travelling slower than usual due to elevation gain, the preferred treatment is a truck climbing as opposed to a general passing lane.

Both routes to the landfill (Willis Point Road and Hartland Avenue) have a significant elevation gain from West Saanich Road. Depending on specific circumstances, this could cause heavy vehicles accessing the landfill to travel below typical speeds which could cause vehicles to queue behind the slower moving trucks.

The pavement markings on Willis Point Road indicate that passing is allowed in the opposing lane on the 800 metres closest to Wallace Drive. The remainder of Willis Point Road and

all of Hartland Avenue do not provide safe passing opportunities in the opposing lane.

TAC suggests that a climbing lane should be considered when the following three conditions are met:

1. Total upgrade vehicle flow in excess of 200 vehicles per hour.
2. Upgrade truck flow in excess of 20 vehicles per hour.
3. One of the following:
 - a. A 15 km/h or greater speed reduction is expected for a typical heavy truck.
 - b. Level of Service E or F on the grade.
 - c. A reduction of two or more levels of service is experienced when moving from the approach road.

The second criterion is currently met on both Willis Point Road and Hartland Avenue with upgrade truck flows exceeding 20 vehicles per hour during select hours of the day.

Neither the first or third criteria are met for either Willis Point Road or Hartland Avenue for the three analysis scenarios. Heavy vehicles were observed travelling near the speed limit through the study area.

The landfill currently generates 30 commercial vehicle trips per peak hour (15 in and out), or approximately one commercial vehicle every four minutes in each direction. Therefore, there is only a small probability of drivers encountering a commercial vehicle in front of them on weekdays and a minuscule probability on weekends. Therefore, the impact on other drivers on Willis Point Road and Hartland Avenue is minimal.

In addition to the financial and environmental implications of constructing a climbing lane, it would also cause drivers to increase their speed due to the street appearing wider. There is a direct relationship between the width of a street and the speed in which drivers choose to travel. Adding a lane on Willis Point Road is anticipated to increase vehicle speeds higher than the existing design where the average speed is already 10 km/h above the speed limit.

4.8 Active Transportation

The Interurban Trail is the primary walking facility through the study area with its trailhead at Wallace Drive. It also provides an off-road cycling connection. A significant number of cyclists (500 per day, 50 per hour) were recorded on West Saanich Road; Wallace Drive and Willis Point Road were recorded as having considerably less bike traffic, and Hartland Avenue even less.

Retaining Hartland Avenue as the primary access route to the landfill would retain a higher level of vehicles crossing the Interurban Trail and quite possibly discouraging people from cycling on Hartland Avenue due to the frequent passing vehicles.

Moving the vehicle access to Willis Point Road would reduce the number of vehicles crossing the Interurban Trail and would enable people to feel comfortable cycling on Hartland Avenue. However, it would also increase the number of vehicles on Willis Point Road which would reduce the comfort of cycling on that street.

4.9 Vehicle Emissions

The particles that vehicles emit from engine exhaust and as well from vehicle braking generate air pollution which has health impacts immediately surrounding the source. Engine exhaust also emits carbon dioxide which is a greenhouse gas contributing to climate change.

The difference in vehicle emissions was estimated using the SimTraffic traffic analysis model which considers vehicle volume, vehicle speed, driving distances, and street grades.

During landfill operating hours, moving the commercial vehicle access only to Willis Point Road is anticipated to increase vehicle emissions in the study area by 15%; with the relocation of all landfill vehicle traffic to Willis Point Road, this emissions increase is predicted to increase by up to 30%. Although Willis Point Road is flatter than Hartland Avenue, the longer route increases the amount of emissions.

However, since the landfill is a regional destination which people commonly drive 10 to 15 kilometres to reach, the net additional vehicle emissions for an entire trip to the landfill is likely 10 to 20% of the above percentages, resulting in a net increase of 1.5 to 3% in vehicle emissions if only commercial vehicles are relocated to Willis Point Road and 3 to 6% if all vehicles access the landfill from Willis Point road.

It is also noted that the number of residential properties in the vicinity of Willis Point Road is considerably less than along Hartland Avenue so the proximity-based health effects of air pollution would be lower.

4.11 On-site Circulation

Exhibit 4.6 illustrates the access routes between the two vehicle access points for the landfill with the active filling area which is planned to progress to the northwest over time. Only commercial and landfill trucks are used within the site.

The active filling area is currently 600 metres from the Hartland Avenue access, increasing to 1,100 metres over time. Conversely, it is currently 1,500 metres from the Willis Point Road access, reducing to 600 metres over time.

A site plan has not been provided illustrating where residential waste would be deposited near Willis Point Road, making it difficult to compare how the design would compare to the current design near Hartland Avenue. However, by moving only the commercial access to Willis Point Road, there would be fewer on-site conflicts between commercial and residential vehicles where they merge/diverge into their respective streams.

Another consideration is the Mount Work Regional Park mountain bike trailhead/parking lot located immediately before the existing Hartland Avenue landfill access. The current design causes landfill-bound vehicles to pass through the parking lot which can interrupt the ease of park users accessing the trails and restroom facilities. Relocating the landfill's vehicle access to Willis Point Road would allow for a trailhead/parking lot that is more inviting to trail users and reduces safety risks.

4.12 Infrastructure Condition

There is a short bridge on Hartland Avenue over Tod Creek 260 metres west of West Saanich Road. Although a bridge inspection was not completed, it appeared to be in a well-worn state. High use by heavy vehicles (such as commercial hauling trucks) significantly impacts a bridge's lifespan.

Maintaining vehicle access to the landfill on Hartland Avenue will cause the bridge to deteriorate at a faster rate than if vehicle access was on Willis Point Road. In addition, as the only entrance to the local area, if the bridge were damaged it would affect access to residents' homes, Mount Work Regional Park, and the landfill.

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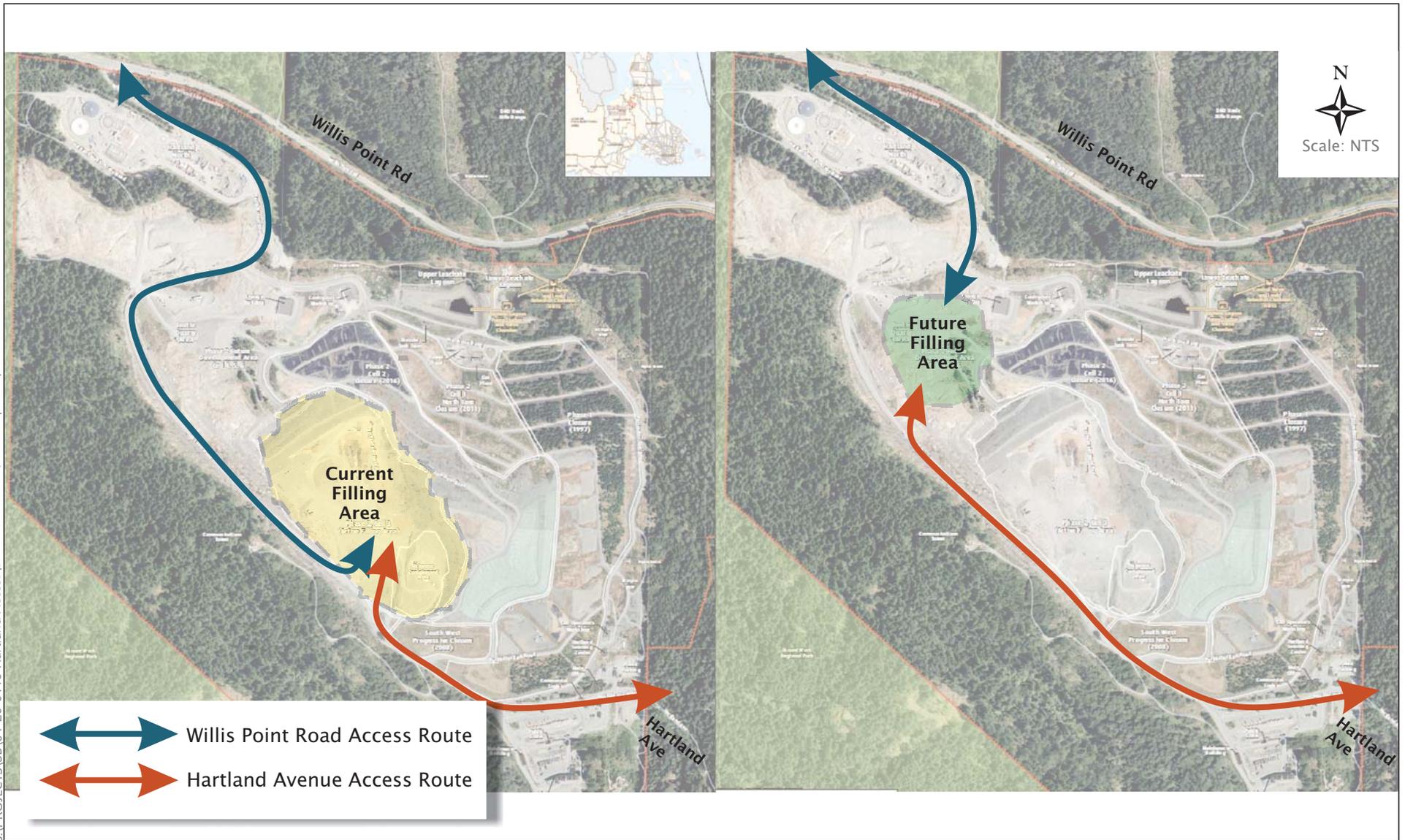


Exhibit 4.6
On-site Circulation

Hartland Landfill Alternate Access Transportation Impact Study

04-20-0118

June 2020



5. SUMMARY

There are benefits and drawbacks to the three scenarios considered, however, overall, the impacts of re-routing vehicles to/from the Hartland Landfill are relatively modest compared to the number of vehicles not related to the landfill travelling through the study area, and the entire distance vehicles must travel to reach the landfill.

Table 5.1 summarizes the assessment for each category analyzed indicating that there are some benefits of moving either only commercial vehicles or all vehicles to the landfill's Willis Point Road access.

The route to reach the Willis Point Road access is more appropriate for higher vehicle use than the Hartland Avenue access due to the street and intersection designs. Most notably, Willis Point Road is designed for through vehicle traffic whereas Hartland Avenue has many driveways and minor intersections. In addition, the West Saanich Road & Willis Point Road intersection is more appropriate for accommodating higher vehicle use than the West Saanich Road & Hartland Avenue intersection.

We do not view any significant concerns that would restrain the CRD from moving vehicle access to Willis Point Road, nor did we identify any additional off-site infrastructure improvements that are triggered by changing the vehicle access.

There is no need for an additional lane on either Willis Point Road or Hartland Avenue for any of the three vehicle access scenarios analyzed. Both streets only meet one of three criteria identified by TAC for adding a truck climbing lane. Most notably, the street designs do not cause heavy trucks to travel below the speed limit. Even if all vehicle access is relocated to Willis Point Road, the street would operate 45% below the typical threshold for a two-lane rural collector street. In addition to the financial and environmental impacts, adding a lane on Willis Point Road would also increase the number of speeding vehicles.

Regardless of if the vehicle access arrangement is changed, deteriorated pavement markings on Willis Point Road should be reinstalled following nearby construction of the Residual Treatment Facility. Saanich should also consider reviewing traffic safety at the West Saanich Road & Wallace Drive intersection and consider improvements to reduce the speed of vehicles turning right from Wallace Drive onto West Saanich Road. Potential improvements could also include an improved connection to the Interurban Trail which has a trailhead near the intersection.

Table 5.1: Scenario Comparison Summary

CATEGORY	NO CHANGE TO THE EXISTING ACCESS CONFIGURATION	MOVE COMMERCIAL VEHICLE ACCESS TO WILLIS POINT ROAD	MOVE PRIMARY VEHICLE ACCESS TO WILLIS POINT ROAD
Vehicles	The landfill accounts for 700 vehicles per day (350 vehicles each direction) on Hartland Avenue, 50% of current daily traffic	Daily traffic on Willis Road increases by 15% from 2,000 to 2,300 Daily traffic on Hartland Avenue decreases by 20% from 1,400 to 1,100	Daily traffic on Willis Road increases by 35% from 2,000 to 2,700 Daily traffic on Hartland Avenue decreases by 50% from 1,400 to 700
Safety	West Saanich Road & Hartland Avenue has poor visibility for passenger vehicle drivers, increasing the risk and severity of collisions	West Saanich Road & Hartland Avenue has poor visibility for passenger vehicle drivers, increasing the risk and severity of collisions	History of collisions at West Saanich Road & Wallace Drive manageable with modest improvements
Street Vehicle Volume Compared to Street Classification	Hartland Avenue - Higher than appropriate Willis Point Road - Appropriate	Hartland Avenue - Higher than appropriate Willis Point Road - Appropriate	Hartland Avenue - Appropriate Willis Point Road - Appropriate
Intersection Level of Service	No significant differences		
Street Grade	Poor	Better	Best
Truck Climbing Lane	Not warranted on Willis Point road or Hartland Avenue and would increase the number of speeding vehicles		
Active Transportation	Maintains vehicles crossing the Interurban Trail Minimizes vehicles on Willis Point Road	Elements of the other two scenarios	Reduces vehicles on Hartland Avenue including crossing the Interurban Trail Increases vehicles on Willis Point Road
Vehicle Emissions	-	A modest reduction in air pollution affecting the health of neighbouring residents A slight increase in greenhouse gas emissions affecting climate change	Most reduction in air pollution affecting the health of neighbouring residents A minor increase in greenhouse gas emissions affecting climate change
On-site Circulation	Closer to the current fill area Farther from the future fill area Highest vehicle volume travelling through the Mount Work mountain bike trailhead	Fewer on-site conflicts between vehicles Moderate vehicle volume travelling through the Mount Work mountain bike trailhead	Farther from the current fill area Closer to the future fill area No vehicles travelling through the Mount Work mountain bike trailhead
Infrastructure Condition	Increased risk of deterioration to the Hartland Avenue bridge	Reduced risk of deterioration to the Hartland Avenue bridge	Landfill traffic does not deteriorate the Hartland Avenue bridge

Black - No significant differences between scenarios

Green - Noticeable improvement compared to other scenarios

Red - Noticeable decrease compared to other scenarios

Willis Point Road
Truck Passing Lane - Class D - Opinion of Probable Cost
111720088 November 29, 2019

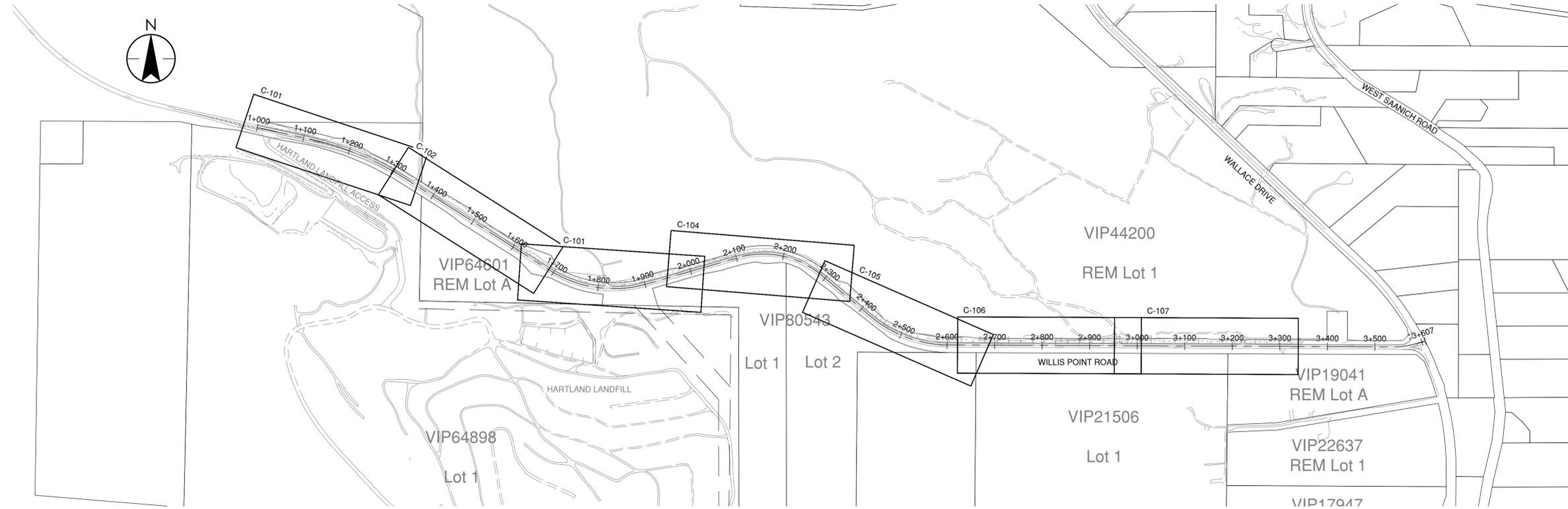
1.0 Civil Works	Unit	Quantity	Unit Price	Total
Mobilization/demobilization	LS	1	\$ 200,000	\$ 200,000
Traffic Control	LS	1	\$ 50,000	\$ 50,000
Environmental Protection	LS	1	\$ 25,000	\$ 25,000
Quality control/materials testing	LS	1	\$ 25,000	\$ 25,000
Sawcutting (1+170 to 3+160)	m	1,990	\$ 10	\$ 19,900
Asphalt milling and disposal	m2	995	\$ 20	\$ 19,900
Clearing and Grubbing (disposal at CRD site)	m2	14,500	\$ 5	\$ 72,500
Excavation and disposal (disposal at CRD site)	m3	6,780	\$ 50	\$ 339,000
Rock Excavation (disposal at CRD site)	m3	6,955	\$ 275	\$ 1,912,625
Subgrade Fill (provided by CRD)	m3	2,320	\$ 20	\$ 46,400
Base and subbase gravel (provided by CRD)	m3	3,310	\$ 20	\$ 66,200
Asphalt paving (80mm thick)	m2	7,738	\$ 75	\$ 580,313
Line Painting	m	5,970	\$ 5	\$ 29,850
Subtotal			\$	3,386,688
Subtotal				\$3,386,688
40% Contingency				\$1,354,675
10% Engineering				<u>\$338,669</u>
Total				\$5,080,031

Note: This estimate is preliminary for an order of magnitude cost for widening Willis Pt. Road from Wallace Drive to the left turn lane into the CRD Residual Solids Treatment facility.

Limits of Commission:

Whereas any opinions of probable cost prepared by Stantec Consulting Ltd. ("the Engineer") will be based on incomplete or preliminary information, and will also be based on factors over which the Engineer has no control, the Engineer does not guarantee the accuracy of these opinions of probable cost and shall have no liability where the probable costs are exceeded.





DRAWING INDEX		
Sheet Number	Sheet Title	Sheet Number
C-001	KEY PLAN AND DRAWING INDEX	C-001
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C-318	CROSS SECTIONS	C-318

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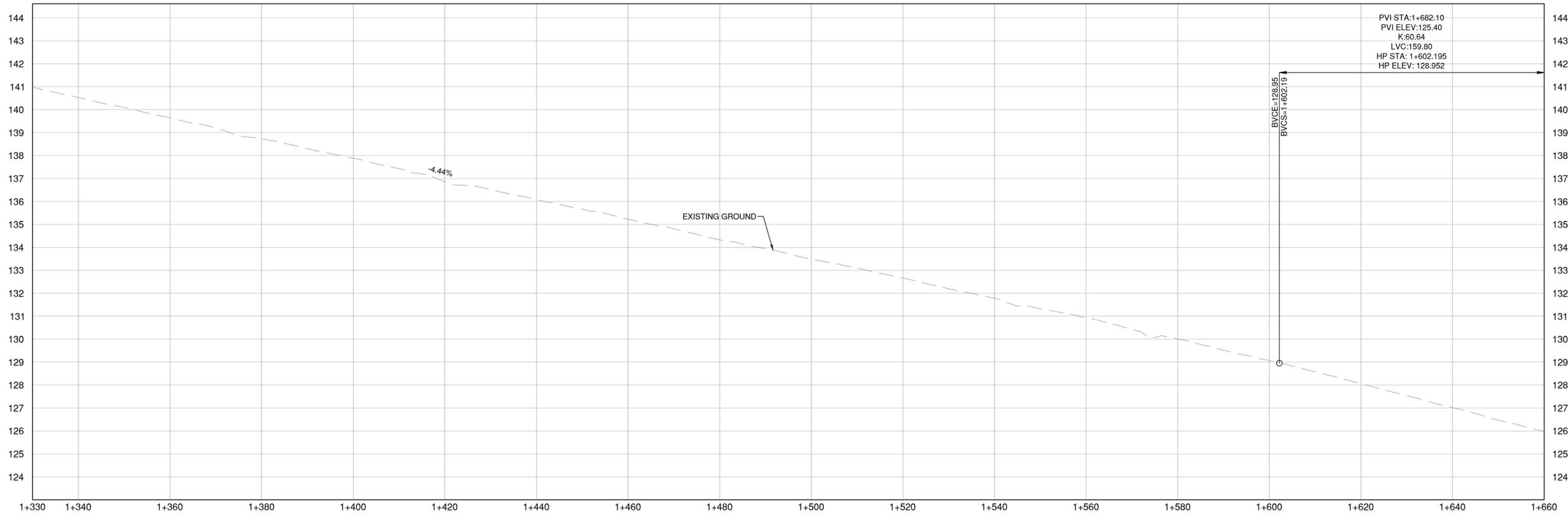


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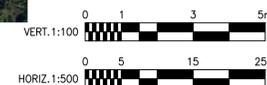


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SCALE VERTICAL	NA	APPROVED	-	
CONTRACT NUMBER	-	DRAWING NUMBER	C-001	SHT. No. OF
ISSUE	-			



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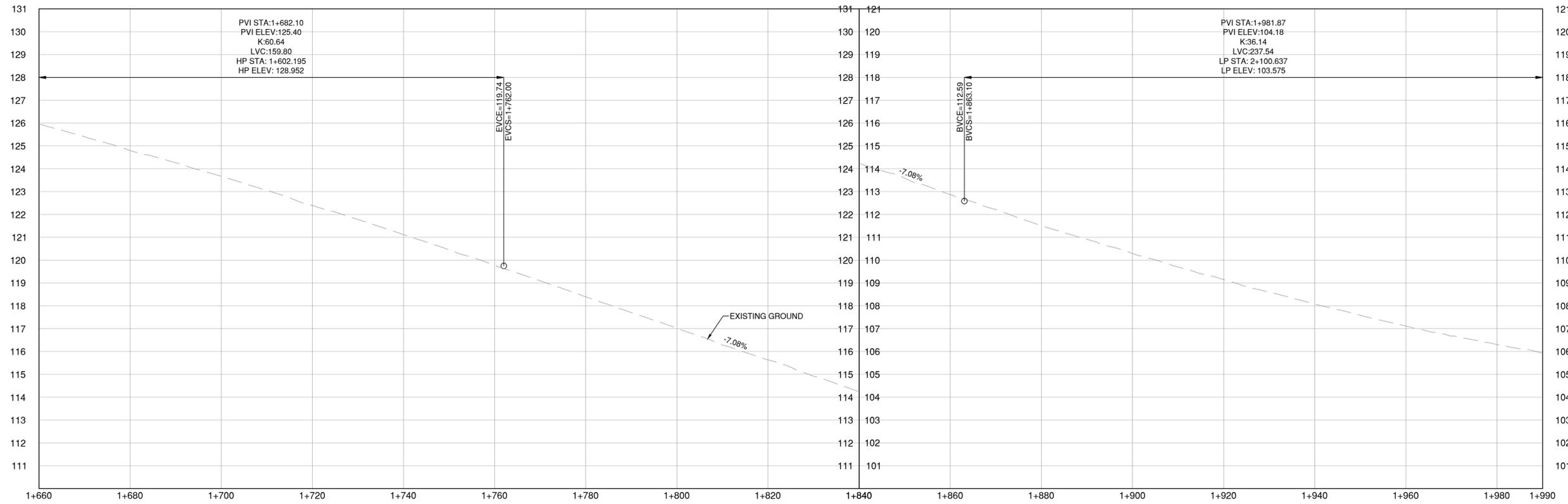
WILLIS POINT ROAD WIDENING

PLAN - PROFILE
STATION 1+330 TO 1+660

CONTRACT NUMBER - DRAWING NUMBER C-102

ISSUE

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LEGEND

- EXISTING PAVEMENT
- NEW PAVEMENT
- TOP OF CUT
- BOTTOM OF FILL



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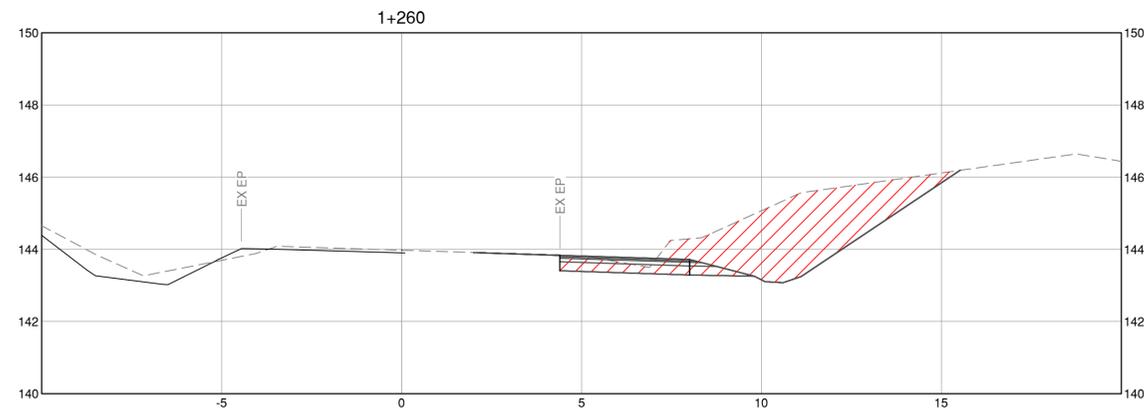
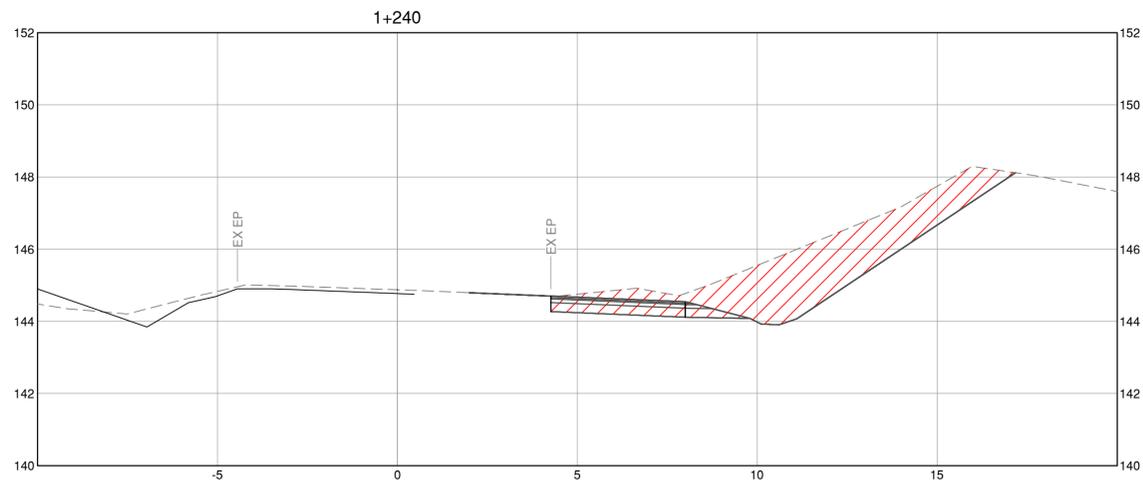
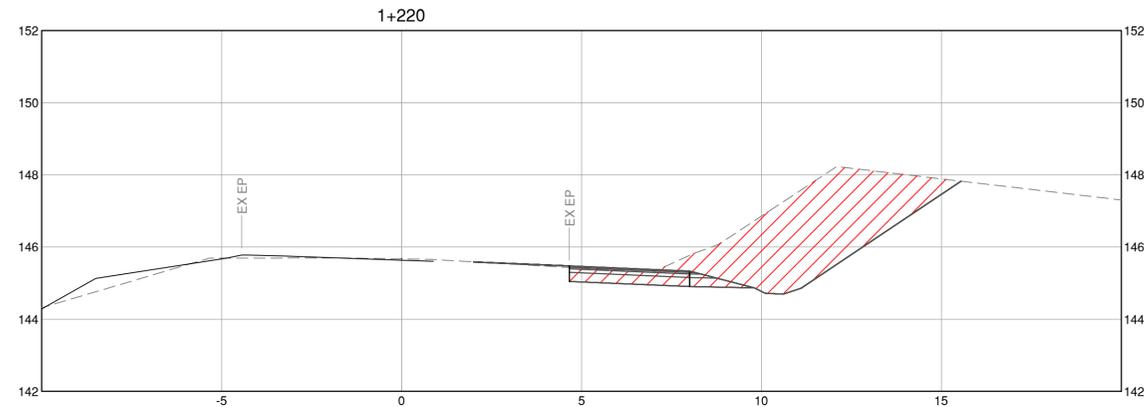
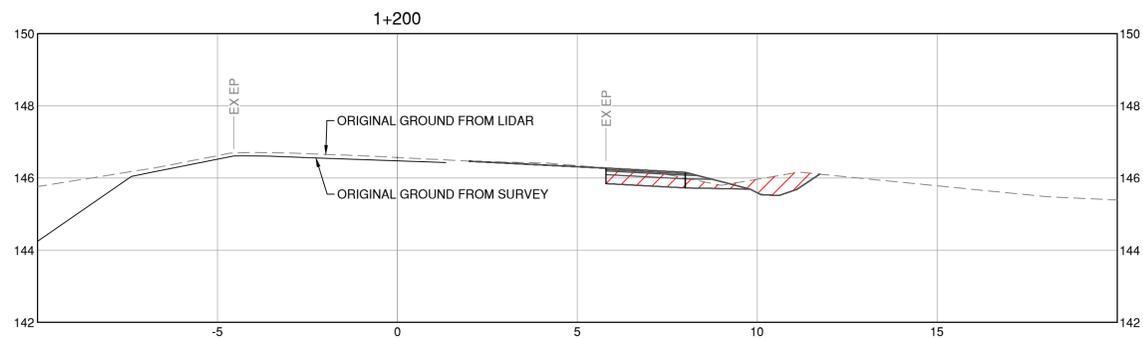
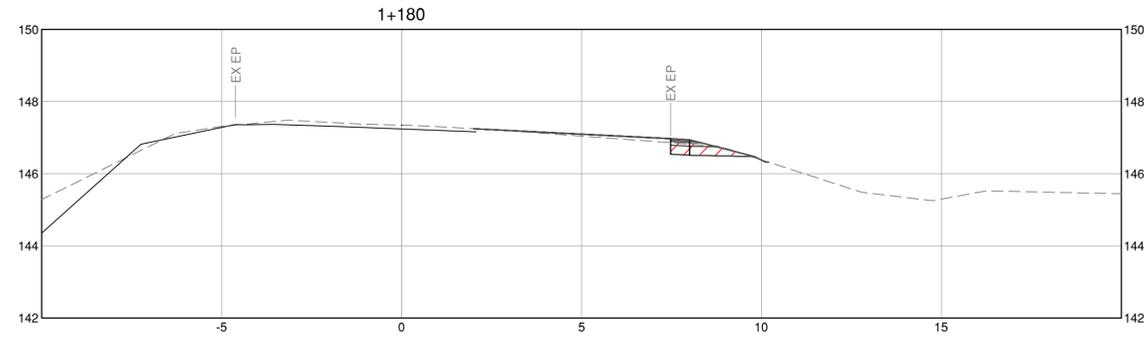
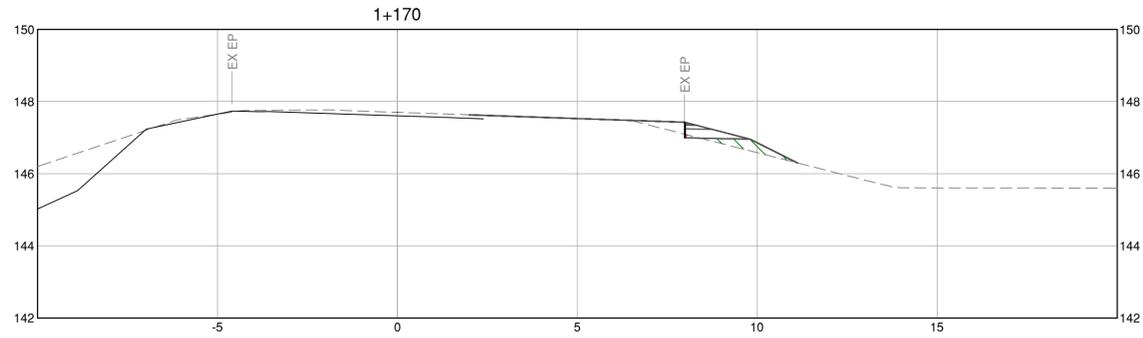
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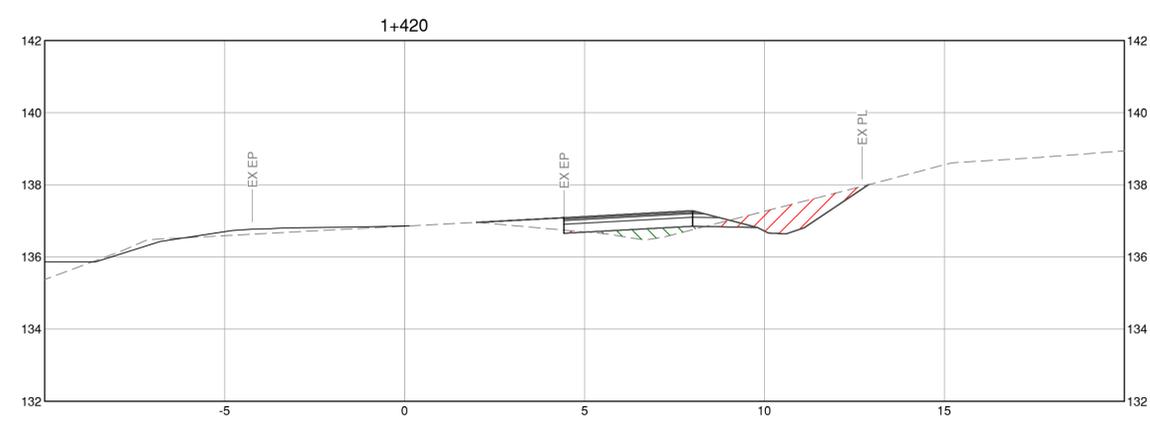
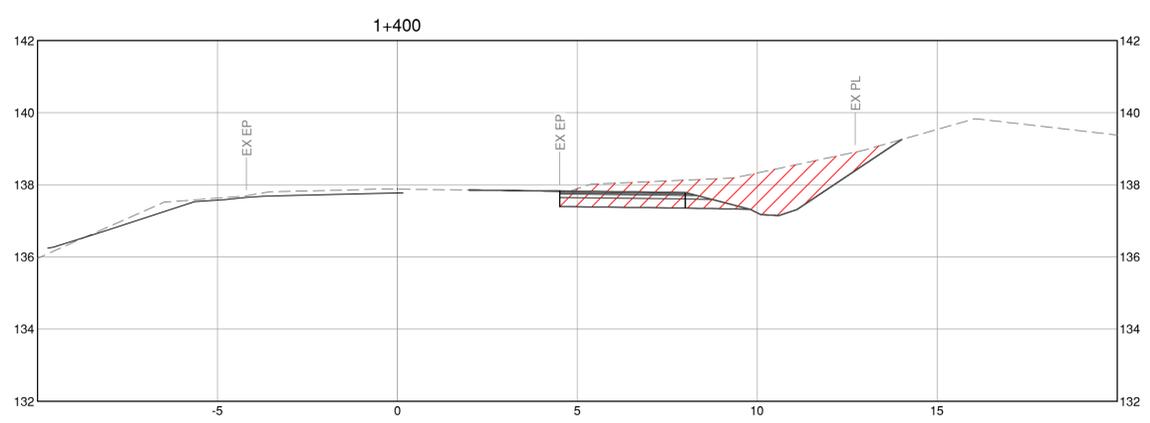
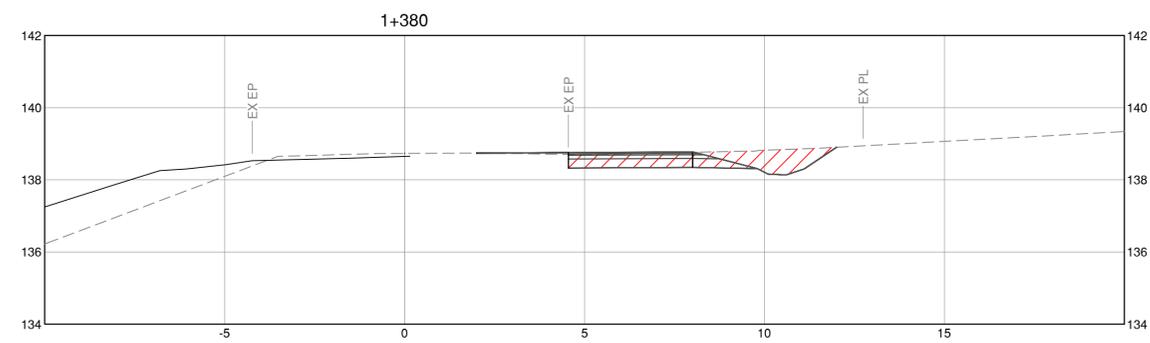
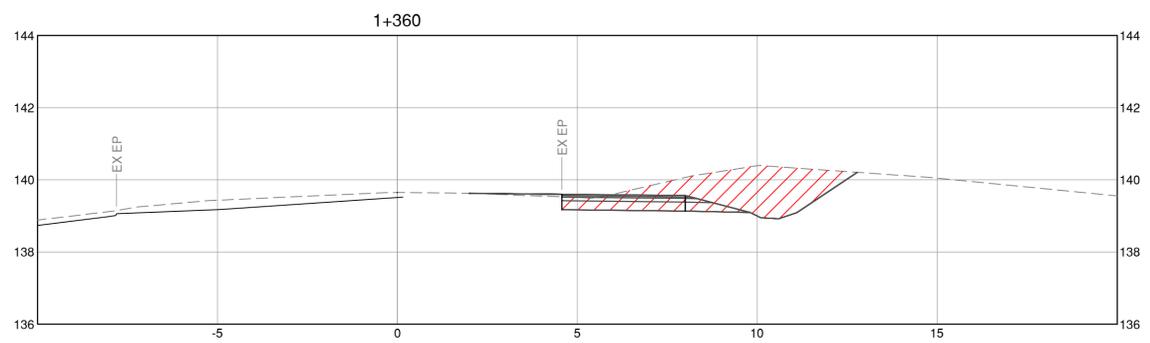
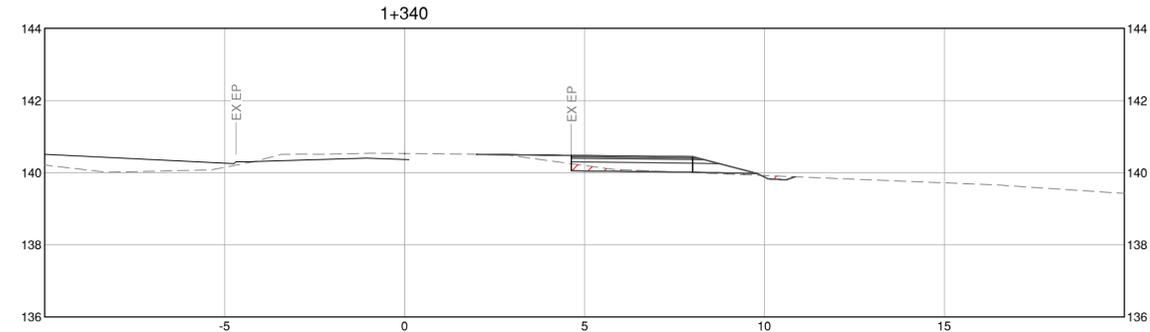
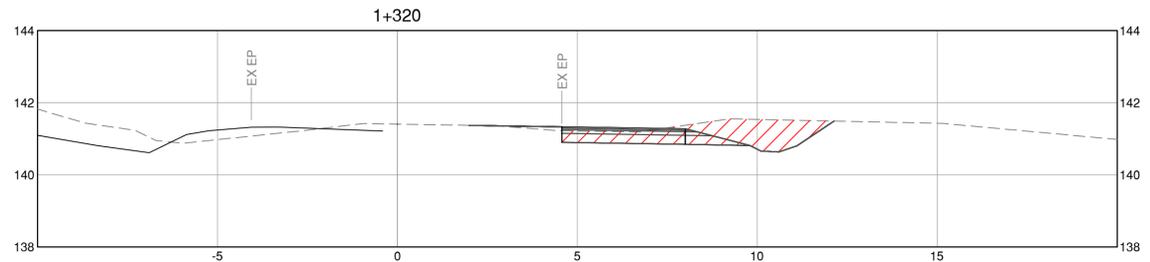
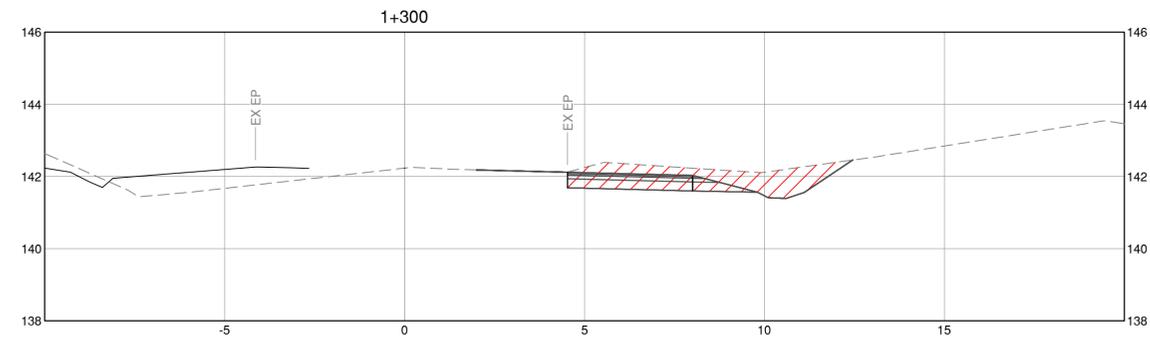
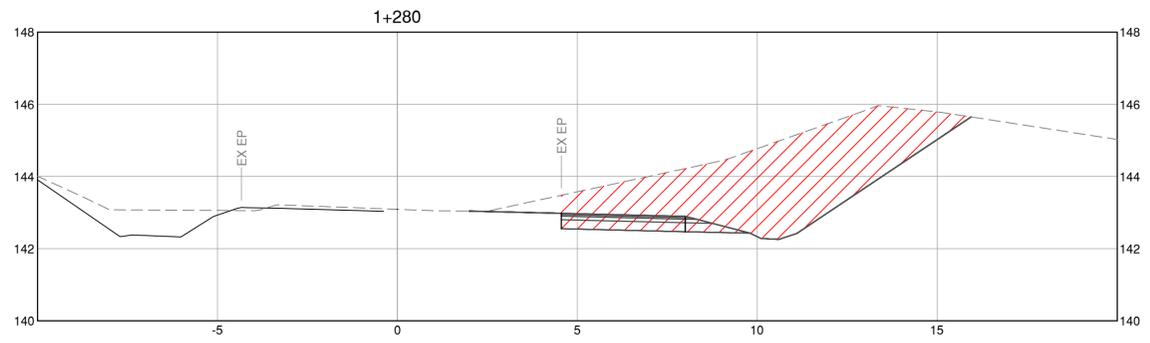
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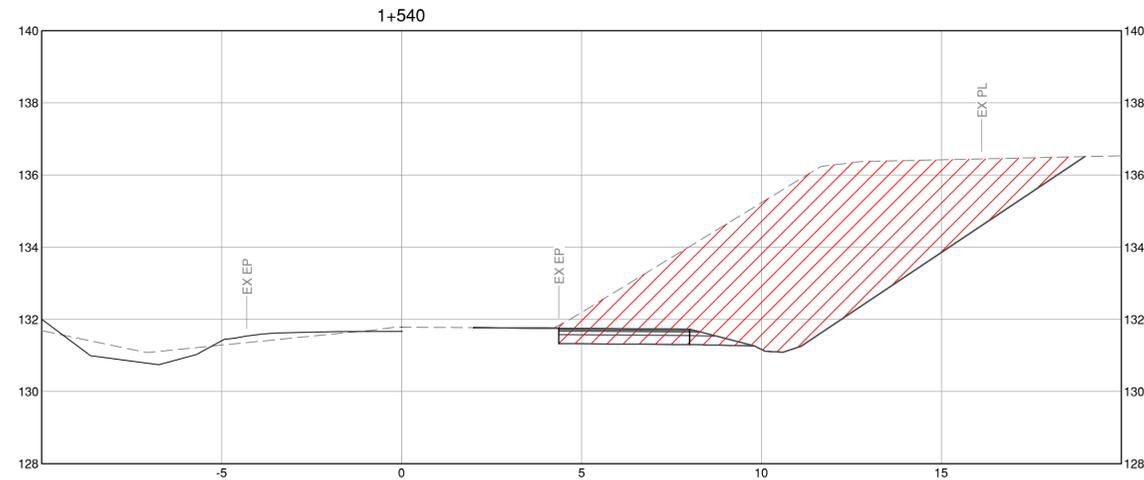
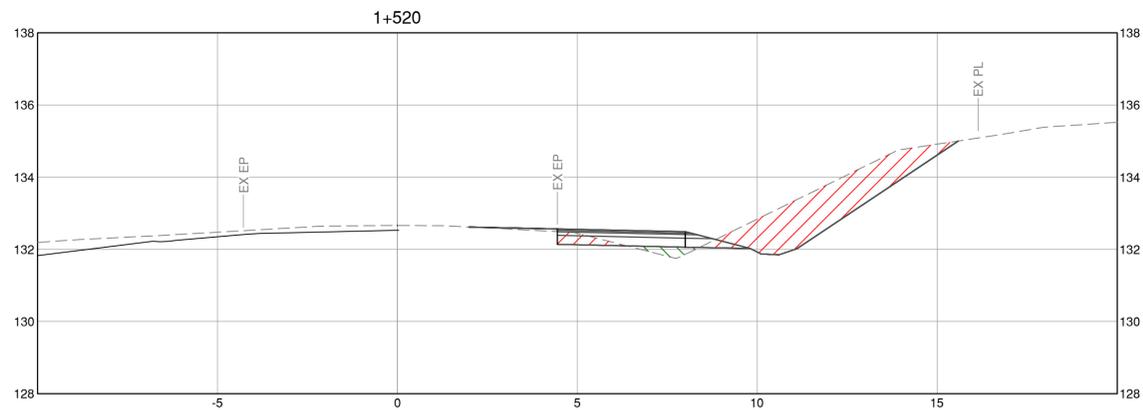
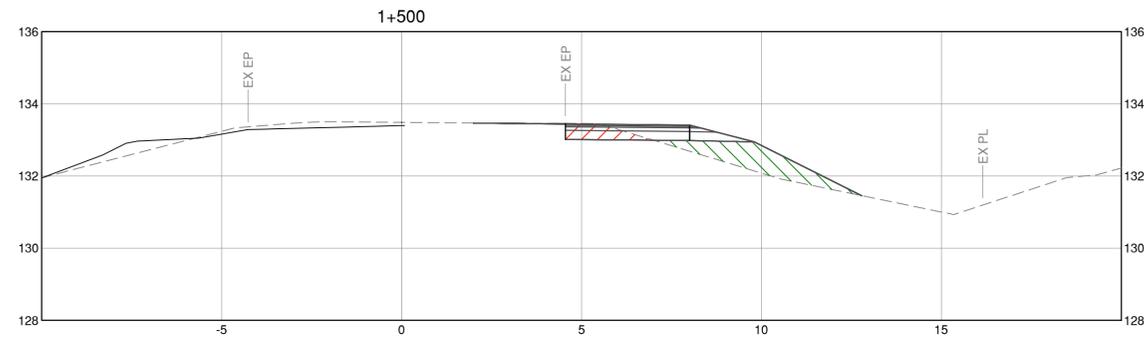
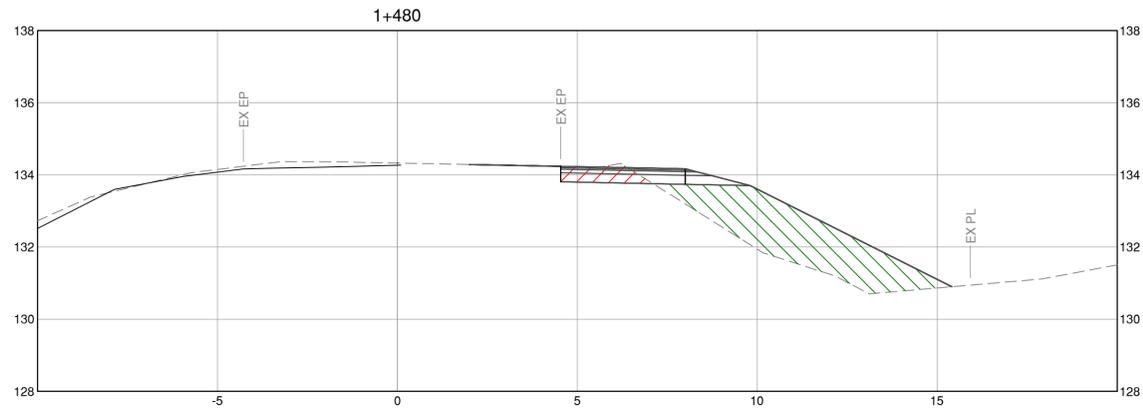
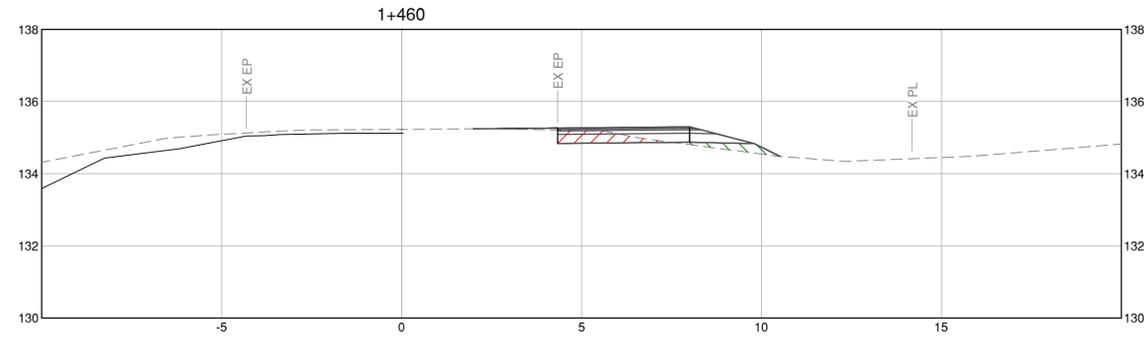
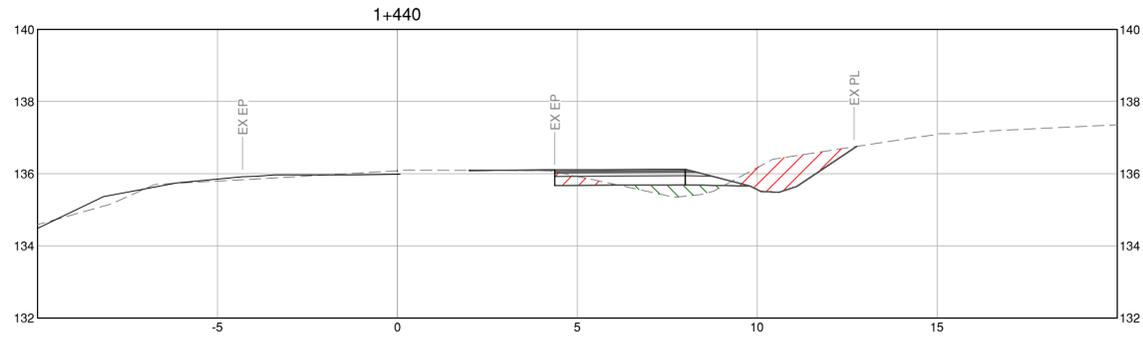
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CONTRACT NUMBER	DRAWING NUMBER C-302	ISSUE	SHT. No. OF



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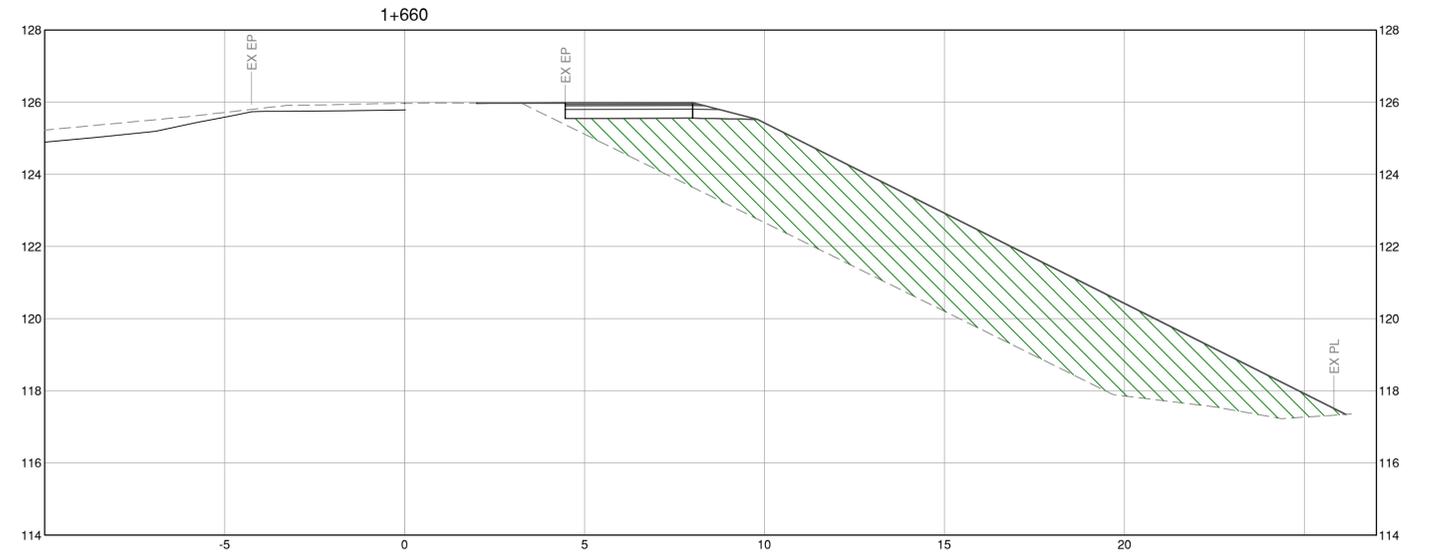
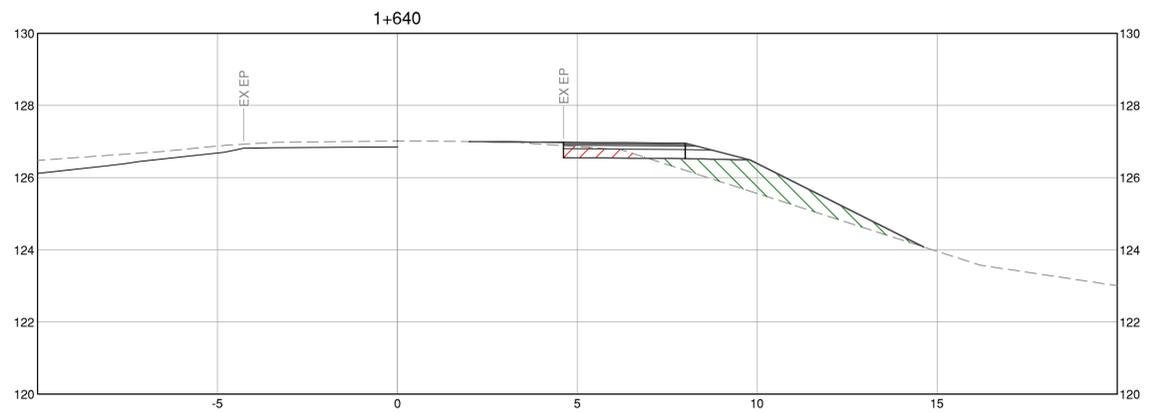
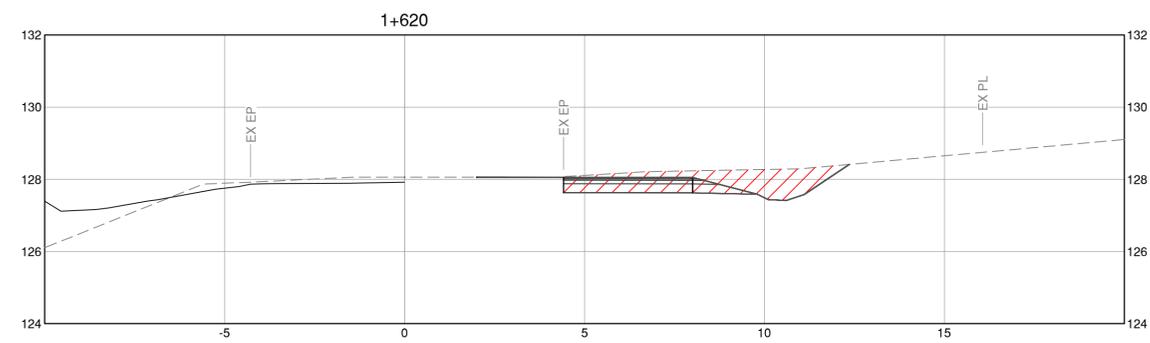
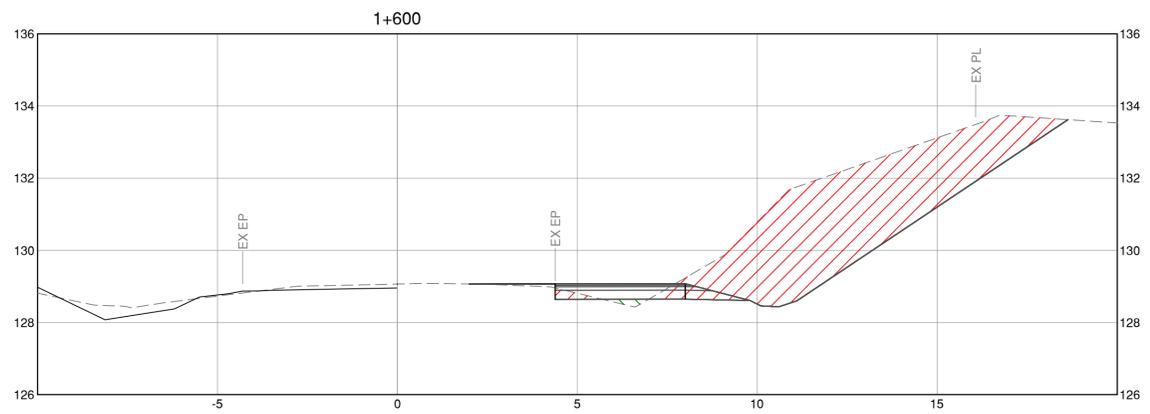
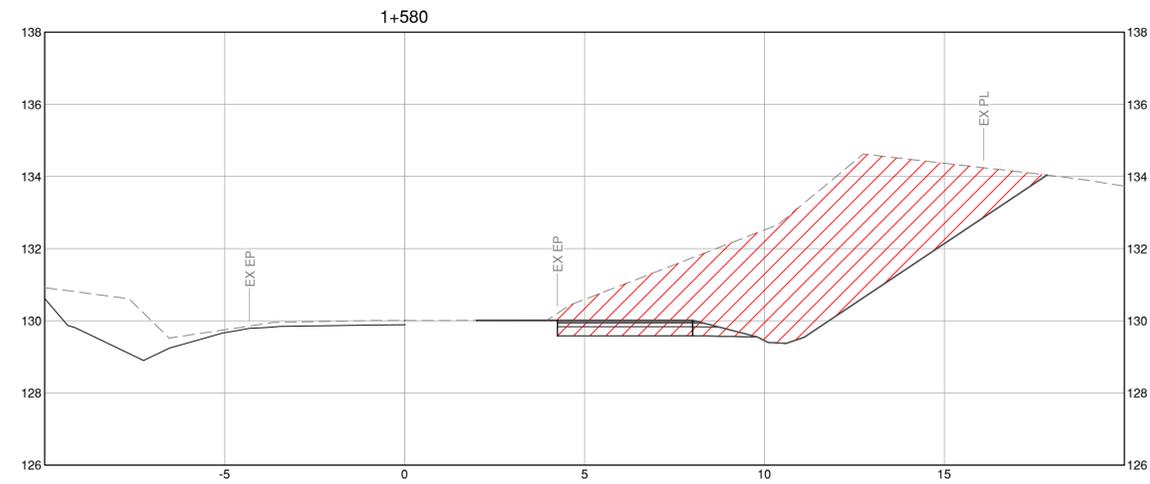
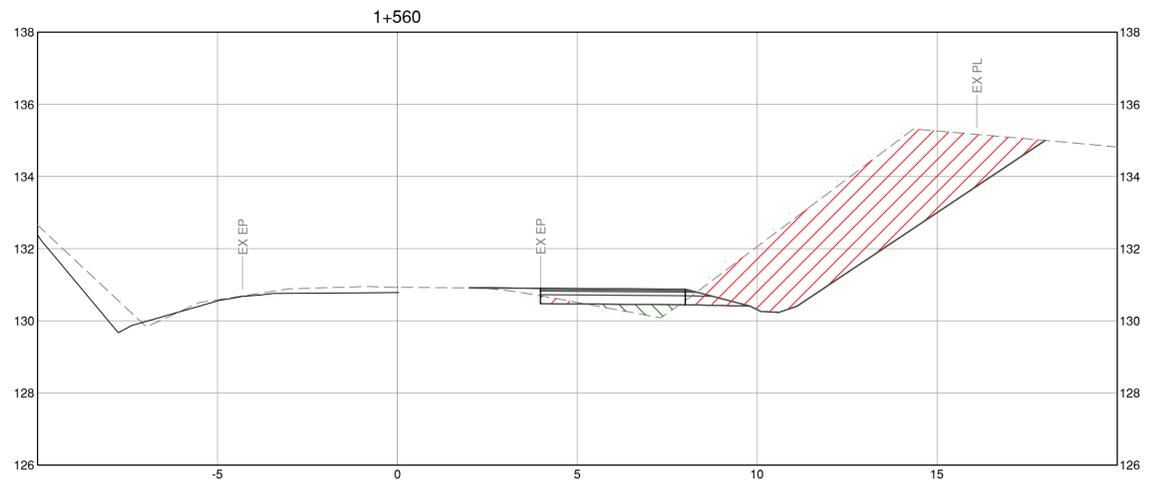
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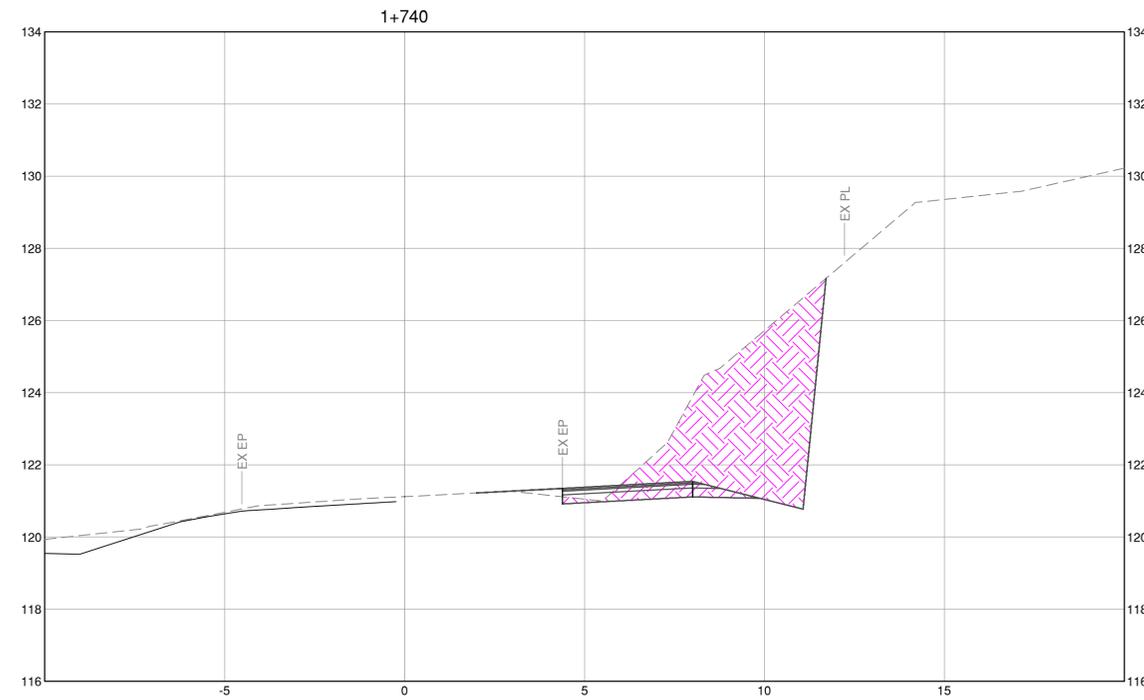
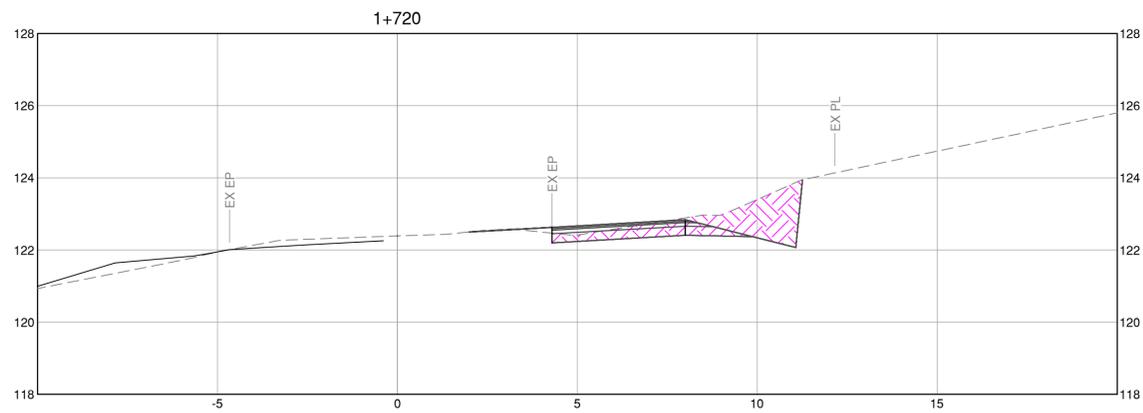
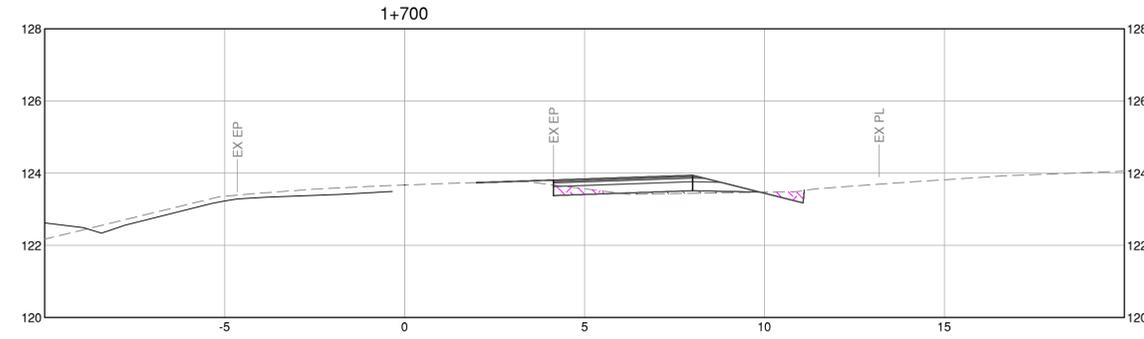
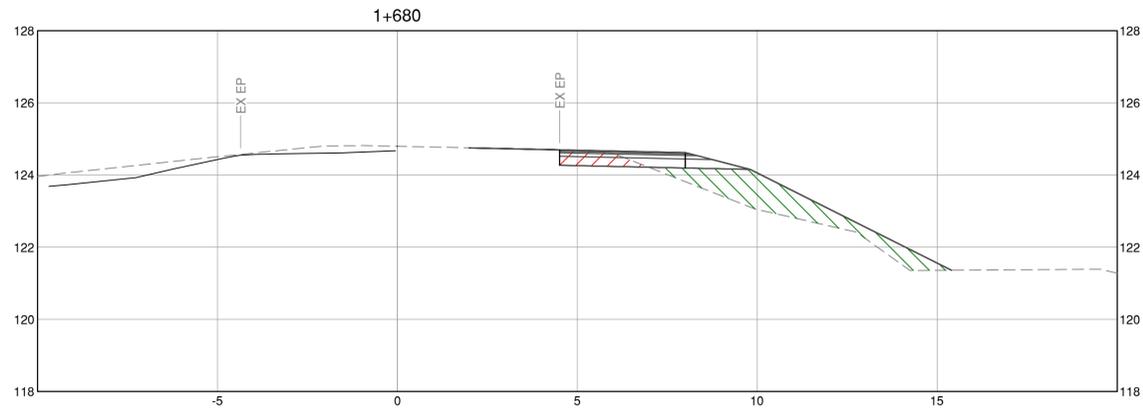
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CONTRACT NUMBER	DRAWING NUMBER C-304	ISSUE	SHT. No. OF



