Capital Regional District

625 Fisgard St.,
Victoria, BC V8W 1R7

Notice of Meeting and Meeting Agenda
Environmental Services Committee

Wednesday, April 19, 2023 | **1:30 PM** | **6th Floor Boardroom, 625 Fisgard St. Victoria, BC V8W 1R7**

B. Desjardins (Chair), S. Tobias (Vice Chair), J. Brownoff, J. Caradonna, G. Holman, D. Kobayashi, D. Murdock, M. Tait, D. Thompson, A. Wickheim, C. Plant (Board Chair, ex-officio)

The Capital Regional District strives to be a place where inclusion is paramount and all people are treated with dignity. We pledge to make our meetings a place where all feel welcome and respected.

1. Territorial Acknowledgement

2. Approval of Agenda

3. Adoption of Minutes

3.1. 23-281 Minutes of the February 15, 2023 and March 29, 2023 Environmental Services Committee Meetings

Recommendation: That the minutes of the February 15, 2023 and March 29, 2023 Environmental Services Committee Meetings be adopted as circulated.

Attachments: Minutes - February 15, 2023

Minutes - March 29, 2023

4. Chair's Remarks

5. Presentations/Delegations

The public are welcome to attend CRD Board meetings in-person.

Delegations will have the option to participate electronically. Please complete the online application at www.crd.bc.ca/address no later than 4:30 pm two days before the meeting and staff will respond with details.

Alternatively, you may email your comments on an agenda item to the CRD Board at crdboard@crd.bc.ca.

5.1. 23-312 Delegation - Philippe Lucas; Representing Biosolid Free BC: Re: Agenda Item 6.5. Healthy Waters Project for Tod Creek on the Saanich Peninsula

5.2. 23-315 Delegation - Hugh Stephens; Representing Mount Work Coalition: Re: Agenda Item 6.5. Healthy Waters Project for Tod Creek on the Saanich Peninsula

5.3. 23-316 Delegation - Wendy Stevens; Representing H.L. Disposal & Lawn Services Ltd.: Re: Agenda Item 6.2. Proposed Hartland Bylaw Amendments - Material Stream Diversion

5.4. 23-317 Delegation - Howie Langlois; Resident of Victoria.: Re: Agenda Item 6.2. Proposed Hartland Bylaw Amendments - Material Stream Diversion

5.5. 23-319 Delegation - Michele Langlois; Resident of Victoria.: Re: Agenda Item 6.2. Proposed Hartland Bylaw Amendments - Material Stream Diversion

6. Committee Business

6.1. 23-301 Solid Waste Management Plan - 2022 Progress Report

Recommendation: There is no recommendation. This report is for information only.

Attachments: Staff Report: Solid Waste Management Plan - 2022 Progress Report

Appendix A: Solid Waste Management Plan - 2022 Progress Report

Presentation: 2022 Solid Waste Management Plan - Progress Report

6.2. 23-296 Proposed Hartland Bylaw Amendments - Material Stream Diversion

Recommendation: The Environmental Services Committee recommends to the Capital Regional District Board:
1. That the Hartland Landfill Tipping Fee and Regulation Bylaw No. 3881 be amended and come into effect January 1, 2024 to:
a) Ban wood waste (clean, treated and salvageable), carpet and underlay and asphalt shingles from Hartland's active face, and classify these materials as mandatory recyclable;
b) Modernize the tipping fee schedule to align with the proposed tipping fee schedule (Appendix B), including increasing the general refuse tipping fee to $150/tonne, and introduce a new 'double charge' category for loads of unsorted renovation and demolition materials that contain mandatory recyclables (including wood waste) to motivate source-separation of these materials;
c) Introduce hauler incentive rates to promote multi-stream collection, incent voluntary self-reported waste collection data sharing, and minimize the financial impact of increases to the general refuse tipping fees;
2. That the Ticket Information Authorization Bylaw No. 1857 be amended and come into effect
January 1, 2024 to:
a) increase fine rates for various offences;
b) introduce a graduated ticket structure with higher fines for more egregious infractions and/or repeated infractions from a designated source or waste hauler;
c) allow for denial of service for chronic repeat offenders;
3. That service levels be adjusted to enhance enforcement capacity resources to implement the new waste diversion policies, to be reflected in the 2024 preliminary budget; and
4. That staff return with the amended bylaws for Board approval in the fall.

Attachments:
- Staff Report: Proposed Hartland Bylaw Amendments Material Stream Diversion
- Appendix A: Waste Diversion Framework Memo - GHD (April 4, 2023)
- Appendix B: Proposed Hartland Landfill Tipping Fee Schedule
- Presentation: Proposed Hartland Bylaw Amend. - Material Stream Diversion

6.3. 23-298 Climate Action - 2022 Progress Report

Recommendation: There is no recommendation. This report is for information only.

Attachments:
- Staff Report: Climate Action - 2022 Progress Report
- Appendix A: 2022 Climate Action Progress Report
- Presentation: 2022 Climate Action Progress Report

6.4. 23-303 Overview of the Capital Regional District's Climate Action Policies

Recommendation: There is no recommendation. This staff report is for information only.

Attachments:
- Staff Report: Overview of the CRD's Climate Action Policies
- Appendix A: CRD Corporate Green Building Policy
- Appendix B: CRD Corporate Green Fleet Policy
- Appendix C: CRD Corporate Carbon Price Policy

6.5. 23-295 Healthy Waters Project for Tod Creek on the Saanich Peninsula

Recommendation: The Environmental Services Committee recommends to the Capital Regional District Board:
That the Capital Regional District not support the Healthy Waters project proposal for Tod Creek on the Saanich Peninsula.

Attachments: Staff Report: Healthy Waters Project for Tod Creek on the Saanich Peninsula

Appendix A: Original Project Proposal

Appendix B: Map - Sampling Locations

7. Notice(s) of Motion

8. New Business

9. Adjournment

The next meeting is May 17, 2023.

To ensure quorum, please advise Jessica Dorman (jdorman@crd.bc.ca) if you or your alternate cannot attend.

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Capital Regional District

625 Fisgard St.,
Victoria, BC V8W 1R7

Meeting Minutes

Environmental Services Committee

Wednesday, February 15, 2023 **1:30 PM** **6th Floor Boardroom**
625 Fisgard St.
Victoria, BC V8W 1R7

PRESENT
Directors: B. Desjardins (Chair), S. Tobias (Vice Chair), J. Caradonna, G. Holman (1:31 pm) (EP), D. Kobayashi (1:32 pm) (EP), D. Murdock, D. Thompson, A. Wickheim

Staff: L. Hutcheson, General Manager, Parks and Environmental Services; K. Morley, General Manager, Corporate Services; G. Harris, Senior Manager, Environmental Protection; R. Smith, Senior Manager, Environmental Resource Management; S. Orr, Senior Committee Clerk; J. Dorman, Committee Clerk (Recorder)

EP - Electronic Participation

Regrets: Director(s) J. Brownoff, C. Plant, M. Tait

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

1. Territorial Acknowledgement

Vice Chair Tobias provided a Territorial Acknowledgement.

2. Approval of Agenda

MOVED by Director Thompson, SECONDED by Director Tobias,
That agenda Item 6.3. be considered at the next Environmental Services Committee meeting, and that the agenda be approved as amended.
CARRIED

3. Adoption of Minutes

3.1. 23-156 Minutes of the January 18, 2023 Environmental Services Committee Meeting

MOVED by Director Thompson, SECONDED by Director Caradonna,
That the minutes of the Environmental Services Committee meeting of January 18, 2023 be adopted as circulated.
CARRIED

4. Chair's Remarks

Chair Desjardins spoke about the first Solid Waste Advisory Committee of the year and the Solid Waste Stream Composition Results being important to both the SWAC and this committee.

5. Presentations/Delegations

There were no presentations.

5.1. 23-166 Delegation - Dave Cowen; Representing Peninsula Biosolids Coalition: Re: Agenda Item 7.1.: Motion with Notice: Healthy Waters Project for Tod Creek on the Saanich Peninsula (Director Caradonna)

D. Cowen spoke to Item 7.1.

6. Committee Business

6.1. 23-103 2022 Solid Waste Stream Composition Study Results

R. Smith presented Item 6.1. for information.

Discussion ensued on the following:
- current infrastructure, enforcement and education
- transfer station and composting operations and processes
- community based social marketing
- multifamily and commercial sectors
- carbon footprint reduction

6.2. 23-130 Recycle BC - Packaging and Printed Paper Product, Extended Producer Responsibility - Draft Program Plan

R. Smith presented Item 6.2. for information.

Discussion ensued on the following:
- consultation with Recycle BC
- provincial regulations and approval of Stewardship Plans
- extended producer responsibility
- co-mingled cart versus current blue box and bag system
- funding for rural area depots

Motion Arising
MOVED by Director Holman, SECONDED by Director Caradonna,
That the CRD, upon receipt of Recycle BC's final report, urge the Ministry of Environment to enhance Recycle BC recovery targets and funding supports in rural areas and as applied to the multifamily sector.

MOVED by Director Thompson, SECONDED by Director Holman,
That the motion arising be amended to add the words " in all areas" after the words "multifamily sector".
CARRIED

MOVED by Director Thompson, SECONDED by Director Wichkeim,
That the motion arising be amended to add the words "and other policy measures" after the words and "funding supports".
CARRIED

The question was called on the main motion as amended.
That the CRD, upon receipt of Recycle BC's final report, urge the Ministry of Environment to enhance Recycle BC recovery targets and funding supports and other policy measures in rural areas and as applied to the multifamily sector in all areas.
CARRIED
OPPOSED: Tobias

6.3. 23-131 Central Saanich Request for CRD Carbon-based Budget Policy

This Item was deferred to the next meeting of the Environmental Services Committee.

6.4. 23-138 Bylaw No. 2922 - Sewer Use Bylaw Amendments

G. Harris spoke to Item 6.4.

Discussion ensued on the jurisdictional application of the bylaw.

MOVED by Director Caradonna, SECONDED by Director Tobias,
The Environmental Services Committee recommends to the Capital Regional District Board:
1. That Bylaw No. 4530, "Capital Regional District Sewer Use Bylaw No. 5, 2001, Amendment Bylaw No. 7, 2023", be introduced and read a first, second, and third time; and
2. That Bylaw No. 4530 be adopted.
3. That Bylaw No. 4531, "Capital Regional District Ticket Information Authorization Bylaw 1990, Amendment Bylaw No. 75, 2023", be introduced and read a first, second, and third time; and
4. That Bylaw No. 4531 be adopted.
CARRIED

7. Motions with Notice

7.1. 23-154 Motion with Notice: Healthy Waters Project for Tod Creek on the Saanich Peninsula (Director Caradonna)

Director Caradonna spoke to Item 7.1.

Discussion ensued on the opportunity for grants and/or partnerships.

MOVED by Director Caradonna, SECONDED by Director Tobias,
That the Healthy Waters project proposal for Tod Creek watershed be referred to staff to report back, by end of March or within the span of two committee meetings, on project implications including resources, service mandate, and regulatory framework.
CARRIED

8. New Business

There was no new business.

9. Adjournment

MOVED by Director Caradonna, SECONDED by Director Thompson,
That the February 15, 2023 Environmental Services Committee meeting be adjourned at 3:18 pm.
CARRIED

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CHAIR

_____
RECORDER

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625 Fisgard St.,
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Capital Regional District

Meeting Minutes

Environmental Services Committee

Wednesday, March 29, 2023 | **9:30 AM** | **6th Floor Boardroom, 625 Fisgard St., Victoria, BC V8W 1R7**

Special Meeting

PRESENT
Directors: B. Desjardins (Chair), S. Tobias (Vice Chair), J. Brownoff, J. Caradonna, G. Holman (9:33 am) (EP), D. Kobayashi (EP), D. Murdock, M. Tait (9:43 am) (EP), D. Thompson (9:51 am) (EP), A. Wickheim, C. Plant (Board Chair, ex-officio)

Staff: T. Robbins, Chief Administrative Officer; L. Hutcheson, General Manager, Parks and Environmental Services; G. Harris, Senior Manager, Environmental Protection; R. Smith, Senior Manager, Environmental Resource Management; N. Elliott, Climate Action Program Coordinator, Environmental Protection; L. Ferris, Manager, Policy & Planning, Environmental Resource Management; M. Lagoa, Deputy Corporate Officer; J. Dorman, Committee Clerk (Recorder)

EP - Electronic Participation

The meeting was called to order at 9:30 am.

1. Territorial Acknowledgement

Vice Chair Tobias provided a Territorial Acknowledgement.

2. Approval of Agenda

MOVED by Director Caradonna, SECONDED by Director Wickheim,
That the agenda for the March 29, 2023 Environmental Services Committee meeting be approved.
CARRIED

3. Presentations/Delegations

3.1. 23-258 Delegation - Philippe Lucas; Representing Biosolid Free BC: Re: Agenda Item 4.1.: Long-term Biosolids Planning and Biosolids Thermal Plan Updates

P. Lucas spoke to Item 4.1.

3.2. 23-259 Delegation - Jonathan O'Riordan; Representing Peninsula Biosolids Coalition: Re: Agenda Item 4.1.: Long-term Biosolids Planning and Biosolids Thermal Plan Updates

J. O'Riordan spoke to Item 4.1.

4. Special Meeting Matters

4.1. 23-253 Long-term Biosolids Planning and Biosolids Thermal Plan Updates

L. Hutcheson spoke to Item 4.1.

Discussion ensued on the following:
- gasification and thermal processing of biosolids in North America
- international participation in RFP
- co-processing of municipal waste streams
- pyrolysis pilot study in Kelowna and pilot study in Esquimalt
- resource recovery and potential innovation grants
- funding for thermal processing pilot studies
- potential collaboration with other regional districts
- air quality and differentiating technologies
- timelines for consolidation, proposal call, and long term plan

Director Tait joined the meeting at 9:43 am.

Director Thompson joined the meeting at 9:51 am.

Director Murdock left the meeting at 9:53 am.

MOVED by Director Caradonna, SECONDED by Director Tobias,
The Environmental Services Committee recommends to the Capital Regional District Board:

1. That staff develop a consultation plan for long-term biosolids management for the July Environmental Services Committee meeting, to be implemented in the fall of 2023; and
2. That staff concurrently initiate a Request for Proposals process for a biosolids advanced thermal site trial.

Director Murdock returned to the meeting at 10:05 am.

Director Tait left the meeting at 10:16 am.

MOVED by Director Caradonna, SECONDED by Director Plant,
That the following words be added following" site trial"; "and that the RFP be scoped broadly to include potential for co-processing of municipal solid waste streams, and that submissions be welcomed from both domestic and international vendors".
CARRIED

The question was called on the main motion as amended.
The Environmental Services Committee recommends to the Capital Regional District Board:
1. That staff develop a consultation plan for long-term biosolids management for the July Environmental Services Committee meeting, to be implemented in the fall of 2023; and
2. That staff concurrently initiate a Request for Proposals process for a biosolids advanced thermal site trial; and that the RFP be scoped broadly to include potential for co-processing of municipal solid waste streams, and that submissions be welcomed from both domestic and international vendors.
CARRIED

4.2. 23-239 Capital Regional District Climate Action Inter-Municipal Task Force

N. Elliott spoke to Item 4.2.

MOVED by Director Brownoff, SECONDED by Director Caradonna,
The Environmental Services Committee recommends to the Capital Regional District Board:
That the Terms of Reference for the Climate Action Inter-Municipal Task force, attached as Appendix A, be approved.
CARRIED

4.3. 23-131 Central Saanich Request for CRD Carbon-based Budget Policy

N. Elliott spoke to Item 4.3

Discussion ensued on the participants and outcomes of the workshop.

Motion Arising:
MOVED by Director Caradonna, SECONDED by Director Plant,
The Environmental Services Committee recommends to the Capital Regional District Board:
That CRD staff host a workshop on the concept of carbon budgeting with municipal and electoral area staff and elected officials.
CARRIED
OPPOSED: Holman

4.4. 23-236 Solid Waste Advisory Committee Motions of March 3, 2023

R. Smith presented Item 4.4. for information.

Discussion ensued on the following:
- organics processing and composting within the region
- current mandates on collection
- waste composition study
- Compost Education Centre

MOVED by Director Plant, SECONDED by Director Caradonna,
The Environmental Services Committee recommends to the Capital Regional District Board:
That staff be directed to explore mandatory curbside organics collection from the municipalities around the region.
CARRIED

4.5. 23-241 Previous Minutes of Other CRD Committees and Commissions for Information

The following minutes were received for information:
a) Climate Action Inter-Municipal Task Force - March 2, 2023
b) Solid Waste Advisory Committee Minutes - February 3 and March 3, 2023

5. Adjournment

MOVED by Director Murdock, SECONDED by Director Tobias,
That the March 29, 2023 Environmental Services Committee meeting be adjourned at 10:58 am.
CARRIED

_____
CHAIR

_____
RECORDER

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ERM 23-20

REPORT TO ENVIRONMENTAL SERVICES COMMITTEE
MEETING OF WEDNESDAY, APRIL 19, 2023

SUBJECT Solid Waste Management Plan – 2022 Progress Report

ISSUE SUMMARY

To present the Capital Regional District's (CRD) 2022 Solid Waste Management Plan Progress Report (Appendix A), which identifies progress towards implementing the CRD's 2021 Solid Waste Management Plan (SWMP).

BACKGROUND

In BC, it is a requirement under the *Environmental Management* Act for all regional districts to develop their own solid waste management plans. They are high-level, long-term visions of how a regional district would like solid waste managed within the community, in accordance with the 5R hierarchy of reduce, reuse, recycle, resource recovery and residuals management.

The CRD's first SWMP was approved by the Province in 1989, was updated in 1991 and again in 1995, and subsequently received eight amendments. A new SWMP for the region began development in 2012 and was endorsed by the CRD Board in May 2021. This new SWMP was submitted to the Province for approval in August 2021, and work towards implementation commenced.

The 2021 SWMP includes four goals and 15 strategies, as shown below. An update on the progress towards implementation of the strategies can be found in Appendix A of the attached progress report.

GOALS			
Have informed citizens who participate effectively in proper waste management practices	Surpass the provincial per capita waste disposal target	Extend the life of Hartland Landfill to 2100 and beyond	Ensure that the CRD's solid waste services are financially sustainable

FOCUS AREAS		
Reduce and Reuse Strategies	**Recycling Strategies**	**Recovery and Residual Management Strategies**
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 and a Circular Economy 6. Continue and Enhance Policy Development	7. Increase Residential Diversion 8. Increase Multi-Family Diversion 9. Increase Industrial, Commercial and Institutional Diversion 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

Performance indicators in the attached 2022 report have been analyzed and assessed by CRD staff. In 2022, the CRD calculated a disposal rate of 409 kg/capita, an increase of 9 kg/capita over the previous year. New policies for consideration by the Environmental Services Committee in April 2023 are expected to support the CRD to reduce the per capita disposal rate and make progress towards the SWMP disposal rate target of 250 kg/capita.

The Province requires SWMP implementation to be monitored by a plan monitoring committee, which is one of the main roles of the CRD's Solid Waste Advisory Committee (SWAC). The 2022 SWMP Progress Report will be reviewed by SWAC and, in 2023, staff will work in consultation with SWAC to develop indicators to enhance reporting on the progress towards achieving the four goals of the SWMP.

CONCLUSION

The CRD's Solid Waste Management Plan (SWMP) includes four goals and 15 strategies and staff began implementation of the strategy in 2021. An update on the progress towards implementation of the strategies can be found in the CRD's 2022 SWMP Progress Report. In 2022, the CRD's per capita disposal rate increased; however, policies for consideration by the Environmental Services Committee in April 2023 are expected to support the CRD to reduce the per capita disposal rate, and make progress towards the SWMP. The CRD's 2022 SWMP Progress Report will be reviewed by the Solid Waste Advisory Committee (SWAC) and, in 2023, staff will work in consultation with SWAC to develop indicators to enhance reporting on the progress towards achieving the four goals of the SWMP.

RECOMMENDATION

There is no recommendation. This report is for information only.

Submitted by:	Russ Smith, Senior Manager, Environmental Resource Management
Concurrence:	Larisa Hutcheson, P. Eng., General Manager, Parks & Environmental Services
Concurrence:	Ted Robbins, B. Sc., C. Tech., Chief Administrative Officer

ATTACHMENT

Appendix A: Solid Waste Management Plan – 2022 Progress Report

APPENDIX A

Rethink waste

2022 Solid Waste Management Plan Progress Report

CRD
Making a difference...together

April 2023

TERRITORIAL ACKNOWLEDGEMENT

The CRD conducts its business within the traditional territories of many First Nations, including but not limited to BOḴEĆEN (Pauquachin), MÁLEXEŁ (Malahat), P'a:chi:da?aht (Pacheedaht), Pune'laxutth' (Penelekut), Sc'ianew (Beecher Bay), Songhees, SȾÁUTW̱ (Tsawout), T'Sou-ke, W̱JOŁEŁP (Tsartlip), W̱SIKEM (Tseycum), and xʷsepsəm (Esquimalt), all of whom have a long-standing relationship with the land and waters from time immemorial that continues to this day.

Terms and Abbreviations

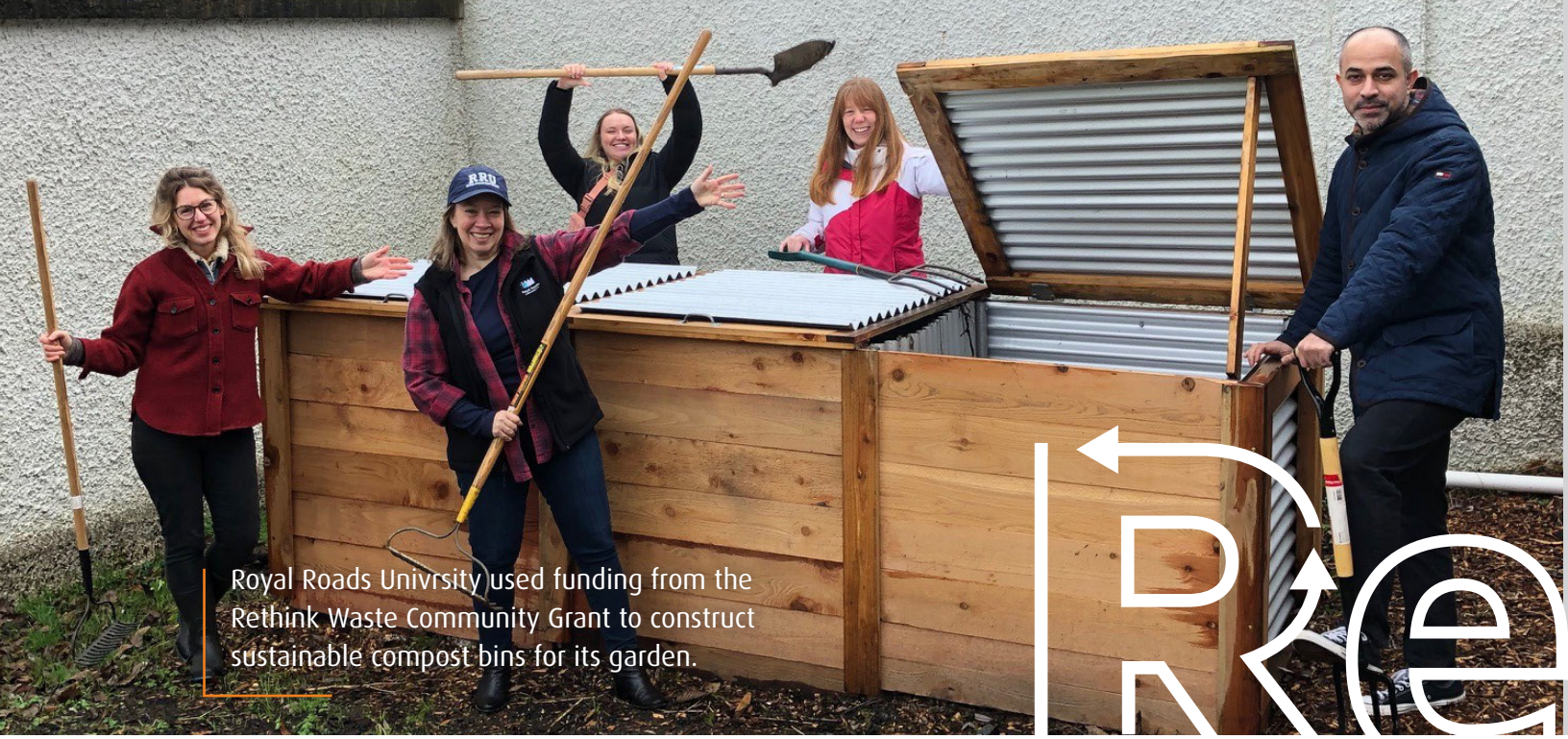
3Rs - Reduce, Reuse, Recycle
5Rs - Reduce, Reuse, Recycle, Recovery and Residual Management
C&D - Construction and Demolition
CEC - Compost Education Centre
CRD - Capital Regional District
EPR - Extended Producer Responsibility
ENV - Ministry of Environment & Climate Change Strategy
GHG - Greenhouse Gas
ICI - Industrial, Commercial and Institutional Sector
MFD - Multi-family Dwelling
MSW - Municipal Solid Waste
PPP - Packaging and Paper Products
RNG - Renewable Natural Gas
SWAC - Solid Waste Advisory Committee
SWMP - Solid Waste Management Plan

Organizational Overview

The CRD delivers regional, sub-regional and local services to 13 municipalities and three electoral areas on southern Vancouver Island and the Gulf Islands. Governed by a 24-member Board of Directors, the CRD works collaboratively with First Nations and all levels of government to enable sustainable growth, foster community well-being, and develop cost-effective infrastructure, while continuing to provide core services to residents throughout the region.

Table of Contents

Cover image: The Capital Region Food Share Network used funding from the Rethink Waste Community Grant to increase driver hours to rescue an additional 67,000 lbs (30 tonnes) of food. The collected food was redirected to different organizations for distribution in the community.



Royal Roads Univrsity used funding from the Rethink Waste Community Grant to construct sustainable compost bins for its garden.

Overview

The Solid Waste Management Plan - 2022 Progress Report highlights activities undertaken by the CRD in 2022, and satisfies the regular reporting requirements associated with the CRD's SWMP. The SWMP has a target of reducing waste in the region by more than one third over the next decade. Through zero waste and circular economy principals, the plan includes strategies for reducing all streams of solid waste to extend the life of Hartland Landfill to 2100 and beyond.

All costs associated with the CRD's solid waste service are funded through tipping and user fee revenues at Hartland Landfill, collection agreements with product producers, sale of electricity and sale of recyclables.

Regulations and Commitments

The CRD became responsible for solid waste disposal for the region in 1973 when, at the request of the CRD Board, the Province of BC established solid waste disposal as a regional function of the CRD. In 1975, the CRD acquired Hartland Landfill and subsequently assumed direct operation of the site in 1985.

The site currently operates under a Design, Operations and Closure Plan in accordance with an Operational Certificate issued by the ENV, as well as the BC Landfill Criteria for Municipal Solid Waste. There is also a provincial authorization in place for asbestos management.

Solid waste originating from outside of Canada is managed at Hartland Landfill in accordance with the International Waste Directive under the authority of the Canada Border Service Agency and the Canadian Food Inspection Agency.

Solid Waste Management Planning

The *Environmental Management Act* requires all regional districts in BC to develop plans for the management of MSW and recyclable materials. Solid waste management planning is a proven way to reduce the amount of solid waste requiring disposal in a region, contributing to the protection of the environment.

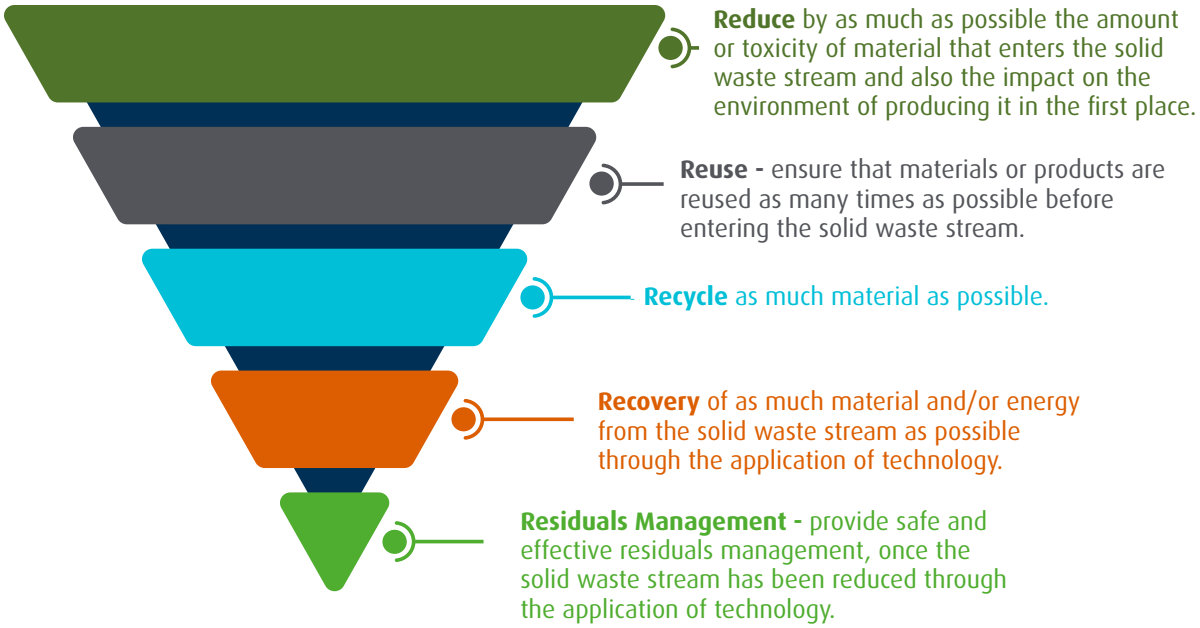
Landfill Operating and Monitoring Requirements

Hartland Landfill is authorized through an Operational Certificate under the *Environmental Management Act*. The Operational Certificate specifies the relevant environmental legislation applicable to the site and sets out requirements for environmental monitoring and annual reporting. Under this regulatory framework, the CRD has established a comprehensive environmental monitoring program to ensure Hartland is not impacting the surrounding environment. More details can be found in the *Hartland Landfill Operating & Environmental Monitoring 2021/2022 Report*.

Solid Waste Management Plan

In BC, regional districts develop SWMPs under the provincial *Environmental Management Act* that are high-level long-term visions of how the regional district would like to manage its solid waste in accordance with the 5R Pollution Prevention Hierarchy.