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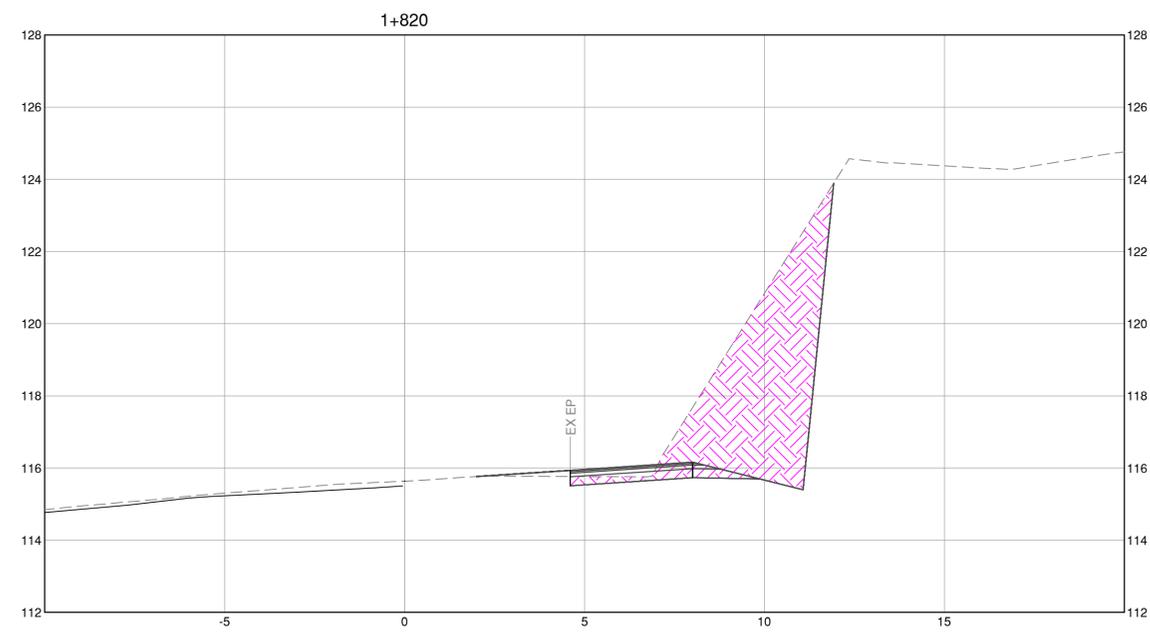
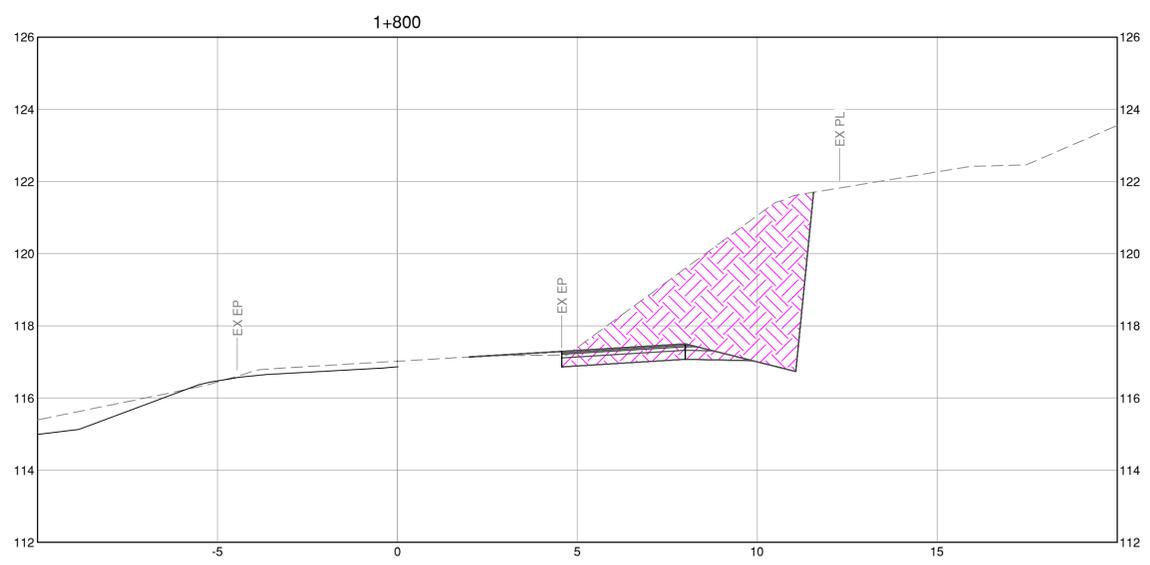
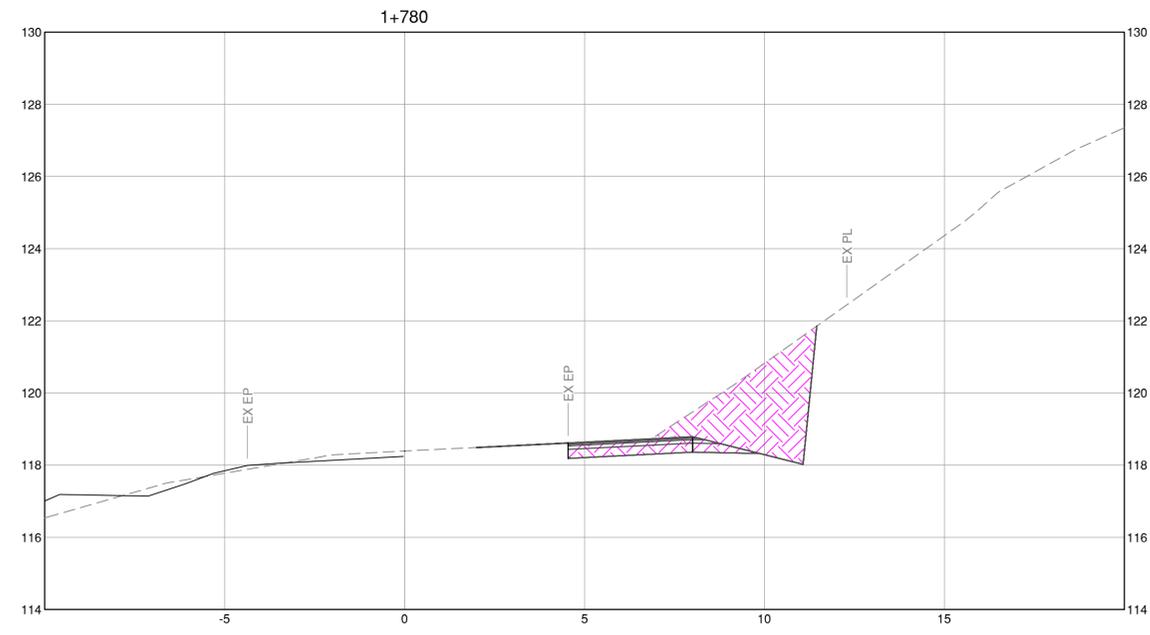
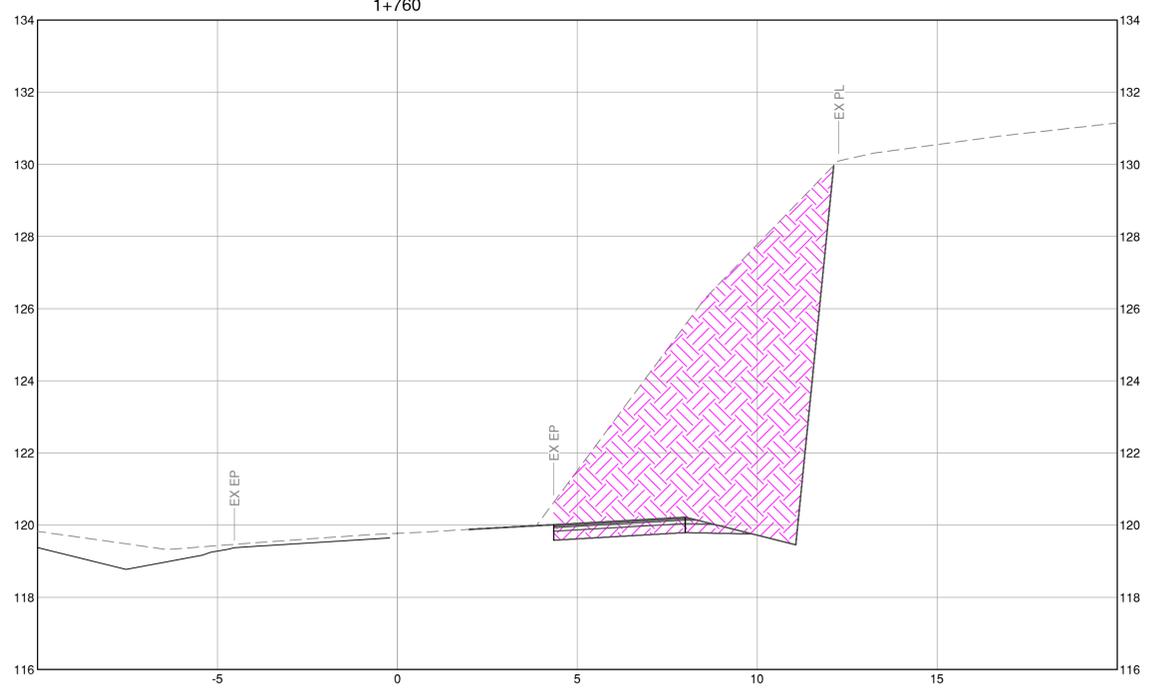
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CONTRACT NUMBER	-	DRAWING NUMBER	C-305
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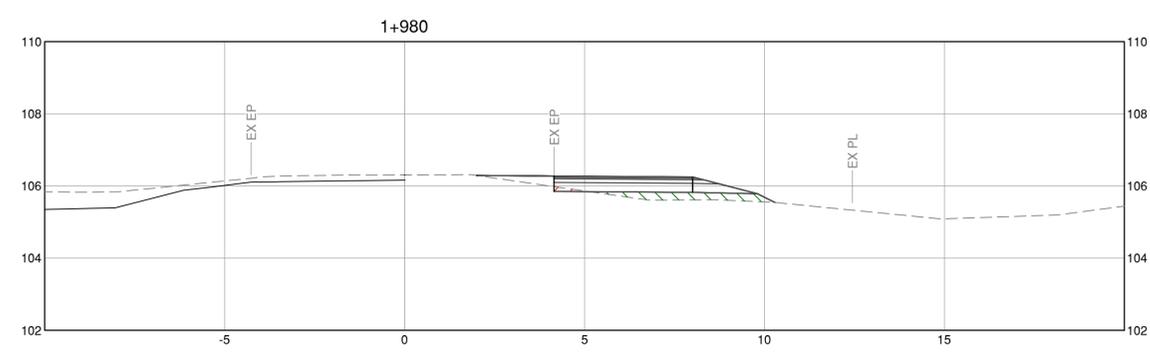
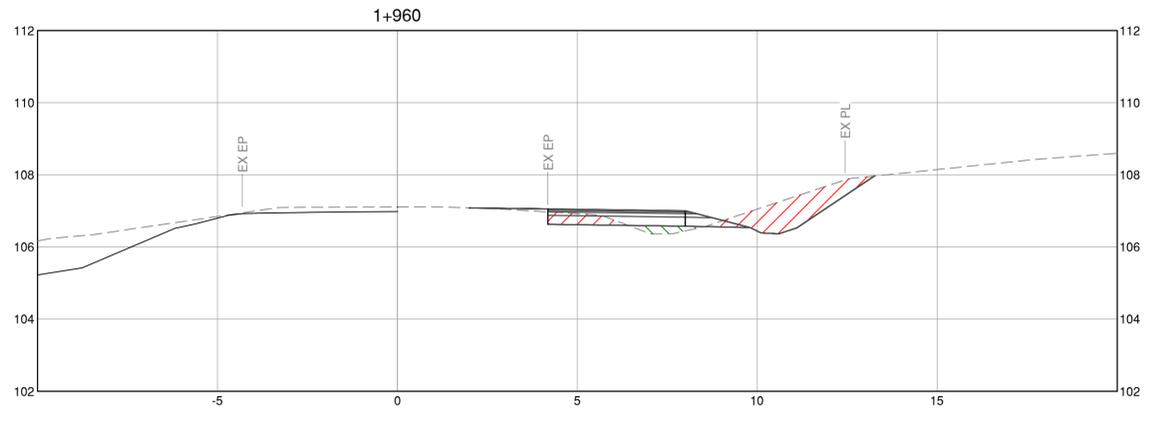
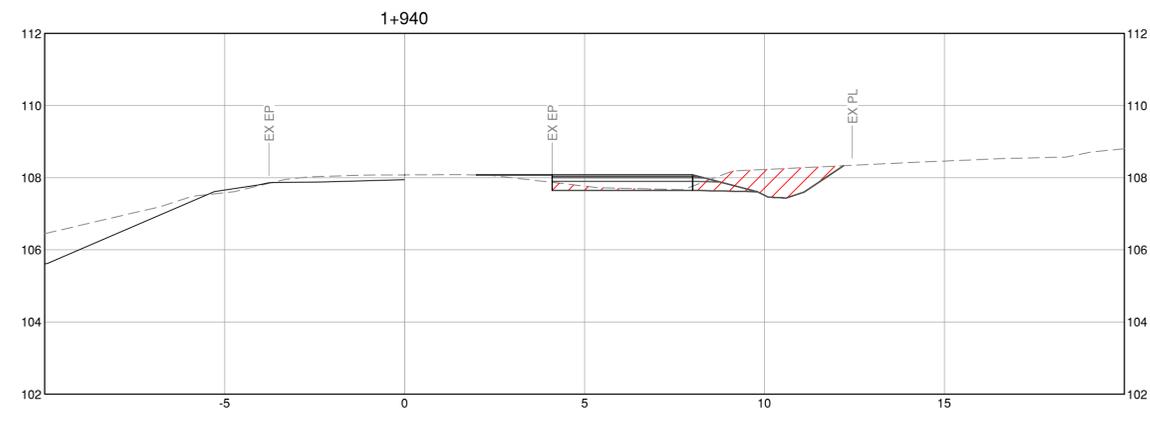
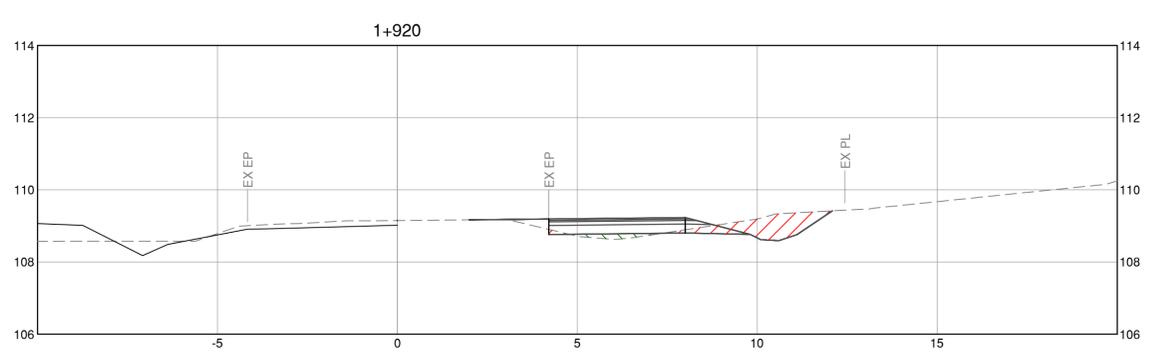
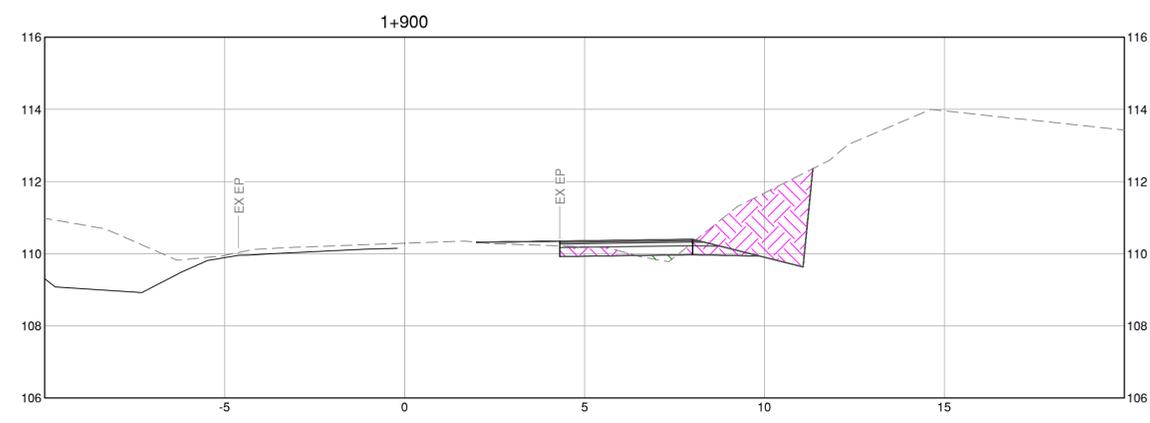
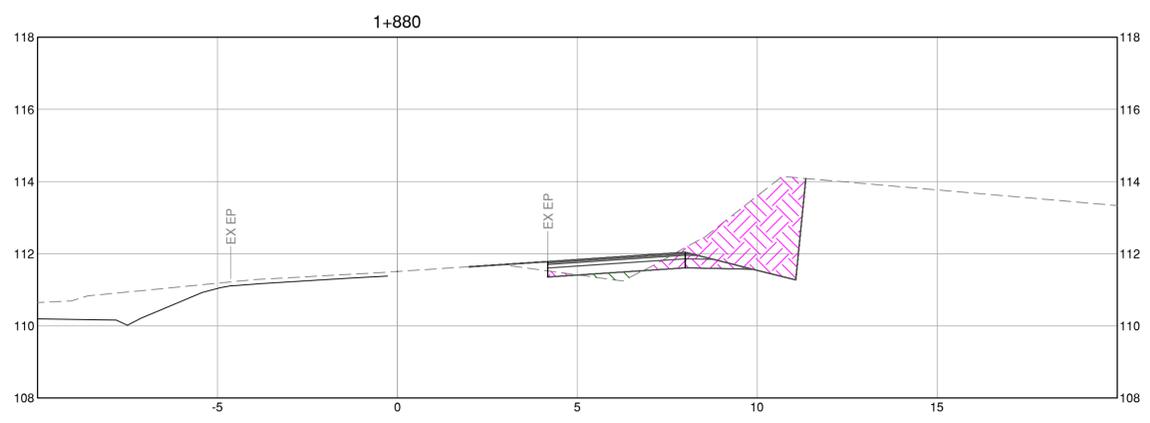
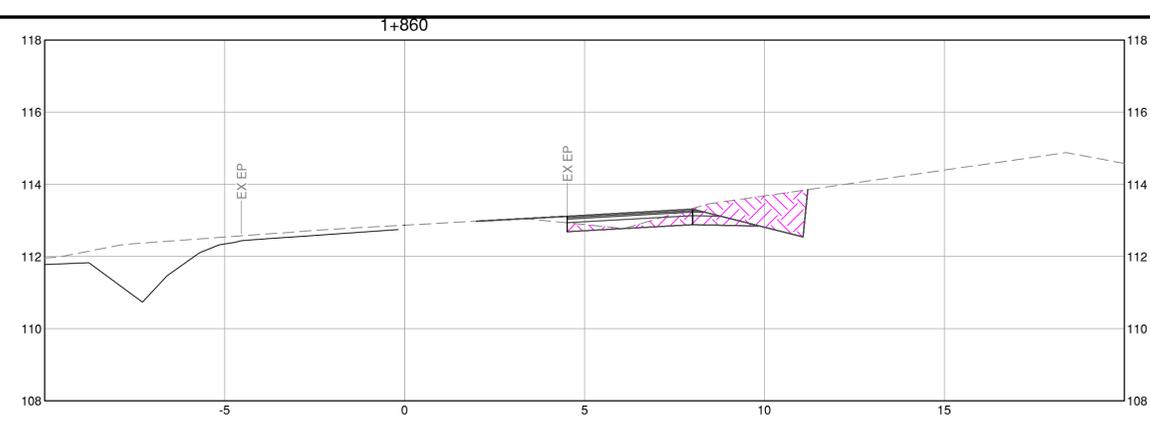
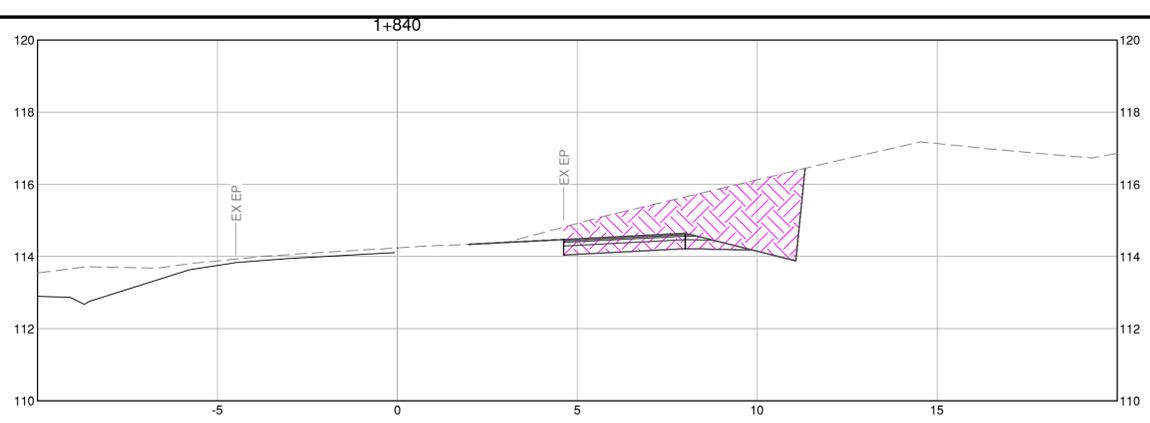
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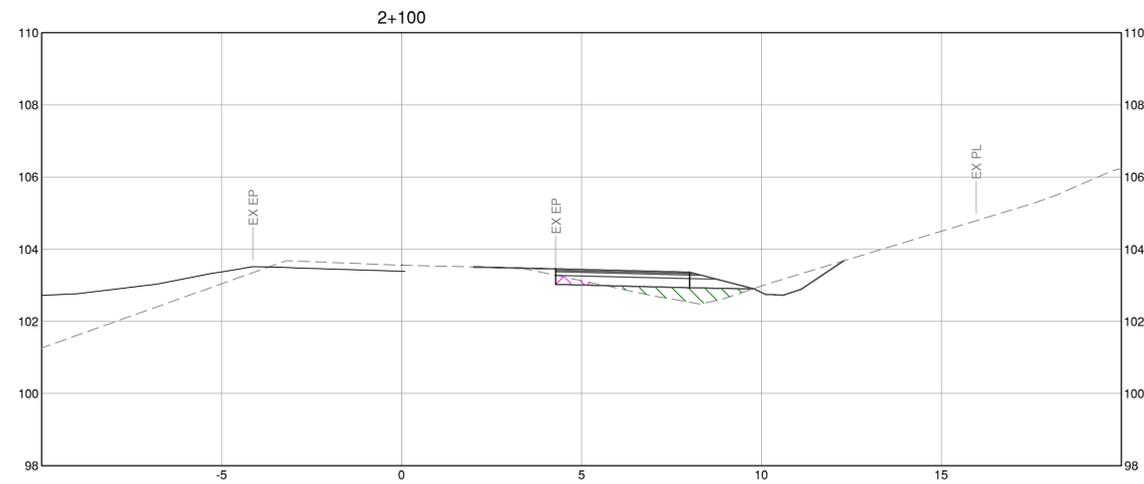
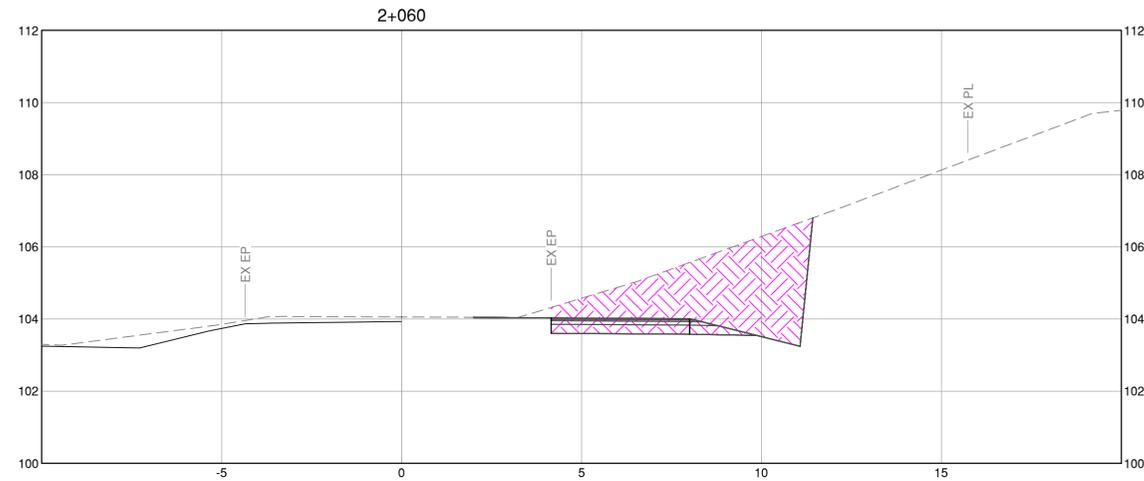
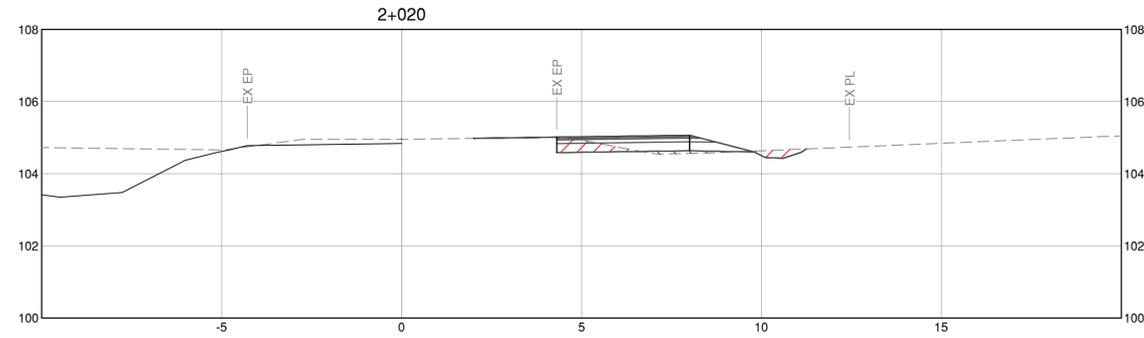
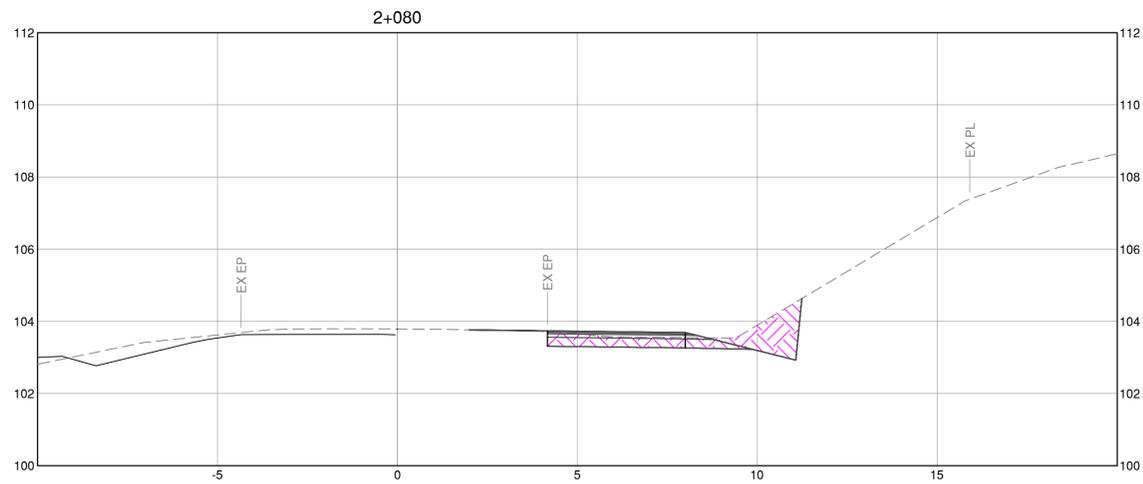
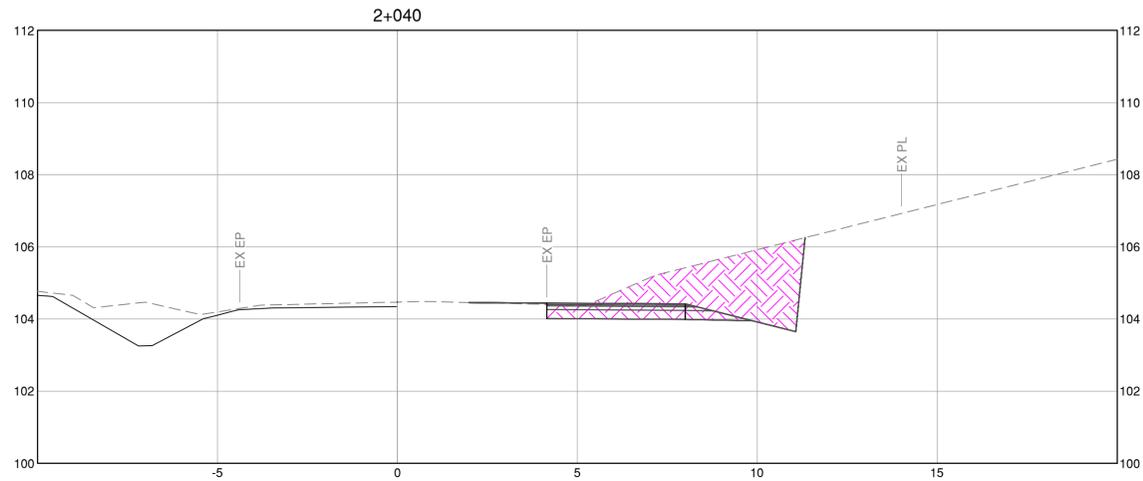
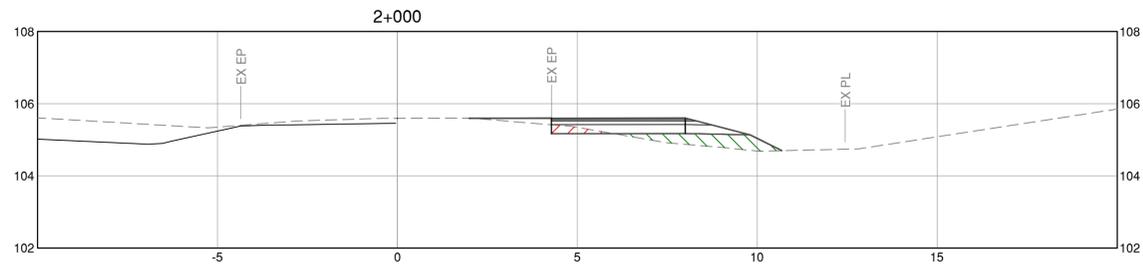
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CONTRACT NUMBER	DRAWING NUMBER C-307	ISSUE	SHT. No. OF



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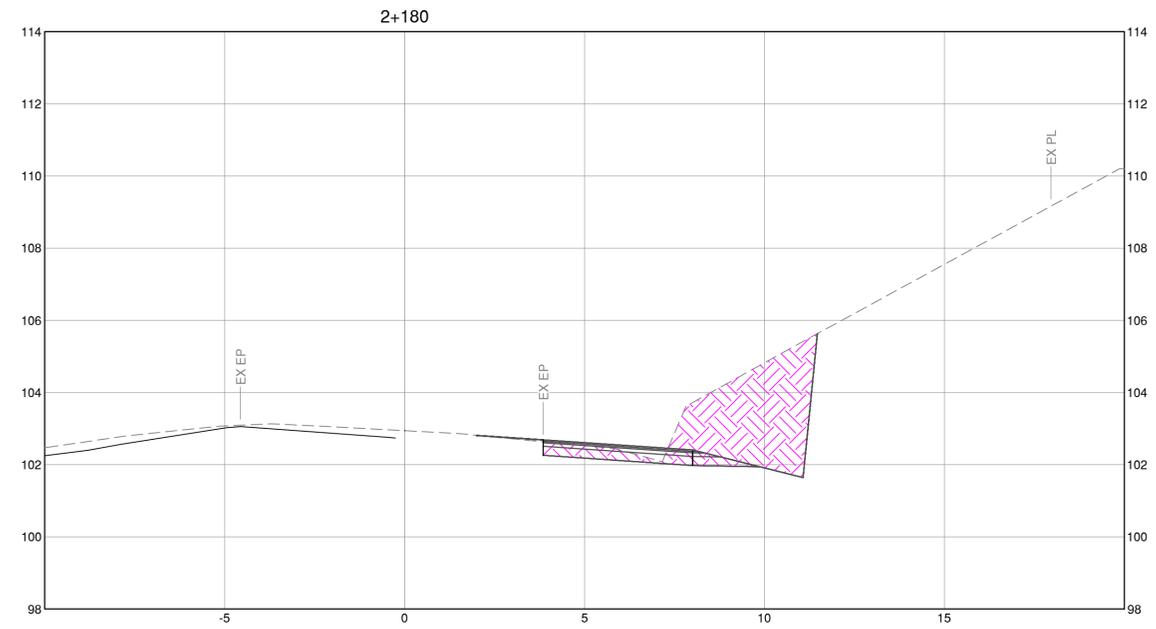
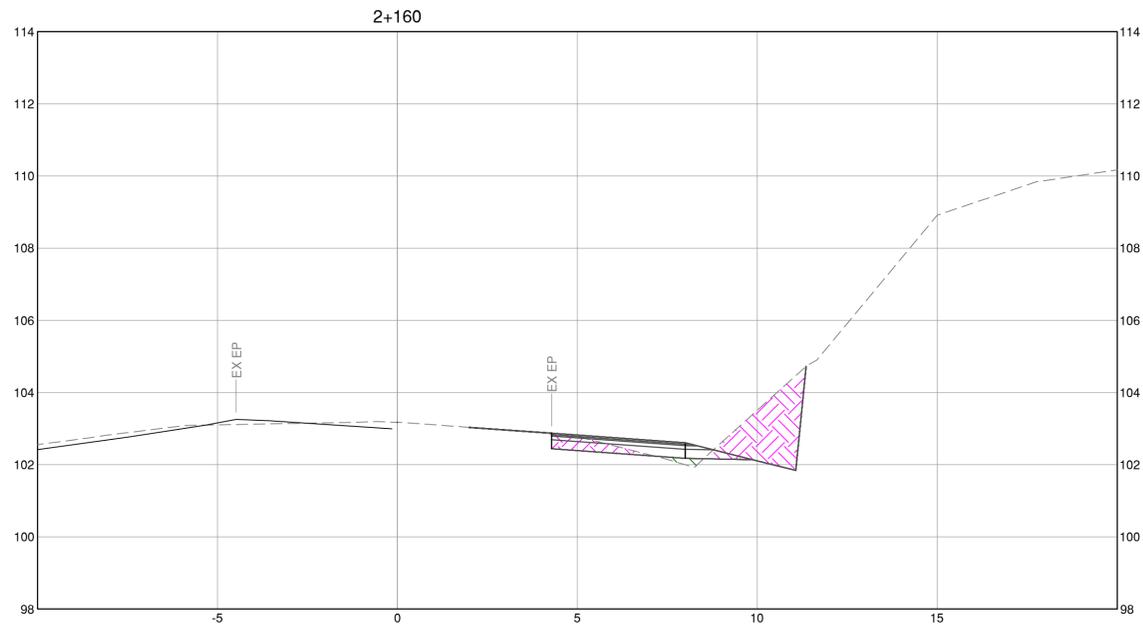
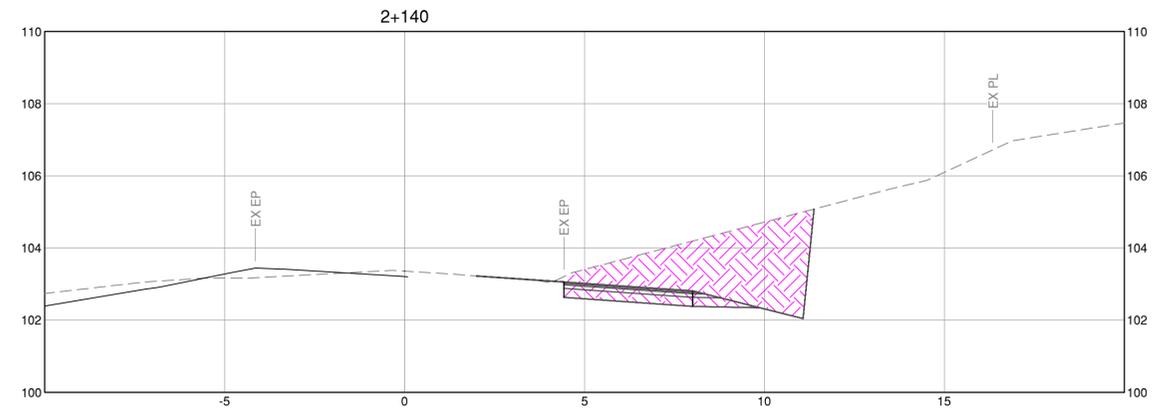
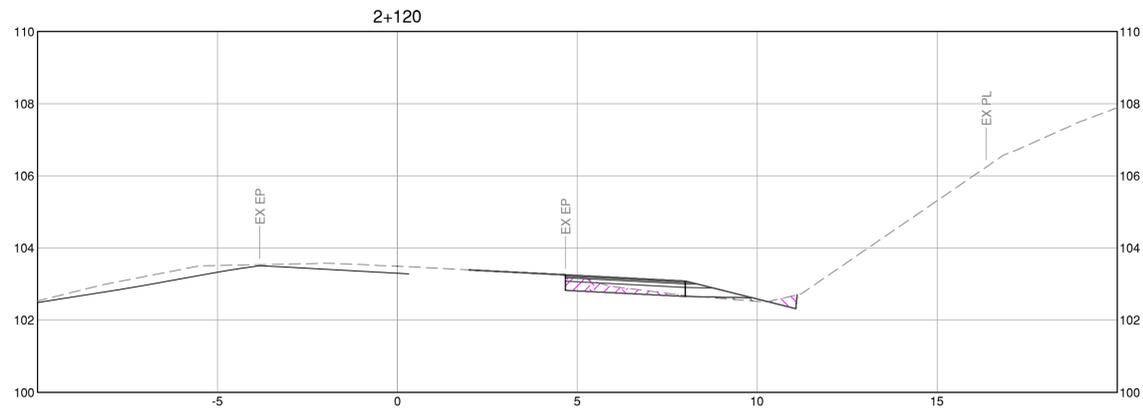
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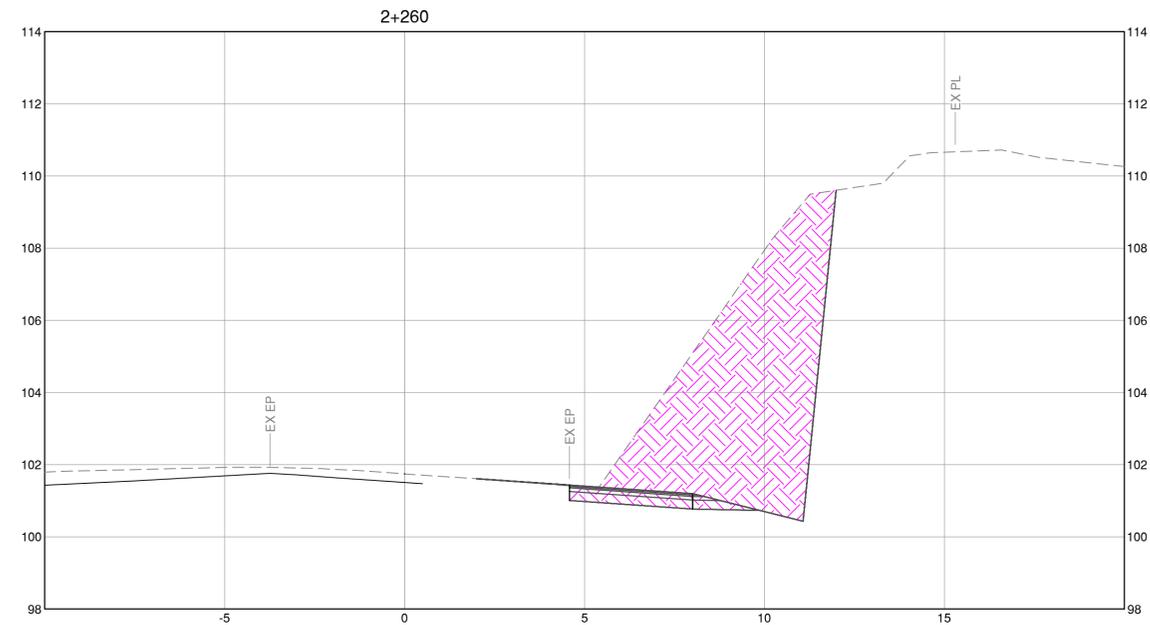
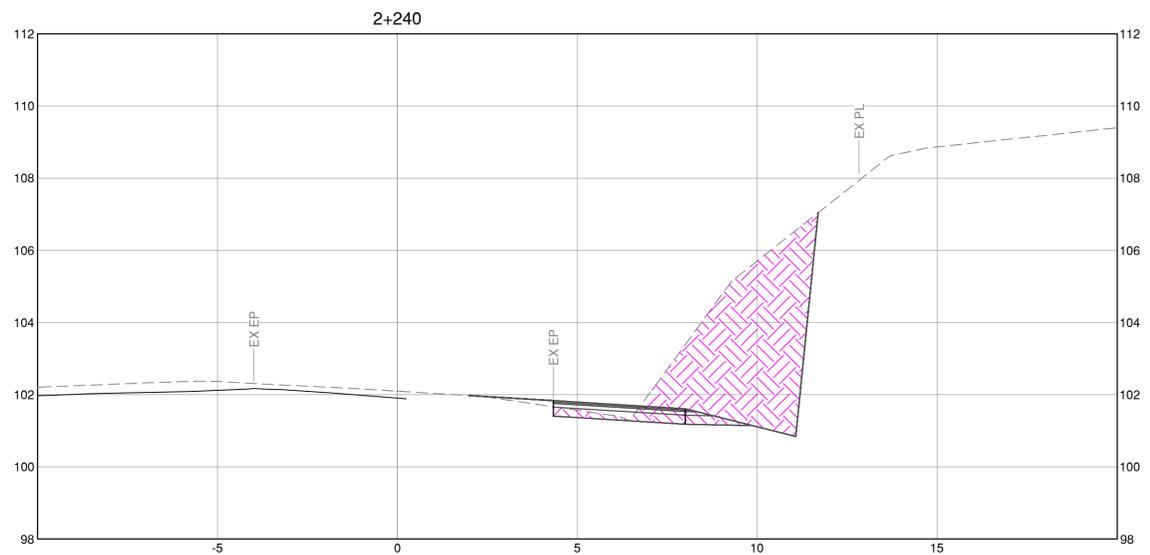
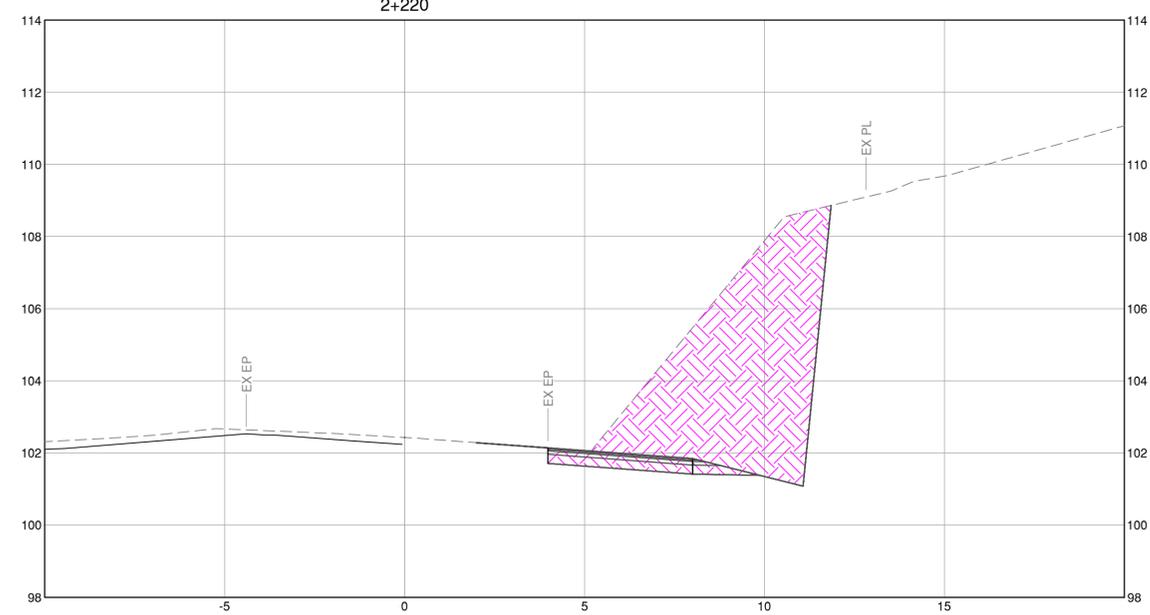
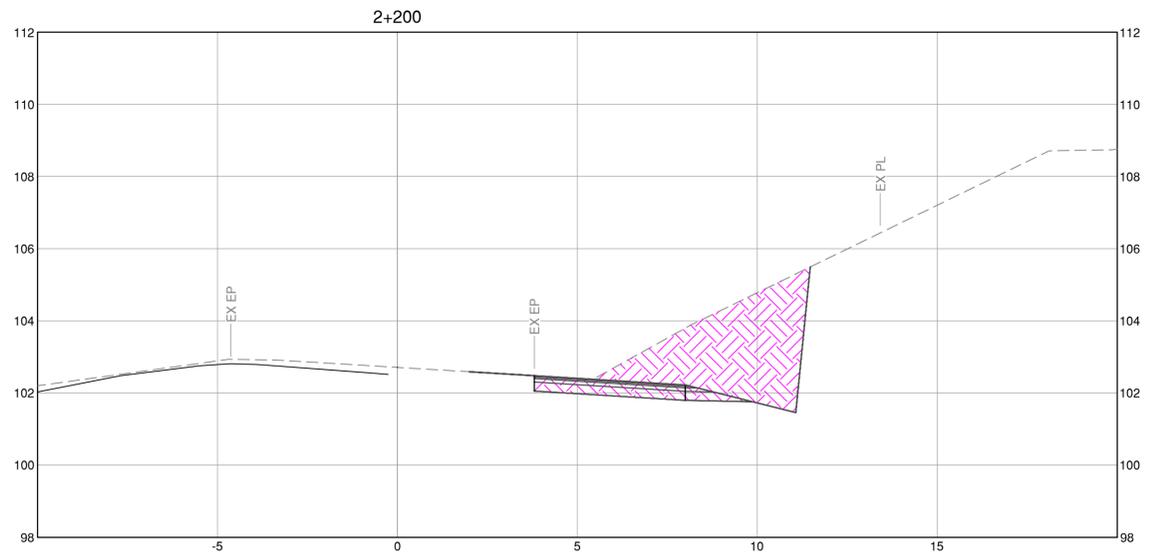


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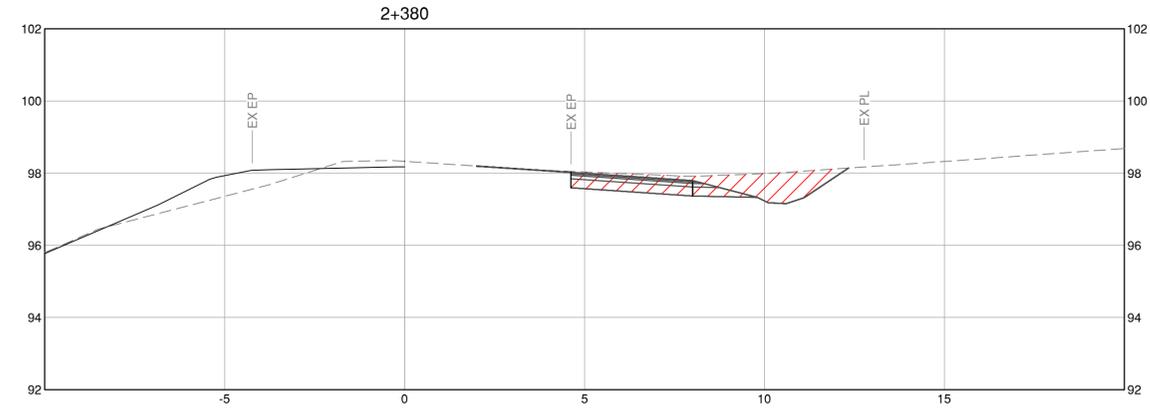
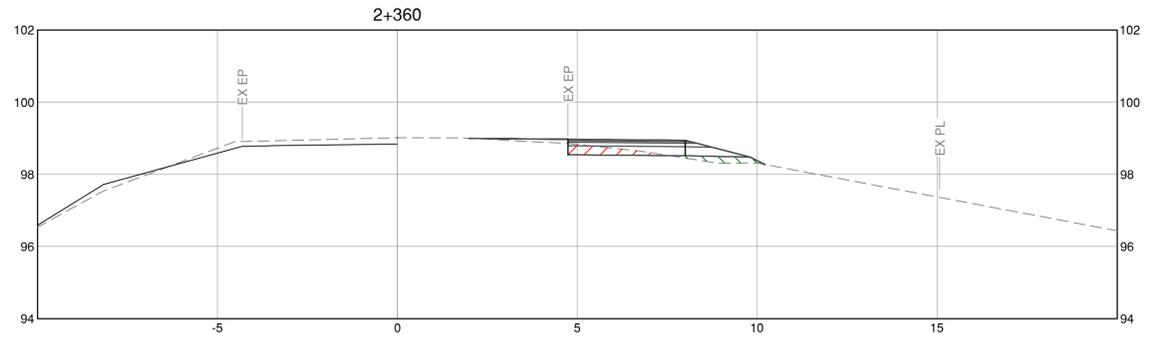
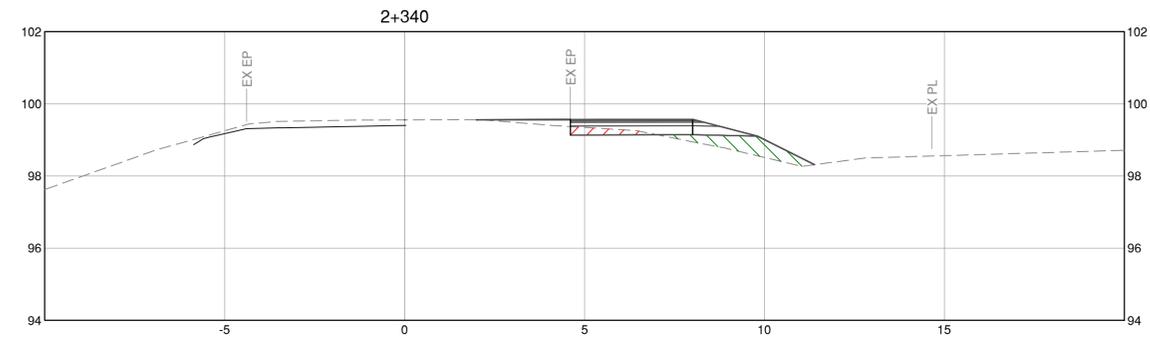
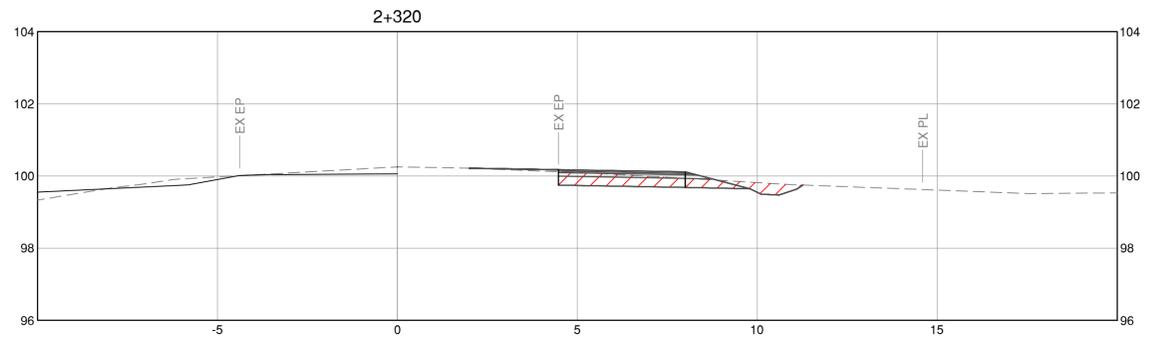
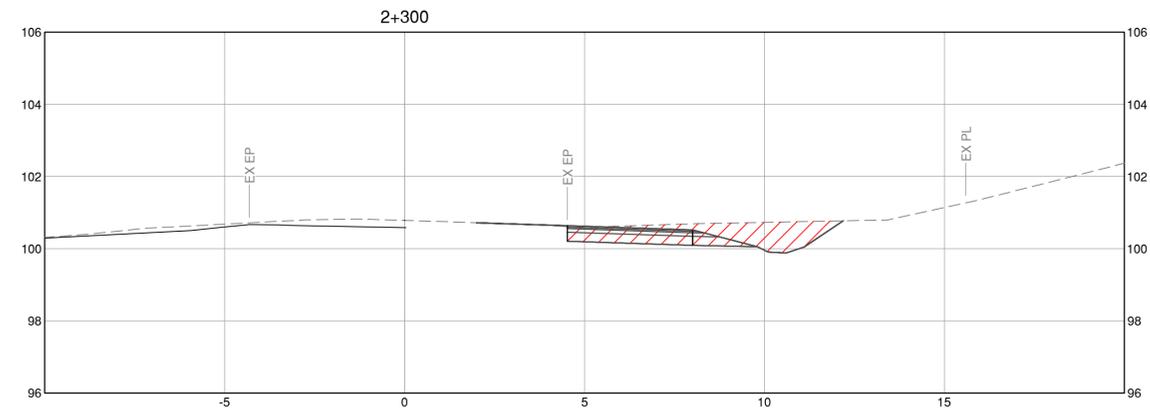
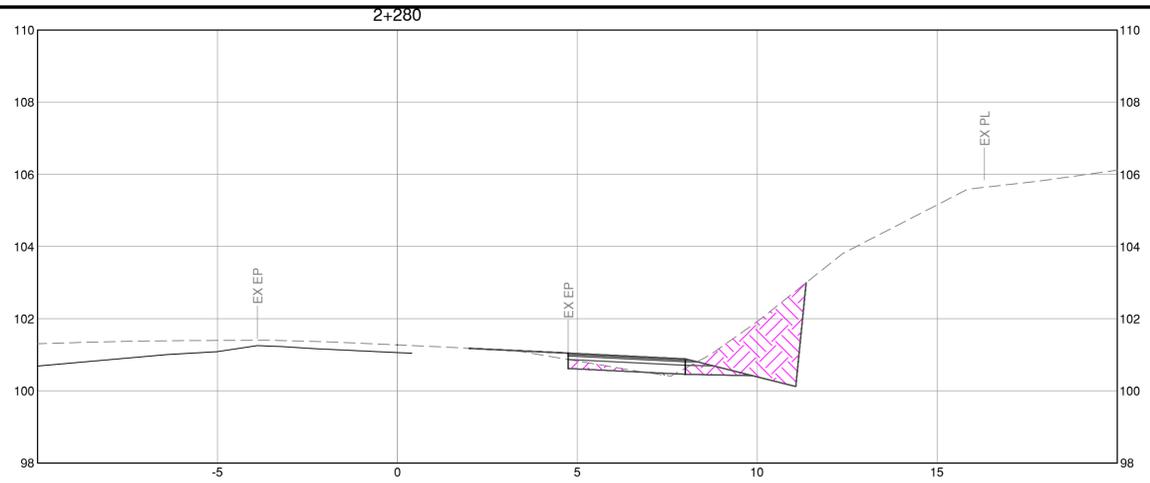
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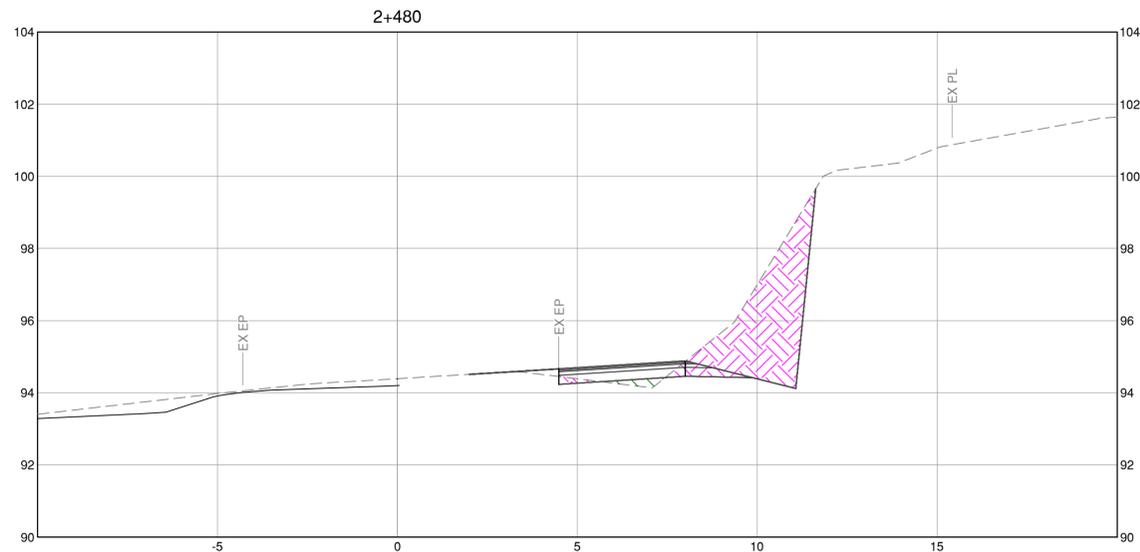
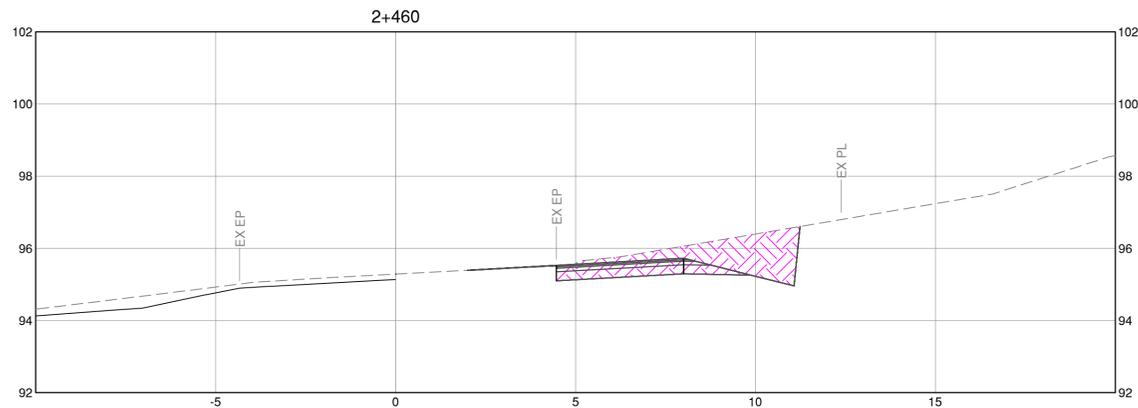
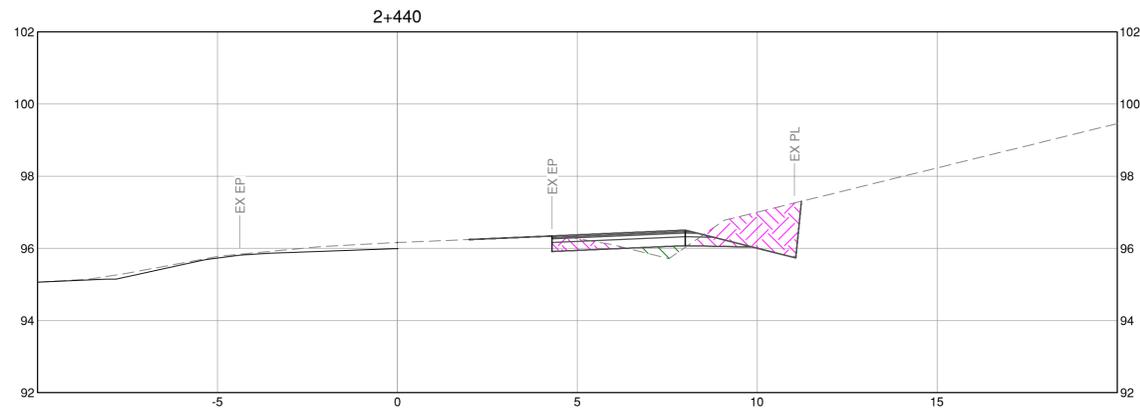
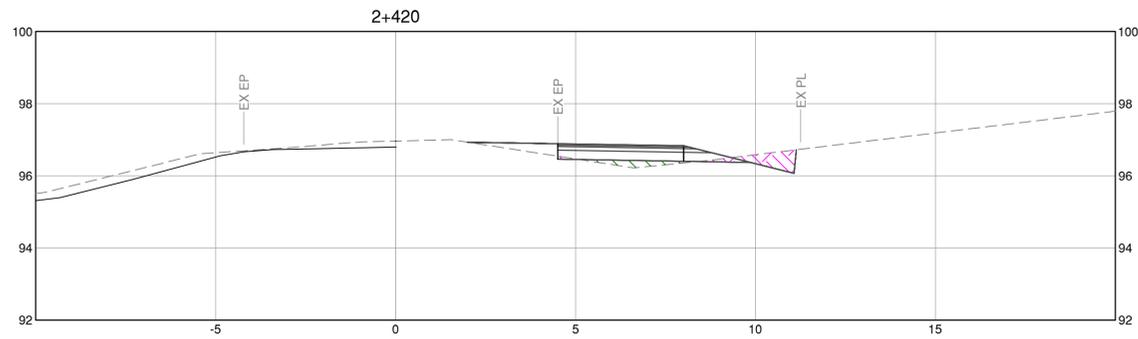
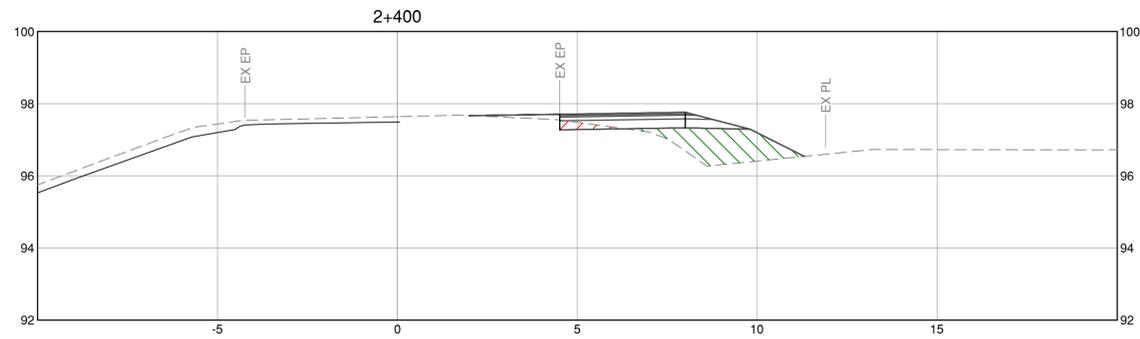
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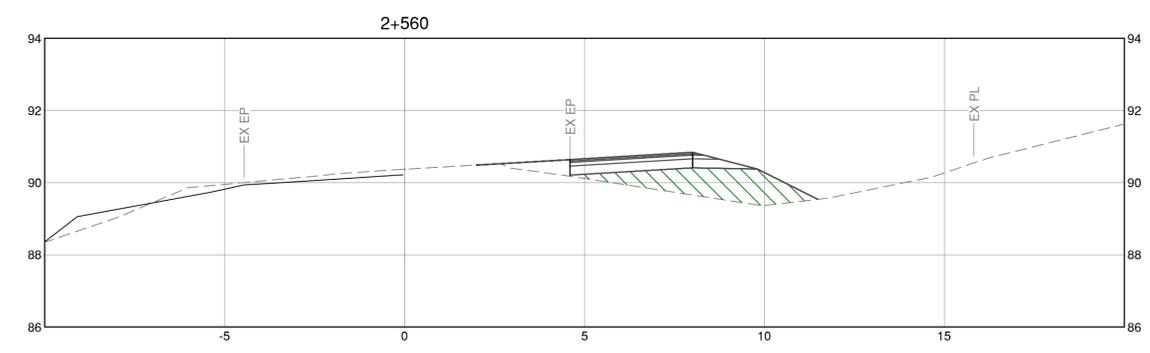
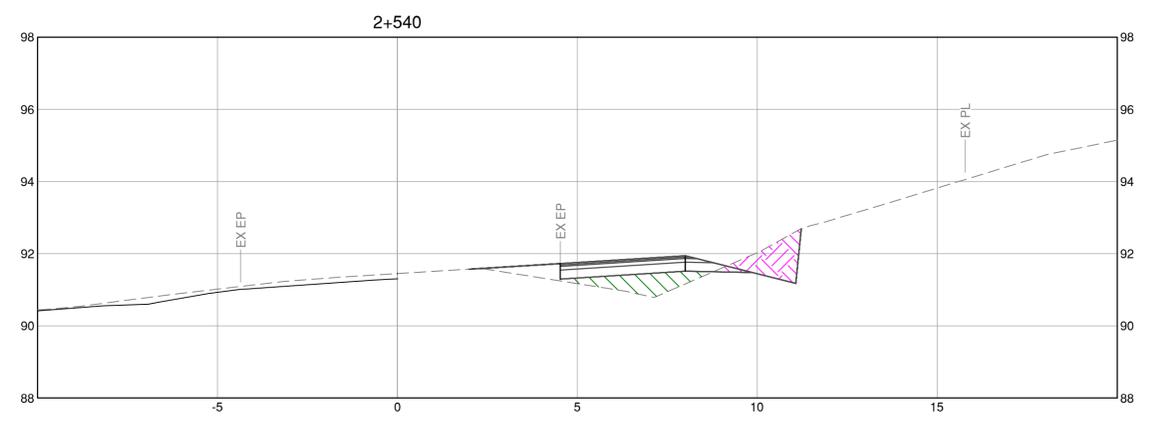
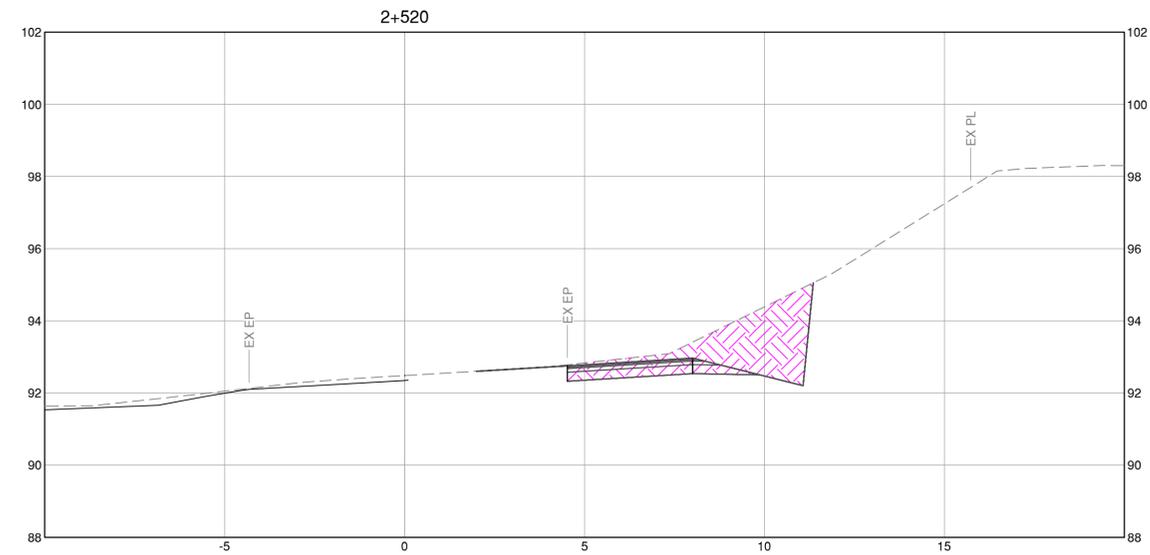
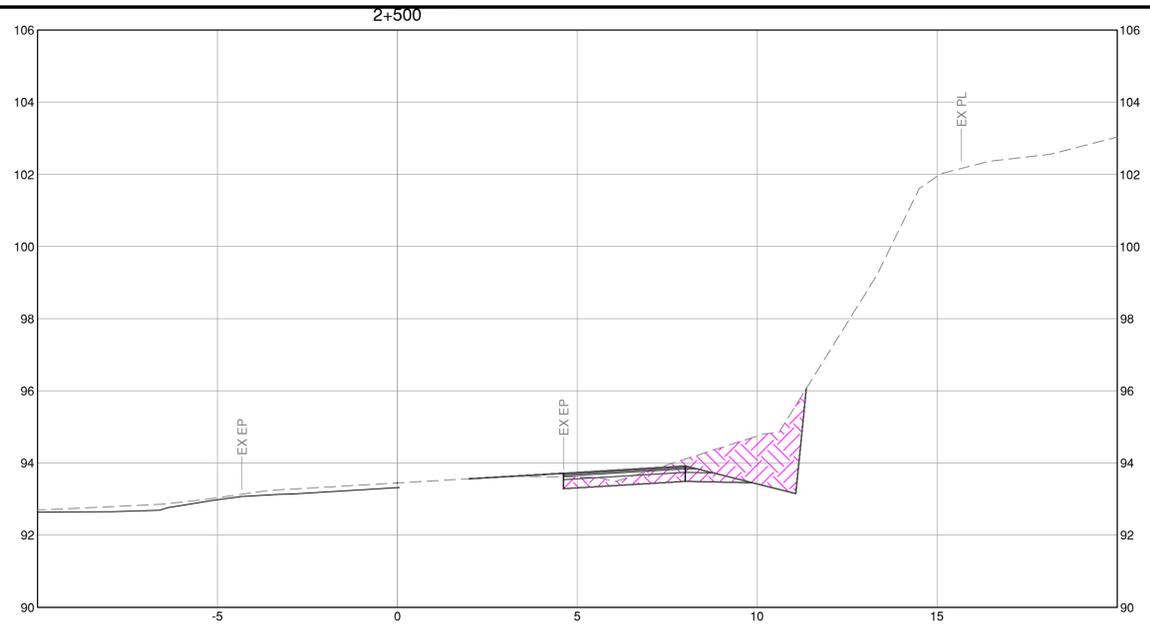
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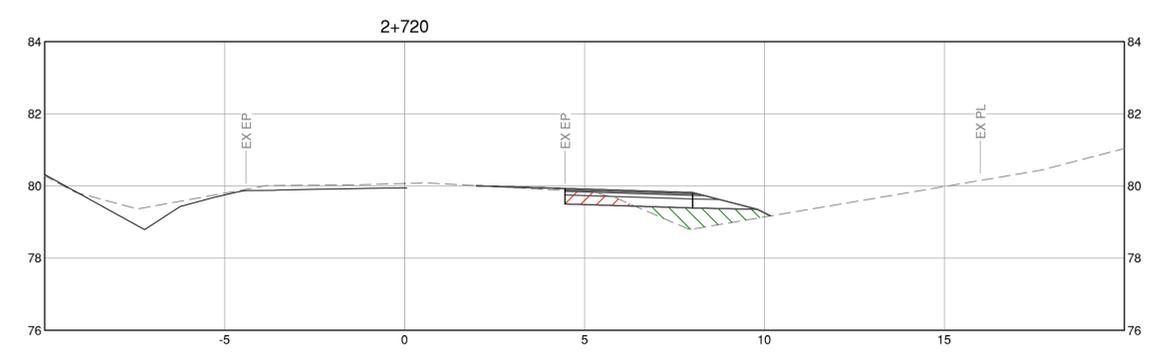
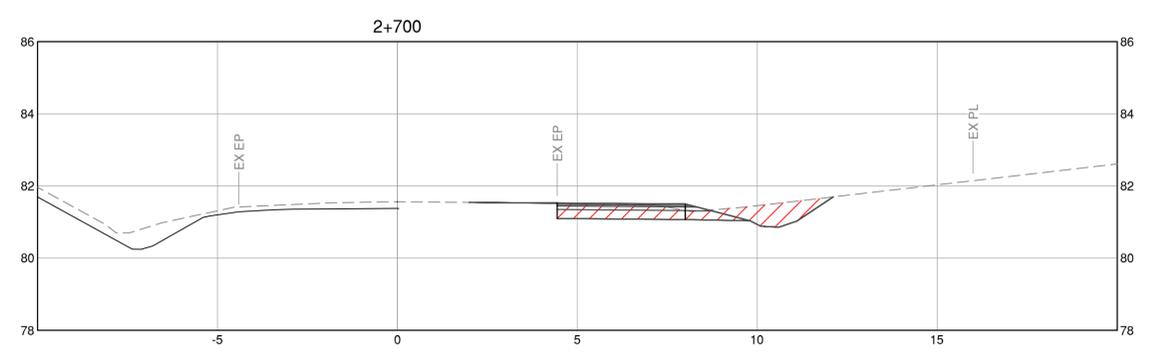
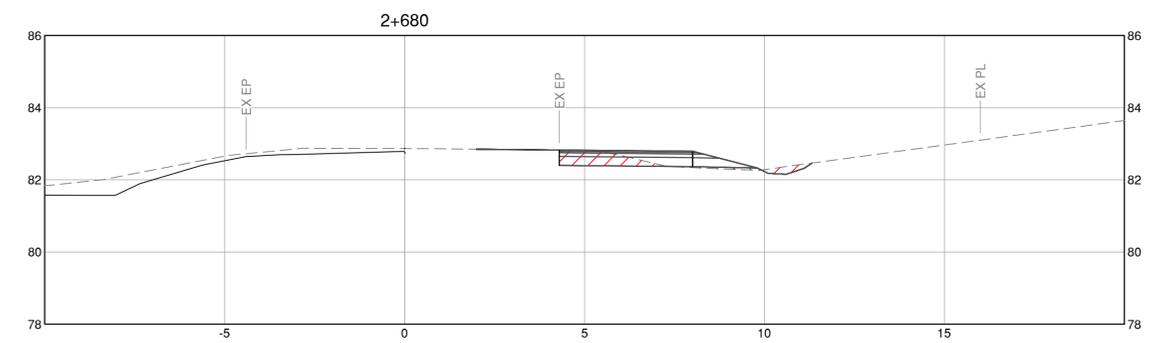
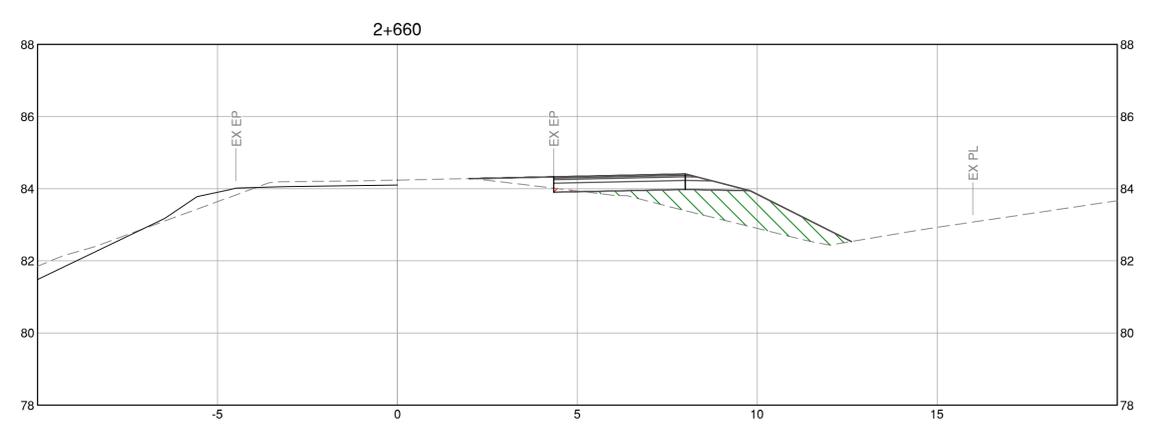
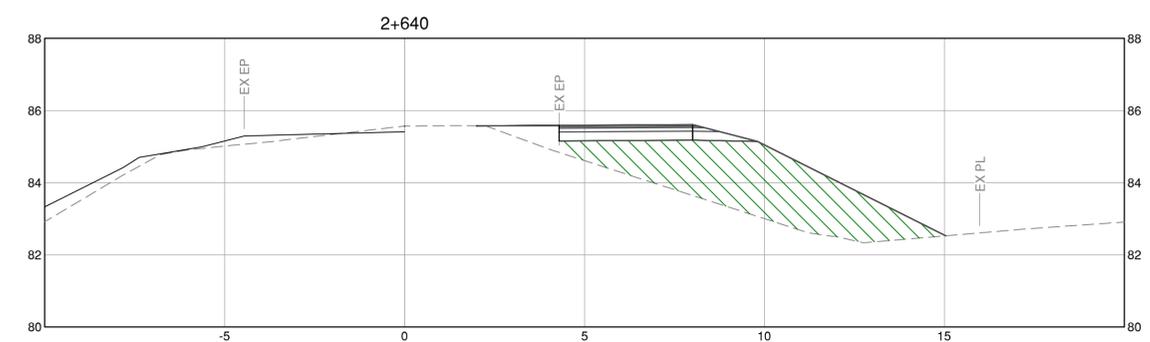
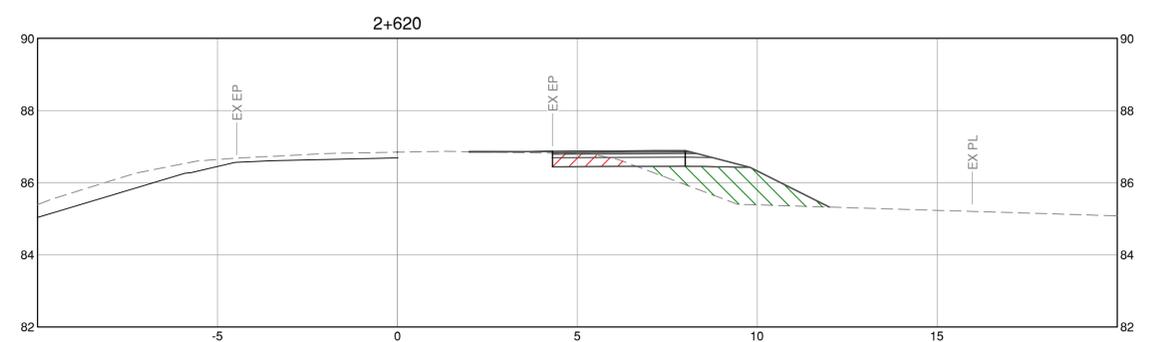
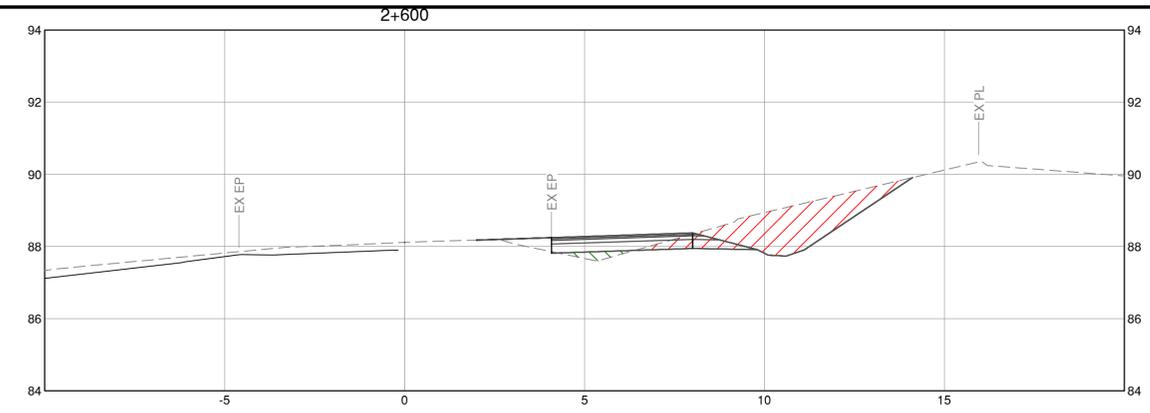
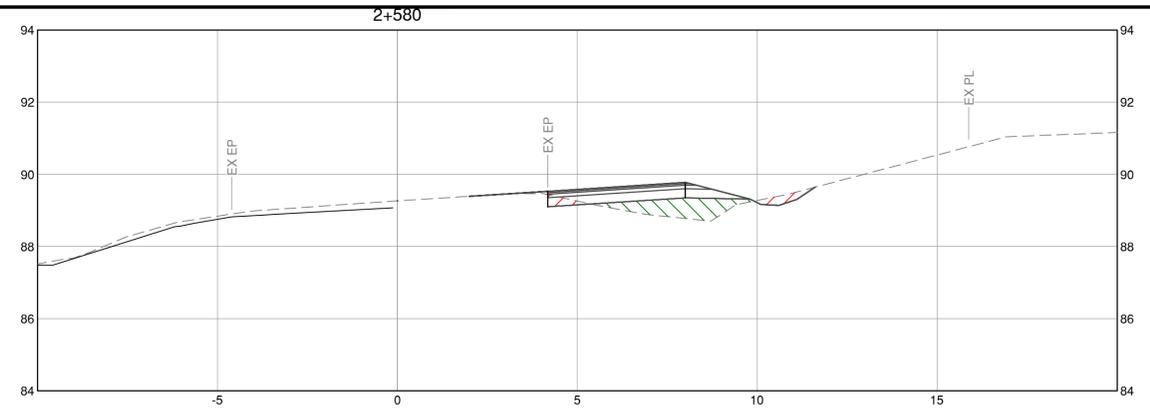
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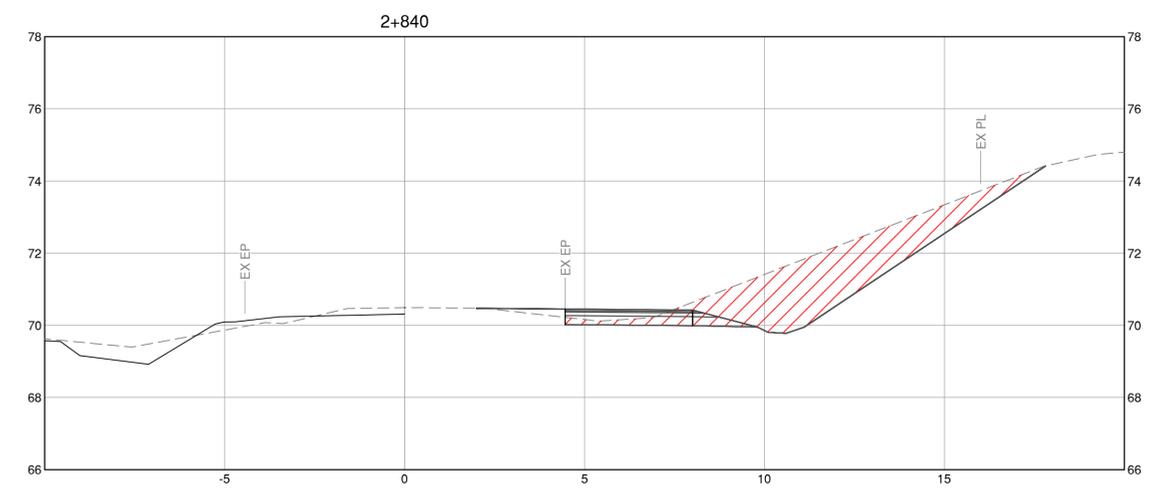
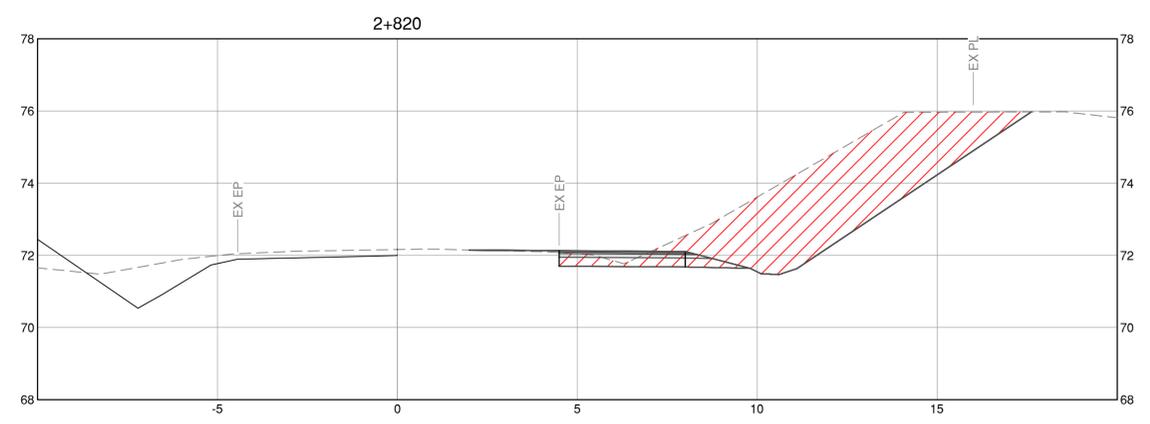
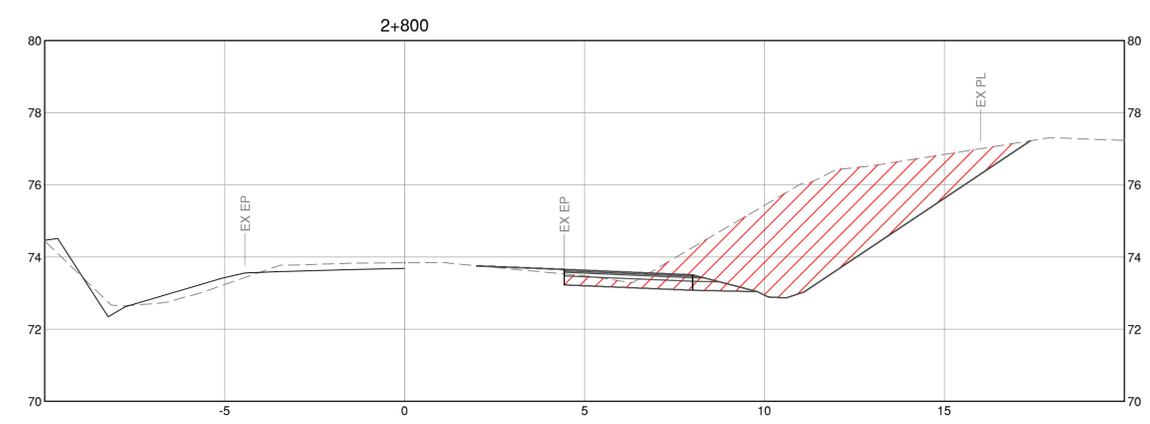
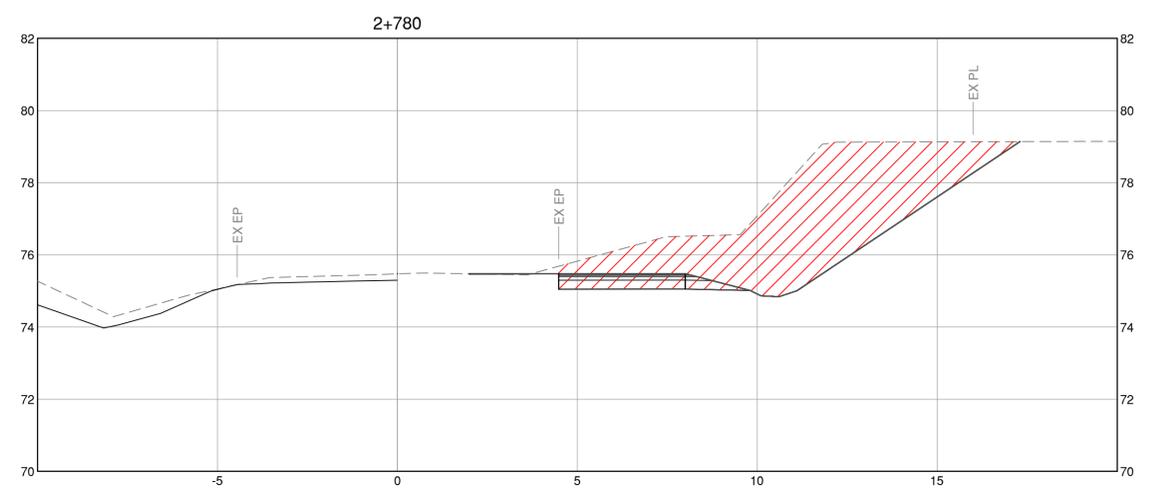
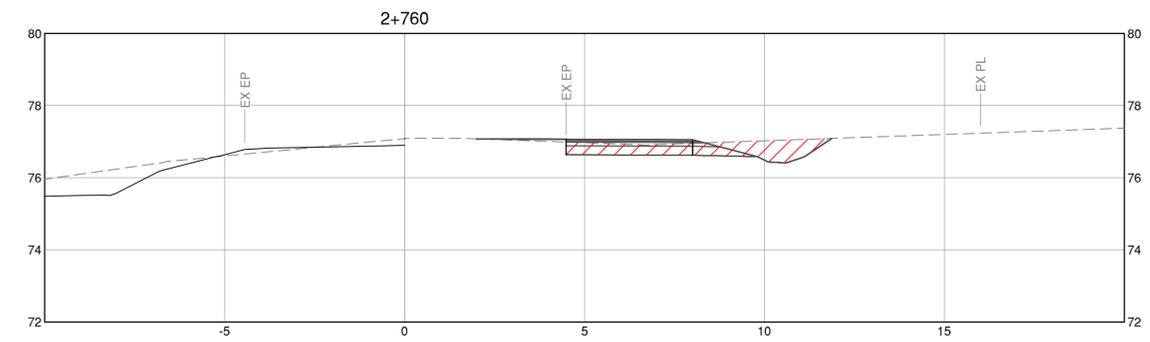
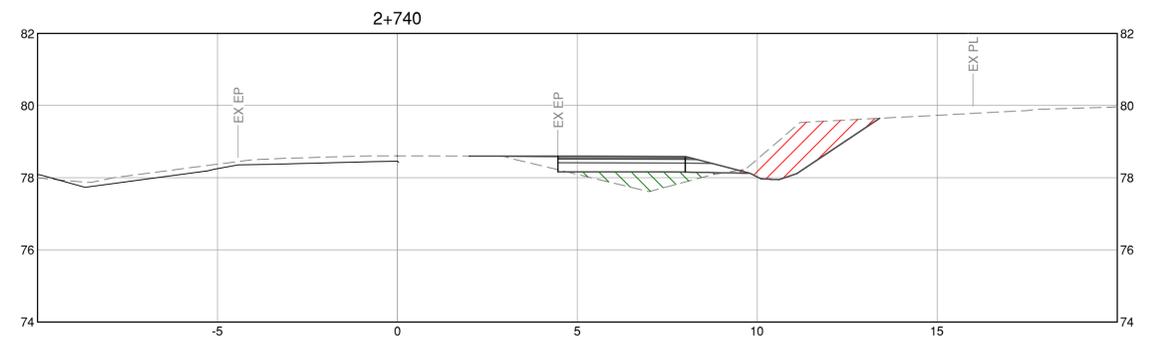
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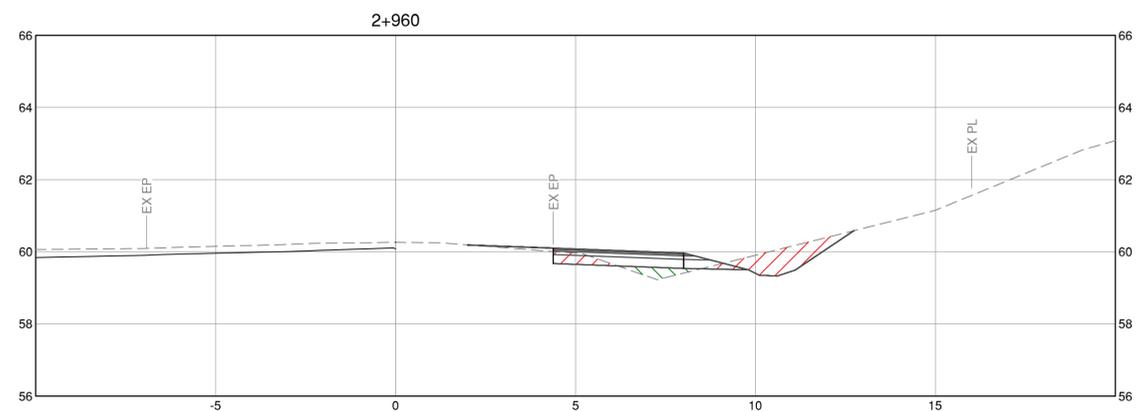
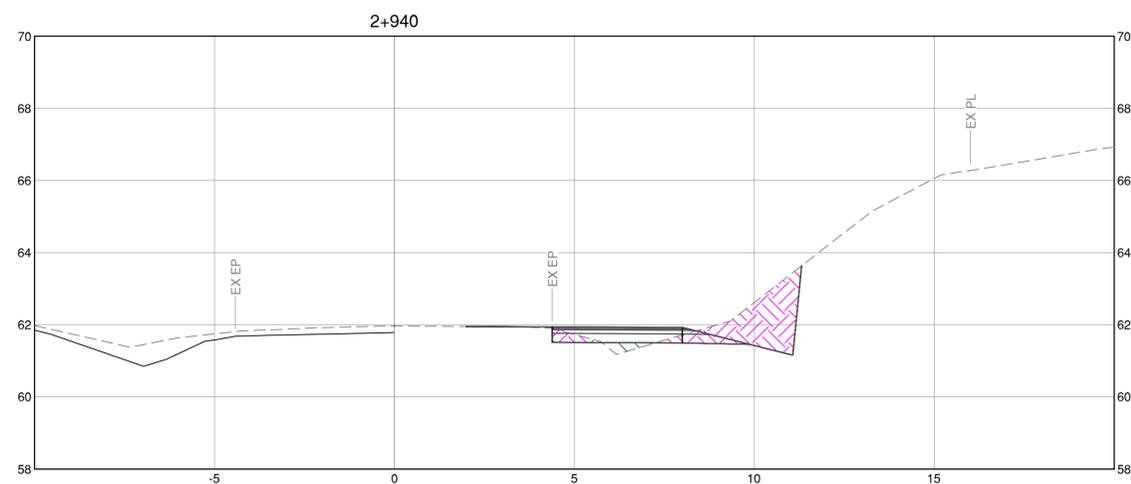
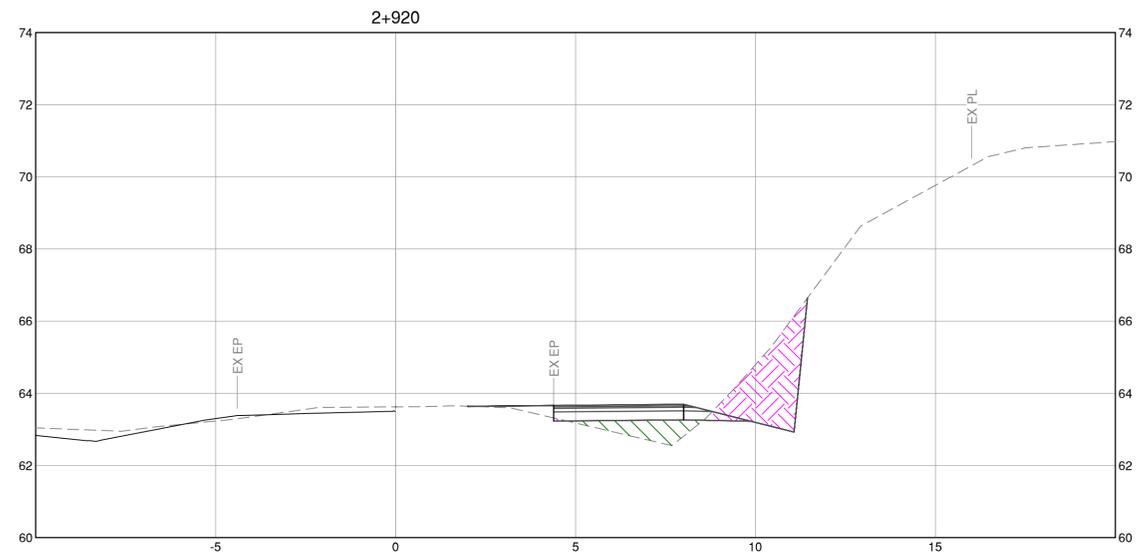
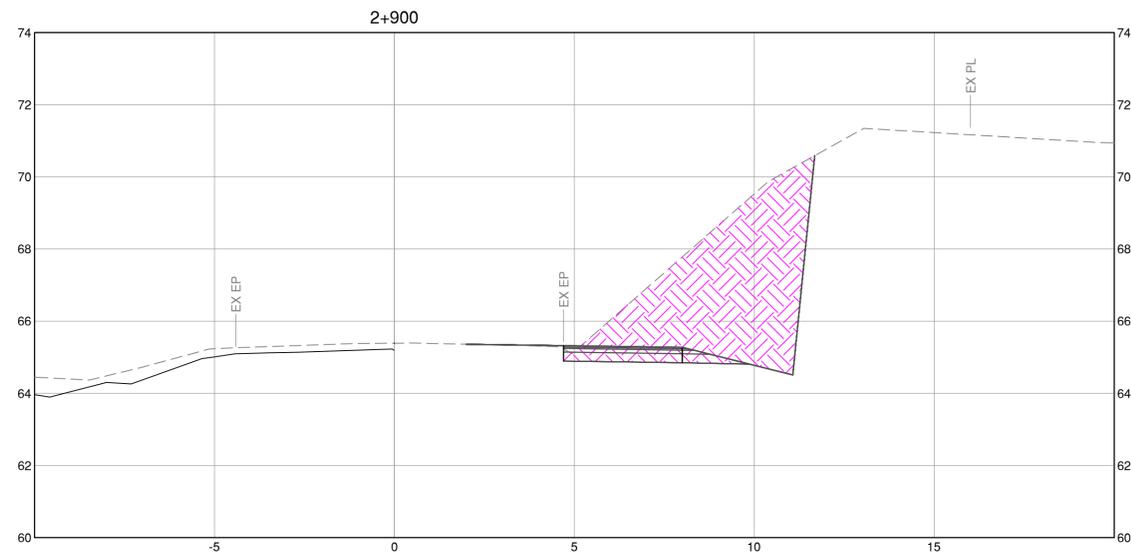
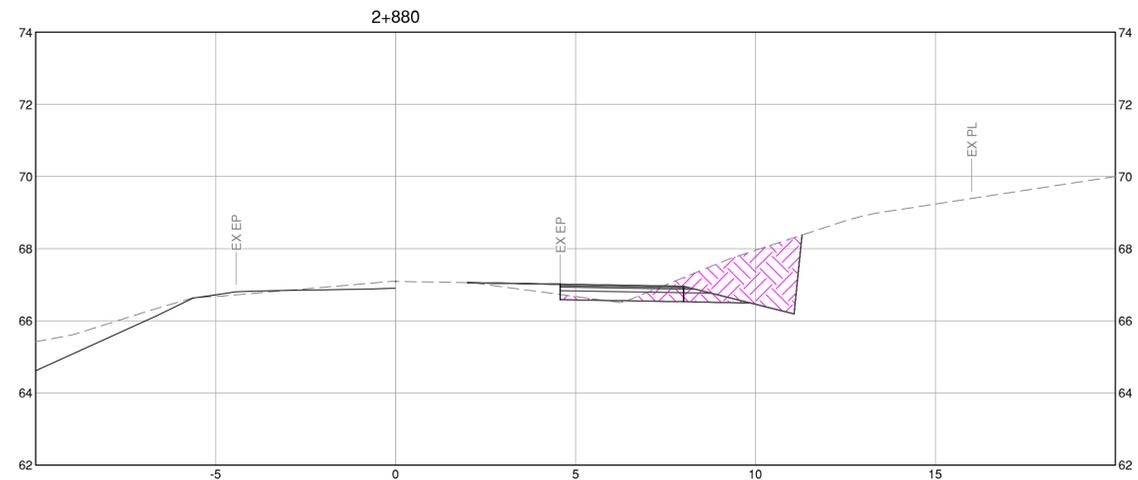
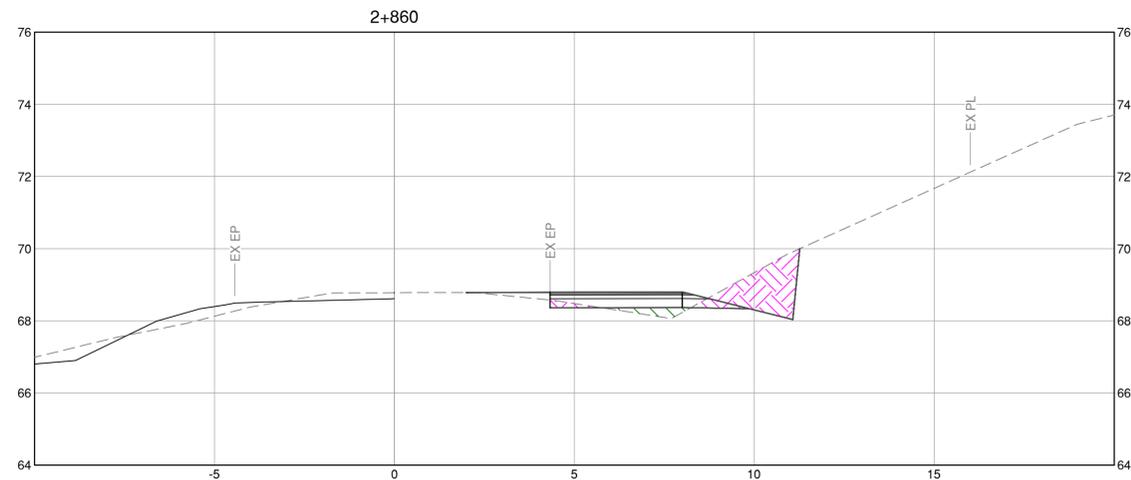
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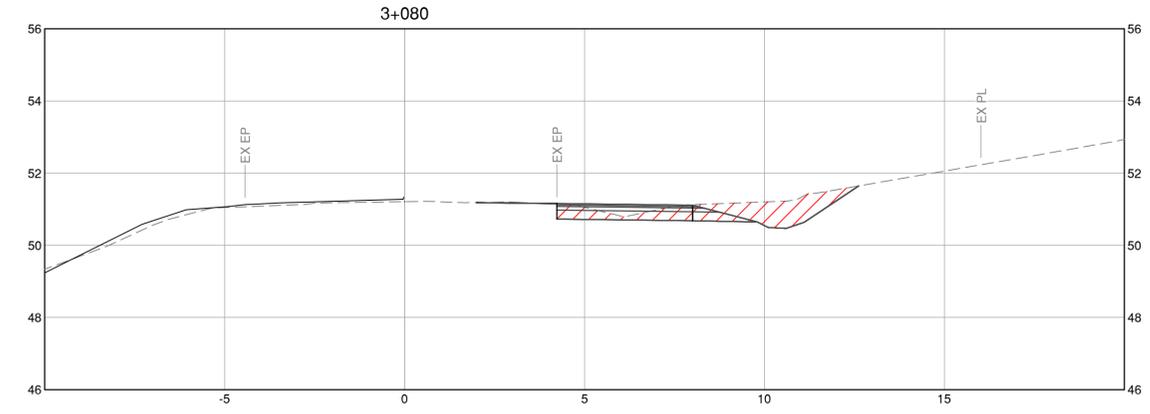
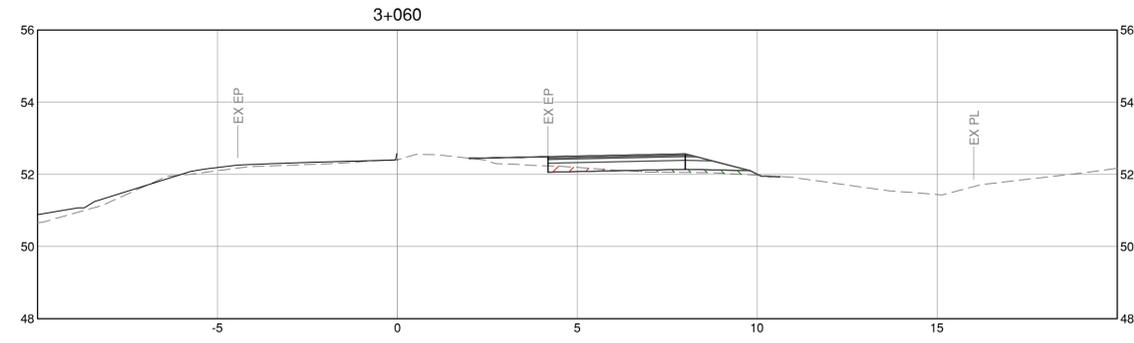
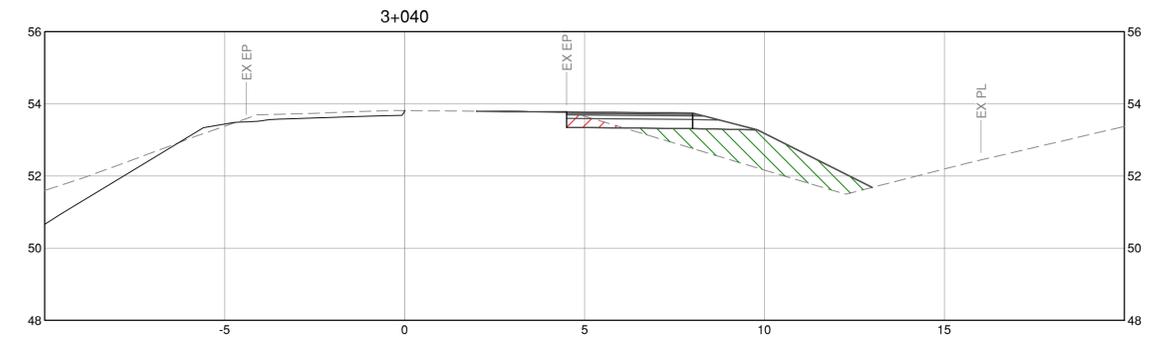
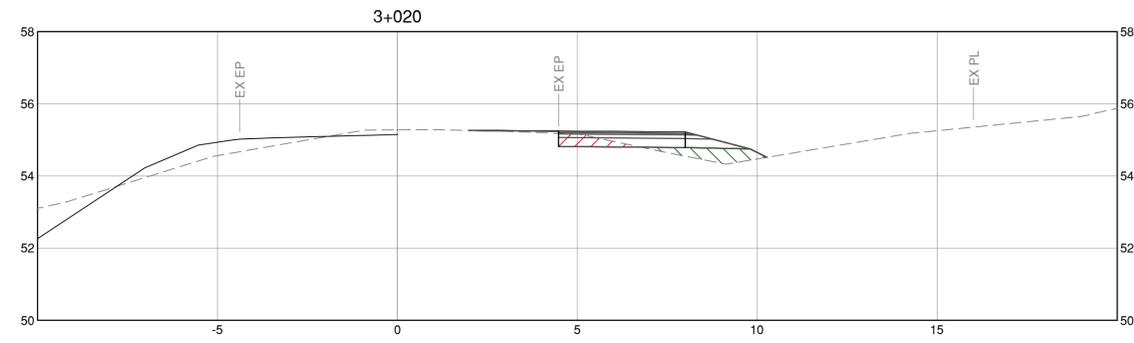
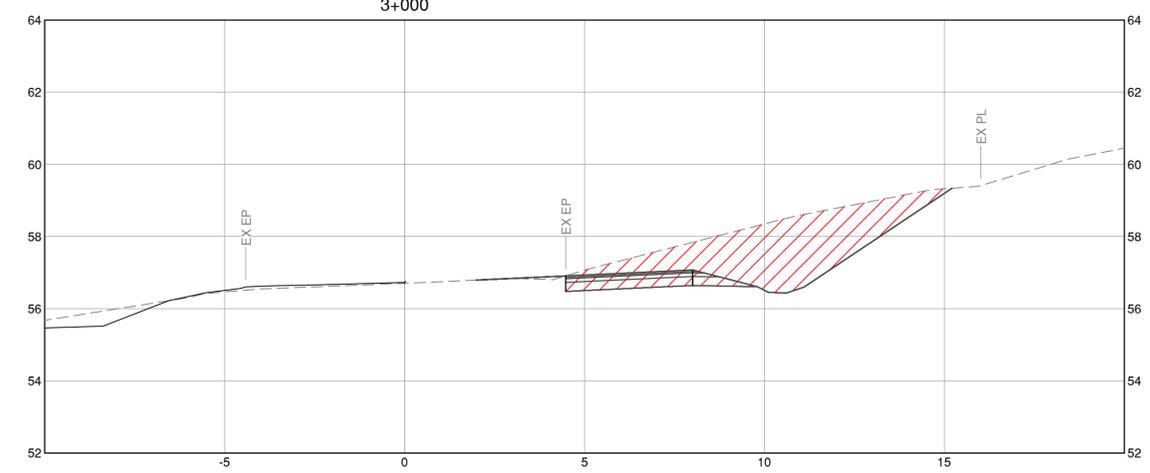
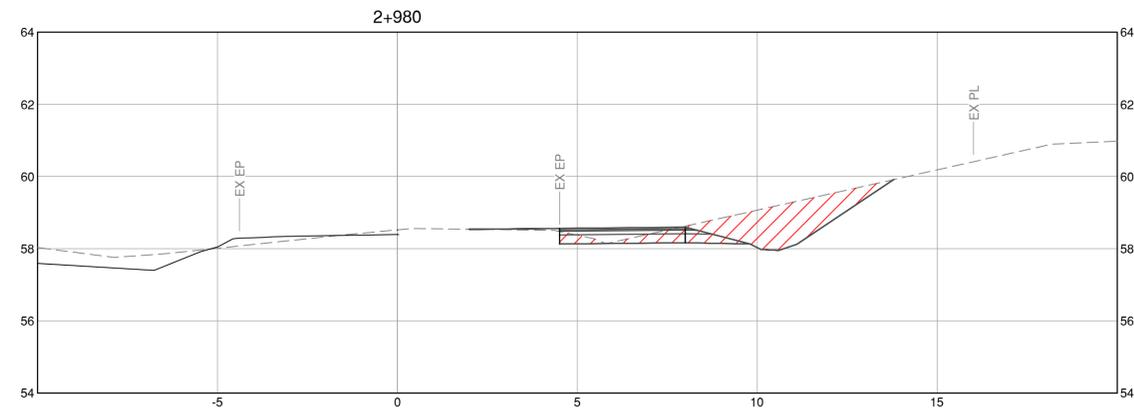
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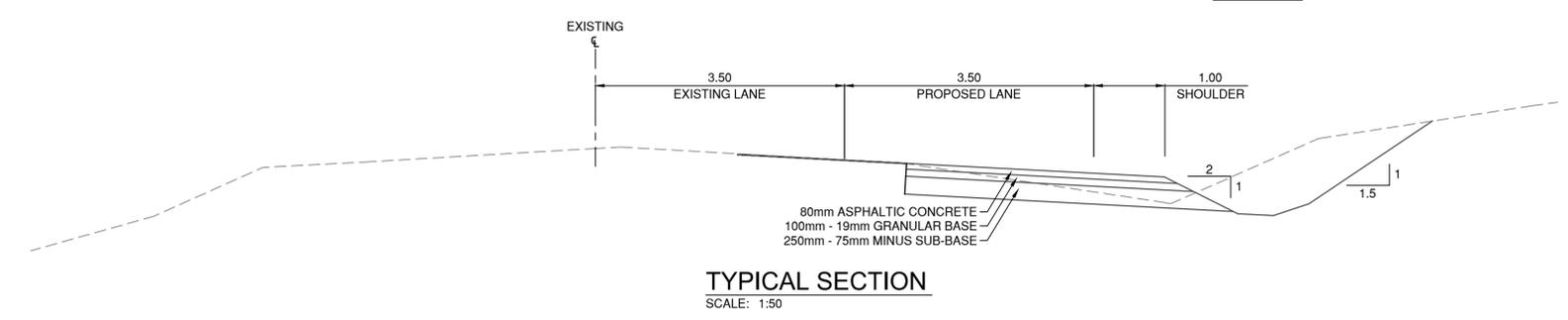
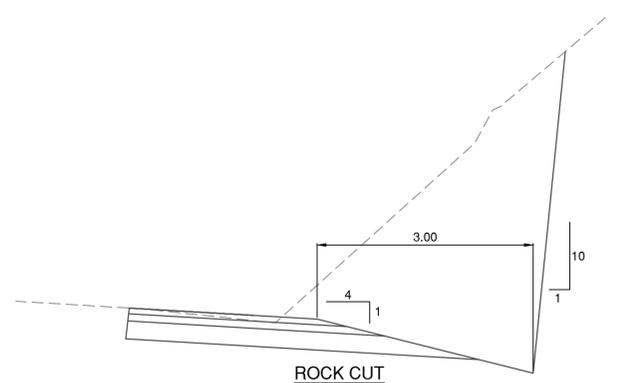
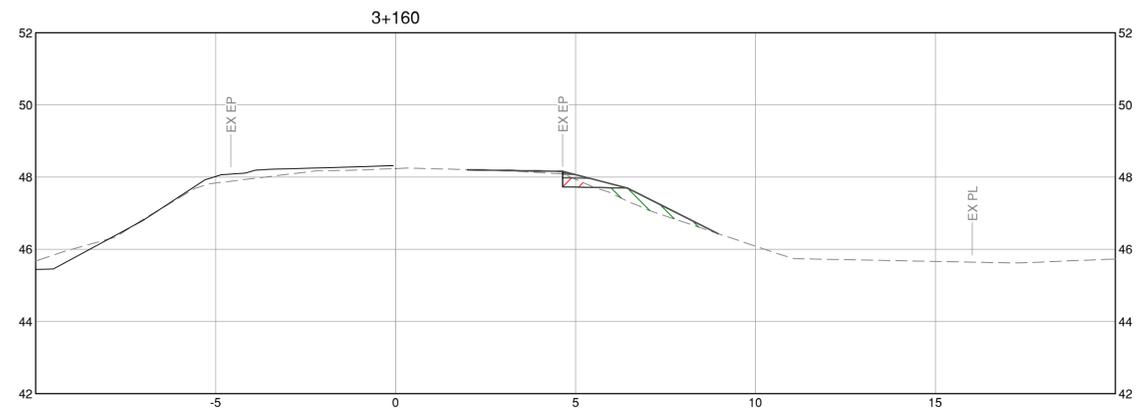
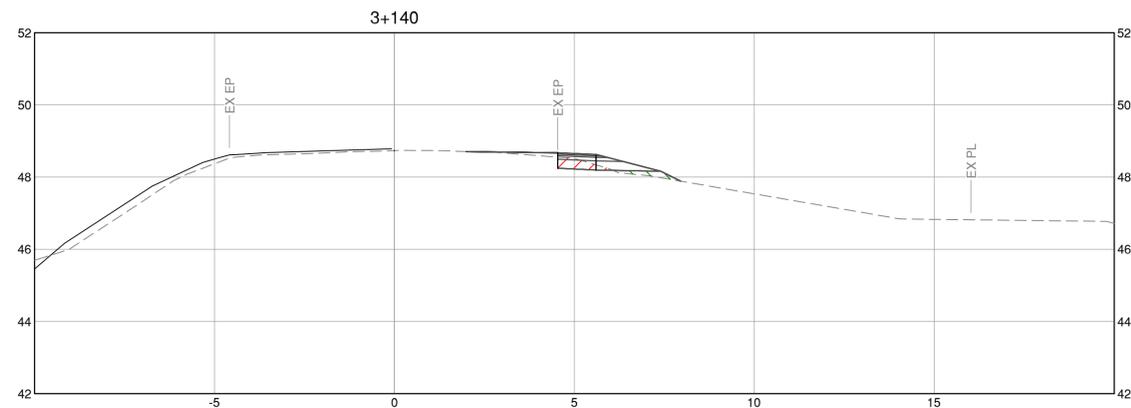
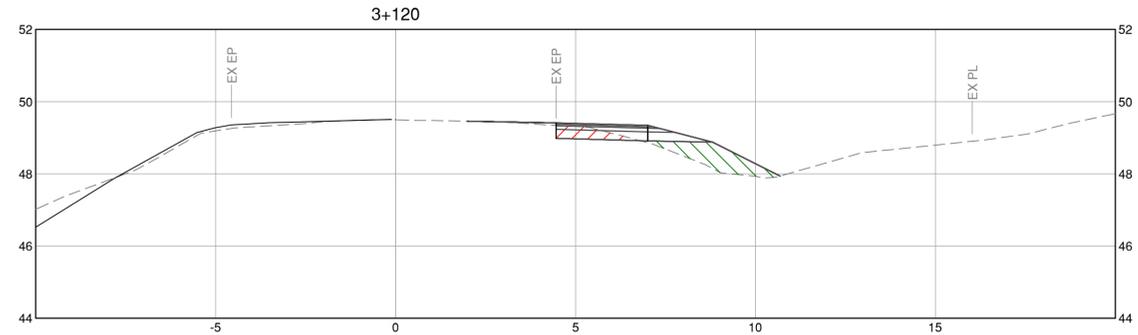
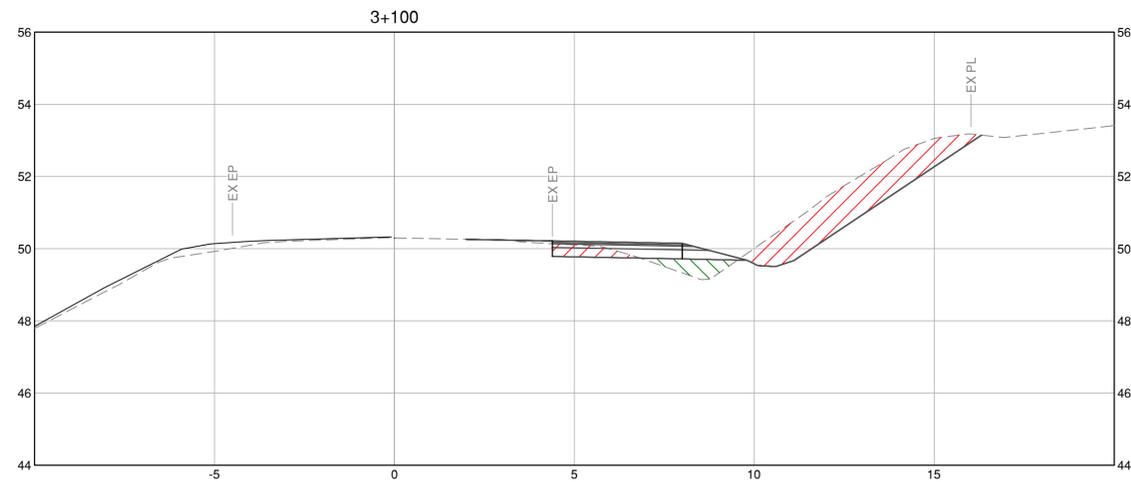
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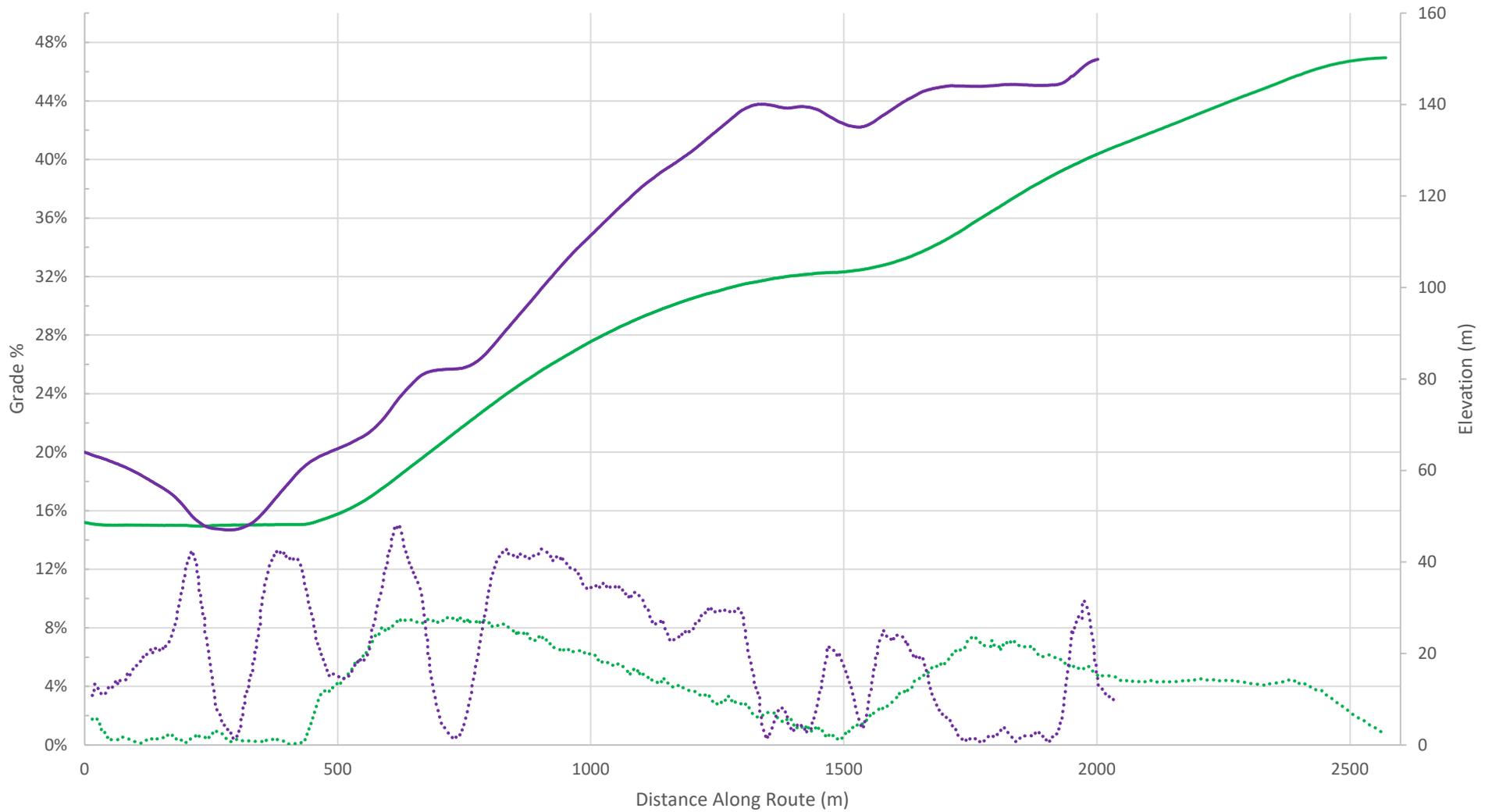
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— Willis Pt Rd Elevation — Hartland Ave Elevation
⋯ Willis Pt Rd Grade ⋯ Hartland Ave Grade

HARTLAND LANDFILL ACCESS ROUTE PROFILES AND GRADES



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**REPORT TO ENVIRONMENTAL SERVICES COMMITTEE
MEETING OF WEDNESDAY, JULY 15, 2020**

SUBJECT **Response to Environmental Resource Management 2019 Progress Report
Follow Up Questions**

ISSUE SUMMARY

To respond to questions regarding solid waste management and recycling raised by the Capital Regional District Board (CRD) at its meeting of May 27, 2020.

BACKGROUND

At its meeting of May 27, 2020, the CRD Board received the Environmental Resource Management (ERM) 2019 Progress Report for information. While discussing the report, a number of questions arose with respect to solid waste management and recycling in the region.

1. *What percentage of materials collected through Extended Producer Responsibility (EPR) stewardship programs are recycled as compared to disposed?*

The percentage of materials collected through EPR programs that are recycled varies by product type, as some toxic materials cannot be recycled and need to be safely disposed while 100% of other product streams, such as beverage containers, are fully recycled. Where the products are recyclable the vast majority are recycled. Appendix A provides further details of how various EPR products are managed in British Columbia.

2. *What changes have been observed in the monthly quantities of garbage being disposed of at Hartland Landfill as a result of the COVID-19 pandemic?*

Given that garbage generation and disposal is influenced by a number of parameters, the impact of the pandemic on the receipt of garbage at Hartland Landfill cannot be precisely determined. In broad terms, the quantities of solid waste received at Hartland for the months of April and May 2020 are down approximately 10% as compared to the same months in 2018 and 2019. Staff believe that this is largely attributable to the slowing of economic activity due to the pandemic.

3. *Has the pandemic impacted residential curbside blue box recycling?*

Based on curbside recycling program data for the months of March, April and May of 2020, as compared to the same months in 2019, it would appear that the pandemic has had an effect on the quantity of recyclable materials being placed out for collection. On average, the total monthly quantity of materials that were collected is up 12%. This includes a 37% increase in glass containers being collected. While glass is collected and tracked separately, all other recyclables are collected in two commingled collection streams (paper fibres and containers) so separate data on individual products types, such as packaging from online purchasing, is not available. While the reasons for these increases cannot be exactly determined, it is reasonable to assume that with restaurants having been largely

closed during the pandemic, residents have been having more meals at home and packaging associated with preparing those meals has been recycled at the curb. An increase in online purchasing may also have contributed to an increase in packaging materials being recycled through the blue box program. There may also have been an increase in residents undertaking clean-ups of their residences while they are isolating at home resulting in more materials, such as accumulations of old magazines, being placed out for recycling.

CONCLUSION

At its meeting of May 27, 2020, the CRD Board posed questions with respect to solid waste management and recycling in the region, including a question about recycling rates associated with EPR programs and what impacts the COVID-19 pandemic may be having on solid waste and recycling operations. In EPR programs where the materials are recyclable and not toxic, the vast majority are recycled. The COVID-19 pandemic has apparently impacted solid waste and recycling operations with a 10% decline in quantities of waste being landfilled and an increase in recyclable materials being collected through the residential curbside recycling program.

RECOMMENDATION

The Environmental Services Committee recommends to the Capital Regional District Board:

That this report be received for information.

Submitted by:	Russ Smith, Senior Manager, Environmental Resource Management
Concurrence:	Larisa Hutcheson, P. Eng., General Manager, Parks & Environmental Services
Concurrence:	Robert Lapham, MCIP, RPP, Chief Administrative Officer

ATTACHMENT

Appendix A: Details on Extended Producer Responsibility Product Management in British Columbia

What percentage of materials collected through EPR programs are recycled as compared to disposed?

Products subject to extended producer responsibility under the BC Recycling Regulation must be managed in the order of preference within the pollution prevention hierarchy. Producers of these products typically work with stewardship agencies to develop five year stewardship plans and deliver programs on their behalf. Performance targets for product materials are laid out in these provincially approved plans and reported on annually.

Product	Stewardship Agency	Reused	Recycled	Energy Recovery	Incinerated	Landfilled
Beverage containers	Encorp Pacific (Canada)		100%			
Electronics	Electronic Products Recycling Association		93%			7%
Latex Paint	Product Care Association	2%	92%	6%		
Alkyd Paint				100%		
Smoke alarms			100% of metal and plastic			
Flammable liquids & gasoline				100%		
Pesticides						100%
Packaging & Printed Paper		Recycle BC		92%	2%	
Small appliances	Canadian Electrical Stewardship Association		94%			6%
Medications	Health Products Stewardship Association				100%	
Tires	Tire Stewardship BC		100% of steel and 88.5% rubber	11.4% rubber and 100% fibre		0.1%
Light bulbs	Product Care Association		100% of glass and metal			100% for phosphor powder and mercury
PCBs - ballasts	Product Care Association				100%	
Batteries under 5kg	Call2Recycle		100%			

**REPORT TO ENVIRONMENTAL SERVICES COMMITTEE
MEETING OF WEDNESDAY, JULY 15, 2020**

SUBJECT **Regional Greenhouse Gas Inventory Study**

ISSUE SUMMARY

To provide the results of the Capital Regional District (CRD) and regional local government community greenhouse gas (GHG) emissions inventories.

BACKGROUND

The CRD's 2018 Regional Growth Strategy (RGS) targets a reduction in community greenhouse gas emissions of 33% (from 2007 levels) by 2020, and 61% by 2038. In February 2019, the CRD Board declared a climate emergency and committed to regional carbon neutrality. At its March 13, 2019 meeting, the CRD Board directed staff to complete a regional GHG inventory and emission reduction pathway analysis.

Utilizing the internationally recognized Global Protocol for Cities (GPC) framework, the CRD retained Stantec Consulting Ltd. to develop four regional GPC BASIC + greenhouse gas (GHG) emission inventories including the years 2007, 2010, 2012 and 2018. The delivered inventories provide the basis for trending GHG emissions in the capital region.

This inventory represents the best available information and improves upon previous Community Energy and Emissions Inventories (CEEI) conducted by the Province of BC. However, there is some uncertainty and limitations with the data and some assumptions were made (specifically around transportation and land use). The CRD's GPC BASIC + inventory aligns with the inventory previously completed by the District of Saanich (2017) and the City of Victoria (2018). Staff will continue to work with partners to identify, understand and source the best available data for future inventorying efforts.

The inventory has been updated from the draft numbers presented in the 2019 CRD Climate Action Annual Report presented to the Board on May 13, 2020. The updated figures represent material changes to the 2007 baseline carbon emission due to an error found post publication.

The 2018 CRD inventory, found in Appendix A, indicates the capital region emits approximately 1.7 million tonnes of CO₂e annually. This indicates that emissions are approximately the same as compared to 2007 levels with a slight decrease of 1.1%. The inventory reaffirms that transportation related emissions (with on-road transportation accounting for approximately 46% of total emissions alone) and the built environment (residential buildings account for approximately 18% and commercial/institutional buildings for 14%) as the main areas where progress needs to continue in order to meet the targets set by the CRD. It also affirms that the CRD and local governments should continue leadership on waste related emissions, which decreased 26% between 2007 and 2018. Appendix B summarizes changes in emissions between 2007 and 2018 for local governments.

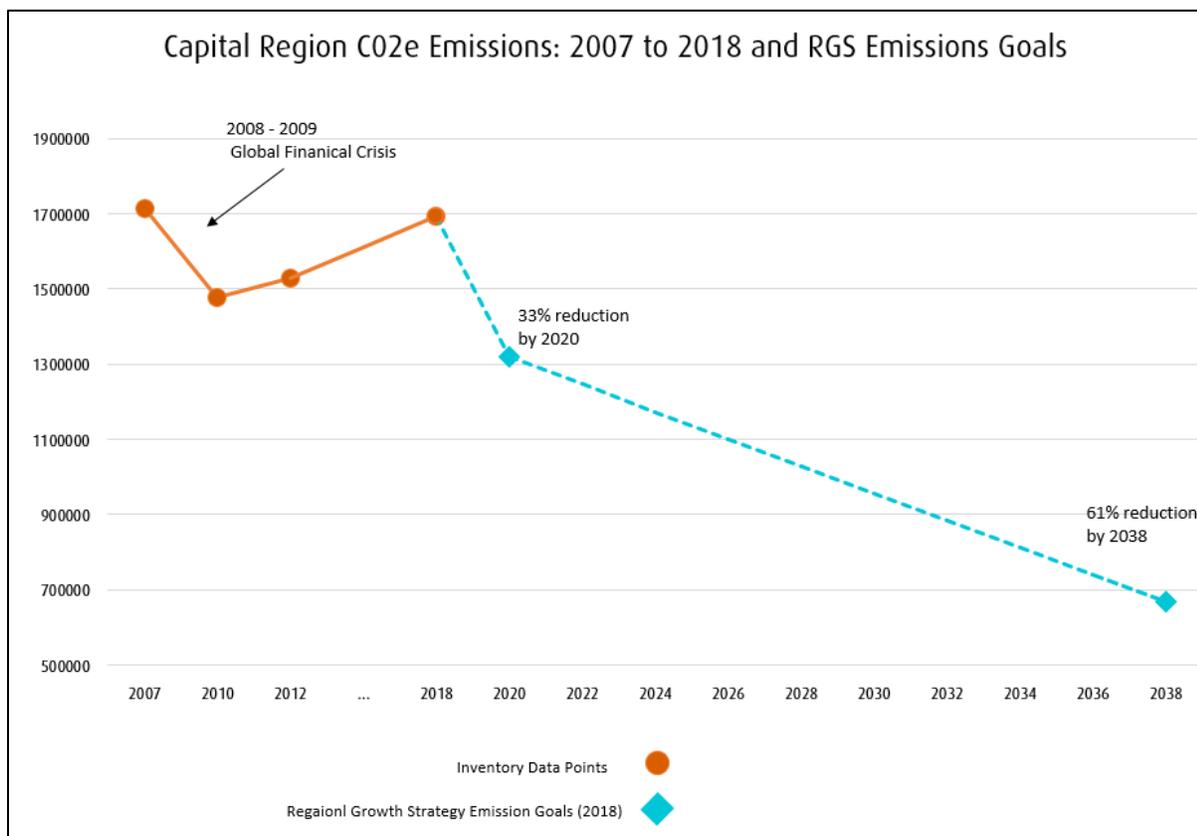


Figure 1: Capital Region GPC Basic + emission and RGS Goals

Figure 1 above indicates that the CRD is not currently on target to meet the 2020 target, with a 1% decrease in emissions observed below the 2007 baseline. The capital region would have to achieve a nearly 32% decrease in 2019 for the 2020 target to be achieved. The CRD Board, at its May 13 meeting, directed staff to report on additional potential expenditures in the 2021 budget to accelerate the priority Climate Action initiatives; this will be presented during the 2021 service planning process.

Staff expect that the COVID-19 crisis will impact emissions in 2020. As shown on the graph, emission reductions in 2008 – 2009 can be attributed to the global financial recession at that time. Results show that once economic recovery was underway, emissions returned to baseline levels, implying that the capital region will not achieve the RGS 2038 emissions goal if the economic recovery post-COVID-19 proceeds in a similar manner.

Staff will distribute local government specific reports and continue with the GHG pathway reduction modeling as part of the development of a new climate action strategy starting in late 2020.

CONCLUSION

The CRD Board provided direction and funding to complete a regional GHG inventory and emission reduction pathway analysis at its March 13, 2019 meeting. Four regional GPC BASIC + greenhouse gas emission inventories and reports for the 2007, 2010, 2012 and 2018 calendar years were completed, and results indicate an approximate 1% decrease in regional emissions

from 2007 to 2018. The analyses also indicated that on-road transportation (accounting for approximately 46% of total emissions alone) and the built environment (residential buildings account for approximately 18% and commercial/institutional buildings for 14%) are the main sources of regional emissions. The CRD will utilize this information for climate action planning activities.

RECOMMENDATION

The Environmental Services Committee recommends to the Capital Regional District Board:

That this report be received for information.

Submitted by:	Glenn Harris, Ph.D., R.P.Bio., Senior Manager, Environmental Protection
Concurrence:	Larisa Hutcheson, P.Eng., General Manager, Parks & Environmental Services
Concurrence:	Robert Lapham, MCIP, RPP, Chief Administrative Officer

ATTACHMENTS

Appendix A: CRD 2018 GPC BASIC + Community GHG Inventory Report

Appendix B: The Capital Region District – Municipalities and Electoral Areas 2007 Base Year and 2018 Reporting Year Energy & GHG Emissions Inventory Report

**Capital Regional District 2018
GPC BASIC+ Community
Greenhouse Gas (GHG)
Emissions Inventory Report**



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June 8, 2020

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Executive Summary

There is increasing evidence that global climate change resulting from emissions of carbon dioxide (CO₂) and other greenhouse gases (GHGs) is having a significant impact on the ecology of the planet. Delayed actions to respond to the effects of climate change are expected to have serious negative impacts on global economic growth and development.

Beyond the costs associated with delayed climate action, there are cost savings to be realized through efforts to improve energy efficiency, conserve energy, and reduce GHG emissions intensity. To make informed decisions on reducing energy use and GHG emissions at the community scale, community managers must have a good understanding of these sources, the activities that drive them, and their relative contribution to the total. This requires the completion of an energy and GHG emissions inventory. To allow for credible and meaningful reporting locally and internationally, the Global Protocol for Community-Scale Greenhouse Gas Emission Inventories (the GPC Protocol) was developed. The GPC Protocol has been adopted by the Global Covenant of Mayors—an agreement led by community networks to undertake a transparent and supportive approach to measure GHG emissions community-wide. The Global Covenant of Mayors and the Federation of Canadian Municipalities promotes the use of the GPC Protocol as a standardized way for municipalities to collect and report their actions on climate change.

This project set out to compile a detailed GHG inventory for the Capital Regional District (CRD) for the 2007 (base year), 2010, 2012 and 2018 reporting years using the GPC Protocol. The CRD has historically relied on the Provincial 2007, 2010 and 2012 Community Energy and Emissions Inventories (CEEI) to baseline and track community GHG emissions. However, there have been some limitations to the CEEI which has resulted in the CRD preparing a GPC BASIC+ inventory. Following the requirements of the GPC Protocol, the GHG inventories considered emissions from all reporting Sectors, including Stationary Energy, Transportation, Waste, Industrial Process and Product Use (IPPU), and Agriculture, Forestry and Other Land Use (AFOLU). The purpose of this document is to describe the quantification methodologies used to calculate GHG emissions for the 2018 reporting year, and to present the CRD's 2018 community GHG emissions.