5R Pollution Prevention Hierarchy



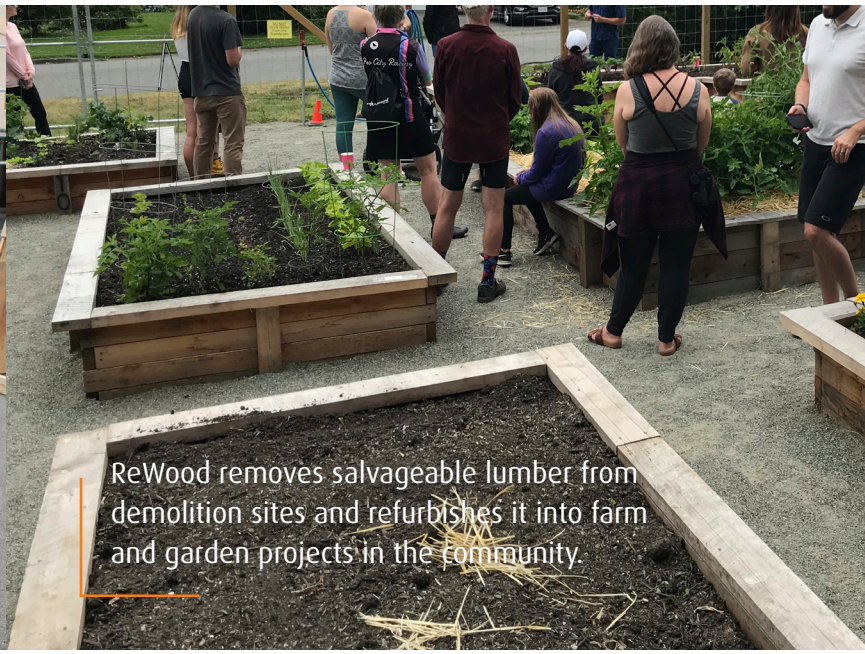
The SWMP for the region was endorsed by the CRD Board in May 2021, and was subsequently submitted to the ENV for approval. The final Plan includes strategies and actions for reducing and managing all streams of solid waste—including recyclables, compostable material and garbage—with an eye to extending the life of Hartland Landfill to 2100 and beyond.

Waste reduction, reuse and recycling can reduce GHG emissions both by lowering the demand for new materials and products (reducing upstream environmental impacts), and by minimizing downstream environmental impacts, such as transporting waste over long distances and disposing of it in landfills.

Goals

The Province's guidelines for solid waste management planning require SWMPs to have goals—the long-term aims to be achieved as an outcome of the plan. A goal may be achieved within the timeframe of this plan, but a goal may also be aspirational: something for the CRD to strive for beyond the timeframe of this plan. The CRD SWMP goals are:

1. To surpass the provincial per capita waste disposal target (350 kg/capita/year) and aspire to achieve a disposal rate of 125 kg/capita/year;
2. To extend the life of Hartland Landfill to the year 2100 and beyond;
3. To have informed citizens that participate effectively in proper waste management practices; and
4. To ensure that the CRD's solid waste services are financially sustainable.



ReWood removes salvageable lumber from demolition sites and refurbishes it into farm and garden projects in the community.

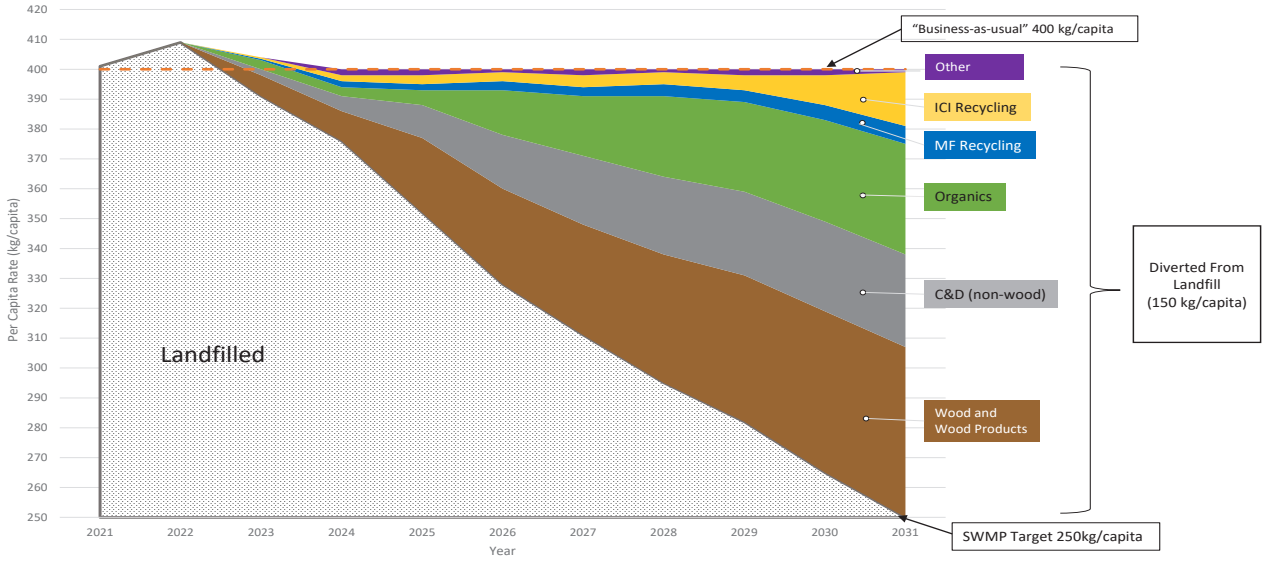
Targets and Tracking

The targets established for this plan are focused on reducing the amount of waste landfilled on a per capita basis. By the end of the 10th year of this plan, the capital region's per capita disposal rate target is 250 kg or less, surpassing the Province's long-term target of 350 kg per capita.

Below is a chart plotting one conceptual pathway to reducing the regional per capita disposal rate from 2021 levels to 250 kg per capita. The actual path taken to achieve waste reduction targets will depend on the actions the community takes to reduce waste, and the work the CRD does to support diversion activity and redirect waste material back into the economy. The chart represents an aggressive timeline to divert materials from the landfill in accordance with the strategies and actions in Appendix A: Solid Waste Management Plan Report Card.

The metrics used to track the SWMP targets in 2022 are the regional per capita disposal rates, and the Solid Waste Stream Composition Study, which provides a breakdown of categories and sectors to focus on. In 2023, in consultation with the SWAC, the CRD will develop additonal indicators associated with tracking the progress of each strategy in the SWMP.

Conceptual Pathway to Regional Waste Disposal Rate of 250 kg/capita



Per Capita Disposal

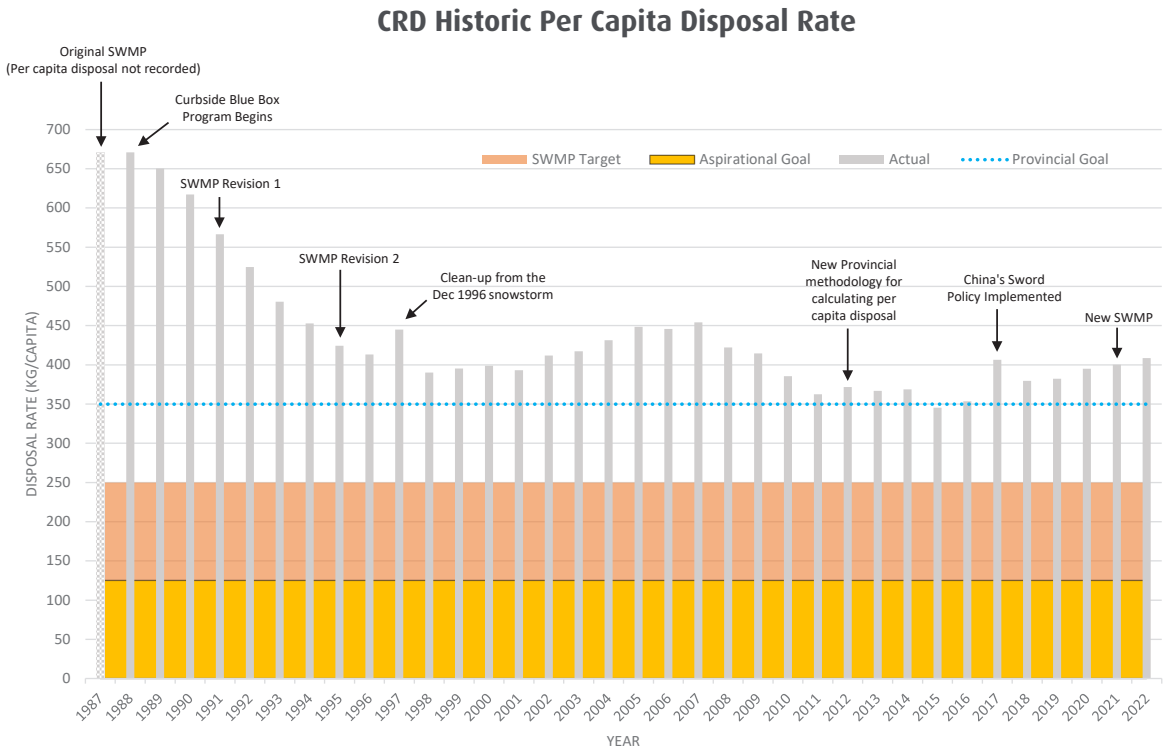
In 2012, the Province of BC began using per capita disposal rates as the standard solid waste metric. The provincial per capita disposal rate in 2020, the latest provincial numbers reported, was 499 kg per capita, while the capital region's rate in 2020 was 395 kg per capita, the third lowest in the province.

Regional districts are required to report total tonnage disposed of at all landfills operating within their boundaries. In 2008, the privately owned and operated Highwest Landfill was incorporated into the CRD's SWMP at the direction of the ENV. In 2021, this landfill reached its approved filling capacity and stopped receiving solid waste for disposal.

General Refuse Disposal - Per Capita Disposal Rate for Capital Region

Year	Population[1]	Hartland Landfill			Tervita Highwest Landfill[3]	Disposal Rate kg/ person
		Received	Beneficial Use[2]	Landfilled		
2012	368,935	129,279	n/a	129,279	7,880	372
2013	371,265	123,210	n/a	123,210	13,025	367
2014	372,463	120,942	-1,636	119,306	18,000	369
2015	377,810	114,476	-2,034	112,442	18,000	345
2016	382,645	134,167	-971	133,196	2,056	353
2017	392,046	145,285	-917	144,368	15,000	407
2018	413,406	148,551	-2,120	146,431	10,500	380
2019	418,511	146,544	-1,142	145,402	14,625	382
2020	425,503	155,014	-5,476	149,538	18,506	395
2021	432,062	167,169	-1,013	166,156	6,730	400
2022	440,456	185,111	-5,107	180,004	0	409

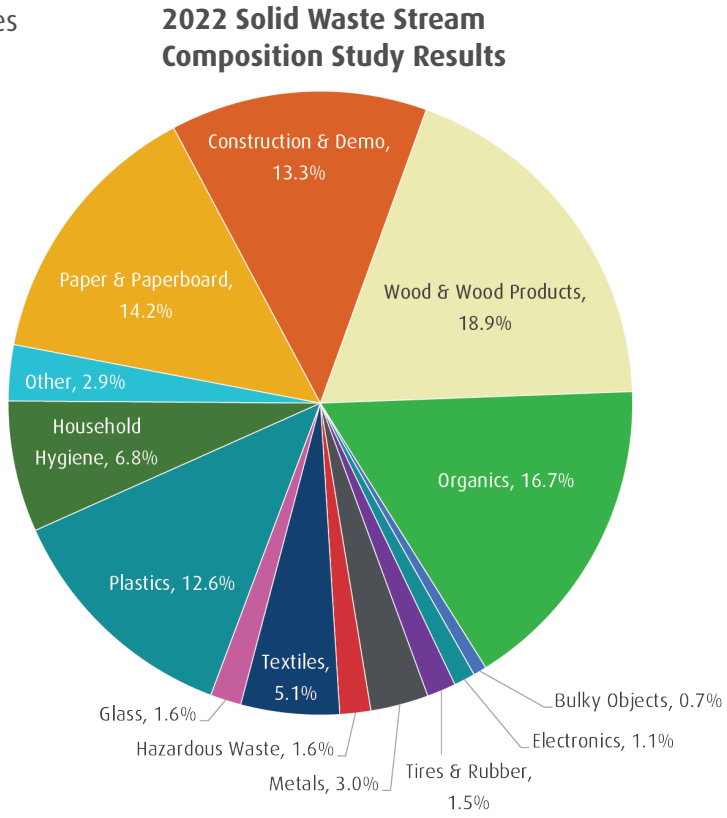
1 BC Stats
2 2021 tonnage decreased due to timing of material grinds and movement of material off-site
3 percentage of facility's total disposal, in recognition of out-of-region waste being landfilled at site



Solid Waste Stream Composition Study

Solid waste stream composition studies provide valuable benchmark data and analysis for evaluating the success of existing solid waste programs and SWMP initiatives.

Since 1990, the CRD has commissioned six studies to assess the composition of waste being landfilled at Hartland. The most recent analysis took place in 2022.



Challenges and Opportunities

As the management of unwanted materials is a shared responsibility, successful implementation of the SWMP will require involvement from the entire community, including residents, businesses, institutions, First Nations, municipalities, and non-profit associations, as well as the local waste management industry. Each of the stakeholders involved in solid waste management has a unique role to play, but there are many competing priorities.

Solid Waste Roles and Responsibilities

Hartland Landfill has the lowest general refuse tipping on Vancouver Island at $110 per tonne. In 2022, the Cowichan Valley Regional District Board passed a bylaw amendment to raise its general refuse tipping fee to $192 per tonne in 2023. Hartland Landfill does not accept waste that originates outside the region but, currently, there is limited ability for staff to validate and subsequently enforce this rule.

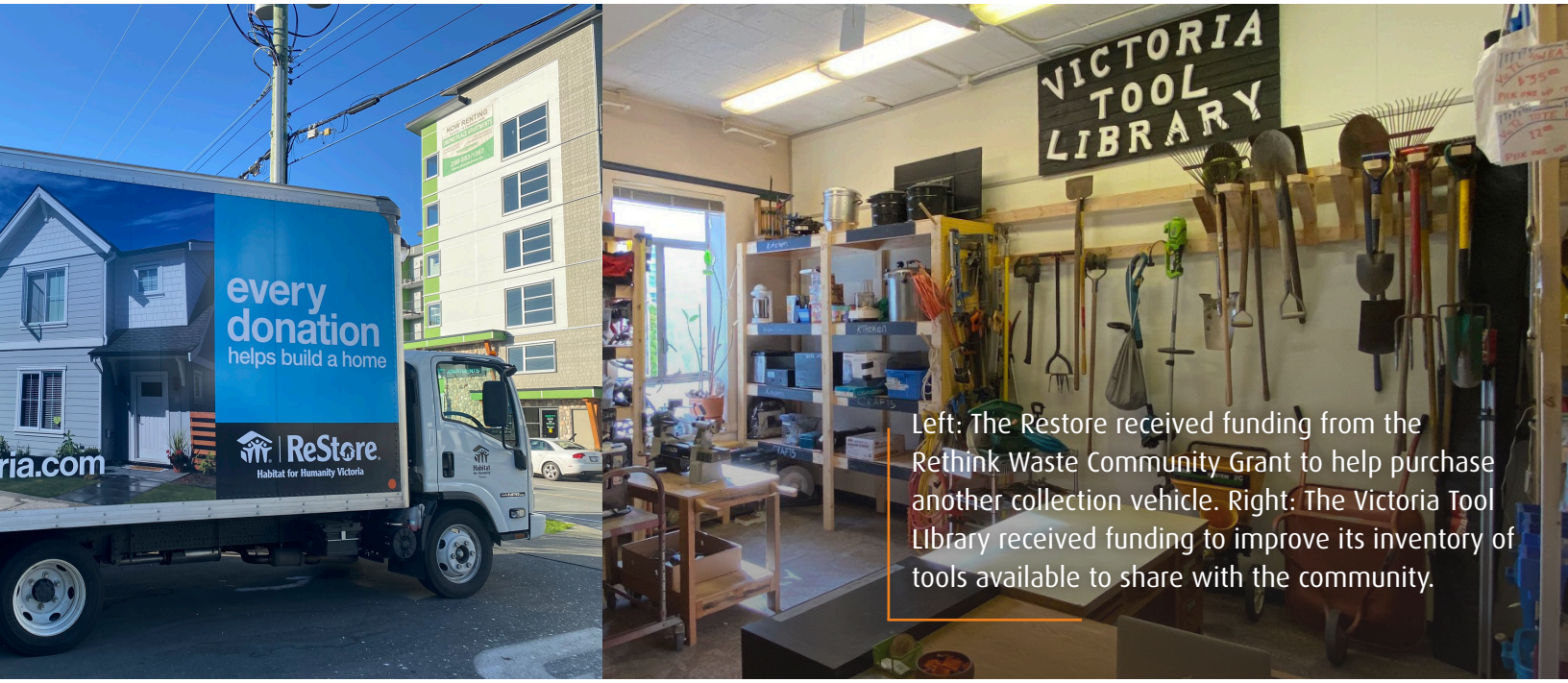
The main policy levers the CRD has over solid waste disposal are limited to what is accepted at Hartland Landfill. The CRD can drive industry to divert material from the landfill by increasing disposal fees to support diversion activity in the community, implementing waste flow management to prevent disposal of out-of-region waste, banning more material streams and broadening the scope of source-separated materials received and consolidated for off-site processing and marketing. Through implementation of the SWMP in 2023, the CRD will be reviewing the Hartland Landfill tipping fee structure and ban enforcement levels, along with investigating waste flow management.

Progress Summary

The following sections are intended to provide a high-level, easy-to-understand overview of the CRD's progress related to implementing the SWMP and summarize progress made in 2022 in the following areas:

- Reduce and Reuse
- Recycling
- Recovery and Residuals Management

For more details on the SWMP's 15 strategies, consult Appendix A: Solid Waste Mangement Plan Report Card.



Left: The Restore received funding from the Rethink Waste Community Grant to help purchase another collection vehicle. Right: The Victoria Tool LIbrary received funding to improve its inventory of tools available to share with the community.

Reduce and Reuse

Governments, residents, non-profits, and business all have an important role to play in reducing and diverting waste from the landfill. Reducing the amount of waste created, and finding ways to repurpose and reuse waste, eliminates the need to dispose of items later.

Overall Action Status
On Track

CRD Roles

Municipal collaboration

Provincial and Federal Government advocacy

Funding non-profits

Education and outreach

This focus area includes

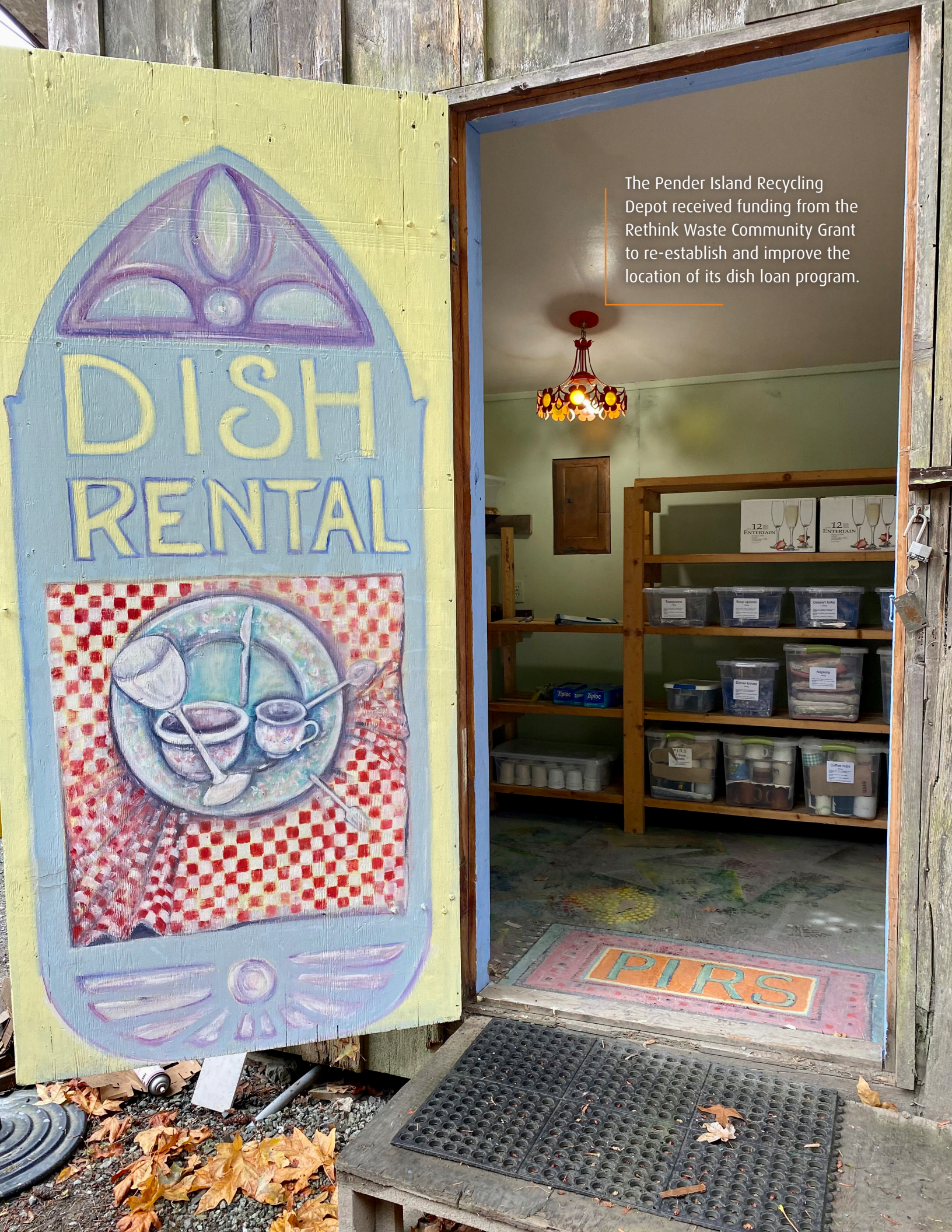
6

SWMP strategies

Supply Victoria

Progress Summary

- Launched the Rethink Waste Community Grant on Earth Day (April 21) to provide funding for the development and implementation of community-based projects that will reduce the amount of waste sent to Hartland Landfill. The CRD awarded 16 grants, totalling $35,000.
- Continued to provide support ($86,000) for 10 local non-profit reuse organizations to assist them in managing unusable donations, and partnered with five non-profit reuse organizations for the redistribution of 22 tonnes of usable textiles, bicycles, and large appliances collected at Hartland Depot.
- Resumed in-person educational programming and outreach events after COVID-19 restrictions lifted in April 2022. Between the Hartland Landfill Public Tours, Hartland Landfill Technical Tours, 3Rs K-12 program and public outreach events, the CRD connected with more than 2,000 residents.
- Launched the Rethink Waste Newsletter in August 2022 to communicate to residents and businesses about SWMP implementation, regional solid waste reduction opportunities and other solid waste related topics.
- Established a Local Government Waste Reduction Working Group. Eight meetings were held in 2022 (with nine participating municipalities) where items such as C&D activity, depot services, residential waste volumes, multi-family services, organics management, illegal dumping and disaster debris planning were discussed.



The Pender Island Recycling Depot received funding from the Rethink Waste Community Grant to re-establish and improve the location of its dish loan program.

Recycling

By participating in recycling programs, residents and businesses take responsibility for the products they've purchased and support a system where these materials can be used repeatedly.

Overall Action Status
On Track

CRD Roles

Hartland Depot

Landfill bans

Provincial and Federal Government advocacy

Curbside recycling contract

Recycling in Electoral Areas

Education and outreach

This focus area includes

7

SWMP strategies


Hartland Depot

Progress Summary

- Provided feedback to the ENV on implementation of its Five-Year Action Plan, and conveyed how the regulation of new products plays a key role in our region achieving its SWMP goals.
- Continued to partner with 12 EPR stewards for local collection of 20,562 tonnes of provincially-regulated recyclables through the Hartland Depot, Electoral Areas Depots and the Curbside Blue Box Program.
- Secured a collection contractor for the 2024-2029 Curbside Blue Box Program. The new contractor will be using 23 compressed natural gas vehicles and two electric vehicles.
- Continued to provide consolidation, transfer and processing services for kitchen scraps collected by municipalities and private service providers. In 2022, 9,567 tonnes of source-separated kitchen scraps were received.
- Piloted separate collection bins for clean unfinished wood and C&D material streams at Hartland Depot, and began the procurement process for processing and marketing of new source-separated materials.
- Completed the MFD Market Research, which will be used to guide the creation of communication and education materials, like consistent signage for MFD residents, property managers and the broader community.

In 2022, Hartland Depot collected 19,916 kgs of household batteries, which earned it a Leader in Sustainability award from Call2Recycle. Call2Recycle is the provincially-approved consumer battery collection and recycling program for BC.

Recovery and Residuals Management

Once material has been reduced and technology has been applied to recover as much energy as possible, residuals management provides a safe and effective way to manage materials that don't have a next and best use.

Overall Action Status

Opportunity for Improvement

CRD Roles

Landfill bans and enforcement

Hartland Landfill

Technology research

Landfill Gas Management

This focus area includes

2

SWMP strategies

Landfill Gas Plant

Progress Summary

- Calculated a disposal rate of 409 kg/capita, an increase of 9 kg/capita over the previous year.
- Hired a technical advisor and commenced work on developing a material diversion and beneficial use strategy.
- Conducted a solid waste stream composition study to analyze materials sent to landfill.
- Issued 559 tickets and 13 warnings primarily related to banned materials in garbage.
- Conducted a shredding trial with specific material streams to manage incoming volumes and further densify material.
- Removed 30,000 m^3 of overburden and 225,000 m^3 of in-situ rock to prepare the new landfilling cell to receive future garbage.
- Contracted Waga Energy, through its subsidiary Hartland Renewable Resources Group to design, build and operate a new CRD facility that will upgrade the biogas generated at Hartland Landfill to RNG. This project is expected to reduce the capital region's GHG emissions by approximately 450,000 tonnes of carbon dioxide over the next 25 years, a 73% improvement from initial projections of 260,000 tonnes in 2019.
- Achieved a 69% gas collection efficiency based on the ENV model, and a 78% gas collection efficiency based on the UBCi model in 2021. More details can be found in the 2021 Landfill Gas Monitoring Report.

In the fall of 2022, the CRD hired a consultant to perform a solid waste stream composition study at Hartland's active face. Garbage from residential and commercial sources are sampled and materials are sorted into 94 categories.

The active face at Hartland Landfill.

Looking Ahead

The CRD will continue to show a leadership role by supporting local, municipal and federal waste diversion efforts, and continue to move waste up the 5R Pollution Prevention Hierarchy to its next and best use.

Some activities planned for 2023 include:

- **New Policies to Divert Waste from Hartland Landfill:** Actions include consideration of modifying the tipping fee structure to incent diversion, expanding landfill material bans for streams where viable alternatives exist, facilitating the diversion of material and energy recovery of diverted material and enhancing bylaw enforcement to reduce the amount of banned materials and recyclables from being sent to the landfill.
- **Waste Flow Management:** Investigate waste flow management to increase the diversion of recyclable materials, as well as prevent disposal of out-of-region MSW at Hartland Landfill.
- **MFD/ICI Sector Strategy:** Using the data and analysis from the 2022 Solid Waste Stream Composition Study, programs and strategies will be created to target materials that are banned from the landfill, such as organics.
- **Rethink Waste Communications Plan:** Develop key messages around the SWMP to consistently inform residents and businesses of the ongoing activities associated with the SWMP.
- **Plan Monitoring Performance Measures:** In consultation with the SWAC, develop metrics beyond the Solid Waste Stream Composition Study and per capita disposal rate for reporting on the four goals of the SWMP.
- **Hartland Landfill Operations:** Research and pilot new technologies to maximize the densification and compaction rate at the active face. Decrease use of raw materials (such as aggregate) for cover by increasing beneficial use of select waste material, per the ENV guidelines.

Pender Island Recycling Depot.

Appendix A: Solid Waste Mangement Plan Report Card

The SWMP Report Card is intended to provide a high-level, easy-to-understand overview of the CRD's progress related to implementing the SWMP and to summarize progress made in 2022.

Methodology

The 2021 SWMP identifies specific actions to guide the CRD's efforts over the lifespan of the Plan. These include 15 strategies with 72 sub-actions and associated timelines divided into the following focus areas:

- Reduce and Reuse
- Recycling
- Recovery and Residuals Management

Performance indicators in this report have been analyzed and assessed by CRD staff. In 2023, in consultation with the SWAC, the CRD will develop indicators associated with each strategy to complement the metrics provided by the Solid Waste Stream Composition Study and per capita disposal rate for reporting on the four goals of the SWMP.

2022 Overall SWMP Progress

On track

Focus Area

Reduce and Reuse

Recycling

Recovery and Residuals Management

Legend: Action Status

On Track

Opportunity for Improvement

Attention Required

Future Action

Legend: Indicators

Indicators will be developed in 2023, in consultation with SWAC.

Reduce and Reuse

Reducing the amount of waste created and finding ways to repurpose and reuse waste, eliminates the need to dispose of items later.

Overall Focus Area Status
On track

Status	Strategy	Update
Progress on Strategies		
⏩	**1 Continue and enhance education programs**	· Launched CRD Rethink Waste Newsletter; sent out issues in August and October · Responded to 21,769 Infoline inquiries via phone and email and received 439,309 visits to myrecyclopedia.ca · Delivered 51 3R programs to 1,431 K-12 students, and sent a spring and fall Educators Newsletter to 591 teachers · Conducted 6 public education campaigns, including advertorials, digital advertising, print advertising and bus shelter advertising · Delivered 4 public landfill tours to 84 residents, 12 community group tours to 255 residents and 13 technical landfill tours to 200 industry partners · Attended 5 events with a 3R display · Received 11,788 new RecycleCRD app installs and received 6,953 Ready, Set, Sort! game plays by residents · Added 13,731 residents to receive reminders and alerts via RecycleCRD app, email, voicemail and mobile calendar for the Curbside Recycling Program · Continued participation in Coast Waste Management Association communications/educators working group · Continued sponsorship of Ecostar awards · Completed review of solid waste webpages, identified gaps and opportunities to communicate to a broader audience (e.g., MFD, ICI) · Identified need for a broader communications plan, to be developed in 2023
⏩	**2 Encourage waste prevention**	· Launched the CRD Rethink Waste Community Grant and supported 16 projects ($35,500) in 2022 · Participated in national 2022 Waste Reduction Week · Participated in Coast Waste Management Association Single-Use Items working group, quarterly meetings in 2022 · Federal Government - single-use plastics regulation on import and manufacturing implemented in December 2022 · Town of Sidney - Adopted bylaw to regulate single-use items
⏩	**3 Support reduction of avoidable food waste**	· Conducted a fall Love Food Hate Waste (LFHW) education campaign, which featured bus shelter ads, social media, local print and digital media ads · Work in collaboration with the District of Saanich to design LFHW branded signs for its municipal garbage trucks · Partnered with the Compost Education Centre for provision of composting and conservation education
⏩	**4 Support reuse activities in the region**	· Continued to provide support ($86,000) for 10 local non-profit reuse organizations to assist them in managing unusable donations · Collected 22 tonnes of reusable goods at Hartland Depot for redistribution by local non-profit reuse organizations · Supported 8 reuse projects through the CRD's Rethink Waste Community Grant
⏩	**5 Support local governments in working towards zero waste and a circular economy**	· Established a Local Government Waste Reduction Working Group, 9 municipalities participating, 8 meetings held in 2022 · Continued work with WSANEC Leadership Council (WLC)/CRD Solid Waste Working Group to develop a partnership agreement that addresses WCL/CRD discussions regarding Hartland Landfill and the SWMP · Worked with Pacheedaht First Nation to clean up illegal dumping activity in their community
⏩	**6 Continue and enhance policy development**	· Hired technical advisor to advise on expanded material bans, tipping fee rate structure and bylaw enforcement · Began market research and procurement for the processing and marketing of new source-separated material streams · Issued Request for Expressions of Interest for processing of material diverted through potential material bans · Began investgation of regulatory mechanisms to regulate MSW and recyclable matierials · Began investigation of licensing waste management facilities in the region · Continued to administer the solid waste service for the Port Renfrew community

Recycling

By participating in recycling programs, residents and businesses take responsibility for the products they've purchased and support a system where these materials can be used repeatedly.