In 2018, the CRD's BASIC+ GHG emissions totaled 1,696,703 tCO₂. While this is a small decline of 1.1% from the 2007 base year GHG emissions, on an absolute basis, it is a decline of 14% on a per capita basis. Between 2007 and 2018, the CRD's population has grown 15% and thus this decline speaks to the efforts by the CRD and CRD local governments to reduce energy consumption and GHG emissions.

A summary of the 2018 GHG emissions is presented in Table E-1.

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Table E-1 BASIC+ 2007 Base Year And 2018 Reporting Year GHG Emissions

Sector	Sub-Sector	2007 GHG Emissions (tCO ₂ e)	2018 GHG Emissions (tCO ₂ e)
Stationary Energy	Residential Buildings	403,409	338,796
	Commercial & Institutional Buildings	247,467	265,424
	Manufacturing Industries & Construction	0	0
	Energy Industries	418	7,658
	Agriculture, Forestry & Fishing activities	62,060	55,787
	Fugitive Emissions	993	1,510
Transportation	In-Boundary On-road Transportation	903,886	871,571
	Trans-Boundary On-road Transportation	13,858	7,578
	Waterborne Navigation	48,246	51,455
	Aviation	25,635	19,243
	Off-road Transportation	56,291	55,363
	Solid Waste	111,234	71,219
Waste	Biological Treatment of Waste	72	5,307
	Wastewater Treatment & Discharge	18,998	19,859
IPPU	IPPU	77,348	129,884
AFOLU	Land-Use Change	-259,033	-209,262
	Livestock	3,467	4,299
	Non-CO ₂ Land Emission Sources	1,464	1,010
Change in GHG Emissions from Base Year		1,715,814	1,696,703
Total Per Capita GHG Emissions (tCO₂e / Capita)			-1.1%
Change GHG Emissions per Capita from Base Year		4.9	4.2
Change in GHG Emissions from Base Year			-14.4%

Data in the table above is depicted in Figure E-1, which includes land-use, and Figure E-2 which excludes land-use.

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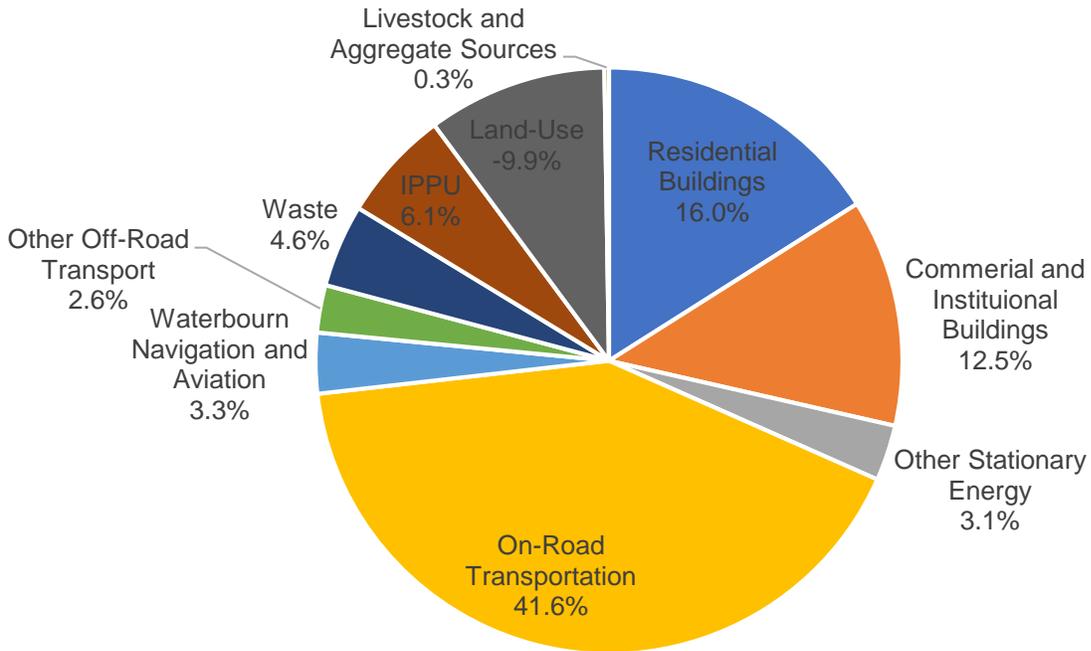


Figure E-1 CRD's 2018 BASIC+ GHG Emissions Profile (Including Land-Use)

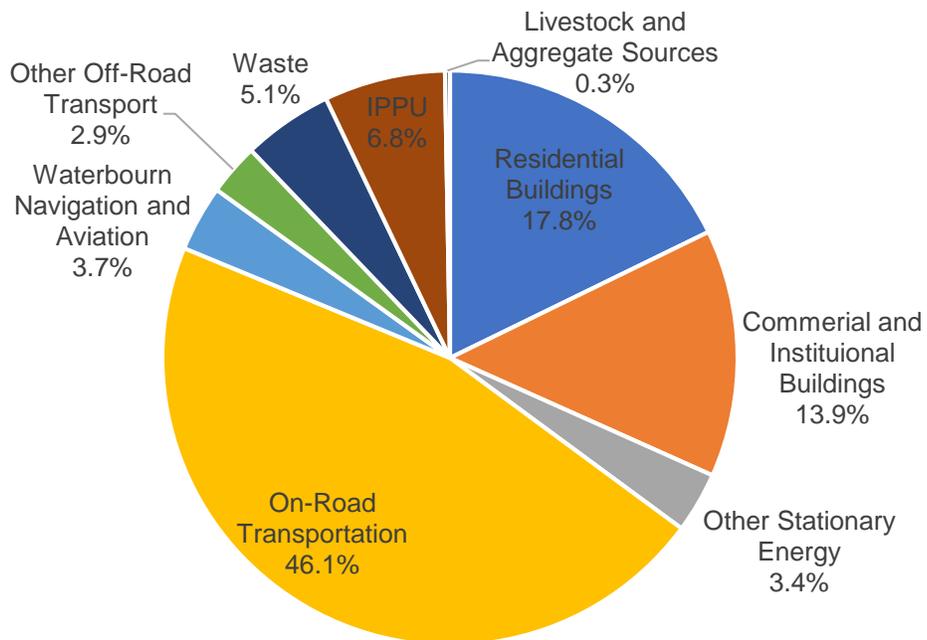


Figure E-2 CRD's 2018 BASIC+ GHG Emissions Profile (Excluding Land-Use)



Abbreviations

ACERT	Airport Carbon Emissions Reporting Tool
AFOLU	Agriculture, Forestry, and Other Land Use
BC	British Columbia
C40	C40 Cities Climate Leadership Group
CH ₄	Methane
CO ₂	carbon dioxide
CO ₂ e	carbon dioxide equivalents
CEEI	Community Energy and Emissions Inventories
CRD	Capital Regional District
VIA	Victoria International Airport
eMWh	megawatt hours equivalents
FCM	Federation of Canadian Municipalities
GDP	gross domestic product
GHG	greenhouse gas
GJ	Gigajoules
GPC	Global Protocol for Community-Scale Greenhouse Gas Emission Inventories
GVHA	Greater Victoria Harbour Authority
GWP	global warming potentials
HFC	Hydrofluorocarbons
ICAO	International Civil Aviation Organization
ICBC	Insurance Corporation of BC

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ICLEI	International Council for Local Environmental Initiatives
IE	included elsewhere
IPCC	Intergovernmental Panel on Climate Change
IPPU	Industrial Process and Product Use
ISO	International Organization for Standardization
kg	Kilograms
kW	Kilowatt
kWh	kilowatt hours
L	Litres
MWh	megawatt hours
N ₂ O	nitrous oxides
NE	not estimated
NIR	National Inventory Report
NPRI	National Pollutant Release Inventory
NO	not occurring
PCP	Partnership for Climate Protection
PFC	Perfluorocarbons
SC	Other Scope 3
SF ₆	sulfur hexafluoride
VIA	Victoria International Airport
WIP	waste-in-place
WRI	World Resources Institute

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Glossary

Air pollution	The presence of toxic chemicals or materials in the air, at levels that pose a human health risk.
Base Year	This is the reference or starting year to which targets and GHG emissions projections are based.
BASIC	An inventory reporting level that includes all Scope 1 sources except from energy generation, imported waste, IPPU, and AFOLU, as well as all Scope 2 sources (GPC, 2014).
BASIC+	An inventory reporting level that covers all GPC BASIC sources, plus Scope 1 AFOLU and IPPU, and Scope 3 in the Stationary Energy and Transportation Sectors (GPC, 2014).
Biogenic emissions	Emissions produced by living organisms or biological processes, but not fossilized or from fossil sources (GPC, 2014).
Carbon dioxide equivalent (CO ₂ e)	The amount of carbon dioxide (CO ₂) emissions that would cause the same integrated radiative forcing, over a given time horizon, as an emitted amount of a greenhouse gas (GHG) or a mixture of GHGs. The CO ₂ e emission is obtained by multiplying the emission of a GHG by its Global Warming Potential (GWP) for the given time horizon. For a mix of GHGs, it is obtained by summing the CO ₂ e emissions of each gas (IPCC 2014).
Climate change	Climate change refers to a change in the state of the climate that can be identified by changes in the mean and/or the variability of its properties and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forces such as modulations of the solar cycles, volcanic eruptions, and persistent anthropogenic changes in the composition of the atmosphere or in land use (IPCC, 2014).
Emission	The release of GHGs into the atmosphere (GPC, 2014).
Emission factor(s)	A factor that converts activity data into GHG emissions data (GPC, 2014).
Flaring	The burning of natural gas that cannot be used.
Fossil fuels	A hydrocarbon deposit derived from the accumulated remains of ancient plants and animals which is used as an energy source.
Fugitive emission	Emissions that are released during extraction, transformation, and transportation of primary fossil fuels. These GHG emissions are not combusted for energy.
Geographic boundary	A geographic boundary that identifies the spatial dimensions of the inventory's assessment boundary. This geographic boundary defines the physical perimeter separating in-boundary emissions from out-of-boundary and transboundary emissions (GPC, 2014).
Gigajoule (GJ)	A gigajoule (GJ), one billion joules, is a measure of energy. One GJ is about the same energy as: <ul style="list-style-type: none">• Natural gas for 3-4 days of household use• The electricity used by a typical house in 10 days

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Global warming	A gradual increase in the Earth's temperature which is attributed to the greenhouse effect caused by the release of greenhouse gas (GHG) emissions into the atmosphere.
Global warming potential (GWP)	An index measuring the radiative forcing following an emission of a unit mass of a given substance, accumulated over a chosen time horizon, relative to that of the reference substance, carbon dioxide (CO ₂). The GWP thus represents the combined effect of the differing times these substances remain in the atmosphere and their effectiveness in causing radiative forcing. The Kyoto Protocol is based on global warming potentials over a 100-year period (IPCC 2014).
Greenhouse gas (GHG)	GHGs are the seven gases covered by the UNFCCC: carbon dioxide (CO ₂); methane (CH ₄); nitrous oxide (N ₂ O); hydrofluorocarbons (HFCs); perfluorocarbons (PFCs); sulphur hexafluoride (SF ₆); and nitrogen trifluoride (NF ₃) (GPC, 2014).
GHG intensity	The annual rate to which GHG emissions are released in the atmosphere, relative to a specific intensity.
Gross domestic product (GDP)	An economic measure of all goods and services produced in an economy.
In-boundary	Occurring within the established geographic boundary (GPC, 2014).
Reporting year	The year for which emissions are reported (GPC, 2014).
Scope 1	Emissions that physically occur within a community.
Scope 2	Emissions that occur from the use of electricity, steam, and/or heating/cooling supplied by grids which may or may not cross Community boundaries.
Scope 3	Emissions that occur outside a community but are driven by activities taking place within a community's boundaries.
Tonne of CO ₂ e	A tonne of greenhouse gases (GHGs) is the amount created when we consume: <ul style="list-style-type: none"> • 385 litres of gasoline (about 10 fill-ups) • \$200 of natural gas (a month of winter heating) • Enough electricity for three homes for a year (38,000 kWh)
Transboundary GHG emissions	Emissions from sources that cross the geographic boundary (GPC, 2014).

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1.0 INTRODUCTION

1.1 CLIMATE CHANGE AND GREENHOUSE GAS EMISSIONS

There is increasing evidence that global climate change resulting from emissions of carbon dioxide and other greenhouse gases (GHGs) is having an impact on the global climate system. The Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), states the following consensus of scientific opinion about climate change and its causes and effects (IPCC, 2014):

- Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice and rising global average sea level.
- Anthropogenic GHG emissions have increased since the pre-industrial era, driven largely by economic and population growth, and are now higher than ever. Most of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in human-caused GHG concentrations.
- Continued emission of GHG will cause further warming and long-lasting changes in all components of the climate system, increasing the likelihood of severe, pervasive, and irreversible impacts for people and ecosystems.
- There is high agreement and much evidence that with current climate change mitigation policies and practices, global GHG emissions will increase over the next few decades.

1.2 COMMUNITIES AND GREENHOUSE GAS EMISSIONS

Communities are centers of communication, commerce, and culture. They are, however, also a significant and growing source of energy consumption and GHG emissions. On a global scale, communities are major players in GHG emissions. They are responsible for more than 70% of global energy-related carbon dioxide emissions and thus represent the single greatest opportunity for tackling climate change.

For a community to act on mitigating climate change and monitor its progress, it is crucial to have good quality GHG emissions data to build a GHG inventory. Such an inventory enables cities to understand the breakdown of their emissions and plan for effective climate action. The Global Protocol for Community-Scale Greenhouse Gas Emission Inventories (GPC Protocol) seeks to support exactly that, by giving cities the standards and tools that are needed to measure the emissions, build more effective emissions reduction strategies, set measurable and more ambitious emission reduction goals, and to track their progress more accurately and comprehensively.

Until recently there has been no internationally recognized way to measure community-level emissions. Inventory methods that community managers have used to date around the globe vary significantly. This inconsistency has made comparisons between cities and over the years difficult. The GPC Protocol offers an internationally accepted, credible emissions accounting and reporting practice that will help communities to develop comparable GHG inventories.

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1.3 VARIANCE FROM COMMUNITY ENERGY AND EMISSIONS INVENTORIES (CEEI)

The CRD has historically relied on the Provincial 2007, 2010 and 2012 Community Energy and Emissions Inventories (CEEI) to baseline and track community GHG emissions. However, there have been some limitations to the CEEI in that it is an in-boundary inventory, the most recent version published is for 2012, and the CEEI Protocol does not fully meet the requirements of the GPC Protocol BASIC or BASIC+ reporting requirements which is the required reporting standard for local governments that have committed to the Global Covenant of Mayors—an agreement led by community networks to undertake a transparent and supportive approach to measure GHG emissions community-wide. A high-level summary of the differences between the CEEI and GPC Protocol inventories are presented in Table 1.

Table 1. Summary of GHG Inventory Scope Differences

Reporting Sector	CEEI	GPC BASIC	GPC BASIC+
Residential Buildings	✓	✓	✓
Commercial And Institutional Buildings And Facilities	✓	✓	✓
Manufacturing Industries And Construction	✓	✓	✓
Energy Industries		✓	✓
Energy Generation Supplied To The Grid		✓	✓
Agriculture, Forestry And Fishing Activities		✓	✓
Non-Specified Sources		✓	✓
Fugitive Emissions From Mining, Processing, Storage, And Transportation Of Coal		✓	✓
Fugitive Emissions From Oil And Natural Gas Systems		✓	✓
On-Road Transportation	✓	✓	✓
Railways		✓	✓
Waterborne Navigation		✓	✓
Aviation		✓	✓
Off-Road Transportation		✓	✓
Solid Waste	✓	✓	✓
Biological Waste	✓	✓	✓
Incinerated And Burned Waste		✓	✓
Wastewater		✓	✓
Emissions From Industrial Processes			✓

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Reporting Sector	CEEI	GPC BASIC	GPC BASIC+
Emissions From Product Use			✓
Emissions From Livestock	✓		✓
Emissions From Land			✓
Emissions From Aggregate Sources And Non-CO ₂ Emission Sources On Land	✓		✓

1.4 PURPOSE OF THIS REPORT

The purpose of this document is to describe the quantification methodologies used by the CRD to calculate its BASIC+ GHG emissions for the 2018 reporting year.

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2.0 GLOBAL PROTOCOL FOR COMMUNITY (GPC) SCALE EMISSION INVENTORIES PROTOCOL

2.1 OVERVIEW

The GPC Protocol is the result of a collaborative effort between the GHG Protocol at the World Resources Institute (WRI), C40 Cities Climate Leadership Group (C40), and ICLEI—Local Governments for Sustainability (ICLEI). The GPC Protocol is recognized as one of the first set of standardized global rules for cities to measure and publicly report community-wide GHG emissions. It sets out requirements and provides guidance for calculating and reporting community-wide GHG emissions, consistent with the 2006 IPCC guidelines on how to estimate GHG emissions (IPCC, 2006). Specifically, the GPC Protocol seeks to:

- Help cities develop a comprehensive and robust GHG inventory to support climate action planning.
- Help cities establish a base year GHG emissions inventory, set GHG reduction targets, and track performance.
- Ensure consistent and transparent measurement and reporting of GHG emissions between cities, following internationally recognized GHG accounting and reporting principles.
- Enable community-wide GHG inventories to be aggregated at subnational and national levels.
- Demonstrate the important role that cities play in tackling climate change and facilitate insight through benchmarking—and aggregation—of comparable GHG data.

2.2 GPC PROTOCOL STRUCTURE

The GPC Protocol sets several assessment boundaries which identify the restrictions for gases, emission sources, geographic area, and time span covered by a GHG inventory:

- The GHG inventory is required to include all seven Kyoto Protocol GHGs occurring within the geographic boundary of a community. These include:
 - Carbon dioxide (CO₂)
 - Methane (CH₄)
 - Nitrous oxide (N₂O)
 - Hydrofluorocarbons (HFCs)
 - Perfluorocarbons (PFCs)
 - Sulfur hexafluoride (SF₆)
 - Nitrogen trifluoride (NF₃)
- The GHG emissions from community-wide activities must be organized and reporting under the following five Sectors, based on the selected reporting level:
 - Stationary Energy
 - Transportation
 - Waste
 - Industrial Processes and Product Use (IPPU)

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- Agriculture, Forestry, and Other Land Use (AFOLU)

The GPC Protocol also requires that a community define an inventory boundary, identifying the geographic area, time span, gases, and emission sources.

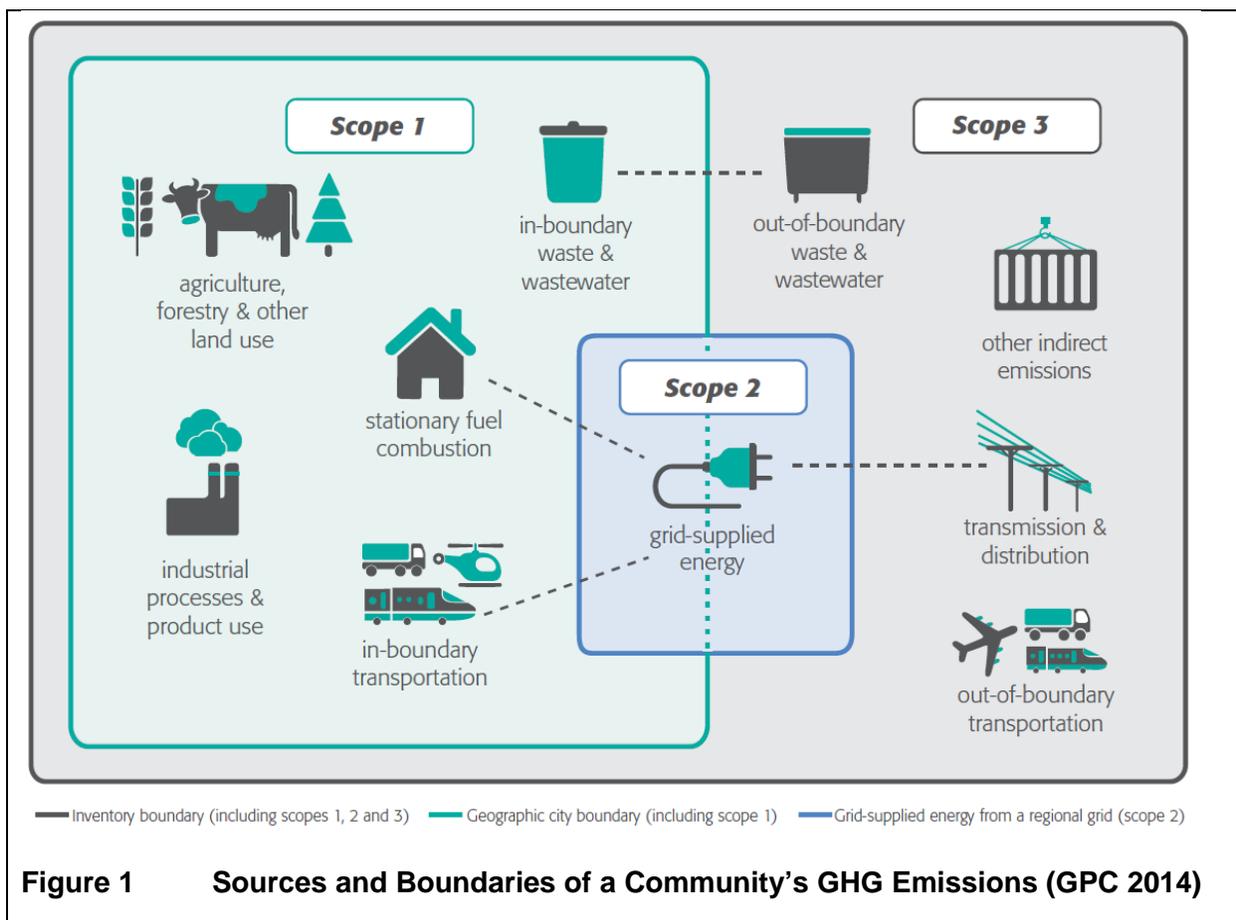
Under the GPC Protocol, a community has the option of reporting GHG emissions under three different levels:

- **GPC BASIC**—This level covers emissions Scopes 1 and 2, from stationary energy and transportation, as well as emissions Scopes 1 and 3 from waste. The BASIC level aligns with the Community Energy and Emissions Inventories (CEEI) that have been released in the past for local governments by the Province of BC.
- **GPC BASIC+**—This level covers the same scopes as BASIC and includes more in-depth and data dependent methodologies. Specifically, it expands the reporting scope to include emissions from Industrial Process and Product Use (IPPU), Agriculture, Forestry, and Other Land-Use (AFOLU), and transboundary transportation. The sources covered in BASIC+ also align with sources required for national reporting in IPCC guidelines.
- **GPC BASIC+ Scope 3 (SC)**— This inventory extends beyond the BASIC+ GHG inventory to include Other Scope 3 (SC) emissions such as GHG emissions from goods and services production and transportation.

Activities taking place within a community can generate GHG emissions that occur inside a Community boundary as well as outside a Community boundary. To distinguish between these, the GPC Protocol groups emissions into three categories based on where they occur: Scope 1, Scope 2, or Scope 3 emissions. The GPC Protocol distinguishes between emissions that physically occur within a Community (Scope 1), from those that occur outside a Community but are driven by activities taking place within a Community's boundaries (Scope 3), from those that occur from the use of electricity, steam, and/or heating/cooling supplied by grids which may or may not cross community boundaries (Scope 2). Scope 1 emissions may also be termed "territorial" emissions, because they are produced solely within the territory defined by the geographic boundary (see Figure 1).

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2.3 GHG EMISSION CATEGORIES

As noted previously, the GPC Protocol requires that different emission sources to be categorized into six main reporting Sectors. These high-level categories are described in more detail in Section 2.3.1 to Section 2.3.6. More information on how GHG emissions are captured within the GPC Protocol is available on the [Greenhouse Gas Protocol website](#).

2.3.1 Stationary Energy

Stationary energy sources are typically one of the largest contributors to a community's GHG emissions. In general, these emissions come from fuel combustion and fugitive emissions. They include the emissions from energy to heat and cool residential, commercial, and industrial buildings, as well as the activities that occur within these residences and facilities, such as off-road transportation emissions from construction equipment. Emissions associated with distribution losses from grid-supplied

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electricity/steam/heating/cooling are also included, as are some fugitive emissions from sources such as coal piles, and natural gas distribution systems.

The Stationary Energy Sector includes the following Sub-Sectors:

- Residential buildings
- Commercial and institutional buildings and facilities
- Manufacturing industries and construction
- Energy industries
- Energy generation supplied to the grid*
- Agriculture, forestry, and fishing activities
- Non-specific sources
- Fugitive emissions from mining, processing, storage, and transportation of coal
- Fugitive emissions from oil and natural gas systems

*Emissions related with electricity generation activities occurring within a community's boundaries are to be reported; however, the GHG emissions from these sources are not included in the total GHG inventory to prevent double counting (GPC 2014).

Under the GPC Protocol, cities are to report off-road GHG emissions under the Off-road Transportation Sub-Sector if and only if the GHG emissions are occurring at transportation facilities (e.g., airports, harbors, bus terminals, train stations, etc.). Other off-road transportation GHG emissions that occur on industrial premises, construction sites, agriculture farms, forests, aquaculture farms, and military premises, etc., are to be reported under the most relevant Stationary Energy Sub-Sector (GPC, 2014). For example, GHG emissions from commercial building off-road construction equipment would be included in the Commercial And Institutional Buildings And Facilities Sub-Sector, whereas GHG emissions from residential lawn mowers would be reported under the Residential Buildings Sub-Sector.

2.3.2 Transportation

The GHGs released to the atmosphere to be reported in the Transportation Sector are those from combustion of fuels in journeys by on-road, railway, waterborne navigation, aviation, and off-road. GHG emissions are produced directly by the combustion of fuel, and indirectly using grid-supplied electricity. Unlike the Stationary Energy Sector, transit is mobile and can pose challenges in both accurately calculating GHG emissions and allocating them to a specific Sub-Sector. This is particularly true when it comes to transboundary transportation, which includes GHG emissions from trips that either start or finish within a community's boundaries (e.g., departing flight emissions from an airport outside a Community boundaries) (GPC, 2014). Transboundary GHG emissions are only required for GPC BASIC+ GHG reporting.

The Transportation Sector includes the following Sub-Sectors:

- On-road
- Railways



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- Waterborne
- Aviation
- Off-road

As noted previously, cities are to report off-road GHG emissions under the Off-road Transportation Sub-Sector if and only if the GHG emissions are occurring at transportation facilities (e.g., airports, harbors, bus terminals, train stations, etc.). For example, off-road railway maintenance support equipment GHG emissions are reported under the Off-Road Transportation Sub-Sector.

2.3.3 Waste

Cities produce GHG emissions that arise from activities related to the disposal and management of solid waste. Waste does not directly consume energy, but releases GHG emissions because of decomposition, burning, incineration, and other management methods.

The Waste Sector includes the following Sub-Sectors:

- Solid waste disposal
- Incineration and open burning
- Biological treatment of waste
- Wastewater treatment and discharge

Under the GPC Protocol, the Waste Sector includes all GHG emissions that result from the treatment or decomposition of waste regardless of the source of the waste (e.g., another community's waste in a Community's landfill). However, the GHG emissions that are associated with waste from outside a Community's boundary that is treated or decomposes within a Community boundary are deemed to be "reporting only" emissions and do not contribute to the GHG inventory (GPC 2014).

Any GHG emissions that result from the combustion of waste or waste related gases to generate energy, such as a methane capture and energy generation system at a landfill, are reported under Stationary Energy Generation Supplied To The Grid Sub-Sector (GPC, 2014). Any waste related GHG emissions that are combusted but not related to energy generation are reported in the appropriate Waste Sub-Sector. Lastly, any waste GHG emissions that are released to the atmosphere are also captured in the appropriate Waste Sub-Sector.

2.3.4 Industrial Processes and Product Use (IPPU)

Emissions from this Sector are only required for BASIC+ GHG reporting under the GPC Protocol. This Sector encompasses GHG emissions produced from industrial processes that chemically or physically transform materials and using products by industry and end-consumers (e.g., refrigerants, foams, aerosol cans) (GPC, 2014).

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The IPPU Sector includes the following Sub-Sectors:

- Industrial processes
- Product use

Any GHG emissions associated with energy use for industrial processes are not reported in the IPPU Sector; rather, they are reported under the appropriate Stationary Energy Sub-Sector.

2.3.5 Agriculture, Forestry, and Other Land Use (AFOLU)

Emissions from the AFOLU Sector are only required for BASIC+ GHG reporting. AFOLU GHG emissions are those that are captured or released because of land-management activities. These activities can range from the preservation of forested lands to the development of crop land. Specifically, this Sector includes GHG emissions from land-use change, manure management, livestock, and the direct and indirect release of nitrous oxides (N₂O) from soil management, rice cultivation, biomass burning, urea application, fertilizer, and manure application (GPC, 2014).

The AFOLU Sector is organized into the following Sub-Sectors:

- Livestock
- Land
- Aggregate sources and non-CO₂ emission sources on land

2.3.6 Other Scope 3 Emissions

Cities, by their size and connectivity, inevitably give rise to GHG emissions beyond their boundaries. The GPC Protocol already includes the following Scope 3 emissions in other Sectors:

- On-road, waterborne, and aviation transboundary transportation
- Transmission and distribution losses associated with grid-supplied energy
- Solid waste disposal
- Biological treatment of solid waste
- Wastewater treatment and discharge

Cities may voluntarily report on other Scope 3 emissions as they are estimated. In the case of the CRD, no other Scope 3 GHG emissions, other than those listed above, have been estimated.

2.4 ACCOUNTING AND REPORTING PRINCIPLES

All GHG inventories following the GPC Protocol are required to meet GHG accounting principles. Specifically, these inventories should be relevant, consistent from year to year, accurate and transparent about methodologies, assumptions, and data sources. The transparency of inventories is fundamental to the success of replication and assessment of the inventory by interested parties.

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The GHG inventories must also properly account for key energy and GHG emission sinks, sources, and reservoirs (SSR) that are occurring within municipal boundaries. The SSRs are a convenient way to identify and categorize all the GHG emissions to determine if they should be included or excluded from a GHG inventory. A “Source” is something that releases GHG emissions to the atmosphere, such as a diesel generator. A “Sink” is a process or item that removes GHG from the atmosphere, such as photosynthesis and tree growth. Finally, a “Reservoir” is a process or item with the capability to store or accumulate a GHG removed from the atmosphere by a GHG sink, such as a wetland or a peat bog. By assessing and reporting on the applicable SSRs, users of the GHG inventory can have confidence that the inventory is complete and representative of the types and quantities of the GHGs being released within community limits.

2.5 BASE AND REPORTING YEAR RECALCULATIONS

As communities grow and expand, significant changes to the GHG emissions profile can alter materially thus making it difficult to meaningfully assess GHG emission trends and changes over time. The GPC Protocol has requirements on how to treat changes in a community’s GHG profile—this is presented in Table 2.

Table 2 GPC Protocol Recalculation Thresholds

Threshold	Example Change	Recalculation Needed	No Recalculation Needed
Changes in the assessment boundary	A local government is annexed in or removed from the administrative boundary	✓	
	Change in protocol reporting method (e.g., from BASIC to BASIC+, addition of GHGs reported, etc.)	✓	
	Shut down of a power plant		✓
	Building a new cement factory		✓
Changes in calculation methodology or improvements in data accuracy	Change in calculation methodology for landfilled municipal solid waste (MSW) that results in a material change in GHG emissions to that sector (i.e., +/-10%).	✓	
	Adoption of more accurate local emission factors, instead of a national average emission factors that results in a material change in GHG emissions (i.e., +/-10%).	✓	
	Change in electricity emission factor due to energy efficiency improvement and growth of renewable energy utilization.		✓
Discovery of significant errors	Discovery of mistake in unit conversion in formula used.	✓	

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2.6 DATA QUALITY

Data collection and the assessment of its quality is an integral component of compiling any GHG inventory. Like the IPCC, the GPC Protocol requires users to establish first whether a source exists, and then assess the data availability and quality. To support GHG reporting, the following notation keys are used.

- If the GHG sink, source or reservoir does not exist, a “NO” is used to indicate it is “not occurring”.
- If the GHG sink, source or reservoir does occur, and data is available, then the emissions are estimated. However, if the data is also included in another emissions source category or cannot be disaggregated, the notation key “IE” would be used to indicate “included elsewhere” to avoid double counting.
- When GHG emissions are occurring in the CRD, but data is not available, then the notation key “NE” would be used to indicate “not estimated”.

For GHG data that does exist, in accordance with the GPC Protocol, an assessment of quality is also made on emission factors and GHG estimation methodologies deployed. The GPC Protocol data quality assessment notation keys are summarized in Table 3.

Table 3 GPC Protocol Data Quality Assessment Notation Keys

Data Quality	Activity Data	Emission Factor
High (H)	Detailed activity data	Site-specific emission factors
Medium (M)	Modeled activity data using robust assumptions	More general emission factors
Low (L)	Highly modeled or uncertain activity data	Default emission factors

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3.0 GHG ASSESSMENT BOUNDARIES

This section sets out the reporting boundaries of the CRD's GHG inventory.

3.1 SPATIAL BOUNDARIES

This GHG inventory is defined geographically by the CRD's jurisdictional boundaries. As shown in Figure 2, the CRD consists of 13 municipalities and 3 electoral areas. For the purposes of this report, only the CRD GHG emissions are presented. A breakdown of GHG emissions by each CRD municipality and electoral area has been presented in a separate report.

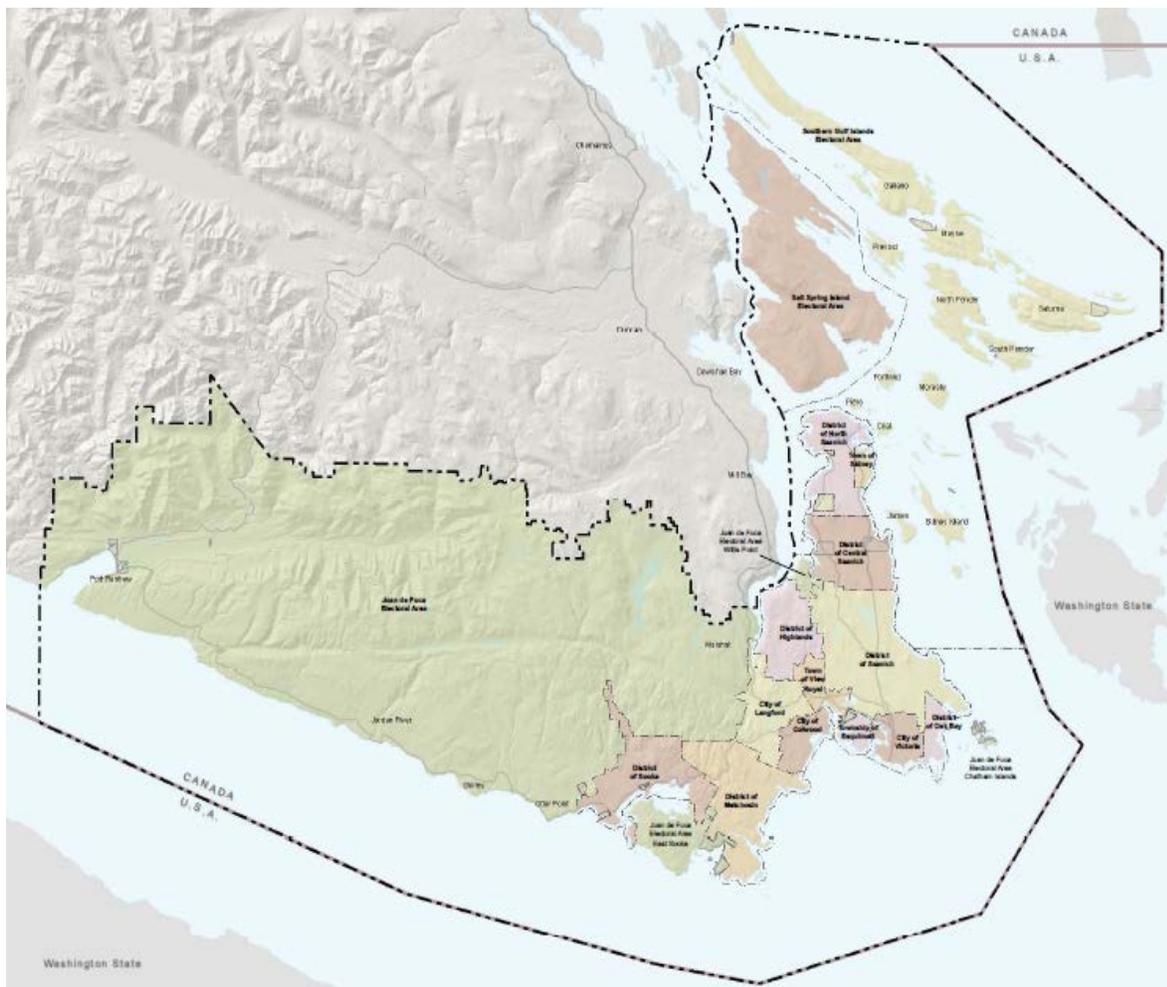


Figure 2 GHG Boundary

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Table 4 Inventory Information

Inventory Boundary	Community / District Information
Name of Community / District	Capital Regional District
Municipality / Electoral Area	<ul style="list-style-type: none"> • District of Central Saanich • City of Colwood • Township of Esquimalt • District of Highlands • Juan de Fuca Electoral Area • City of Langford • District of Metchosin • District of North Saanich • District of Oak Bay • District of Saanich • Salt Spring Island Electoral Area • Town of Sidney • District of Sooke • City of Victoria • Town of View Royal • Southern Gulf Islands Electoral Area
Country	Canada
Inventory Year	2018
Geographic Boundary	See Figure 2
Land Area (km ²)	2,310.18
Resident population	405,983
GDP (US\$)	Unknown at time of reporting
Composition of Economy	Government
Climate	Temperate, warm summer

3.2 TEMPORAL BOUNDARIES

3.2.1 2007 Base Year

Federal and provincial initiatives and legislation have been implemented to support local governments in acting to advance energy efficiency, promote energy conservation, and reduce GHG emissions. The CRD and its local governments have already been working to address sustainability and climate change through several initiatives over the past decade. The CRD's Regional Growth Strategy set a regional GHG reduction target) of 61% by 2038 (below 2007 levels).

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To maintain consistency with the current reporting year, and as required by the GPC Protocol, the CRD has updated its 2007 GHG base year GHG emissions profile to be consistent with the GPC Protocol BASIC+ reporting level. Between the current reporting year and the 2007 base year, there were no boundary changes (e.g., annexes) and thus no additional modifications were made. All methods and assumptions, adjusted for the 2007 reporting year, are the same.

Table 4 summaries the original 2007 and the updated 2007 base year.

Table 5 Original And Updated BASIC+ Base Year

Aspect	Quantification Protocol	2007 GHG Base Year (tCO ₂ e)
Original Base Year	CEEI Protocol	1,563,000
Updated Base Year	GPC Protocol BASIC+	1,715,814

3.2.2 GHG Reduction Target

Recognizing the role that the CRD plays in achieving a significant and immediate reduction in global GHG emissions, the CRD has set a regional GHG reduction target of 61% (from 2007 levels) by 2038. With the CRD's 2007 base year GHG emissions being 1,715,814 tCO₂e, a 39% reduction would require a reduction of approximately 669,168 tCO₂e. On a per capita basis, this amounts to reducing emissions from approximately 4.2 tCO₂e per person in 2018 to 2.6 tCO₂e per person by 2038.

In February 2019, the CRD declared a climate emergency and committed to regional carbon neutrality.

3.2.3 2018 GHG Boundary

This inventory covers all GHG emissions for the 2018 reporting year. Where 2018 data was not available, the most recent year's data have been used, and the timescale noted accordingly. These are as follows:

- **Global Warming Potentials (GWP).** The BC government is currently applying GWPs from the fourth IPCC report in light of the fact that there are updated GWPs in available in the fifth IPCC report. On this basis, the CRD is applying GWPs from the fourth IPCC report.
- **Stationary Energy: Residential, Commercial and Institutional Buildings.** Propane, and wood GHG emissions were estimated using linear regression methods. The data used in the estimates included historical propane and wood energy data published in the 2007, 2010 and 2012 CEEIs, and heating degree days (HDD) published by Environment Canada. This approach was also applied to the estimate of heating oil for all local governments, except the City of Victoria and District of Saanich. For the District of Saanich and the City of Victoria, heating oil GHG emissions were estimated based on the number of known tanks, average heated floor areas and fuel volume intensity.
- **Stationary Energy: Fugitives.** Fortis BC provided total fugitive emissions for the 2018 reporting year at the CRD level. Since no historical numbers were provided, the 2018 value was applied to the 2007 base year as well.

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- **Transportation: On-Road.** The Province of BC provided Insurance Corporation of BC (ICBC) vehicle registration data from April 1, 2018 – March 31, 2019. When compared to local government population trends, there appears to be a high degree of uncertainty as to the accuracy of the 2018 vehicle registration data in terms of total registered vehicles. Without having reliable historical (e.g. 2011-2017) and current (2019) data to compare this dataset against, the reasonableness of the data was too uncertain to be applied in the estimation of GHG emissions for the 2018 reporting year. Therefore, to estimate on-road energy and GHG emissions for the 2018 reporting year, 2010 vehicle populations were grown in proportion to the reported changes in local government populations. Each of the local government vehicle profiles were then adjusted to match the proportion of vehicle classes reported in the 2018 ICBC data.
- **Transportation: Aviation.** 2018 aviation GHG emissions were estimated using 2015 aircraft flight profiles (the last available data), and the total number of aircraft movements reported in 2018.
- **Transportation: Waterborne Recreational Watercraft.** GHG emissions from recreational watercraft and US/Canada ferries were estimated based on a publicly available year 2000 study for the Victoria, Vancouver, and Washington harbors.
- **Transportation: Cruise Ships.** The Greater Victoria Harbour Authority (GVHA) reported on cruise ship emissions for the 2010 and 2018 reporting years but did not provide an estimate for 2007. As a result, the 2010 GHG emissions estimate and number of cruise ship visits to Ogden Point was used to create a proxy to estimate 2007 cruise ship emissions. The GVHA reported 163 visits in 2007.
- **Waste: Solid Waste.** To quantify GHG emissions from the Hartland Landfill, the CRD utilized the waste-in-place (WIP) method which is accepted under the GPC Protocol. The WIP assigns landfill emissions based on total waste deposited during that year. It counts GHGs emitted that year, regardless of when the waste was disposed. Except for the City of Victoria, who claims 31% of the CRD's landfill GHG emission, the remaining landfill GHG emissions were allocated to each local government on a per capita basis. Using this allocation method, the CRD members may over, or underestimate associated solid waste GHG emissions as the current year landfill GHG emissions are based upon cumulative waste over time, and each member may have contributed more waste in past years than the current year (and vice versa).
- **AFOLU: Aggregate Sources And Non-CO₂ Emission Sources On Land.** These emissions are based on the 2019 NIR as prepared by ECCC and the total area of farmland BC in 2016 as reported by Statistics Canada. These GHG emissions were assigned to each local government on a per hectare (ha) of cropland basis.
AFOLU: Land-Use. The land cover change analysis requires a consistent land-use category attribution and spatial resolution for the 2007 base and 2018 reporting years. For the land use change analysis, land cover data was available for the 2007, 2011 and 2017 years for only part of the CRD. There was limited land-use datasets for the Juan de Fuca, Salt Spring Island and Gulf Islands and this data was only available for 2007 and 2011. Unfortunately, no more recent or higher quality data source was available to represent the land cover consistently for all three years. Furthermore, since annual data was not available, the change between land cover data years (2007-2011, 2011-2017) was averaged and may not represent actual changes in each year.

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3.3 GHG EMISSION SOURCES AND SCOPES

The following table summarizes the CRD's GHG emissions by source and GHG emission scope.

Table 6 Summary of Emissions Scope and GPC Protocol Reporting Sector

GHG Emissions Scope	GPC Protocol Reporting Sector
Scope 1	<p>The GHG emissions occurring from sources located within the CRD's limits:</p> <ul style="list-style-type: none"> • Stationary fuel combustion: <ul style="list-style-type: none"> – Residential buildings – Agriculture, forestry, and fishing activities – Commercial and institutional buildings, and facilities – Energy industries – Fugitive emissions from oil and natural gas systems • Transportation: <ul style="list-style-type: none"> – On-road: In Boundary – Waterborne Navigation – Off-road • Waste: <ul style="list-style-type: none"> – Solid waste disposal – Biological treatment of solid waste – Wastewater treatment and discharge • Industrial processes and product use (IPPU): <ul style="list-style-type: none"> – Product use • Agriculture, Forestry, and Other Land Use (AFOLU): <ul style="list-style-type: none"> – Land-use – Livestock – Aggregate sources and non-CO₂ emission sources on land
Scope 2	<p>The GHG emissions occurring from using grid-supplied electricity, heating and/or cooling within the CRD's boundary:</p> <ul style="list-style-type: none"> • Stationary fuel combustion: <ul style="list-style-type: none"> – Residential buildings – Commercial and institutional buildings and facilities • Transportation: <ul style="list-style-type: none"> – On-road
Scope 3	<p>Other GHG emissions occurring outside of the CRD's limits as a result of the CRD's activities:</p> <ul style="list-style-type: none"> • Stationary Energy: <ul style="list-style-type: none"> – Transmission, Distribution, and Line Losses • Transportation: <ul style="list-style-type: none"> – Aviation – On-Road: Transboundary – Waterborne Navigation

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3.4 GHG REPORTING

Where relevant, the GPC Protocol recommends using methodologies that align with the 2006 IPCC Guidelines for National Greenhouse Gas Inventories. The GHG inventory is required to include all seven Kyoto Protocol GHGs occurring within the geographic boundary of a community. These include:

- Carbon Dioxide (CO₂)
- Methane (CH₄)
- Nitrous oxide (N₂O)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulfur hexafluoride (SF₆)
- Nitrogen trifluoride (NF₃)

Each GHG listed above has a different global warming potential (GWP) due to its ability to absorb and re-emit infrared radiation. This chemical property is recognized by the GWP set out by the IPCC Fourth Assessment Report. A larger GWP value means the substance has a greater affinity to absorb and re-emit infrared radiation. The GWP of these GHGs are CO₂ = 1.0, CH₄ = 25, N₂O = 298 (IPCC, 2006).

Total GHG emissions are normally reported as CO₂e, whereby emissions of each of the GHGs are multiplied by their GWP and are reported as tonnes of CO₂e.

The GHG inventory results following the GPC Protocol reporting table format is presented in Section 5.0. The GPC Protocol reporting format is presented in Table 6 below which also indicates the reporting level (BASIC / BASIC+) for each source.

Table 7 GPC Protocol Summary Table

GPC Protocol Reference Number	Reporting Level	Emissions Scope	GHG Emissions Source
I	Stationary Energy Sources		
I.1	Residential Buildings		
I.1.1	BASIC	1	Emissions from in-boundary fuel combustion
I.1.2	BASIC	2	Emissions from consumption of grid-supplied energy
I.1.3	BASIC+	3	Transmission and distribution losses from grid-supplied energy
I.2	Commercial and Institutional Buildings/Facilities		
I.2.1	BASIC	1	Emissions from in-boundary fuel combustion
I.2.2	BASIC	2	Emissions from consumption of grid-supplied energy
I.2.3	BASIC+	3	Transmission and distribution losses from grid-supplied energy
I.3	Manufacturing Industry and Construction		

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Table 7 GPC Protocol Summary Table

GPC Protocol Reference Number	Reporting Level	Emissions Scope	GHG Emissions Source
I.3.1	BASIC	1	Emissions from in-boundary fuel combustion
I.3.2	BASIC	2	Emissions from consumption of grid-supplied energy
I.3.3	BASIC+	3	Transmission and distribution losses from grid-supplied energy
I.4	Energy Industries		
I.4.1	BASIC	1	Emissions from in-boundary production of energy used in auxiliary operations
I.4.3	BASIC+	3	Transmission and distribution losses from grid-supplied energy
I.5	Agriculture, Forestry, and Fishing Activities		
I.5.1	BASIC	1	Emissions from in-boundary fuel combustion
I.5.2	BASIC	2	Emissions from consumption of grid-supplied energy
I.5.3	BASIC+	3	Transmission and distribution losses from grid-supplied energy
I.7	Fugitive Emissions from Mining, Processing, Storage, And Transportation of Coal		
I.7.1	BASIC	1	In-boundary fugitive emissions
I.8	Fugitive Emissions from Oil and Natural Gas Systems		
I.8.1	BASIC	1	In-boundary fugitive emissions
II	Transportation		
II.1	On-road Transportation		
II.1.1	BASIC	1	Emissions from in-boundary transport
II.1.2	BASIC	2	Emissions from consumption of grid-supplied energy
II.1.3	BASIC+	3	Emissions from transboundary journeys
II.2	Railways		
II.2.1	BASIC	1	Emissions from in-boundary transport
II.2.2	BASIC	2	Emissions from consumption of grid-supplied energy
II.2.3	BASIC+	3	Emissions from transboundary journeys
II.3	Waterborne Navigation		
II.3.1	BASIC	1	Emissions from in-boundary transport
II.3.2	BASIC	2	Emissions from consumption of grid-supplied energy
II.3.3	BASIC	3	Emissions from transboundary journeys
II.4	Aviation		
II.4.1	BASIC	1	Emissions from in-boundary transport
II.4.2	BASIC	2	Emissions from consumption of grid-supplied energy
II.4.3	BASIC+	3	Emissions from transboundary journeys
II.5	Off-road		

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Table 7 GPC Protocol Summary Table

GPC Protocol Reference Number	Reporting Level	Emissions Scope	GHG Emissions Source
II.5.1	BASIC	1	Emissions from in-boundary transport
II.5.2	BASIC	2	Emissions from consumption of grid-supplied energy
III	Waste		
III.1	Solid Waste Disposal		
III.1.1	BASIC	1	Emissions from waste generated and treated within the Community
III.1.2	BASIC	3	Emissions from waste generated within but treated outside of the Community
III.2	Biological Treatment of Waste		
III.2.1	BASIC	1	Emissions from waste generated and treated within the Community
III.2.2	BASIC	3	Emissions from waste generated within but treated outside of the Community
III.3	Incineration and Open Burning		
III.3.1	BASIC	1	Emissions from waste generated and treated within the Community
III.3.2	BASIC	3	Emissions from waste generated within but treated outside of the Community
III.4	Wastewater Treatment and Discharge		
III.4.1	BASIC	1	Emissions from wastewater generated and treated within the Community
III.4.2	BASIC	3	Emissions from wastewater generated within but treated outside of the Community
IV	Industrial Processes and Product Use (IPPU)		
IV.1	BASIC+	1	In-boundary emissions from industrial processes
IV.2	BASIC+	1	In-boundary emissions from product use
V	Agriculture, Forestry, and Other Land Use (AFOLU)		
V.1	BASIC+	1	In-boundary emissions from livestock
V.1	BASIC+	1	In-boundary emissions from land
V.1	BASIC+	1	In-boundary emissions from other agriculture
VI	Other Scope 3 Emissions		
VI.1	BASIC / BASIC+	3	Other indirect emissions

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GHG Methodologies by Source Category
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4.0 GHG METHODOLOGIES BY SOURCE CATEGORY

The following sections describe the reporting source category, assumptions, activity data applied, and quantification methodology. The results of the analysis are presented in Section 5.0.

4.1 STATIONARY ENERGY

4.1.1 Overview

Stationery energy sources are one of the largest contributors to the CRD's GHG emissions. For the District, the Stationary Energy Sector encompasses the following GHG emissions scopes and Sub-Sectors:

- Scope 1 Emissions:
 - Residential buildings
 - Agriculture, forestry, and fishing activities
 - Commercial and institutional buildings, and facilities
 - Energy industries
 - Fugitive emissions from oil and natural gas systems
- Scope 2 Emissions:
 - Emissions from the consumption of grid-supplied electricity, steam, heating, and cooling.
- Scope 3 Emissions:
 - Transmission and distribution losses of electricity, steam, heating, and cooling.

There are GHG emissions from construction of buildings and infrastructure as the CRD region grows and changes. However, these GHG emissions have not been quantified due to a lack of available data. Environment Canada does estimate BC GHG emissions for manufacturing industries, mining and construction, but these GHG emission sources are not disaggregated and cannot reasonably be applied to the CRD (there is no mining and limited manufacturing activities). As a result, the notation "Not Estimated (NE)" is reported.

4.1.2 Scope 2: Market Based Method

As per the GPC Protocol, cities can report on Scope 2 GHG emissions using either the market-based, or the location-based method. A market-based method utilizes utility-specific grid emission intensity factor, whereas a location-based method uses a regional or Provincial average grid emission intensity factor. At present, the fuel mix and GHG emissions data relative to the CRD's energy consumption is not available. As such, the CRD is defaulting to the BC Provincial electricity grid consumption intensity factor of 0.01067 tCO_{2e}/MWh reported by the BC Government in the 2019 B.C. Best Practices Methodology For Quantifying Greenhouse Gas Emissions document.

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4.1.3 Activity Data

BC Hydro and Fortis BC provided the Province of BC electricity and natural gas consumption data in MWh and GJ, respectively. Based on the utility provider descriptions of the data, each is categorized as follows:

- Residential Buildings based on the BC Hydro and Fortis BC descriptor: “Residential”
- Commercial and Institutional Buildings/Facilities based on BC Hydro and Fortis BC descriptors: “Commercial”, and “CSMI”

The Province developed 2007, 2010 and 2012 residential fuel oil, propane and wood GHG energy use estimates from the number and type of dwellings and the average dwelling consumption by authority and region from the BC Hydro Conservation Potential Review. This data was used to estimate the reporting year GHG emissions for all CRD members except for the District of Saanich and the City of Victoria who provided fuel oil estimates for residential and commercial buildings.

Fortis BC provided the fugitive emission estimate.

The CRD provided landfill gas energy generation data from the Hartland landfill.

Applicable, off-road GHG emissions included in the Stationary Energy Sector are based on the 2020 NIR as prepared by Environment and Climate Change Canada. These emissions are pro-rated to the CRD on a per capita basis.

4.1.4 Assumptions and Disclosures

The following assumptions were made in the calculation of the 2018 GHG emissions:

- Prior to releasing the electricity and natural gas consumption data, the Province completes a series of quality assurance and control checks which has resulted in the re-allocation of energy between local governments. This data is then published on the Province’s website. When the published 2007-2018 natural gas data was trended, several unexplained data anomalies and trends were identified for several local governments in the CRD. As these data anomalies and trends could not readily be explained, the raw natural gas data sets were acquired from FortisBC, reviewed and compared to the published data. In the 2007 and 2010 reporting years, the published data was under reporting natural gas volumes by upwards of 17% at the CRD level and had several large allocations between the City of Victoria and other local governments in 2012. Based on the issues with the published data, and on the basis the annual raw natural gas consumption trends align with the reported 2018 consumption data and align with historical raw data provided to the City of Victoria and the District of Saanich for their energy and GHG emissions inventories, the raw FortisBC dataset was used to estimate GHG emissions.
- A similar issue was noted for the Juan de Fuca electoral area and electricity data for the 2007, 2010 and 2012 reporting years (i.e., the under reporting of energy consumption) in the published data. As such, the raw electricity data from BC Hydro was used to estimate GHG emissions.

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- BC Hydro estimates that the combined energy losses- transmission and distribution- to be approximately 6.28%. This value was used to calculate the Scope 3 emissions for each Stationary Energy Sub-Sector. It is assumed that this is accurate.
- Fortis BC provided total fugitive emissions for the 2018 reporting year at the CRD level. Since no historical numbers were provided, the 2018 value was applied to the 2007 base year as well.
- Propane and wood GHG emissions were estimated using linear regression methods. The data used in the estimate included historical propane and wood energy data published in the 2007, 2010 and 2012 CEEIs, and heating degree days (HDD) published by Environment Canada.
- Fuel oil consumption values for the District of Saanich and the City of Victoria were derived by each local government and provided to the CRD. For the remaining local governments, fuel oi values were estimated using linear regression methods. The data used in the estimate included historical fuel oil data published in the 2007, 2010 and 2012 CEEIs, and heating degree days (HDD) published by Environment Canada.

4.1.5 Calculation Methodology

The Province of BC developed residential fuel oil, propane and wood GHG energy use estimates for the 2007, 2010 and 2012 reporting years, using the number and type of dwellings and the average dwelling consumption by authority and region contained in the BC Hydro Conservation Potential Review. Actual electricity and natural gas consumption values were subtracted from the total energy use, with the remainder assumed to be heating oil, propane, or wood. To estimate the 2018 propane, fuel oil and wood energy use, historical 2007, 2010 and 2012 values and the number of heating degree days (HDD) were linearly regressed to estimate future propane and wood energy use using reporting year HDD values. these values were prorated to each local government based on the 2012 consumption estimates. This resulted in the development of the following equations:

- Propane (L) = 163,133 + 87.38 * HDD
- Wood (GJ) = 557,864 + 191.39 * HDD
- Fuel Oil (GJ) = 1,728,690 + 127.49 * HDD

To calculate GHG emissions from electricity, natural gas, heating oil, propane, and wood, the total net annual energy values (where applicable, less transmission, distribution, and line losses of 7.5%) were multiplied by applicable emissions factors. These values were then multiplied by the pollutant's GWP to give total CO₂e emissions in tonnes.

These quantification methods are captured as follows:

$$\text{Energy Stationary Energy} - \text{Electricity} = \text{Electricity} * (1 - \text{Line Loss} (\%))$$

$$\text{Energy Stationary Energy} - \text{Transmission, Distribution, and line Losses} = \text{Electricity} * \text{Line Loss} (\%)$$

$$\text{Emissions Stationary Energy} - \text{Electricity} = \text{Fuel (MWh)} * EF_{\text{CO}_2\text{e}}$$

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$\text{Emissions Stationary Energy - Natural Gas} = \frac{(\text{Fuel (GJ)} * EF_{CO_2}) + (\text{Fuel (GJ)} * EF_{CH_4} * GWP_{CH_4}) + (\text{Fuel (GJ)} * EF_{N_2O} * GWP_{N_2O})}{GWP_{N_2O}}$
$\text{Emissions Stationary Energy - Propane} = \frac{(\text{Fuel (GJ)} * EF_{CO_2}) + (\text{Fuel (GJ)} * EF_{CH_4} * GWP_{CH_4}) + (\text{Fuel (GJ)} * EF_{N_2O} * GWP_{N_2O})}{GWP_{N_2O}}$
$\text{Emissions Stationary Energy - Wood} = (\text{Fuel (GJ)} * EF_{CO_2}) + (\text{Fuel (GJ)} * EF_{CH_4} * GWP_{CH_4}) + (\text{Fuel (GJ)} * EF_{N_2O} * GWP_{N_2O})$
$\text{Emissions Stationary Energy - Heating Oil} = \frac{(\text{Fuel (GJ)} * EF_{CO_2}) + (\text{Fuel (GJ)} * EF_{CH_4} * GWP_{CH_4}) + (\text{Fuel (GJ)} * EF_{N_2O} * GWP_{N_2O})}{GWP_{N_2O}}$

The emission factors used in the 2018 reporting year are from the 2020 NIR. These are summarized in Table 7.

Table 8 Stationary Energy GHG Emission Factors

Emission Factor	Units	CO ₂	CH ₄	N ₂ O	tCO ₂ e
Electricity (BC Hydro)	tCO ₂ e / MWh				0.0106700
Natural Gas	tonne CO ₂ e / m ³	0.0019260	0.0000000	0.0000000	0.0019374
Propane	tonne CO ₂ e / L	0.0015150	0.0000000	0.0000001	0.0015478
Heating Oil	tonne CO ₂ e / GJ	0.0681200	0.0000007	0.0000008	0.0683759
Wood	tonne CO ₂ e / kg	-	0.0000150	0.0000002	0.0004227

4.2 TRANSPORTATION

4.2.1 Overview

Transportation covers all GHG emissions from combustion of fuels in journeys by on-road, railways, waterborne navigation, aviation, and off-road. GHG emissions are produced directly by the combustion of fuel, and indirectly using grid-supplied electricity. For the CRD, the Transportation Sector encompasses the following GHG emissions scopes and Sub-Sectors:

- Scope 1 Emissions:
 - On-road: In Boundary
 - Waterborne
 - Aviation
 - Off-road
- Scope 2 Emissions:
 - Emissions from the consumption of grid-supplied electricity.
- Scope 3 Emissions:
 - On-road: Transboundary
 - Waterborne
 - Aviation
 - Off-road

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4.2.2 Activity Data

The Province of BC provided 2007, 2010 and 2018 ICBC vehicle registration data.

BC Transit provided total diesel and gasoline fuel use. This data was used to estimate GHG emissions from busses serving the CRD.

The 2017 CRD Origin Destination Travel Survey was used to estimate on-road in-boundary and transboundary split for registered vehicles and busses. The CRD Origin Destination Travel Survey is based on travel patterns observed in the Capital Regional District (CRD) level.

Aviation GHG emissions from the Victoria International Airport were estimated using 2015 aircraft flight profiles, and the total number of aircraft movements reported in 2018. These data sets were provided by the Victoria International Airport.

Victoria harbour aviation GHG emissions were estimated using Victoria harbor aircraft movement statistics, estimated taxi times, and estimated fuel use for the DHC-6 Twin Otter type of plane. This data was taken from Statistics Canada.

Marine watercraft GHG emissions were estimated using published BC Ferries fuel statistics. GHG emissions from the Coho Ferry, the Victoria Clipper Ferry, personal and commercial watercraft, were estimated based on a Study entitled "Marine Vessel Air Emissions in BC and Washington State Outside of the GVRD and FVRD for the Year 2000". The Transport Canada Vessel Registration System provided the total number of registered waterborne vehicles for the reporting year.

The Greater Victoria Harbour Authority provided an estimate of cruise ship emissions.

Other off-road transportation emissions are based on the 2020 NIR as prepared by Environment and Climate Change Canada.

4.2.3 Assumptions and Disclosures

The following assumptions were made in the calculation of the Transportation Sector GHG emissions:

- The Insurance Corporation of BC (ICBC) provided the number of vehicle registrations from April 1, 2006 – March 31, 2010 to the Province of BC. This data was checked and processed by the Province and used in the historical CEEI inventories. This same data set is used to estimate the GHG emissions for 2007, 2010 and 2012 inventories and forms the basis of the 2018 estimate. The 2012 vehicle registration data, although available, was not used due to concerns around data quality. This is the same reason the Province of BC decided to remove the transportation data from the 2012 CEEIs. As the summary of vehicle registrations is not based on the calendar year, the local government vehicle profiles may not accurately reflect the actual vehicle profiles for each reporting year.

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- The Insurance Corporation of BC (ICBC) provided the number of registrations from April 1, 2018 – March 31, 2019 to the Province of BC. When compared to local government population trends, there appears to be a high degree of uncertainty as to the accuracy of the 2018 vehicle registration data in terms of total registered vehicles. Without having historical (e.g. 2011-2017) and current (2019) data to compare this dataset against, the reasonableness of the data was too uncertain to be applied in the estimation of GHG emissions for the 2018 reporting year. To estimate on-road energy and GHG emissions for the 2018 reporting year, the 2010 vehicle populations were grown in proportion to the reported changes in local government populations. Each of the local government vehicle profiles were then adjusted to match the proportion of vehicle classes reported in the 2018 ICBC data.
- In cases where vehicle registration counts were 10 or less, the Province assigned a value of “<10” rather than report the actual number. In these cases, the inventory assumes there was 10 vehicles of that particular classification. This is likely to result in an over-estimation of GHG emissions, but it will be immaterial to the overall GHG inventory.
- Vehicle fuel consumption rates and Vehicle Kilometer Travelled (VKT) were taken from the activity data summary for British Columbia on-road transportation from the 2018 National Inventory Report (1990-2018) as prepared by Environment Canada. Based on the clear diesel and clear gasoline consumption values reported by the Province of BC for the Victoria region, the VKT and fuel efficiency values are reasonable and result in a similar estimate of fuel consumption for the Region.
- Gasoline and diesel GHG emissions from BC Transit busses are pro-rated to the CRD based on the proportion of population in the CRD relative to the Province of BC. A more accurate estimation method would be to prorate fuel use based on total bus service kilometers in the CRD. However, this data is not available, and thus the method applied provides the best estimate at the time of reporting.
- It is assumed that the 2015 aircraft flight profiles at the Victoria International Airport are representative of the 2018 reporting year.
- Statistics Canada stopped collecting Victoria Harbor aircraft movement data in 2016. To estimate 2018 marine aviation GHG emissions, the 2016 Victoria data was applied and adjusted using the change in aircraft traffic between the 2016 and 2018 reporting years at the Victoria International Airport. It is assumed that the activity at both airports would be correlated, but not causal.
- The aviation GHG emissions are prorated based on the total Victoria population relative to the CRD population.
- As there is currently no publicly available energy or GHG related information on the operation of the Coho and the Victoria Clipper Ferries, it was assumed that the GHG emissions for these ferries calculated in the Study entitled “Marine Vessel Air Emissions in BC and Washington State Outside of the Greater Victoria Regional District (GVRD) and FVRD for the Year 2000”.
- The Greater Victoria Harbour Authority (GVHA) reported on cruise ship emissions for the 2010 and 2018 reporting years but did not provide an estimate for 2007. As a result, the 2010 GHG emissions estimate and number of cruise ship visits to Ogden Point was used to create a proxy to estimate 2007 cruise ship emissions. The GVHA reported 163 visits in 2007. It is assumed these estimations of GHG emissions are reasonable.
- The Transport Canada Vessel Registration System provided the total number of registered waterborne vehicles for the reporting year; however, it does not provide any detail on the type, size, use, and owner of the watercraft. It was therefore assumed that the watercraft would have been similar to those in the referenced study.

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- No railway GHG emissions are occurring in the CRD.
- The off-road transportation emissions are based on the 2020 NIR as prepared by Environment and Climate Change Canada. This is deemed to be the best available data.

4.2.4 Calculation Methodology

4.2.4.1 On-Road

The GPC Protocol identifies several methods for determining on-road emissions. The vehicle kilometers travelled (VKT) methodology and fuel sales methods were utilized to estimate the GHG emissions from on-road transportation (Scope 1) and transboundary transportation (Scope 3). The VKT uses the number and type of vehicles registered in a geopolitical boundary, the estimated fuel consumption rate of individual vehicles, and an estimate of the annual vehicle kilometres traveled (VKT) by various vehicle classes. ICBC provided the number of registered vehicles in the CRD by style and by fuel type for 2018. To estimate the split between on-road in-boundary and transboundary traffic, data from the 2017 CRD Origin Destination Survey was applied. The results of the survey as it applies to the CRD is presented in Table 8.

Table 9 CRD On-Road In-Boundary/Transboundary Split

Aspect	By Vehicle
Estimated proportion of on-road in-boundary travel	99.1%
Estimated proportion of on-road transboundary travel	0.9%

The Province of BC screened the 2007, 2010, 2012 and 2018 ICBC datasets to pull out only CRD registered vehicles, and to eliminate duplicates. Any changes to a vehicle’s insurance policy in a reporting year can create another occurrence of the vehicle in the same dataset. As such, if a vehicle record included a change of location during a quarter, the vehicle was assigned to the location where it was insured for the greatest portion of the quarter. The objective of this screening is to increase the accuracy of the GHG estimate. Once complete the Province of BC, identified vehicle characteristics using Identification Number (VIN) and other data fields to assign a fuel class and vehicle sector. This data was provided to the CRD to estimate energy and GHG emissions.

To quantify on-road and transboundary GHG emissions, the following steps were taken:

1. Change any vehicle registration counts with the reference of “<10” to 10.
2. Grow the 2010 local government vehicle populations based on population changes at the local government level.
3. Use the 2018 ICBC data to derive vehicle profiles (e.g. 37% LDT, 36% LDT, etc.) for each local government.
4. Apply these values to the grown 2010 data to derive 2018 vehicle populations for each local government.
5. Assign estimated NRCAN vehicle fuel consumption rates and estimated VKT to each vehicle class (Table 9).

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6. Estimate total fuel use by vehicle classification.
7. Summate and allocate estimated fuel use, by vehicle class using the applicable in-boundary and transboundary split.
8. Pro-rate the gasoline and diesel fuel use from busses.
9. Summate and allocate estimated bus fuel use using the applicable in-boundary and transboundary split.
10. Compare fuel estimated fuel volumes to the regional fuel sales volumes reported by the CRD. Adjust the VKTs as needed to make sure that the fuel estimate is at least above the fuel sales volumes reported in the region.

Table 10 Estimated VKT And Fuel Efficiencies by Vehicle Class For Reporting Year

Vehicle Classification	Estimated VKT / Year	Estimated Fuel Efficiency (L/100 km)
Diesel-HDV	27,972	45.6
Diesel-LDT	14,351	11.8
Diesel-LDV	16,384	9.2
Gasoline-HDV	10,883	54.1
Gasoline-Hybrid-LDT	11,717	12.2
Gasoline-Hybrid-LDV	12,840	9.0
Gasoline-LDT	11,717	12.2
Gasoline-LDV	12,840	9.0
Motorcycle - Non catalyst	1,973	9.9
Propane-LDT	29,237	13.1
Electric-LDV	19,733	20.0
Electric-LDT	19,733	20.0

Table 11 Total Registered Vehicles & Estimated Fuel Use For Reporting Year

Vehicle Classification	Total Estimated Registered Vehicles	Total Estimated Fuel Use	Units
Diesel-HDV	2,621	35,049,591	Liters (L)
Diesel-LDT	8,950	15,183,037	Liters (L)
Diesel-LDV	2,271	3,411,652	Liters (L)
Electric-LDV	1,571	6,201,969	kWh
Electric-LDT	106	420,283	kWh
Gasoline-HDV	2,485	14,640,078	Liters (L)
Gasoline-Hybrid-LDT	1,072	1,527,195	Liters (L)
Gasoline-Hybrid-LDV	3,273	3,790,489	Liters (L)
Gasoline-LDT	121,631	173,279,769	Liters (L)

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Vehicle Classification	Total Estimated Registered Vehicles	Total Estimated Fuel Use	Units
Gasoline-LDV	120,615	139,685,291	Liters (L)
Motorcycle - Non catalyst	4,523	885,376	Liters (L)
Propane-LDT	76	291,534	Liters (L)
Total	269,196	N/A	N/A

Once the fuels were allocated amongst the vehicle classes and sectors, the GHG emissions were calculated accordingly. The GHG quantification method is captured, for all fuel types, is as follows:

$$\text{Emissions}_{\text{On-road}} = \text{In-Boundary Split \%} * ((\text{Vol. Fuel} * EF_{\text{CO}_2}) + (\text{Vol. Fuel} * EF_{\text{CH}_4} * GWP_{\text{CH}_4}) + (\text{Vol. Fuel} * EF_{\text{N}_2\text{O}} * GWP_{\text{N}_2\text{O}}))$$

$$\text{Emissions}_{\text{Transboundary}} = \text{Transboundary Split \%} * ((\text{Vol. Fuel} * EF_{\text{CO}_2}) + (\text{Vol. Fuel} * EF_{\text{CH}_4} * GWP_{\text{CH}_4}) + (\text{Vol. Fuel} * EF_{\text{N}_2\text{O}} * GWP_{\text{N}_2\text{O}}))$$

The emission factors used in the reporting year GHG inventory are from the 2020 NIR. These are summarized in Table 11.

Table 12 Vehicle GHG Emission Factors

Vehicle Class	Units	CO ₂	CH ₄	N ₂ O	tCO ₂ e
Electricity (BC Hydro)	tonne / MWh	-	-	-	0.0106700
Diesel-LDV	tonne / L	0.0026810	0.0000001	0.0000002	0.0027478
Diesel-LDT	tonne / L	0.0026810	0.0000001	0.0000002	0.0027483
Diesel-HDV	tonne / L	0.0026810	0.0000001	0.0000002	0.0027287
Diesel-ORVE	tonne / L	0.0026810	0.0000001	0.0000000	0.0026894
Gasoline-LDV	tonne / L	0.0023070	0.0000001	0.0000002	0.0023761
Gasoline-LDT	tonne / L	0.0023070	0.0000001	0.0000002	0.0023761
Gasoline-HDV	tonne / L	0.0023070	0.0000001	0.0000002	0.0023683
Gasoline-HYBRID-LDV	tonne / L	0.0027380	0.0000130	0.0000005	0.0032031
Gasoline-HYBRID-LDT	tonne / L	0.0027380	0.0000130	0.0000005	0.0032031
Gasoline-ORVE	tonne / L	0.0027380	0.0000130	0.0000005	0.0032031
Propane-LDV	tonne / L	0.0015150	0.0000006	0.0000000	0.0015393
Propane-LDT	tonne / L	0.0015150	0.0000006	0.0000000	0.0015393
Propane-HDV	tonne / L	0.0015150	0.0000006	0.0000000	0.0015393
Natural Gas-LDV	tonne / kg	0.0000019	0.0090000	0.0000600	0.2428819
Natural Gas-LDT	tonne / kg	0.0000019	0.0090000	0.0000600	0.2428819
Natural Gas-HDV	tonne / kg	0.0000019	0.0090000	0.0000600	0.2428819

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Vehicle Class	Units	CO ₂	CH ₄	N ₂ O	tCO ₂ e
Natural Gas-ORVE	tonne / kg	0.0000019	0.0090000	0.0000600	0.2428819
Motorcycle - Non-catalyst	tonne / L	0.0023160	0.0000023	0.0000000	0.0023878

4.2.4.2 Aviation: Victoria International Airport

The Victoria International Airport (VIA) estimated its 2015 airplane GHG emissions following the ACI ACERT standard. This includes GHG emissions from aircraft and GHG emissions from auxiliary power units (APU). APUs provides electricity to the aircraft prior to the engine start up. Within the ACERT model, it is assumed all aircraft have APUs and the duration of the APU operation (of five minutes per aircraft) was generically applied to every landing take-off (LTO) cycles. It should also be noted that the EIA has quantified aircraft GHG emissions from planes up to 3,000 ft. to avoid double counting with other airports and cities. This is consistent with the ACERT standard.

The CRD's 2018 aviation emissions estimate is based on the 2015 aircraft flight profiles, which included the estimated landing and takeoff (LTO) and auxiliary power unit (APU) fuel use, and an estimated percentage allocation of total flights to the following aviation class groupings (Table 12). The total reported flight movements for the reporting year (121,152) provided by the VIA and the aircraft flight profile data was used to estimate aviation GHG emissions for the reporting year at the VIA.

Table 13 Aircraft Type, Estimated Percentage of Total Reported Movements, And Estimated Fuel Use

Aviation Class	Aircraft Type	Estimated Percentage of Annual Movements	Estimated LTO Fuel Use by Aircraft Type (kg)	Estimated APU Fuel Use by Aircraft Type (kg/min)
Jet	Large: 2-aisle, long-haul	0.01%	1,853	4.00
	Medium: 2-aisle, medium-haul	0.01%	1,321	4.00
	Small: 1-aisle, small/medium haul	7.95%	565	1.78
	Regional: 1-aisle, short-haul	0.01%	315	1.78
	Business: 2-eng business jets	0.01%	41	1.78
Turboprop	Turboprop (all engines)	22.29%	46	1.78
Piston	Piston (all engines)	66.30%	41	0.00
Helicopter	Helicopter small (1 engine/turbine)	1.72%	13	0.00
	Helicopter large (2 engine/turbine)	1.72%	8	0.00

Calculating fuel use for each aviation class applied the following equation:

$$\text{Fuel Use Per Aviation Class} = \text{Number of Aircraft Movements} * (\text{LTO Fuel Use} + (\text{APU Fuel Use} * 15 \text{ minutes}))$$

The GHG quantification method, that was applied to each aviation class, is as follows:

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$$\text{Emissions Per Aviation Class} = (\text{Vol. Fuel} * \text{Aviation Class } EF_{CO_2}) + (\text{Vol. Fuel} * \text{Aviation Class } EF_{CH_4} * GWP_{CH_4}) + (\text{Vol. Fuel} * \text{Aviation Class } EF_{N_2O} * GWP_{N_2O})$$

The ACERT GHG calculator used by the VIA utilized emission factors from the 2020 NIR. Actual airplane emission factors are from the International Civil Aviation Organization (ICAO) GHG database. These are summarized in Table 13.

These GHG emissions were reported in the Scope 3 category as directed by the GPC Protocol.

Table 14 Aviation GHG Emission Factors

Airplane Type	Units	CO ₂	CH ₄	N ₂ O	tCO ₂ e
Jet	tCO ₂ e/kg fuel	0.0031380	0.0000001	0.0000003	0.0032254
Turbo Propeller	tCO ₂ e/kg fuel	0.0031380	0.0000001	0.0000003	0.0032254
Piston	tCO ₂ e/kg fuel	0.0032530	0.0000031	0.0000003	0.0034154
Helicopter	tCO ₂ e/kg fuel	0.0031380	0.0000001	0.0000003	0.0032254

4.2.4.3 Aviation: Victoria Harbour

Victoria harbor aviation emissions were estimated using 2016 NAV Canada airplane movement statistics, estimated taxi times, and estimated fuel use for the DHC-6 Twin Otter type of plane (Table 14).

Table 15 Aircraft Type, Estimated Percentage of Total Reported Movements, And Estimated Fuel Use

Aviation Class	Aircraft Type	Estimated Percentage of Annual Movements	Estimated LTO Fuel Use by Aircraft Type (kg)	Estimated APU Fuel Use by Aircraft Type (kg/min)
Turboprop	DHC-6 Twin Otter	100%	56	0.00

Statistics Canada stopped collecting Victoria Harbor aircraft movement data in 2016. To estimate 2018 Victoria harbor aviation GHG emissions, the 2016 data was applied and adjusted using the change in aircraft traffic between the 2016 and 2018 reporting years at the Victoria International Airport. This resulted in an estimated 29,979 movements.

Calculating aviation fuel use in the Victoria harbor for applied the following equation:

$$\text{Fuel Use Per Aviation Class} = \text{Number of Aircraft Movements} * (\text{LTO Fuel Use} + (\text{APU Fuel Use} * 15 \text{ minutes}))$$

The GHG quantification method is as follows:

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$$\text{Emissions Per Aviation Class} = \text{CRD Population} * ((\text{Vol. Fuel} * \text{Aviation Class } EF_{CO_2}) + (\text{Vol. Fuel} * \text{Aviation Class } EF_{CH_4} * GWP_{CH_4}) + (\text{Vol. Fuel} * \text{Aviation Class } EF_{N_2O} * GWP_{N_2O}))$$

The airplane emission factors are from the International Civil Aviation Organization (ICAO) GHG database. These are summarized in Table 15.

Table 16 Marine Aviation GHG Emission Factors

Airplane Type	Units	CO ₂	CH ₄	N ₂ O	tCO ₂ e
Turbo Propeller	tCO ₂ e/kg fuel	0.0031380	0.0000001	0.0000003	0.0032254

These GHG emissions were reported in the Scope 3 category as directed by the GPC Protocol.

4.2.4.4 Waterborne Transportation

4.2.4.4.1 BC Ferries

Marine waterborne transportation emissions encompass GHG emissions from the use of the BC Ferries. GHG emissions from BC Ferries are estimated using total reported fuel use 120,200,000 liters of diesel for the 2018 reporting year, and a provincially derived GHG emissions factor (Table 16).

Table 17 BC Ferries GHG Emission Factors

Aspect	Units	CO ₂	CH ₄	N ₂ O	tCO ₂ e
Ferry (Diesel)	tonne CO ₂ e / L	0.0025820	0.0000002	0.0000011	0.0029136

As BC Ferries operate outside of the CRD's boundary, the GHG emissions were allocated to Scope 3 based on the proportion of the CRD population relative to the total Vancouver Island and Mainland / Southwest populations.

4.2.4.4.2 Other Watercraft

The GHG emissions from the Coho Ferry, the Victoria Clipper Ferry, and personal and commercial watercraft were estimated based on a publicly available year 2000 study for the Victoria, Vancouver, and Washington harbors and the Transport Canada Vessel Registration System. As there is currently no publicly available energy or GHG related information on the operation of the Coho and the Victoria Clipper Ferries, it was assumed that the GHG emissions for these ferries calculated in the Study entitled "Marine Vessel Air Emissions in BC and Washington State Outside of the GVRD and FVRD for the Year 2000" is still valid for 2018. The GHG emissions for these ferries are summarized in Table 17.

Table 18 Coho and the Victoria Clipper Ferries Estimated GHG Emissions

Aspect	Units	CO ₂	CH ₄	N ₂ O	tCO ₂ e
Coho Ferries	Tonnes	1,160.00	0.10	0.40	1,281.70
Victoria Clipper	Tonnes	1,895.00	0.10	0.80	2,135.90

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Cruise ship GHG emissions were estimated by the Greater Victoria Harbour Authority.¹ The Greater Victoria Harbour Authority (GVHA) reported on cruise ship emissions for the 2010 and 2018 reporting years but did not derive an estimate for 2007. As a result, the 2010 GHG emissions estimate and number of cruise ship visits to Ogden Point was used to create a proxy to estimate 2007 cruise ship emissions. The GVHA reported 163 visits in 2007.

The GHG quantification method to estimate 2007 GHG emissions from the Ogden Point cruise ship terminal was as follows:

$$\text{Emissions}_{\text{Waterborne}} = (\text{GVHA Reported Emissions}_{2010} / \text{Cruise Ship Visits}_{2010}) * \text{Cruise Ship Visits}_{2007}$$

The Transport Canada Vessel Registration System provided the total number of registered waterborne vehicles which was 2,163 vessels all registered boats in Victoria; however, the registration system does not provide any detail on the type, size, use, and owner of the watercraft. It was therefore assumed that the watercraft would have been similar to those in the referenced study. To estimate the personal / watercraft GHG emissions, the breakdown of vessels and total fuel use by category were used to estimate what the current population and fuel use might be in the reporting year. To do this, the following steps were taken.

1. Calculate the percentage of the population and per unit fuel use of the year 2000 population (Table 18).
1. Take the total number of registered vessels, and the percentage breakdown of the year 2000 population, and apply the per unit fuel use factor to determine the total gasoline and diesel fuel use (Table 19).
2. Using 2020 NIR emission factors estimate the GHG emissions from other watercraft.

Table 19 Year 2000 Other Watercraft Population Breakdown And Estimated Fuel Use

Type of Watercraft from Year 2000 Study	Year 2000 Study Vancouver Island Population	Percentage of Population	Fuel Use (m ³ /Year)	Fuel Use Per Unit (m ³ /Year)
Inboard: 4 stroke - gasoline	1,689	0.19%	175	0.10
Inboard: Diesel	199	0.02%	62	0.31
Outboard: 2 stroke - gasoline	23,494	2.66%	1,632	0.07
Outboard: 4 stroke - gasoline	622	0.07%	7	0.01
Stemdrive: 2 stroke - gasoline	68	0.01%	8	0.12
Stemdrive: 4 stroke - gasoline	6,576	0.74%	535	0.08

¹ <https://qvha.ca/wp-content/uploads/2019/10/EmissionsInventory-2019.pdf>

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Type of Watercraft from Year 2000 Study	Year 2000 Study Vancouver Island Population	Percentage of Population	Fuel Use (m ³ /Year)	Fuel Use Per Unit (m ³ /Year)
Stemdrive: Diesel	784	0.09%	216	0.28
Personal Watercraft: 2 stroke - gasoline	848,492	96.00%	342	0.00
Sailboat Auxiliary Inboard: 4 stroke - gasoline	428	0.05%	1	0.00
Sailboat Auxiliary Inboard: Diesel	1,088	0.12%	6	0.01
Sailboat Auxiliary Outboard: 2 stroke - gasoline	396	0.04%	1	0.00
Sailboat Auxiliary Outboard: Diesel	1	0.00%	0	0.01

Table 20 Reporting Year Other Watercraft Population Breakdown and Estimated Fuel Use

Type of Watercraft	Estimated Breakdown of Currently Registered Vessels	Estimated Fuel Use (L/year)
Inboard: 4 stroke - gasoline	4	428.3
Inboard: Diesel	0	151.7
Outboard: 2 stroke - gasoline	57	3,994.0
Outboard: 4 stroke - gasoline	2	17.1
Stemdrive: 2 stroke - gasoline	0	19.6
Stemdrive: 4 stroke - gasoline	16	1,309.3
Stemdrive: Diesel	2	528.6
Personal Watercraft: 2 stroke - gasoline	2,058	837.0
Sailboat Auxiliary Inboard: 4 stroke - gasoline	1	1.2
Sailboat Auxiliary Inboard: Diesel	3	14.7
Sailboat Auxiliary Outboard: 2 stroke - gasoline	1	1.2
Sailboat Auxiliary Outboard: Diesel	0	0.0

To calculate the GHG emissions, for the other watercraft, provincially derived GHG emissions factors were used (Table 20).

Table 21 Watercraft GHG Emission Factors

Aspect	Units	CO ₂	CH ₄	N ₂ O	tCO ₂ e
Marine Gasoline	tonne CO ₂ e / L	0.0022000	0.0000013	0.0000001	0.0022522
Marine Diesel	tonne CO ₂ e / L	0.0025820	0.0000002	0.0000011	0.0029136

The GHG quantification method, that was applied to the BC Ferries and other watercraft was as follows:

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$$\text{Emissions}_{\text{Waterborne}} = (\text{CRD Population} / \text{Vancouver Island; Mainland; Southwest Population}) * ((\text{Vol. Fuel} * \text{EF}_{\text{CO}_2}) + (\text{Vol. Fuel} * \text{EF}_{\text{CH}_4} * \text{GWP}_{\text{CH}_4}) + (\text{Vol. Fuel} * \text{EF}_{\text{N}_2\text{O}} * \text{GWP}_{\text{N}_2\text{O}}))$$

4.2.4.5 Off-Road

Currently, there is limited data available to estimate off-road GHG emissions. As such, a GHG emissions per capita estimate for each off-road category was developed using Provincial emissions data from the 2020 NIR, and BC's population from Statistics Canada. To develop each off-road factor, the total BC GHG emissions for each reporting category was divided by the BC population for the NIR reporting year (2018). Each derived per-capita value was applied to the current reporting year CRD population (2018) to estimate off-road GHG emissions.

The NIR currently reports the following off-road emissions:

- Total BC off-road agriculture and forestry GHG emissions
- Total BC off-road commercial and institutional GHG emissions
- Total BC off-road residential GHG emissions
- Total BC other off-road GHG emissions

Total BC off-road manufacturing, mining, and construction GHG emissions were not included on the basis that manufacturing and mining GHG emission could not be split out.

Other than other off-road GHG emissions, which is reported in the Off-Road Transportation Sub-Sector, the remaining off-road GHG emissions are reported in the Stationary Energy Sector as required by the GPC Protocol.

The GHG quantification method is presented below:

$$\text{Emissions}_{\text{Off-Road}} = (\text{NIR Off-Road GHG Emissions}_{\text{BC}} / \text{BC Population}_{\text{BC}}) * \text{Current Reporting Year Population}_{\text{CRD}}$$

4.3 WASTE

Cities produce GHG emissions because of the disposal and management of solid waste, incineration and open burning of waste, the biological treatment of waste, and through wastewater treatment and discharge. Waste does not directly consume energy, but releases GHG emissions because of decomposition, burning, incineration, and other management methods.

For the CRD, the Waste Sector encompasses the following GHG emissions scopes and Sub-Sectors:

- Scope 3: Emissions:
 - Solid waste disposal



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- Biological treatment of waste
- Wastewater treatment and discharge

4.3.1 Activity Data

The CRD provided landfill gas volumes, energy and GHG related data for the Hartland landfill (fugitives and flaring), total CRD wastewater volumes, average biological oxygen demand (BOD) and Total Kjeldal Nitrogen (TKN) annual average values (mg/L) from the wastewater for all relevant outfalls. The wastewater volumes are based on total budgeted sewer costs.

Some GHG emissions from incineration and open burning are likely to be occurring in the CRD but cannot readily be estimated. This the notation key for “Not Estimated” has been used to indicate this.

4.3.2 Assumptions and Disclosures

The following assumptions were made in the calculation of the 2018 GHG emissions:

- To quantify GHG emissions from the Hartland Landfill, the CRD utilized the waste-in-place method which is accepted under the GPC Protocol. The Waste-in-place (WIP) assigns landfill emissions based on total waste deposited during that year. It counts GHGs emitted that year, regardless of when the waste was disposed. GHG emissions from the Hartland Landfill for the reporting year are allocated based upon the percentage of Community waste, relative to total waste received at to the Hartland Landfill. It is assumed that the GHG emissions data provided is reasonably accurate and the method deployed correct.
- It is assumed that the landfill gas has a constant higher heating value (HHV) of 0.01865 (GJ/m³).
- Composting GHG emissions are estimated based on the total tonnage estimated by the CRD. It is assumed that all compost is treated aerobically.
- Wastewater is not currently treated. As such, IPCC wastewater methane (CH₄) producing capacity and CH₄ correction default factors were used. These factors used are for untreated wastewater being deposited into deep or moving waters. It is likely that ocean sequesters more CH₄ than is estimated.
- It is likely that GHG emissions from incineration and open burning are occurring on an infrequent and controlled (property by property) basis, but without available data the GHG emissions cannot be reasonably quantified.

4.3.3 Calculation Methodology

4.3.3.1 Solid Waste

The Hartland Landfill has a landfill gas (LFG) collection and destruction system at the Hartland Landfill to which the LFG is either combusted in a flare, or in an engine to generate electricity which is exported to the grid. The GHG emissions associated with energy generation are reported as a reporting only GHG emission under Stationary Energy: Energy Industries Reporting Only and are not included in the total GHG emissions estimate. The GHG emissions associated with flaring of the landfill gas are reported under Stationary Energy: Energy Industries Scope 1.

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The GHG quantification method for Stationary Energy: Energy Industries is as follows:

$$\text{Emissions Stationary Energy: Energy Industries} = (\text{LFG Consumed}_{m^3} * \text{HHV}_{LFG} * \text{EF}_{RNG\ CH_4} * \text{GWP}_{CH_4}) + (\text{LFG Consumed}_{m^3} * \text{HHV}_{LFG} * \text{EF}_{RNG\ N_2O} * \text{GWP}_{N_2O})$$

The fugitive landfill GHG emissions estimates were generated by the CRD using the waste-in-place (WIP) method which is accepted under the GPC Protocol. The WIP assigns landfill emissions based on emissions during that year. It counts GHGs emitted that year, regardless of when the waste was disposed.

4.3.3.2 Biological Treatment of Solid Waste

The CRD provided 2018 composting data which is assumed to be treated aerobically at the Hartland Landfill. The composting emission factor used in the estimation of GHG emissions was derived from the 2006 IPCC Guidelines for National Greenhouse Gas Inventories (Volume 5, Chapter 4: Biological Treatment of Solid Waste) (Table 21).

Table 22 Composting Emission Factor

Emission Factor	Units	CO ₂	CH ₄	N ₂ O	tCO ₂ e
Composting	tCO ₂ e / kg waste	-	0.0000010	-	0.0000250

To quantify GHG emissions from the biological treatment of solid waste, the following GHG quantification methods was deployed:

$$\text{Emissions Anaerobic Waste} = \text{Compost Waste Total} * \text{EF}_{CH_4} * \text{GWP}_{CH_4}$$

4.3.3.3 Wastewater Treatment And Discharge

Wastewater is not currently treated on Vancouver Island and is sent to ocean-based outfalls. The CRD provided the 2018 wastewater volumes (m³), the average biological oxygen demand (BOD) and the average Total Kjeldal Nitrogen (TKN) in wastewater. IPCC default wastewater methane (CH₄) producing capacity (0.6 kg CH₄/kg BOD) and methane correction factor (MCF) (0.1 – unit less) were used to estimate CH₄ from the wastewater. To estimate N₂O from the wastewater, the Total Kjeldal Nitrogen (TKN) annual average in conjunction with the total wastewater volumes to calculate the total TKN in the wastewater. The IPCC default conversion value of 0.01 kg N₂O-N/kg sewage-N was used to estimate N₂O from the wastewater. These factors used are for untreated wastewater being deposited into deep or moving waters. It is likely that ocean sequesters more CH₄ than what has been estimated.

To quantify GHG emissions from the wastewater treatment, the following GHG quantification method is deployed:

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$$\text{Emissions}_{\text{Wastewater CH}_4} = ((\text{Wastewater}_{m^3} * (\text{BOD}_{mL/L} / 1000) * (0.06_{\text{kg CH}_4/\text{kg BOD}} * 0.01)) / 1000) * \text{GWP}_{\text{CH}_4}$$

$$\text{Emissions}_{\text{Wastewater N}_2\text{O}} = ((\text{Wastewater}_{m^3} * (\text{TKN}_{mL/L} / 1000) * 0.01_{\text{kg N}_2\text{O-N/kg sewage-N}}) / 1000) * \text{GWP}_{\text{N}_2\text{O}}$$

4.4 INDUSTRIAL PROCESSES AND PRODUCT USE (IPPU)

4.4.1 Overview

Emissions from the IPPU Sector are only required for BASIC+ GHG reporting under the GPC Protocol. This Sector encompasses GHG emissions produced from industrial processes that chemically or physically transform materials and using products by industry and end-consumers (e.g., refrigerants, foams, and aerosol cans) (GPC, 2014).

For the CRD, the IPPU encompasses the following GHG emissions scopes and Sub-Sectors:

- Scope 1 Emissions:
 - Product use

No GHG emissions from Industrial Processes are known to be occurring and thus the notation key for “Not Occurring” has been used to indicate this.

4.4.2 Activity Data

As there is limited data available on Product Use GHG emissions, the GHG Emissions estimate was derived on a per capita basis using the 2020 NIR GHG data for the Province of BC and BC population data for the reporting year.

4.4.3 Assumptions and Disclosures

The following assumptions were made in the calculation of the 2018 GHG emissions:

- The product use emissions are based on the 2020 NIR product use GHG emissions as prepared by Environment and Climate Change Canada.
- The NIR uses the Tier 1 methodology to estimate these emissions and thus uncertainty around their accuracy remains quite high.

4.4.4 Calculation Methodology

4.4.4.1 Product Use Emissions

For the 2018 reporting year, only the emissions estimated were production and consumption of halocarbons, SF₆ and NF₃ were estimated for the Province. To estimate product use GHG emissions for

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the CRD, a per capita estimate was developed using the Provincial emissions data from the 2020 NIR, and BC's NIR reporting year population from Statistics Canada. This value was applied to the 2018 reporting year CRD population to estimate the total product use emissions.

The GHG quantification method is presented below:

$$\text{Emissions}_{\text{Product Use}} = (\text{NIR Product Use GHG Emissions}_{\text{BC}} / \text{NIR Population}_{\text{BC}}) * \text{Current Reporting Year Population}$$

4.5 AGRICULTURE, FORESTRY, AND OTHER LAND USE (AFOLU)

4.5.1 Overview

The AFOLU Sector includes emissions from livestock, land-use, and all other agricultural activities occurring within a community's boundaries. For the CRD, the AFOLU encompasses the following GHG emissions scopes and Sub-Sectors:

- Scope 1 Emissions:
 - Land
 - Livestock
 - Aggregate Sources And Non-CO₂ Emissions Sources On Land

4.5.2 Activity Data

The CRD provided remotely sensed imagery to estimate land-cover change. This data included:

- Habitat Acquisition Trust (HAT) Land Cover Mapping
- Annual Crop Inventory (ACI), Agriculture Canada
- Satellite Imagery interpretation, CRD
- Vegetation Resources Inventory (VRI), British Columbia Government.
- Earth Observation for Sustainable Development of Forests (EOSD) Land Cover Classification, Service Natural Resources Canada

Livestock and aggregate sources and non-CO₂ emissions sources on land were estimated using GHG emissions data from the 2020 NIR, and land-use data from the 2016 Statistics Canada Census of Agriculture, to create a GHG emissions per hectare value.

4.5.3 Assumptions and Disclosures

The following assumptions were made in the calculation of the 2018 GHG emissions:

- It is conservatively assumed that all cropland is used for livestock and agricultural purposes.

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- Infrequent and small source open burning may be occurring, but there is no data to estimate this emissions source.
- The land cover change analysis requires a consistent land-use category attribution and spatial resolution for the 2007 base and 2018 reporting years. For the land use change analysis, land cover data was available for the 2007, 2011 and 2017 years for only part of the CRD. There was limited land-use datasets for the Juan de Fuca, Salt Spring Island and Gulf Islands and this data was only available for 2007 and 2011. Unfortunately, no more recent or higher quality data source was available to represent the land cover consistently for all three years. Furthermore, since annual data was not available, the change between land cover data years (2007-2011, 2011-2017) was averaged and may not represent actual changes in each year.

4.5.4 Calculation Methodology

4.5.4.1 Land Use

Remotely sensed imagery was used to estimate land-cover changes during the 2007-2018 reporting periods. Using the remotely sensed imagery an annual average land-use change between land classes (e.g. cropland forestland, etc.) was determined and applied to BC-based emission factors to estimate GHG emissions resulting from changes between land-uses for the reporting year.

The following table identifies the data sources used for the reporting years for each of the study area's geographies.

Table 23 Spatial Data Sources Representing Land Cover For The CRD Study Area

		CRD Study Area Geography		
		CRD Core	Gulf Islands	Juan de Fuca Region
Reporting Year	2007	2005 HAT Land Cover Mapping	2001 EOSD Land Cover Classification	2011 HAT Land Cover Mapping ²
	2011	2011 HAT Land Cover Mapping	2001 EOSD Land Cover Classification + 2011 ACI 'Settlement'	2011 HAT Land Cover Mapping ² + 2011 ACI 'Settlement'
	2017	2011 HAT Land Cover Mapping + 'Settlement' satellite image interpretation ¹	2001 EOSD Land Cover Classification + 2017 ACI 'Settlement'	2011 HAT Land Cover Mapping ² + 2017 ACI 'Settlement'

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Notes: ¹ Settlements land cover category is a combination of i) municipality provided building footprint as acquired mostly from digitizing roofline from satellite and orthoimagery, ii) new roads (ParcelMap BC parcel with parcel start dates > 2011 and parcel class = 'road') and iii) and theoretical building footprints (average building footprint areas as buffered centroids of new ParcelMap BC parcel with start dates > 2011 with a residential parcel class) ² The 2011 land cover classification was interpreted mostly from 2005 imagery in the Juan de Fuca region making it more suitable for the 2007 reporting year.

The spatial data sources representing land cover in this analysis include more categories than the 6 IPCC land-use categories. To align with the IPCC land classification definitions (as required by the GPC Protocol), the following data categories were re-assigned to the most appropriate IPCC land class.

Table 24 IPCC Land Use Classification Cross-References

IPCC Land Cover	EOSD Land Cover	HAT Land Cover	Annual Crop Inventory
Cropland	Annual Cropland, Perennial Cropland And Pasture	Agricultural Fields	-
Forest	Broadleaf Dense, Broadleaf Open, Coniferous Dense, Coniferous Open, Coniferous Sparse,	Tree	-
Grassland	Grassland , Herb, Shrub Low	Grass, Herb	-
Settlement	Developed	Pavement/Building	Developed
Wetland	Wetland - Herb , Wetland - Shrub , Wetland - Treed	Riparian Tree, Riparian Herb, Pond	-
Other	Water, Exposed Land	Shadow, Ocean, Lake, River, Sand/Gravel Shoreline, Bedrock Shoreline, Exposed Soil, Exposed Bedrock	-

The analysis resulted an estimate of an annual average change in hectares' value for each land class. Once the land use change values were determined for the reporting year, BC-based and IPCC emission factors were applied to estimate the GHG emissions from land use (Table 24).

Table 25 Land-Use Change Emission Factors

Sector	Emission Factor	Units
Forestland	556.33	tCO ₂ e / ha
Grasslands	205.70	tCO ₂ e / ha
Wetlands	471.50	tCO ₂ e / ha
Cropland	239.80	tCO ₂ e / ha

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Sector	Emission Factor	Units
Settlements	0.00	tCO ₂ e / ha
Other	0.00	tCO ₂ e / ha
Forestland	(0.66)	tCO ₂ e / ha / year
Grasslands	(8.05)	tCO ₂ e / ha / year
Wetlands	(6.50)	tCO ₂ e / ha / year
Croplands	(9.79)	tCO ₂ e / ha / year
Settlements	0.00	tCO ₂ e / ha / year
Other	0.00	tCO ₂ e / ha / year

The GHG quantification methods for land use change is presented below:

$$\text{Emissions}_{\text{Lands Not Converted}} = \text{Land Type}_{\text{ha}} * EF_{\text{Sequester}}$$

$$\text{Emissions}_{\text{Lands Converted}} = \text{Land Type}_{\text{ha}} * (EF_{\text{Release}} / (\text{Current Land Reporting}_{\text{Year}} - \text{Last Land Reporting}_{\text{Year}} + 1))$$

4.5.4.2 Emissions from Aggregate Sources and Non-CO₂ Emission Sources on Land

Emissions from Aggregate Sources and Non-CO₂ Emission Sources on Land includes direct N₂O emissions from agricultural soil management and indirect N₂O emissions from applied nitrogen. To estimate these GHG emissions, the total area of farmland for BC was used in conjunction with 2020 NIR data to develop a tCO₂e / ha value estimate for:

- Livestock
- Aggregate Sources And Non-CO₂ Emissions Sources On Land

To calculate GHG emissions from urea application, the calculated total crop land in hectares for the reporting year was applied against an IPCC GHG emissions factor of 0.20 tCO₂e / ha. This emission factor is also applied in the 2020 NIR.

The GHG quantification method is presented below:

$$\text{Emissions}_{\text{Direct \& Indirect N}_2\text{O}} = ((BC_{\text{Direct N}_2\text{O Emissions}} + BC_{\text{Indirect N}_2\text{O Emissions}} + BC_{\text{Indirect N}_2\text{O Manure Management Emissions}}) / BC_{\text{Land In Crops ha}}) * CRD_{\text{Cropland}_{\text{ha}}}$$

$$\text{Emissions}_{\text{Urea Application}} = CRD_{\text{Cropland}_{\text{ha}}} * 0.66 \text{ tCO}_2\text{e} / \text{ha}$$

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5.0 2018 GHG REPORTING YEAR RESULTS

5.1 OVERVIEW

This section presents the 2018 reporting year GHG emissions for the CRD. The following table classifies each of the GPC Protocol GHG emission categories by scope and reporting level. Note that these are cumulative.

Table 26 GHG Emissions Reporting Breakdown by GPC Reporting Method

GHG Emissions Scope	BASIC Reporting Level	BASIC+ Reporting Level
Scope 1	<ul style="list-style-type: none"> Emissions from in boundary fuel combustion In boundary fugitive emissions Emissions from in boundary transport 	Everything in the box at left, plus in-boundary emissions from: <ul style="list-style-type: none"> Industrial process and product use Livestock Land use Emissions from Aggregate Sources and Non-CO₂ Emission Sources on Land
Scope 2	<ul style="list-style-type: none"> Emissions from consumption of grid-supplied energy 	<ul style="list-style-type: none"> Emissions from consumption of grid-supplied energy
Scope 3	<ul style="list-style-type: none"> Emissions from solid waste, and composting generated within but treated outside of the GHG boundaries 	Everything in the box at left, plus: <ul style="list-style-type: none"> Transmission, distribution, and line losses from grid-supplied energy Emissions from transboundary journeys
Outside of Reporting Scopes & GPC Protocol	<ul style="list-style-type: none"> Upstream fuel emission extraction, processing, and transport Food and drink imports Construction materials (imports) Other supply chain emissions Vehicle fuel exports 	

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5.2 SUMMARY

Total BASIC, and BASIC+ emissions for the CRD for the 2018 reporting year are presented in the Figure 3 below.

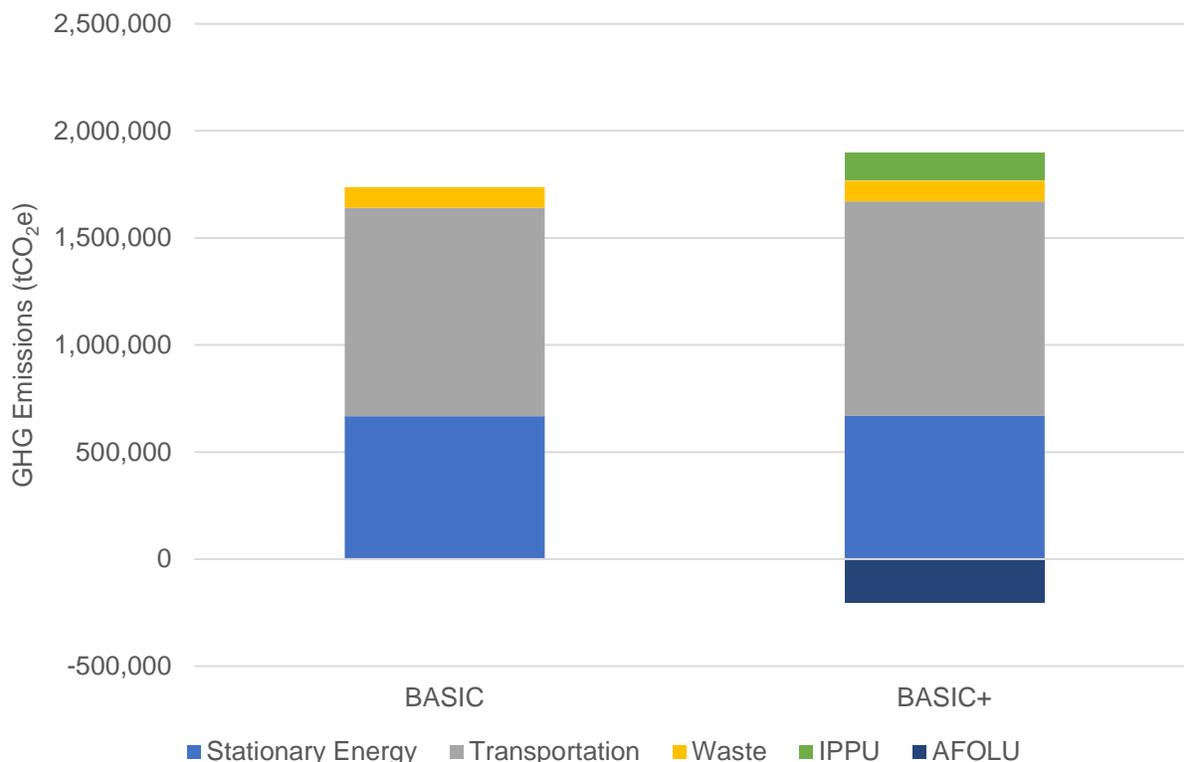


Figure 3 2018 GHG Emissions Summary by GPC Reporting Level

Emission by reporting level are presented in the Table 26 below which shows a difference in emissions under the GPC Protocol's BASIC, and BASIC+ reporting levels. This is due to the inclusion of additional sources in BASIC+ which are very significant for almost any growing community. These additional emissions include transboundary emissions, industrial and product use emissions, and emissions from land-use change. Under the GPC Protocol, emissions included within each higher reporting level are cumulative from lower levels.

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Table 27 Breakdown of the CRD's 2018 GHG Emissions in GPC Reporting Format

GHG Emissions Source (by Sector)		Total GHGs (metric tonnes CO ₂ e)					
		Scope 1	Scope 2	Scope 3	BASIC	BASIC+	BASIC+S3
Stationary Energy	Energy use (all emissions except I.4.4)	634,906	32,117	2,152	667,023	669,175	669,175
	Energy generation supplied to the grid (I.4.4)	8,147					
Transportation	(all II emissions)	978,309	80	26,821	978,389	1,005,210	1,005,210
Waste	Waste generated in the Community (III.X.1 and III.X.2)	96,386		0	96,386	96,386	96,386
	Waste generated outside community (III.X.3)	NO					
IPPU	(all IV emissions)	129,884				129,884	129,884
AFOLU	(all V emissions)	-203,952				-203,952	-203,952
Other Scope 3 (S3)	(all VI emissions)						0
TOTAL		1,635,532	32,197	28,973	1,741,798	1,696,703	1,696,703
<p>NOTES:</p> <p>Notation Keys: IE = Included Elsewhere; NE = Not Estimated; NO = Not Occurring.</p> <p>Cells in green are required for BASIC reporting</p> <p>Cells in green and blue are required for BASIC+ reporting</p> <p>Cells in purple are for disclosure purposes only but <u>are not included</u> in the summary totals as required by the GPC Protocol.</p> <p>Cells in orange are not required for BASIC or BASIC+ reporting</p>							

Table 27 presents the breakdown of the CRD's BASIC+ GHG emissions by Sector and Sub-Sector.

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Table 28 Breakdown of the CRD's 2018 BASIC+ GHG Emissions in the GPC Protocol Reporting Format

GPC ref No.	GHG Emissions Source (by Sector and Sub-Sector)	Total GHGs (metric tonnes CO ₂ e)			
		Scope 1	Scope 2	Scope 3	Total
I	Stationary Energy				
I.1	Residential buildings	318,300	19,209	1,287	338,796
I.2	Commercial and institutional buildings and facilities	251,651	12,908	865	265,424
I.3	Manufacturing industries and construction	NE	NE	NE	NE
I.4.1/2/3	Energy industries	7,658	NO	NO	7,658
I.4.4	Energy generation supplied to the grid	8,147			
I.5	Agriculture, forestry, and fishing activities	55,787	IE	IE	55,787
I.6	Non-specified sources	IE	IE	IE	IE
I.7	Fugitive emissions from mining, processing, storage, and transportation of coal	1,510			1,510
I.8	Fugitive emissions from oil and natural gas systems	NO			0
Sub-Total	(community induced framework only)	634,906	32,117	2,152	669,175
II	Transportation				
II.1	On-road transportation	871,491	80	7,578	879,148
II.2	Railways	NO	NO	NO	NO
II.3	Waterborne navigation	51,455	IE	IE	51,455
II.4	Aviation	NO	IE	19,243	19,243
II.5	Off-road transportation	55,363	IE	IE	55,363
Sub-total	(community induced framework only)	978,309	80	26,821	1,005,210
III	Waste				
III.1.1/2	Solid waste generated in the Community	71,219		NO	71,219
III.2.1/2	Biological waste generated in the Community	5,307		NO	5,307
III.3.1/2	Incinerated and burned waste generated in the Community	NE		NE	NE
III.4.1/2	Wastewater generated in the Community	19,859		IE	19,859
III.1.3	Solid waste generated outside the Community	NO			
III.2.3	Biological waste generated outside the Community	NO			
III.3.3	Incinerated and burned waste generated outside community	NE			



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Table 28 Breakdown of the CRD's 2018 BASIC+ GHG Emissions in the GPC Protocol Reporting Format

GPC ref No.	GHG Emissions Source (by Sector and Sub-Sector)	Total GHGs (metric tonnes CO ₂ e)			
		Scope 1	Scope 2	Scope 3	Total
III.4.3	Wastewater generated outside the Community	NO			
Sub-total	(community induced framework only)	96,386		0	96,386
IV	Industrial Processes and Product Uses				
IV.1	Emissions from industrial processes occurring in the Community boundary	NE			NE
IV.2	Emissions from product use occurring within the Community boundary	129,884			129,884
Sub-Total	(community induced framework only)	129,884			129,884
V	Agriculture, Forestry, and Other Land Use				
V.1	Emissions from livestock	4,299			4,299
V.2	Emissions from land	-209,262			-209,262
V.3	Emissions from aggregate sources and non-CO ₂ emission sources on land	1,010			1,010
Sub-Total	(community induced framework only)	-203,952			-203,952
VI	Other Scope 3				
VI.1	Other Scope 3			NE	NE
Total	(community induced framework only)	1,635,532	32,197	28,973	1,696,703
<p>NOTES: Cells in green are required for BASIC reporting Cells in green and blue are required for BASIC+ reporting Cells in purple are for disclosure purposes only but are not included in the summary totals as required by the GPC Protocol. Cells in orange are not required for BASIC or BASIC+ reporting</p>					



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5.3 TOTAL GHG EMISSIONS

Under the BASIC+ method, the CRD's GHG emissions totaled 1,692,593 tCO₂e. On a per capita basis, this works out to 4.2 tCO₂e per person.

Table 29 Total Energy and GHG Emissions Per Person by Sector

Sector	Sub-Sector	Energy (GJ)	GHG Emissions (tCO ₂ e)	GJ Per Capita	tCO ₂ e Per Capita
Stationary Energy	Residential Buildings	222,932,738	338,796	549	0.8
	Commercial & Institutional Buildings	460,884,074	265,424	1,135	0.7
	Manufacturing Industries & Construction	-	-	-	-
	Energy Industries	-	7,658	-	0.0
	Agriculture, Forestry & Fishing Activities	768,935,824	55,787	1,894	0.1
	Fugitive Emissions	-	1,510	-	0.0
Transportation	In-Boundary On-road Transportation	13,534,546,942	871,571	33,338	2.1
	Trans-Boundary On-road Transportation	117,672,682	7,578	290	0.0
	Waterborne Navigation	682,893,869	51,455	1,682	0.1
	Aviation	258,625	19,243	1	0.0
	Off-road Transportation	763,095,571	55,363	1,880	0.1
Waste	Solid Waste	-	71,219	-	0.2
	Biological Treatment of Waste	-	5,307	-	0.0
	Wastewater Treatment & Discharge	-	19,859	-	0.0
IPPU	Product Use	-	129,884	-	0.3
AFOLU	Land-Use Change	-	(209,262)	-	(0.5)
	Livestock	-	4,299	-	0.0
	Non-CO ₂ Land Emission Sources	-	1,010	-	0.0
Total		16,551,220,325	1,696,703	40,768	4.2

Total GHG emissions for 2018 are 1,696,703 tCO₂e and have decreased 1.1% from the 2007 base year. Scope 1 and 2 Emissions are 96.4% and 1.9% of the total GHG inventory. Scope 1 emissions are the GHG emissions that result from the combustion of fuel in sources within the CRD's boundaries, primarily from Stationary Energy and Transportation. Scope 1 GHG emissions also include IPPU and AFOLU GHG emissions. Scope 2 emissions result from the use of electricity supplied to the CRD which includes emissions associated with the generation of electricity and other forms of energy (e.g., heat and steam).

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Scope 2 emissions are low compared to other geographies, due to the predominance of hydroelectric generation technologies in the BC. Scope 3 emissions are emissions from electricity line losses, transboundary traffic, and emissions associated with the CRD that are occurring outside of the CRD's boundaries. For 2018, Scope 3 GHG emissions make up 1.7% of the GHG inventory. This breakdown by emission scope is depicted in Figure 4.

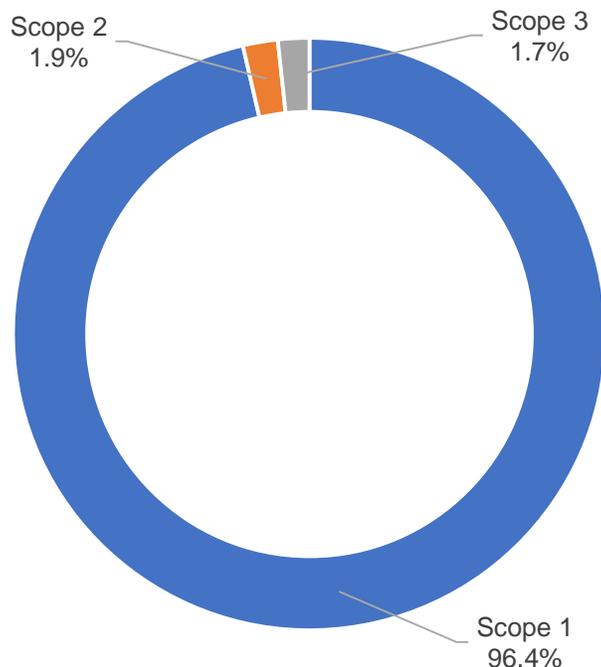


Figure 4 CRD BASIC+ GHG Emissions by Emissions Scope

A breakdown of GHG emissions by reporting scope for the 2007 base and reporting year are presented in Table 29 below.

Table 30 Change in GHG Emissions from Base Year

Emissions Scope	2007 GHG Emissions (tCO ₂ e)	2018 GHG Emissions (tCO ₂ e)	Change
Scope 1	1,589,511	1,635,533	2.9%
Scope 2	81,358	32,197	-60.4%
Scope 3	44,945	28,972	-35.5%
Total	1,715,814	1,696,703	-1.1%

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5.4 SECTORAL GHG EMISSIONS ANALYSIS

5.4.1 Stationary Energy

Stationary energy sources are one of the largest contributors to the CRD's GHG emissions. In 2018, it contributed 35.1% of the community's GHG emissions. In general, stationary energy emissions include the energy to heat and cool residential, commercial, and industrial buildings, as well as the activities that occur within these residences and facilities. Fugitive methane emissions from natural gas pipelines and other distribution facilities, and related off-road GHG emissions, are also reported in this Sector. The table below shows the breakdown of energy use in the stationary energy reporting category.

Table 30 summarizes the energy and GHG emissions for the 2018 reporting year.

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Table 31 2018 Energy and GHG Emissions by Stationary Energy Sector

Sector	Electricity (tCO ₂ e)	Natural Gas (tCO ₂ e)	Heating Oil (tCO ₂ e)	Propane (tCO ₂ e)	Wood (tCO ₂ e)	Other Sources (tCO ₂ e)	Total GHG Emissions (tCO ₂ e)	Total Energy (GJ)
Residential Buildings	20,496	110,632	142,004	24,569	25,843	15,252	338,796	222,932,738
Commercial & Institutional Buildings	13,773	209,087	9,778			32,786	265,424	460,884,074
Energy Industries						7,658	7,658	
Agriculture, Forestry & Fishing activities						55,787	55,787	768,935,824
Fugitive Emissions						1,510	1,510	
Total GHG Emissions (tCO₂e)	34,269	319,719	151,782	24,569	25,843	112,993	669,175	
Total Energy (GJ)	11,562,215	6,411,356	2,219,813	401,770	1,100,555	1,431,056,927		1,452,752,636

It can be seen in Figure 5 that heating oil and natural gas use contribute to 70.5% of the CRD's total Stationary Energy GHG emissions.

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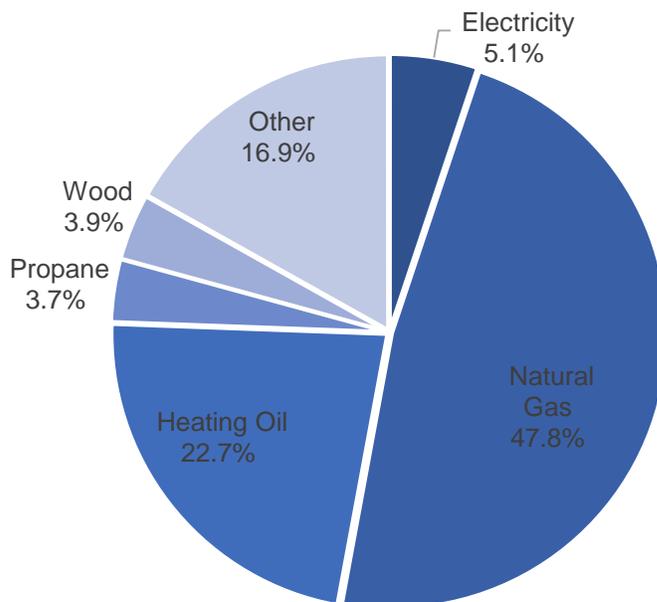


Figure 5 Stationary Energy GHG Emissions Contribution to the GHG Inventory

Figure 6 shows that more than 90.3% of the stationary GHG emissions arise from the operation of buildings.

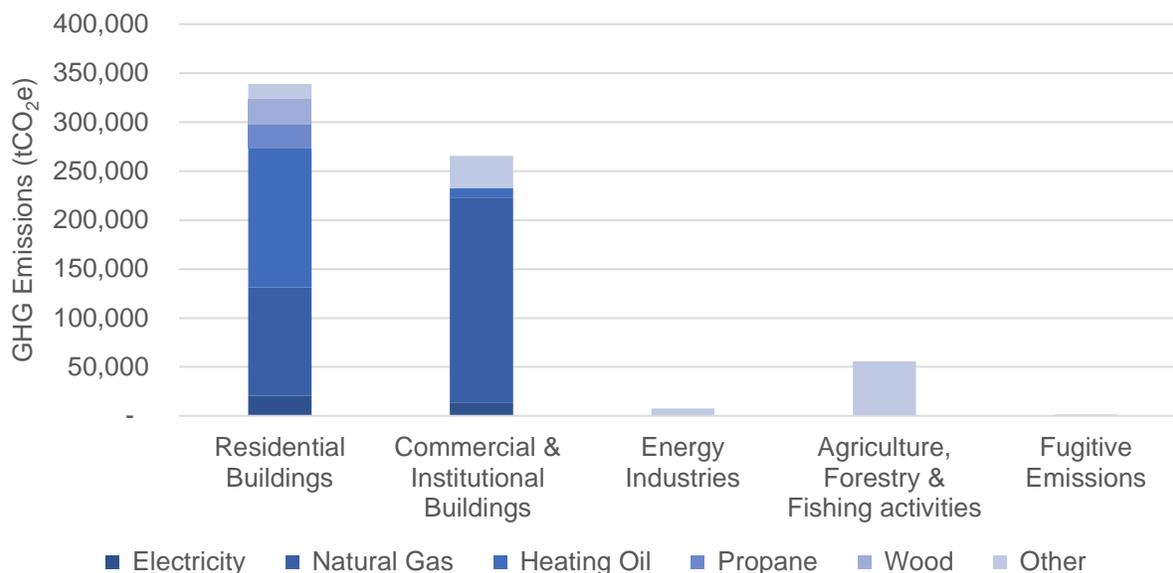


Figure 6 Total Stationary Energy Use By Sub-Sector

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Stationary energy GHG emissions have decreased by 6.3% since the base year (Table 31).

Table 32 Stationary Energy—Energy and GHG Emissions Trends

Sector	Change in GJ: 2007 & 2018	Change in tCO ₂ e: 2007 & 2018
Residential Buildings	-16.1%	-16.0%
Commercial & Institutional Buildings	-0.3%	7.3%
Energy Industries		1731.0%
Agriculture, Forestry & Fishing activities	-4.2%	-10.1%
Fugitives		52.0%
Total	-5.1%	-6.3%

5.4.2 Transportation

Transportation covers all emissions from combustion of fuels in journeys by road, rail, water, and air, including inter-community and international travel. For the 2018 reporting year, transportation GHG emissions accounted for 52.7% of the CRD GHG inventory with the bulk of transportation GHG emissions resulting from the on-road transportation sub-sector (87.4%). The transportation GHG emissions are produced directly by the combustion of fuel or indirectly because of the use of grid-supplied electricity. Unlike stationary emission sectors, transit is mobile and can pose challenges in both accurately calculating emissions and allocating them to the cities linked to the transit activity. The following sections summarize energy and GHG emissions by on-road transportation, which is then followed by off-road transportation (marine, aviation, and other).

Table 32 summarizes the on-road energy and GHG emissions for the 2018 reporting year.

Table 33 2018 On-Road Transportation Energy And GHG Emissions by Fuel Type

Fuel Type	Number of Registered Vehicles	Total Fuel Use	Fuel Use Units	Energy (GJ)	GHG Emissions (tCO ₂ e)
Electricity	6,622,251	kWh	23,840	80	6,622,251
Gasoline	333,808,198	Liters (L)	11,569,792,153	740,974	333,808,198
Diesel	53,644,281	Liters (L)	2,074,960,771	137,645	53,644,281
Propane	291,534	Liters (L)	7,442,861	449	291,534
Total	269,196	N/A	N/A	13,652,219,624	879,148

Overall, GHG emissions from on-road transportation have decreased by 4.2% compared to the 2007 base year. The majority of these GHG emissions (86.5%) are from passenger vehicles, light trucks, and SUVs (Figure 7).

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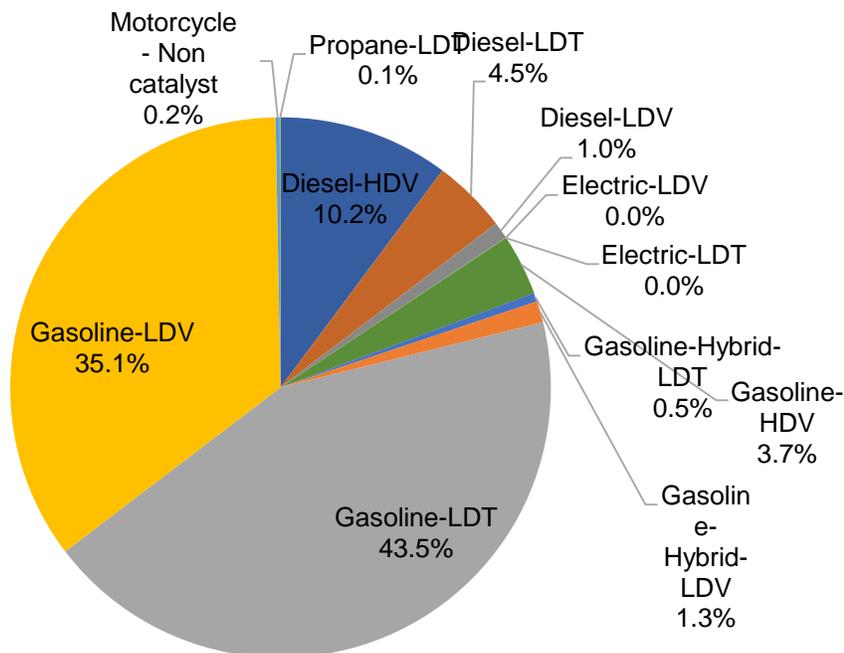


Figure 7 Breakdown of On-Road GHG Emissions by Vehicle Type

Table 33 summarizes the aviation, waterborne, and off-road transportation energy and emissions by fuel type. These GHG emissions contribute to 12.5% of the total transportation GHG emissions and 6.6% to the total inventory (Figure 8).

Table 34 2018 Aviation, Waterborne, and Off-Road Transportation Energy and Emissions by Fuel Type

Fuel Type	Total	Units	Energy (GJ)	GHG Emissions (tCO ₂ e)
Marine Gasoline	7,303	Liters (L)	253	16
Marine Diesel	17,654,954	Liters (L)	682,893,615	51,439
Aviation Jet Fuel	7,453,169	Liters (L)	258,625	19,243
Other Off-Road Transportation Diesel	19,728,427	Liters (L)	763,095,571	55,363
Total	N/A	N/A	1,446,248,065	126,061

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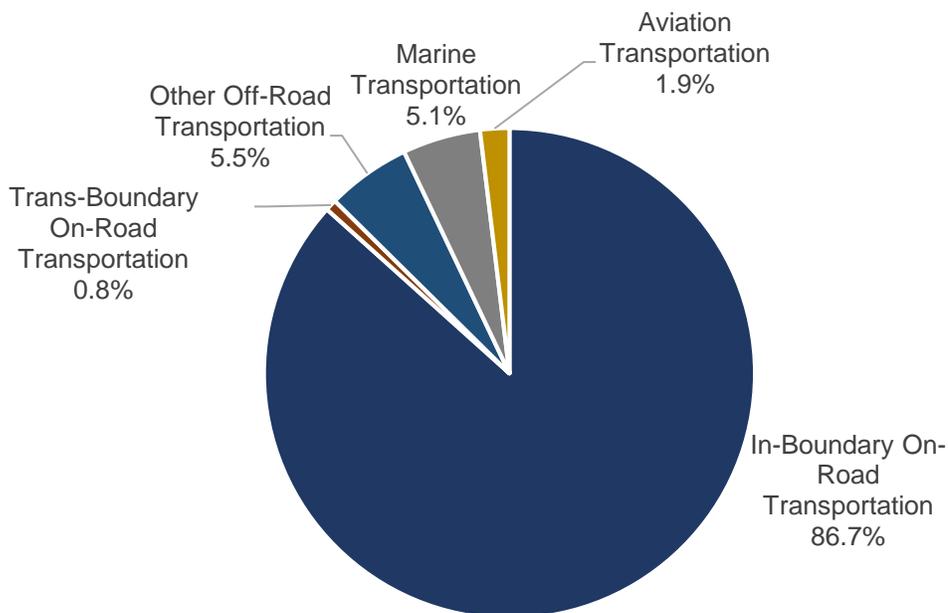


Figure 8 Summary of Transportation GHG Emissions by Sub-Sector

5.4.3 Waste

Communities produce solid waste, compost, and wastewater. Waste does not directly consume energy, but when deposited into landfills, or left exposed to the atmosphere, it decomposes and releases methane (CH₄) gas which is a potent GHG. The GHG emissions from the solid waste, composting, and wastewater facilities for the reporting year is summarized in the following table. For the 2018 reporting year, waste emissions contributed 5.1% to the GHG inventory. A breakdown of the Waste Sub-Sector GHG emissions is presented in Table 34.

Table 35 Summary of Waste Sub-Sector GHG Emissions

Sector	2018 GHG Emissions (tCO ₂ e)	GHG Emissions Per Capita (tCO ₂ e / Capita)	Change from Base Year (2007)
Wastewater Treatment And Discharge	19,859	0.05	4.5%
Biological Treatment of Solid Waste	5,307	0.01	7,236%
Solid Waste	71,219	0.18	-36.0%
Total	96,386	0.24	-26.0%

For the 2018 reporting year, in scope GHG emissions from waste have decreased by 26.0% compared to the 2007 base year. Fluctuations in waste will occur over the reporting periods as waste is driven by both

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the population, as well as economic prosperity in the region. The Solid Waste Sub-Sector contributes more than 73.9% of total waste GHG emissions (Figure 9). To reduce the amount of waste landfilled, and thus GHG emissions, the CRD and its members are making a significant effort to reduce waste going to landfills through organics diversion and recycling.

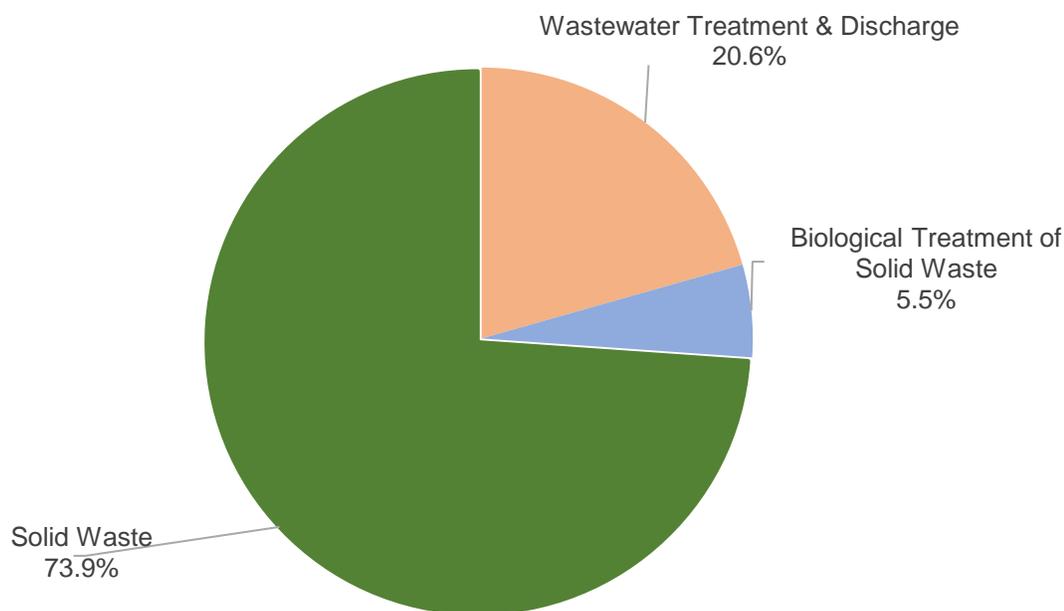


Figure 9 2018 GHG Emissions from Waste (tCO₂e)

5.4.4 Industrial Processes and Product Use (IPPU)

Reporting on IPPU GHG emissions are required for BASIC+ reporting only. Industrial GHG emissions are produced from a wide variety of non-energy related industrial activities which are typically releases from industrial processes that chemically or physically transform materials. During these processes, many different GHGs can be produced. It is not clear if there are industrial GHG emissions occurring within the CRD's boundaries and thus a "Not Estimated" notation is used in the GPC tables.

Also included in the IPPU Sector is Product Use GHG emissions. Certain products used by industry and end-consumers, such as refrigerants, foams or aerosol cans, also contain GHGs which can be released during use and disposal and thus, as with best-practice, must be accounted for. For the reporting year, only the emissions estimated were production and consumption of halocarbons, SF₆ and NF₃ were estimated for the CRD on the basis that other GHG emissions sources identified in the NIR are not likely to be occurring in the CRD. The sources of these GHG emissions are typically fridges, heat pumps, and air conditioners. To estimate Product Use GHG emissions for the CRD, a per capita estimate was developed using the Provincial emissions data from the 2020 NIR, and BC's NIR reporting year

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population from Statistics Canada. This value was applied to the 2018 reporting year population to estimate the total Product Use emissions for the CRD.

Between the 2007 and 2018 reporting years, IPPU GHG emissions have increased 67.9%. The reason for the increase is attributed to Environment Canada having better data available to make the estimate, than the actual GHG emissions increasing such an amount.

Table 36 Product Use GHG Emissions for the 2007 and 2018 Reporting Years

Sub-Sector	2007 GHG Emissions (tCO ₂ e)	2018 GHG Emissions (tCO ₂ e)	Change
Product Use Emissions	77,348	129,884	67.9%

5.4.5 Agriculture, Forestry, and Other Land Use

The AFOLU Sector includes GHG emissions from livestock, land use, and all other agricultural activities occurring within the CRD's boundaries. Using remotely sensed imagery, land cover data was used to estimate land use changes between the reporting years. In 2018, the CRD's greenspace is estimated to have sequestered and stored 209,262 tCO₂e (Table 36), a decrease of 19.2% compared to the 2007 base year.

Table 37 Summary of Land-Use Change Between 2017 and 2018

Land-Use Type	Total Hectares (ha)	Sequestered (-) / Released (+) GHG Emissions in tCO ₂ e
Forest Land	167,091.9	1,335.8
Cropland	4,567.8	(42,773.1)
Grassland	18,906.5	(128,443.5)
Wetlands	6,865.3	(41,261.0)
Settlements	20,654.6	1,879.7
Other Land	12,931.7	-
Total	231,017.8	(209,262.2)

5.4.5.1 Livestock and Other Agriculture

In addition to land use change, GHG emissions from the AFOLU Sector are produced through a variety of non-land use pathways, including livestock (enteric fermentation and manure management), and aggregate sources and non-CO₂ emission sources on land (e.g., fertilizer application). Under this Sector, the CRD is reporting on GHG emissions from the following sources, and Sub-Sectors:

- Scope 1 GHG Emissions:
 - Livestock:
 - o Methane (CH₄) Emissions from Enteric Fermentation

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- o Methane (CH₄) Emissions from Manure Management
- o Direct Nitrous Oxide (N₂O) GHG Emissions
- Aggregate Sources and Non-CO₂ Emissions Sources on Land
 - o Direct Nitrous Oxide (N₂O) Emissions from Agricultural Soil Management
 - o Indirect Nitrous Oxide (N₂O) Emissions from Applied Nitrogen

Table 37 summarizes these other land-use GHG emissions for the 2018 reporting year. Compared to the 2007 base year, these GHG emissions have increased 7.7%.

Table 38 Total AFOLU GHG Emissions for 2018

AFOLU Sub-Sector	GHG Emissions (tCO₂e)
Livestock	4,299
Aggregate Sources And Non-CO ₂ Emissions Sources On Land	1,010
Total	5,310

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6.0 QUALITY ASSURANCE AND QUALITY CONTROL

Quality Assurance and Quality Control (QA/QC) procedures are applied to add confidence that all measurements and calculations have been made correctly and to reduce uncertainty in data. Examples include:

- Checking the validity of all data before it is processed, including emission factors
- Performing recalculations to reduce the possibility of mathematical errors
- Recording and explaining any adjustments made to the raw data
- Documenting quantification methods, assumptions, emission factors and data quality

With respect to the GHG inventory, the data was subject to various quality assurance and quality control checks throughout the collection, analysis, and reporting phases. Specifically, the following procedures were followed:

- Upon receipt of data from the CRD, the data was checked for completeness (e.g., all months of data are present), relevancy (e.g., the correct calendar year is presented), and reasonableness (e.g., comparing similar transportation data sets). Incorrect or incomplete datasets were queried directly with the data provider.
- Where estimates were used (e.g., fuel oil consumption), all possible data sources were considered for their accuracy and relevance to the community before a final method and data source was selected.
- All manual data transfers were double-checked for data transfer accuracy.
- The inventory was compared to other third party inventories (e.g. CEEI) to assess for reasonableness of the estimates.
- The inventory underwent internal CRD reviews to confirm assumptions, data and reasonableness of the estimates.

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7.0 RECOMMENDATIONS

To remain accurate and reflective of the current community conditions, the CRD should revise and improve its GHG emissions inventory either annually or in line with capital planning cycles (i.e., every 3-4 years), to which there are the following aspects should be focused on:

- Improving activity data collection and management, including Sector and Sub-Sector allocations.
- Performing recalculations, where applicable, and tracking GHG emissions over time.
- Reviewing methodologies and data to assess for opportunities to improve the estimates.
- Assessing changes to boundaries, methodologies, assumptions or data that may be material and require a base year restatement.

The next section provides a summary of specific GHG inventory improvement recommendations.

7.1 INVENTORY ASSUMPTIONS, ASSESSMENT, AND RECOMMENDATIONS

In the preparation of the 2018 GHG emissions inventory, there are several assumptions were made in the analysis that will have some influence on accuracy of the CRD's estimate of GHG emissions. Most emission sources have been calculated with a high level of confidence, due to the presence of utility records, and direct energy and emissions data being provided by stakeholders. Data sources and assumptions with medium to high uncertainty are presented in Table 38 which summarizes the main assumptions, possible impacts on the data, and recommended improvement. It is recommended that the CRD prioritize improvements for that are likely to have a material (>5%) influence on the GHG inventory estimate.

Table 39 Summary of GHG Inventory Assumptions, Estimated Impacts, and Recommended Improvements

Sector	Assumption	Possible Impact on The GHG Inventory	Recommended Improvements
Stationary Energy	The energy utility providers provide energy in lump sum amounts for: residential, commercial, and industrial. As such, other sectors, like agricultural buildings, could not be split out. A related accuracy issue is the assignment of mixed use buildings without separate metering.	No impact on the GHG inventory. The change would only happen between emission sub-sectors.	Work with the utility provider to get a more detailed breakdown of energy use by sub-sector.