Overall Action Status
On Track

Status	Strategy	Update
Progress on Strategies		
	7 **Increase residential diversion**	· Partnered with Recycle BC for local collection of 19,104 tonnes of residential PPP through the Hartland Depot, the curbside single-family home recycling program and depot services for rural/island residents · Secured collection contractor for 2024-2029 for Curbside Blue Box Program · Issued Request for Expressions of Interest for local processing of materials diverted from the landfill
	8 **Increase multi-family diversion**	· Finalized MFD market research analysis · Developed waste sorting area signage for use by MFD managers to help reduce contamination and increase diversion · Prepared specific waste sorting area signs to be piloted with CRD Housing
	9 **Increase diversion from industrial, commercial and institutional (ICI) facilities**	· Provided information, resources and a landfill tour for the Department of National Defence to aid in their waste diversion initiatives · BC Government - conducted an ICI sector Waste Flow Study
	10 **Support existing and new extended producer responsibility (EPR) programs**	· Continued to partner with 12 EPR stewards for local collection of 20,562 tonnes of provincially-regulated recyclables through the Hartland Depot, Gulf Islands and Port Renfrew Depot and the Curbside Blue Box Program · Provided feedback to the Province on implementation of their Five-Year Action Plan, and conveyed how the regulation of these new products plays a key role in our region to achieve its SWMP goals · Participated in Recycle BC's 2024-2028 program plan consultation · BC Government - Province indicated through its Five-Year Action Plan the expansion of the Recycling Regulation in 2023 to include mattresses/ foundations, compressed canisters, fire extinguishers, additional battery types and electronic accessories and medical sharps. It is expected programs would be operational beginning in 2025 · BC Government - The Province is working with other jurisdictions toward national EPR consistency
	11 **Increase organics diversion and processing capacity**	· Provided consolidation, transfer and processing services for 9,567 tonnes of kitchen scraps collected by municipalities and private service providers · Provided transfer and processing services for 1,627 tonnes of yard and garden material collected at Hartland Depot · Conducted planning and design for new kitchen scraps transfer station · Provided safe disposal for invasive species · City of Victoria - launched Sustainable Takeout Guide
	12 **Increase construction, renovation and demolition (CR&D) material diversion**	· Began procurement process for processing and marketing of new source-separated material streams · Introduced separate collection bins for clean, unfinished wood and C&D material streams at Hartland Depot · Transitioned clean wood material stream from onsite beneficial use to offsite use as alternative fuel · City of Victoria - Demo and Deconstruction Bylaw - stepped impementation began September 2022 · City of Victoria - Deconstruction Industry Training sessions
	13 **Encourage proper public space waste management activities**	· Conducted an education campaign on illegal dumping/abandoned waste, highlighting how residents can dispose of items according to the 5Rs

Recovery and Residuals Management

Once material has been reduced, and technology has been applied to recover as much energy as possible, residuals management provides safe and effective ways to manage materials that don't have a next and best use.

Overall Action Status

Opportunity for improvement

Status	Strategy	Update
Progress on Actions		
⏩	**14 Optimize landfill gas management**	• Achieved a gas collection efficiency of 70% (ENV model) 81% (UBCi model), exceeding the 75% requirement • Produced 1.6 megawatts of green power, providing green power for the equivalent of 1,600 homes • Began construction of new methane to RNG facility • Implemented strategies to improve gas collection and mitigate fugitive emissions • Partnered with the University of Victoria on fugitive emissions study
!	**15 Enhance Hartland disposal capacity**	• Calculated a disposal rate of 409 kg/capita, an increase of 9 kg/capita over the previous year • Launched thermal pilot to study disposal alternatives for managing C&D material • Hired a technical advisor and commenced work on developing a material diversion and beneficial use strategy • Initiated tipping fee rate and associated fines review work for a bylaw amendement in 2023 • Conducted a solid waste stream composition study to analyze materials sent to landfill • Received Board approval to increase tipping fee for international high-risk cruise ship waste from $157 to $500 tonne beginning January 2024 • Continued to expand onsite beneficial use opportunities with 5,107 tonnes of select waste material streams processed and utilized onsite in place of virgin material as per ENV guidlines • Conducted a shredding trial, with specific material streams in an effort to manage incoming volumes and further densify material • Achieved a landfill utilization factor of 0.67 t of refuse/m^3 of airspace • Updated Design Operations Closure Plan in 2022, and submitted to ENV with 2021 SWMP submission • Removed 30,000 m^3 of overburden and 225,000 m^3 of in-situ rock to prepare the new landfilling cell to receive future garbage. • Constructed new scale building at Hartland North and installed new gate at entrance • Produced and applied biosolids growing medium as a topsoil alternative, as outlined in the approved biosolids beneficial use contingency plan • Received 17,832 tonnes of controlled waste • Measured average controlled waste trench compaction 0.93 t/m^3 • Received 4,145 tonnes of asbestos containing material • Issued 559 tickets and 13 warnings, primarily related to banned materials in garbage

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2022 Solid Waste Management Plan Progress Report

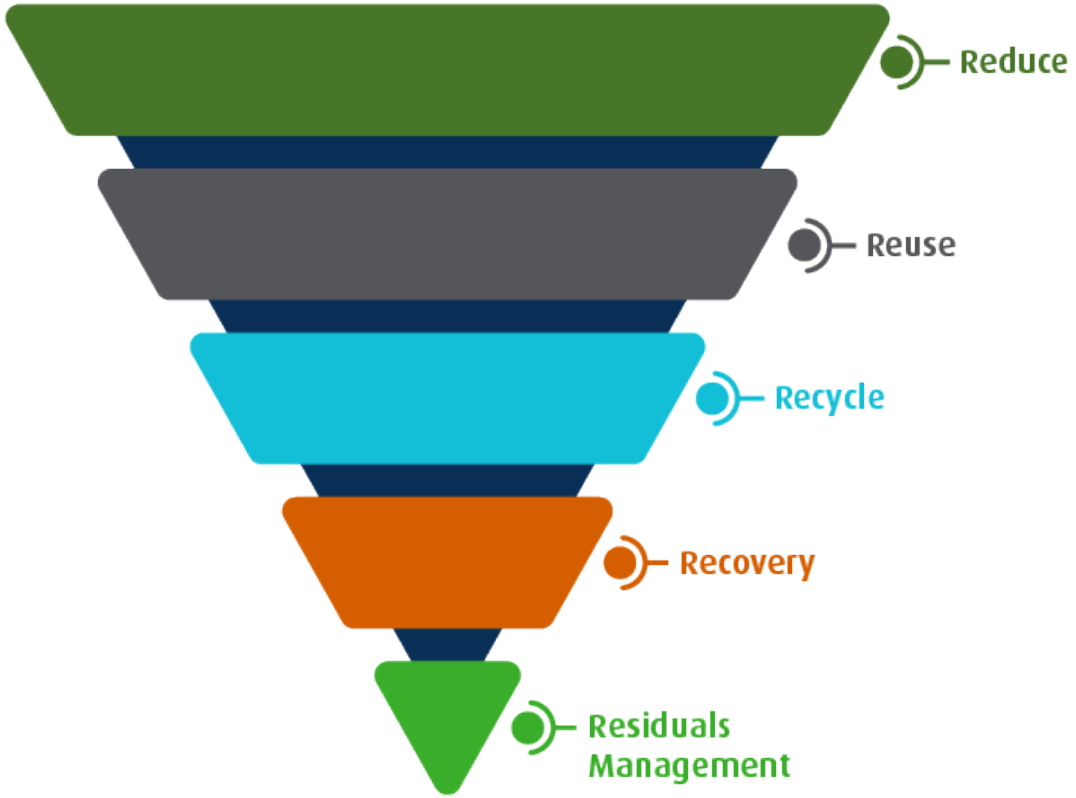
April 19, 2023

Agenda

1. Solid Waste Management Plan
2. Progress Summary
3. Looking Ahead
4. Report Card

Solid Waste Management Plan

In BC, regional districts develop SWMPs under the provincial Environmental Management Act that are high-level long-term visions of how the regional district would like to manage its solid waste in accordance with the 5R Pollution Prevention Hierarchy.



Solid Waste Management Plan

Goals			
To surpass the provincial per capita waste disposal target	To extend the life of Hartland Landfill to the year 2100 and beyond	To have informed citizens that participate effectively in proper waste management practices	To ensure that the CRD's solid waste services are financially sustainable

Focus Areas		
Reduce and Reuse *Strategies 1-6*	Recycling *Strategies 7-13*	Recovery and Residuals Management *Strategies 14-15*

Reduce and Reuse

Governments, residents, non-profits and business all have an important role to play in reducing and diverting waste from the landfill. Reducing the amount of waste created, and finding ways to repurpose and reuse waste, eliminates the need to dispose of items later.

Overall Action Status
On Track

Progress Summary

- Launched Rethink Waste Community Grant and Rethink Waste Newsletter
- Continued support for 10 local non-profits
- Resumed in-person education programming
- Established a Local Government Waste Reduction Working Group

Recycling

By participating in recycling programs, residents and businesses take responsibility for the products they've purchased and support a system where these materials can be used repeatedly.

Overall Action Status
On Track

Progress Summary

- Collected 20,562 tonnes of provincially regulated recyclables through the Hartland Depot, Electoral Areas Depots and the Curbside Blue Box Program
- Completed the Multi-family Dwelling Market Research
- Awarded the 2024-2029 Curbside Recycling Contract

Recovery and Residuals Management

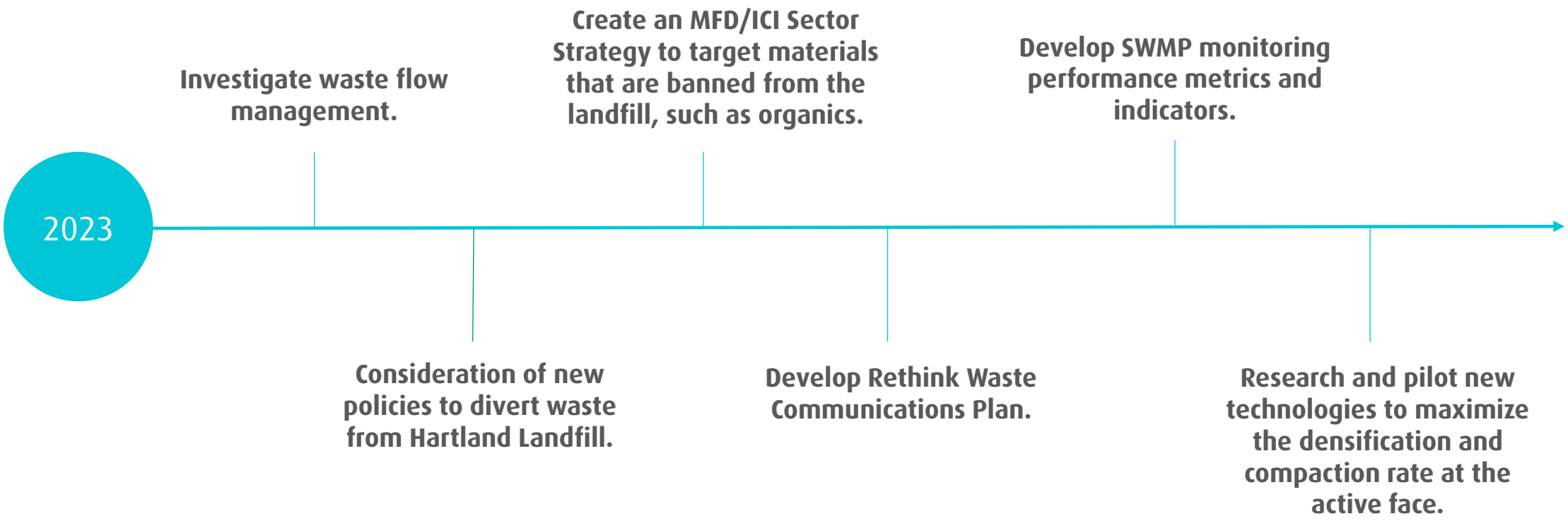
Once material has been reduced, and technology has been applied to recover as much energy as possible, residuals management provides safe and effective way to manage materials that don't have a next and best use.

Overall Action Status
Opportunity for Improvement

Progress Summary

- Calculated a disposal rate of 409 kg/capita, an increase of 9 kg/capita over the previous year
- Conducted a solid waste stream composition study
- Hired a technical advisor and commenced work on developing a material diversion and beneficial use strategy

Looking Ahead - 2023



Report Card

2022 Overall SWMP Progress

On track

The 2021 SWMP identifies specific actions to guide the CRD's efforts over the lifespan of the Plan. These include 15 strategies with 72 sub-actions and associated timelines divided into three focus areas. Further indicators will be developed in 2023 in consultation with SWAC.

Focus Areas:

- **Reduce and Reuse**
- **Recycling**
- **Recovery and Residuals Management**

Thank you

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Capital Regional District

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Making a difference...together

ERM 23-18

REPORT TO ENVIRONMENTAL SERVICES COMMITTEE
MEETING OF WEDNESDAY, APRIL 19, 2023

SUBJECT **Proposed Hartland Bylaw Amendments – Material Stream Diversion**

ISSUE SUMMARY

To seek direction on the implementation of new material stream diversion strategies for Hartland Landfill, in alignment with the Solid Waste Management Plan (SWMP).

BACKGROUND

The SWMP, approved by the Capital Regional District (CRD) Board in May 2021, targets an annual disposal rate of 250 kg per capita by 2031, a reduction of more than one-third from current levels. Other goals include extending the landfill to 2100 and beyond, and engaging and informing citizens while ensuring solid waste services are financially sustainable in support of zero waste and a circular economy.

In response to this direction, the CRD has retained a technical advisor and issued a Request for Expressions of Interest (RFEOI) to understand the processing and marketing capacity for a range of divertible materials. The technical advisor reviewed results of the RFEOI, the CRD's 2022 Solid Waste Stream Composition Study and analyzed the CRD's current system compared to available data from neighbouring jurisdictions. Results of this analysis are included as Appendix A. Based on this work, staff recommend a series of policy changes and corresponding bylaw amendments summarized below.

ALTERNATIVES

Alternative 1

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

1. That the Hartland Landfill Tipping Fee and Regulation Bylaw No. 3881 be amended and come into effect January 1, 2024 to:
    a) Ban wood waste (clean, treated and salvageable), carpet and underlay and asphalt shingles from Hartland's active face, and classify these materials as mandatory recyclable;
    b) Modernize the tipping fee schedule to align with the proposed tipping fee schedule (Appendix B), including increasing the general refuse tipping fee to $150/tonne, and introduce a new 'double charge' category for loads of unsorted renovation and demolition materials that contain mandatory recyclables (including wood waste) to motivate source-separation of these materials;
    c) Introduce hauler incentive rates to promote multi-stream collection, incent voluntary self-reported waste collection data sharing, and minimize the financial impact of increases to the general refuse tipping fees;

2. That the Ticket Information Authorization Bylaw No. 1857 be amended and come into effect January 1, 2024 to:
   a) increase fine rates for various offences;
   b) introduce a graduated ticket structure with higher fines for more egregious infractions and/or repeated infractions from a designated source or waste hauler;
   c) allow for denial of service for chronic repeat offenders;

3. That service levels be adjusted to enhance enforcement capacity resources to implement the new waste diversion policies, to be reflected in the 2024 preliminary budget; and

4. That staff return with the amended bylaws for Board approval in the fall.

Alternative 2

The Environmental Services Committee recommends to the Capital Regional District Board:
That staff bring back alternative policy based on committee direction.

IMPLICATIONS

Environmental & Climate Implications

Implementation of the proposed recommendations has the potential to divert up to 40,500 tonnes of waste per year from Hartland's active face (equivalent to 22% of all waste received at Hartland in 2022), complementing other current and future CRD waste reduction and diversion programs and initiatives, in support of meeting the 2031 waste disposal target of 250 kg per capita. Solid waste contributed approximately 3.7% of the CRD's greenhouse gas emissions (2020 CRD Community Greenhouse Gas Emissions Inventory Report). Implementing the strategies of the SWMP to reuse, recycle or recover materials will encourage diversion from the landfill, reducing the landfill's contribution to greenhouse gas emissions.

Financial Implications

The Hartland general refuse tipping fee has remained between $107 and $110/tonne since 2011, significantly lower than neighbouring jurisdictions (Cowichan Valley Regional District - $192/tonne; Comox Valley Regional District - $145/tonne; and Regional District of Nanaimo - $145/tonne, as of April 2023).

Under the policy framework recommended by the CRD's technical advisor (Appendix A), the Hartland tipping fee schedule would be modernized to promote diversion of material from the landfill, and provide better alignment with neighbouring jurisdictions and market conditions. The full proposed tipping fee schedule is included as Appendix B. Key changes recommended by staff are summarized below.

Rate Category	Current Rate (per tonne)	Proposed Rate (per tonne)	Description
General Refuse	$110	$150	General refuse rate is increased to align with neighbouring jurisdictions, and fund increased processing costs for mandatory recyclable materials.

Rate Category	Current Rate (per tonne)	Proposed Rate (per tonne)	Description
2024* General Refuse Hauler Incentive Rate	N/A	$125	Private and municipal haulers are eligible for a reduced rate if they have programs in place to ensure that organics and recyclable materials aren't going into the general refuse stream and voluntarily self-report waste collection data. This time-limited rate will minimize the financial impact of the general refuse rate increase.
2025* General Refuse Hauler Incentive Rate	N/A	$135	Private and municipal haulers are eligible for a reduced incentive rate if they have programs in place to ensure that organics and recyclable materials aren't going into the general refuse stream and voluntarily self-report waste collection data. This time-limited rate will minimize the financial impact of the general refuse rate increase.
Mandatory Recyclables: treated wood, asphalt shingles, carpet and underlay	N/A	$110	These materials are currently accepted as general refuse at $110/tonne. Under the proposed fee structure, source-separated mandatory recyclable materials will be accepted at $110/tonne to incent source separation of these materials. When these materials arrive at Hartland under the mandatory recyclable category, they will be reused, recycled or recovered through contracts with the private sector.
Mandatory Recyclables: clean wood	N/A	$80	These materials are currently accepted as general refuse at $110/tonne. They include wood products that are untreated, unstained and unpainted, such as dimensional lumber, pallets, crating, wood fencing, wood shingles and wooden doors
Mandatory Recyclables: salvageable wood	N/A	$0	Salvageable wood will be processed off-site for reuse and accepted at the Hartland depot free of charge.
Clean Renovation and Demolition Waste	$110	$150	Renovation and demolition material is currently accepted at the general refuse rate of $110. Clean renovation and demolition, that does not include mandatory recyclable materials, will be accepted at the new general refuse rate of $150/tonne.
Unsorted Renovation and Demolition Waste (double charge)	$110	$300	Renovation and demolition material that includes mandatory recyclable materials (wood, asphalt shingles and carpet and backing) will be subject to a 'double charge' rate of $300/tonne. The rate will help offset the increased processing costs for mandatory recyclable materials and incent source separation of these materials in support of the Solid Waste Management Plan targets.

* Incentive rates beyond 2025 will be evaluated by the CRD Board and may be extended.

Potential financial impacts are challenging to predict prior to observing actual market response based on the new tipping fee schedule and will ultimately depend on the volume of waste received at Hartland. CRD staff have analyzed the potential financial impact of the proposed Hartland tipping fee schedule under a range of scenarios and in all cases the proposed fee schedule sufficiently addresses risk to quantity and total revenue while still ensuring the landfill remains financially viable.

Staff recommend monitoring the effect of policies on solid waste tonnage and revenue over time and returning to the committee on a quarterly basis for information and/or any recommended policy modifications, as needed, to align with the market conditions and ensure financial sustainability of the solid waste system. If the policies do not achieve the desired diversion, or if waste appears to be migrating out of the region, staff will return to the committee for consideration of flow control policies.

Service Delivery Implications

Appendix A also evaluates Ticket Information Authorization Bylaw No. 1857. Based on this analysis, staff recommend revisions to Schedule 19 of the bylaw. Proposed amendments for additional enforcement measures include:

- increased fine rates from $50-$200 to $100-$500 for various offences
- a graduated ticket structure with higher fines for more egregious infractions and/or repeated infractions from a designated source or waste hauler
- denial of service for chronic repeat offenders

Implementation of the new policies may require improvements and updates to scale house data collection and equipment, and additional staff will be required to support site operations and bylaw enforcement. Depending on how traffic flow at the site is modified to accommodate drop off of mandatory recyclables, residential quantities of all materials in this classification may need to be accepted at a flat rate, or no charge, at the Hartland depot. If the proposed policies are approved by the Board, the additional resource requirements will be identified through the 2024 budget process, and funded through tipping fee revenues. Staff will also issue a Request for Proposals for the processing of newly-banned materials.

As a consequence of the increased tipping fees for general refuse and mixed material streams, and fines for non-compliance under certain volume scenarios, additional revenue may be generated with the potential to support new and enhanced waste diversion and reduction programs, infrastructure and initiatives that align with the SWMP. These could include investments into recycling depots and infrastructure, enhancements to the rethink waste grant program, and support for increasing diversion from the industrial, commercial and institutional sector. Staff will monitor the effect of policies, and if additional revenues are generated, will recommend programming aligned with the SWMP in future budget years.

Results of the 2022 Solid Waste Stream Composition Study indicate that organic waste makes up the second-largest category of waste being received at Hartland Landfill (16.7%), second only to wood and wood products (18.9%). Addressing organic waste will be critical to meeting the SWMP target. While this report indirectly addresses organic waste through the proposed hauler incentives for multi-stream collection and enhanced enforcement capabilities, it does not directly address organic waste. Staff will return to committee in the future with proposed policies to address organic waste, in line with the SWMP.

In July 2022, the Board endorsed an increase to the tipping fee for international high-risk cruise ship waste to $500 per tonne, effective January 1, 2024. The fee increase for high-risk waste may incentivize the cruise ship industry to find alternative disposal methods, as well as enhance recycling and waste diversion efforts.

Social Implications

The CRD's technical advisor has indicated that modernization of Hartland's tipping fee schedule is necessary to incent diversion to achieve the targets within the SWMP and to fund the increased costs associated with processing source-separated mandatory recyclable materials. By bringing the new tipping fee schedule into effect January 1, 2024, Hartland customers will have time to prepare for the changes. A communications plan and education campaign will be initiated to educate Hartland customers of the new tipping fee schedule. As the new rates roll out, customers will first be provided with a warning before being issued a ticket or double charge.

To minimize the short-term impact of rate increases on the public, it is proposed that a hauler incentive reduced rate would be available, at a minimum, for the first two years. This rate would be eligible to private and municipal haulers that have programs in place to require multi-stream collection (e.g., curbside collection of organics and recyclables, in addition to general refuse) and voluntarily self-report waste collection data. The incentive program will be available for waste coming from the single-family, multi-family and industrial, commercial and industrial sectors, and will be designed to allow customers to obtain multi-stream collection from more than one hauler, and to recognize backyard composting as a form of multi-stream collection.

CONCLUSION

Capital Regional District staff are working to advance the goals and strategies of the Solid Waste Management Plan. Working with a technical advisor, staff have identified a series of proposed policy changes and corresponding bylaw amendments to incent diversion of materials from Hartland Landfill that could be otherwise recycled, reused or recovered. Recommended changes include modernizing the Hartland tipping fee schedule, classifying wood waste, carpet and asphalt shingles as mandatory recyclable materials and enhancing bylaw enforcement capacity and capability. If directed, staff will amend the Hartland Landfill Tipping Fee and Regulation Bylaw No. 3881. The policy changes are expected to divert up to 40,500 tonnes of waste per year from Hartland's active face.

RECOMMENDATION

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

1. That the Hartland Landfill Tipping Fee and Regulation Bylaw No. 3881 be amended and come into effect January 1, 2024 to:
    a) Ban wood waste (clean, treated and salvageable), carpet and underlay and asphalt shingles from Hartland's active face, and classify these materials as mandatory recyclable;
    b) Modernize the tipping fee schedule to align with the proposed tipping fee schedule (Appendix B), including increasing the general refuse tipping fee to $150/tonne, and introduce a new 'double charge' category for loads of unsorted renovation and demolition materials that contain mandatory recyclables (including wood waste) to motivate source-separation of these materials;
    c) Introduce hauler incentive rates to promote multi-stream collection, incent voluntary self-reported waste collection data sharing, and minimize the financial impact of increases to the general refuse tipping fees;

2. That the Ticket Information Authorization Bylaw No. 1857 be amended and come into effect January 1, 2024 to:
   a) increase fine rates for various offences;
   b) introduce a graduated ticket structure with higher fines for more egregious infractions and/or repeated infractions from a designated source or waste hauler;
   c) allow for denial of service for chronic repeat offenders;

3. That service levels be adjusted to enhance enforcement capacity resources to implement the new waste diversion policies, to be reflected in the 2024 preliminary budget; and

4. That staff return with the amended bylaws for Board approval in the fall.

Submitted by:	Russ Smith, Senior Manager, Environmental Resource Management
Concurrence:	Larisa Hutcheson, P. Eng., General Manager, Parks & Environmental Services
Concurrence:	Ted Robbins, B. Sc., C. Tech., Chief Administrative Officer

ATTACHMENTS

Appendix A: Waste Diversion Framework Memo – GHD (April 4, 2023)
Appendix B: Proposed Hartland Landfill Tipping Fee Schedule

APPENDIX A

Technical Memorandum

April 4, 2023

To	Liz Ferris	**Contact No.**	
Copy to	Deacon Liddy	**Email**	
From	Riley Kieser, Laura Hnatiuk/ra/1	**Project No.**	12590255
Project Name	Technical Advisor - Biosolids Beneficial Use and Resource Recovery Strategies		
Subject	CRD Framework Memo		

1. Introduction

The Capital Regional District (CRD) has requested a framework proposing an approach to waste management that is aligned with the waste reduction hierarchy, modernized with current market conditions and supported by best practices throughout BC and neighbouring jurisdictions. This approach will support increasing processing costs, preserve landfill airspace, and support the CRD's Solid Waste Management Plan (SWMP) commitment to increasing waste reduction and diversion.

The framework includes recommended amendments to the Hartland Tipping Fee and Regulation Bylaw No. 3881 (Bylaw) that will promote waste reduction and diversion. Recommendations include updates to the current tipping fee schedule, increased enforcement capacity, and a series of waste reduction and diversion initiatives and policies. The framework outlines the associated high level financial and operational implications as well as next steps for the CRD and the Hartland Landfill (Landfill) should the proposed approach be taken.

2. Background

The SWMP, approved by the CRD Board in May 2021, targets an annual disposal rate of 250 kg per capita by 2031. Other goals include extending the Landfill past the year 2100 while ensuring solid waste services are financially sustainable. In 2022, the Landfill accepted approximately 180,000 tonnes of solid waste for disposal and diverted over 16,640 tonnes of materials at the Hartland Public Drop-off Depot. The 2022 disposal rate was 409 kg per capita.

The SWMP enables the CRD to take action in several interconnected areas to increase diversion of materials from the landfill in support of waste reduction targets. On this basis, staff propose implementing a suite of policies designed to divert material from the mixed general refuse (garbage) stream at the Landfill and recycle, repurpose or recover these materials for beneficial use, supporting a circular economy.

An updated Bylaw that encourages increased waste reduction and diversion aligns with the goals and objectives set forth in the 2021 CRD SWMP. The Bylaw was last amended in 2016 to address out-of-region asbestos and kitchen scraps, and tipping fees to garbage has not been updated since 2015. The Bylaw requires updates to promote the source separation of materials, bans, and tipping fee structures that align with current market conditions and best practices throughout BC, as demonstrated by neighbouring jurisdictions.

The proposed approach within this framework includes amendments to the current Bylaw, tipping fee schedule and implementation of additional service delivery programs. The framework provides an overview of the impacts should this approach not be taken (status quo), which focuses on maintaining financial sustainability of the CRD's waste management infrastructure by updating the tipping fee schedule to align with rising inflation only.

3. Current System

The CRD currently accepts general refuse, including renovation and demolition (R&D) materials, for landfill disposal at $110, a rate that has not been increased since 2015 (Bylaw 3917). The CRD's landfill disposal rates for garbage and R&D materials are currently the lowest on Vancouver Island. Neighbouring jurisdictions of Cowichan Valley Regional District (CVRD) and Comox Valley Regional District (Comox) have updated their tipping fees as of January 1, 2023, and charge $192 per tonne and $145 per tonne for general refuse respectively. The Regional District of Nanaimo (RDN) currently charges $140 per tonne with rates increasing to $145 in April 2023. See Table 2 for jurisdictional benchmarking. The CRD has landfill bans in place for some materials but can expand these categories and update tipping fee structures to incentivize source separation and increase diversion.

Figure 1 below shows the CRD's general refuse tipping fee for the past 20-years compared to available historic data for CVRD, Comox, and RDN. Table 1 shows that the CRD consistently increased their fee from 2004 to 2011, and there have been no changes since 2015. Comox and the CVRD have increased their garbage tipping fee on a consistent basis dating back to 2013 and 2019 respectively, as demonstrated below.