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Table 39 Summary of GHG Inventory Assumptions, Estimated Impacts, and Recommended Improvements

Sector	Assumption	Possible Impact on The GHG Inventory	Recommended Improvements
Stationary Energy	Propane, fuel oil and wood GHG emissions were estimated based on 2007, 2010, and 2012 CEEI GHG emissions. for the District of Saanich and the City of Victoria, heating oil emissions were estimated based on the number of known tanks and the estimated square footage based on BC Assessment data, and the estimated average annual energy usage.	Immaterial impact on the GHG inventory (<5%)	Consider completing a residential energy labelling program. With such a program, an energy and fuel profile for buildings could be developed so that a reasonable estimate of other fuel use be determined. Work with the Province on developing a methodology to estimate wood fuel use.
Stationary Energy	FortisBC provided a total estimate of fugitive emissions for the CRD region for the 208 reporting year only; however, this did not include upstream fugitive emissions as suggested as best practice by the GPC Protocol.	Immaterial impact on the GHG inventory (<5%)	Work with FortisBC to refine this estimate.
Transportation	ICBC has not been collecting off-road vehicle data so this source could not be estimated.	Immaterial impact on the GHG inventory (<5%)	Work with ICBC to begin collecting this data regionally.
Transportation	ICBC provided the Province of BC with raw vehicle registration data which was then processed and provided to the CRD. It is understood that some vehicle category registrations were withheld or not included in the inventory which results in the under estimation of GHG emissions.	Immaterial impact on the GHG inventory (<5%)	Work with Province to derive an estimate of how vehicles may be excluded so that the GHG emissions may be estimated.
Transportation	Taxable fuel volumes only represent about 67% of taxable fuel sales (a value that fluctuates yearly). Without more detailed information, a fuel allocation amount could not be allocated to the CRD. As such, the	Possibly material (>10%) impact to the GHG inventory. Using the estimated VKT data, it is likely that the CRD is over-estimating the GHG emissions from	If the CRD can get complete fuel sales data for the Region, a more robust estimate of fuel use and GHG emissions, using vehicle registration data, can be determined. If the CRD can incorporate estimated

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Table 39 Summary of GHG Inventory Assumptions, Estimated Impacts, and Recommended Improvements

Sector	Assumption	Possible Impact on The GHG Inventory	Recommended Improvements
	<p>CRD had to rely on vehicle registration data from ICBC and estimated vehicle kilometers travelled (VKT). The CRD's 2016 Origin and Destination Study estimates total VKT data was considered but was deemed to likely result in significant underestimate of GHG emissions as the study estimates that light duty vehicles in the CRD travel less than 5,000 km per year. This is less than 1/3 of the national average. On this basis, the VKTs from a 2009 National vehicle travel study for Canada were applied.</p>	<p>transportation. This is the most conservative approach available to the CRD at this point.</p>	<p>travel data, in VKT through its next Origin Destination Survey, this data could be used to replace the 2009 study and be more specific to CRD and its members.</p>
Transportation	<p>The Victoria International Airport does not report on GHG emissions from tenants or aircraft. Keeping in line with the GPC Protocol, only the aircraft GHG emissions were estimated using NAV Canada airplane movement statistics, estimated taxi times, and estimated fuel use. The fuel use only accounts for departing and arriving planes up to 3,000ft to avoid double counting with other cities.</p>	<p>Immaterial impact on the GHG inventory (<5%)</p>	<p>The Victoria International Airport will not be collecting or reporting on GHG emissions from tenants or aircraft. This is the best available data at this point.</p>
Transportation	<p>The GHG emissions from recreational watercraft and US/Can ferries were estimated based on a publicly available year 2000 study for the Victoria, Vancouver, and Washington harbors.</p>	<p>Immaterial impact on the GHG inventory (<5%)</p>	<p>Work with the Victoria Harbor Master as they begin to deploy a database tracking the types and number of boats entering the Victoria harbor.</p>
Transportation	<p>The GHG emissions from marine aviation are estimated based on Victoria Harbor NAV Canada air traffic movements for 2016. Statistics Canada</p>	<p>Immaterial impact on the GHG inventory (<5%)</p>	<p>No recommended improvement currently.</p>

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Table 39 Summary of GHG Inventory Assumptions, Estimated Impacts, and Recommended Improvements

Sector	Assumption	Possible Impact on The GHG Inventory	Recommended Improvements
	stopped collecting Victoria Harbor aircraft movement data in 2016. To estimate 2018 marine aviation GHG emissions, the 2016 data was applied and adjusted using the change in aircraft traffic between the 2016 and 2018 reporting years at the Victoria International Airport. It is assumed that the activity at both airports would be correlated, but not causal.		
Waste	There is tracking to the origin of solid waste but is based on reported origin which may or may not be accurate. For example, some haulers will identify that they are hauling waste from Victoria when in fact the waste is originating from Saanich.	There is no impact to the GHG Inventory for the CRD but will have impacts to the CRD member inventories.	Work with waste haulers to devise a better system to track waste origination.
IPPU	Product use emissions were estimated on a per capita basis using the 2020 NIR estimates. The product use emissions were estimated by the NIR using an IPCC Tier 1 approach and thus will have high uncertainty.	Immaterial impact on the GHG inventory (<5%)	No recommendations currently.
AFOLU	GHG estimates for land use change are based on a period of years (2011-2017) and thus were averaged for each period. As there was no current data, land use change for the reporting year was estimated using the average value between the data years.	Immaterial impact on the GHG inventory (<5%)	Work with the planning department to track land-use change annually so that a more refined estimate can be made.
AFOLU	The land-use data available for the CRD was incomplete between and within reporting years (e.g., some land-use data was collected in early	Immaterial impact on the GHG inventory (<5%)	Complete a region wide land-use analysis every 3-5 years to track land use change.

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Table 39 Summary of GHG Inventory Assumptions, Estimated Impacts, and Recommended Improvements

Sector	Assumption	Possible Impact on The GHG Inventory	Recommended Improvements
	spring and others collected in summer). As such, other data sets, like building footprint data, had to be used to estimate changes in land use.		
AFOLU	The land-use sequestration and storage GHG emission factors are taken from the literature, for BC ecozones, and may not reflect the productivity, or lack thereof, of land uses in the CRD. The land-change emission factors for changes between land types were derived by the Province. These are average values by ecozone and are based on a 20-year horizon. Since land-use change in the CRD is typically related to development, it was assumed that the loss of emissions is immediate which may overestimate GHG emission losses. In both emission factor applications, the use of non-site emission factors may result in an over or underestimate of GHG emissions.	Possibly a material impact on the GHG inventory (>10%)	Work with the Province and the University to derive refined sequestration emission factors.

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**CAPITAL REGIONAL DISTRICT 2018 GPC BASIC+ COMMUNITY GREENHOUSE GAS (GHG)
EMISSIONS INVENTORY REPORT**

May 1, 2020

**Capital Region District – Municipalities and Electoral Areas
2007 Base Year and 2018 Reporting Year Energy & GHG
Emissions Inventory**

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SUMMARY

Climate change has emerged as the next unprecedented social, economic, and environmental challenge facing society today. It poses a serious threat to quality of life, jobs, and physical and natural assets. Scientists believe that the human-production of greenhouse gas (GHG) emissions since pre-industrial times have already surpassed the Earth's "carrying capacity" of natural systems and pose significant future risks to human well-being.

Recognizing the role that Capital Regional District (CRD) plays in achieving a significant and immediate reduction in global GHG emissions, the CRD set a regional GHG reduction target of 61% (from 2007 levels) by 2038. In February 2019, the CRD declared a climate emergency and committed to regional carbon neutrality. Local governments across the region have also set similar ambitious GHG reduction targets and commitments.

To meet these climate commitments, the CRD seeks a better understanding of the energy and GHG emissions at the regional level, as well as at the local government level which includes 13 municipalities and 3 electoral areas. The following document presents a summary of energy and GHG emissions at both the CRD and local government level for the 2007 and 2018 reporting years. This document compliments a 2018 inventory report which describes the methodologies and data sources applied to derive the estimate of GHG emissions for the CRD and local governments. A summary of the 2007 and 2018 energy and GHG emissions by local government is presented in **Table 1** and **Table 2**.

Table 1. Summary of GHG Emissions By CRD Local Government

Local Government	2007 GHG Emissions (tCO ₂ e)	2018 GHG Emissions (tCO ₂ e)	Change (%)
District of Central Saanich	80,648	73,995	-8.2%
City of Colwood	80,838	78,506	-2.9%
Township of Esquimalt	95,893	85,786	-10.5%
District of Highlands	7,776	9,373	20.5%
Juan de Fuca Electoral Area*	67,459	73,063	8.3%
City of Langford	133,247	169,775	27.4%
District of Metchosin	16,333	9,038	-44.7%
District of North Saanich	54,454	45,201	-17.0%
District of Oak Bay	89,140	77,178	-13.4%
District of Saanich	574,835	496,408	-13.6%
Salt Spring Island Electoral Area*	45,361	43,963	-3.1%
Town of Sidney	62,025	56,194	-9.4%
District of Sooke	46,616	46,574	-0.1%
City of Victoria	481,559	452,567	-6.0%
Town of View Royal	48,163	45,507	-5.5%
Southern Gulf Islands Electoral Area*	28,947	29,220	0.9%

* Land-use GHG emission estimates have been withheld due to limited land-use data.

Table 2. Summary of Energy Use By CRD Local Government

Local Government	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)
District of Central Saanich	934,902,793	1,045,600,285	11.8%
City of Colwood	750,792,571	789,321,199	5.1%
Township of Esquimalt	676,242,529	643,974,376	-4.8%
District of Highlands	112,841,173	151,794,110	34.5%
Juan de Fuca Electoral Area	253,876,662	345,083,050	35.9%
City of Langford	1,239,457,962	1,759,292,495	41.9%
District of Metchosin	279,367,955	277,503,007	-0.7%
District of North Saanich	625,452,000	619,051,181	-1.0%
District of Oak Bay	696,499,293	610,344,469	-12.4%
District of Saanich	4,982,128,424	4,803,100,900	-3.6%
Salt Spring Island Electoral Area	499,527,214	527,421,486	5.6%
Town of Sidney	547,533,536	526,442,192	-3.9%
District of Sooke	509,913,927	583,623,839	14.5%
City of Victoria	3,096,770,892	3,178,286,588	2.6%
Town of View Royal	417,028,188	419,127,141	0.5%
Southern Gulf Islands Electoral Area	240,899,851	271,254,006	12.6%

1 INTRODUCTION

1.1 GHG Emissions & Climate Change

There is overwhelming evidence that global climate change resulting from emissions of carbon dioxide and other greenhouse gases (GHGs) is having a significant impact on the ecology of the planet. In addition, climate change is expected to have serious negative impacts on global economic growth and development. In 2005, the UK government commissioned an independent economic review called the Stern Review, which states that the “costs of stabilizing the climate are significant but manageable; delay would be dangerous and much more costly”.

Beyond the costs associated with delayed action, there are cost savings to be realized through efforts to conserve energy and to use it more efficiently, and economic opportunities available to communities that develop local energy supply and infrastructure. Actions to encourage energy efficiency and conservation and to promote implementation of renewable energy will assist local governments in developing energy resilient communities, in addition to mitigating climate change. Local governments are at the forefront of global action on climate change, setting both ambitious commitments and targets while going about the difficult task of reducing emissions. Per the latest report from the C40 Cities Climate Leadership Group, ICLEI Local Governments for Sustainability, UN Habitat, and others, most GHG reduction commitments are set for 2020 or 2050 and range from a 10% to 100% reduction (**Figure 1**).

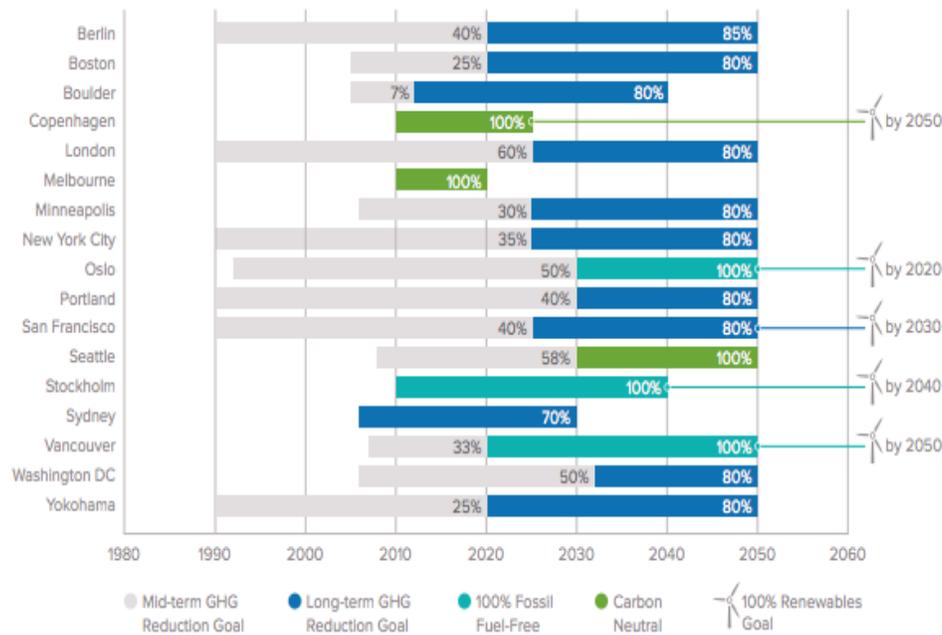


Figure 1. Summary of Long-Term Global GHG Emission Reduction Targets¹

¹ <http://www.c40.org/>

1.2 GPC Protocol

To make informed decisions on reducing energy use and GHG emissions at the regional and local government scale, community managers must have a good understanding of these sources, the activities that drive them, and their relative contribution to the total. This requires the completion of an energy and GHG emissions inventory. To allow for credible and meaningful reporting locally and internationally, the Global Protocol for Community-Scale Greenhouse Gas Emission Inventories (the GPC Protocol) was developed as a partnership between ICLEI-Local Governments for Sustainability, The World Resources Institute (WRI) and C40 Cities Climate Leadership Group (C40), with additional collaboration by the World Bank, United Nations Environment Program (UNEP) and UN-Habitat. The GPC Protocol has now become recognized as the standardized way for local governments to collect and report their actions on climate change. Over 9,000 cities have committed to using the GPC Protocol.

The Protocol has two established levels of reporting: BASIC and BASIC+ which are defined as the following:

- The BASIC level covers scope 1 and scope 2 emissions from stationary energy and in-boundary transportation, as well as scope 1 and scope 3 emissions from waste.
- The BASIC+ level covers the same scopes as BASIC and includes more in-depth and data dependent methodologies. Specifically, it expands the reporting scope to include emissions from industrial process and product use (IPPU), agriculture, forestry and other land-use (AFOLU), and transboundary transportation.

1.3 Variance from Community Energy and Emissions Inventories (CEEI)

The CRD has historically relied on the Provincial 2007, 2010 and 2012 Community Energy and Emissions Inventories (CEEI) to baseline and track community GHG emissions. However, there have been some limitations to the CEEI in that it is an in-boundary inventory, the most recent version published is for 2012, and the CEEI Protocol does not fully meet the requirements of the GPC Protocol BASIC or BASIC+ reporting requirements which is the required reporting standard for local governments that have committed to the Global Covenant of Mayors—an agreement led by city networks to undertake a transparent and supportive approach to measure GHG emissions community-wide. A high-level summary of the differences between the CEEI and GPC Protocol inventories are presented in **Table 3**.

Table 3. Summary of GHG Inventory Scope Differences

Reporting Sector	CEEI	GPC BASIC	GPC BASIC+
Residential Buildings	✓	✓	✓
Commercial And Institutional Buildings And Facilities	✓	✓	✓
Manufacturing Industries And Construction	✓	✓	✓
Energy Industries		✓	✓
Energy Generation Supplied To The Grid		✓	✓
Agriculture, Forestry And Fishing Activities		✓	✓
Non-Specified Sources		✓	✓

Reporting Sector	CEEI	GPC BASIC	GPC BASIC+
Fugitive Emissions From Mining, Processing, Storage, And Transportation Of Coal		✓	✓
Fugitive Emissions From Oil And Natural Gas Systems		✓	✓
On-Road Transportation	✓	✓	✓
Railways		✓	✓
Waterborne Navigation		✓	✓
Aviation		✓	✓
Off-Road Transportation		✓	✓
Solid Waste	✓	✓	✓
Biological Waste	✓	✓	✓
Incinerated And Burned Waste		✓	✓
Wastewater		✓	✓
Emissions From Industrial Processes			✓
Emissions From Product Use			✓
Emissions From Livestock	✓		✓
Emissions From Land			✓
Emissions From Aggregate Sources And Non-CO ₂ Emission Sources On Land	✓		✓

1.4 Purpose of Document

The purpose of this document is to provide the 2007 and 2018 GPC BASIC+ energy and GHG emissions inventories at the regional and local government level. This document compliments a 2018 inventory report which describes the methodologies and data sources applied to derive the estimate of GHG emissions for the CRD region and local governments.

2 INVENTORY SCOPE

2.1 GPC BASIC+ Inventory Scope

In accordance with the GPC Protocol, the 2007 and 2018 BASIC+ GHG inventories presented herein accounts for GHG emissions from the following Reporting Sectors:

- **Stationary Energy** – These are GHG emissions from fuel combustion, fugitive emissions, and some off-road transportation sources (e.g. construction equipment, residential mowers, etc.). They include the emissions from energy to heat and cool residential, commercial, institutional, and light/heavy industrial buildings, as well as the activities that occur within these residences and facilities.
- **Transportation** – These are GHG emissions from the combustion of fuels as a result of vehicular on-road, off-road, including marine, aviation, and other off-road, and trans-boundary journeys.
- **Waste** – These are GHG emissions from the disposal and management of solid waste, the biological treatment of waste, and wastewater treatment and discharge. Waste does not directly consume energy, but releases GHG emissions because of decomposition, burning, and other management methods.
- **Industrial Process and Product Use (IPPU)** – These are GHG emissions from products such as refrigerants, foams or aerosol cans can release potent GHG emissions, known as product use GHG emissions. There are no known industrial process emissions in the CRD.
- **Agriculture, Forestry and Other Land-Use (AFOLU)** – These are GHG emissions that are captured or released as a result of land-management activities. These activities can range from the preservation of forested lands to the development of crop land. This Sector includes GHG emissions from land-use change, manure management, livestock, and the direct and indirect release of nitrous oxides (N₂O) from soil management, urea application, fertilizer and manure application.

2.2 GHG Emissions Boundary

The GHG inventories are defined geographically by the CRD, which includes 13 municipalities and 3 electoral areas, as shown in Figure 2.

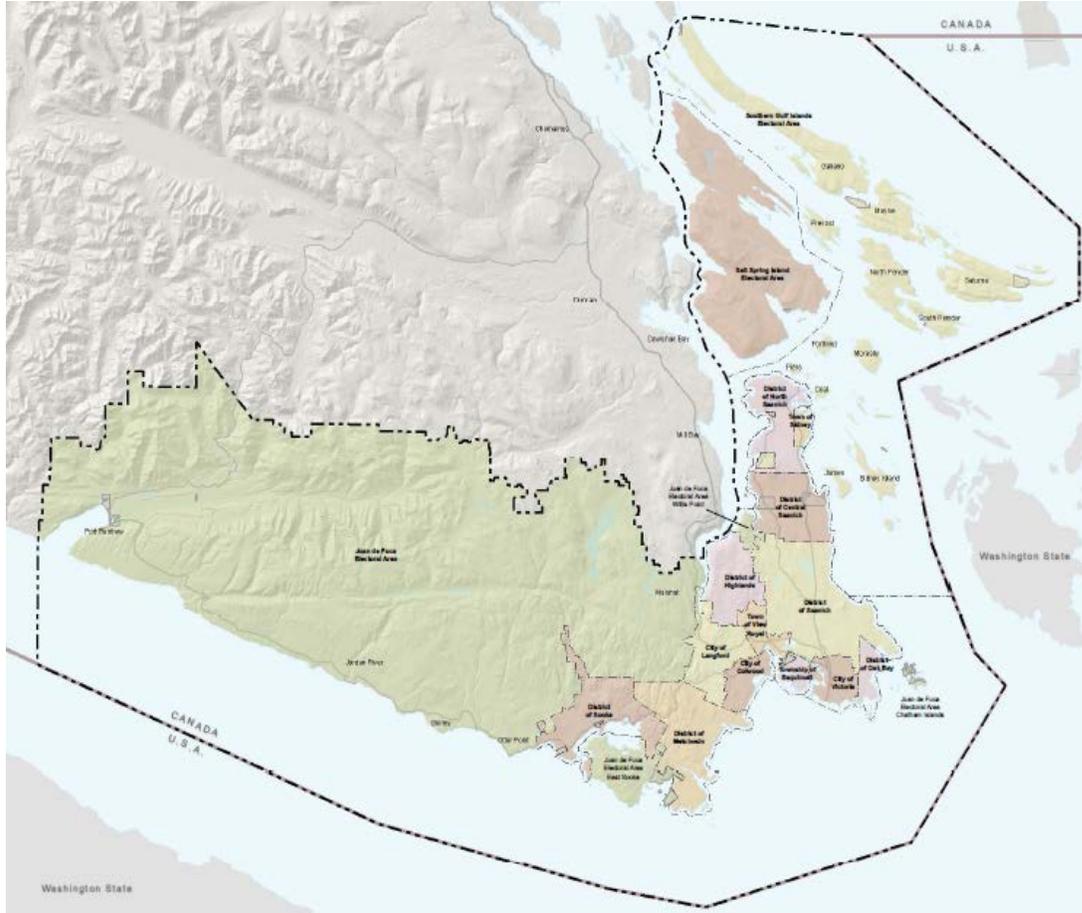


Figure 2 CRD GHG Boundary

2.3 Assumptions & Disclosures

The following inventories covers all GHG emissions for the 2007 and 2018 reporting years. Where data was not available, the most recent year's data have been used, and the timescale noted accordingly. These disclosures are as follows:

- Global Warming Potentials (GWP).** The BC government is currently applying GWPs from the fourth IPCC report in light of the fact that there are updated GWPs in available in the fifth IPCC report. On this basis, the following GHG emissions inventories apply GWPs from the fourth IPCC report.
- Stationary Energy: Propane, Wood and Fuel Oil – Residential Buildings.** Propane, and wood GHG emissions were estimated using linear regression methods. The data used in the estimates included historical propane and wood energy data published in the 2007, 2010 and 2012 CEEIs, and heating degree days (HDD) published by Environment Canada. This approach was also applied to the estimate of heating oil for all local governments, except the City of Victoria and District of Saanich. For the District of

Saanich and the City of Victoria, heating oil GHG emissions were estimated based on the number of known tanks, average heated floor areas and estimated average fuel volumes.

- **Stationary Energy: Electricity and Natural Gas Consumption - All Buildings.** Prior to releasing the electricity and natural gas consumption data, the Province completes a series of quality assurance and control checks which has resulted in the re-allocation of energy between local governments. This data is then published on the Province's website. When the published 2007-2018 natural gas data was trended, several unexplained data anomalies and trends were identified for several local governments in the CRD. As these data anomalies and trends could not readily be explained, the raw natural gas data sets were acquired from FortisBC, reviewed and compared to the published data. In the 2007 and 2010 reporting years, the published data was under reporting natural gas volumes by upwards of 17% at the CRD level and had several large allocations between the City of Victoria and other local governments in 2012. Based on the issues with the published data, and on the basis the annual raw natural gas consumption trends align with the reported 2018 consumption data and align with historical raw data provided to the City of Victoria and the District of Saanich for their energy and GHG emissions inventories, the raw FortisBC dataset was used to estimate GHG emissions. A similar issue was noted for the Juan de Fuca electoral area and electricity data for the 2007, 2010 and 2012 reporting years (i.e., the under reporting of energy consumption) in the published data. As such, the raw electricity data from BC Hydro was used to estimate GHG emissions.
- **Stationary Energy: Fugitives.** FortisBC provided total fugitive emissions for the 2018 reporting year at the regional level. To estimate local government fugitive emissions, the value was prorated based on the number of reported natural gas connections (provided by Fortis BC). Since no historical numbers were provided, the 2018 value was applied to the 2007 base year as well. The estimate of fugitive emissions is an understatement of GHG emissions as FortisBC did not estimate the upstream GHG emissions as recommended by the GPC Protocol.
- **Transportation: On-Road.** The Province of BC provided Insurance Corporation of BC (ICBC) vehicle registration data from April 1, 2018 – March 31, 2019. When compared to local government population trends, there appears to be a high degree of uncertainty as to the accuracy of the 2018 vehicle registration data in terms of total registered vehicles. Without having reliable historical (e.g. 2011-2017) and current (2019) data to compare this dataset against, the reasonableness of the data was too uncertain to be applied in the estimation of GHG emissions for the 2018 reporting year. Therefore, to estimate on-road energy and GHG emissions for the 2018 reporting year, 2010 vehicle populations were grown in proportion to the reported changes in local government populations. Each of the local government vehicle profiles were then adjusted to match the proportion of vehicle classes reported in the 2018 ICBC data.
- **Transportation: On-Road.** In cases where vehicle registration counts were 10 or less, the Province assigned a value of "<10" rather than report the actual number. In these cases, the inventory assumes there was 10 vehicles of that particular classification. This is likely to result in an over-estimation of GHG emissions, but it will be immaterial to the overall GHG inventory.
- **Transportation: On-Road.** Vehicle fuel consumption rates and Vehicle Kilometer Travelled (VKT) were taken from the activity data summary for British Columbia on-road transportation from the 2018 National Inventory Report (1990-2018) as prepared by Environment Canada. Based on the clear diesel and clear gasoline consumption values

reported by the Province of BC for the Victoria region, the VKT and fuel efficiency values are reasonable and result in a similar estimate of fuel consumption for the Region.

- **Transportation: Aviation.** 2018 aviation GHG emissions were estimated using 2015 aircraft flight profiles (the last available data), and the total number of aircraft movements reported in 2018. The emissions were prorated to each local government on a per capita basis.
- **Transportation: Waterborne Recreational Watercraft.** GHG emissions from recreational watercraft and US/Canada ferries were estimated based on a publicly available year 2000 study for the Victoria, Vancouver, and Washington harbors. These GHG emissions were prorated to each local government on a per capita basis.
- **Transportation: Cruise Ships.** The Greater Victoria Harbour Authority reported on cruise ship emissions for the 2018 reporting year but did not provide an estimate for 2007. As a result, no cruise ship emissions are included in the 2007 base year inventory.
- **Waste: Solid Waste.** To quantify GHG emissions from the Hartland Landfill, the CRD utilized the waste-in-place (WIP) method which is accepted under the GPC Protocol. The WIP assigns landfill emissions based on total waste deposited during that year. It counts GHGs emitted that year, regardless of when the waste was disposed. Except for the City of Victoria, who claims 31% of the CRD's landfill GHG emission, the remaining landfill GHG emissions were allocated to each local government on a per capita basis. Using this allocation method, the CRD members may over, or underestimate associated solid waste GHG emissions as the current year landfill GHG emissions are based upon cumulative waste over time, and each member may have contributed more waste in past years than the current year (and vice versa).
- **AFOLU: Aggregate Sources And Non-CO₂ Emission Sources On Land.** These emissions are based on the 2019 NIR as prepared by ECCC and the total area of farmland BC in 2016 as reported by Statistics Canada. These GHG emissions were assigned to each local government on a per hectare (ha) of cropland basis.
- **AFOLU: Land-Use.** The land cover change analysis requires a consistent land-use category attribution and spatial resolution for the 2007 base and 2018 reporting years. For the land use change analysis, land cover data was available for the 2007, 2011 and 2017 years for only part of the CRD. Unfortunately, no more recent or higher quality data source was available to represent the land cover consistently for all three years. Furthermore, since annual data was not available, the change between land cover data years (2007-2011, 2011-2017) was averaged and may not represent actual changes in each year.
- **AFOLU: Land-Use.** There was limited land-use datasets for the Juan de Fuca, Salt Spring Island and Gulf Island Electoral Areas and this data was only available for 2007 and 2011. On this basis, land-use GHG emissions estimates for these electoral areas has been withheld.

Details surrounding all GHG emissions sources quantification methods, assumptions, and assessment of uncertainties are contained in a complimentary GHG emissions methodology document and are not be presented herein.

3 CAPITAL REGIONAL DISTRICT ENERGY & GHG EMISSIONS

3.1 Base Year (2007) Energy & GHG Emissions

In 2007, the CRD's GHG BASIC+ emissions totaled 1,715,814 tCO₂e. Excluding land use GHG emissions, buildings are the CRD's second largest GHG emissions source at 33%, with 42% of those GHG emissions coming from natural gas for heating and cooling, 22% from heating oil for heating, 12% from electricity use, 8% from wood and propane use for heating and the remainder from other-related off-road activities like residential lawn mowing. On-road transportation GHG emission sources contributed 46% to the GHG inventory, almost all of which came from passenger vehicles, light trucks, and SUVs (85%). Off-road transportation, which includes marine, aviation, and other off-road emission sources contributed 7% to the overall GHG inventory. Solid waste, organic waste treatment methods, and wastewater treatment and discharge accounted for 7% of the total community GHG emissions. IPPU emissions accounted for 4% of total GHG emissions while AFOLU GHG emissions resulted in a reduction of 13% of community GHG emissions through the sequestration and storage of carbon.

A summary of the GHG emissions by sector and energy use by source is presented in the following table and figures.

Table 4. Base Year (2007) CRD Regional GHG Energy & GHG Emissions by Source

Source	Type	Consumption	Units	Energy (GJ)	GHG Emissions (tCO ₂ e)
Stationary Energy					
Residential Buildings	Electricity	2,107,163	MWh	7,585,725	52,679
	Natural Gas	2,639,980	GJ	2,639,980	131,649
	Fuel Oil	83,335	L	2,147,821	146,859
	Propane	10,747	L	424,600	25,882
	Wood	1,144,369	GJ	1,144,369	26,872
	Diesel	6,507,150,337	L	251,696,575	19,468
Commercial & Industrial Buildings	Electricity	1,365,217	MWh	4,914,742	34,130
	Natural Gas	3,352,456	GJ	3,352,456	167,179
	Fuel Oil	6,272	L	161,638	11,052
	Diesel	11,734,205,525	L	453,879,070	35,106
Energy Industries	LFG Combustion				418
Agriculture, Forestry And Fishing Activities	Diesel	20,743,755,464	L	802,368,461	62,060
Natural Gas Fugitive Emissions					993
Total				1,530,315,436	714,348
On-Road Transportation					
Electric Vehicles	Electricity	6,622	MWh	23,840	0
Passenger Vehicles	Gasoline + Diesel + Propane	146,887,432	L	5,104,833,250	403,626
Light Trucks, Vans, SUVs	Gasoline + Diesel + Propane	190,281,535	L	6,653,532,090	370,284

Source	Type	Consumption	Units	Energy (GJ)	GHG Emissions (tCO ₂ e)
Heavy Duty Vehicles	Gasoline + Diesel + Propane	49,689,669	L	1,863,143,296	140,949
Motorcycles	Gasoline + Diesel + Propane	885,376	L	30,687,149	2,885
Total On-Road Transportation				12,964,443,359	917,744
Off-Road Transportation					
Marine, Aviation and Other Off-Road Vehicles	Marine Gasoline + Marine Diesel + Jet Fuel	45,492,152	L	1,368,476,176	130,172
Total Off-Road Transportation				1,368,476,176	130,172
Waste					
Wastewater					18,998
Composting					72
Solid Waste					111,234
Total Waste					130,304
Agriculture Forestry & Other Land Use (AFOLU)					
Land-Use					-259,033
Livestock, Aggregate Sources and Non-CO ₂ Emission Sources on Land					4,930
Total AFOLU					-254,103
Industrial Process & Product Use (IPPU)					
Process Use Emissions					77,348
Total IPPU					77,348
TOTAL				16,551,220,325	1,715,814
TOTAL Per Capita (Population: 351,590)				40,768	4.9

Energy consumption and GHG emissions by source are shown in **Figure 3**, **Figure 4** and **Figure 5**. On-road and transboundary transportation (82%) account for most of the energy consumption in the region.

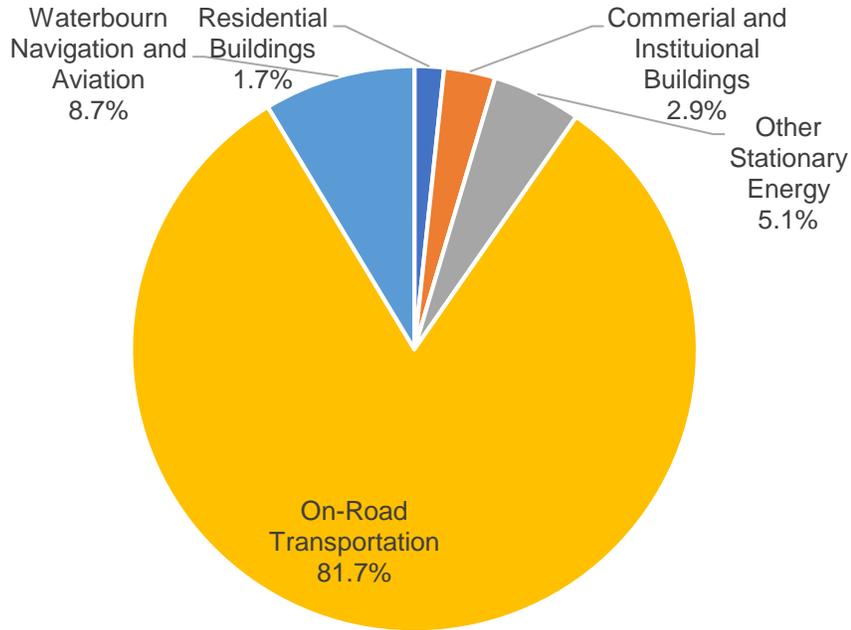


Figure 3. 2007 Regional Energy Consumption By Sector

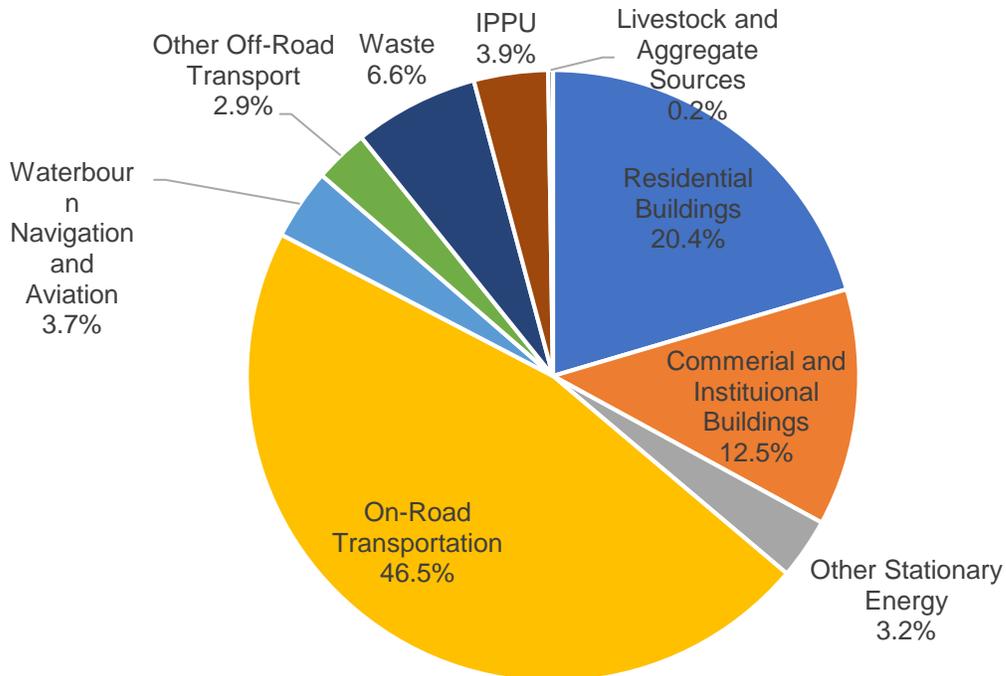


Figure 4. 2007 Regional GHG Emissions By Sector (Excluding Land Use)

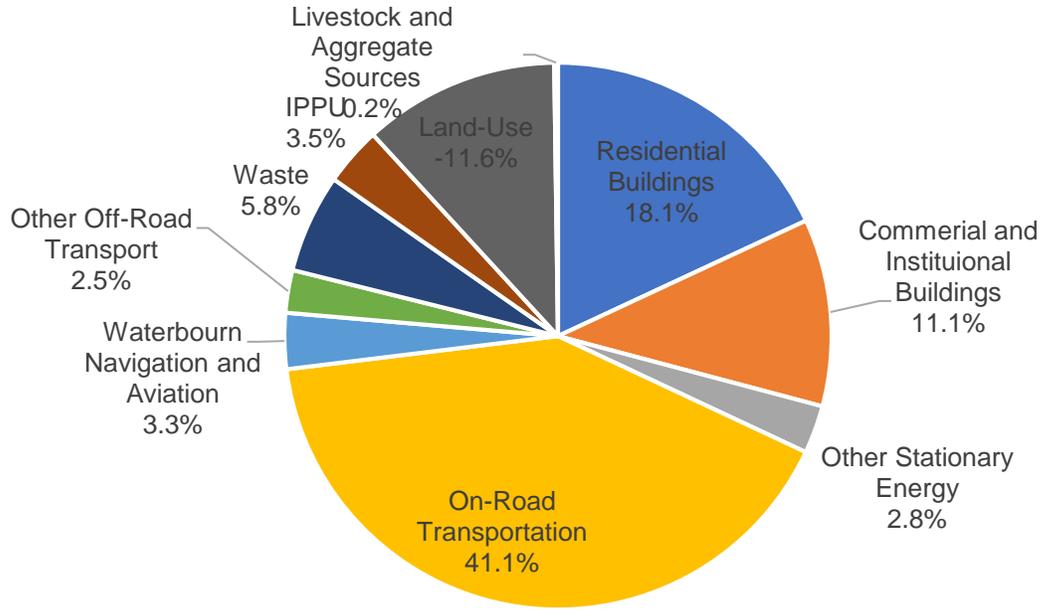


Figure 5. 2007 Regional GHG Emissions By Sector (Including Land Use)

GHG emissions by fuel type is presented in **Figure 6**.

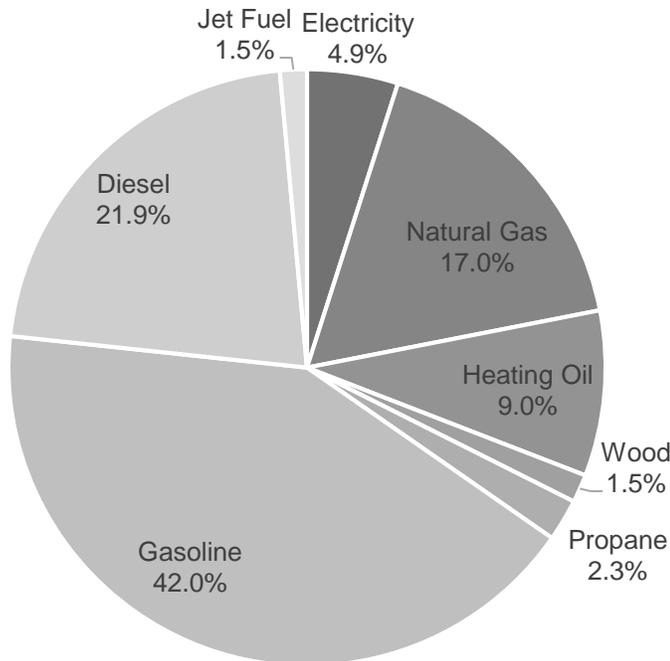


Figure 6. 2007 Regional GHG Emissions By Fuel Type

3.2 CRD GHG Reduction Target

Recognizing the role that the CRD plays in achieving a significant and immediate reduction in global GHG emissions, the CRD has set a regional GHG reduction target of 61% (from 2007 levels) by 2038. With the CRD's 2007 base year GHG emissions being 1,715,814 tCO₂e, a 39% reduction would require a reduction of approximately 669,168 tCO₂e. On a per capita basis, this amounts to reducing emissions from approximately 4.2 tCO₂e per person in 2018 to 2.6 tCO₂e per person by 2038.

In February 2019, the CRD declared a climate emergency and committed to regional carbon neutrality.

3.3 Reporting Year (2018) Energy & GHG Emissions

In 2018, the CRD's BASIC+ GHG emissions totaled 1,696,703 tCO₂. While this is a small decline of 1.1% from the 2007 base year GHG emissions, on an absolute basis, it is a decline of 14% on a per capita basis. Between 2007 and 2018, the CRD's population has grown 15% and thus this decline speaks to the efforts by the CRD and CRD local governments to reduce energy consumption and GHG emissions.

Similar to the 2007 base year, buildings are the second largest GHG emissions source at 32%, with 48% of those GHG emissions coming from natural gas for heating and cooling, 23% from heating oil for heating, 5% from electricity use, 8% from wood and propane use for heating and the remainder from other-related off-road activities like residential lawn mowing. On-road transportation GHG emission sources contributed 46%, almost all of which came from passenger vehicles, light trucks, and SUVs (86%). Off-road transportation, which includes marine, aviation, and other off-road emission sources contributed 7% to the overall GHG inventory. Solid waste, organic waste treatment methods, and wastewater treatment and discharge accounted for 5% of the total community GHG emissions. IPPU emissions accounted for 7% of total GHG emissions while AFOLU GHG emissions resulted in a reduction of 11% of community GHG emissions through the sequestration and storage of carbon.

A summary of the 2018 GHG emissions by sector and energy use by source is presented in the following table and figures.

Table 5. Reporting Year (2018) CRD Regional GHG Energy & GHG Emissions by Sector

Source	Type	Consumption	Units	Energy (GJ)	GHG Emissions (tCO ₂ e)
Stationary Energy					
Residential Buildings	Electricity	1,920,909	MWh	6,915,217	20,496
	Natural Gas	2,218,511	GJ	2,218,511	110,632
	Fuel Oil	80,580	L	2,076,809	142,004
	Propane	10,169	L	401,770	24,569
	Wood	1,100,555	GJ	1,100,555	25,843
	Diesel	5,434,846,821	L	210,219,875	15,252
Commercial & Industrial Buildings	Electricity	1,290,843	MWh	4,646,998	13,773
	Natural Gas	4,192,845	GJ	4,192,845	209,087
	Fuel Oil	5,549	L	143,003	9,778

Source	Type	Consumption	Units	Energy (GJ)	GHG Emissions (tCO ₂ e)
	Diesel	11,683,072,079	L	451,901,228	32,786
Energy Industries	LFG Combustion				7,658
Agriculture, Forestry And Fishing Activities	Diesel	19,879,416,345	L	768,935,824	55,787
	Natural Gas Fugitive Emissions				1,510
Total				1,452,752,636	669,175
On-Road Transportation					
Electric Vehicles	Electricity	6,622	MWh	23,840	80
Passenger Vehicles	Gasoline + Diesel + Propane	146,887,432	L	5,104,833,250	328,408
Light Trucks, Vans, SUVs	Gasoline + Diesel + Propane	190,281,535	L	6,653,532,090	426,624
Heavy Duty Vehicles	Gasoline + Diesel + Propane	49,689,669	L	1,863,143,296	121,922
Motorcycles	Gasoline	885,376	L	30,687,149	2,114
Total On-Road Transportation				13,652,219,624	879,148
Off-Road Transportation					
Marine, Aviation and Other Off-Road Vehicles	Marine Gasoline + Marine Diesel + Jet Fuel	44,843,853	L	1,446,248,065	126,061
Total Off-Road Transportation				1,446,248,065	126,061
Waste					
	Wastewater				19,859
	Composting				5,307
	Solid Waste				71,219
Total Waste					96,386
Agriculture Forestry & Other Land Use (AFOLU)					
	Land-Use				-209,262
	Livestock, Aggregate Sources and Non-CO ₂ Emission Sources on Land				4,930
Total AFOLU					-203,952
Industrial Process & Product Use (IPPU)					
	Process Use Emissions				129,884
Total IPPU					129,884
TOTAL				16,551,220,325	1,696,703
TOTAL Per Capita (Population: 405,983)				40,768	4.2

Energy consumption and GHG emissions by source are shown in **Figure 8**, **Figure 9** and **Figure 10**. On-road and transboundary transportation (82%) account for most of the energy consumption in the region.

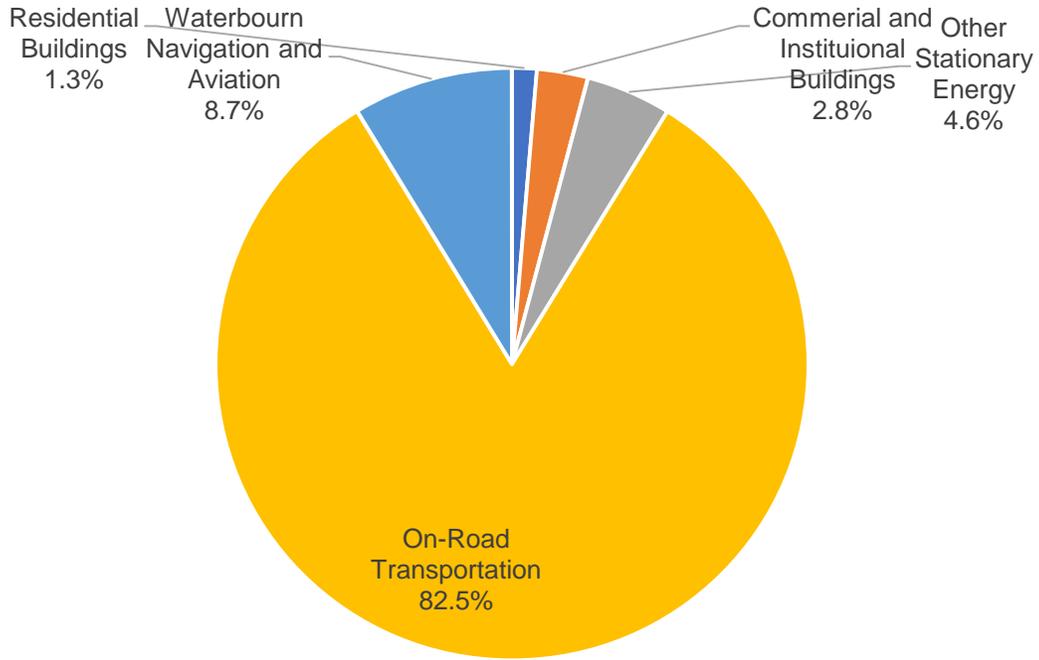


Figure 7. 2018 Regional Energy Consumption By Sector

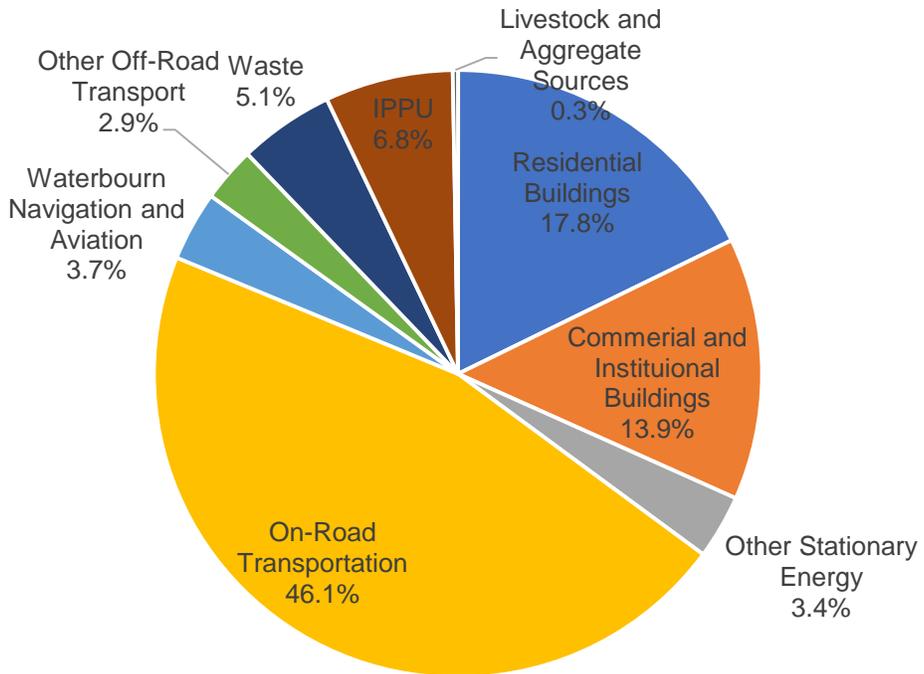


Figure 8. 2018 Regional GHG Emissions By Sector (Excluding Land Use)

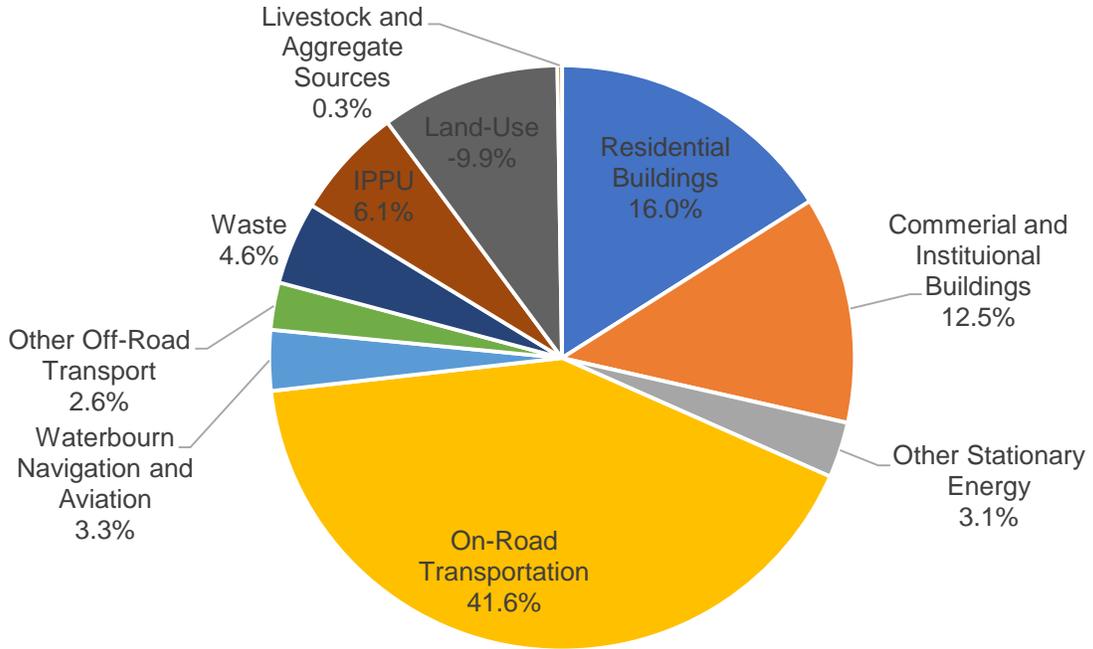


Figure 9. 2018 Regional GHG Emissions By Sector (Including Land Use)

GHG emissions by fuel type is presented in **Figure 11**.

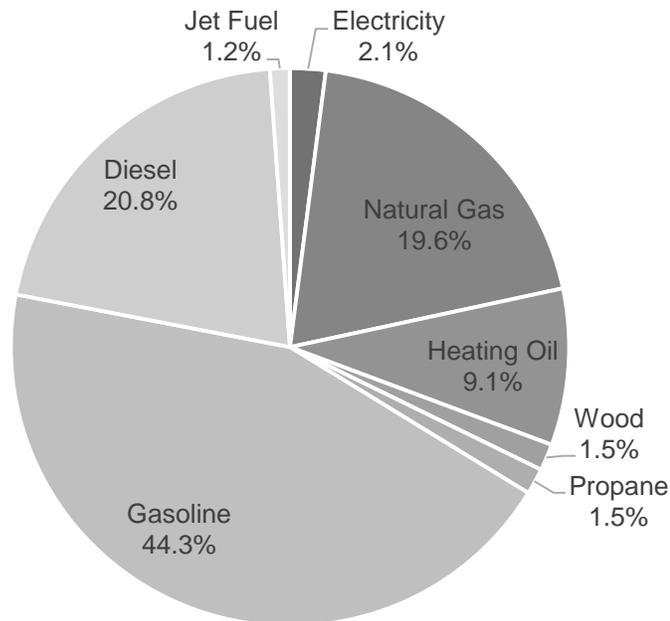


Figure 10. 2018 Regional GHG Emissions By Fuel Type

3.4 Energy & GHG Emissions Trends

Table 8 presents the changes between the 2007 and 2018 reporting years, showing that emissions decreased in most reporting sectors. There was an increase in commercial buildings natural gas consumption and building related natural gas fugitive emissions which is expected as the CRD population has grown. There was also an increase in process use emissions (67%) which is also driven by population. Lastly, there was an increase in composting emissions which is the direct result of waste diversion programs which result in some direct GHG emissions, but overall have a net reduction impact as the process avoids releasing more fugitive emissions from the landfill. Total waste emissions declined 26% from the base year as a result.

GHG emissions resulting from residential buildings have declined by 16% as a result of improved efficiency of appliances and lighting, energy efficiency upgrades, and a transition from heating oil to natural gas or electric heating. In contrast, GHG emissions from commercial and institutional buildings has increased 7% since the base year which is likely to the expanding population and the increased construction of multi-unit residential buildings in the region (which are classified by the utilities as commercial buildings). Overall, stationary energy emissions, which includes buildings, fugitives, and other off-road emission sources have declined by 6% since the base year.

On-road transportation GHG emissions have decreased 4% in light of a 15% increase in the number of registered vehicles and a trend away from light duty vehicles, like sedans, towards SUVs and light duty trucks which have lower fuel efficiencies. This increase has been mitigated by shifting preferences towards electric vehicles, Provincial renewable fuel requirements and people simply driving less. Overall, transportation GHG emissions have declined 4% since the base year.

Land-use GHG emissions increased 20% as a result of more infill and less greenspace development.

Table 6. Change in CRD GHG Energy & GHG Emissions

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO ₂ e)	2018 GHG Emissions (tCO ₂ e)	Change (%)
Stationary Energy							
Residential Buildings	Electricity	7,585,725	6,915,217	-8.8%	52,679	20,496	-61.1%
	Natural Gas	2,639,980	2,218,511	-16.0%	131,649	110,632	-16.0%
	Fuel Oil	2,147,821	2,076,809	-3.3%	146,859	142,004	-3.3%
	Propane	424,600	401,770	-5.4%	25,882	24,569	-5.1%
	Wood	1,144,369	1,100,555	-3.8%	26,872	25,843	-3.8%
	Diesel	251,696,575	210,219,875	-16.5%	19,468	15,252	-21.7%
Commercial & Industrial Buildings	Electricity	4,914,742	4,646,998	-5.4%	34,130	13,773	-59.6%
	Natural Gas	3,352,456	4,192,845	25.1%	167,179	209,087	25.1%
	Fuel Oil	161,638	143,003	-11.5%	11,052	9,778	-11.5%
	Diesel	453,879,070	451,901,228	-0.4%	35,106	32,786	-6.6%
Energy Industries	LFG Combustion			-	418	7,658	1,731.0%
Agriculture, Forestry And Fishing Activities	Diesel	802,368,461	768,935,824	-4.2%	62,060	55,787	-10.1%
Natural Gas Fugitive Emissions							
				-	993	1,510	52.0%
Total		1,530,315,436	1,452,752,636	-5.1%	714,348	669,175	-6.3%
On-Road Transportation							
Electric Vehicles	Electricity	-	23,840	-	-	80	-
Passenger Vehicles	Gasoline + Diesel + Propane	5,673,042,376	5,104,833,250	-10.0%	403,626	328,408	-18.6%
Light Trucks, Vans, SUVs	Gasoline + Diesel + Propane	5,237,494,806	6,653,532,090	27.0%	370,284	426,624	15.2%

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO ₂ e)	2018 GHG Emissions (tCO ₂ e)	Change (%)
Heavy Duty Vehicles	Gasoline + Diesel + Propane	2,012,032,599	1,863,143,296	-7.4%	140,949	121,922	-13.5%
Motorcycles	Gasoline	41,873,577	30,687,149	-26.7%	2,885	2,114	-26.7%
Total On-Road Transportation		12,964,443,359	13,652,219,624	5.3%	917,744	879,148	-4.2%
Off-Road Transportation							
Marine, Aviation and Other Off-Road Vehicles	Marine Gasoline + Marine Diesel + Jet Fuel	1,368,476,176	1,446,248,065	5.7%	130,172	126,061	-3.2%
Total Off-Road Transportation		1,368,476,176	1,446,248,065	5.7%	130,172	126,061	-3.2%
Waste							
Wastewater					18,998	19,859	4.5%
Composting					72	5,307	7,235.5%
Solid Waste					111,234	71,219	-36.0%
Total Waste					130,304	96,386	-26.0%
Agriculture Forestry & Other Land Use (AFOLU)							
Land-Use					-259,033	-209,262	-19.2%
Livestock, Aggregate Sources and Non-CO ₂ Emission Sources on Land					4,930	5,310	7.7%
Total AFOLU					-254,103	-203,952	-19.7%
Industrial Process & Product Use (IPPU)							
Process Use Emissions					77,348	129,884	67.9%
Total IPPU					77,348	129,884	67.9%
TOTAL		15,863,234,970	16,551,220,325	4.3%	1,715,814	1,696,703	-1.1%

Table 9 presents the changes between the 2007 and 2018 years for each CRD local government.

Table 7. Change in Member GHG Energy & GHG Emissions

Member	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO ₂ e)	2018 GHG Emissions (tCO ₂ e)	Change (%)
District of Central Saanich	934,902,793	1,045,600,285	11.8%	80,648	73,995	-8.2%
City of Colwood	750,792,571	789,321,199	5.1%	80,838	78,506	-2.9%
Township of Esquimalt	676,242,529	643,974,376	-4.8%	95,893	85,786	-10.5%
District of Highlands	112,841,173	151,794,110	34.5%	7,776	9,373	20.5%
Juan de Fuca Electoral Area*	253,876,662	345,083,050	35.9%	67,459	73,063	8.3%
City of Langford	1,239,457,962	1,759,292,495	41.9%	133,247	169,775	27.4%
District of Metchosin	279,367,955	277,503,007	-0.7%	16,333	9,038	-44.7%
District of North Saanich	625,452,000	619,051,181	-1.0%	54,454	45,201	-17.0%
District of Oak Bay	696,499,293	610,344,469	-12.4%	89,140	77,178	-13.4%
District of Saanich	4,982,128,424	4,803,100,900	-3.6%	574,835	496,408	-13.6%
Salt Spring Island Electoral Area*	499,527,214	527,421,486	5.6%	45,361	43,963	-3.1%
Town of Sidney	547,533,536	526,442,192	-3.9%	62,025	56,194	-9.4%
District of Sooke	509,913,927	583,623,839	14.5%	46,616	46,574	-0.1%
City of Victoria	3,096,770,892	3,178,286,588	2.6%	481,559	452,567	-6.0%
Town of View Royal	417,028,188	419,127,141	0.5%	48,163	45,507	-5.5%
Southern Gulf Islands Electoral Area*	240,899,851	271,254,006	12.6%	28,947	29,220	0.9%

* Land-use GHG emission estimates have been withheld due to limited land-use data.

4 DISTRICT OF CENTRAL SAANICH

4.1 2018 Profile

Profile	
Population	18,011
Dwellings	7,541
Registered Vehicles	14,552
Energy (Millions of GJ)	1,046
GHG Emissions (tCO ₂ e)	73,995

4.2 Energy & GHG Emissions

Table 10 presents a summary comparison of the District of Central Saanich's 2007 and 2018 energy and GHG emissions.

Table 8. Estimated Energy and GHG Emissions By Reporting Source

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO ₂ e)	2018 GHG Emissions (tCO ₂ e)	Change (%)
Stationary Energy							
Residential Buildings	Electricity	400,966	355,752	-11.3%	2,785	1,054	-62.1%
	Natural Gas	101,999	119,958	17.6%	5,086	5,982	17.6%
	Fuel Oil	18,644	22,717	21.8%	1,275	1,553	21.8%
	Propane	3,220	3,039	-5.6%	196	186	-5.3%
	Wood	7,150	6,825	-4.6%	168	160	-4.6%
	Diesel	11,563,625	9,326,179	-19.3%	894	677	-24.3%
Commercial & Industrial Buildings	Electricity	230,235	235,660	2.4%	1,599	698	-56.3%
	Natural Gas	152,986	141,268	-7.7%	7,629	7,045	-7.7%

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO ₂ e)	2018 GHG Emissions (tCO ₂ e)	Change (%)
	Fuel Oil	0	0	-	0	0	-
	Diesel	20,852,438	20,048,113	-3.9%	1,613	1,455	-9.8%
Energy Industries	LFG Combustion			-	0	0	-
Agriculture, Forestry And Fishing Activities	Diesel	55,164,176	50,183,726	-9.0%	4,267	3,641	-14.7%
Natural Gas Fugitive Emissions				-	57	81	43.4%
Total		88,495,439	80,443,237	-9.1%	25,568	22,532	-11.9%
On-Road Transportation							
Electric Vehicles	Electricity	-	915	-	-	3	-
Passenger Vehicles	Gasoline + Diesel + Propane	278,537,870	227,594,610	-18.3%	19,814	14,620	-26.2%
Light Trucks, Vans, SUVs	Gasoline + Diesel + Propane	340,633,094	395,683,305	16.2%	24,071	25,379	5.4%
Heavy Duty Vehicles	Gasoline + Diesel + Propane	168,527,581	285,314,226	69.3%	11,841	18,590	57.0%
Motorcycles	Gasoline	2,245,375	1,298,333	-42.2%	155	89	-42.2%
Total On-Road Transportation		789,943,920	909,891,389	15.2%	55,881	58,681	5.0%
Off-Road Transportation							
Marine, Aviation and Other Off-Road Vehicles	Marine Gasoline + Marine Diesel + Jet Fuel	56,463,434	55,265,659	-2.1%	5,498	4,923	-10.5%
Total Off-Road Transportation		56,463,434	55,265,659	-2.1%	5,498	4,923	-10.5%
Waste							
Wastewater					668	787	17.9%
Composting					0	0	-

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO ₂ e)	2018 GHG Emissions (tCO ₂ e)	Change (%)
Solid Waste					5,110	2,825	-44.7%
Total Waste					5,778	3,612	-37.5%
Agriculture Forestry & Other Land Use (AFOLU)							
Land-Use					-17,568	-23,720	35.0%
Livestock, Aggregate Sources and Non-CO ₂ Emission Sources on Land					1,937	2,205	13.8%
Total AFOLU					-15,631	-21,515	37.6%
Industrial Process & Product Use (IPPU)							
Process Use Emissions					3,554	5,762	62.2%
Total IPPU					3,554	5,762	62.2%
TOTAL		934,902,793	1,045,600,285	11.8%	80,648	73,995	-8.2%

5 CITY OF COLWOOD

5.1 2018 Profile

Profile	
Population	18,321
Dwellings	7,182
Registered Vehicles	12,397
Energy (Millions of GJ)	789
GHG Emissions (tCO ₂ e)	78,506

5.2 Energy & GHG Emissions

Table 11 presents a summary comparison of the City of Colwood's 2007 and 2018 energy and GHG emissions.

Table 9. Estimated Energy and GHG Emissions By Reporting Source

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO ₂ e)	2018 GHG Emissions (tCO ₂ e)	Change (%)
Stationary Energy							
Residential Buildings	Electricity	304,580	296,374	-2.7%	2,115	878	-58.5%
	Natural Gas	100,740	131,733	30.8%	5,024	6,569	30.8%
	Fuel Oil	65,936	80,342	21.8%	4,508	5,493	21.8%
	Propane	11,388	10,749	-5.6%	694	657	-5.3%
	Wood	25,284	24,133	-4.6%	594	567	-4.6%
	Diesel	11,058,929	9,486,699	-14.2%	855	688	-19.5%
Commercial & Industrial Buildings	Electricity	159,740	135,650	-15.1%	1,109	402	-63.8%
	Natural Gas	94,097	94,637	0.6%	4,692	4,719	0.6%

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO ₂ e)	2018 GHG Emissions (tCO ₂ e)	Change (%)
	Fuel Oil	0	0	-	0	0	-
	Diesel	19,942,330	20,393,175	2.3%	1,542	1,480	-4.1%
Energy Industries	LFG Combustion			-	0	0	-
Agriculture, Forestry And Fishing Activities	Diesel	52,756,528	51,047,473	-3.2%	4,081	3,704	-9.2%
Natural Gas Fugitive Emissions				-	61	91	49.7%
Total		84,519,553	81,700,966	-3.3%	25,276	25,249	-0.1%
On-Road Transportation							
Electric Vehicles	Electricity	-	893	-	-	3	-
Passenger Vehicles	Gasoline + Diesel + Propane	233,329,205	206,853,174	-11.3%	16,594	13,280	-20.0%
Light Trucks, Vans, SUVs	Gasoline + Diesel + Propane	275,283,981	340,405,119	23.7%	19,487	21,821	12.0%
Heavy Duty Vehicles	Gasoline + Diesel + Propane	101,515,618	102,551,511	1.0%	7,121	6,743	-5.3%
Motorcycles	Gasoline	2,145,135	1,592,661	-25.8%	148	110	-25.8%
Total On-Road Transportation		612,273,939	651,403,358	6.4%	43,349	41,956	-3.2%
Off-Road Transportation							
Marine, Aviation and Other Off-Road Vehicles	Marine Gasoline + Marine Diesel + Jet Fuel	53,999,079	56,216,876	4.1%	5,258	5,007	-4.8%
Total Off-Road Transportation		53,999,079	56,216,876	4.1%	5,258	5,007	-4.8%
Waste							
Wastewater					397	627	57.8%
Composting					0	0	-

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO ₂ e)	2018 GHG Emissions (tCO ₂ e)	Change (%)
Solid Waste					4,887	2,874	-41.2%
Total Waste					5,285	3,501	-33.8%
Agriculture Forestry & Other Land Use (AFOLU)							
Land-Use					-1,732	-3,072	77.3%
Livestock, Aggregate Sources and Non-CO ₂ Emission Sources on Land					4	4	7.0%
Total AFOLU					-1,728	-3,068	77.5%
Industrial Process & Product Use (IPPU)							
Process Use Emissions					3,399	5,861	72.5%
Total IPPU					3,399	5,861	72.5%
TOTAL		750,792,571	789,321,199	5.1%	80,838	78,506	-2.9%

6 TOWNSHIP OF ESQUIMALT

6.1 2018 Profile

Profile	
Population	18,758
Dwellings	9,183
Registered Vehicles	11,720
Energy (Millions of GJ)	644
GHG Emissions (tCO ₂ e)	85,786

6.2 Energy & GHG Emissions

Table 12 presents a summary comparison of the Township of Esquimalt's 2007 and 2018 energy and GHG emissions.

Table 10. Estimated Energy and GHG Emissions By Reporting Source

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO ₂ e)	2018 GHG Emissions (tCO ₂ e)	Change (%)
Stationary Energy							
Residential Buildings	Electricity	283,988	251,073	-11.6%	1,972	744	-62.3%
	Natural Gas	133,315	78,594	-41.0%	6,648	3,919	-41.0%
	Fuel Oil	116,338	141,755	21.8%	7,955	9,693	21.8%
	Propane	20,190	19,058	-5.6%	1,231	1,165	-5.3%
	Wood	44,358	42,338	-4.6%	1,042	994	-4.6%
	Diesel	12,428,409	9,712,979	-21.8%	961	705	-26.7%
Commercial & Industrial Buildings	Electricity	166,547	148,757	-10.7%	1,157	441	-61.9%
	Natural Gas	323,843	332,138	2.6%	16,149	16,563	2.6%

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO ₂ e)	2018 GHG Emissions (tCO ₂ e)	Change (%)
	Fuel Oil	0	0	-	0	0	-
	Diesel	22,411,885	20,879,601	-6.8%	1,733	1,515	-12.6%
Energy Industries	LFG Combustion			-	0	0	-
Agriculture, Forestry And Fishing Activities	Diesel	0	0	-	0	0	-
Natural Gas Fugitive Emissions				-	44	67	51.2%
Total		35,928,872	31,606,294	-12.0%	38,892	35,806	-7.9%
On-Road Transportation							
Electric Vehicles	Electricity	-	532	-	-	2	-
Passenger Vehicles	Gasoline + Diesel + Propane	263,197,247	229,013,679	-13.0%	18,717	14,702	-21.5%
Light Trucks, Vans, SUVs	Gasoline + Diesel + Propane	228,974,443	278,400,560	21.6%	16,158	17,808	10.2%
Heavy Duty Vehicles	Gasoline + Diesel + Propane	85,143,721	45,334,251	-46.8%	5,953	2,941	-50.6%
Motorcycles	Gasoline	2,312,202	2,061,277	-10.9%	159	142	-10.9%
Total On-Road Transportation		579,627,613	554,810,299	-4.3%	40,987	35,595	-13.2%
Off-Road Transportation							
Marine, Aviation and Other Off-Road Vehicles	Marine Gasoline + Marine Diesel + Jet Fuel	60,686,044	57,557,784	-5.2%	5,909	5,127	-13.2%
Total Off-Road Transportation		60,686,044	57,557,784	-5.2%	5,909	5,127	-13.2%
Waste							
Wastewater					1,388	1,470	5.9%
Composting					0	95	-

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO ₂ e)	2018 GHG Emissions (tCO ₂ e)	Change (%)
Solid Waste					5,493	2,942	-46.4%
Total Waste					6,880	4,507	-34.5%
Agriculture Forestry & Other Land Use (AFOLU)							
Land-Use					-595	-1,250	110.0%
Livestock, Aggregate Sources and Non-CO ₂ Emission Sources on Land					0	0	-
Total AFOLU					-595	-1,250	110.0%
Industrial Process & Product Use (IPPU)							
Process Use Emissions					3,819	6,001	57.1%
Total IPPU					3,819	6,001	57.1%
TOTAL		676,242,529	643,974,376	-4.8%	95,893	85,786	-10.5%

7 DISTRICT OF HIGHLANDS

7.1 2018 Profile

Profile	
Population	2,437
Dwellings	901
Registered Vehicles	1,948
Energy (Millions of GJ)	152
GHG Emissions (tCO ₂ e)	9,373

7.2 Energy & GHG Emissions

Table 13 presents a summary comparison of the District of Highland's 2007 and 2018 energy and GHG emissions.

Table 11. Estimated Energy and GHG Emissions By Reporting Source

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO ₂ e)	2018 GHG Emissions (tCO ₂ e)	Change (%)
Stationary Energy							
Residential Buildings	Electricity	63,637	67,596	6.2%	442	200	-54.7%
	Natural Gas	69	4,110	5817.7%	3	205	5817.7%
	Fuel Oil	9,468	11,536	21.8%	647	789	21.8%
	Propane	1,633	1,541	-5.6%	100	94	-5.3%
	Wood	3,637	3,471	-4.6%	85	82	-4.6%
	Diesel	1,405,990	1,261,890	-10.2%	109	92	-15.8%
Commercial & Industrial Buildings	Electricity	6,447	14,442	124.0%	45	43	-4.4%
	Natural Gas	20,440	18,766	-8.2%	1,019	936	-8.2%

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO _{2e})	2018 GHG Emissions (tCO _{2e})	Change (%)
	Fuel Oil	0	0	-	0	0	-
	Diesel	2,535,392	2,712,634	7.0%	196	197	0.4%
Energy Industries	LFG Combustion			-	0	0	-
Agriculture, Forestry And Fishing Activities	Diesel	6,707,264	6,790,169	1.2%	519	493	-5.0%
Natural Gas Fugitive Emissions				-	0	2	925.8%
Total		10,753,977	10,886,155	1.2%	3,166	3,131	-1.1%
On-Road Transportation							
Electric Vehicles	Electricity	-	-	-	-	-	-
Passenger Vehicles	Gasoline + Diesel + Propane	25,509,966	24,269,672	-4.9%	1,822	1,547	-15.1%
Light Trucks, Vans, SUVs	Gasoline + Diesel + Propane	49,104,179	62,911,067	28.1%	3,435	4,042	17.7%
Heavy Duty Vehicles	Gasoline + Diesel + Propane	20,280,362	46,021,538	126.9%	1,422	3,038	113.6%
Motorcycles	Gasoline	327,451	227,892	-30.4%	23	16	-30.4%
Total On-Road Transportation		95,221,958	133,430,169	40.1%	6,702	8,643	29.0%
Off-Road Transportation							
Marine, Aviation and Other Off-Road Vehicles	Marine Gasoline + Marine Diesel + Jet Fuel	6,865,238	7,477,786	8.9%	668	666	-0.4%
Total Off-Road Transportation		6,865,238	7,477,786	8.9%	668	666	-0.4%
Waste							
Wastewater					0	0	-
Composting					0	0	-

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO ₂ e)	2018 GHG Emissions (tCO ₂ e)	Change (%)
Solid Waste					621	382	-38.5%
Total Waste					621	382	-38.5%
Agriculture Forestry & Other Land Use (AFOLU)							
Land-Use					-3,817	-4,233	10.9%
Livestock, Aggregate Sources and Non-CO ₂ Emission Sources on Land					3	4	18.1%
Total AFOLU					-3,814	-4,229	10.9%
Industrial Process & Product Use (IPPU)							
Process Use Emissions					432	780	80.4%
Total IPPU					432	780	80.4%
TOTAL		112,841,173	151,794,110	34.5%	7,776	9,373	20.5%

8 JUAN DE FUCA ELECTORAL AREA

8.1 2018 Profile

Profile	
Population	5,048
Dwellings	2,210
Registered Vehicles	5,773
Energy (Millions of GJ)	345
GHG Emissions (tCO ₂ e)	73,063

8.2 Energy & GHG Emissions

Table 14 presents a summary comparison of Juan de Fuca Electoral Area's 2007 and 2018 energy and GHG emissions.

Table 12. Estimated Energy and GHG Emissions By Reporting Source

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO ₂ e)	2018 GHG Emissions (tCO ₂ e)	Change (%)
Stationary Energy							
Residential Buildings	Electricity	841,926	617,741	-26.6%	5,847	1,831	-68.7%
	Natural Gas	0	0	-	0	0	-
	Fuel Oil	442,152	537,349	21.5%	30,233	36,742	21.5%
	Propane	82,743	78,102	-5.6%	5,044	4,776	-5.3%
	Wood	184,018	175,638	-4.6%	4,321	4,124	-4.6%
	Diesel	3,106,923	2,613,878	-15.9%	240	190	-21.1%
Commercial & Industrial Buildings	Electricity	185,345	157,020	-15.3%	1,287	465	-63.8%
	Natural Gas	0	0	-	0	0	-

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO ₂ e)	2018 GHG Emissions (tCO ₂ e)	Change (%)
	Fuel Oil	0	0	-	0	0	-
	Diesel	5,602,648	5,618,948	0.3%	433	408	-5.9%
Energy Industries	LFG Combustion			-	0	0	-
Agriculture, Forestry And Fishing Activities	Diesel	14,821,552	14,065,152	-5.1%	1,146	1,020	-11.0%
Natural Gas Fugitive Emissions				-	0	0	-
Total		25,267,306	23,863,827	-5.6%	48,551	49,556	2.1%
On-Road Transportation							
Electric Vehicles	Electricity	-	428	-	-	1	-
Passenger Vehicles	Gasoline + Diesel + Propane	7,521,322	87,329,488	1061.1%	587	5,632	860.0%
Light Trucks, Vans, SUVs	Gasoline + Diesel + Propane	132,575,682	175,036,730	32.0%	9,308	11,232	20.7%
Heavy Duty Vehicles	Gasoline + Diesel + Propane	73,094,456	42,741,269	-41.5%	5,174	2,808	-45.7%
Motorcycles	Gasoline	247,259	621,826	151.5%	17	43	151.5%
Total On-Road Transportation		213,438,718	305,729,741	43.2%	15,086	19,716	30.7%
Off-Road Transportation							
Marine, Aviation and Other Off-Road Vehicles	Marine Gasoline + Marine Diesel + Jet Fuel	15,170,637	15,489,481	2.1%	1,477	1,380	-6.6%
Total Off-Road Transportation		15,170,637	15,489,481	2.1%	1,477	1,380	-6.6%
Waste							
Wastewater					0	1	378.0%
Composting					0	0	-

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO ₂ e)	2018 GHG Emissions (tCO ₂ e)	Change (%)
Solid Waste					1,373	792	-42.3%
Total Waste					1,373	792	-42.3%
Agriculture Forestry & Other Land Use (AFOLU)							
Land-Use					Withheld	Withheld	Withheld
Livestock, Aggregate Sources and Non-CO ₂ Emission Sources on Land					18	4	-80.0%
Total AFOLU					18	4	-80.0%
Industrial Process & Product Use (IPPU)							
Process Use Emissions					955	1,615	69.1%
Total IPPU					955	1,615	69.1%
TOTAL		253,876,662	345,083,050	35.9%	67,459	73,063	8.3%

9 CITY OF LANGFORD

9.1 2018 Profile

Profile	
Population	40,557
Dwellings	15,778
Registered Vehicles	28,121
Energy (Millions of GJ)	1,759
GHG Emissions (tCO ₂ e)	169,775

9.2 Energy & GHG Emissions

Table 15 presents a summary comparison of the City of Langford's 2007 and 2018 energy and GHG emissions.

Table 13. Estimated Energy and GHG Emissions By Reporting Source

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO ₂ e)	2018 GHG Emissions (tCO ₂ e)	Change (%)
Stationary Energy							
Residential Buildings	Electricity	514,845	649,121	26.1%	3,575	1,924	-46.2%
	Natural Gas	122,432	198,172	61.9%	6,105	9,882	61.9%
	Fuel Oil	103,002	125,506	21.8%	7,043	8,582	21.8%
	Propane	17,793	16,795	-5.6%	1,085	1,027	-5.3%
	Wood	39,489	37,690	-4.6%	927	885	-4.6%
Commercial & Industrial Buildings	Diesel	17,628,568	21,000,602	19.1%	1,364	1,524	11.7%
	Electricity	343,895	419,190	21.9%	2,388	1,242	-48.0%
	Natural Gas	186,387	261,641	40.4%	9,295	13,047	40.4%

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO _{2e})	2018 GHG Emissions (tCO _{2e})	Change (%)
	Fuel Oil	0	0	-	0	0	-
	Diesel	31,789,221	45,144,152	42.0%	2,459	3,275	33.2%
Energy Industries	LFG Combustion			-	0	0	-
Agriculture, Forestry And Fishing Activities	Diesel	84,096,938	113,003,240	34.4%	6,505	8,198	26.0%
Natural Gas Fugitive Emissions				-	81	160	98.7%
Total		134,842,570	180,856,111	34.1%	40,826	49,747	21.9%
On-Road Transportation							
Electric Vehicles	Electricity	-	1,474	-	-	5	-
Passenger Vehicles	Gasoline + Diesel + Propane	364,717,400	482,674,944	32.3%	25,932	31,008	19.6%
Light Trucks, Vans, SUVs	Gasoline + Diesel + Propane	455,815,884	763,798,887	67.6%	32,189	48,965	52.1%
Heavy Duty Vehicles	Gasoline + Diesel + Propane	194,516,121	204,368,671	5.1%	13,673	13,422	-1.8%
Motorcycles	Gasoline	3,488,351	3,145,716	-9.8%	240	217	-9.8%
Total On-Road Transportation		1,018,537,756	1,453,989,693	42.8%	72,034	93,616	30.0%
Off-Road Transportation							
Marine, Aviation and Other Off-Road Vehicles	Marine Gasoline + Marine Diesel + Jet Fuel	86,077,636	124,446,691	44.6%	8,381	11,084	32.3%
Total Off-Road Transportation		86,077,636	124,446,691	44.6%	8,381	11,084	32.3%
Waste							
Wastewater					621	1,298	109.0%
Composting					0	0	-

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO _{2e})	2018 GHG Emissions (tCO _{2e})	Change (%)
Solid Waste					7,791	6,361	-18.3%
Total Waste					8,412	7,659	-8.9%
Agriculture Forestry & Other Land Use (AFOLU)							
Land-Use					-1,878	-5,373	186.0%
Livestock, Aggregate Sources and Non-CO ₂ Emission Sources on Land					56	65	17.5%
Total AFOLU					-1,823	-5,308	191.2%
Industrial Process & Product Use (IPPU)							
Process Use Emissions					5,417	12,975	139.5%
Total IPPU					5,417	12,975	139.5%
TOTAL		1,239,457,962	1,759,292,495	41.9%	133,247	169,775	27.4%

10 DISTRICT OF METCHOSIN

10.1 2018 Profile

Profile	
Population	5,117
Dwellings	1,985
Registered Vehicles	4,387
Energy (Millions of GJ)	278
GHG Emissions (tCO ₂ e)	9,038

10.2 Energy & GHG Emissions

Table 16 presents a summary comparison of the District of Metchosin's 2007 and 2018 energy and GHG emissions.

Table 14. Estimated Energy and GHG Emissions By Reporting Source

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO ₂ e)	2018 GHG Emissions (tCO ₂ e)	Change (%)
Stationary Energy							
Residential Buildings	Electricity	136,761	130,722	-4.4%	950	387	-59.2%
	Natural Gas	8,173	8,378	2.5%	408	418	2.5%
	Fuel Oil	9,003	10,970	21.8%	616	750	21.8%
	Propane	1,553	1,466	-5.6%	95	90	-5.3%
	Wood	3,457	3,299	-4.6%	81	77	-4.6%
	Diesel	3,471,307	2,649,606	-23.7%	268	192	-28.4%
Commercial & Industrial Buildings	Electricity	38,169	43,165	13.1%	265	128	-51.7%
	Natural Gas	33,858	27,903	-17.6%	1,688	1,391	-17.6%

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO ₂ e)	2018 GHG Emissions (tCO ₂ e)	Change (%)
	Fuel Oil	0	0	-	0	0	-
	Diesel	6,259,733	5,695,752	-9.0%	484	413	-14.7%
Energy Industries	LFG Combustion			-	0	0	-
Agriculture, Forestry And Fishing Activities	Diesel	16,559,840	14,257,405	-13.9%	1,281	1,034	-19.2%
Natural Gas Fugitive Emissions				-	4	5	25.7%
Total		26,521,853	22,828,667	-13.9%	6,140	4,887	-20.4%
On-Road Transportation							
Electric Vehicles	Electricity	-	620	-	-	2	-
Passenger Vehicles	Gasoline + Diesel + Propane	80,035,154	65,936,087	-17.6%	5,705	4,251	-25.5%
Light Trucks, Vans, SUVs	Gasoline + Diesel + Propane	118,245,943	132,721,555	12.2%	8,346	8,551	2.5%
Heavy Duty Vehicles	Gasoline + Diesel + Propane	36,946,873	39,882,034	7.9%	2,590	2,619	1.1%
Motorcycles	Gasoline	668,266	432,840	-35.2%	46	30	-35.2%
Total On-Road Transportation		235,896,237	238,973,137	1.3%	16,688	15,453	-7.4%
Off-Road Transportation							
Marine, Aviation and Other Off-Road Vehicles	Marine Gasoline + Marine Diesel + Jet Fuel	16,949,866	15,701,204	-7.4%	1,650	1,399	-15.3%
Total Off-Road Transportation		16,949,866	15,701,204	-7.4%	1,650	1,399	-15.3%
Waste							
Wastewater					0	0	-
Composting					0	0	-

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO ₂ e)	2018 GHG Emissions (tCO ₂ e)	Change (%)
Solid Waste					1,534	803	-47.7%
Total Waste					1,534	803	-47.7%
Agriculture Forestry & Other Land Use (AFOLU)							
Land-Use					-11,114	-15,562	40.0%
Livestock, Aggregate Sources and Non-CO ₂ Emission Sources on Land					369	422	14.6%
Total AFOLU					-10,746	-15,140	40.9%
Industrial Process & Product Use (IPPU)							
Process Use Emissions					1,067	1,637	53.5%
Total IPPU					1,067	1,637	53.5%
TOTAL		279,367,955	277,503,007	-0.7%	16,333	9,038	-44.7%

11 DISTRICT OF NORTH SAANICH

11.1 2018 Profile

Profile	
Population	11,745
Dwellings	5,047
Registered Vehicles	10,009
Energy (Millions of GJ)	619
GHG Emissions (tCO ₂ e)	45,201

11.2 Energy & GHG Emissions

Table 17 presents a summary comparison of the District of North Saanich's 2007 and 2018 energy and GHG emissions.

Table 15. Estimated Energy and GHG Emissions By Reporting Source

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO ₂ e)	2018 GHG Emissions (tCO ₂ e)	Change (%)
Stationary Energy							
Residential Buildings	Electricity	375,159	336,973	-10.2%	2,605	999	-61.7%
	Natural Gas	41,591	63,071	51.6%	2,074	3,145	51.6%
	Fuel Oil	5,953	7,254	21.8%	407	496	21.8%
	Propane	1,027	969	-5.6%	63	59	-5.3%
	Wood	2,286	2,182	-4.6%	54	51	-4.6%
	Diesel	7,843,907	6,081,615	-22.5%	607	441	-27.3%
Commercial & Industrial Buildings	Electricity	156,437	182,658	16.8%	1,086	541	-50.2%
	Natural Gas	99,927	106,311	6.4%	4,983	5,301	6.4%

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO ₂ e)	2018 GHG Emissions (tCO ₂ e)	Change (%)
	Fuel Oil	0	0	-	0	0	-
	Diesel	14,144,751	13,073,404	-7.6%	1,094	948	-13.3%
Energy Industries	LFG Combustion			-	0	0	-
Agriculture, Forestry And Fishing Activities	Diesel	37,419,296	32,724,882	-12.5%	2,894	2,374	-18.0%
Natural Gas Fugitive Emissions				-	21	30	43.2%
Total		60,090,333	52,579,319	-12.5%	15,888	14,387	-9.4%
On-Road Transportation							
Electric Vehicles	Electricity	-	1,454	-	-	5	-
Passenger Vehicles	Gasoline + Diesel + Propane	208,096,268	173,125,045	-16.8%	14,821	11,151	-24.8%
Light Trucks, Vans, SUVs	Gasoline + Diesel + Propane	234,970,006	267,260,371	13.7%	16,653	17,186	3.2%
Heavy Duty Vehicles	Gasoline + Diesel + Propane	82,310,746	88,896,587	8.0%	5,736	5,821	1.5%
Motorcycles	Gasoline	1,684,032	1,149,585	-31.7%	116	79	-31.7%
Total On-Road Transportation		527,061,051	530,433,042	0.6%	37,326	34,242	-8.3%
Off-Road Transportation							
Marine, Aviation and Other Off-Road Vehicles	Marine Gasoline + Marine Diesel + Jet Fuel	38,300,616	36,038,819	-5.9%	3,729	3,210	-13.9%
Total Off-Road Transportation		38,300,616	36,038,819	-5.9%	3,729	3,210	-13.9%
Waste							
Wastewater					196	302	53.8%
Composting					0	0	-

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO ₂ e)	2018 GHG Emissions (tCO ₂ e)	Change (%)
Solid Waste					3,467	1,842	-46.9%
Total Waste					3,663	2,144	-41.5%
Agriculture Forestry & Other Land Use (AFOLU)							
Land-Use					-9,360	-13,428	43.5%
Livestock, Aggregate Sources and Non-CO ₂ Emission Sources on Land					797	888	11.5%
Total AFOLU					-8,564	-12,540	46.4%
Industrial Process & Product Use (IPPU)							
Process Use Emissions					2,410	3,758	55.9%
Total IPPU					2,410	3,758	55.9%
TOTAL		625,452,000	619,051,181	-1.0%	54,454	45,201	-17.0%

12 DISTRICT OF OAK BAY

12.1 2018 Profile

Profile	
Population	18,564
Dwellings	8,168
Registered Vehicles	11,502
Energy (Millions of GJ)	610
GHG Emissions (tCO _{2e})	77,178

12.2 Energy & GHG Emissions

Table 18 presents a summary comparison of the District of Oak Bay's 2007 and 2018 energy and GHG emissions.

Table 16. Estimated Energy and GHG Emissions By Reporting Source

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO _{2e})	2018 GHG Emissions (tCO _{2e})	Change (%)
Stationary Energy							
Residential Buildings	Electricity	370,817	312,380	-15.8%	2,575	926	-64.0%
	Natural Gas	276,642	267,844	-3.2%	13,795	13,357	-3.2%
	Fuel Oil	66,466	80,987	21.8%	4,545	5,538	21.8%
	Propane	11,487	10,843	-5.6%	700	663	-5.3%
	Wood	25,469	24,309	-4.6%	598	571	-4.6%
	Diesel	13,157,891	9,612,525	-26.9%	1,018	697	-31.5%
Commercial & Industrial Buildings	Electricity	106,275	102,012	-4.0%	738	302	-59.0%
	Natural Gas	83,140	127,799	53.7%	4,146	6,373	53.7%

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO ₂ e)	2018 GHG Emissions (tCO ₂ e)	Change (%)
	Fuel Oil	0	0	-	0	0	-
	Diesel	23,727,345	20,663,659	-12.9%	1,835	1,499	-18.3%
Energy Industries	LFG Combustion			-	0	0	-
Agriculture, Forestry And Fishing Activities	Diesel	0	0	-	0	0	-
Natural Gas Fugitive Emissions				-	83	115	38.6%
Total		37,825,532	31,202,358	-17.5%	30,033	30,041	0.0%
On-Road Transportation							
Electric Vehicles	Electricity	-	1,552	-	-	5	-
Passenger Vehicles	Gasoline + Diesel + Propane	322,115,485	248,704,454	-22.8%	22,936	16,042	-30.1%
Light Trucks, Vans, SUVs	Gasoline + Diesel + Propane	205,059,811	248,590,172	21.2%	14,538	15,975	9.9%
Heavy Duty Vehicles	Gasoline + Diesel + Propane	65,479,561	23,549,190	-64.0%	4,572	1,519	-66.8%
Motorcycles	Gasoline	1,770,906	1,334,237	-24.7%	122	92	-24.7%
Total On-Road Transportation		594,425,764	522,179,605	-12.2%	42,169	33,633	-20.2%
Off-Road Transportation							
Marine, Aviation and Other Off-Road Vehicles	Marine Gasoline + Marine Diesel + Jet Fuel	64,247,998	56,962,506	-11.3%	6,256	5,074	-18.9%
Total Off-Road Transportation		64,247,998	56,962,506	-11.3%	6,256	5,074	-18.9%
Waste							
Wastewater					1,968	1,698	-13.7%
Composting					0	95	-

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO ₂ e)	2018 GHG Emissions (tCO ₂ e)	Change (%)
Solid Waste					5,815	2,912	-49.9%
Total Waste					7,783	4,704	-39.6%
Agriculture Forestry & Other Land Use (AFOLU)							
Land-Use					-1,145	-2,213	93.3%
Livestock, Aggregate Sources and Non-CO ₂ Emission Sources on Land					0	0	-100.0%
Total AFOLU					-1,145	-2,213	93.3%
Industrial Process & Product Use (IPPU)							
Process Use Emissions					4,044	5,939	46.9%
Total IPPU					4,044	5,939	46.9%
TOTAL		696,499,293	610,344,469	-12.4%	89,140	77,178	-13.4%

13 THE DISTRICT OF SAANICH

13.1 2018 Profile

Profile	
Population	121,055
Dwellings	49,986
Registered Vehicles	80,052
Energy (Millions of GJ)	4,803
GHG Emissions (tCO ₂ e)	496,408

13.2 Energy & GHG Emissions

Table 19 presents a summary comparison of the District of Saanich's 2007 and 2018 energy and GHG emissions.

Table 17. Estimated Energy and GHG Emissions By Reporting Source

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO ₂ e)	2018 GHG Emissions (tCO ₂ e)	Change (%)
Stationary Energy							
Residential Buildings	Electricity	2,368,284	2,080,838	-12.1%	16,447	6,167	-62.5%
	Natural Gas	743,960	731,870	-1.6%	37,099	36,497	-1.6%
	Fuel Oil	518,953	400,458	-22.8%	35,484	27,382	-22.8%
	Propane	97,519	92,049	-5.6%	5,944	5,629	-5.3%
	Wood	216,161	206,317	-4.6%	5,076	4,845	-4.6%
Commercial & Industrial Buildings	Diesel	79,523,633	62,682,839	-21.2%	6,151	4,548	-26.1%
	Electricity	1,173,713	1,076,395	-8.3%	8,151	3,190	-60.9%
	Natural Gas	759,454	825,369	8.7%	37,872	41,159	8.7%

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO _{2e})	2018 GHG Emissions (tCO _{2e})	Change (%)
	Fuel Oil	38,936	20,302	-47.9%	2,662	1,388	-47.9%
	Diesel	143,403,272	134,746,783	-6.0%	11,092	9,776	-11.9%
Energy Industries	LFG Combustion			-	418	7,658	1731.0%
Agriculture, Forestry And Fishing Activities	Diesel	379,366,838	337,293,371	-11.1%	29,343	24,471	-16.6%
Natural Gas Fugitive Emissions				-	314	432	37.5%
Total		608,210,724	540,156,591	-11.2%	196,053	173,142	-11.7%
On-Road Transportation							
Electric Vehicles	Electricity	-	7,880	-	-	26	-
Passenger Vehicles	Gasoline + Diesel + Propane	1,877,529,774	1,569,406,676	-16.4%	133,584	101,091	-24.3%
Light Trucks, Vans, SUVs	Gasoline + Diesel + Propane	1,608,977,145	1,937,745,560	20.4%	113,867	124,245	9.1%
Heavy Duty Vehicles	Gasoline + Diesel + Propane	487,734,989	376,512,016	-22.8%	34,114	24,631	-27.8%
Motorcycles	Gasoline	11,373,895	7,822,263	-31.2%	784	539	-31.2%
Total On-Road Transportation		3,985,615,804	3,891,494,396	-2.4%	282,348	250,532	-11.3%
Off-Road Transportation							
Marine, Aviation and Other Off-Road Vehicles	Marine Gasoline + Marine Diesel + Jet Fuel	388,301,897	371,449,914	-4.3%	37,808	33,085	-12.5%
Total Off-Road Transportation		388,301,897	371,449,914	-4.3%	37,808	33,085	-12.5%
Waste							
Wastewater					4,989	5,340	7.0%
Composting					0	3,923	-

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO _{2e})	2018 GHG Emissions (tCO _{2e})	Change (%)
Solid Waste					35,144	18,988	-46.0%
Total Waste					40,134	28,252	-29.6%
Agriculture Forestry & Other Land Use (AFOLU)							
Land-Use					-6,820	-28,395	316.3%
Livestock, Aggregate Sources and Non-CO ₂ Emission Sources on Land					874	1,063	21.7%
Total AFOLU					-5,947	-27,332	359.6%
Industrial Process & Product Use (IPPU)							
Process Use Emissions					24,438	38,729	58.5%
Total IPPU					24,438	38,729	58.5%
TOTAL		4,982,128,424	4,803,100,900	-3.6%	574,835	496,408	-13.6%

The District of Saanich has previously completed 2007 base and 2017 reporting year GHG emissions inventories to which there are several differences between the District of Saanich's reported GHG emissions and those presented herein. These differences between the two inventories are presented in Appendix A.

14 SALT SPRING ELECTORAL AREA

14.1 2018 Profile

Profile	
Population	11,115
Dwellings	5,102
Registered Vehicles	8,722
Energy (Millions of GJ)	527
GHG Emissions (tCO _{2e})	43,963

14.2 Energy & GHG Emissions

Table 20 presents a summary comparison of Salt Spring Island Electoral Area's 2007 and 2018 energy and GHG emissions.

Table 18. Estimated Energy and GHG Emissions By Reporting Source

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO _{2e})	2018 GHG Emissions (tCO _{2e})	Change (%)
Stationary Energy							
Residential Buildings	Electricity	4,990	3,989	-20.0%	35	12	-65.9%
	Natural Gas	0	0	-	0	0	-
	Fuel Oil	9,967	12,520	25.6%	682	856	25.6%
	Propane	9,006	8,764	-2.7%	549	536	-2.4%
	Wood	75,133	73,930	-1.6%	1,764	1,736	-1.6%
	Diesel	7,078,631	5,755,398	-18.7%	548	418	-23.7%
Commercial & Industrial Buildings	Electricity	85	75	-11.9%	1	0	-62.4%
	Natural Gas	0	0	-	0	0	-

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO ₂ e)	2018 GHG Emissions (tCO ₂ e)	Change (%)
	Fuel Oil	0	0	-	0	0	-
	Diesel	12,764,744	12,372,149	-3.1%	987	898	-9.1%
Energy Industries	LFG Combustion			-	0	0	-
Agriculture, Forestry And Fishing Activities	Diesel	33,768,549	30,969,525	-8.3%	2,612	2,247	-14.0%
Natural Gas Fugitive Emissions				-	0	0	-
Total		53,711,104	49,196,350	-8.4%	7,177	6,702	-6.6%
On-Road Transportation							
Electric Vehicles	Electricity	-	2,055	-	-	7	-
Passenger Vehicles	Gasoline + Diesel + Propane	166,501,952	140,263,553	-15.8%	11,828	9,050	-23.5%
Light Trucks, Vans, SUVs	Gasoline + Diesel + Propane	197,189,344	244,846,748	24.2%	13,963	15,719	12.6%
Heavy Duty Vehicles	Gasoline + Diesel + Propane	45,823,437	58,211,591	27.0%	3,148	3,794	20.5%
Motorcycles	Gasoline	1,737,493	795,485	-54.2%	120	55	-54.2%
Total On-Road Transportation		411,252,225	444,119,433	8.0%	29,059	28,625	-1.5%
Off-Road Transportation							
Marine, Aviation and Other Off-Road Vehicles	Marine Gasoline + Marine Diesel + Jet Fuel	34,563,885	34,105,702	-1.3%	3,365	3,038	-9.7%
Total Off-Road Transportation		34,563,885	34,105,702	-1.3%	3,365	3,038	-9.7%
Waste							
Wastewater					49	10	-79.8%
Composting					0	0	-

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO ₂ e)	2018 GHG Emissions (tCO ₂ e)	Change (%)
Solid Waste					3,128	1,743	-44.3%
Total Waste					3,177	1,753	-44.8%
Agriculture Forestry & Other Land Use (AFOLU)							
Land-Use					Withheld	Withheld	Withheld
Livestock, Aggregate Sources and Non-CO ₂ Emission Sources on Land					407	288	-29.2%
Total AFOLU					407	288	-29.2%
Industrial Process & Product Use (IPPU)							
Process Use Emissions					2,175	3,556	63.5%
Total IPPU					2,175	3,556	63.5%
TOTAL		499,527,214	527,421,486	5.6%	45,361	43,963	-3.1%

15 TOWN OF SIDNEY

15.1 2018 Profile

Profile	
Population	12,172
Dwellings	6,099
Registered Vehicles	8,435
Energy (Millions of GJ)	526
GHG Emissions (tCO ₂ e)	56,194

15.2 Energy & GHG Emissions

Table 21 presents a summary comparison of the Town Sidney's 2007 and 2018 energy and GHG emissions.

Table 19. Estimated Energy and GHG Emissions By Reporting Source

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO ₂ e)	2018 GHG Emissions (tCO ₂ e)	Change (%)
Stationary Energy							
Residential Buildings	Electricity	243,260	215,028	-11.6%	1,689	637	-62.3%
	Natural Gas	70,155	78,015	11.2%	3,498	3,890	11.2%
	Fuel Oil	58,189	70,903	21.8%	3,979	4,848	21.8%
	Propane	10,069	9,505	-5.6%	614	581	-5.3%
	Wood	22,263	21,249	-4.6%	523	499	-4.6%
	Diesel	8,167,485	6,302,718	-22.8%	632	457	-27.6%
Commercial & Industrial Buildings	Electricity	186,594	177,767	-4.7%	1,296	527	-59.3%
	Natural Gas	80,240	82,300	2.6%	4,001	4,104	2.6%

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO ₂ e)	2018 GHG Emissions (tCO ₂ e)	Change (%)
	Fuel Oil	0	0	-	0	0	-
	Diesel	14,728,253	13,548,700	-8.0%	1,139	983	-13.7%
Energy Industries	LFG Combustion			-	0	0	-
Agriculture, Forestry And Fishing Activities	Diesel	38,962,923	33,914,625	-13.0%	3,014	2,461	-18.4%
Natural Gas Fugitive Emissions				-	47	66	38.7%
Total		62,529,432	54,420,810	-13.0%	20,432	19,054	-6.7%
On-Road Transportation							
Electric Vehicles	Electricity	-	351	-	-	1	-
Passenger Vehicles	Gasoline + Diesel + Propane	199,862,961	162,372,046	-18.8%	14,217	10,424	-26.7%
Light Trucks, Vans, SUVs	Gasoline + Diesel + Propane	169,344,674	207,065,206	22.3%	11,986	13,268	10.7%
Heavy Duty Vehicles	Gasoline + Diesel + Propane	74,639,482	64,523,657	-13.6%	5,221	4,215	-19.3%
Motorcycles	Gasoline	1,276,389	711,080	-44.3%	88	49	-44.3%
Total On-Road Transportation		445,123,505	434,672,340	-2.3%	31,511	27,957	-11.3%
Off-Road Transportation							
Marine, Aviation and Other Off-Road Vehicles	Marine Gasoline + Marine Diesel + Jet Fuel	39,880,599	37,349,043	-6.3%	3,883	3,327	-14.3%
Total Off-Road Transportation		39,880,599	37,349,043	-6.3%	3,883	3,327	-14.3%
Waste							
Wastewater					612	820	33.9%
Composting					0	170	-

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO ₂ e)	2018 GHG Emissions (tCO ₂ e)	Change (%)
Solid Waste					3,610	1,909	-47.1%
Total Waste					4,222	2,900	-31.3%
Agriculture Forestry & Other Land Use (AFOLU)							
Land-Use					-536	-939	75.1%
Livestock, Aggregate Sources and Non-CO ₂ Emission Sources on Land					3	2	-33.2%
Total AFOLU					-534	-937	75.6%
Industrial Process & Product Use (IPPU)							
Process Use Emissions					2,510	3,894	55.1%
Total IPPU					2,510	3,894	55.1%
TOTAL		547,533,536	526,442,192	-3.9%	62,025	56,194	-9.4%

16 DISTRICT OF SOOKE

16.1 2018 Profile

Profile	
Population	14,300
Dwellings	5,715
Registered Vehicles	9,498
Energy (Millions of GJ)	584
GHG Emissions (tCO ₂ e)	46,574

16.2 Energy & GHG Emissions

Table 22 presents a summary comparison of the District of Sooke's 2007 and 2018 energy and GHG emissions.

Table 20. Estimated Energy and GHG Emissions By Reporting Source

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO ₂ e)	2018 GHG Emissions (tCO ₂ e)	Change (%)
Stationary Energy							
Residential Buildings	Electricity	257,386	290,702	12.9%	1,787	862	-51.8%
	Natural Gas	13,108	43,147	229.2%	654	2,152	229.2%
	Fuel Oil	56,455	68,789	21.8%	3,860	4,704	21.8%
	Propane	9,744	9,197	-5.6%	594	562	-5.3%
	Wood	21,667	20,680	-4.6%	509	486	-4.6%
	Diesel	7,357,824	7,404,606	0.6%	569	537	-5.6%
Commercial & Industrial Buildings	Electricity	68,790	82,948	20.6%	478	246	-48.5%
	Natural Gas	16,506	33,344	102.0%	823	1,663	102.0%

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO ₂ e)	2018 GHG Emissions (tCO ₂ e)	Change (%)
	Fuel Oil	0	0	-	0	0	-
	Diesel	13,268,208	15,917,385	20.0%	1,026	1,155	12.5%
Energy Industries	LFG Combustion			-	0	0	-
Agriculture, Forestry And Fishing Activities	Diesel	35,100,440	39,843,833	13.5%	2,715	2,891	6.5%
Natural Gas Fugitive Emissions				-	13	31	142.3%
Total		56,170,127	63,714,630	13.4%	13,028	15,287	17.3%
On-Road Transportation							
Electric Vehicles	Electricity	-	858	-	-	3	-
Passenger Vehicles	Gasoline + Diesel + Propane	141,887,342	157,499,679	11.0%	10,099	10,113	0.1%
Light Trucks, Vans, SUVs	Gasoline + Diesel + Propane	201,041,814	267,290,363	33.0%	14,166	17,140	21.0%
Heavy Duty Vehicles	Gasoline + Diesel + Propane	73,397,264	50,130,592	-31.7%	5,152	3,272	-36.5%
Motorcycles	Gasoline	1,490,234	1,109,036	-25.6%	103	76	-25.6%
Total On-Road Transportation		417,816,655	476,030,528	13.9%	29,520	30,605	3.7%
Off-Road Transportation							
Marine, Aviation and Other Off-Road Vehicles	Marine Gasoline + Marine Diesel + Jet Fuel	35,927,145	43,878,681	22.1%	3,498	3,908	11.7%
Total Off-Road Transportation		35,927,145	43,878,681	22.1%	3,498	3,908	11.7%
Waste							
Wastewater					0	0	-
Composting					0	0	-

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO ₂ e)	2018 GHG Emissions (tCO ₂ e)	Change (%)
Solid Waste					3,252	2,243	-31.0%
Total Waste					3,252	2,243	-31.0%
Agriculture Forestry & Other Land Use (AFOLU)							
Land-Use					-5,018	-10,105	101.4%
Livestock, Aggregate Sources and Non-CO ₂ Emission Sources on Land					75	60	-19.9%
Total AFOLU					-4,943	-10,044	103.2%
Industrial Process & Product Use (IPPU)							
Process Use Emissions					2,261	4,575	102.3%
Total IPPU					2,261	4,575	102.3%
TOTAL		509,913,927	583,623,839	14.5%	46,616	46,574	-0.1%

17 CITY OF VICTORIA

17.1 2018 Profile

Profile	
Population	92,689
Dwellings	49,115
Registered Vehicles	50,789
Energy (Millions of GJ)	3,178
GHG Emissions (tCO ₂ e)	452,567

17.2 Energy & GHG Emissions

Table 23 presents a summary comparison of the City of Victoria's 2007 and 2018 energy and GHG emissions.

Table 21. Estimated Energy and GHG Emissions By Reporting Source

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO ₂ e)	2018 GHG Emissions (tCO ₂ e)	Change (%)
Stationary Energy							
Residential Buildings	Electricity	1,233,158	1,126,962	-8.6%	8,564	3,340	-61.0%
	Natural Gas	952,641	417,084	-56.2%	47,506	20,799	-56.2%
	Fuel Oil	617,245	443,708	-28.1%	42,205	30,339	-28.1%
	Propane	118,617	111,964	-5.6%	7,230	6,847	-5.3%
	Wood	259,255	247,448	-4.6%	6,088	5,811	-4.6%
	Diesel	57,916,199	47,994,793	-17.1%	4,480	3,482	-22.3%
Commercial & Industrial Buildings	Electricity	1,978,652	1,741,286	-12.0%	13,741	5,161	-62.4%
	Natural Gas	1,377,709	1,994,378	44.8%	68,703	99,455	44.8%

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO _{2e})	2018 GHG Emissions (tCO _{2e})	Change (%)
	Fuel Oil	122,702	122,702	0.0%	8,390	8,390	0.0%
	Diesel	104,439,047	103,172,480	-1.2%	8,078	7,485	-7.3%
Energy Industries	LFG Combustion			-	0	0	-
Agriculture, Forestry And Fishing Activities	Diesel	0	0	-	0	0	-
Natural Gas Fugitive Emissions				-	231	370	60.6%
Total		169,015,225	157,372,806	-6.9%	215,214	191,479	-11.0%
On-Road Transportation							
Electric Vehicles	Electricity	-	3,934	-	-	13	-
Passenger Vehicles	Gasoline + Diesel + Propane	1,250,314,352	1,133,395,694	-9.4%	88,915	72,852	-18.1%
Light Trucks, Vans, SUVs	Gasoline + Diesel + Propane	815,263,560	1,028,565,584	26.2%	57,587	65,860	14.4%
Heavy Duty Vehicles	Gasoline + Diesel + Propane	430,933,775	366,972,839	-14.8%	30,235	24,054	-20.4%
Motorcycles	Gasoline	8,968,136	7,051,274	-21.4%	618	486	-21.4%
Total On-Road Transportation		2,505,479,822	2,535,989,325	1.2%	177,355	163,265	-7.9%
Off-Road Transportation							
Marine, Aviation and Other Off-Road Vehicles	Marine Gasoline + Marine Diesel + Jet Fuel	422,275,845	484,924,457	14.8%	38,042	40,436	6.3%
Total Off-Road Transportation		422,275,845	484,924,457	14.8%	38,042	40,436	6.3%
Waste							
Wastewater					7,699	7,026	-8.7%
Composting					72	854	1080.1%

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO _{2e})	2018 GHG Emissions (tCO _{2e})	Change (%)
Solid Waste					25,595	22,078	-13.7%
Total Waste					33,367	29,957	-10.2%
Agriculture Forestry & Other Land Use (AFOLU)							
Land-Use					-217	-2,224	927.0%
Livestock, Aggregate Sources and Non-CO ₂ Emission Sources on Land					0	0	-
Total AFOLU					-217	-2,224	927.0%
Industrial Process & Product Use (IPPU)							
Process Use Emissions					17,798	29,654	66.6%
Total IPPU					17,798	29,654	66.6%
TOTAL		3,096,770,892	3,178,286,588	2.6%	481,559	452,567	-6.0%

The City of Victoria has previously completed 2007 base and 2018 reporting year GHG emissions inventories to which there are several differences between the City of Victoria's reported GHG emissions and those presented herein. These differences between the two inventories are presented in Appendix B.

18 TOWN OF VIEW ROYAL

18.1 2018 Profile

Profile	
Population	11,283
Dwellings	4,637
Registered Vehicles	7,268
Energy (Millions of GJ)	419
GHG Emissions (tCO ₂ e)	45,507

18.2 Energy & GHG Emissions

Table 24 presents a summary comparison of the Town of View Royal's 2007 and 2018 energy and GHG emissions.

Table 22. Estimated Energy and GHG Emissions By Reporting Source

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO ₂ e)	2018 GHG Emissions (tCO ₂ e)	Change (%)
Stationary Energy							
Residential Buildings	Electricity	185,764	179,782	-3.2%	1,290	533	-58.7%
	Natural Gas	75,155	76,534	1.8%	3,748	3,817	1.8%
	Fuel Oil	22,724	27,689	21.8%	1,554	1,893	21.8%
	Propane	3,926	3,706	-5.6%	239	227	-5.3%
	Wood	8,710	8,314	-4.6%	205	195	-4.6%
	Diesel	6,461,541	5,842,390	-9.6%	500	424	-15.2%
Commercial & Industrial Buildings	Electricity	113,772	129,927	14.2%	790	385	-51.3%
	Natural Gas	123,868	146,990	18.7%	6,177	7,330	18.7%

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO ₂ e)	2018 GHG Emissions (tCO ₂ e)	Change (%)
	Fuel Oil	0	0	-	0	0	-
	Diesel	11,651,960	12,559,150	7.8%	901	911	1.1%
Energy Industries	LFG Combustion			-	0	0	-
Agriculture, Forestry And Fishing Activities	Diesel	30,824,730	31,437,620	2.0%	2,384	2,281	-4.3%
Natural Gas Fugitive Emissions				-	38	60	58.1%
Total		49,472,150	50,412,101	1.9%	17,826	18,055	1.3%
On-Road Transportation							
Electric Vehicles	Electricity	-	500	-	-	2	-
Passenger Vehicles	Gasoline + Diesel + Propane	138,334,667	138,673,004	0.2%	9,846	8,929	-9.3%
Light Trucks, Vans, SUVs	Gasoline + Diesel + Propane	141,782,956	182,230,494	28.5%	10,031	11,666	16.3%
Heavy Duty Vehicles	Gasoline + Diesel + Propane	54,664,756	12,294,955	-77.5%	3,828	785	-79.5%
Motorcycles	Gasoline	1,222,928	894,887	-26.8%	84	62	-26.8%
Total On-Road Transportation		336,005,307	334,093,840	-0.6%	23,789	21,443	-9.9%
Off-Road Transportation							
Marine, Aviation and Other Off-Road Vehicles	Marine Gasoline + Marine Diesel + Jet Fuel	31,550,731	34,621,200	9.7%	3,072	3,084	0.4%
Total Off-Road Transportation		31,550,731	34,621,200	9.7%	3,072	3,084	0.4%
Waste							
Wastewater					386	475	23.1%
Composting					0	170	-

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO ₂ e)	2018 GHG Emissions (tCO ₂ e)	Change (%)
Solid Waste					2,856	1,770	-38.0%
Total Waste					3,242	2,416	-25.5%
Agriculture Forestry & Other Land Use (AFOLU)							
Land-Use					-1,753	-3,102	76.9%
Livestock, Aggregate Sources and Non-CO ₂ Emission Sources on Land					2	2	-11.0%
Total AFOLU					-1,751	-3,100	77.0%
Industrial Process & Product Use (IPPU)							
Process Use Emissions					1,986	3,610	81.8%
Total IPPU					1,986	3,610	81.8%
TOTAL		417,028,188	419,127,141	0.5%	48,163	45,507	-5.5%

19 SOUTHERN GULF ISLANDS ELECTORAL AREA

19.1 2018 Profile

The Southern Gulf Islands Electoral Area consists of: Galiano, Mayne, North Pender, Saturna and South Pender.

Profile	
Population	4,811
Dwellings	2,487
Registered Vehicles	4,023
Energy (Millions of GJ)	271
GHG Emissions (tCO _{2e})	29,220

19.2 Energy & GHG Emissions

Table 25 presents a summary comparison of the Southern Gulf Islands Electoral Area 2007 and 2018 energy and GHG emissions.

Table 23. Estimated Energy and GHG Emissions By Reporting Source

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO _{2e})	2018 GHG Emissions (tCO _{2e})	Change (%)
Stationary Energy							
	Electricity	205	183	-10.7%	1	1	-61.9%
	Natural Gas	0	0	-	0	0	-
Residential Buildings	Fuel Oil	27,326	34,326	25.6%	1,868	2,347	25.6%
	Propane	24,684	24,021	-2.7%	1,505	1,469	-2.4%
	Wood	206,032	202,732	-1.6%	4,838	4,761	-1.6%
	Diesel	3,525,714	2,491,158	-29.3%	273	181	-33.7%

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO ₂ e)	2018 GHG Emissions (tCO ₂ e)	Change (%)
Commercial & Industrial Buildings	Electricity	45	47	4.1%	0	0	-55.6%
	Natural Gas	0	0	-	0	0	-
	Fuel Oil	0	0	-	0	0	-
	Diesel	6,357,844	5,355,142	-15.8%	492	389	-21.0%
Energy Industries	LFG Combustion			-	0	0	-
Agriculture, Forestry And Fishing Activities	Diesel	16,819,388	13,404,803	-20.3%	1,301	973	-25.2%
Natural Gas Fugitive Emissions				-	0	0	-
Total		26,961,238	21,512,414	-20.2%	10,278	10,119	-1.5%
On-Road Transportation							
Electric Vehicles	Electricity	-	392	-	-	1	-
Passenger Vehicles	Gasoline + Diesel + Propane	115,551,413	57,721,445	-50.0%	8,207	3,716	-54.7%
Light Trucks, Vans, SUVs	Gasoline + Diesel + Propane	63,232,291	120,980,371	91.3%	4,498	7,768	72.7%
Heavy Duty Vehicles	Gasoline + Diesel + Propane	17,023,857	55,838,367	228.0%	1,170	3,669	213.5%
Motorcycles	Gasoline	915,525	438,755	-52.1%	63	30	-52.1%
Total On-Road Transportation		196,723,085	234,979,331	19.4%	13,939	15,184	8.9%
Off-Road Transportation							
Marine, Aviation and Other Off-Road Vehicles	Marine Gasoline + Marine Diesel + Jet Fuel	17,215,527	14,762,261	-14.3%	1,676	1,315	-21.6%
Total Off-Road Transportation		17,215,527	14,762,261	-14.3%	1,676	1,315	-21.6%
Waste							

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO ₂ e)	2018 GHG Emissions (tCO ₂ e)	Change (%)
Wastewater					24	6	-76.1%
Composting					0	0	-
Solid Waste					1,558	755	-51.6%
Total Waste					1,582	760	-51.9%
Agriculture Forestry & Other Land Use (AFOLU)							
Land-Use					Withheld	Withheld	Withheld
Livestock, Aggregate Sources and Non-CO ₂ Emission Sources on Land					387	302	-21.8%
Total AFOLU					387	302	-21.8%
Industrial Process & Product Use (IPPU)							
Process Use Emissions					1,083	1,539	42.1%
Total IPPU					1,083	1,539	42.1%
TOTAL		240,899,851	271,254,006	12.6%	28,947	29,220	0.9%

APPENDIX A

Comparison of the District of Saanich's and the CRD's GHG calculation of the 2007 and 2017/2018 GHG emissions is presented in Table A1 and Table A2 below. It should be noted that the District of Saanich has not prepared a 2018 GHG emissions inventory and as such, the reported 2017 GHG emissions inventory is used as a proxy for comparison.

Table A124. Comparison of 2007 GHG Emissions Inventories

Sector	Sub-Sector	2007 SAANICH GHG (tCO _{2e})	2007 CRD GHG (tCO _{2e})	Difference (tCO _{2e})	Explanation for Difference
Stationary Energy	Residential Buildings	93,458	106,201	12,743	<ul style="list-style-type: none"> Due to concerns around the published energy data (see Section 2.3), the raw energy values for electricity and natural gas were used in the CRD inventory. Results in a ~7,500 tCO_{2e} increase. ECCC NIR updated 2007 (Original 33,000 tCO_{2e}; Updated 183,000 tCO_{2e}) numbers for other off-road residential emissions. This is a common occurrence for ECCC. They will typically update historical numbers based on new data and methodological changes. Results in an ~5,200 tCO_{2e} increase.
	Agriculture, Forestry, And Fishing Activities	13,550	29,343	15,793	<ul style="list-style-type: none"> ECCC NIR updated 2007 numbers for this source of GHG emissions (Original 500,000 tCO_{2e}; Updated 873,000 tCO_{2e}). Results in the increase in GHG emissions.
	Commercial / Institutional Buildings	52,835	59,777	6,942	<ul style="list-style-type: none"> Due to concerns around the published energy data (see Section 2.3), the raw energy values for electricity and natural gas were used in the CRD inventory. Results in an ~1,000 tCO_{2e} increase. ECCC NIR updated 2007 numbers for other off-road commercial and manufacturing emissions. (Original 210,000 tCO_{2e}; Updated 330,000 tCO_{2e}). Results in an ~6,000 tCO_{2e} increase.
	Energy Industries		418	418	<ul style="list-style-type: none"> 2007 flaring data was not available to Saanich at the time of reporting.
	Fugitive Emissions: Oil and Natural Gas Systems	1,800	314	(1,486)	<ul style="list-style-type: none"> For the CRD project, FORTISBC provided 2018 fugitive numbers for the CRD which did not include upstream GHG emissions. This value was then prorated to each CRD member based on the number of natural gas connections. The original value in the reported inventory

Sector	Sub-Sector	2007 SAANICH GHG (tCO ₂ e)	2007 CRD GHG (tCO ₂ e)	Difference (tCO ₂ e)	Explanation for Difference
					<i>was estimated by FORTISBC for the District and includes upstream emissions. To be consistent in terms of methodology across the CRD, the new value was applied.</i>
Transportation	On-Road Transportation	88,486	105,898	17,413	<ul style="list-style-type: none"> The CRD calculator uses the original 2007 and 2010 vehicle registration data, whereas the original inventory used the published 2012 data (which contained the 2007 and 2010 data which was modified based on changes to the 2012 methodology). During the preparation of the CRD calculator, it was brought to light there are concerns with the 2012 data which impacted the 2007 and 2010 values. As such, the original CEEI 2007 and 2010 data was used in the CRD calculator. The original inventory used the estimated Vehicle Kilometer Travelled (VKT) data and fuel efficiency factors that were used in the BC CEEIs which were derived from AirCare data. As the AirCare data program ended in 2014, the CRD inventory uses VKT data and fuel efficiency factors that are generated and used by Environment Canada (EC) in their calculation of Provincial and Federal GHG emissions. The fuel consumption values, on average, in the EC dataset are higher than the CEEI estimates. Some of the original vehicle registrations were also reclassified to align with the EC dataset. Results in a ~46,000 tCO₂e increase. BC Transit GHG emissions were allocated based on total service population, rather than the CRD population as was done in the original inventory. Results in an ~6,000 tCO₂e decline.
	Transboundary Transportation	151,977	176,450	24,473	<ul style="list-style-type: none"> See above note.
	Off-Road Transportation: Aviation, Waterborne, and Other Off-Road	14,562	37,808	23,246	<ul style="list-style-type: none"> Land and marine based aviation GHG emissions were assigned on a per capita basis. There were some changes to the Provinces population counts between inventories resulting in a decline of aviation emissions by ~1,700 tCO₂e In the original inventory, the BC Ferries GHG emissions was allocated based on a per capita basis based on total

Sector	Sub-Sector	2007 SAANICH GHG (tCO ₂ e)	2007 CRD GHG (tCO ₂ e)	Difference (tCO ₂ e)	Explanation for Difference
					<p>passengers. Since BC Ferries also serves the Vancouver coast population, the methodology was changed and the BC ferries value was prorated based on the Vancouver Island and Vancouver South Coast population in the CRD inventory. Results in an increase of ~10,000 tCO₂e.</p> <ul style="list-style-type: none"> ECCC NIR updated 2007 numbers for other off-road emissions. (Original 110,000 tCO₂e; Updated 687,000 tCO₂e). Results in an ~15,000 tCO₂e increase.
Waste	Waste: Solid Waste Disposal, Biological Treatment of Waste, Wastewater Treatment and Discharge	34,121	40,134	6,013	<ul style="list-style-type: none"> In the original inventory, wastewater volumes were allocated based on a 2015 study whereas the CRD values are based on Total annual volume of wastewater by municipality. Results in an ~500 tCO₂e increase. The original inventory pro-rated Hartland Landfill GHG emissions based on total volume of waste (estimated by the District) sent to landfill. The CRD inventory assigns 31% of waste emissions to the City of Victoria (which was a lower claim than what was estimated in the original inventory) and assigns the rest of the landfill emissions on a per capita basis. Results in an increase of ~6,500 tCO₂e.
AFOLU	AFOLU: Livestock, Land, and Other Agriculture	20,071	(5,947)	(26,018)	<ul style="list-style-type: none"> For the CRD inventory, the BC MOE provided BC based land-use emissions factors and there was a change in the calculation methodologies based on land-use data at the CRD level. Results in a decrease of GHG emissions by ~15,000 tCO₂e. The Saanich inventory was also using livestock GHG estimates from the Agriculture and Agri-Food Canada (AAFC) Holos GHG emissions model (V3.1) using 2016 Statistics Canada Agriculture Census Data which conservatively over estimated livestock emissions, but this approach was not used in the CRD estimates as the livestock census data is from 2006 and not complete for all CRD members. As such, in the CRD calculator all livestock and direct/indirect manure and soil GHG estimates are based on the ECCC NIR and prorated based on hectares of agricultural land. Results in a decline of GHG emissions by 11,000 tCO₂e.
IPPU	IPPU: Industrial Processes, and Product Use	24,524	24,438	(86)	<ul style="list-style-type: none"> ECCC NIR updated 2007 numbers for IPPU GHG emissions. Results in a decline of ~100 tCO₂e.

Sector	Sub-Sector	2007 SAANICH GHG (tCO ₂ e)	2007 CRD GHG (tCO ₂ e)	Difference (tCO ₂ e)	Explanation for Difference
Total GHG Emissions		495,384	574,835	79,451	

Table A225. Comparison of 2017 and 2018 GHG Emissions Inventories

Sector	Sub-Sector	2017 SAANICH GHG (tCO ₂ e)	2018 CRD GHG (tCO ₂ e)	Difference (tCO ₂ e)	Explanation for Difference
Stationary Energy	Residential Buildings	89,308	85,067	(4,241)	<ul style="list-style-type: none"> The CRD inventory is using 2018 energy data whereas the Saanich calculator is based on 2017. To estimate wood and propane use, the linear regression equation was based on the CRD total consumption and HDD days (instead of the reporter's consumption) which resulted in immaterial changes to the values. ECCC NIR updated 2018 (Original 140,000 tCO₂e; Updated 147,000 tCO₂e) numbers for other off-road residential emissions. The difference is also due to different reporting years being reported in this table (values are assigned on a per capita basis).
	Agriculture, Forestry, And Fishing Activities	13,314	24,471	11,157	<ul style="list-style-type: none"> ECCC NIR updated 2018 numbers for this source of GHG emissions (Original 540,000 tCO₂e; Updated 791,000 tCO₂e). The difference is also due to different reporting years being reported in this table (values are assigned on a per capita basis).
	Commercial / Institutional Buildings	56,819	55,514	(1,305)	<ul style="list-style-type: none"> ECCC NIR updated 2018 numbers for other off-road commercial and manufacturing emissions. (Original 290,000 tCO₂e; Updated 316,000 tCO₂e). The difference is also due to different reporting years being reported in this table (values are assigned on a per capita basis).
	Energy Industries		7,658	7,658	<ul style="list-style-type: none"> Flaring data was not available to Saanich at the time of reporting.
	Fugitive Emissions: Oil and Natural Gas Systems	1,206	432	(774)	<ul style="list-style-type: none"> For the CRD project, FORTISBC provided 2018 fugitive numbers for the CRD which did not include upstream GHG emissions. This value was then prorated to each CRD member based on the number of natural gas connections. The original value in the reported inventory was estimated by FORTISBC for the District and included upstream emissions. To be consistent in terms

Sector	Sub-Sector	2017 SAANICH GHG (tCO ₂ e)	2018 CRD GHG (tCO ₂ e)	Difference (tCO ₂ e)	Explanation for Difference
					<i>of methodology across the CRD, the new value was applied.</i>
Transportation	On-Road Transportation	102,580	98,176	(4,404)	<ul style="list-style-type: none"> The CRD calculator uses the original 2007 and 2010 vehicle registration data, whereas the original inventory used the published 2012 data (which contained the 2007 and 2010 data which was modified based on changes to the 2012 methodology). During the preparation of the CRD calculator, it was brought to light there are concerns with the 2012 data which impacted the 2007 and 2010 values. As such, the original CEEI 2007 and 2010 data was used in the CRD calculator. In the original inventory, transportation GHG emissions were estimated based on population growth and the number of registered vehicles in 2012 whereas the CRD inventory uses 2010 vehicle registration data. The original inventory used the estimated Vehicle Kilometer Travelled (VKT) data and fuel efficiency factors that were used in the BC CEEIs which were derived from AirCare data. As the AirCare data program ended in 2014, the CRD inventory uses VKT data and fuel efficiency factors that are generated and used by Environment Canada (EC) in their calculation of Provincial and Federal GHG emissions. The fuel consumption and VKT values, on average, in the EC dataset are lower than those used in the GHG calculator. Results in a ~15,300 tCO₂e decline in GHG emissions. BC Transit GHG emissions were allocated based on total service population, rather than the CRD population as was done in the original inventory. Results in an ~6,700 tCO₂e decline.
	Transboundary Transportation	169,961	152,356	(17,605)	<ul style="list-style-type: none"> See above comment.
	Off-Road Transportation:	26,273	33,085	6,812	<ul style="list-style-type: none"> Airport GHG emissions were assigned on a per capita basis. There were some changes to the Provinces

Sector	Sub-Sector	2017 SAANICH GHG (tCO ₂ e)	2018 CRD GHG (tCO ₂ e)	Difference (tCO ₂ e)	Explanation for Difference
	Aviation, Waterborne, and Other Off-Road				<p>population counts between inventories resulting in a decline of aviation emissions by ~200 tCO₂e</p> <ul style="list-style-type: none"> In the original inventory, the BC Ferries GHG emissions was allocated based on a per capita basis based on total passengers. Since BC Ferries also serves the Vancouver coast population, the methodology was changed and the BC ferries value was prorated based on the Vancouver Island and Vancouver South Coast population in the CRD inventory. Results in an increase of ~8,000 tCO₂e. ECCC NIR updated 2018 numbers for other off-road emissions. (Original 750,000 tCO₂e; Updated 682,000 tCO₂e). Results in an ~2,000 tCO₂e decline. The difference is also due to different reporting years being reported in this table (values are assigned on a per capita basis).
Waste	Waste: Solid Waste Disposal, Biological Treatment of Waste, Wastewater Treatment and Discharge	23,819	28,252	4,433	<ul style="list-style-type: none"> In the original inventory, wastewater volumes were allocated based on a 2015 study whereas the CRD values are based on Total annual volume of wastewater by municipality. Results in an ~100 tCO₂e decline. The original inventory pro-rated Hartland Landfill GHG emissions based on total volume of waste (estimated by the District) sent to landfill. The CRD inventory assigns 31% of waste emissions to the City of Victoria (which was a lower claim than what was estimated in the original inventory) and assigns the rest of the landfill emissions on a per capita basis. Results in an increase of ~4,400 tCO₂e.
AFOLU	AFOLU: Livestock, Land, and Other Agriculture	(10,257)	(27,332)	(17,075)	<ul style="list-style-type: none"> For the CRD inventory, the BC MOE provided BC based land-use emissions factors and there was a change in the calculation methodologies based on land-use data at the CRD level. Results in a decrease of GHG emissions by ~7,000 tCO₂e. The Saanich inventory was also using livestock GHG estimates from the Agriculture and Agri-Food Canada (AAFC) Holos GHG emissions model (V3.1) using 2016 Statistics Canada Agriculture Census Data which conservatively over estimated livestock emissions, but this approach was not used in the CRD estimates as the

Sector	Sub-Sector	2017 SAANICH GHG (tCO ₂ e)	2018 CRD GHG (tCO ₂ e)	Difference (tCO ₂ e)	Explanation for Difference
					<i>livestock census data is from 2006 and not complete for all CRD members. As such, in the CRD calculator all livestock and direct/indirect manure and soil GHG estimates are based on the ECCC NIR and prorated based on hectares of agricultural land. Results in a decline of GHG emissions by 10,000 tCO₂e</i>
IPPU	IPPU: Industrial Processes, and Product Use	39,883	38,729	(1,155)	<ul style="list-style-type: none"> • IPPU is allocated on a per capita basis. The difference is due to different reporting years being reported in this table.
Total GHG Emissions		512,906	496,408	-16,498	

APPENDIX B

Comparison of the City of Victoria's and the CRD's GHG calculation of the 2007 and /2018 GHG emissions is presented in Table B1 and Table B2 below.

Table A126. Comparison of 2007 GHG Emissions Inventories

Sector	Sub-Sector	2007 VICTORIA GHG (tCO ₂ e)	2007 CRD GHG (tCO ₂ e)	Difference	Explanation for Difference
Stationary Energy	Residential Buildings	84,187	116,072	31,885	<ul style="list-style-type: none"> Due to concerns around the published energy data (see Section 2.3), the raw energy values for electricity and natural gas were used in the CRD inventory. Results in a ~28,000 tCO₂e increase. This effect is nearly netted out with the decrease in commercial building natural gas consumption (see below). ECCC NIR updated 2007 (Original 33,000 tCO₂e; Updated 183,000 tCO₂e) numbers for other off-road residential emissions. This is a common occurrence for ECCC. They will typically update historical numbers based on new data and methodological changes. Results in a ~3,800 tCO₂e increase.
	Commercial / Institutional Buildings	120,528	98,912	-21,616	<ul style="list-style-type: none"> Due to concerns around the published energy data (see Section 2.3), the raw energy values for electricity and natural gas were used in the CRD inventory. Results in a ~25,000 tCO₂e decline. This effect is nearly netted out with the increase in residential building natural gas consumption (see above). ECCC NIR updated 2007 numbers for other off-road commercial and manufacturing emissions. (Original 210,000 tCO₂e; Updated 330,000 tCO₂e). Results in an ~4,000 tCO₂e increase.
	Fugitive Emissions: Oil and Natural Gas Systems	1,370	231	-1,139	<ul style="list-style-type: none"> For the CRD project, FORTISBC provided 2018 fugitive numbers for the CRD which did not include upstream GHG emissions. This value was then prorated to each CRD member based on the number of natural gas connections. The original value in the reported inventory was estimated by FORTISBC for the City and includes upstream emissions. To be consistent in terms of

Sector	Sub-Sector	2007 VICTORIA GHG (tCO ₂ e)	2007 CRD GHG (tCO ₂ e)	Difference	Explanation for Difference
					<i>methodology across the CRD, the new value was applied.</i>
Transportation	On-Road Transportation	40,274	50,420	10,146	<ul style="list-style-type: none"> The CRD calculator uses the original 2007 and 2010 vehicle registration data, whereas the original inventory used the published 2012 data (which contained the 2007 and 2010 data which was modified based on changes to the 2012 methodology). During the preparation of the CRD calculator, it was brought to light there are concerns with the 2012 data which impacted the 2007 and 2010 values. As such, the original CEEI 2007 and 2010 data was used in the CRD calculator. In the original inventory, transportation GHG emissions were estimated based on population growth and the number of registered vehicles in 2012. The original inventory used the estimated Vehicle Kilometer Travelled (VKT) data and fuel efficiency factors that were used in the BC CEEIs which were derived from AirCare data. As the AirCare data program ended in 2014, the CRD inventory uses VKT data and fuel efficiency factors that are generated and used by Environment Canada (EC) in their calculation of Provincial and Federal GHG emissions. The fuel consumption values, on average, in the EC dataset are higher than those used in the original inventory calculator. Results in a ~41,500 tCO₂e increase in GHG emissions. BC Transit GHG emissions were allocated based on total service population, rather than the CRD population as was done in the original inventory. Results in a ~4,700 tCO₂e decline.
	Transboundary Transportation	100,290	126,935	26,645	<ul style="list-style-type: none"> See above note.
	Off-Road Transportation: Aviation,	56,959	38,042	-18,917	<ul style="list-style-type: none"> Land and marine based aviation GHG emissions were assigned on a per capita basis. There were some changes to the Provinces population counts between inventories resulting in a decline of aviation emissions.

Sector	Sub-Sector	2007 VICTORIA GHG (tCO ₂ e)	2007 CRD GHG (tCO ₂ e)	Difference	Explanation for Difference
	Waterborne, and Other Off-Road				<p><i>There was also a methodology change in the assignment in marine aviation GHG emissions. The GPC Protocol provided updated guidance on the assignment of aviation emissions allowing these to be assigned as Scope 3 GHG emissions regardless of the location of the airport(s). On this basis, all marine aviation emissions were assigned on a per capita basis to all municipalities. This resulted in a decline of ~8,000 tCO₂e.</i></p> <ul style="list-style-type: none"> <i>In the original inventory, the BC Ferries GHG emissions were allocated based on a per capita basis for Vancouver Island. Since BC Ferries also serves the Vancouver coast population, the methodology was changed and the BC ferries value was prorated based on the Vancouver Island and Vancouver South Coast population in the CRD inventory. Results in a decline of ~23,000 tCO₂e</i> <i>The CRD inventory includes an estimate of ~7,000 tCO₂e of cruise ship emissions not included in the original inventory.</i> <i>ECCC NIR updated 2007 numbers for other off-road emissions. (Original 110,000 tCO₂e; Updated 687,000 tCO₂e). Results in an ~10,000 tCO₂e increase.</i>
Waste	Waste: Solid Waste Disposal, Biological Treatment of Waste, Wastewater Treatment and Discharge	58,072	33,367	-24,705	<ul style="list-style-type: none"> <i>In the original inventory, wastewater volumes were allocated based on a 2015 study whereas the CRD values are based on Total annual volume of wastewater by municipality. Results in an ~600 tCO₂e increase.</i> <i>The original inventory pro-rated Hartland Landfill GHG emissions based on total volume of waste (estimated by the City) sent to landfill. The CRD inventory assigns 31% of waste emissions to the City of Victoria. Results in a decrease of ~23,000 tCO₂e.</i> <i>The CRD inventory does not include Tervia Landfill GHG emissions (2,800 tCO₂e not accounted for).</i>
AFOLU	AFOLU: Livestock, Land, and Other Agriculture	822	-217	-1,039	<ul style="list-style-type: none"> <i>For the CRD inventory, the BC MOE provided BC based land-use emissions factors and there was a change in the calculation methodologies based on land-use data at the CRD level. Results in a decrease of GHG emissions by ~1,000 tCO₂e.</i>

Sector	Sub-Sector	2007 VICTORIA GHG (tCO ₂ e)	2007 CRD GHG (tCO ₂ e)	Difference	Explanation for Difference
IPPU	IPPU: Industrial Processes, and Product Use	17,859	17,798	-61	<ul style="list-style-type: none"> IPPU is allocated on a per capita basis. The difference is due to different reporting years being reported in this table.
Total GHG Emissions		480,361	481,559	1,198	

Table A227. Comparison of 2018 GHG Emissions Inventories

Sector	Sub-Sector	2018 VICTORIA GHG (tCO ₂ e)	2018 CRD GHG (tCO ₂ e)	Difference (tCO ₂ e)	Explanation for Difference
Stationary Energy	Residential Buildings	66,576	70,618	4,042	<ul style="list-style-type: none"> ECCC NIR updated 2018 (Original 140,000 tCO₂e; Updated 147,000 tCO₂e) numbers for other off-road residential emissions. Results in the increase in GHG emissions.
	Commercial / Institutional Buildings	118,206	120,491	2,285	<ul style="list-style-type: none"> ECCC NIR updated 2018 numbers for this source of GHG emissions (Original 540,000 tCO₂e; Updated 791,000 tCO₂e). Results in the increase in GHG emissions.
	Fugitive Emissions: Oil and Natural Gas Systems	1,200	370	-830	<ul style="list-style-type: none"> For the CRD project, FORTISBC provided 2018 fugitive numbers for the CRD which did not include upstream GHG emissions. This value was then prorated to each CRD member based on the number of natural gas connections. The original value in the reported inventory was estimated by FORTISBC for the City and includes upstream emissions. To be consistent in terms of methodology across the CRD, the new value was applied.
Transportation	On-Road Transportation	42,580	47,383	4,803	<ul style="list-style-type: none"> The CRD calculator uses the original 2007 and 2010 vehicle registration data, whereas the original inventory used the published 2012 data (which contained the 2007 and 2010 data which was modified based on changes to the 2012 methodology). During the preparation of the CRD calculator, it was brought to light there are concerns with the 2012 data which impacted the 2007 and 2010 values. As such, the original CEEI 2007 and 2010 data was used in the CRD calculator. In the original inventory, transportation GHG emissions were estimated based on population growth and the number of registered vehicles in 2012 whereas the CRD inventory uses 2010 vehicle

Sector	Sub-Sector	2018 VICTORIA GHG (tCO _{2e})	2018 CRD GHG (tCO _{2e})	Difference (tCO _{2e})	Explanation for Difference
					<p>registration data. The original inventory used the estimated Vehicle Kilometer Travelled (VKT) data and fuel efficiency factors that were used in the BC CEEIs which were derived from AirCare data. As the AirCare data program ended in 2014, the CRD inventory uses VKT data and fuel efficiency factors that are generated and used by Environment Canada (EC) in their calculation of Provincial and Federal GHG emissions. Results in a ~8,500 tCO_{2e} increase in GHG emissions.</p> <ul style="list-style-type: none"> • BC Transit GHG emissions were allocated based on total service population, rather than the CRD population as was done in the original inventory. Results in an ~5,000 tCO_{2e} decline.
	Transboundary Transportation	106,745	115,881	9,136	<ul style="list-style-type: none"> • See above note.
	Off-Road Transportation: Aviation, Waterborne, and Other Off-Road	57,732	40,436	-17,296	<ul style="list-style-type: none"> • Land and marine based aviation GHG emissions were assigned on a per capita basis. There were some changes to the Provinces population counts between inventories resulting in a decline of aviation emissions. There was also a methodology change in the assignment in marine aviation GHG emissions. The GPC Protocol provided updated guidance on the assignment of aviation emissions allowing these to be assigned as Scope 3 GHG emissions regardless of the location of the airport(s). On this basis, all marine aviation emissions were assigned on a per capita basis to all municipalities. This resulted in a decline of ~2,500 tCO_{2e}. • In the original inventory, the BC Ferries GHG emissions were allocated based on a per capita basis for Vancouver Island. Since BC Ferries also serves the Vancouver coast population, the methodology was changed and the BC ferries value was prorated based on the Vancouver Island and Vancouver South Coast population in the CRD inventory. Results in a decline of ~27,500 tCO_{2e}.