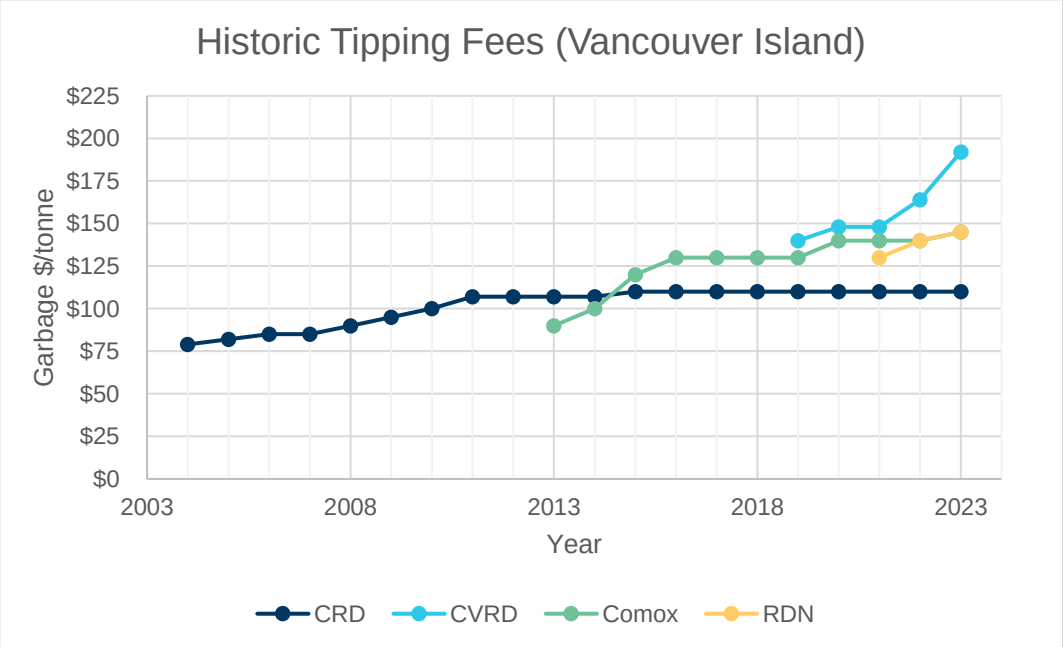


Figure 1 *General Refuse Tipping Fee Increases on Vancouver Island*

Table 1 *CRD General Refuse Tipping Fee History*

Year	2004	2005	2006-2007	2008	2009	2010	2011-2014	2015-2023
General Refuse Tipping Fee Rate	$79	$82	$85	$90	$95	$100	$107	$110

The combination of low landfill tipping fees along with the absence of incentives for source separation of materials promotes landfill disposal as a convenient and affordable option, which includes a variety of materials that are suitable for reuse, recycling and recovery options.

The CRD Board acknowledges the potential for increased waste reduction and diversion as they endorsed the CRD report titled *Meeting the Solid Waste Management Plan Targets through Material Stream Diversion*. CRD staff are actively exploring programs, policies and initiatives to understand the feasibility of implementation, impact on diversion rates, and the associated legislative, operational and financial impacts:

– Since 2021, the CRD has been undertaking a wood waste shredding pilot in which shredded materials are beneficially reused locally as HOG fuel.
– A R&D shredding pilot has been underway since 2022, in effort to reduce bulk and increase landfill airspace. Studies to explore the feasibility to thermally recover this material is currently underway.
– In 2022-2023 the CRD undertook a waste audit and feedstock analysis to understand the types and quantities of divertible materials currently going to landfill.
– The CRD is currently engaging businesses in an RFP process for the beneficial reuse and recovery of various highly divertible materials identified within the feedstock analysis (e.g., R&D materials).
– Exploration of Waste-to-Energy systems for post-recycled Municipal Solid Waste.
– Review and analysis of current tipping fee rates and structure, landfill bans, and jurisdictional benchmarking to identify areas of opportunity for increased waste reduction and diversion.

It is proposed that the CRD align their policies with B.C. best practices and modernize their tipping fee structure to achieve the targets set out in the revised SWMP. By implementing policies to reduce waste and increase diversion, the region's annual disposal rate will continue to lower which in turn extends the lifespan of the Landfill.

3.1 Tipping Fee Benchmarking

Tipping fees for general refuse and R&D waste has been evaluated against the CRD's neighbouring jurisdictions of the CVRD, RDN and Comox:

– CVRD charges $192 per tonne of general refuse and does not accept R&D waste.
– Comox and RDN charge $145 per tonne of municipal solid waste and $145 per tonne of R&D waste without recyclable/prohibited materials.
– Comox charges a fee of $330 per tonne for R&D waste containing recyclables/prohibited materials.
– The RDN applies a 20% surcharge for R&D waste containing recyclables/prohibited materials.

Tipping fees and costs of processing R&D materials from the private sector were evaluated from the Request for Expression of Interest process undertaken by the CRD in 2023. On a per material basis, the costs ranged from:

– Clean and Treated Wood - $90-$160 per tonne for processing through waste-to-energy
– Carpet and Underlay - $90-$300 per tonne depending on waste-to-energy or recycling
– Asphalt Shingles - $90-$300 per tonne for processing through recycling
– Salvaged Wood - $0 - $200 per tonne for reclaimation/reuse.

GHD has proposed tipping fees in Section 5 that reflect private processing costs but are currently incentivized to increase program participation.

A tipping fee database was compiled to reference tipping fees in other B.C. jurisdictions and is provided in Table 2 below.

Table 2 Jurisdictional Tipping Fee Benchmarking

Municipality	Site Name	Waste Material	Tipping Fee ($/tonne)	Additional Notes
Vancouver Island				
CRD	Hartland Landfill	Garbage, Renovation & Demolition Waste	$110	$254 (bulky waste) Out-of-region waste is prohibited.
RDN	Nanaimo	Garbage, Renovation & Demolition Waste	$145	Increasing to $145 on April 1, 2023 from $140. Out-of-region waste is prohibited.
CVRD	Cowichan Valley Transfer Stations	Garbage	$192	Increased as of January 1, 2023 from $164. Out-of-region waste is prohibited, with the exception of manager approval at a tipping fee of $500/tonne.
Comox Valley Regional District	Comox Strathcona Waste Management Landfills	Garbage, Renovation & Demolition Waste	$145 (regional) $290 (out of region)	Increased as of January 1, 2023 from $140. Out-of-region MSW from regional districts is only accepted upon request from their respective Board, and authorized by the Comox Strathcona Waste Management Board at a rate of $290/tonne.
Lower Mainland				
City of Vancouver	Vancouver Landfill	Solid Waste, other than municipal garbage Garbage (municipal) Renovation & Demolition Waste	$113 – 161 $127 $150	Solid waste, other than municipal garbage: $161 (under 1 tonnes) $139 (1-8 tonnes) $113 (8+ tonnes) Increase as of January 3, 2023. Does not accept out-of-region waste.
Private	Eco Waste	Renovation & Demolition Waste	$163	
Metro Vancouver	Metro Vancouver Recycling and Waste Centers	Solid Waste, other than municipal garbage Garbage (municipal) Renovation & Demolition Waste	$113 – 161 $127 $150	Solid waste, other than municipal garbage: $161 (under 1 tonnes) $139 (1-8 tonnes) $113 (8+ tonnes) Increase as of January 3, 2023. Does not accept out-of-region waste.

Okanagan				
City of Kelowna	Glenmore	Garbage, Renovation & Demolition Waste	$104	No out-of-region restrictions.
RDOS	Campbell Mountain	Garbage Renovation & Demolition Waste	$110 $110 - 700	Renovation & Demolition Waste varies based on mixed load assessment. Out-of-region materials are charged two times the rate for refuse, or two times the highest rate for any solid waste contained in the load, (whichever is greater) with a $20 minimum charge.

4. Impact on Diversion

The proposed framework focuses on divertible materials currently being sent to the Landfill. These materials are largely found in ICI and R&D bins and the current Bylaw and tipping fee schedule does not incentivize separation but rather mixed disposal. The actions within the proposed framework will complement other current and future CRD waste reduction and diversion programs and initiatives, and in conjunction, supports meeting the 2031 waste disposal target of 250 kg per capita. Should the CRD's disposal per capita goals be achieved, the Landfill can expect to receive approximately 118,000 tonnes of waste per year, down from 180,000 tonnes per year disposed in 2022. This represents a decrease of approximately 62,000 tonnes of waste per year, or 34% from 2022 levels.

Through the actions proposed within this framework, it is expected that banning carpet and underlay, clean wood, treated wood, and asphalt shingles, the CRD has the potential to divert up to 40,500 tonnes of materials per year, approximately 22% of the current mixed waste stream going to Landfill:

– Carpet and underlay – up to 4,000 tonnes
– Clean wood – up to 5,500 tonnes
– Treated wood – up to 22,000 tonnes
– Asphalt shingles – up to 9,000 tonnes

5. Modernization of Tipping Fee Schedule

Of the proposed action items and initiatives, the main driver will be amending the Bylaw to include landfill bans and update the tipping fee schedule to promote waste reduction and diversion. Updates to the Bylaw will systematically divert additional materials from Landfill and a revised tipping fee schedule will generate additional revenue from incoming waste, all with considerations to mitigate waste migration out of the region. The CRD should review and implement Bylaw amendments in 2023.

5.1 Bylaw Amendments & Tipping Fee Revisions

The first phase in the framework is to amend the Bylaw to include updated material definitions, landfill bans and tipping fee rates to align with 2023 market conditions and other regional districts throughout BC. Proposed amendments to the Bylaw include:

Updated tipping fees and definitions for the following waste materials (see Table 4):

- General Refuse
- Clean Renovation and Demolition Waste (not containing mandatory recyclable materials)
- Unsorted Renovation and Demolition Waste (containing mandatory recyclable materials)
- Clean Wood Waste
- Kitchen Scraps
- Salvaged Wood Waste
- Mattresses and Boxsprings

Updated definitions for the following waste materials (see Table 4):

- Asphalt Roofing Shingles
- Carpet and Underlay
- Treated Wood and Wood Products
- Engineered Wood Products
- Large Rigid Plastics

Inclusion of the following materials within SCHEDULE F "Mandatory Recyclable Material" category:

- Asphalt Roofing Shingles
- Carpet and Underlay
- Clean Wood
- Treated Wood and Wood Products

The practice of banning the disposal of specific wastes from the Landfill when viable recycling alternatives are in place, has been used by the CRD since 1991, shown in Table 3 below**Error! Bookmark not defined.**. In support of the updated Bylaw and potential Landfill bans, the CRD is undertaking a Request for Proposal process to explore new and expanded material diversion and recovery options available within the region to ensure that banned materials end up in alternative processing streams or end markets. Proposed Bylaw amendments required to enforceme the additional measures are included in the bylaw enforcement capacity section.

Table 3 Materials Banned from Landfill

Year Banned	1991	1993	1995	1998	2006	2011	2015
Material	Drywall	Cardboard Directories Large appliances Tires	Scrap metal Fill Aggregate Concrete Asphalt Rubble Clean soil	Paper fibres	Yard and garden waste	EPR materials (current and future)	Kitchen scraps

Hauler Incentive Rates

An incentive rate is proposed for haulers who are undertaking three stream collection, and reporting data to the CRD. It is proposed that the CRD apply a two-year discounted tipping fee rate on general refuse for eligible haulers:

– Year 1: $25/tonne discount on the $150 per tonne rate
– Year 2: $15/tonne discount on the $150 per tonne rate

These specialized rates will be available to private and municipal haulers within the region who can attest that their collection program requires three stream collection from their customers (e.g. garbage, organics and recycling) andself-report waste collection data requested by the CRD. More information on the hauler incentive programs is provided in Section 6.3.

The key updates to the tipping fee schedule are as follows:

– Increase the General Refuse fee of $110 per tonne to $150 per tonne, aligning with neighbouring jurisdictions.
– Introduction of differential tipping fees and surcharges
– Surcharge for loads containing Mandatory Recyclable Materials
– Preferential rates/discounts for sorted materials

Table 4 Proposed Landfill Tipping Fee

Material Categories	Current Waste Type	Proposed Waste Type	Currently Banned Material	Proposed Banned Material	Current Tipping Fee ($/tonne)	Proposed Tipping Fee ($/tonne)	Hauler Incentive Rate Year 1 ($25/tonne discount)	Hauler Incentive Rate Year 2 ($15/tonne discount)	Considerations
Clean wood: Clean wood includes wood products that are untreated, unstained and unpainted such as pallets, crating, wood fencing, wood shingles, wooden doors, and clean renovation and demolition wood waste	Recyclable	Recyclable	Voluntary Recyclable	Mandatory Recyclable	$110.00	$80.00	-	-	As a mandatory recyclable, the incentive of source separation will be higher with the lower tipping fee. Neighbouring municipalities accept clean wood for $95-100 per tonne.
Treated wood and wood products: Treated wood includes engineered wood products or pressure treated, stained, or painted wood and wooden furniture that may or may not contain nails or other metal fasteners.	Recyclable (under clean wood)	Recyclable	Voluntary Recyclable	Mandatory Recyclable	$110.00	$110.00	-	-	Treated wood waste is expected to be a large volume of material and will require a higher tipping fee compared to clean wood waste (difference in processing). CVRD accepts treated wood under pilot at $192/tonne at Bings Creek Recycling Centre only.
Asphalt roofing shingles: Roofing shingles composed of a felt mat saturated with asphalt, with small rock granules added.	General	Recyclable	No	Mandatory Recyclable	$110.00	$110.00	-	-	Currently material would be considered under clean demolition waste. Propose to create separate category for asphalt shingles under mandatory recyclable. CVRD accepts for $120/tonne and CSWM for $145/tonne. Cost will need to incentivize separation.
Carpet and underlay: Flooring material made of woven wool or synthetic fibres and foam padding underlayment where tack stripping material has been removed.	General	Recyclable	No	Mandatory Recyclable	$110.00	$110.00	-	-	RFEOI identified the opportunity for 50% of this material to be recyclable. Other 50% may be used as WTE. Propose to make specific recyclable carpets mandatory and charge rate of $110/tonne. Other carpet types would go to WTE (or all could go to WTE).
Salvaged wood: Clean dimensional lumber greater than 4 feet in length. Unpainted.	Recyclable	Recyclable	Voluntary Recyclable	Mandatory Recyclable	$110.00	$0.00	-	-	A new category within clean wood, only for larger timbers and lumber. Charge $10 scale fee at $0/tonne for drop-off. Contractors may remove from site for a small fee.

Material Categories	Current Waste Type	Proposed Waste Type	Currently Banned Material	Proposed Banned Material	Current Tipping Fee ($/tonne)	Proposed Tipping Fee ($/tonne)	Hauler Incentive Rate Year 1 ($25/tonne discount)	Hauler Incentive Rate Year 2 ($15/tonne discount)	Considerations
Clean renovation, and demolition waste (not containing Mandatory Recyclable materials): Material that results from the demolition of all or part of a building that does not contain Surface Coating Waste, Hazardous Waste, Prohibited Waste, Mandatory Recyclable Materials or an Extended Producer Responsibility Product.	General	General	No	No	$110.00	$150.00	-	-	The clean renovation and demolition waste that does not include recyclable materials will be charged at the general lower rate to incentivize material separation. CSWM charges $145 for general refuse and clean R&D waste. CVRD does not accept R&D.
Unsorted renovation, and demolition waste (Containing Mandatory Recyclable materials): Material that results from the demolition/renovation of all or part of a building that contains Hazardous Waste, Prohibited Waste, Mandatory Recyclable Materials or an Extended Producer Responsibility Products.	General	General	No	No	$110.00	$300.00	-	-	The unsorted renovation and demolition waste that includes mandatory recyclable materials will be charged at the higher rate to increase material separation. CSWM charges $330 for R&D waste with recyclable material.
General Refuse	General	General	No	No	$110.00	$150.00	$125.00	$135.00	The general refuse rate at the CVRD is $192/tonne and CSWM is $145. The CRD rate should increase to align with the clean renovation and demolition waste.
Mattresses and Box springs	Recyclable	Recyclable	Yes	Yes	$110.00	$20 per unit	-	-	Changing the tip fee to a per unit basis is in line with best practises. The RDN charges $20/unit, Metro Vancouver charges $15/unit with a maximum of 4 units. The SCRD charges $25/piece and $30 for wet.

5.2 Mitigation of Waste Migration

Waste migration may be a potential consequence of the increased tipping fees and additional policies. The CRD must remain competitive with the current market conditions (public and private) to ensure financial viability of operations. As stated above, the CVRD charges $192 per tonne and Comox and RDN charge $145 per tonne for municipal solid waste.

The GFL Victoria commercial recycling facility accepts mixed commercial, renovation and demolition (CR&D) materials at a rate of $292 per tonne, and the CRD proposes rates of $300 for contaminated CR&D materials.

The CRD estimates the cost of transporting and disposing waste off Vancouver Island is approximately $190 (i.e. CVRD tipping fees represent full cost recovery of waste export). Landfills within neighboring jurisdicitons, such as the RDN and Metro Vancouver, do not accept out-of-region waste, or accept out-of-region materials only with Manager or Board approval at high rates, such as the CVRD and Comox Valley Regional District.

The proposed increased General Refuse tipping fee will remain competitive for the CRD to continue as a cost-effective disposal option for the region. The CRD will monitor the impacts of the new tipping fees after implementation, and should it be required, explore the potential of flow control mechanisms and/or change tipping fees to respond to market conditions.

6. Potential Updates to Service Delivery

As a consequence of increased tipping fees for general refuse and mixed material streams, and fines for non-compliance, additional revenue will be generated with the potential to support new and enhanced waste diversion and reduction programs, infrastructure and initiatives. The following proposed actions will work in conjunction to target various waste streams and sectors. These include enhanced systems and equipment for improved data collection and enforcement, increased access to recycling depots, increased Bylaw enforcement capacity, partnerships with local non-profits to target the commercial sector, and waste hauler incentive programs for multi-stream collection and data reporting.

The potential proposed actions are detailed further in the following sections. The actions proposed below may be implemented in a phased approach over time, and the CRD may elect to proceed with all, or a select number proposed actions.

6.1 Improvements to Scale House Data Collection and Equipment

The CRD will likely require improvements and software updates to their Landfill scale house to ensure data collection is detailed and accurate. It is proposed the existing scale house software be updated to include additional waste material categories such as asphalt roofing shingles, carpet and underlay, etc. and variable rates, such as surcharges applied to contaminated R&D loads containing recyclable materials or discounts for specific waste haulers.

The collection of accurate data will be integral to tracking disposal and diversion metrics for specific waste haulers and the region. This data will enable the CRD to improve their ability to monitor progress against their performance metrics by increasing the quality and quantity of key data. With detailed classification of waste going to landfill, potential patterns for generators or materials might emerge allowing for new diversion opportunities.

It is recommended that scale house staff undergo a training session to understand the newly implemented definitions and the application of variable tipping fees.

Scale house cameras should be installed for staff to confirm incoming loads are consistent with descriptions provided by residents and commercial haulers. Camera screenshots can be attached to scale tickets as a confirmation if surcharges have been applied.

Key next steps to consider in undertaking this initiative include:

– Confirm new categories as per amended Bylaw and develop codes to be tracked
– Update existing software with new categories and codes
– Purchase and install new equipment (e.g., cameras)
– Undergo staff training program, including a guidance document

6.2 Zero Waste Coaching for Businesses

Non-profit organizations have great potential to make significant change. Hiring community-based, non-profit, social enterprise organizations is an effective and unique approach to supplement the CRD's resources and capacity and reach a wider and more diverse range of sectors in a meaningful way. Engaging non-profits to support and facilitate waste reduction and diversion within the ICI sector aligns with Action A within the CRD's SWMP Strategy # 9: to Increase Industrial, Commercial and Institutional Diversion, to "allocate resources to increase ICI diversion for example a business waste reduction liaison"**Error! Bookmark not defined.**.

Non-profits have the expertise and the ability to provide targeted services and support in an innovative and creative manner, with the time and capacity to thoroughly engage, consult, and empower the community, and support the ongoing development of new programs and services.

In 2022, the CRD piloted the "Rethink Waste Community Grant Program which provides up to $50,000 in funding annually, for the development and implementation of community-based projects aligned with the 5R pollution prevention hierarchy[1]. The CRD may be interested in expanding this program to develop a separate stream targeting the ICI sector specifically. Non-profits such as the Synergy Foundation provides waste reduction educational services and support throughout BC, and within the CRD, through their Circular Economy Business Consulting program[2]. The CRD may wish to partner with the Synergy Foundation by providing annual funding to support the expansion of this program to the ICI sector, or in the development of a new program.

Ocean Ambassadors Canada is a non-profit that works with local business communities to launch a variety of single-use plastics reduction initiatives, with the financial support from local municipalities. Their Zero Waste Coaching for Small Businesses program offers free zero waste coaching for small businesses in BC residing within the sponsoring municipality[3]. Representatives from the program will meet with businesses on site to review materials used and operations and provide suggestions to decrease volumes of single-use items, and increase recycling and organics diversion. The program will offer alterative suggestions and solutions to single-use materials, provide educational support for staff and customers, and help solve problems and challenges through research and expert consultation.

Non-profit business liaison services may include the following support to local small businesses on their pathway to zero waste:

– Waste reduction and diversion assessments and recommendations for improvement
– Guidance in reducing waste generation, reuse, recycling and composting
– Waste audits
– Procurement and sourcing
– New revenue from waste
– Staff and customer education and training
– New program and initiative implementation
– Marketing, media and promotional materials, strategies

[1] Capital Regional District. 2022. Rethink Waste Community Grant. Accessed online from https://www.crd.bc.ca/service/waste-recycling/reduce-reuse/waste-reduction-grant
[2] Synergy Foundation. 2022. Our Services. Accessed online from https://www.synergyfoundation.ca/services
[3] Ocean Ambassadors Canada. 2022. Zero Waste Coaching for Small Businesses. Accessed online from https://oceanambassadorscanada.org/zero-waste-programming/

– Launches and public events
– Ongoing program monitoring and troubleshooting
– Data collection, performance monitoring and reporting
– Program recognition (e.g. decals, logos, etc.)

Financial support for a non-profit business liaison program may be administered on a term basis (e.g., $1 million per year for a 5-10 year term). Non-profits have the ability to leverage funding to secure commitment for other funding sources, extending their impact even further.

The CRD may wish to expand the Rethink Waste Community Grant to increase annual funds and target the ICI sector, or develop a new CRD ICI zero-waste business coaching program and contract non-profits for program delivery. The CRD also has the opportunity to partner in an existing program, such as the Circular Economy Business Consulting as a funding partner.

Key next steps to consider in undertaking this initiative include:

– Determine approach (i.e. in-house program or enrolling in existing program)
– Develop Terms of Reference
– Market sounding exercise with existing non-profits
– Develop Request For Proposal
– Enter into an agreement

6.3 Hauler Incentives

The CRD has an opportunity to provide financial incentives to waste haulers to promote participation in new programs that will assist the CRD in gaining detailed waste generation and disposal location data and information, and increase multi-stream collection region wide. By providing voluntary incentivized programs, the CRD can prepare haulers before long term, mandatory programs are considered.

6.3.1 Short-Term Programs

Multi-Stream Collection Incentives

Providing financial incentives to haulers through discounted tipping fee rates to promote three-stream collection (organics, recycling and garbage) to their residential and commercial customers is motivation to increase multi-stream collection region wide, filling in gaps where organics may not currently be collected. The CRD proposes to provide incentives in the form of a two-year tipping fee reduction ($25/tonne in year one and $15/tonne in year two), to haulers who collect multi-stream from customers and self report data. Haulers may have to provide the CRD with the number of locations in which they provide three-stream collection, which will be applied to the companies account, and the discount then applied at the scale when disposing general refuse. The hauler will have to attest that the information is current and true and notify the CRD of any changes to number of locations.

Backyard composting has added benefits such as the production of a usable product for home gardening or landscaping and is currently being used by households throughout the region. Should a household opt out of curbside organics collection for this reason, haulers may still include these addresses in their report to the CRD. For a hauler or municipality to gain this information, a survey or form may be sent out to households within the collection program offering the new collection service (if not already in place), with an option to opt out of the curbside organics collection. If a household chooses to opt out, a reason must be provided, with an option to select their participation in backyard composting.

Additional funding or tipping fee deductions may be provided to haulers for the production and distribution of educational materials to promote organics collection, or in the development of additional waste reduction and diversion services (e.g., curbside textile collection). By incentivizing education, recycling and organics programs, the CRD empowers waste haulers to raise awareness and increase source separation for businesses, multi-family units and institutions.

Data Collection to Support Potential Flow Control Program

Flow control is a policy in which local governments can use to manage the disposal location of waste generated both in and outside of the region, through restrictions and surcharges. The implementation of flow control would require Bylaw amendments to include a new category for out-of-region waste, at a rate higher than general refuse to discourage disposal, and could include restrictions on the exportation of regional waste for disposal out of region. This process would require an amendment to the CRD's SWMP to include flow control, and SWMP approval by the Ministry of Environment and Climate Change Strategy prior to flow control implementation.

As a first step in the pre-design of a flow control policy, the CRD may wish to collect data and information from haulers on a voluntary basis, such as the address and waste type, to understand the original location from which the waste is generated from. Haulers who choose to self-report will be eligible for the two-year hauler discounted tipping fee rate.

To gain a comprehensive understanding of where waste is generated and where it is managed, the CRD may consider implementing a waste hauler licensing program over the next 3-4 years. This would require haulers to report detailed location and waste type information. The voluntary submission of information in the short term will prepare haulers for the upcoming waste hauler licencing program, which will require all haulers to report information.

The voluntary program may involve the development of a self-reported, waste data collection system in which waste haulers can enrol to receive the tipping fee discount in exchange for location information. Incentives may also include other privileges such as access to automated scale lanes.

The information and data collected has potential to be used in mapping exercises, financial modelling of flow control surcharges and restrictions, and the associated impacts.

Potential information and data be included in the voluntary program that may improve the CRD's understanding of waste origin and type may include the following:

– Location of generation (e.g., addresses material is collected from)
– Generating sector (e.g. residential, commercial, etc.)
– Material category
– Quantity

6.3.2 Long-term Programs

Waste Hauler Licensing

Waste hauler licensing is a mechanism of flow control that works to shift the economic incentive away from landfill disposal and disposal out-of-region, mandates collection of recycling or organics alongside garbage, and requires the submission of hauler data and information. Licensed haulers may receive discounted tipping fees for waste that excludes recyclables or divertible materials. The policy can incorporate disposal levies on waste that is landfilled, sent for waste-to-energy or disposed out of region, encouraging haulers to increase source separation, and manage materials within the region. The requirement to report the origin and destination of loads not delivered to regional disposal facilities allows for increased visibility into regional waste flow, and assist in the collection of a generator or disposal levy, which may apply to waste loads disposed of out-of-region.

In 2022, the RDN submitted an update to their Waste Stream Management Licensing bylaw for waste hauler licensing and mandatory commercial recycling and organics source separation for approval from the BC Ministry of Environment and Climate Change, to achieve their goal of 90% diversion as set out in the RDN's SWMP and improve data collection and waste flow visibility. The licensing bylaw will require for-profit waste haulers to apply for a license that requires them to report monthly on[4]:

[4] Regional District of Nanaimo. 2022. Mandatory Waste Source Separation and Waste Hauler Licensing Bylaws. Accessed from https://www.getinvolved.rdn.ca/solid-waste-

– Total tonnage of Mixed MSW deposited at RDN Facilities,
– Total tonnage of Mixed MSW deposited at non-RDN Facilities including destination details (name and address of the disposal, waste-to-energy or material recovery facility),
– Amount of the Disposal Levy owed to the District for the calendar month.

The RDN's updated bylaw will also require that all businesses, multi-family buildings and institutions have both separate recycling and organics collection alongside garbage and require that licensed waste haulers assist their commercial customers in complying with the mandated recycling and organics collection.

Another function of waste hauler licensing is to allow for the collection of a levy to offset the loss of revenue from out-of-region waste disposal. This is proposed by the RDN within their new bylaw and is currently in place within Metro Vancouver. Metro Vancouver's Generator Levy is set at $59/tonne and is built into the garbage tipping fee at regional facilities[5]. Should a waste hauler dispose of garbage at an out-of-region facility, or a facility within the region that is not owned and operated by Metro Vancouver, the waste haulers delivering garbage to those facilities would collect the Generator Levy from waste generators and remit it to Metro Vancouver. In 2017 and 2019, Metro Vancouver proposed a waste hauler licensing bylaw, in which all waste haulers collecting more than 10 tonnes per month of MSW using mechanically unloaded vehicles are required to register for licenses at $100, with an annual renewal fee. The bylaw would require approximately 50 licensed haulers to provide recycling containers alongside garbage.

Waste hauler licensing allows the region to track the flow of waste, provides data to inform on waste diversion metrics, and allows for the collection of levies. To implement waste hauler licensing or a generator levy, the CRD would first need to gain Board approval and proceed to update their SWMP to include the waste hauler licensing program and levies, which would then require a public consultation process. Once the consultation process has been undertaken, the amended SWMP must be submitted for approval from BC Ministry of Environment and Climate Change. Once approved, the bylaws could be put forth and adopted by CRD Board.

The proposed Bylaws should undergo a stakeholder consultation process to gain feedback from the public and industry. In 2017, Metro Vancouver's proposed waste hauler licensing and generator levy bylaws were met with opposition from the Waste Management Association of BC, siting inadequate consultation, concerns over competitive disadvantage, and economic burden on taxpayers. The RDN held their open consultation period from March through November of 2021 to ensure all feedback was received prior to the review process.

Key next steps to consider in undertaking the short-term initiatives include:

– Survey and interviews to private haulers, residential and commercial customers to gain feedback to inform voluntary multi-stream incentive and data reporting program design.
– Draft hauler incentive program for both multi-stream collection and data collection.
– Create information upload template or form to be used for reporting by haulers.
– Inform haulers of new program.
– Undertake trend analysis every 6-12 months to monitor performance, determine data needs and gaps, and potential program adjustments.
– Begin public and stakeholder consultation process for waste hauler licensing program.

6.4 Decentralized Regional Recycling Depots

Key factors influencing the participation of waste diversion programs are user convenience and accessibility. Various regions throughout BC such as Metro Vancouver and the Cariboo Regional District operate a network of decentralized facilities across the region to provide residents access to a wide range of recycling and waste services within a reasonable distance to their locale.

bylaws#:~:text=Waste%20Hauler%20Licensing%20%E2%80%93%20Businesses%20that%20haul%20waste,for%20separating%20and%20collecting%20organics%2C%20recycling%20and%20garbage.

[5] Metro Vancouver. 2023. Generator Levy. Accessed online from http://www.metrovancouver.org/services/Permits-regulations-enforcement/solid-waste/generator-levy/Pages/default.aspx

Metro Vancouver and the City of Vancouver run a network of Recycling and Waste Centres throughout the region, providing residents, municipalities, and haulers throughout the region with access to recycling and waste services within a 30-minute drive time. There are eight Recycling and Waste Centres located throughout Metro Vancouver, six which are owned and operated by Metro Vancouver, and two which are owned and operated by the City of Vancouver. By 2025, each Recycling and Waste Centre will have a dedicated recycling depot located ahead of the scales. Metro Vancouver works collaboratively with the host municipalities in the procurement of land, design and development of these facilities.

In 2021, Metro Vancouver updated their funding model to support the development of the new Metro Vancouver recycling depots, as well as municipalities operating depots within the region. The funding strategy distributes the full costs associated with building, operating and maintaining a recycling depot across users by incorporating these costs into the garbage tipping fee, at an increase of $4.00[6]. The model also provides municipalities that fund their own municipal recycling depots with an annual garbage tipping fee credit on a per population basis, or per volume of recyclables collected, to reduce the costs on the municipality, and further encourage waste diversion. More information on Metro Vancouver's updated funding model in support of regional recycling depots can be found in **Attachment 1**.

The CRD may wish to establish a series of CRD owned and operated recycling depots located throughout the region, and/or explore potential partnerships with municipalities in which the CRD provides annual funding or tipping fee credits for municipalities operating recycling depots. To adopt the user pay approach, an analysis of the revenue, direct costs and indirect costs of a recycling depot should be determined, and the Bylaw amended to include the cost in an updated general refuse tipping fee.

The CRD may wish to relocate the current recycling depot located at the Landfill to another more accessible area, which creates space on site at the Landfill for other diversion or recovery purposes. To determine the most optimal locations for regional accessibility, a recycling service level mapping exercise should be undertaken.

There may be challenges to the acquisition of land within the region for this purpose and should be considered when exploring this initiative. As an alternative program, there is potential to explore the feasibility of establishing CRD recycling collection services at existing private or member municipality recycling collection sites, or providing funding or annual tipping fee credits to private or member municipalities to collect additional materials for diversion at their sites.

Overall, this approach works together with existing regional programs and services provided by member municipalities, extended producer responsibility programs, non-profits, and the private sector to increase access to recycling services.

Key next steps to consider in undertaking this initiative include:

– Understand the full costs associated with building, operating and maintaining a recycling depot.
– Financial modelling to determine the annual funding or tipping fee credits to be distributed to municipalities operating recycling depots.
– Mapping of existing services and identification of general locations (e.g. 10 km^2) where the development of a depot would result in optimal access across the CRD.
– Identify conceptual area needed (e.g. m^2).
– For each area, identify development options. This could be the CRD, member municipality, or private company already operating a waste facility.
– Engagement with member municipalities and private waste facilities to gauge interest and gain feedback.
– Amend Bylaw to update tipping fee to include cost of recycling depot.
– Report back to the Board for feedback on potential collaboration opportunities, or CRD development.

[6] Metro Vancouver. 2021. Recycling Depot Funding Strategy. Accessed online from http://www.metrovancouver.org/boards/ZeroWaste/ZWA_2021-Apr-16_AGE.pdf

6.5 Increased Enforcement Capacity

As the Bylaw amendments introduce banned materials and differentiated tip fee structures for mixed and source separated materials, there will be a need for enhanced, consistent Bylaw enforcement and training. The Landfill currently has one Bylaw Enforcement Officer who is on site Monday to Saturday. To meet the objectives of the Bylaw, the CRD will require increased enforcement capacity through the hiring of additional Bylaw officers. This likely will require one to two full-time officers present at the Landfill's active face and public bins , with another for general enforcement.

The officers will be required to provide public education and guidance at the Landfill recycling depot to support residents in understanding the new categories and sorting requirements. Additional officers will also be required to monitor for activities such as disposal of banned materials and identify mixed loads and take appropriate measures for enforcement.

Revisions to Schedule 19 of the CRD's Ticket information Authorization Bylaw 1857 will be required. Proposed amendments for additional enforcement measures include:

– Increased fine rates from $50 - $200 to $100 - $500 for the various offences, detailed in Table 5, to further reinforce diversion behaviour and align with inflation.
– A graduated ticket structure with higher fines for more egregious infractions and/or repeated infractions from a designated source or waste hauler.
– Denial of service until CRD fines have been payed.
– Denial of service for chronic repeat offenders.
– Restrictions on visitors use of photography or videography on site.
– After 30 days, late payments wll be charged an interest penalty fee of 1.5% per month thereafter to be consistent with unpaid fees as stated in Schedule C.

Table 5 Proposed Updates to Fines

Offence #	Offence	Current Fine	Proposed Fine
3.	Non-district waste[1]	$100.00	$500.00
8.	Deposit recyclable material	$100.00	$200.00 (first offence) $300.00 (second offence) $500.00 (third offence)
9.	Improper deposit mandatory recyclable	$50.00	$200.00
10.	Improper deposit voluntary recyclable	$50.00	$200.00
13.	Improper deposit EPR material	$50.00	$200.00
17.	Deposit unsorted renovation and demolition waste	$200.00	$300.00
18.	Improper deposit sorted renovation and demolition waste	$100.00	$200.00
20.	Fail to source separate solid waste[2]	$100.00	$200.00 (first offence) $300.00 (second offence)

			$500.00 (third offence)
(new)	Failure to pay fine[3]	N/A	Ban from site until fines are paid
(new)	Unauthorized use of photography or filming[4]	N/A	$100.00

1. Out-of-region waste is currently banned, increase fine to discourage disposal.
2. Fines remain at $500 for 4+ offences.
3. Banned from Landfill until payment has been made.
4. To protect privacy on site.

To support Bylaw enforcement capacity, the Landfill will require improvements to equipment and technology at the scale house, such as cameras to observe and photograph incoming loads, as described in Section 6.1.

A Bylaw guidance document should be developed to educate and assist officers on the required steps of enforcement (e.g., public education, warnings, tickets, etc.) and an updated threshold for tickets for consistency in applying the enforcement measures of the Bylaw amendments.

6.6 Summary of Actions

The following table summarizes the benefits, outcomes and proposed timelines for the key actions outlined above.

Table 6 Summary of Proposed Actions

Program / Initiative	Goals	Key Actions	Proposed Timeline
Improvements to Scale House Data Collection and Equipment	Allow implementation of the updated tipping fee schedule. Track detailed information on categories, quantities, and sources.	Define categories codes Update software with categories and codes Train staff Purchase equipment (cameras)	Short term (0-3 years)
Zero Waste Coaching for Businesses	Increased waste reduction and diversion from businesses, institutions, and commercial sectors. Enhanced community engagement, education and awareness. Reduces reliance on CRD staff resources and capacity while developing green jobs.	Engage with non-profits in zero waste coaching for businesses. Understand opportunities through market sounding exercise. Determine approach (expanding the Rethink Waste Community Grant program or use of existing non-profit program). Enter into agreement.	Short – Long Term (0-10 years)
Hauler Incentives	Increased waste diversion from municipalities, businesses, institutions, and commercial sectors. Prepare hauler for waste hauler licensing. Informs out-of-region waste flow and future flow control.	Incentive program for multi-stream collection. Incentive program for voluntary data reporting (flow control light). Stakeholder consultation on waste hauler licencing with multi-stream collection and data reporting. Draft waste hauler licensing bylaw. Draft generator levy bylaw. Amendment to SWMP. SWMP submission to Ministry of Environment and Climate Change for approval.	Short term (0-3 years) Short term (0-3 years) Medium term (3-4 years) Medium term (3-4 years)
Decentralized Regional Recycling Depots	Increased usable space at Hartland Landfill. Increased recycling system access and capacity.	Relocation of the Hartland Recycling Depot. Construction of distributed CRD owned recycling depots.	0-3 years 1-2 recycling depots (0-5 years), 2-4 recycling depots (5-10 years)

Program / Initiative	Goals	Key Actions	Proposed Timeline
	Increased waste diversion. Financial incentive for municipal recycling depots.	Partnerships with member municipalities or private sector depots. Bylaw amendments to reflect user pay funding model. Subsidies provided to member municipalities to support recycling depots.	0-3 years 0-3 years 0-10 years
Increased Enforcement Capacity	Increased source separation and diversion. Public education and awareness. Effective enforcement of Bylaw. Increased revenue. Behaviour change.	Deployment of 2-3 additional Bylaw officers for on-site education and enforcement. Bylaw enforcement guidance document on new categories. Officer training.	Short term (0-3 years)

7. Status Quo

The CRD may elect to not proceed with the proposed framework to modernize the tipping fee schedule and align with BC best practices. In this case, Landfill disposal will continue as a convenient and affordable option but will not reflect the increasing cost of processing and disposal and remain the lowest cost disposal option on Vancouver Island. Without incentives to source separate, materials within the mixed general refuse stream that are suitable for reuse, recycling or recovery will continue to be landfilled.

Financial Implications

The CRD's tipping fee has remained constant since 2015. A constant tipping fee structure does not reflect the increasing processing, fuel and disposal costs of the Landfill. At a minimum, tipping fees should align with inflation. The annual CPI increase in 2022 was 6.8%, however typical inflation is around 2-3%.

Service Delivery Implications

There will be no service disruptions to CRD operations as the current material categories of prohibited waste, controlled waste, and recyclable materials will remain the same.

EPR in BC is continually expanding which may allow for new materials to be diverted within the next 5-years, such as mattresses and foundations, and exploring the introduction of commercial and institutional paper and packaging products[7]. However, it is unlikely for this to result in the significant reduction of bulky wastes such as the R&D materials that the CRD is targeting.

[7] Ministry of Environment and Climate Change Canada. 2021. Advancing Recycling in B.C. Extended Producer Responsibility Five-Year Action Plan 2021-2026. Accessed online from https://www2.gov.bc.ca/assets/gov/environment/waste-management/recycling/recycle/extended_producer_five_year_action_plan.pdf

Should the CRD choose to continue with the current system, the disposal rate per capita is likely to remain constant, and the CRD will have difficulty achieving their landfill life extension, and waste reduction and diversion goals outlined within the SWMP.

8. Closing

It is proposed that the CRD align their policies with BC best practices and modernize their tipping fee structure to achieve the targets set out in the revised SWMP. The CRD SWMP is aligned with the Ministry of Environment's Waste Reduction Hierarchy, to manage materials first through reduction, reuse and recycling, prior to considering landfill disposal, an approach that is mirrored by the actions proposed within this framework.

The CRD has an opportunity to reduce waste to Landfill, generate revenue, and explore a variety of actions to further enhance the understanding of solid waste generation within the region, while engaging in partnerships with the private sector, non-profit sector and wider community.

APPENDIX B

PROPOSED HARTLAND LANDFILL TIPPING FEE SCHEDULE

April 2023

Material Categories[1]	Current Waste Type	Proposed Waste Type	Currently Banned Material	Proposed Banned Material	Current Tipping Fee ($/tonne)	Proposed Tipping Fee ($/tonne)
Clean wood: (Clean wood includes wood products that are untreated, unstained and unpainted, such as dimensional lumber, pallets, crating, wood fencing, wood shingles, wooden doors, and clean construction, renovation and demolition wood waste)	Recyclable	Recyclable	Voluntary Recyclable	Mandatory Recyclable	$110	$80
Treated wood and wood products: (Treated wood includes engineered wood products or pressure-treated, stained, or painted wood and wooden furniture that may or may not contain nails or other metal fasteners)	Recyclable (under clean wood)	Recyclable	Voluntary Recyclable	Mandatory Recyclable	$110	$110
Asphalt roofing shingles: (means roofing shingles composed of a felt mat saturated with asphalt, with small rock granules added)	General	Recyclable	No	Mandatory Recyclable	$110	$110
Carpet and underlay: (means flooring material made of woven wool or synthetic fibers and foam padding underlayment where tack stripping material has been removed)	General	Recyclable	No	Mandatory Recyclable	$110	$110
Salvaged wood: (means clean dimensional lumber greater than 4 feet in length. Unpainted, free of nails.)	Recyclable	Recyclable	Voluntary Recyclable	Mandatory Recyclable	$110	$0
Clean renovation and demolition waste (Not containing Mandatory Recyclable materials) means material that results from the construction, renovation or demolition of all or part of a building that does not contain surface coating waste, hazardous waste, prohibited waste, mandatory recyclable materials or an extended producer responsibility product.	General	General	No	No	$110	$150

[1] Material categories and definitions subject to minor modification in the final bylaw amendment.

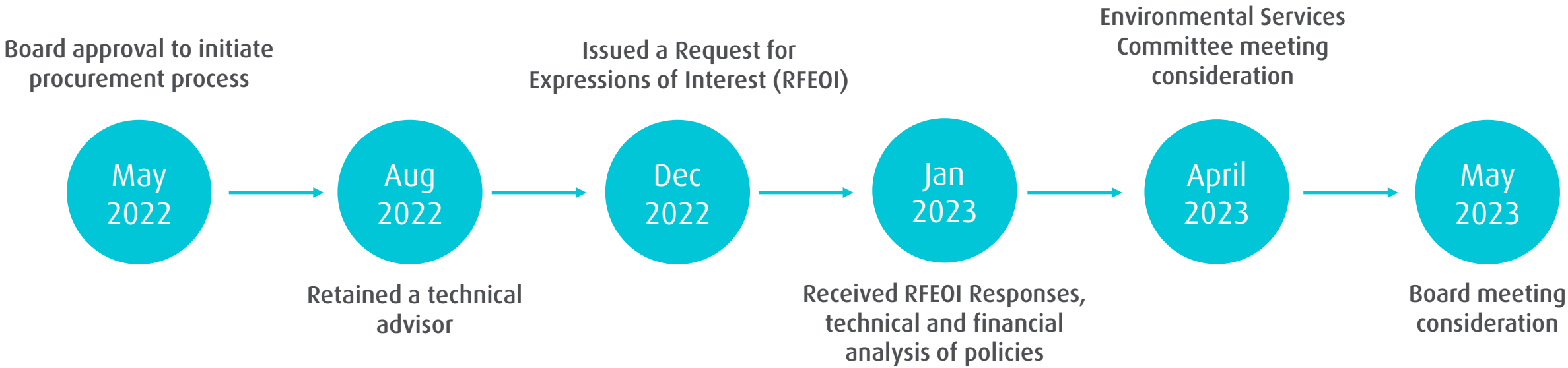
Material Categories[1]	Current Waste Type	Proposed Waste Type	Currently Banned Material	Proposed Banned Material	Current Tipping Fee ($/tonne)	Proposed Tipping Fee ($/tonne)
Unsorted renovation and demolition waste (Containing Mandatory Recyclable materials) means material that results from the demolition of all or part of a building that contains hazardous waste, prohibited waste, mandatory recyclable materials or an extended producer responsibility product	General	General	No	No	$110	$300
2024 General Refuse- Hauler Incentive Incentive rate available to private and municipal haulers collecting **general refuse** originating from residential, commercial or institutional sources, who attest they have a program in place to ensure that organics and recyclable materials aren't going into the general refuse stream and voluntarily self-report waste collection data.	General	No	No	No	$110	$125
2025 General Refuse- Hauler Incentive Rate Incentive rate available to private and municipal haulers collecting **general refuse** originating from residential, commercial or institutional sources, who attest they have a program in place to ensure that organics and recyclable materials aren't going into the general refuse stream and voluntarily self-report waste collection data.	General	No	No	No	$110	$135
General Refuse Refuse originating from residential, commercial and institutional sources, but does not include renovation or demolition waste, yard and garden, hazardous/liquid, controlled wastes, prohibited, kitchen scraps, mandatory recyclable materials or extended producer responsibility products as defined by this Bylaw.	General	No	No	No	$110	$150

Proposed Hartland Bylaw Amendments – Material Stream Diversion

Environmental Services Committee

April 19, 2023

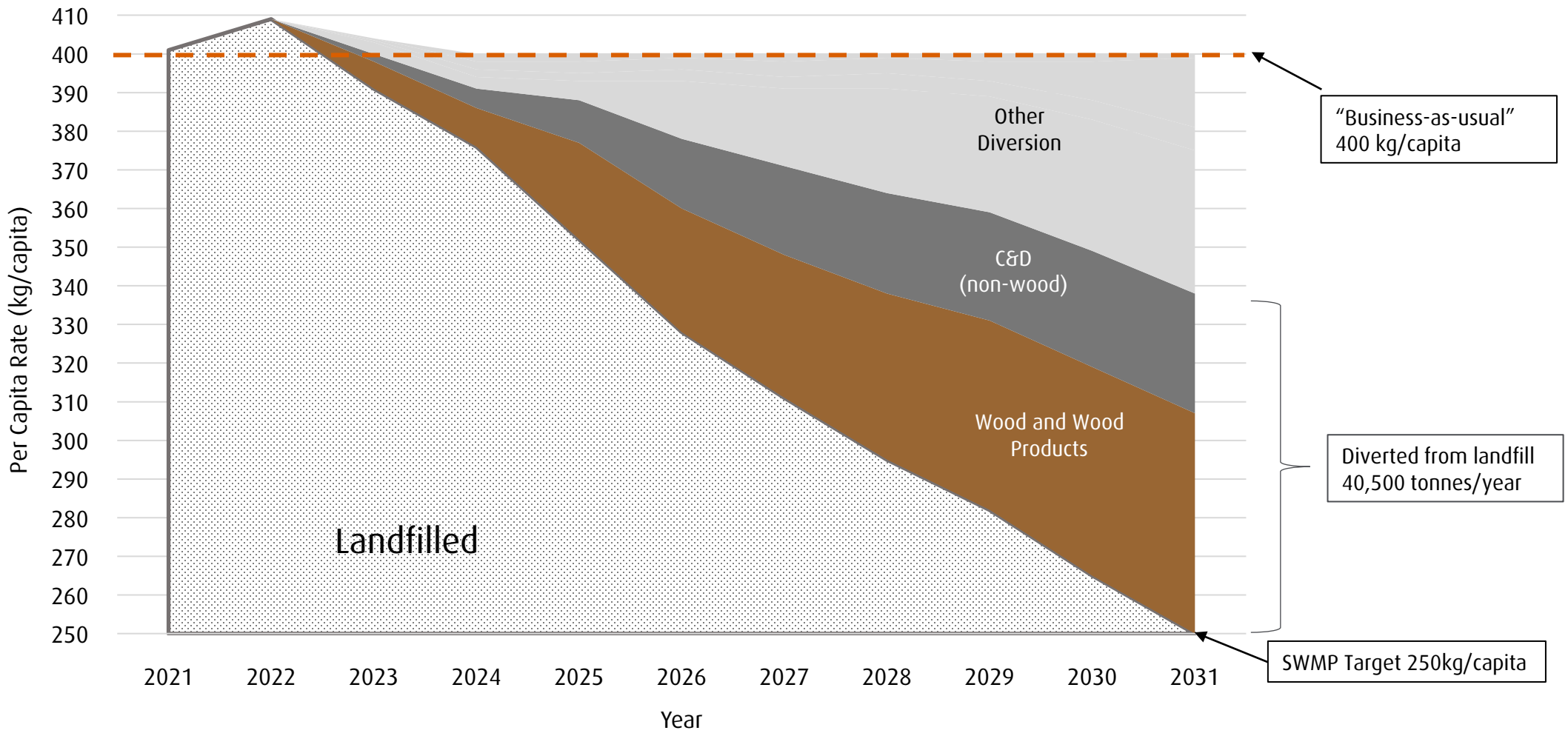
Background


Board approval to initiate procurement process
May 2022
Aug 2022
Retained a technical advisor
Issued a Request for Expressions of Interest (RFEOI)
Dec 2022
Jan 2023
Received RFEOI Responses, technical and financial analysis of policies
Environmental Services Committee meeting consideration
April 2023
May 2023
Board meeting consideration

Proposed Bylaw Amendments

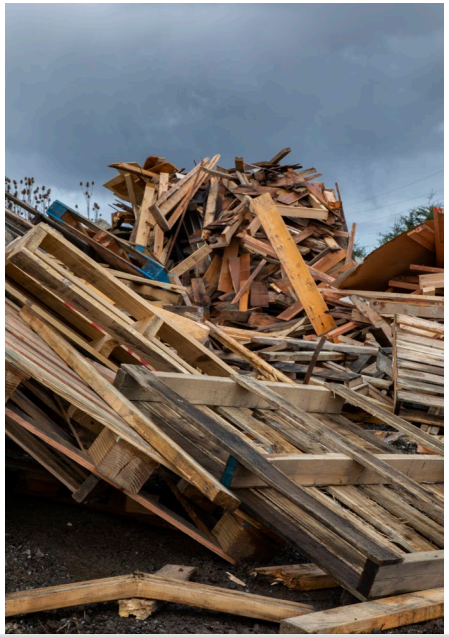
1. Active face material bans
2. Modernization of tipping fee schedule
3. Hauler incentive program
4. Enhanced bylaw enforcement capacity

Diversion Potential



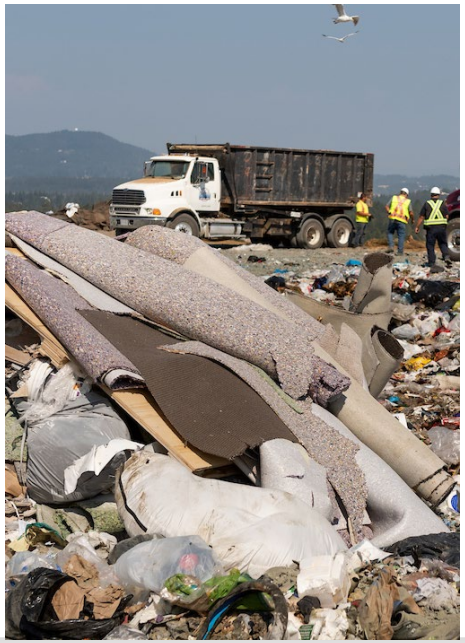
Active Face Material Bans

Wood (clean, treated and salvageable)



Asphalt roofing shingles

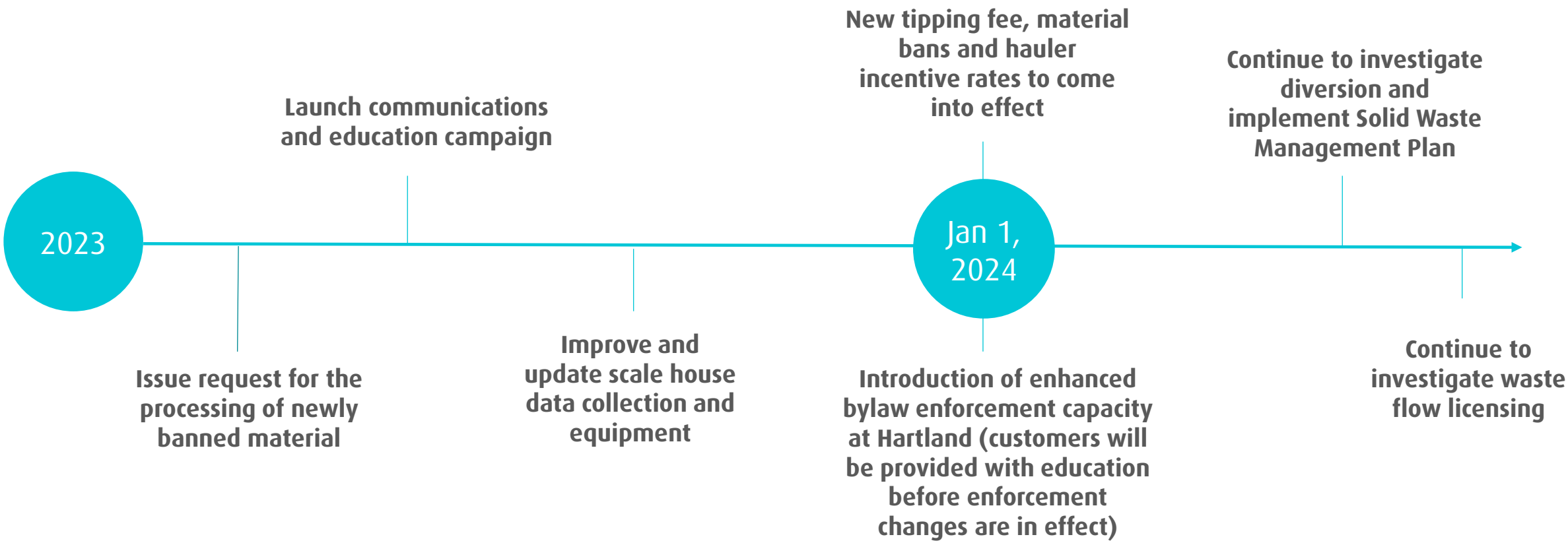
Carpet and backing



Proposed Tipping Fee Schedule

Rate Category	Current Rate (per tonne)	Proposed Rate (per tonne)
General Refuse	$110	$150
2024 General Refuse Hauler Incentive Rate	N/A	$125
2025 General Refuse Hauler Incentive Rate	N/A	$135
Mandatory Recyclables: treated wood, asphalt shingles, carpet and underlay	N/A	$110
Mandatory Recyclables: clean wood	N/A	$80
Mandatory Recyclable: salvageable wood	N/A	$0
Clean Renovation and Demolition Waste	$110	$150
Unsorted Renovation and Demolition Waste (double charge)	$110	$300

Looking Ahead (subject to Board direction)



Thank you

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Capital Regional District

CRDVictoria

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Making a difference...together

ECA 23-17

REPORT TO ENVIRONMENTAL SERVICES COMMITTEE
MEETING OF WEDNESDAY, APRIL 19, 2023

SUBJECT **Climate Action – 2022 Progress Report**

ISSUE SUMMARY

To present the Capital Regional District's (CRD) 2022 Climate Action Progress Report, which identifies progress towards the CRD's Climate Action Strategy.

BACKGROUND

The CRD has a strong history of climate action and remains committed to addressing climate change within its own operations and at the regional level. The CRD signed the BC Climate Action Charter in 2007, established a regional climate action service in 2009, embedded climate action targets and goals in the Regional Growth Strategy in 2018, and declared a climate emergency in 2019. In 2021, the Board approved a renewed CRD Climate Action Strategy and five-year action plan. The Strategy provides direction for how the CRD, under its service mandates, will show leadership on climate action, both for the CRD's corporate operations and for its community-focused services. Actions are categorized within six goal areas. The CRD has committed to annually reporting on the progress towards achieving its climate action goals.

The 2022 Climate Action Progress Report (Appendix A) provides a summary of the 2022 activities undertaken by multiple CRD services to track progress of the CRD Climate Action Strategy's corporate and regional climate commitments. The Progress Report also includes a report card that compiles self-reported progress metrics from divisions responsible for advancing each of the Strategy's 127 sub-actions. These metrics were used to produce a status indicator for overall action plan progress, corporate and community-focused actions, and the six goal areas of the strategy. This systematic evaluation provides an indication of where focused efforts need to be made or increased to achieve targeted actions and outcomes within the Strategy and meet our targets.

The overall status for the 2022 year was calculated as 'opportunity for improvement', meaning 50-75% of the yearly target of actions were progressed as envisioned within the Strategy's five-year action plan. The Progress Report also includes a list of both corporate-focused and regional indicators. These indicators are not included in the calculation of action-status but provide context and track long-term trends relevant to the organization, as well as broader regional climate action trends.

Greenhouse Gas Emissions & Climate Impacts

In 2022, CRD operations generated 2,845 tonnes of CO2e emissions, a 1% increase from 2021 and a 6% decrease from the baseline level of emissions from 2007. Emissions from vehicle travel decreased by 10% to 1,176 tonnes. Emissions from buildings, facilities and infrastructure increased by 11% to 1,669 tonnes due to McLoughlin wastewater treatment plant onboarding, and an increase in energy use in following COVID-19 protocols. The CRD continues to focus on accelerating critical actions and planning for corporate carbon reductions is on track and will be realized in future years. Emissions associated with Hartland Landfill and the Capital Region

Housing Corporation are not included in this total, as they are excluded from the provincial reporting framework.

The CRD completes regional and local government greenhouse gas (GHG) inventories every two years, following the internationally recognized Global Protocol Community-Scale GHG Inventories BASIC+ Framework. The last inventory, competed for the 2020 calendar year, indicated that the capital region emits approximately 1.8 million tonnes of CO2e annually. The CRD will produce a 2022 regional GHG inventory in late 2023.

Regardless of GHG emission reductions today, the capital region will continue to experience the impacts of climate change now and into the future. In 2021, the region experienced an unprecedented heat wave and heavy rains and flooding and, in 2022, an extended drought. The CRD and regional partners must work to reduce vulnerability in our communities and adapt to a changing climate by improving how we anticipate, respond to and recover from both extreme weather events and more gradual changes occurring over time. Climate adaptation planning and implementation will be a key aspect of future service delivery.

CRD Climate Action Service

Under Bylaw No. 3510, the CRD established a Climate Action service in 2009 with a regional collaboration mandate to directly support the organization and local governments in reaching mitigation and adaptation targets, policies and actions. The service hosts two inter-municipal networks, closely works with local government staff, senior governments, utilities and other stakeholders to identify other climate action opportunities and advance initiatives in collaboration.

To implement key initiatives within the renewed CRD Climate Action Strategy, the establishing bylaw for the maximum requisition limit for the CRD Climate Action and Adaptation service was raised in early 2022 after receiving the consent of two-thirds of the participating area municipalities and electoral areas, and approval by the Inspector of Municipalities, as required by the Local Government Act.

In 2022, the Climate Action service operated on an annual budget of approximately $1,55M, which included five full-time employees and one four-year, full-time term position. In addition, the corporation provided an annual stipend of $100,000 toward a fund to support key corporate-focused climate action planning activities. The program's core budget is provided through an annual requisition from all the region's municipalities and electoral areas, and supplemental funding from corporate services. The program also relies on external grants and partnerships to undertake corporate and community climate action programming. External sources accounted for approximately $720,000 in additional funding to support staffing and completion of key projects in 2022. Staff also submitted several grant applications for an additional $6.8M in funds to execute several projects, starting in 2023, should they be successful.

CONCLUSION

The CRD's Climate Action Strategy provides direction for how the CRD, under its service mandates, will show leadership on climate action, both for the CRD's corporate operations and for its community-focused services. The CRD's 2022 Climate Action Progress Report outlines actions the CRD has undertaken to advance the Climate Action Strategy, Board priorities, and commitments as a signatory to the BC Climate Action Charter over the past year. Overall, in 2022, the CRD progressed on several climate action initiatives, and has identified where focused efforts

need to be made or increased to achieve targeted actions and outcomes. The overall status for the 2022 year was calculated as 'opportunity for improvement', meaning 50-75% of the yearly target of actions were progressed as envisioned within the Strategy's five-year action plan.

RECOMMENDATION

There is no recommendation. This report is for information only.

Submitted by:	Nikki Elliott, Manager, Climate Action Programs
Concurrence:	Larisa Hutcheson, P. Eng., General Manager, Parks & Environmental Services
Concurrence:	Ted Robbins, B. Sc., C. Tech., Chief Administrative Officer

ATTACHMENT

Appendix A: 2022 Climate Action Progress Report

APPENDIX A

2022 Climate Action Progress Report

Taking Action on the Climate Emergency

CRD
Making a difference...together

April 2023

TERRITORIAL ACKNOWLEDGEMENT

The CRD conducts its business within the traditional territories of many First Nations, including but not limited to BOḰEĆEN (Pauquachin), MÁLEXEŁ (Malahat), P'a:chi:da?aht (Pacheedaht), Pune'laxutth' (Penelekut), Sc'ianew (Beecher Bay), Songhees, SȾÁUTW̱ (Tsawout), T'Sou-ke, W̱JOŁEŁP (Tsartlip), W̱SIKEM (Tseycum), and xʷsepsəm (Esquimalt), all of whom have a long-standing relationship with the land and waters from time immemorial that continues to this day.