Sector	Sub-Sector	2018 VICTORIA GHG (tCO _{2e})	2018 CRD GHG (tCO _{2e})	Difference (tCO _{2e})	Explanation for Difference
					<ul style="list-style-type: none"> The GVHA reported on cruise ship emissions which increased the City's GHG emissions by ~11,600 tCO_{2e}. ECCC NIR updated 2018 numbers for other off-road emissions. (Original 750,000 tCO_{2e}; Updated 682,000 tCO_{2e}). A slightly higher population value (produced by the Province was used which results in an ~1,200 tCO_{2e} increase.
Waste	Waste: Solid Waste Disposal, Biological Treatment of Waste, Wastewater Treatment and Discharge	31,078	29,957	-1,121	<ul style="list-style-type: none"> In the original inventory, wastewater volumes were allocated based on a 2015 study whereas the CRD values are based on Total annual volume of wastewater by municipality. Results in an ~600 tCO_{2e} increase. The original inventory pro-rated Hartland Landfill GHG emissions based on total volume of waste (estimated by the City) sent to landfill. The CRD inventory assigns 31% of waste emissions to the City of Victoria. Results in a decrease of ~1,700 tCO_{2e}.
AFOLU	AFOLU: Livestock, Land, and Other Agriculture	-548	-2,224	-1,676	<ul style="list-style-type: none"> For the CRD inventory, the BC MOE provided BC based land-use emissions factors and there was a change in the calculation methodologies based on land-use data at the CRD level. Results in a decrease of GHG emissions by ~1,700 tCO_{2e}.
IPPU	IPPU: Industrial Processes, and Product Use	29,919	29,654	-265	<ul style="list-style-type: none"> ECCC NIR updated 2018 numbers for IPPU GHG emissions. Results in a decline of ~300 tCO_{2e}.
Total GHG Emissions		453,488	452,567	-921	

**REPORT TO ENVIRONMENTAL SERVICES COMMITTEE/
PLANNING, TRANSPORTATION & PROTECTIVE SERVICES COMMITTEE
MEETING OF WEDNESDAY, JULY 15, 2020**

SUBJECT **Capital Region Coastal Flood Inundation Mapping Project Update**

ISSUE SUMMARY

To provide the results of the Capital Region Coastal Flood Inundation Mapping Project.

BACKGROUND

Under both the British Columbia Local Government Act and the Emergency Program Act, local governments have a responsibility to understand, plan for and manage coastal flooding risk.

In May 2019, working with and on behalf of local governments, the Capital Regional District (CRD) received a \$705,000 grant from the provincially and federally funded National Disaster Mitigation Program to undertake the Capital Region Coastal Flood Inundation Mapping Project. Associated Engineering, DHI and Westmar Advisors were retained to complete the work.

The purpose of this regional project is to help inform the CRD, its local governments, First Nations and other interested stakeholders of the risk of coastal flooding due to sea level rise and tsunamis, and the subsequent impacts as a result of inundation. The results of this project may be used to develop coastal flood hazard policy in the region's respective local governments, and inform emergency mitigation and evacuation plans. This project builds upon previous regional work, offering new and detailed information on coastal flood hazards related to both climate change and earthquake impacts.

Staff from the CRD Climate Action and Emergency Management programs have worked collaboratively on the project. Staff have also been working with an inter-municipal multidisciplinary project team with counterparts from seven local governments throughout the process. During the technical phase, CRD staff coordinated two workshops (over 30 staff in attendance per workshop) for representatives from all local governments in the region: one to refine the methodology and project outputs, and the other to review draft technical results. Updates have been provided throughout the project via existing inter-municipal staff committees (climate and emergency management) and directly with key stakeholders, as required.

A number of similar initiatives have been recently completed, are ongoing, or are in the procurement phase on Vancouver Island and the Lower Mainland. As such, throughout the project, staff have connected with other local governments to share learnings and resources.

Results

This project involved three main tasks with distinct methodologies, results of which are provided in three separate reports:

- Task 1: Digital Elevation Model Development Report
- Task 2: Sea Level Rise Modelling and Mapping Report
- Task 3: Tsunami Modelling and Mapping Report

Refer to Appendix A for an executive summary that provides information on the local government legislative context, and a summary of project methodologies and results. The reports in their entirety and frequently asked questions can be found at www.crd.bc.ca/coastalflood.

Next Steps

The findings in this project can be used for a variety of different purposes and will serve as an important data input for further regional emergency mitigation, planning and policy related initiatives. In addition, information found within these reports will be used to update emergency public education and build upon existing communications materials.

The reports, with an accompanying geographic information system, will be shared directly with CRD and local government staff, regional emergency management committees, and provincial and federal agencies, as a condition of the grant. Staff will continue to connect with coastal First Nations to provide the data and deliverables in a format that is usable to them.

CRD will continue to support existing inter-municipal and inter-agency committees to understand opportunities for further collaboration.

As technology and science improves, risk modelling related to both sea level rise and tsunamis will need to be continually conducted to update emergency preparedness, planning and response.

ALTERNATIVES

Alternative 1

The Environmental Services Committee recommends to the Capital Regional District Board:

That the results of the Capital Region Coastal Flood Inundation Mapping Project be received for information, be referred to all CRD municipalities, electoral areas and First Nations, and inform future emergency planning efforts.

Alternative 2

That this report be referred back to staff for additional information.

CONCLUSION

Working with and on behalf of local governments, the CRD received a \$705,000 grant from the provincially and federally funded National Disaster Mitigation Program to undertake the Capital Region Coastal Flood Inundation Mapping Project. The purpose of this regional project is to help inform the CRD, its local governments, First Nations and other interested stakeholders of the risk of coastal flooding due to sea level rise and tsunamis, and support further planning, policy and communication efforts. The CRD will provide the results of the project to regional stakeholders and work with existing inter-municipal and inter-agency committees to understand opportunities for further collaboration.

RECOMMENDATION

The Environmental Services Committee recommends to the Capital Regional District Board:

That the results of the Capital Region Coastal Flood Inundation Mapping Project be received for information, be referred to all CRD municipalities, electoral areas and First Nations, and inform future emergency planning efforts.

Submitted by:	Glenn Harris, Ph.D., R.P.Bio., Senior Manager, Environmental Protection
Concurrence:	Larisa Hutcheson, P.Eng., General Manager, Parks & Environmental Services
Concurrence:	Kevin Lorette, P.Eng., MBA, General Manager, Planning & Protective Services
Concurrence:	Robert Lapham, MCIP, RPP, Chief Administrative Officer

ATTACHMENT

Appendix A: Capital Region Coastal Flood Inundation Mapping Project – Executive Summary
(July 2020)

CAPITAL REGION COASTAL FLOOD INUNDATION MAPPING PROJECT EXECUTIVE SUMMARY

July 2020

The Capital Regional District (CRD) retained Associated Engineering, DHI and Westmar Advisors to undertake the Capital Region Coastal Flood Inundation Mapping Project (the Project) in 2019-2020.

This work was completed to:

- Provide the CRD, local governments, First Nations and other interested stakeholders with a comprehensive picture of coastal flooding due to rising sea levels and tsunamis.
- Help planners and emergency managers prepare the region for tsunami events that may strike southern Vancouver Island and the Southern Gulf Islands.
- Offer guidance to regional stakeholders to inform coastal flood hazard policy, planning and future regulatory efforts, including Flood Construction Levels.
- Better understand the infrastructure, ecosystems and cultural sites that may be at risk due to future sea level rise through an intertidal risk assessment.
- To identify risks to residents and infrastructure (e.g., harbours/marinas/docks) within the capital region, as a result of tsunami waves and currents through a targeted tsunami risk assessment.

The Project was completed by undertaking three main tasks, and results are found in the following reports:

- Task 1: Digital Elevation Model Development Report (Task 1 Report)
- Task 2: Sea Level Rise Modelling and Mapping Report (Task 2 Report)
- Task 3: Tsunami Modelling and Mapping Report (Task 3 Report)

This executive summary is intended to provide a brief overview of the Project only. It is important for users to fully understand methodologies and limitations. Refer to the Project reports in their entirety, available at www.crd.bc.ca/coastalflood, for further information.

Context – General

Under the *British Columbia Local Government Act*, local governments are responsible for managing natural hazards through land use planning and regulations. The 2004 provincial Flood Hazard Area Land Use Management Guidelines (the Guidelines) provide direction for local governments to implement land use management plans and make subdivision approval decisions for flood hazard areas. Local governments must consider the Guidelines in making bylaws under Section 910 of the *Local Government Act*. It is the responsibility of each municipality and electoral area to review, interpret and consider how to implement the Guidelines and incorporate them into related local land use regulatory, policy and planning tools, including flood construction levels. The Province also recommends considering tsunami risk when establishing flood hazard regulations, such as flood construction levels.

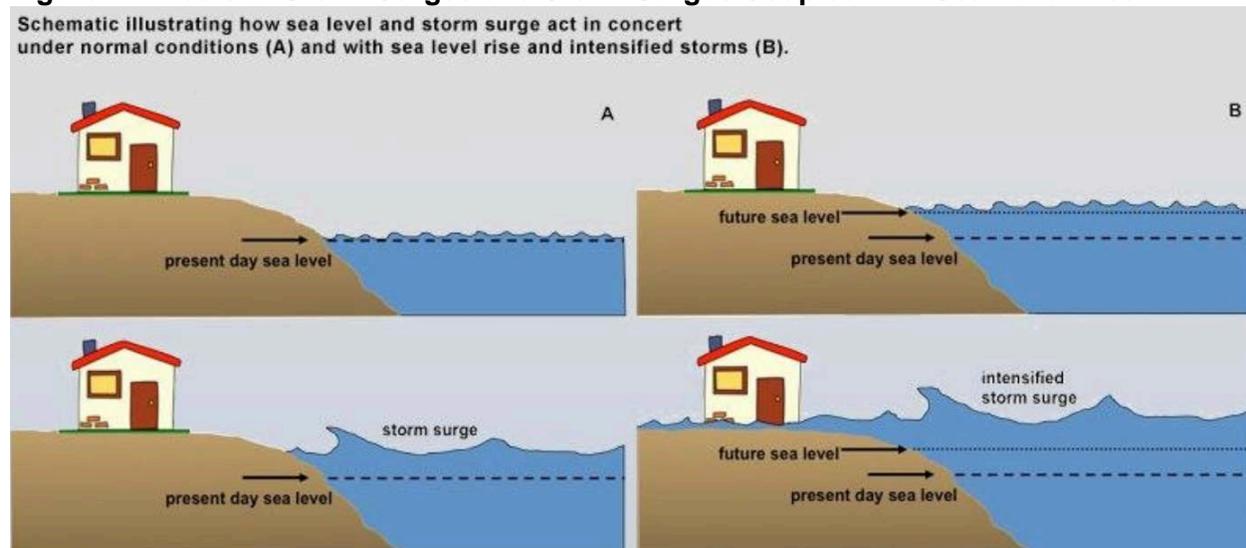
Under the *Emergency Program Act*, local authorities are responsible for assessing risk and planning for potential emergencies and disasters, and should consider coastal flooding when developing local emergency plans. Local emergency plans set out procedures, and other preparedness, response and recovery measures to reduce possible impacts on people and

property during emergencies and disasters. Through their Emergency Operations Centres, local authorities also coordinate and lead the response and recovery of emergency events.

Context – Sea Level Rise

The capital region has a long and complex coastline (approx. 1,300 km), with several low-lying areas exposed to coastal flood hazard now, and into the future with sea level rise. Most coastal flooding occurs today, due to a combination of storm surge, wind and waves occurring at high tide. Sea Level Rise (SLR) means that the still-water elevation of the oceans surrounding the region will rise. SLR is the direct effect of climate change on the global oceans. Melting sea and glacier ice, and the thermal expansion of ocean waters, have resulted in increasing mean sea levels.

Figure 1: Effects of Storm Surges and Storm Surges Coupled with Sea Level Rise



Source: https://www.researchgate.net/figure/Effects-of-storm-surges-and-storm-surges-coupled-with-SLR-Source_fig2_305692060

In 2004, the provincial government passed responsibility for flood management to local governments. The Guidelines were amended in 2018 to incorporate climate projections and tsunami considerations into coastal building setbacks and Flood Construction Levels.

The Guidelines state a 0.5 m SLR increase by the year 2050, 1 m SLR increase by 2100, and 2 m by 2200. This appears to be overly conservative, based on observed water levels to date. However, in 2019, the Intergovernmental Panel on Climate Change indicated sea levels are projected to increase at a rate faster than previously identified, as we move through the century. While there is still great uncertainty in how exactly SLR rates will change in the coming years, it is prudent that local governments consider this uncertainty (and tsunami considerations) in their coastal flood hazard land use policies.

In 2015, CRD staff worked with members of the CRD Climate Action Inter-Municipal Working Group to complete an initial SLR study. This analysis only considered 24 sites, used a more basic analysis, and did not include all of the criteria required to inform Flood Construction Levels. This work identified the need for further study, including a more fulsome regional analysis. The current project (2020) provides further analysis and recommendation on appropriate Flood Construction Levels for the entirety of the capital region.

Context – Tsunami

The west coast of Canada is vulnerable to tsunamis generated by earthquakes beneath the Pacific Ocean. The largest tsunamis in BC result from earthquakes in the Cascadia Subduction Zone, where the oceanic Juan de Fuca plate moves underneath North America. The last significant Cascadia Subduction Zone event occurred on January 26, 1700. The BC coast is also affected by tsunamis of more distant Pacific earthquakes, as experienced by an Alaskan earthquake in 1964. The region around the southern end of Vancouver Island, including the San Juan Islands and water bodies, such as the Juan de Fuca Strait, Salish Sea and Strait of Georgia, are also possibly subject to the effects of local fault systems running through Vancouver Island and adjacent areas to the south and east (see Section 1.3, Task 3 Report).

The Province is responsible for the *Emergency Program Act* (1996), which provides the legislative framework for the management of disasters and emergencies in BC. The provincial government provides guidance to local governments on emergency planning through Emergency Management BC. The Province, through Emergency Management BC, is the current notifying agency for local authorities and First Nation governments for tsunami alerts. Under the *Emergency Program Act*, local authorities are responsible for assessing risk and planning for potential emergencies and disasters.

Regionally, the Regional Emergency Management Partnership (REMP) is an inter-governmental entity working to improve emergency management at all levels of government in the capital region. The REMP Steering Committee is responsible for overseeing the development and delivery of a coordinated seamless regional emergency management strategy supported by an integrated concept of emergency operations, strategic priorities and supporting plans. The Local Government Emergency Program Advisory Commission provides advisory recommendations on the direction of the REMP and initiatives that may be undertaken to provide consistency and coordination among local government emergency programs, and will advise the Regional Emergency Coordinators Advisory Commission on any local government program developments/initiatives that may benefit or otherwise affect other emergency programs in the region.

In January 2018, a 7.9 M earthquake in the Gulf of Alaska triggered a tsunami warning for Vancouver Island, including the communities in the capital region. Prior to this event, distant tsunamis were not known risks to the capital region. The region's emergency programs took the lessons learned from this event and identified the need for additional tsunami modelling to provide further insight on various tsunami scenarios and their impacts to their communities, under the guidance of researchers and field experts. The purpose of this study also aimed to validate the previous regional modelling to ensure that updated results were used in current emergency notification alerts. As technology and science improves, risk modelling, including tsunamis, need to be continually conducted to update emergency preparedness, planning and response.

Methodology – General

Following provincial and international guidelines, and peer-reviewed best practices, the consultant team completed the Project based on the overarching steps summarized below:

- **Background Data Collection:** Gathered the available historic reports, analyses and geospatial data.

- **Digital Elevation Model Development:** Using newly-available topographic and bathymetric data, created a Digital Elevation Model that can be used in hydraulic models to simulate coastal flooding.
- **Sea Level Rise Flooding Analysis:** Developed coastal Flood Construction Levels for the capital region using a transect analyses (199 total representing the region's coastline), as well as detailed flood modelling in select locations (Victoria Harbour/Gorge Waterway, McNeill Bay/Oak Bay, Cadboro Bay, Sidney/Tulista Park, Sidney/Roberts Bay). These sites were chosen due to their low-lying topography, potential susceptibility to coastal flooding and their relatively high population density.
- **Tsunami Model and Mapping Report:** Assessed flooding, due to tsunami activity in the entire region, undertook a detailed analysis within Victoria/Esquimalt, Saanich/Oak Bay, Sidney, Sooke and Port Renfrew, and qualitatively assessed the risk to harbours/marinas/docks within the capital region, as a result of tsunami waves and currents hitting these vulnerable facilities.
- **Final Report:** Summarized the significant volume of technical work completed in concise reporting (via three distinct reports), accompanied by inundation and Flood Construction Level mapping and associated geographic information system deliverables, for the entire project area. The three main reports in their entirety are found at www.crd.bc.ca/coastalflood.

Methodology – Sea Level Rise

This project used a refined form of the 'Probabilistic Method' from the provincial guidelines to estimate the total water levels for the four sea level rise scenarios (0 m, 0.5 m, 1.0 m and 2.0 m), for five annual exceedance probabilities (AEP). This accounts for the joint probability of occurrence of all the different processes contributing to coastal flooding: SLR, high tide, local and regional surge and wave effects (set-up and run-up). This Project's probabilistic methodology is consistent with other detailed studies carried out in the province, where a reduction in conservatism is a key objective. As such, results differ from previous studies done by both the CRD in 2015 and North Saanich in 2017.

Flood construction levels were derived for all four relative sea level rise (RSLR) scenarios following the provincial recommendations of using a 1:200 (0.5%) AEP total water height and adding 600 mm of freeboard. An AEP gives a sense of how often a flood of a certain magnitude could be expected (i.e., 1:200-year flood can be expected to happen once every 200 years or has a 0.5% chance of happening in any given year). Freeboard is a commonly used factor of safety in floodplain planning and was used in this analysis.

In addition, as a separate sub-task, the consultant team utilized existing regional-scale data sets to complete a high-level intertidal risk assessment to understand SLR impacts on coastal ecosystems and known archaeological sites.

Several different mapping efforts were completed:

- mapping the Flood Construction Levels
- mapping total water level for a 0.5% (1:200) AEP for all four SLR scenarios
- detailed modelling and subsequent mapping of flood extent and depth for the five study sites

Other deliverables include:

- recommended flood construction levels by transect across the region
- total water height for all relative sea level rise scenarios and the five different AEPs

Methodology – Tsunami

The Project involved a review of available scientific literature and analyses to select appropriate tsunami-generating sources for modelling. Previous tsunami modelling for the capital region focused on potential events in the Cascadia Subduction Zone, and although this is an important focus, there existed a need to explore hazards from other tsunami sources. The selected scenarios, 11 in total, in this project included distant (e.g., Alaska and Haida Gwaii), subductions zone (e.g., various Cascadia scenarios, including a worst-case and more likely scenario), and local source (e.g., Devils Mountain and Southern Whidbey Island Fault) tsunami sources. Each of these 11 events have resulted in different maximum water levels in each community within the capital region, but also have different expected dates of occurrence (i.e., return periods), which is important to consider this when reviewing the results. The selection of the sources and the magnitudes were guided by researchers and experts in this field.

The Project developed hydraulic models to simulate tsunami wave propagation from source to inundation of the coast. Following international standards, a tsunami model was used to analyze the whole region by 30 m grids. Five sites were further analyzed in 4 m grids to give detailed results on flood levels, currents, and whirling motion of the water utilizing a tsunami model. The five locations that received the higher detailed analysis include sites within Victoria/Esquimalt, Saanich/Oak Bay, Sidney, Sooke and Port Renfrew. These areas were also chosen because they have a high level of exposure to the tsunami events from the Cascadia Subduction Zone.

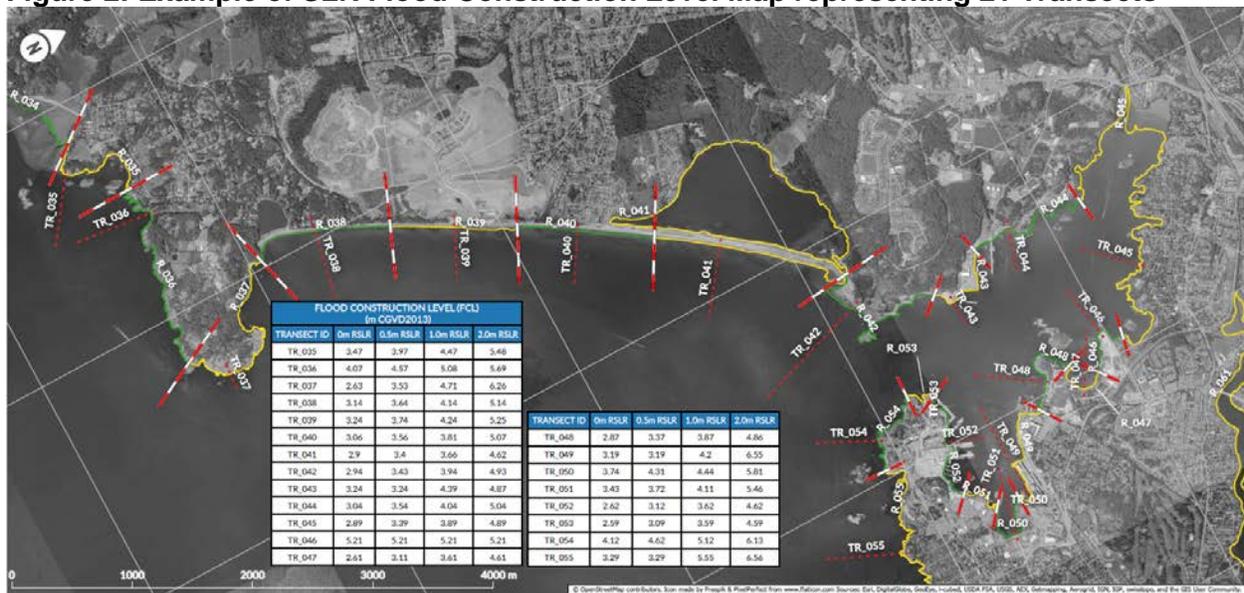
As a sub-task to the tsunami analysis, the consultant team undertook an assessment to identify the potential risk of damage to ports and harbours at selected sites across the region, as a result of flooding and strong currents generated by tsunami waves.

Summary Results – Sea Level Rise

The majority of the capital region's coastline is quite elevated, such that the general risk of extensive flooding is low. However, low-lying areas in the region are susceptible to coastal storm flooding—the extents of which are set to increase significantly over time, due to SLR.

SLR Flood Construction Level results for all 199 transacts were developed for different scenarios of SLR, and associated maps were produced (see Section 3.3, Appendix C, Task 2 Report). Figure 1 provides an example of the SLR Flood Construction Level mapping output for one area.

Figure 2: Example of SLR Flood Construction Level Map representing 21 Transects



Source: Map sheet 11, Appendix C, Task 2: Sea Level Rise Modelling and Mapping Report, Associated Engineering (June 2020)

The following table provides a summary of average RSLR Flood Construction Level results within each local government, using the 200-year (0.5% AEP) total water level plus 600 mm freeboard, as per provincial guidelines. The 95th percentile means that 95% of the time data points are below that value and 5% of the time they are above that value. The report provides detailed information on recommended Flood Construction Levels for local government consideration.

Table 1: Summary of Average and 95 Percentile Relative Sea Level Rise Flood Construction Levels

Local Government/ Electoral Area	0.0 m RSLR FCL (m CGVD2013)		0.5 m RSLR FCL (m CGVD2013)		1.0 m RSLR FCL (m CGVD2013)		2.0 m RSLR FCL (m CGVD2013)	
	Ave.	95%ile	Ave.	95%ile	Ave.	95%ile	Ave.	95%ile
Central Saanich	3.17	3.93	3.63	4.43	4.11	4.89	5.09	5.67
Colwood	3.07	3.24	3.49	3.70	4.01	4.35	4.96	5.20
Esquimalt	3.29	3.95	3.68	4.45	4.48	5.65	5.62	6.55
Highlands	3.84	3.84	4.34	4.34	4.84	4.84	5.34	5.34
Juan de Fuca Electoral Area	3.47	4.39	3.96	4.90	4.50	5.38	5.58	6.48
Langford	2.76	2.76	3.27	3.27	3.77	3.77	4.83	4.83
Metchosin	3.21	3.80	3.69	4.30	4.14	4.86	5.26	5.92
North Saanich	3.43	4.70	3.91	5.21	4.35	5.72	5.33	6.33
Oak Bay	3.70	4.99	4.18	5.39	4.48	5.89	5.35	6.71
Saanich	3.19	4.15	3.72	4.66	4.20	5.17	5.19	6.18
Salt Spring Electoral Area	3.36	4.29	3.83	4.64	4.34	5.21	5.27	5.91
Sidney	3.20	3.51	3.70	3.99	4.11	4.29	5.10	5.31
Sooke	2.88	3.23	3.40	3.73	3.90	4.23	4.90	5.23
Southern Gulf Islands Electoral Area	3.48	4.82	3.88	4.90	4.33	5.28	5.38	6.44
Victoria	3.50	4.28	3.98	4.69	4.38	5.60	5.51	6.62
View Royal	3.39	4.86	3.77	4.94	4.14	5.01	4.89	5.16

Source: Page 4-3, Task 2: Sea Level Rise Modelling and Mapping Report, Associated Engineering (June 2020)

The SLR Flood Construction Levels presented in this report differ in comparison to previously established levels and studies completed in the region. In some instances, the difference can be quite pronounced. For example, in a 2017 study for the District of North Saanich, reported Flood Construction Levels differ by as much as 4 m when compared to the values for the same locations presented in this study. This difference can be attributed to the following:

- The scope of the capital region Coastal Flood Inundation Mapping Project enabled the project team to invest additional resources in the analysis that drives the derivation of Flood Construction Levels.
- This Project's 'Probabilistic' approach leads to a significant reduction in conservatism, resulting in maximum water levels more representative of a '200-year event', based on the available gauge records in the local area.

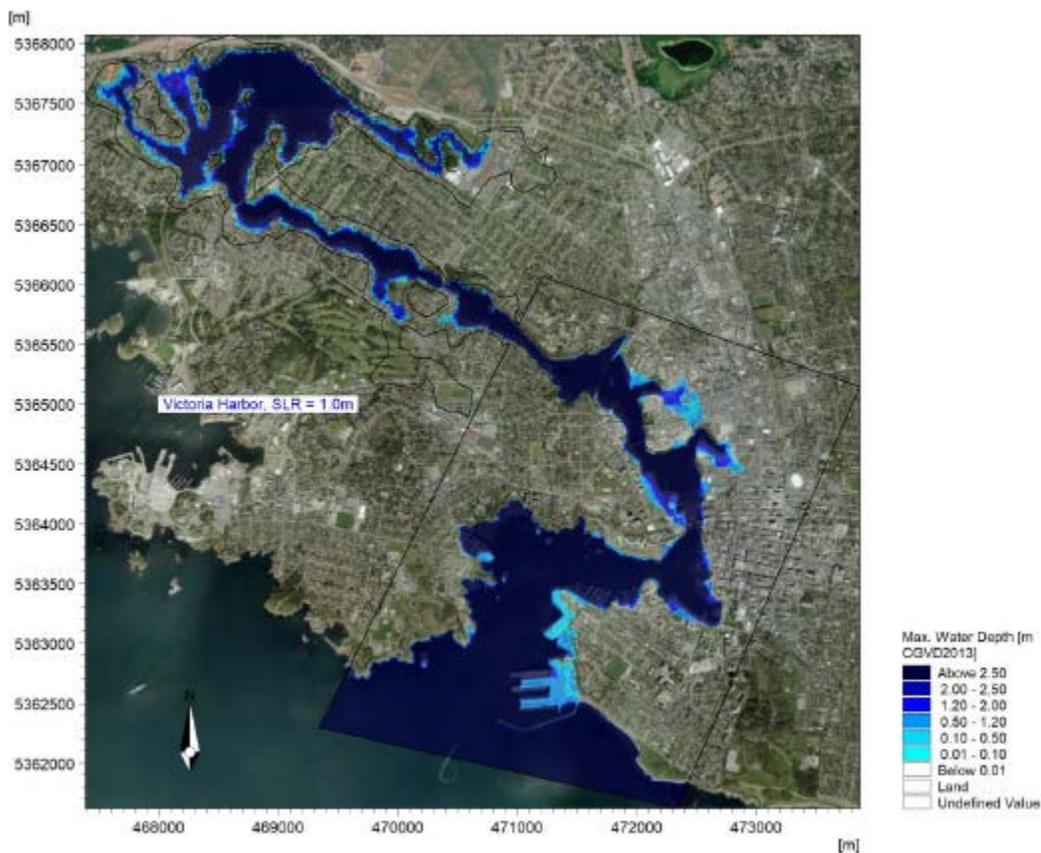
While the setting of Flood Construction Levels is a matter for each local government, the consultant team has given recommendations on selecting an appropriate Flood Construction Level in a tsunami-prone area of the region, depending on if SLR or tsunami hazard governs at that particular transect location.

While the analysis has been comprehensive, the consultant team has recommended further detailed inundation modelling in some low-lying locations to help strengthen understanding of potential flood risk and supplement the data at their transects.

Sea Level Rise – Detailed Modelling

As suspected, during initial investigation, the low-lying areas chosen for detailed inundation modelling show increasing vulnerability to coastal flooding as mean sea levels increase. These sites include: Victoria Harbour/Gorge Waterway, McNeill Bay/Oak Bay, Cadboro Bay, Sidney/Tulista Park, Sidney/Roberts Bay. Individual figures showing flood extent, maximum depth of flood and water surface elevation for each area and all four RSLR scenarios are included in the Task 2 Report, Appendix E. Below is an example from one of the sites with a 1 m SLR scenario:

Figure 3: Example - Victoria Harbour/Gorge Waterway 1 m SLR, Annual Exceedance Probability 0.5% (200 year)



Source: Appendix E, Task 2: Sea Level Rise Modelling and Mapping Report, Associated Engineering (June 2020)

Sea Level Rise – Inter-Tidal Ecosystem and Cultural Sites Risk Assessment

Utilizing existing regional scale data, terrestrial ecosystems that are important for biodiversity were identified, categorized and mapped and overlaid with SLR criteria and mapped across the region. Similarly, documented archaeological and historic sites, collated from the provincial Remote Access to Archaeological Data were also mapped using a generalized format. Results found that a number of coastal ecosystems and known historical sites will be impacted by SLR. See Section 5 of the Task 2 Report for further information.

Summary Results – Tsunami

The report included modelling of various tsunami sources, including distant, subduction and local locations. Tsunami sources were shortlisted to 11 for purposes of this study. The selected tsunami sources impact the communities within the capital region in different ways. These sources also have different probabilities of when they may occur and should be considered as results are reviewed. For example, it is important to understand that the Cascadia Subduction Zone – L1 (CSZ-L1) event has the highest magnitude and highest impact for the capital region communities, but has the lowest probability to occur, due to its 2,500-year return period. In comparison, the Cascadian Subduction Zone – Northern Segment (CSZ-NS) event, has a lower magnitude, lower impact to the capital region's communities, but has a higher probability of occurrence with an approximate 500-year return period. Table 2 provides a summary for the probabilities of each modelled event.

Table 2: Summary of Tsunami Sources Modelled in this Project

Source	Abbrev.	Magnitude	Probability	Comment
Cascadia Subduction Zone - L1 Source	CSZ-L1	9.1-9.2	2500-yr return period	Worst-case earthquake scenario (L1)
Cascadia Subduction Zone - Northern Segment	CSZ-NS	8.5-9.0	500-600 yr return period	Rupture of northern segment
Cascadia Subduction Zone - Central Segment	CSZ-CS	8.5	500-600 yr return period	Rupture of central segment (southern Washington, northern Oregon), identified by Wang et al., 2013
Alaskan 1964	AL	9.2	500-1000 yr return period	Same as 1964 earthquake
Aleutian Trench	UN	8.6	unknown	1946 Aleutian Trench earthquake, off Unimak Island
Haida Gwaii	HG1	7.7	unknown	2012 earthquake
South of Haida Gwaii	HG2	7.5	unknown	Hypothetical event spanning between Haida Gwaii failure and Nootka fault
Devil's Mountain Fault Mw 7.5	DM1	7.5	2000-yr return period	Worst-case earthquake – Long transpressive rupture (>50 km)
Devil's Mountain Fault Mw 6.5	DM2	6.5	<2000-yr return period	Middle length transpressive rupture (<50 km)
Southern Whidbey Island Fault Mw 7.5	SW1	7.5	2000-yr return period	Worst-case earthquake – Long transpressive rupture (>50 km)
Southern Whidbey Island Fault Mw 6.5	SW2	6.5	<2000-yr return period	Shorter transpressive rupture (<50 km)

Source: page 2-3, Task 3: Tsunami Modelling and Mapping Report, Associated Engineering (June 2020)

Modelling results found that the capital region is at risk of tsunami activity, which would cause high waves to strike the coastline, and cause flooding in low-lying areas.

Depending on the tsunami scenario and the geographic location across the region, modelled results indicate a range of average water surface elevations. The following table provides a summary of results for all the earthquake scenarios assessed by local government.

Table 3: Summary of Modelled Average Water Surface Elevations for Various Tsunami Events

Tsunami Source	CSZ-L1 (CSZ - L1 Source)	CSZ-NS (CSZ - Northern Segment)	CSZ-CS (CSZ - Central Segment)	AL (Alaskan 1964)	UN (Aleutian Trench)	HG1 (Haida Gwaii)	HG2 (South of Haida Gwaii)	DM1 (Devil's Mountain Mw 7.5)	DM2 (Devil's Mountain Mw 6.5)	SW1 (Southern Whidbey Mw 7.5)	SW2 (Southern Whidbey Mw 6.5)
Local Government or Electoral Area											
Central Saanich	4.27	3.26	1.43	1.44	1.25	Event used for calibration purposes only. Effects in capital region minimal.	Effects in capital region minimal.	3.37	1.31	2.38	1.27
Colwood	6.76	4.44	1.09	1.02	0.83			3.53	0.88	2.41	0.88
Esquimalt	6.85	4.47	1.08	1.03	0.84			3.58	0.87	2.40	0.88
Highlands	3.54	2.94	1.41	1.37	1.28			1.97	1.25	1.72	1.24
Juan de Fuca Electoral Area	7.42	4.94	1.48	1.37	1.15			1.83	1.17	1.98	1.17
Langford	3.60	3.06	1.42	1.39	1.25			2.58	1.31	2.05	1.28
Metchosin	5.22	3.51	1.03	0.94	0.79			2.07	0.86	1.71	0.86
North Saanich	3.86	2.74	1.40	1.34	1.23			2.47	1.29	1.96	1.26
Oak Bay	3.81	2.68	0.94	0.92	0.78			3.55	0.90	2.04	0.91
Saanich	3.57	2.62	0.96	0.90	0.78			3.52	0.93	1.92	0.84
Salt Spring Electoral Area	3.26	2.52	1.35	1.30	1.23			2.06	1.26	1.78	1.25
Sidney	4.69	3.02	1.42	1.38	1.24			3.40	1.31	2.29	1.27
Sooke	7.13	4.36	1.30	1.23	1.06			1.47	1.06	1.44	1.07
Southern Gulf Islands Electoral Area	3.11	2.41	1.36	1.33	1.23			2.03	1.26	1.74	1.25
Victoria	5.55	3.88	1.02	0.97	0.79			3.18	0.85	2.23	0.87
View Royal	8.45	6.29	1.18	1.14	0.90			4.57	0.96	3.64	0.97

Source: page 4-4, Task 3: Tsunami Modelling and Mapping Report, Associated Engineering (June 2020)

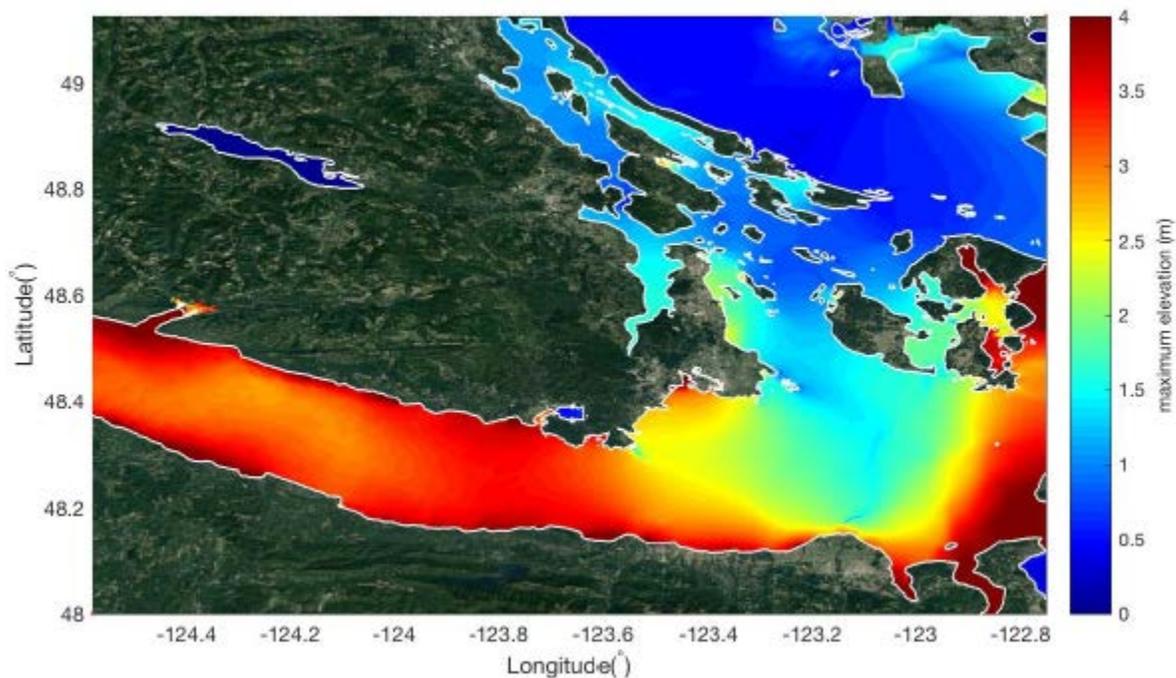
The results show that a Cascadia Subduction Zone – L1 event, (i.e., the worst-case scenario, low probability 2500-year event) would significantly affect the entire study region and would cause the largest water level values.

An event similar to the 1700 Cascadia Subduction Zone earthquake, known as the CSZ-NS event for purposes of this study, found similar results to previous regional analysis completed in 2013. A few anomalies (including Esquimalt Harbour) have been described in the Task 3 Report, Section 4.3.

The more distant Alaskan earthquake, would have a lower impact within the capital region. The low probability, local crustal events (Devils Mountain Fault line sources) would impact parts of Sidney, Saanich and Oak Bay.

Figure 4 provides an example of a mapping result for the CSZ-NS scenario at a 30 m resolution. Similar maps for all modelled tsunami scenarios, are found in Section 4.3 and Appendix A of Task 3 Report.

Figure 4: Example - CSZ-NS (500-year return period) Maximum Water Surface Elevation Model Results



Source: Appendix A, Task 3: Tsunami Modelling and Mapping Report, Associated Engineering (June 2020)

The approximate travel times for each tsunami scenario, for each local government/electoral area are given in the table below. Travel times denote the amount of time in minutes required for the first tsunami wave to travel to a particular location, after generation at the source. These numbers will give decision-makers a sense of how much time is available to emergency services and the greater community to facilitate evacuation (if required).

Table 4: Summary of Approximate Arrival Time for Each Modelled Tsunami Event (mins)

Tsunami Source	CSZ-L1	CSZ-N5	CSZ-CS	AL	UN	HG1	HG2	DM1	DM2	SW1	SW2
Central Saanich	100	100	125	280	325	170	170	5	5	5	5
Colwood	75	75	100	255	300	145	145	5	5	5	5
Esquimalt	75	75	100	255	300	145	145	5	5	5	5
Highlands	120	120	145	300	345	190	190	30	30	30	30
Juan de Fuca Electoral Area	40	40	65	220	265	110	110	15	15	15	15
Langford	75	75	100	255	300	145	145	5	5	5	5
Metchosin	70	70	95	250	295	140	140	5	5	5	5
North Saanich	105	105	130	285	330	175	175	10	10	10	10
Oak Bay	85	85	105	265	310	155	155	5	5	5	5
Saanich	90	90	115	270	315	160	160	5	5	5	5
Salt Spring Electoral Area	115	115	135	290	340	180	180	15	15	15	15
Sidney	110	110	135	290	335	180	180	15	15	15	15
Sooke	60	60	85	240	285	130	130	15	15	15	15
Southern Gulf Islands Electoral Area	100	100	125	280	325	170	170	5	5	5	5
Victoria	80	80	105	260	305	150	150	5	5	5	5
View Royal	80	80	105	260	305	150	150	5	5	5	5

Source: page 4-5, Task 3: Tsunami Modelling and Mapping Report, Associated Engineering (June 2020)

Detailed flood modelling illustrating maximum water levels was carried out at a grid resolution of 4 m for areas, including Victoria/Esquimalt, Sidney, Saanich, Oak Bay, Sooke, and Port Renfrew for the following scenarios (Table 5).

Table 5: Matrix of Detailed Tsunami Inundation Scenarios Modelled at Each Domain

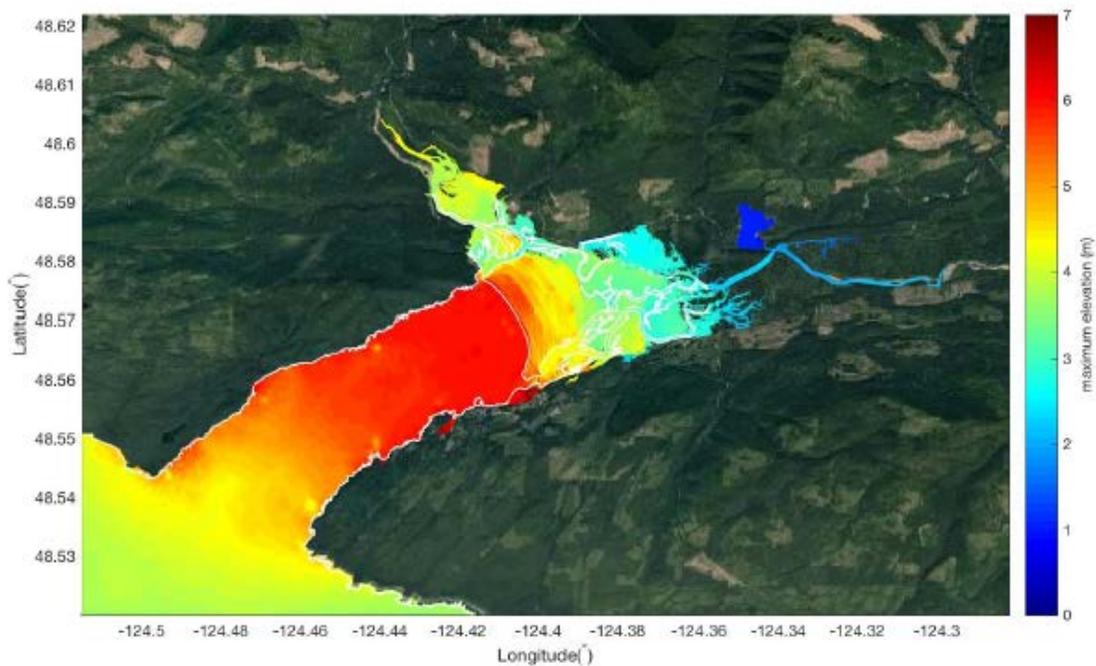
Detailed Modelling Scenarios	Abbrv.	Victoria/ Esquimalt	Saanich/ Oak Bay	Sidney	Sooke	Port Renfrew
Cascadia Subduction Zone - L1 Source	CSZ-L1	✓	✓	✓	✓	✓
Cascadia Subduction Zone - Northern Segment	CSZ-NS	✓	✓	✓	✓	✓
Cascadia Subduction Zone - Central Segment	CSZ-CS	✓	✓	✓	✓	✓
Alaskan 1964	AL	✗	✗	✗	✓	✓
Aleutian Trench	UN	✗	✗	✗	✓	✓
Haida Gwaii	HG1	✗	✗	✗	✗	✗
South of Haida Gwaii	HG2	✗	✗	✗	✗	✗
Devil's Mountain Fault Mw 7.5	DM1	✓	✓	✓	✗	✗
Devil's Mountain Fault Mw 6.5	DM2	✓	✓	✓	✗	✗
Southern Whidbey Island Fault Mw 7.5	SW1	✓	✓	✓	✗	✗
Southern Whidbey Island Fault Mw 6.5	SW2	✓	✓	✓	✗	✗

✓ - Source modelled for that detailed tsunami inundation domain
 ✗ - Source not modelled for that detailed tsunami inundation domain

Source: page 2-29, Task 3: Tsunami Modelling and Mapping Report, Associated Engineering (June 2020)

Results of the detailed modelling and mapping are further described in Section 4.4 and appendices E through M in the Task 3 Report. Figure 5 is an example of the modelling outputs.

Figure 5: Example – Maximum Occurring Water Surface Elevation in Port Renfrew: CSZ-NS Event



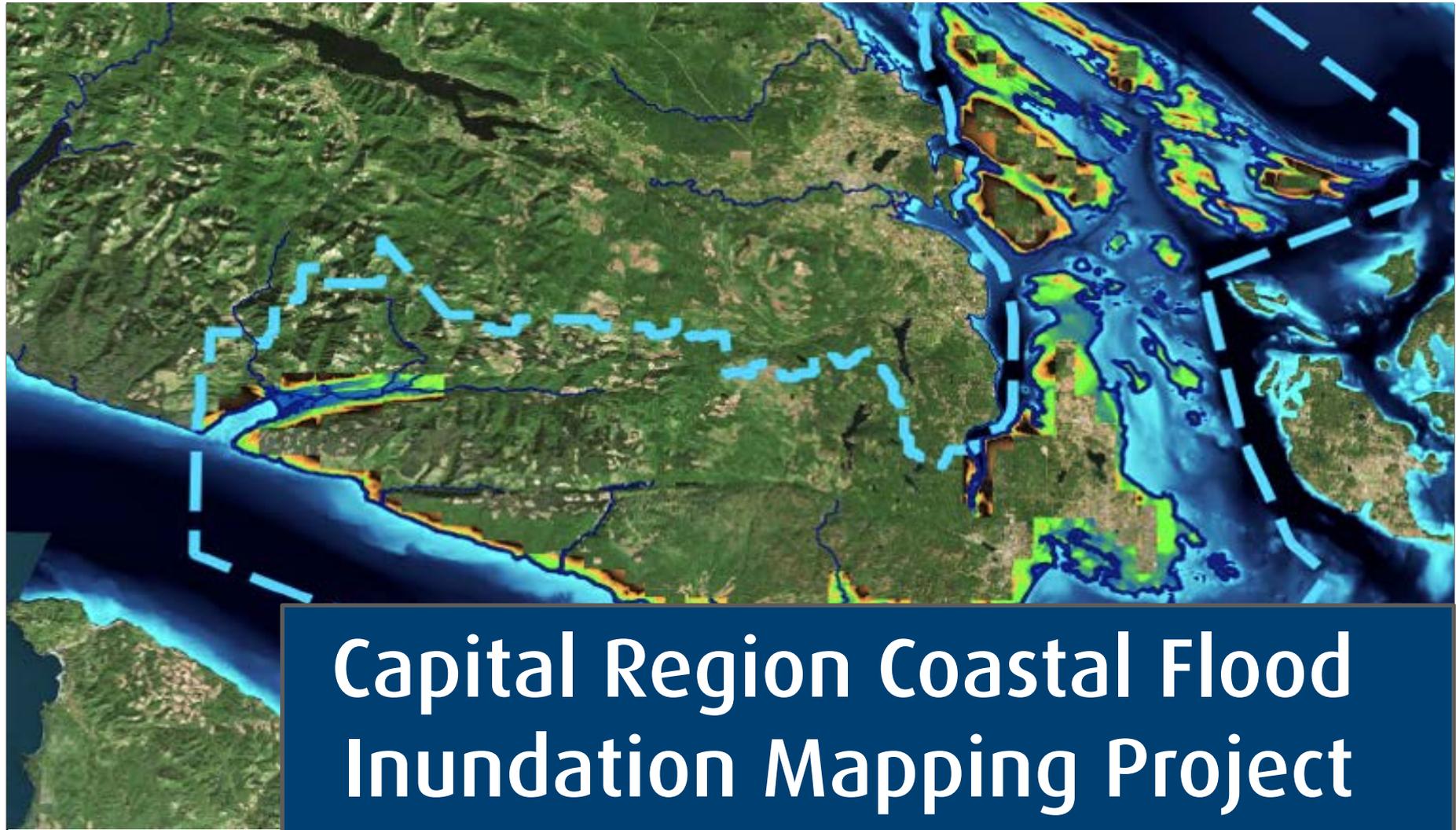
Source: Appendix F, Task 3: Tsunami Modelling and Mapping Report, Associated Engineering (June 2020)

Tsunami – Risk Assessment

As a sub-task to the tsunami analysis, the consultant team did an assessment to identify the potential risk of damage to ports and harbours, as a result of flooding and strong currents generated by tsunami waves on selected locations across the region (see Section 5.2, Task 3 report). Utilizing public data sets, public and privately-managed marine infrastructure (i.e., harbours, ports, marinas, etc.) from across the region were identified. The water surface elevation and current velocity results from three tsunami scenarios (CSZ-L1, DM1, AL) from the study were then used to assess potential impact. Impacts to marine infrastructure were most expected from the CSZ-L1 scenario and DM1 scenario. More information can be found in Section 5, Task 3 report.

Dominant Hazards to inform Local Government Flood Construction Level Policy

The tsunami report recommends using CSZ-NS as the standard, where tsunami risk exceeds the corresponding RSLR Flood Construction Level at the specific location. This includes areas within Colwood, Juan de Fuca, Sooke and View Royal (see Task 2 Report, Section 6.3). The report recommends results should always be checked against the results for the specific transect of interest (as summarized in Appendix B of the Task 2 Report, and Appendix D of the Task 3 Report).



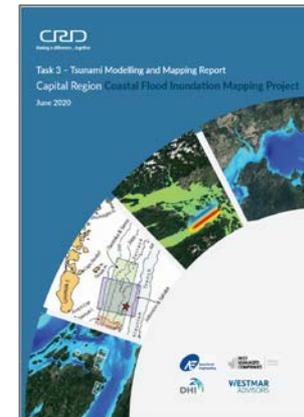
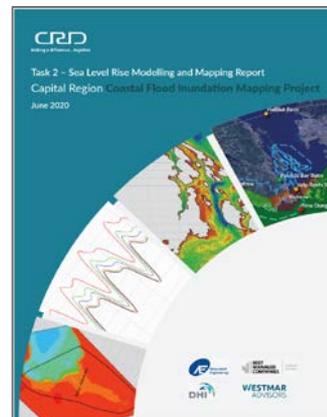
Capital Region Coastal Flood Inundation Mapping Project

July 15, 2020

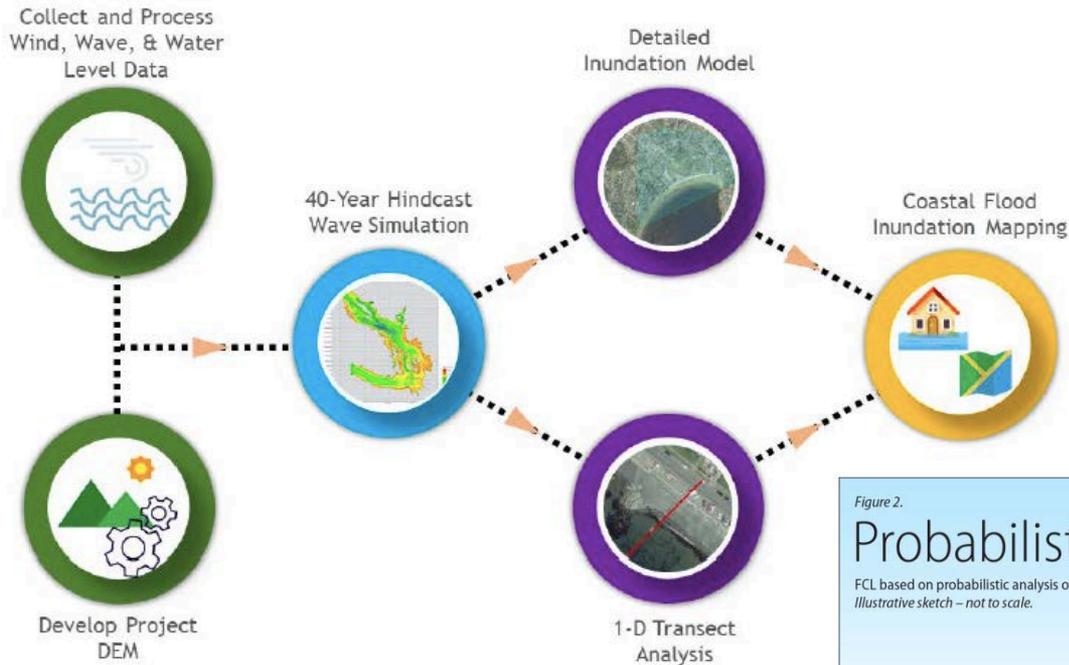
- *British Columbia Local Government Act*: **local governments are responsible for understanding and managing** the risk of flood events through land use planning and regulations.
- Under the *Emergency Program Act 1996*, **local governments are responsible for incorporating potential emergencies and disasters** that could affect all or any part of their jurisdictional area in emergency plans for which the local authority has responsibility.

- The CRD established an **inter-municipal, inter-disciplinary project team** to scope and execute project.
- The *Capital Region Coastal Flood Inundation Mapping Project* was completed to inform the CRD, its local governments, First Nations and other interested stakeholders of the future hazards associated with coastal flooding related to sea level rise and tsunamis.

1. Digital Elevation Model (DEM) Development
2. Sea Level Rise Modelling and Mapping Report
3. Tsunami Modelling and Mapping Report



Sea Level Rise Methodology



→ 199 transects for regional coverage

→ five detailed sites

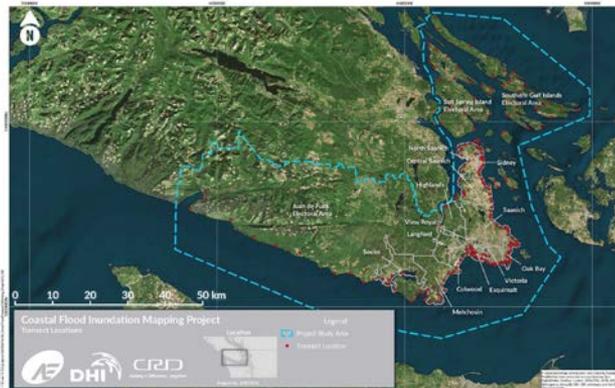
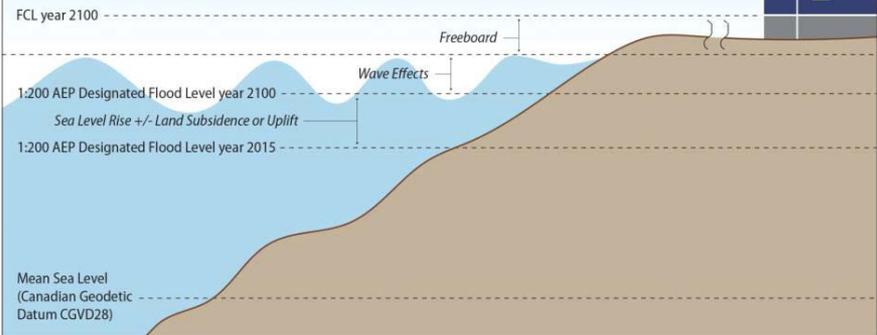


Figure 2.

Probabilistic Method

FCL based on probabilistic analysis of high tide and storm surge.
Illustrative sketch – not to scale.



Provincial Probabilistic Method for Derivation of FCLs (BC MoE, 2011b)

Sea Level Rise Summary Findings

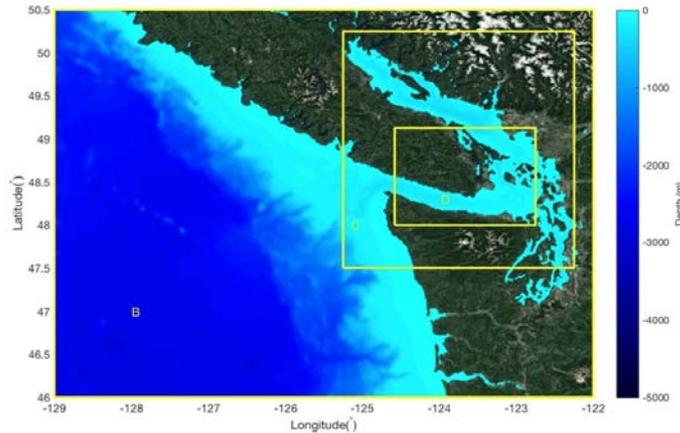
Summary of 95%ile Flood Construction Levels by local government/electoral area

Local Government / Electoral Area	0.0 m RSLR FCL (m CGVD2013)	0.5m RSLR FCL (m CGVD2013)	1.0 m RSLR FCL (m CGVD2013)	2.0 m RSLR FCL (m CGVD2013)
Central Saanich	3.93	4.43	4.89	5.67
Colwood	3.24	3.70	4.35	5.20
Esquimalt	3.95	4.45	5.65	6.55
Highlands	3.84	4.34	4.84	5.34
Juan de Fuca Electoral Area	4.39	4.90	5.38	6.48
Langford	2.76	3.27	3.77	4.83
Metchosin	3.80	4.30	4.86	5.92
North Saanich	4.70	5.21	5.72	6.33
Oak Bay	4.99	5.39	5.89	6.71
Saanich	4.15	4.66	5.17	6.18
Salt Spring Electoral Area	4.29	4.64	5.21	5.91
Sidney	3.51	3.99	4.29	5.31
Sooke	3.23	3.73	4.23	5.23
Southern Gulf Islands Electoral Area	4.82	4.90	5.28	6.44
Victoria	4.28	4.69	5.60	6.62
View Royal	4.86	4.94	5.01	5.16

→ The majority of the capital region's coastline is quite elevated

→ Low-lying areas in the region are susceptible to coastal storm flooding

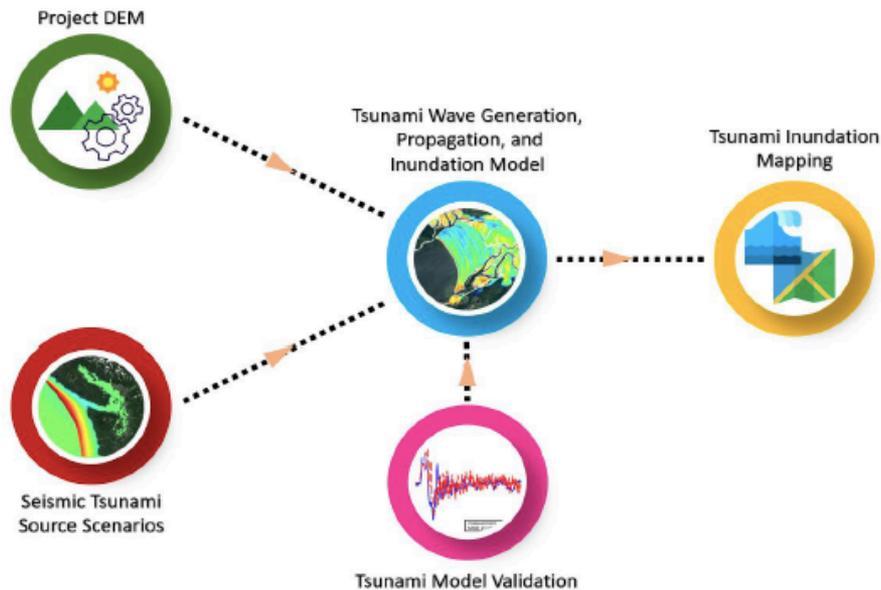
→ Should consider tsunami in flood construction levels (FCLs)



→ 11 tsunami scenarios

→ Entire region modelled to 30 m cell resolution (1arc-second)

→ Five areas were selected for detailed inundation modelling, resolution of 4 m



Tsunami Methods Continued

Source	Abbrv.	Magnitude	Probability	Comment
Cascadia Subduction Zone, CSZ L1	CSZ – L1	9.1-9.2	2500-yr return period	Worst-case earthquake scenario (L1)
Cascadia Subduction Zone, CSZ Northern Segment	CSZ-NS	8.5-9.0	500-600 yr return period	Rupture of northern segment
Cascadia Subduction Zone, CSZ Central Segment	CSZ-CS	8.5	500-600 yr return period	Rupture of central segment (southern Washington, northern Oregon), identified by Wang et al., 2013
Devil's Mountain Island fault Mw 7.5.	DM1	7.5	2000-yr return period	Worst-case earthquake – Long transpressive rupture (>50 km)
Devil's Mountain Island fault Mw 6.5	DM2	6.5	<2000-yr return period	Middle length transpressive rupture (<50 km)
Southern Whidbey Island fault Mw 7.5	SW1	7.5	2000-yr return period	Worst-case earthquake – Long transpressive rupture (>50 km)
Southern Whidbey Island fault Mw 6.5	SW2	6.5	<2000-yr return period	Shorter transpressive rupture (<50 km)
Alaskan 1964	AL	9.2	500-1000 yr	Same as 1964 earthquake
Aleutian Trench	UN	8.6	unknown	1946 Aleutian Trench earthquake, off Unimak Island
Haida Gwaii	HG1			2012 earthquake
South of Haida Gwaii	HG2			Hypothetical event spanning region between Haida Gwaii failure and Nootka fault

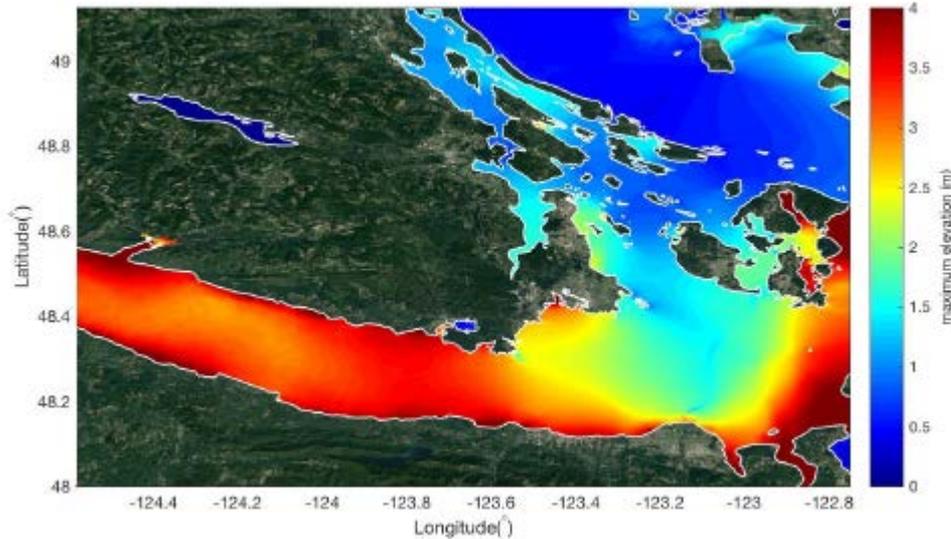
Detailed Modelling Scenario Selection

Table 2-3
Matrix of Detailed Tsunami Inundation Scenarios Modelled at Each Domain

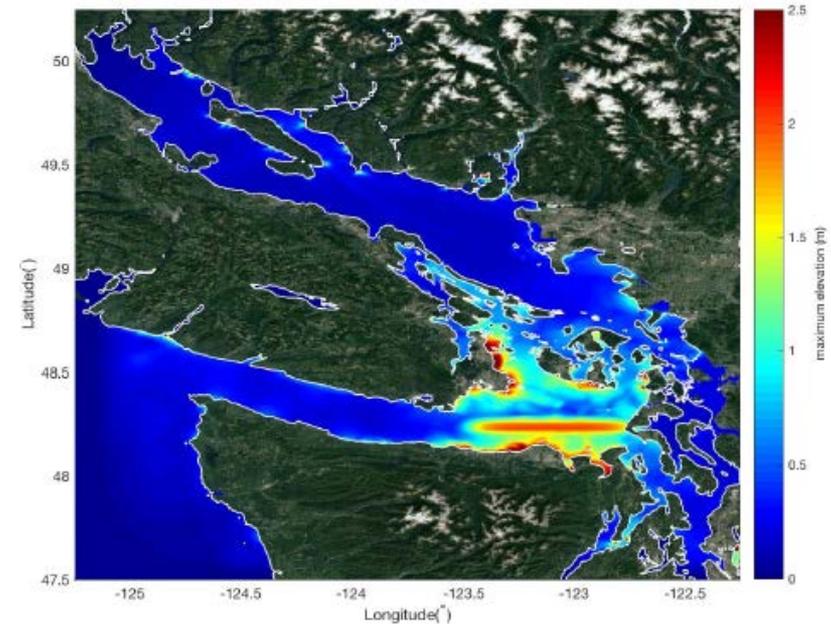
Detailed Modelling Scenarios	Abbrev.	Victoria/ Esquimalt	Saanich/ Oak Bay	Sidney	Sooke	Port Renfrew
Cascadia Subduction Zone - L1 Source	CSZ-L1	✓	✓	✓	✓	✓
Cascadia Subduction Zone - Northern Segment	CSZ-NS	✓	✓	✓	✓	✓
Cascadia Subduction Zone - Central Segment	CSZ-CS	✓	✓	✓	✓	✓
Alaskan 1964	AL	✗	✗	✗	✓	✓
Aleutian Trench	UN	✗	✗	✗	✓	✓
Haida Gwaii	HG1	✗	✗	✗	✗	✗
South of Haida Gwaii	HG2	✗	✗	✗	✗	✗
Devil's Mountain Fault Mw 7.5	DM1	✓	✓	✓	✗	✗
Devil's Mountain Fault Mw 6.5	DM2	✓	✓	✓	✗	✗
Southern Whidbey Island Fault Mw 7.5	SW1	✓	✓	✓	✗	✗
Southern Whidbey Island Fault Mw 6.5	SW2	✓	✓	✓	✗	✗

- ✓ - Source modelled for that detailed tsunami inundation domain
 ✗ - Source not modelled for that detailed tsunami inundation domain

Surface Water Elevation



Maximum water surface elevation,
CSZ-NS



Maximum water surface elevation,
Devil's Mountain Fault, Mw 7.5

- Provide reports and associated deliverables to local governments, First Nations and senior levels of government and emergency coordination bodies.
- Work together to better understand how to prepare for future coastal floods and tsunami risk.
 - Inform planning and policy, public education, communication and other related activities.
 - Coordination opportunities on local government flood policies (i.e., FCLs).
 - Consideration of tsunami risks within FCLs.
- Opportunities for collaboration and capacity building with intermunicipal committees.
 - Regional Emergency Management Partnership
 - Local Government Emergency Program Advisory Commission
 - CRD Climate Action Inter-Municipal Working Group
- Continued work that incorporates best available science.