Organizational Overview

The Capital Regional District (CRD) delivers regional, sub-regional and local services to 13 municipalities and three electoral areas on southern Vancouver Island and the Gulf Islands. Governed by a 24-member Board of Directors, the CRD works collaboratively with First Nations and all levels of government to enable sustainable growth, foster community well-being, and develop cost-effective infrastructure, while continuing to provide core services to residents throughout the region.

Table of Contents

Overview

In 2021, the CRD renewed its Climate Action Strategy and committed to annually reporting on all climate action related activities undertaken by the organization. This report summarizes all 2022 activities and other annual indicators identified in the CRD's Climate Action Strategy.

Regulations and Commitments

The CRD is required to take action to reduce corporate and community-related greenhouse gas (GHG) emissions and prepare for the impacts of climate change under the following provincial regulations and commitments:

- Local Government (Green Communities) Statutes Amendment Act requires regional districts and local governments to include targets, policies and actions for the reduction of GHG emissions in Regional Growth Strategies and Official Community Plans. The Act also provides powers to local governments to support mitigation and adaptation through development permit areas, development cost charges, and parking and building code requirements.
- Landfill Gas Management Regulation establishes province-wide criteria for landfill gas capture from municipal solid waste landfills. The regulation focuses on GHG emissions from landfills, with the objective of maximizing reductions of landfill gas emissions and identifying potential opportunities to increase landfill gas recovery. As a manager of the Hartland Landfill, the CRD is responsible for adhering to this regulation.
- All local governments in the region, including the CRD, are signatories of the BC Climate Action Charter. This includes a commitment to:
    - become carbon neutral in corporate operations
    - measure and report on the community's GHG emissions profile
    - work to create compact, complete and more energy-efficient communities
- United with more than 350 Canadian local governments, the CRD is a member of the Partners for Climate Protection Program, from the Federation of Canadian Municipalities and ICLEI - Local Governments for Sustainability, affirming its ambitious GHG reductions and participating in a five-milestone planning, implementation and reporting framework.

CRD Climate Action & Adaptation Service

Under Bylaw No. 3510, the CRD established a climate action service in 2009 to act as a resource and facilitator for the CRD, local governments, citizens and organizations in the capital region on energy and climate issues. The service hosts two inter-municipal networks, closely works with local government staff, senior governments, utilities and other stakeholders to identify other climate action opportunities and to advance initiatives in collaboration. The Climate Action Service has five main focus areas:

- provide support to local governments in developing and implementing climate action plans, programs and policies
- catalyze action through partnerships with public and private sectors, non-governmental organizations and community organizations and increase public awareness of climate change issues
- liaise with senior levels of government on climate change-related programs, policies and legislation that impact the capital region
- provide scientific information, data and indicators related to local and regional GHG emissions and projected climate impacts
- support the CRD in fulfilling its corporate climate objectives and support execution of climate-related Board priorities

Climate Action Strategy

Climate action has been a CRD Board priority since 2009. The CRD is committed to taking action to address climate change within its own operations, and at the regional level, to reduce emissions and prepare for climate impacts. This was highlighted in the Board's declaration of a climate emergency in early 2019. In response to this declaration, the CRD developed an updated five-year Climate Action Strategy in 2021.

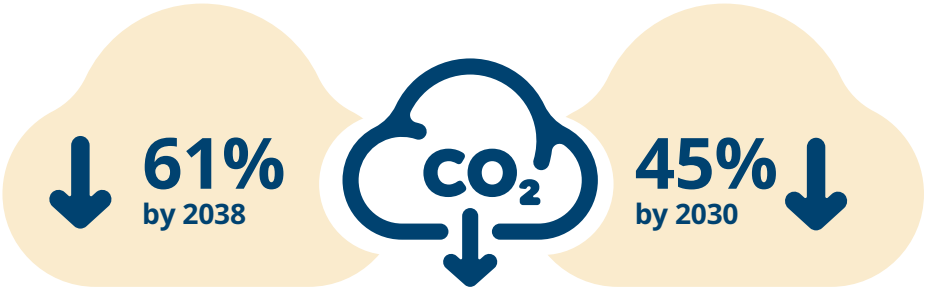
The Climate Action Strategy provides a clear path forward for how the CRD, under its service mandates, will show leadership on climate action, both for the CRD's corporate operations and for its community-focused services. The strategy coordinates with other CRD plans and strategies and supports the overarching Regional Growth Strategy.

Fifth floor view from the CRD Fisgard office building

Climate Action Vision

Through collective action, we eliminate emissions and foster healthy and resilient communities and natural areas now and in the future.

This vision recognizes that the CRD must act in concert with many partners to address the climate emergency, ensuring the region is minimizing its contribution to climate change while also preparing for the changes that have already begun. In this context, "we" is inclusive of all governments, First Nations, businesses, institutions, organizations and residents.



Regional target

Reduce regional greenhouse gas (GHG) emissions 61% by 2038 based on 2007 levels (as per 2018 Regional Growth Strategy).

Corporate target

Reduce corporate GHG emissions 45% by 2030 based on 2007 levels, and reach net-zero GHG emissions before 2050.

Targets and Goals

The CRD's Climate Action Strategy outlines a pathway toward net-zero emissions by mid-century, in line with the Intergovernmental Panel on Climate Change modelled pathways to limit warming to a 1.5°C change this century. It also established six goal areas where the CRD will focus its efforts.

Climate Action Strategy Goals

- Climate-focused decision making
- Sustainable land use, planning and preparedness
- Low-carbon mobility
- Low-carbon and resilient buildings and infrastructure
- Resilient and abundant nature, ecosystems and food systems
- Minimized waste

Taking the bike lane, Wharf Street, Victoria, BC

Tracking Our Emissions

The CRD undertakes greenhouse gas accounting on a regular basis to understand our emissions portfolio.

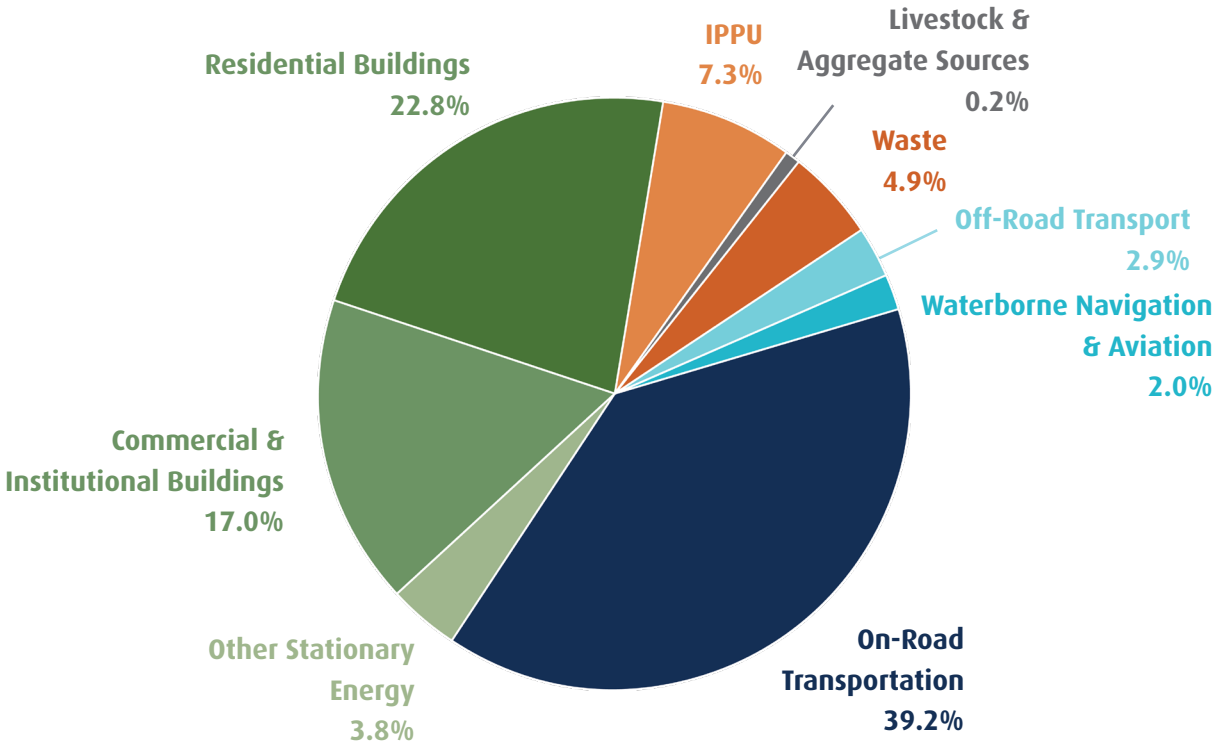
Community Emissions

In 2021, the CRD completed an emissions inventory and report for the 2020 calendar year, building on a 2018 inventory. This followed the internationally recognized Global Protocol Community-Scale GHG Inventories BASIC+ Framework, and included GHG emissions from: stationary energy (e.g., buildings), transportation (e.g., commuter vehicles), waste (e.g., landfills), industrial processes and product use (IPPU) (e.g., chemical industry), and agriculture, forestry and other land use (e.g., fertilizer application).

The 2020 inventory indicated the capital region emits approximately 1.8 million tonnes of $C0_2e$ annually. This represents a 9.8% reduction from 2007 levels and a 5.2% reduction from 2018. These reductions are largely associated with the decrease in transportation-related emissions due to the early 2020 COVID-19 pandemic response. On-road transportation and the built environment remain the main sources of regional emissions, together accounting for approximately 79% of all emissions in 2020.

Energy use indicators from on-road transportation and the built environment suggest that emissions will be higher in 2022 than in 2020. CRD staff intend to produce a 2022 GHG inventory in late 2023.

2020 Capital Region Community Energy Emissions



To achieve the CRD's regional GHG emission reduction target of 61% reduction by 2038, the region, and all key players, including senior levels of government, local governments, residents, business, industry and organizations, must continue to advance key initiatives, including:

- increase uptake of transit, walking, cycling and other modes of active transportation
- accelerate adoption of zero-emissions vehicles
- retrofit existing buildings, improving energy efficiency and converting fossil fuel heating systems to electric
- transition to construction of net-zero ready new buildings

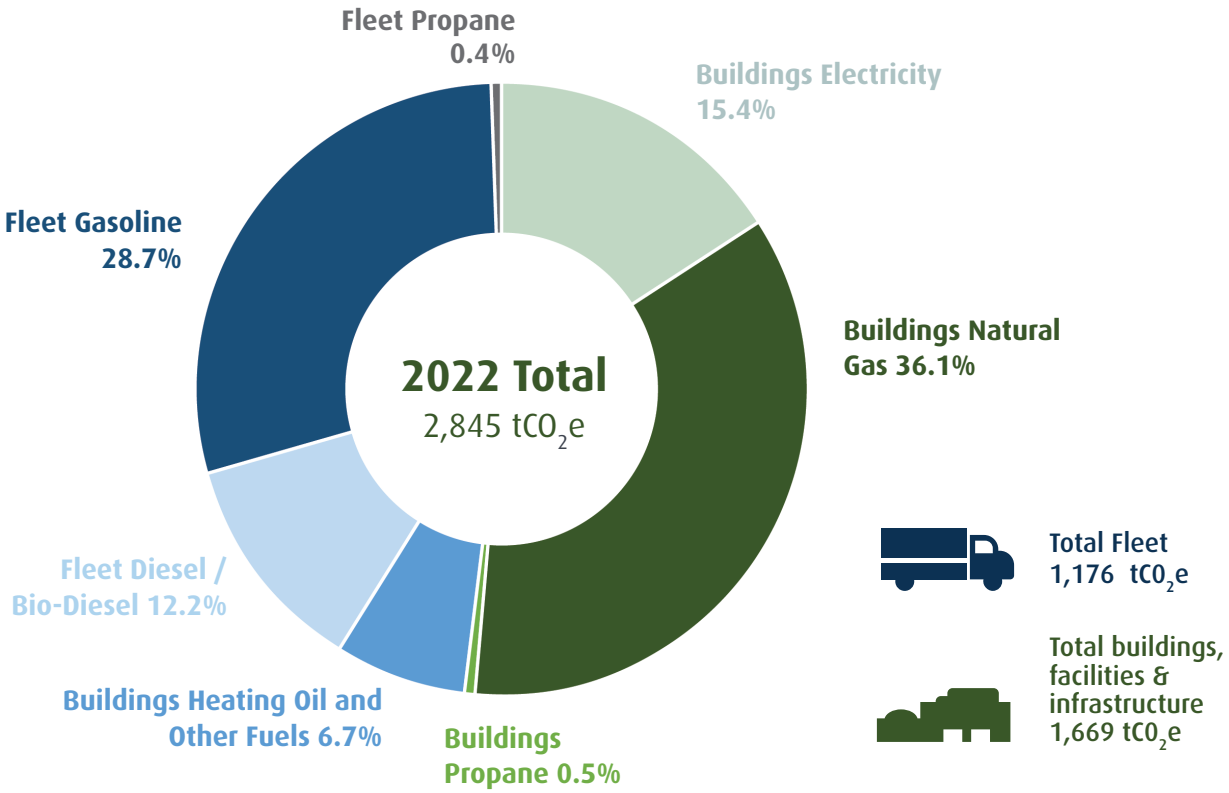
Corporate Emissions

In 2022, CRD operations generated 2,845 tonnes of CO_2e emissions, with 1,176 tonnes associated with the vehicle travel and 1,669 tonnes coming from facilities and infrastructure. Emissions associated with Hartland Landfill and the Capital Region Housing Corporation are not included in this total, as they are excluded from the provincial reporting framework. This represents a 1% increase from 2021 and a 6% decrease from the baseline level of emissions from 2007. It should be noted that the reported emissions from 2021 were reduced because of BC Hydro's emission factor being updated.

Emissions from vehicle travel decreased by 10% in 2022 compared to 2021. This is a result of reduced single-passenger vehicle travel, as this was a COVID-19 restriction, and the procurement of several electrical vehicles, including two ice resurfacers at Panorama Recreation Centre.

Overall emissions from facilities increased by 11% in 2022 compared to 2021. A significant portion of this increase is a result of fuel oil being used at the SEAPARC facility; this was required due to the natural gas boiler experiencing operational issues. A replacement high-efficiency natural gas boiler was installed and commissioned at the SEAPARC facility in February 2023. Facilities emissions also increased due to a rise in electrical consumption because of increased usage at sites that were temporarily closed due to COVID-19, an unseasonably cold November, and an increase in energy used through the full onboarding of the McLoughlin wastewater treatment plant.

2022 Operational Greenhouse Gas Emissions by Source

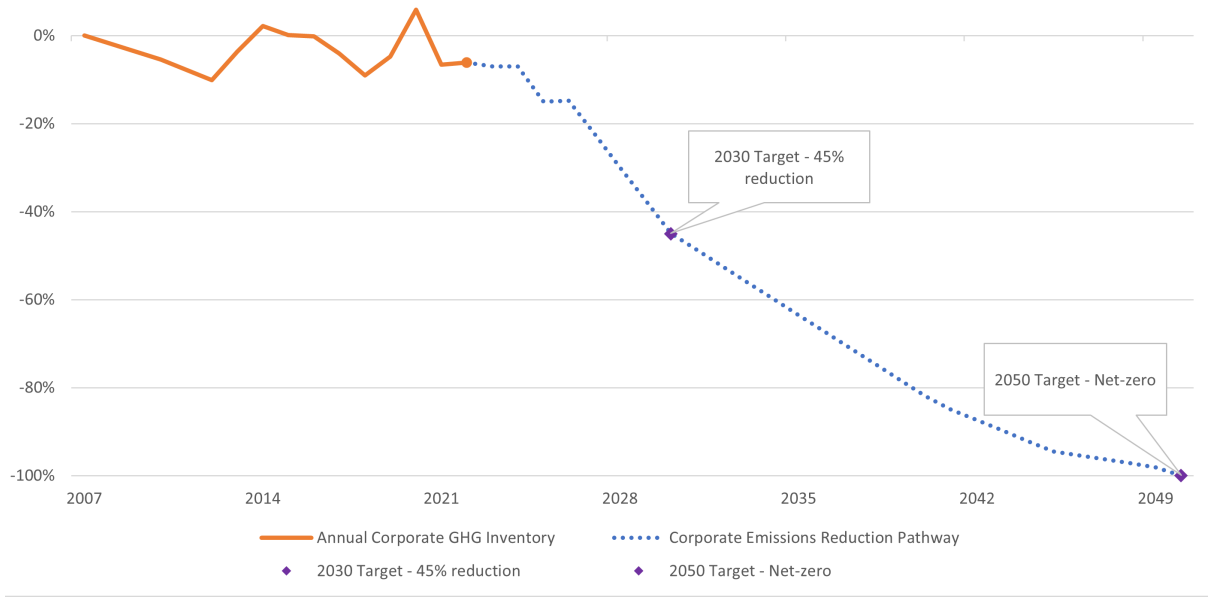


**Currently, electric vehicle charging is included in building electricity use.*

The graph below illustrates the reported 2022 emissions and the updated 2021 emissions on the corporate emission reduction pathway laid out in the Climate Action Strategy. To continue to follow the pathway and begin to decrease emissions and meet corporate GHG targets, the CRD will continue to focus on accelerating the following critical actions in upcoming years:

- procurement of electric and plug-in hybrid vehicles for the CRD fleet
- decarbonization at key CRD facilities, including Panorama Recreation Centre, SEAPARC, CRD Fisgard Headquarters, and Integrated Water Services Headquarters
- pursuing an annual 5% improvement in electricity efficiency through energy audits

CRD Corporate CO_2e Emissions (2007 to 2022) and Climate Action Strategy Pathway and Targets



View of CRD Headquarters from Centennial Square, Victoria, BC

Adapting to Climate Impacts

The changing climate has brought severe weather patterns to the capital region, all within the last two years. 2021 brought an unprecedented heat dome, as well as heavy rains and flooding, and in 2022 we experienced an extended drought. As a result of climate change, climate modelling indicates that the region will continue to experience:

- more extreme climate events (such as long, hot and dry summers)
- an increase in rainfall in fall, winter and spring; and a decrease in rainfall in summer
- more intense, longer-lasting and more frequent rainfall events
- frequent heavy snowfalls and rain-on-snow events in the short-term, less snow in the future
- hotter summers and less days with freezing in winter
- increased likelihood of variability of climate within and between years
- sea level rise

The CRD has a number of services that support climate resilience, including: maintaining drinking water supply and wastewater services, regional planning functions, regional parks, harbours, watersheds and invasive species related programs, and supporting emergency management coordination and healthy community planning. The CRD is working to adapt to the changing climate in our service areas by identifying vulnerabilities, strategies and actions so that we can improve how we anticipate, respond to and recover from both extreme weather events and the gradual changes occurring over time.

Second floor, green roof patio, CRD Headquarters

Progress on the CRD's Five-year Action Plan

The CRD's Climate Action Strategy established six key goal areas, 56 actions and 127 sub-actions that will be undertaken by several different services across the organization between 2021 and 2025. The strategy also outlined several indicators to help measure success and to track important trends.

The following sections are intended to provide a high-level, easy-to-understand overview of the CRD's performance and progress related to climate action, and to summarize progress made in the 2022 year for each goal area. More information, including details on the scoring methodology and actions within each goal area, is contained in Appendix A: Climate Action Report Card.

More information, including details on the scoring methodology and actions within each goal area, is contained in Appendix A: Climate Action Report Card.

2022 Overall Action Plan Progress

Opportunity for Improvement

The climate action strategy identifies 127 actions with specific timelines across the organization. Scores are based on the current status of each action within their goal areas.

Corporate Actions

Opportunity for Improvement

Community-Focused Actions

On Track

Goal Area

- **Goal 1:** Climate-Focused Decision Making
- **Goal 2:** Sustainable Land Use, Planning and Preparedness
- **Goal 3:** Low-Carbon Mobility
- **Goal 4:** Low-Carbon and Resilient Buildings and Infrastructure
- **Goal 5:** Resilient and Abundant Nature, Ecosystems and Food Systems
- **Goal 6:** Minimized Waste

Legend: Action Status

- **On Track:** 75% or greater of yearly target progress
- **Opportunity for Improvement:** 50% - 75% of yearly target progress
- **Attention Required:** less than 50% of yearly target progress
- **Future Action**

Legend: Indicators*

- Direction of arrow indicates **current trend direction**
- Indicator is trending in the **desired direction**
- Indicator is trending in the **wrong direction**
- Indicator is intended to provide **contextual information**

* While indicators are not considered in the calculation of the action status, they provide context and track long-term progress.

Climate-Focused Decision Making

Goal 1: Climate action priorities are integrated at all levels of decision making across the organization.

Overall Action Status
Opportunity for Improvement

To provide its wide range of services, the CRD maintains and operates vehicles, equipment, buildings, facilities, infrastructure, landfills, trails and parks. Decisions made in each service area can have implications for greenhouse gas (GHG) emissions generated or sequestrated by CRD assets over time, as well as how prepared these assets are for the changing climate. The CRD has also identified the need to improve the organizational understanding of Indigenous knowledge, laws and perspectives in relation to climate solutions.

Although good progress has been made in this goal area, the overall action status shows opportunities for improvement in areas related to procurement approaches, staff capacity building and understanding of indigenous knowledge.

Goal Progress Summary

- Integration of a climate lens into decision making was advanced with the development of a draft corporate green building policy and an internal carbon price policy (to be approved in 2023).
- A climate lens is being applied in the Asset Management Strategy, incorporating GHG emissions and climate impacts, and development of an asset management life-cycle assessment tool is underway that will support evaluations that consider the multiple priorities of the CRD.
- Internal capacity building focused on key staff and targeted introductions to the draft green building and carbon pricing policies.
- The internal Climate Action Reserve Fund, established to advance corporate climate priorities, directly supported the GHG Reduction Pathway for three recreation centres, electric vehicle charging station planning efforts and the installation of a demonstration heat pump.

CRD Roles

Operational decision making

This goal contains

15

sub-actions

- Indigenous perspectives on climate change concerns have been shared by First Nations in engagement with CRD staff in relation to wastewater treatment, food security, regional parks, heritage site management, cumulative impacts and collaborative governance arrangements. More work is needed to learn how indigenous knowledge can inform climate action in the region.

Indicators

Annual CRD corporate greenhouse gas emissions	• 2,845 tCO_2e (1% increase compared to 2021)

Cyclist along the Galloping Goose Trail

Sustainable Land Use, Planning and Preparedness

Goal 2: Support the region on its pathway to livable, affordable and low-carbon communities that are prepared for climate change.

Overall Action Status
On Track

How land use is managed has a strong influence on regional emissions, by affecting how far we travel to daily amenities, school and work, how we choose to get to those places, as well as affecting how much land can be protected as carbon sinks. The 2018 Regional Growth Strategy sets a regional vision and high-level policies for growth management. The key provision is to contain 95% of growth in designated areas, and to concentrate growth in a way that is connected. In addition to land use, planning and preparedness efforts across the region are important to increase the resilience of the region by increasing our ability to cope with hazardous or emergency events and other impacts that result from a changing climate.

The majority of sub-actions in this goal area are well progressed, resulting in an on-track overall action status.

Goal Progress Summary

- With support from municipal partners, the Climate Action Service received a grant of $150,000 from the Union of British Columbia Municipalities to gather and analyze data to develop a Capital Region Extreme Heat Vulnerability Mapping Dashboard in 2023, supported by an inter-municipal team.
- The CRD's Community Health Network established a research partnership with UVic's School of Public Administration to explore the impact different climate events have on the health outcomes of vulnerable groups within the capital region.
- Established funding and resourcing in relation to the feasibility of mobility hub development in key locations across the region, in partnership with the Ministry of Transportation and Infrastructure.

CRD Roles

Regional planning

Juan de Fuca land use planning

Emergency management in electoral areas

Inter-municipal coordination

Data management

This goal contains

24

sub-actions

CRHC Spencer Close apartments, Langford, BC

- Continued to monitor the Regional Growth Strategy (RGS) and established a process for Regional Context statement reviews in which municipal climate policies are reviewed in relation to RGS goals.
- Advanced planning for wildfire in the Electoral Areas (EA), including work on a community wildfire resiliency plan, passing of an open burning bylaw in the Juan de Fuca and Southern Gulf Islands EAs and development of community evacuation guides for all EAs.
    - The EA FireSmart program has been markedly expanded with the successful completion of several grants and award of new grants, including the contracting of a FireSmart Coordinator to lead the local initiatives and training.
- Continued to facilitate and administer several inter-municipal networks that serve to coordinate regional climate action, set priorities and disseminate resources, including the Climate Action Task Force and Climate Action Working Group, Development Planning Advisory Commission, Local Government Emergency Program Advisory Committee, the Regional Emergency Management Partnership and the Healthy and Safe Environments Community Health Network.

Indicators

Number of net new dwelling units in areas where more than 42% walk/bike/bus to work*

- Currently, the region is not meeting the desired trend.

**Progress on this indicator is reported in the Regional Growth Strategy Indicator Report.*

Neighbours help neighbours be FireSmart, with Salt Spring Island Fire Rescue and CRD FireSmart

Low-Carbon Mobility

Goal 3: Rapidly reduce corporate fleet emissions. Support, endorse and encourage active, public and zero-emission transportation options across the region.

Overall Action Status
On Track

On-road transportation is the region's largest source of GHG emissions. Not only do vehicles release significant emissions, they also lead to increased traffic congestion in peak periods. Shifting from a vehicle focus to a low-carbon mobility focus means improving the options to get more people walking, biking and taking transit. For trips that use a vehicle, rapidly switching to electric vehicles (EVs) will require building out charging infrastructure throughout the region – making sure it is accessible to those who live in all types of homes and at key locations across the region. The CRD owns and operates a fleet of approximately 300 vehicles to provide its many services across the region, and can reduce its GHG emissions by greening its fleet.

The sub-actions in this goal area are well progressed, resulting in an on-track overall action status. A key challenge is that significant supply chain delays have made EVs challenging to acquire.

Goal Progress Summary

- Implemented the new corporate Green Fleet Policy while adjusting for significant supply chain delays. Was awarded a Zero Emission Vehicle Infrastructure Program grant to enable implementation of the charging framework.
- Established a partnership with the Community Social Planning Council to look at gender equity and safety on CRD trails and received a grant to investigate the development of bike skills for equity-seeking groups that are underrepresented on CRD trails.
- Administered the Origin Destination Household Travel Survey. Collected data will be analyzed and shared in 2023 to inform decisions on future transportation options for the region.

CRD Roles

CRD fleet

Regional trail system

Regional planning

Electoral area transportation

Data management

Community programs

This goal contains

31

sub-actions

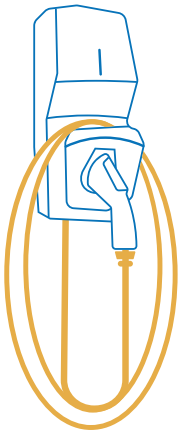
- Hired an Electric Mobility Coordinator to support the implementation of the Capital Region electric vehicle (EV) Infrastructure Roadmap. Submitted a $7 million grant to advance regional EV public charging network.
- Continued implementation of the Regional Transportation Plan and established a regional Transportation Working Group with a core mandate of working toward consistent and connected cycling facilities, per the regional transportation priorities.
- Supported acceleration of transit improvements and increased service, including approval of transportation priorities of Bus Mass Transit (RapidBus) to connect downtown and Westshore, as well as increasing the number of suburban park & rides.
- Sought grant funding for Galloping Goose Regional Trail enhancements (widening and lighting) and critical infrastructure improvements. Initiated Selkirk Trestle repairs; completed Phase 3 of the E&N Rail Trail and initiated Phase 4.
- Commenced Salt Spring Island Active Transportation Plan and continued to implement the Gulf Islands Trails Management Plan.

Indicators	
Regional EV Infrastructure Roadmap implementation	• Level 2 ports: 38% (296 installed) • DCFC ports: 27% (35 installed)
Percentage of the Regional Trail Network completed*	• 48% (increase of 1,000m)
Annual EV ICBC registrations (region fleet size)	• 7565, 2.51% of total registrations (0.25% increase compared to 2021)
Annual CRD corporate fleet GHG emissions	• 1,176 tCO_2e (10% decrease compared to 2021)
Number of corporate EVs purchased	• 26 EVs on order (9 previously purchased)

**Progress on this indicator is reported in the Regional Growth Strategy Indicator Report.*

Charge Your Ride event at Camosun College, 2022

Charge Your Ride Campaign



A region-wide outreach campaign, Charge Your Ride was launched in 2022 to encourage the adoption of electric vehicles (EVs) and electric bicycles (e-bikes). The campaign directly engaged over 3,800 residents at 20 community events and three large test-drive and ride events across the region.

Charge Your Ride was made possible thanks to a $225,000 federal grant. The CRD also offered four free e-bike courses at various locations throughout the region for residents to get more comfortable with riding an e-bike safely and launched the second phase of the Charge Your Ride program, with a focus on capacity building for electricians, automotive technicians, fleet managers and strata owners.

Environmental Outreach Assistants running Charge Your Ride events, Summer 2022

Low-Carbon and Resilient Buildings and Infrastructure

Goal 4: Accelerate energy efficiency, emission reductions and enhanced resilience in CRD buildings and infrastructure. Support and encourage the same for all buildings and infrastructure across the region.

Overall Action Status
On Track

A large portion of our regional GHGs come from energy used in buildings across the capital region, almost all of which is from fossil fuels for space heating and hot water. Shifting from relying on fossil fuels for space heating and hot water and improving the energy efficiency of our buildings are key to achieving GHG reduction targets and can support resiliency measures. As the climate changes, it is increasingly important to prepare buildings and infrastructure. The capacity of infrastructure to be resilient to climate impacts must be considered, such as increased stormwater flows, power interruptions, poor air quality and heat waves.

The majority of sub-actions in this goal area are well progressed, resulting in an on-track overall action status. Planning for corporate carbon reductions is underway and will be realized in future years.

Goal Progress Summary

- Completed a Strategic Energy Management Plan for the organization.
- Completed energy audits for seven sites in the CRD portfolio and initiated net-zero energy pathway feasibility studies for Panorama Recreation Centre, SEAPARC Leisure Complex and Rainbow Road Recreation Centre. Secured a $148,000 Federation of Canadian Municipalities grant to support this work.
- Pursuit of climate-friendly development and retrofits for Capital Regional Housing Corporation included efforts to secure grant funding for energy and GHG reductions, as well as embedded energy reductions in the design phase on new construction, including new performance targets set by the BC Housing Design Guidelines and Construction Standards. Three new housing development projects will achieve Step 4 under the BC Energy Step Code.

CRD Roles

CRD buildings and infrastructure

Building inspection in electoral areas

Data management

Community programs

This goal contains

30

sub-actions over the next five years

Seaparc Leisure Complex, Sooke, BC

- Launched the Home Energy Navigator program to support residents undertaking home energy upgrades. The program is committed for five years. 160 participants have signed up for the program as of the end of 2022.
- Supported climate leadership training workshops through the BC Sustainable Energy Association for students in the region, as well as promotion of BC's home heating fuel switch rebate program.
- Coordination of high-performance building policy support and capacity building included participation on provincial Step Code Local Government Peer Network and work with several municipalities that adopted the BC Energy Step Code to coordinate next phase Step Code industry consultation activities.
- Promotion of green infrastructure included webinars on rainwater capture and installing residential rain gardens, a green stormwater management symposium for local government and development of rural stormwater management workshops for agricultural properties.
- The 2022 Regional Water Supply Master Plan was developed and used regional climate projections to evaluate risks to future water availability.

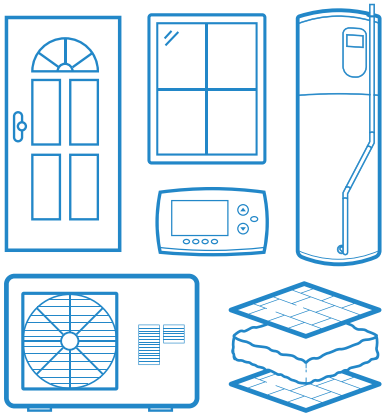
Indicators

Regional Energy Retrofit Program implementation	• 160 participants have signed up as of the end of December 2022
Annual CRD corporate facilities greenhouse gas emissions	• 1,669 tCO_2e (11% increase compared to 2021)

McLoughlin Point Wastewater Treatment Plant, Victoria, BC (Facility interior with staff pictured right)

Family home in James Bay utilizing heat pumps to heat and cool their home

Home Energy Navigator



In November 2022, the Home Energy Navigator program launched to support residents in undertaking home energy upgrades. The program connects residents with an Energy Concierge to guide them through a complex process of home energy evaluation, technology comparisons, connecting with contractors, and making sure they get the most out of various provincial and federal retrofit rebates.

From November to Decemer 2022, 160 residents signed up for the program. The program is committed for five years and aims to support 400 low carbon retrofits by November 2023.

CRD resident staying cool and comfortable in his heat pump regulated home

Resilient and Abundant Nature, Ecosystems and Food Systems

Goal 5: Protect, conserve and manage ecosystem health and nature's capacity to store carbon and adapt to climate change. Support the ongoing ability of natural systems to sustain life.

Overall Action Status

Opportunity for Improvement

Green spaces, blue spaces and parks provide important services to store carbon in vegetation and soils, while at the same time providing ecological services that support the region's resilience to climate change. As temperatures in the region rise, natural areas can also serve to reduce the need for energy-intensive air conditioning and provide accessible areas of respite for all residents. Monitoring ecological changes over time and sharing this across all levels of government, including First Nations, as well as community organizations and citizens, can increase our collective understanding of the impacts of these changes and inform how we can collectively respond to support the health of our ecosystems.

Although a lot of work is taking place in this goal area, staff indicate opportunities for improvement in CRD land acquisition criteria, implementating adaptation strategies, and data collection on biodiversity.

Goal Progress Summary

- Climate considerations are integrated into the interim Regional Parks and Trails Strategic Plan (2022-2032), with climate action and resiliency identified as one of the five strategic goals. The plan will also guide land acquisition criteria in the upcoming Land Acquisition Strategy, incorporating climate goals.
- Advanced work on the assessment of climate vulnerability and risk and adaptation strategies for the Greater Victoria Water Supply Area. Monitored various ecosystem changes, post-wildfire sediment and debris flow potential and advanced a study with the University of Victoria regarding wildfire risk and fuel management treatments.

CRD Roles

Stewardship of CRD lands

Land acquisition

Community and inter-municipal coordination

Education and outreach

Regional planning

Data management

This goal contains

19

sub-actions

Invasive species scotch broom removal

- Provided various regional and local ecological data sets to support planning and policy efforts, including launch of intertidal and subtidal inventories of the core area harbours, land cover information, and coastal storm and sea level data.
- Continued to support efforts to monitor stream flows in the region.
- Participated in the City Nature Challenge to encourage citizen science and population of data points across the region and achieved first place in three categories out of 40 participating cities in Canada.
- Continued to coordinate the Capital Region Invasive Species Partnership, which grew to 60+ participants from a diverse range of agencies across the region. The partnership advanced management of invasive species with capacity-building workshops, an online regional invasive species forum, alert sheets on target species, treatment and monitoring of high-priority species and procurement of a mobile incineration unit for effective invasive species disposal.
- Advanced work to support indigenous-led monitoring and restoration programs.
- Advanced work on a proposed Regional Foodlands Trust, as per Board direction.

Indicators

Percentage of Sea-to-Sea Green/Blue Belt acquired*	• 92%
Hectares of regional park land	• 13,237 ha (an additional 41.2 ha was acquired in 2022)
Number of volunteer stewardship hours	• 3,961 hours by 528 volunteers

**Progress on this indicator is reported in the Regional Growth Strategy Indicator Report.*

Mount Manuel Quimper, Sooke, BC

Go By Bike Week, 2022

Minimized Waste

Goal 6: Waste generation and the resulting emissions are minimized and remaining waste is transformed into a resource. Follow the 5R pollution prevention hierarchy.

Overall Action Status

Opportunity for Improvement

Product use and the disposal of the waste contributes to greenhouse gas (GHG) emissions in the region. About 5% of regional GHG emissions are associated with waste – and the majority of this comes from decomposing organic waste that was added to Hartland Landfill over the last several decades (e.g., food scraps and construction wood waste). The most effective way to reduce future emissions from the landfill is to follow the 5R hierarchy – focusing first on decreasing the amount of waste produced, then on decreasing the GHG emissions from remaining waste.

This goal area shows opportunity for improvement, such as advancement of the Solid Waste Management Plan initiatives. For more information, refer to the 2022 Solid Waste Management Plan Progress Report.

Goal Progress Summary

- Awarded the new curbside recycling contract for the collection of recyclables from single-family homes, which includes the use of 23 compressed natural gas vehicles and two electric vehicles. Contract to begin in 2024.
- Conducted a waste composition study at Hartland Landfill. Results will be used to target material streams for diversion and to identify sectors that need to increase diversion.
- Enforced landfill bans on yard and garden material and food waste resulted in the collection of 11,194 tonnes of source-separated organic material at the Hartland Depot for processing off-site.
- Education programs included the launch of the CRD Rethink Waste Community Grant and Rethink Waste Newsletter, workshops, landfill tours, funding for the Compost Education Centre, and development of resources to support people living in multi-family buildings.

CRD Roles

Solid waste management

Liquid waste management

Education and outreach

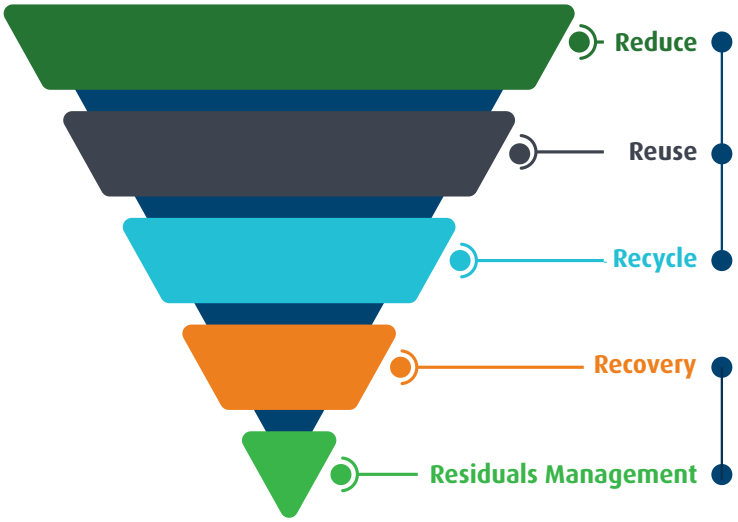
This goal contains

8

sub-actions over the next five years

Residuals Treatment Facility, Victoria, BC

- Awarded the contract to begin construction of a Renewable Natural Gas facility, which is expected to result in GHG emission reductions of 450,000 tonnes of carbon dioxide over the next 25 years, a 73% improvement from initial projections of 260,000 tonnes in 2019.
- Approximately 1.6 megawatts of green power was produced from landfill gas.



Decrease the amount of waste produced

Decrease greenhouse gas emissions associated with residual waste

- Optimize landfill gas collection
- Produce and use renewable natural gas

Indicators

CRD's per capita disposal rate	• 409 kgs/capita, 2.25% increase compared to 2021
Landfill Gas Efficiency*	• Achieved a 78% gas collection efficiency based on UBCi model

**This indicator is reported in the 2021 Landfill Gas Monitoring Report.*

Hartland Landfill, Victoria, BC / Waste composition study underway

Looking Ahead – 2023

The CRD will continue to show a leadership role, support inter-municipal collaborative efforts, pursue strategic partnerships and external funding sources, and respond to opportunities, as local and senior levels of governments advance their efforts. Some activities planned for 2023 include:

- **Extreme Heat Vulnerability Mapping:** In 2023, collection and analysis of key heat vulnerability data will occur and will help us to better understand the locations of both populations and buildings that should be prioritized when planning to address future extreme heat events. The data will be used to develop an interactive extreme heat vulnerability map hosted by Climate Ready BC.
- **The Home Energy Navigator Program:** The program launched in November 2022 and aims to support residents to undertake low-carbon home energy retrofits and take advantage of government and utility incentives. Additional promotions, capacity building and a homeowner support pilot are planned for 2023.
- **Implementation of the Electric Vehicle (EV) Infrastructure Road Map:** The CRD anticipates implementation of this plan through coordination and management of funding applications and deployment, and planning support through the development of public EV charging guidelines, and coordination of site selection for chargers.
- **Origin Destination Household Travel Survey:** This survey, which produces the region's transportation mode share information, was last completed in 2017. New data collection occurred in 2022, with reporting on new mode share data available in 2023. The data is used by local governments and communities to inform decisions on future transportation options for the region.
- **Hartland Renewable Natural Gas Initiative:** In 2022, the CRD awarded the contract to design, build and operate a new CRD facility that will upgrade the biogas generated at Hartland Landfill to renewable natural gas. In 2023, work to design and build the new facility and decommission the site's current landfill gas to electricity plant will begin.
- **Regional and Local Government GHG Inventory:** An inventory for the 2022 year will be produced for the region and each local government. Results will be shared in late 2023.
- **Greenhouse Gas Pathway Study for Recreation Centres:** The three recreation facilities contribute approximately 40% of the total GHG emissions produced by the CRD's owned and operated buildings. Moving forward in 2023, this project will help the CRD chart a path for these buildings to achieve 50% GHG reductions within 10 years and 80% reduction within the next 20 years.
- **Corporate Policies:** The CRD will advance a green building policy and carbon price policy, and work to strengthen other climate-focused decision-making frameworks across the organization.

CRD Headquarters, Pride Month, 2022

Appendix A: Climate Action Report Card

This Climate Action Report Card is intended to provide a high-level, easy-to-understand overview of the CRD's climate performance and progress.

Methodology

The Climate Action Strategy defines specific actions to guide CRD efforts over the lifespan of the strategy. These include 56 "umbrella" actions broken down into 127 sub-actions, with specific timelines and responsible divisions.

The Climate Action Report Card compiles the self-reported quantitative progress metrics from services for each of the 127 sub-actions. By averaging the progress of respective sub-actions, the report card measures the current 'action status' for several informative categories, such as overall climate action status, corporate and community-focused actions, and the six goal areas of the strategy.

The report card uses a math-based system to produce a percent grade by comparing reported progress with expected progress based on the action timelines established in the strategy. For ongoing actions with no timeline, percentages are based on self-reported levels of progress satisfaction by the responsible service. Each action status score is accompanied by qualitative progress updates that summarize any actions taken or barriers encountered during the reporting year. For clarity, percentages are converted to three coloured status indicators: on track, opportunity for improvement, and attention required. In addition, several broader corporate and regional indicators are included. These are not considered in the evaluation of the action statuses, but provide a snapshot in time or information to monitor long-term trends.

For more information on timing, divisions involved, and sub-actions, please see Appendix C in the Climate Action Strategy.

2022 Overall Action Plan Progress
Opportunity for Improvement

The climate action strategy identifies 127 actions with specific timelines across the organization. Scores are based on the current status of each action within their goal areas.

Corporate Actions Opportunity for Improvement

Community-Focused Actions On Track

Goal Areas:

- **Goal 1:** Climate-Focused Decision Making
- **Goal 2:** Sustainable Land Use, Planning and Preparedness
- **Goal 3:** Low-Carbon Mobility
- **Goal 4:** Low-Carbon and Resilient Buildings and Infrastructure
- **Goal 5:** Resilient and Abundant Nature, Ecosystems and Food Systems
- **Goal 6:** Minimized Waste

Legend: Action Status

- **On Track:** 75% or greater of yearly target progress
- **Opportunity for Improvement:** 50% - 75% of yearly target progress
- **Attention Required:** less than 50% of yearly target progress
- **Future Action**

Legend: Indicators*

- Direction of arrow indicates **current trend direction**
- Indicator is trending in the **desired direction**
- Indicator is trending in the **wrong direction**
- Indicator is intended to provide **contextual information**

* While indicators are not considered in the calculation of the action status, they provide context and track long-term progress.

Climate-Focused Decision Making

Goal 1: Climate action priorities are integrated at all levels of decision making across the organization.

Overall Action Status
Opportunity for Improvement

Status	Action	Update
Progress on Actions		
	1-1 Integrate and standardize the climate lens framework across processes	• Integration of a climate lens into decision making continues through a combination of new corporate policy, procedures and staff capacity building. • Developed a draft corporate green building policy for approval in 2023. • Applied a climate lens in the Asset Management Strategy, incorporating greenhouse gas (GHG) emissions and climate impacts. • Advanced development of a life-cycle assessment tool by Asset Management to support evaluations that consider multiple priorities of the CRD. • Procurement and Delegation Bylaw updates continue to be developed. • Completed the annual corporate GHG emissions inventory. • Developed an annual CRD Climate Action Report Card for accountability on climate progress.
	1-2 Develop internal carbon pricing policies and procedures	• Developed an internal carbon price policy for approval in 2023. • The development of a life-cycle costing guideline is underway and will continue into 2023.
	1-3 Identify internal funding sources for climate action	• The internal Climate Action Reserve Fund directly supported the GHG Reduction Pathway for three recreation centres, EV charging station planning efforts and the installation of a demonstration heat pump.
	1-4 Support staff capacity building and coordination	• Internal climate capacity building included maintenance of an internal SharePoint hub, several presentations to work groups on specific climate action topics, and initial planning for a broader staff outreach program. • Internal climate action meetings for key staff continued and targeted introductions to the draft green building and carbon pricing policies.
	1-5 Investigate how Indigenous knowledge can inform climate action at CRD	• Indigenous perspectives on climate change concerns have been shared by First Nations in engagement with CRD staff in relation to wastewater treatment, food security, regional parks, heritage site management, cumulative impacts and collaborative governance arrangements. More work is needed to learn how indigenous knowledge can inform climate action in the region.
Additional Action Plan Indicators		
	Annual CRD Corporate GHG emissions	• 2,845 tCO_2e (1% increase compared to 2021)

Sustainable Land Use, Planning and Preparedness

Goal 2: Support the region on its pathway to livable, affordable and low-carbon communities that are prepared for climate change.

Overall Action Status
On Track

Status	Action	Update
Progress on Actions		
⏩	**2-1 Incorporate climate hazards and vulnerabilities into corporate CRD emergency response plans**	• Climate hazards and vulnerabilities are core components of emergency response planning and are re-evaluated and adapted for on an ongoing basis. • The communication process for extreme weather events is now well established. Improved the public alert notification system for timely alerting of extreme weather events.
⏩	**2-2 Monitor Regional Growth Strategy (RGS)**	• Completed the annual RGS Indicator Report. • An established process is in place for Regional Context statement reviews in which municipal climate policies are reviewed in relation to RGS goals. Review of one context statement was completed and comments were provided on the development of three Official Community Plan (OCP) processes in the region.
!	**2-3 Integrate climate impacts into Juan de Fuca land use plans and policies**	• All Juan de Fuca OCPs have been amended to include GHG emission statements. • Initiation of Port Renfrew OCP review is anticipated for 2023.
⏩	**2-4 Collect and share pertinent energy, emissions, climate projections and vulnerability data**	• Collected emissions data from a variety of sources, including the Insurance Corporation of BC, Fortis BC, Victoria Real Estate Board, the Ministry of Finance and Climate Action Secretariat. Staff presented on these various data sets to inter-municipal staff from across the region. • Initiated planning with Pacific Climate Impacts Consortium to renew regional downscaled climate projections based on new modelling. • Received award of $150,000 UBCM grant to collect quantitative and qualitative data to develop a Capital Region Extreme Heat Vulnerability Mapping Dashboard in 2023 supported by an inter-municipal team.
•••	**2-5 Identify innovative actions to close the regional 2030 emissions reduction gap**	• Future action
⏩	**2-6 Coordinate regional climate action, collaboration and capacity building among local governments and interested First Nations**	• Staff continued to facilitate and administer several inter-municipal networks that serve to coordinate regional climate action, set priorities, and disseminate resources (including the Climate Action Task Force and Climate Action Working Group, Development Planning Advisory Commission, Local Government Emergency Program Advisory Committee, the Regional Emergency Management Partnership and the Healthy and Safe Environments Community Health Network). • Provided a climate-focused onboarding session for the newly-elected Board. • Supported local governments and First Nations in accessing climate projections and sea level rise data. • Participated in engagement sessions focused on the Intentions Paper for the Province of BC's proposed new flood strategy. • The CRD's Community Health Network established a research partnership with UVic's School of Public Administration to explore the impact different climate events have on the health outcomes of vulnerable groups within the capital region. An equity lens will be used to identify actions to better support vulnerable groups to prepare for, respond to and recover from extreme weather, beginning with extreme heat. • Established funding and resourcing in relation to the feasibility of mobility hub development in key locations across the region in partnership with the Ministry of Transportation and Infrastructure.

	Status	Action	Update
	Progress on Actions		
		**2-7 Incorporate regional climate projections into electoral area emergency planning and enhance FireSmart efforts**	• Advanced planning for wildfire and drought for 2021-2022 included work on a community wildfire resiliency plan, passing of an open burning bylaw in the Juan de Fuca and Southern Gulf Islands Electoral Areas (EA) and development of community evacuation guides for all EAs. • Climate projections are incorporated in the hazard, risk and vulnerability assessments for the EAs on an ongoing basis and will be reviewed with the upcoming overhaul of the Emergency Program Act. • The FireSmart program has been markedly expanded, with the successful completion of several grants and award of new grants in the EAs, including the contracting of a FireSmart Coordinator to lead the local initiatives and training.
		**2-8 Coordinate with emergency management stakeholders on planning and public outreach activities related to climate risks**	• Staff continued to work to coordinate extreme heat, flood and drought awareness among emergency management stakeholders and partners in the region. • Work began on extreme heat vulnerability mapping, which will inform emergency response and other planning activities. (See also 2-4.)
		**2-9 Investigate Transition Salt Spring Island 2.0 Climate Plan implementation**	• Resource and current service limitations to support Transition Salt Spring Island 2.0 Climate Plan implementation were investigated; further evaluation still required.
Regional Climate Progress Indicators and Trends			
		**Number of net new dwelling units in areas where more than 42% walk/ bike/bus to work***	• Currently, the region is not meeting the desired trend.

**Progress on this indicator is reported in the Regional Growth Strategy Indicator Report.*

Low-Carbon Mobility

Goal 3: Rapidly reduce corporate fleet emissions. Support, endorse and encourage active, public and zero-emission transportation options across the region.

Overall Action Status

On Track

Status	Action	Update
Progress on Actions		
⏩	**3-1 Administer and track the new Green Fleet Policy**	· Implemented Green Fleet Policy while adjusting for significant supply chain delays. Procedures that require replacement and purchasing of vehicles include routine review of opportunities to replace combustion vehicles with zero emission vehicles.
!	**3-2 Develop electric vehicle (EV) adoption and right-sizing plan for the corporate fleet**	· Corporate Fleet Manager has ongoing reviews of market availability. · Continued to monitor EV availability and put in 26 EV orders for the replacement of combustion vehicles. · Investigated car share opportunities.
⏩	**3-3 Develop EV infrastructure plan for the corporate fleet**	· Developed initial framework for corporate EV infrastructure. · Was awarded a Zero Emission Vehicle Infrastructure Program grant to enable implementation of the charging framework. · Continued to advance design work and installation of electric vehicle chargers for the CRD fleet at several facilities.
•••	**3-4 Investigate the feasibility of bio-based diesel supply and storage**	· Future action
⏩	**3-5 Develop a region-wide approach to transportation demand management and safety policy**	· Continued with Ready, Step, Roll active school travel planning implementation with seven schools and initiated a new active travel planning pilot: Sustainable Commute Planning Initiative, working with large employers in the region. · The Traffic Safety Commission (TSC) continues to work on safety education and initiatives, e.g., impairment, distracted driving, high-impact collision zones and active transportation. · Reached agreement on a consistent definition of trail crossing treatments and have agreements-in-principle with most local governments to make the necessary bylaw amendments. · Advanced development and implementation of standardized safety protocols and treatment of active transportation infrastructure by the Transportation Working Group, e.g., detour policy. · Established a partnership with Community Social Planning Council to look at gender equity and safety on CRD trails and received a grant to investigate the development of bike skills for equity-seeking groups that are underrepresented on CRD trails. · Scoped Transportation Demand Management efforts to what can currently be delivered and supported around the region.
⏩	**3-6 Collect and distribute transportation planning data regionally**	· Collected, analyzed and distributed data through the traffic count program, volunteer bike program, permanent bike counter program, and the addition of short-duration automated bike count pilot, which uses cameras to do three, seven-day volume counts over 24 hours in locations throughout the region. Data is routinely utilized to inform decision-making at a local, regional, provincial and national level. · Administered the Origin Destination Household Travel Survey and all data has been collected. Data will be analyzed and distributed in 2023.

	Status	Action	Update
Progress on Actions			
		**3-7 Accelerate infrastructure improvements that support active transportation**	• The CRD Board, with support from staff, has advocated to the provincial and federal governments for improved funding for active travel, including for the regional trail network, protection of the island rail corridor and transit improvements. • Continued implementation of the Regional Transportation Plan; established a regional Transportation Working Group with a core mandate of working toward consistent and connected cycling facilities, per the regional transportation priorities. • Initiated an update to the regional cycling network and the AAA facility framework, with the objective of developing a planning tool to support a consistent cycling network across jurisdictions. • CRD Parks continues to advance the widening and lighting of the most used urban segments of the regional trails. • Commenced Salt Spring Island Active Transportation Plan and completed designs for a new pedestrian path; submitted BC Active Transportation grant for construction. • Began development of the first regional trail in the Gulf Islands (Mayne Island Regional Trail), supported by grant funding and scheduled to be complete in 2023. Continued to implement the Gulf Islands Trails Management Plan. • Sought establishment of a Southern Gulf Islands Transportation Service; however, initiative did not pass voter assent via referendum of SGI voters during the General Election. • Sought grant funding for Galloping Goose Regional Trail enhancements (widening and lighting) and critical infrastructure improvements. Selkirk Trestle repairs are underway; completed Phase 3 of the E&N Rail Trail and Phase 4 is underway.
		**3-8 Lead and support regional education programs focused on zero-emission mobility**	• Executed a region-wide outreach campaign called Charge Your Ride to encourage the adoption of electric vehicles (EVs) and electric bicycles (e-bikes). Directly engaged over 3,800 residents at 20 community events and 3 large test drive and ride events across the region in summer 2022. Launched the second phase of the Charge Your Ride program, with a focus on capacity building for electricians, automotive technicians, fleet managers and strata owners—made possible thanks to $225,000 federal Zero Emissions Vehicle Awareness Initiative grant. • Provided four free e-bike safety courses at various locations throughout the region for residents, with some supported by Transportation Safety Commission. • Participated in Go by Bike Week events in the spring and fall to educate and support active transportation. • Led a trail etiquette campaign on regional trails to support active transportation. CRD park rangers continue to patrol the regional trails to ensure compliance with regional trail bylaws, public safety, and to champion trail etiquette.
		**3-9 Support acceleration of transit improvements and increased service**	• The CRD Board approved a transportation priority of Bus Mass Transit (RapidBus) with a focus on connecting downtown to Westshore. Numerous technical and working groups are established to support delivery of this priority. • Staff supported Ministry of Transportation and Infrastructure (MoTI) on mobility hub redevelopment of provincially-owned land efforts as mixed-use mobility hubs. • The CRD Board approved a transportation priority to improve transit service in suburban and rural areas and supports, increasing the number of Park & Rides in these areas. Work is supported through participation in local area transit planning processes. • Advocated to MoTI for investment to explore long-term transportation alternatives, including passenger ferry and rail-based transit options, as appropriate. • Advocated to MoTI staff, executive and Minister for protection of the island rail corridor. MoTI is currently undertaking a technical analysis of transportation needs along the corridor, preparing a freight study and supporting the Island Corridor Foundation to work with affected First Nations. • Embedded funding in 2023 capital plan to undertake an operations and maintenance facility plan with secure vehicle parking and battery electric bus charging infrastructure to facilitate delivery of the SSI Community Transit Service. • Completed the SGI Transportation Integration Plan and developed a Service Establishment Bylaw; however, it did not pass voter assent.

Status	Action	Update
Progress on Actions		
	3-10 Support a public electric vehicle charging network and encourage uptake of zero-emission vehicles	• See Item 3-8. • Hosted four webinars and an in-person event focused on EV equipment installations for strata and trades as part of the Charge Your Ride regional outreach campaign. • Submitted a comprehensive response to the first formal review of the Provincial Zero Emissions Vehicle Act and Regulation in collaboration with local governments to ensure needs of the region were reflected. • Received $60,000 in BC Hydro grant funding to initiate the development of public EV charging installation guidelines to support private landowners and businesses to install public charging stations. • Submitted a $7 million grant application under the Investing in Canada Infrastructure Program – Green Infrastructure – CleanBC Communities Fund for almost 600 priority ports at more than 70 locations across the region. To inform the application, staff conducted an EV charging station siting initiative with local governments and electoral areas. • Led a successful joint application with City of Victoria, Township of Esquimalt and Town of View Royal to the federal Zero Emission Vehicle Infrastructure Program to provide $460,000 for the installation of 110 electric vehicle chargers at 17 sites within the region, encompassing both corporate and public vehicle charging. Chargers to be installed in 2022-2023.
	3-11 Implement Regional EV Charging Roadmap	• See Items 3-8 and 3-10. • Hired CRD Electric Mobility Coordinator to support execution of the EV Charging Roadmap. • Engaged BC Hydro on infrastructure planning and is currently developing an MOU to facilitate site selection and infrastructure deployment across the region. • Developed data-sharing framework memo to inform future work around tracking and sharing usage data across the region. • Attended provincial Electric Vehicle Local Government Peer Network meetings and shared learnings with municipal staff via the CRD Climate Action Inter-Municipal Working Group.
	3-12 Improve internet access on Southern Gulf Islands	• Established a partnership proposal for last mile and transport to be provided by City West and Connected Coast on Galiano and Saturna Islands. • Work is ongoing to establish connectivity service. Pending successful grant application, the SGI Community Economic Sustainability Commission service aims to advance partnerships with independent service providers for connectivity improvements. • Broadband infrastructure to be improved on Mayne and Pender Islands by Shaw.

Additional Action Plan Indicators	
Regional EV Infrastructure Roadmap implementation	• Level 2 ports: 38% (296 installed) • DCFC ports: 27% (35 installed)
Percentage of the Regional Trail Network completed*	• 48% (increase of 1,000 m)
Annual CRD corporate fleet GHG emissions	• 1,176 tCO_2e (10% decrease compared to 2021)
Number of corporate EVs purchased	• 26 EVs on order (9 previously purchased)
Number of CRD fleet EV chargers installed	• 8 (18 to date)

**Progress on this indicator is reported in the Regional Growth Strategy Indicator Report.*

Regional Climate Progress Indicators and Trends	
Percentage of total trips made by walking, cycling and transit in the Growth Management Planning Area*	• Showing a positive trend to date. Data collected in 2022 will be analyzed and shared in 2023
Annual EV ICBC registrations (region fleet size)	• 7565, 2.51% of total registrations (0.25% increase compared to 2021)
Victoria Transit Region fuel sales	• 216,628,758 taxable litres (insignificant decrease compared to 2021)

**Progress on this indicator is reported in the Regional Growth Strategy Indicator Report.*

Low-Carbon and Resilient Buildings and Infrastructure

Goal 4: Accelerate energy efficiency, emission reductions and enhanced resilience in CRD buildings and infrastructure. Support and encourage the same for all buildings and infrastructure across the region.

Overall Action Status

On Track

Status	Action	Update
Progress on Actions		
	4-1 Develop and implement a corporate Green Building Policy	• Developed a draft corporate Green Building Policy, with the final draft under review. The Policy will be finalized in 2023.
	4-2 Develop and implement a Strategic Energy Management Plan	• Completed a corporate Strategic Energy Management Plan.
	4-3 Conduct energy studies for CRD facilities to identify priority emission reduction and energy efficiency projects	• Completed ASHRAE Level 1 Energy Audits for 7 sites in the CRD portfolio. • Initiated Net-Zero Energy Pathway Feasibility studies and Level 2 ASHRAE audits for Panorama Recreation Centre, SEAPARC Leisure Complex and Rainbow Road Recreation Centre. Secured an up to $148,000 Federation of Canadian Municipalities grant to support the project. • Initiated procurement for a Saanich Peninsula District Energy System study. • Completed an energy study for CRD Headquarters building.
	4-4 Complete identified high impact retrofits to CRD facilities	• Tendered call for credentials to complete options analysis for the electrification of the Fisgard HQ HVAC system. RFP to be completed early 2023. • Evaluated energy recovery system replacement at SEAPARC. A new high efficiency natural gas boiler was installed and commissioned. • Began planning for energy recovery system at Panorama Recreation. Detailed design and tender planned for 2023.
	4-5 Pursue climate-friendly development and retrofits for Captial Region Housing Corporation and Capital Regional Hospital District facilities	• The Hospital District 10-year capital plan provides major and minor capital resources to Island Health and facilities following Island Health energy guidelines. • Continued efforts to secure grant funding to support energy and GHG savings in housing facilities. • Embedded energy reductions into the design phase on new construction projects, wherever possible. All new development projects follow Building and Energy Performance targets set by the BC Housing Design Guidelines and Construction Standards. • Initiated and completed three development projects (2782 Spencer Road), funded through the Community Housing Fund under a requirement to achieve Step 4, under the BC Energy Step Code.
	4-6 Consider climate impacts in risk assessments and infrastructure upgrades	• Continued to consider climate change impacts as part of the design criteria for water supply and wastewater systems. • Within the Greater Victoria Water Supply Area (GVWSA), considered climate change impacts in all decision-making and planning from: culvert/bridge replacement, forest health, forest resilience, fuel management, wildfire and post-wildfire preparedness to new building design. • Developed the 2022 Regional Water Supply Master Plan and used regional climate projections to evaluate risks to future water availability. • Assessed drainage structures in the Sooke and Goldstream Water Supply Areas and prioritized replacement for those that are undersized based on design flow capacity needs and climate impacts. • Eight drainage structures were replaced and 15 were deactivated/rehabilitated, as part of a plan to gradually upgrade all GVWSA infrastructure.
	4-7 Implement a Regional Energy Retrofit Program	• Developed the Home Energy Navigator program, with a launch in November 2022, to support residents undertaking home energy upgrades. The program is committed for five years and aims to support 400 low carbon retrofits by November 2023. Over 160 participants signed up since the end of December 2022. Work to develop a financing component to the program is ongoing.
	4-8 Develop, deliver and support building-related energy, emissions and water education	• Supported coordination of 68 (25 funded by CRD, 43 by municipal partners) regionally and municipally funded Cool It! Climate Leadership Training workshops through the BC Sustainable Energy Association. The workshops provide free interactive climate education to elementary and high school classes in the region and empower students and their families to reduce their energy, water and carbon consumption. • Continued to promote BC's home heating fuel-switching rebate program with municipal partners, including hosting a Group Purchase Rebate code for the region and organizing a "Considering a Heat Pump" webinar.

Status	Action	Update
Progress on Actions		
▶▶	**4-9 Support acceleration of regional building energy benchmarking and local government regulation approaches**	· Expanded work with Building Benchmark BC to disclose the building energy and emissions data for Panorama, SEAPARC and Rainbow Road recreation centres, in addition to Fisgard HQ. The aim of the program is to inform and inspire public and private sector leadership. · Participated in reviewing provincial policy options that would require the efficiency of space and hot water systems to achieve a minimum of 100%. This regulation is aimed at significantly cutting fossil fuel use in the province. · Participated in and provided feedback on the BC Building Code 2018 Emissions and Energy Efficiency Standards public review.
▶▶	**4-10 Coordinate high-performance building policy support and capacity-building activities**	· Attended provincial Step Code Local Government Peer Network meetings and shared the anticipated Carbon Pollution Standard regulations with capital region municipal staff via the CRD Climate Action Inter-Municipal Working Group (IMWG). · Worked with several municipalities that have already adopted the BC Energy Step Code voluntarily to coordinate next phase Step Code industry consultation activities, including one webinar with municipalities, and two virtual engagement sessions with the building industry. · Supported interested municipalities with the next phase BC Energy Step Code consultation relating to new provincial carbon pollution standards for new buildings. The resulting recommendations were shared through the IMWG, leading to additional municipalities adopting, or providing the mandate to adopt, a carbon regulation for new buildings.
▶▶	**4-11 Collect and share data and research on building energy use and emissions**	· Collected and provided wastewater data to the District of Saanich and City of Victoria for their 2021 greenhouse gas (GHG) inventories. · Collected the previous year's Fortis and BC Hydro data for the region's municipalities. Provided GHG and energy use data to municipalities, as requested. · Continued to collect heating systems information for all homes sold in the capital region and continued development of regional home archetyping map based on home heating fuel information.
▶▶	**4-12 Promote green infrastructure and improved stormwater management approaches**	· Hosted webinars on rainwater capture and installing residential rain gardens. · Coordinated the Gorge Waterway Initiative, BC Transit/Handy Dart sub-committee to advise on facility development, which will be the first "Salmon Safe" certified development on Vancouver Island. · Provided Green Shores training for local government and First Nations staff and technical and financial support to proposed Green Shores demonstration restoration site in Gorge Esquimalt Park. · Hosted a green infrastructure symposium for local government staff with climate projections and new climate modelling information. · Planned and contracted consultants for the delivery of Rural Stormwater Management workshops for the agricultural community in 2023.
!	**4-13 Understand climate impacts on groundwater resources in Juan de Fuca Electoral Area**	· Hosted a provincial presentation to the community regarding the nature of groundwater resources, well registration, and well protection in the Juan de Fuca Electoral Area.
•••	**4-14 Investigate regional renewable energy and storage potential**	· Future action

Additional Action Plan Indicators

Annual CRD corporate facilities GHG Emissions	· 1669 tCO_2e (11% increase compared to 2021)
Number of critical emissions reduction projects completed*	· 0
Number of site energy audits completed	· 8

**studies have been undertaken that will direct capital projects in coming years*

Regional Climate Progress Indicators and Trends

Regional Energy Retrofit Program implementation	· 160 participants have signed up as of the end of December 2022
Annual FortisBC natural gas consumption numbers	· 7,165,128 GJ (2021) (4% increase compared to 2020)
Annual FortisBC natural gas connections	· 58,939 (2021) (6% increase compared to 2019)

Resilient and Abundant Nature, Ecosystems and Food Systems

Goal 5: Protect, conserve and manage ecosystem health and nature's capacity to store carbon and adapt to climate change. Support the ongoing ability of natural systems to sustain life.

Overall Action Status

Opportunity for Improvement

Status	Action	Update
Progress on Actions		
!	**5-1 Integrate climate considerations into regional parks strategic and management planning**	• Updated the Regional Parks and Trails Strategic Plan (2022-2032), with Climate Action and Resiliency identified as one of the five strategic goals. The plan will guide land acquisition criteria in the upcoming Land Acquisition Strategy. • Engaged with the WSÁNEĆ Leadership Council and its designates on the development of the Mount Work Regional Park Management Plan and have sought First Nations names for the Mountain Forest Regional Park. • Invited input from T'Sou-ke Nation on preliminary work on East Sooke Regional Park. • The CRD Cultural Programmer delivered 24 cultural school programs and 32 Indigenous Perspectives public programs.
▶▶	**5-2 Monitor ecosystem health in the Greater Victoria Water Supply Area (GVWSA) and investigate expanding regionally**	• Monitored ecosystem changes within the GVWSA through an annual forest health overview and ground monitoring of forest defoliator populations. Chlorotic forest stands were investigated and reported and research is underway on the potential for climate change to increase forest vulnerability to the Douglas-fir beetle. Ecosystem and forest inventory updates are planned for 2023. • Hydrology monitoring and upgrading is underway, including soil moisture and under-canopy forest weather conditions.
!	**5-3 Undertake climate adaptation initiatives to increase the resilience of the GVWSA**	• Considerable work on the assessment of climate vulnerability and risk and adaptation strategies and actions has been completed for the GVWSA; however, final documentation of the climate adaptation strategy is still required. • Completed an assessment of post-wildfire sediment and debris flow potential for the Sooke Water Supply Area. • Made progress on fuel reduction corridors and 6 ha were treated. • Completed procurement, demonstration and trial of the new air curtain burner, which will enable treatment of woody debris through longer portions of the year. A prescribed burn plan was completed. • Advanced a study with UVic regarding forest stands at greatest risk of wildfire, currently and under future climate change conditions, as well as the potential for fuel management treatments to reduce wildfire threat. • Investigation and planning of mechanized thinning began in 2022.
!	**5-4 Provide regional and local ecological data to support planning and policy efforts**	• Advanced work to create a regional biodiversity inventory, including the acquisition and assessment of data available from federal and provincial resources. • Initiated intertidal and subtidal inventories of core area harbours that will be completed in 2023. • Engaged with Saanich staff and the Resilient Saanich committee regarding their approach to biodiversity data. Identified that more resources are needed to support development of a regional inventory. • Participated in the City Nature Challenge to encourage citizen science and population of data points across the region and achieved first place in three categories out of 40 participating cities in Canada. • Shared land cover datasets with multiple municipalities and First Nations in the region. The data shows an overall decrease in forest cover across the region. Planning and coordination took place to submit a capacity building grant for Growing Canada forests in partnership with municipalities and First Nations. • Continued to support efforts to monitor stream flows in the region, and local government staff have affirmed their interest in hydrometric data to support their development of integrated stormwater management plans.
▶▶	**5-5 Coordinate regional invasive species program**	• Coordinated the Capital Region Invasive Species Partnership, which grew to 60+ participants from a diverse range of agencies across the region. • Delivered staff capacity-building workshops on managing invasive grasses, carpet burweed, yellow flag iris, lesser celandine and shiny geranium. • Delivered an online regional invasive species forum in partnership with the Invasive Species Council of BC. • Completed new alert sheets for shiny geranium, Italian arum, gorse and tansy ragwort. • Managed a contract for the treatment and monitoring of high priority species, in which five municipalities participated. • Participated in the new Northwest Regional Invasive Species and Climate Network (US and Canada). • Completed procurement of a mobile incineration unit for effective invasive species disposal.
•••	**5-6 Support regional forest and urban tree programs**	• Future action

Status	Action	Update
Progress on Actions		
!	**5-7 Support Indigenous-led monitoring and restoration programs**	• Continued ongoing First Nations engagement into the Regional Parks and Trails Interim Strategic Plan to generate input that will inform how the CRD can partner with Indigenous Guardian programs in the future. • CRD divisions are partnering with First Nations' cultural monitors and Guardians on the protection and conservation of heritage sites. • Supported Pauquachin First Nation, in collaboration with researchers from the University of Victoria, to help assess on-reserve stormwater quality to inform restoration of marine shellfish harvesting in Coles Bay. • The Saanich Peninsula Harbours and Waterways Initiative engaged four WSÁNEĆ nations and two nations are participating in the Capital Region Invasive Species Partnership. Staff are working with T'Sou-ke Nation on a potential knotweed management program for the Sooke River T'So-uke and the WWF Canada Nature and Climate grant application. • Engaged Songhees and Esquimalt First Nations in the intertidal and subtidal harbours ecological inventory and rating project, as well as in planning a Green Shores project in Esquimalt Gorge Park.
▶▶	**5-8 Support local food and agriculture planning and programs**	• Provided administrative support to the Regional Food and Agriculture Task Force. • Progressed work to support a Regional Foodlands Trust with the review and analysis of a business case to inform decision making. The Board provided direction to identify detailed operational requirements, determine a funding strategy and confirm land use and local government participants for establishing this new initiative. There is an ongoing effort to increase partnerships with various agricultural entities and groups with interest in the project.
▶▶	**5-9 Integrate climate impacts and solutions into environmental education and outreach campaigns**	• Applied a climate lens to all new and existing outreach and education campaigns associated with drinking water, stormwater management, biodiversity, invasive species management and parks interpretive programs. • Included energy information in water use assessment reports for businesses. • Updated all education webpages to incorporate climate mitigation and adaptation messaging, where appropriate; new videos were completed for the drinking water supply area; development of Rural Stormwater Management workshops included a strong emphasis on climate impacts; and parks interpretive program messaging has been updated to include both a climate and cultural lens. • Continued promotion of biodiversity materials at public outreach events and online through social media. • Rural Stormwater Management workshops were developed with a focus on climate impacts, projections and adaptation strategies to manage and retain rainwater through high precipitation events and drought periods. • Parks interpretive programs address the role and benefits of Regional Parks, including their importance in preserving biodiversity and mitigating the effects of climate change. • Supported the UN Decade on Ecosystem Restoration with the promotion of the UN Decade's Make a Difference Week, presentations to CRD Harbours Initiatives, sharing resources through invasive species meetings and sharing the regionally-specific UN Decade logo. • Developed a Stewardship Storytelling series where local stewards are highlighted in an interview to promote residents getting involved in restoration. These interviews were completed in the fall and will be promoted in 2023.

Additional Action Plan Indicators

Hectares of regional park land	• 13,271 ha (an additional 41.2 ha was acquired in 2022)
Number of volunteer stewardship hours	• 3,961 hours by 528 Volunteers

Regional Climate Progress Indicators and Trends

Percentage of Sea-to-Sea Green/Blue Belt acquired*	• 92%
Hectares of farmland in the Growth Management Planning Area*	• Data from the 2021 census will be the first opportunity to measure progress toward this target.

**Progress on these indicators is reported in the Regional Growth Strategy Indicator Report.*

Minimized Waste

Goal 6: Waste generation and the resulting emissions are minimized and remaining waste is transformed into a resource. Follow the 5R pollution prevention hierarchy.

Overall Action Status

Opportunity for Improvement

Status	Action	Update
Progress on Actions		
!	**6-1 Implement the Solid Waste Management Plan**	• Awarded the new curbside recycling contract for the collection of recyclables from single-family homes; includes the use of 23 compressed natural gas vehicles and two electric vehicles. Contract to begin in 2024. • Conducted a waste composition study at Hartland Landfill. Results will be used to target material streams for diversion and identify sectors that need to increase diversion. • Enforced landfill bans on yard and garden material and food waste and resulted in the collection of 11,194 tonnes of source-separated organic material at the Hartland Depot for processing off-site.
▶▶	**6-2 Develop and deliver education programs to promote a circular economy, zero waste and the 3 Rs**	• Launched the CRD Rethink Waste Community Grant in April, which resulted in 16 projects with a total value of $35,500. The Rethink Waste Newsletter was also launched. • Continued ongoing programming to deliver education workshops, landfill tours; funding for the Compost Education Centre continued. A project to better align online information on CRD services and broaden education resources for people living in multi-family buildings, as well as businesses, was developed for implementation in 2023. • Promoted the avoidance of food waste through the Love Food Hate Waste campaign.
!	**6-3 Support education and engagement on waste management to be delivered by and for First Nations communities**	• Initiated the WSÁNEĆ Leadership Council/Capital Regional District Solid Waste Working Group, established terms of reference and began regular meetings. • Began working with Pacheedaht First Nation to address illegal dumping and community clean-up and began discussions with Pacheedaht First Nation and Port Renfrew on future mutually beneficial long-term waste management for the broader Port Renfrew community.
!	**6-4 Continue to maximize and optimize the capture of landfill gas for beneficial use**	• Awarded the contract to begin construction of a Renewable Natural Gas facility, which is expected to result in GHG emission reductions of 450,000 tonnes of carbon dioxide over the next 25 years, a 73% improvement from initial projections of 260,000 tonnes in 2019. • Approximately 1.6 megawatts of green power was produced from landfill gas. • A 69% gas collection efficiency was achieved based on the BC Ministry of Environment and Climate Change model; A 78% gas collection efficiency was achieved based on the Advanced Landfill Gas Generation model in 2021. More details can be found in the 2021 Landfill Gas Monitoring Report. • Continued annual installation of landfill gas collection infrastructure and strategies were implemented to improve gas collection and mitigate fugitive emissions. • A technical advisor was procured to support the CRD in developing a material stream diversion strategy and a jurisdictional scan of emerging waste management technologies began. A trial to shred construction and demolition material to improve the landfill's compaction rate was conducted and a Request for Expressions of Interest for processing of material diverted from the landfill was initiated.
!	**6-5 Consider climate change impacts in liquid waste management**	• Initiated planning to update the Core Area and Saanich Peninsula Liquid Waste Management Plans. Staff are working to engage First Nations and integrate climate change considerations and adaptation into the plan updates. Timing for this item will be updated to 2022-2024.

Regional Climate Progress Indicators and Trends

CRD's per capita disposal rate	• 409 kgs/capita, 2.25% increase compared to 2021
Landfill Gas collection efficiency	• Achieved a 78% gas collection efficiency based on UBCi model*

**This indicator is reported in the 2021 Landfill Gas Monitoring Report.*

Capital Regional District

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2022 Climate Action Progress Report

April 19, 2023

Agenda

1. Climate Action Strategy
2. Current Status
3. Progress Summary
4. Report Card
5. Looking ahead

Climate Action Strategy

Regional target

Reduce regional greenhouse gas (GHG) emissions 61% by 2038 based on 2007 levels (as per 2018 Regional Growth Strategy).

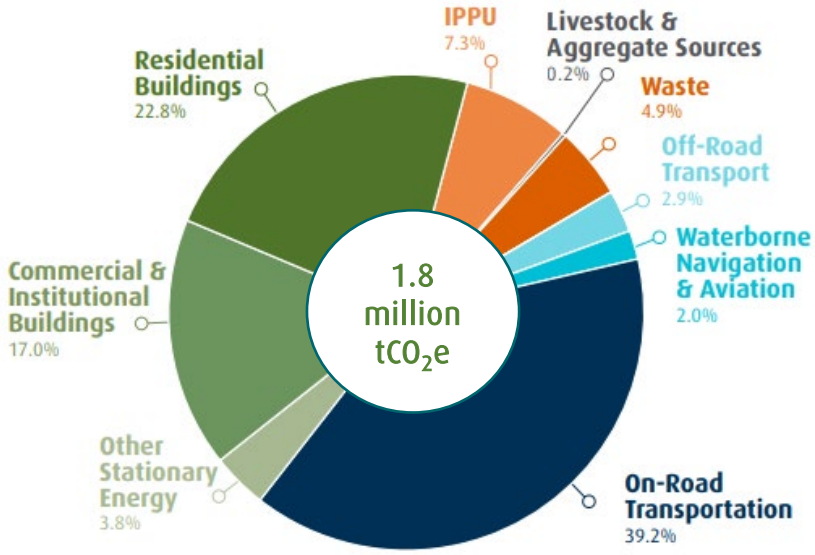
Corporate target

Reduce corporate GHG emissions 45% by 2030 based on 2007 levels, and reach net-zero GHG emissions before 2050.

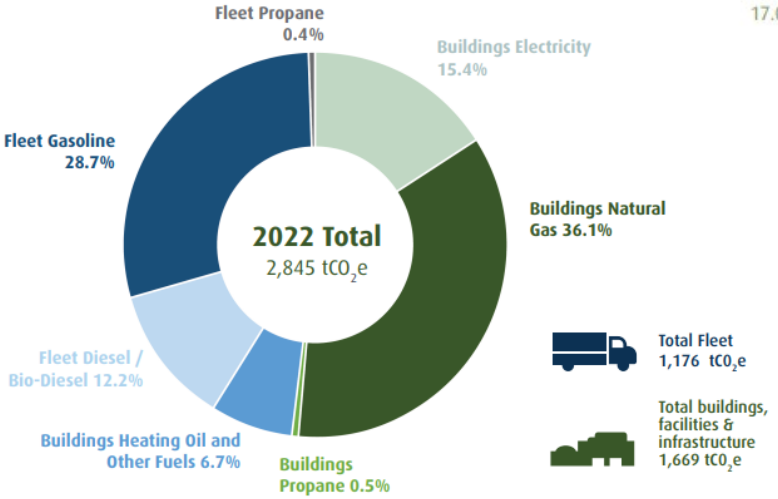
- Climate-focused decision making
- Sustainable land use, planning and preparedness
- Low-carbon mobility
- Low-carbon and resilient buildings and infrastructure
- Resilient and abundant nature, ecosystems and food systems
- Minimized waste

Current Status

2020 Capital Region Community Energy Emissions



2022 Operational Greenhouse Gas Emissions by Source



*Currently, electric vehicle charging is included in building electricity use

Climate impacts for the capital region:

- more extreme climate events (e.g., storms, long heatwaves, heavy snow events)
- wetter winters and drier summers
- increased variability of climate within and between years
- susceptibility to sea level rise

Climate-Focused Decision Making

Goal 1: Climate action priorities are integrated at all levels of decision making across the organization.

Overall Action Status:
Opportunity for Improvement

Progress Summary

- Drafted a corporate green building policy and internal carbon price policy.
- Applied a climate lens within the Asset Management Strategy.
- Undertook internal capacity-building activities with key divisional staff.
- Supported Board onboarding.
- Climate Action Reserve Fund to support corporate climate initiatives
- First Nations have shared their perspectives on climate change concerns in various areas such as wastewater treatment, regional parks, heritage site management and more.

Sustainable Land Use, Planning and Preparedness

Goal 2: Support the region on its pathway to livable, affordable and low-carbon communities that are prepared for climate change.

Overall Action Status:
On Track

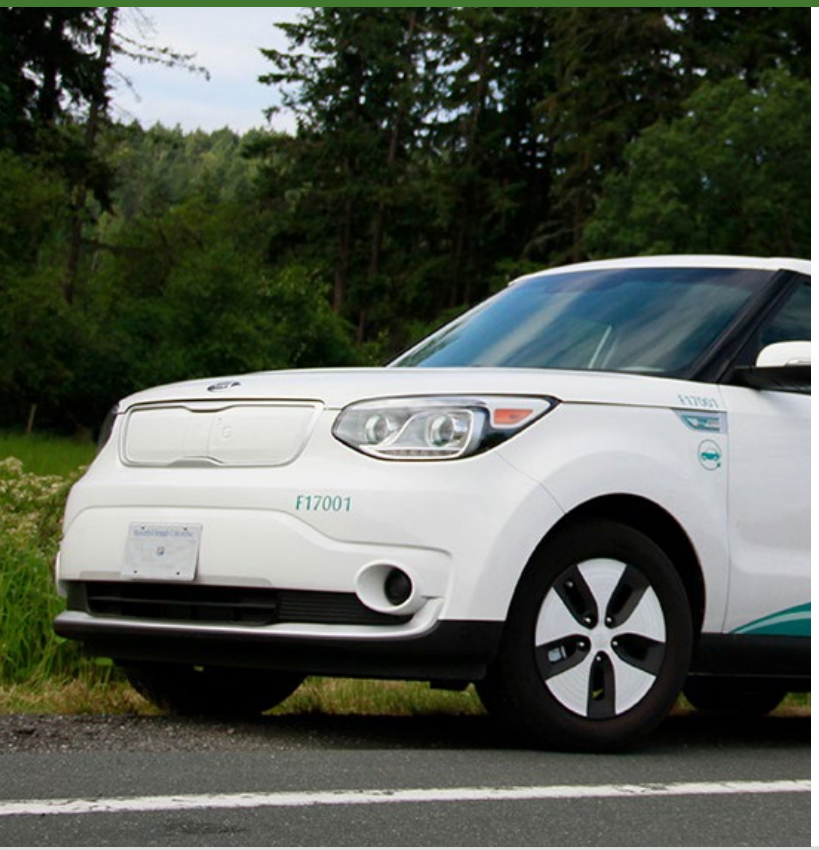
Progress Summary

- Received grant of $150,000 from Union of British Columbia Municipalities to develop Capital Region Extreme Heat Vulnerability Mapping Dashboard.
- Established research partnership with UVic to explore the impact of climate events on vulnerable groups, starting with extreme heat.
- Carried out advanced planning for wildfire in Electoral Areas.
- Established a process for Regional Growth Strategy (RGS) context reviews in which municipal climate policies are reviewed in relation to RGS goals.
- Continued to facilitate and administer several inter-municipal networks that serve to coordinate climate action and disseminate resources.

Low Carbon Mobility

Goal 3: Rapidly reduce corporate fleet emissions. Support, endorse and encourage active, public and zero-emission transportation options across the region

Overall Action Status:
On Track



Progress Summary

- Implemented the new corporate Green Fleet Policy.
- Hired an Electric Mobility Coordinator to support implementation of the EV Roadmap; submitted $7M Electric Vehicle infrastructure grant.
- Administered the Origin Destination Household Travel Survey.
- Established regional transportation working group, working towards active, safe and climate friendly transportation.
- Sought grant funding for Galloping Goose Regional Trail enhancements and critical infrastructure improvements.
- Commenced Salt Spring Island Active Transportation Plan.
- Established a partnership with the Community Social Planning Council to look at gender equity and safety on CRD trails.

Low-Carbon and Resilient Buildings and Infrastructure

Goal 4: Accelerate energy efficiency, emission reductions and enhanced resilience in CRD buildings and infrastructure. Support and encourage the same for all buildings and infrastructure across the region.

Overall Action Status:
On Track

Progress Summary

- Completed a Strategic Energy Management Plan for the organization.
- Initiated GHG reduction pathway studies for three CRD recreation centres.
- Support of climate-friendly development and retrofits in the Capital Region Housing Corporation.
- Launched regional Home Energy Navigator Program.
- Supported next phase Step Code industry engagement.
- Supported climate leadership training workshops through the BC Sustainable Energy Association for students.
- Promoted green infrastructure through webinars on rainwater capture.
- 2022 Regional Water Supply Master Plan was developed.

Resilient and Abundant Nature, Ecosystems and Food Systems

Goal 5: Protect, conserve and manage ecosystem health and nature's capacity to store carbon and adapt to climate change. Support the ongoing ability of natural systems to sustain life.

Overall Action Status:
Opportunity for Improvement

Progress Summary

- Integrated climate considerations in the interim Regional Parks and Trails Strategic Plan (2022-2032).
- Advanced work on the assessment of climate vulnerability, risk and adaptation strategies for the Greater Victoria Water Supply Area.
- Provided various regional and local ecological data sets to support planning and policy efforts.
- Continued to support efforts to monitor stream flows in the region.
- Participated in the City Nature Challenge to encourage citizen science.
- Continued to coordinate the Capital Region Invasive Species Partnership; grown to 60+ participants.
- Advanced work on a proposed Regional Foodlands Trust, per Board direction.

Minimized Waste

Goal 6: Waste generation and the resulting emissions are minimized and remaining waste is transformed into a resource. Follow the 5R pollution prevention hierarchy.

Overall Action Status:
Opportunity for Improvement

Progress Summary

- Awarded the new curbside recycling contract for the collection of recyclables from single-family homes.
- Conducted a waste-composition study at Hartland Landfill.
- Enforced landfill bans of yard and garden material and food waste.
- Education programs included the launch of the CRD Rethink Waste Community Grant.
- Awarded the contract to begin construction of a Renewable Natural Gas Facility.
- Approximately 1.6 megawatts of green power was produced from landfill gas.

Report Card

2022 Overall Action Plan Progress
Opportunity for Improvement

The climate action strategy identifies 127 actions with specific timelines across the organization. Scores are based on the current status of each action within their goal areas.

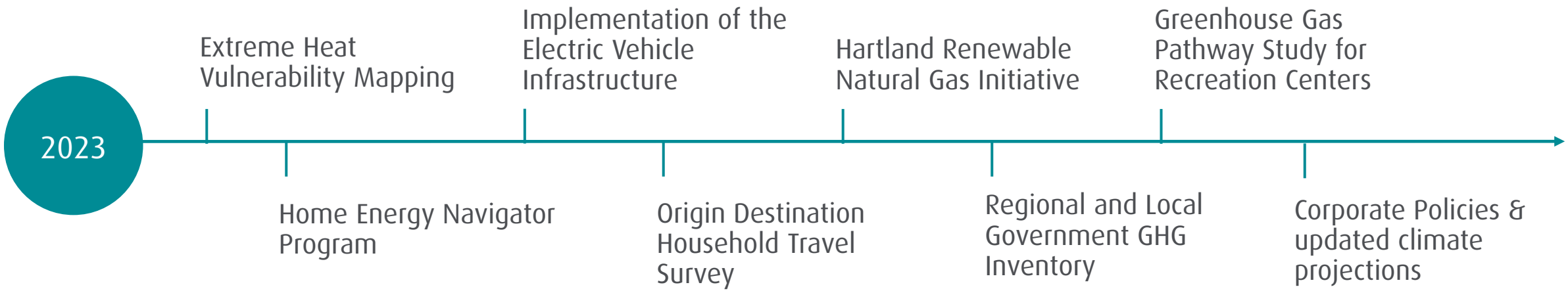
Corporate Actions Opportunity for Improvement

Community-Focused Actions On Track

Goal Areas:

- **Goal 1:** Climate-Focused Decision Making
- **Goal 2:** Sustainable Land Use, Planning and Preparedness
- **Goal 3:** Low-Carbon Mobility
- **Goal 4:** Low-Carbon and Resilient Buildings and Infrastructure
- **Goal 5:** Resilient and Abundant Nature, Ecosystems and Food Systems
- **Goal 6:** Minimized Waste

Looking Ahead – 2023 Initiatives



Thank you

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Capital Regional District

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Making a difference...together

ECA 23-21

REPORT TO ENVIRONMENTAL SERVICES COMMITTEE
MEETING OF WEDNESDAY, APRIL 19, 2023

SUBJECT **Overview of the Capital Regional District's Climate Action Policies**

ISSUE SUMMARY

To provide information on the Capital Regional District's (CRD) new Green Building Policy, Green Fleet Policy and Carbon Price Policy.

BACKGROUND

The CRD is committed to taking action to address climate change within its operations, as well as at the regional level, to reduce emissions and to prepare for a changing climate. Efforts to reduce emissions from the CRD's operations of buildings, infrastructure and fleet are required to achieve the corporate targets within the 2021 CRD Climate Action Strategy.

The CRD's executive leadership team recently adopted three administrative policies – Green Building, Green Fleet and Carbon Price – and these were identified within the Climate Action Strategy and are key mechanisms to support climate-focused decision-making across the organization. CRD Climate Action staff are actively working with staff across the organization to implement these policies and to advance additional efforts to reduce emissions and to prepare for climate impacts within the CRD's operations.

Green Building Policy

To ensure the CRD corporate building emissions are continually reduced through retrofits and new buildings, the Green Building Policy sets standards for energy efficiency and low-carbon construction. This policy will achieve its goals by ensuring the following are included in building projects:

- performance-based energy targets and greenhouse gas (GHG) intensity limits that align with provincial initiatives, including the BC Energy Step Code
- project design options that are selected via life-cycle costing, including a cost of carbon
- a holistic design approach, including multiple stakeholders that identify green project goals that consider correlated priorities of the CRD, such as green infrastructure, biodiversity, water conservation, waste reduction and electric vehicle (EV) charging strategies

As of April 3, 2023, the Green Building Policy (Appendix A) applies to new construction and major retrofits of buildings that are owned or financed by the CRD.

Capital Region Housing Corporation & Capital Regional Hospital District

The Capital Region Housing Corporation (CRHC) is a major provider of affordable housing in the region and continues to build new units. All new CRHC projects are subject to municipal Energy Step Code (Step Code) requirements and are mostly being built with financial support from BC Housing. BC Housing publishes rigorous Design Guidelines and Construction Standards for all

new BC Housing funded projects related to climate mitigation and adaptation, including minimum carbon pollution performance targets. The BC Housing targets are aligned with the carbon pollution targets approved in several local governments within the capital region, and BC Housing staff have indicated that they anticipate further advancing their carbon performance targets as more advanced technology becomes available to support cost-effective implementation in multi-unit buildings.

The Capital Regional Hospital District (CRHD) also oversees construction projects in the region, with recent examples including (1) the Summit at Quadra Village and (2) the Oak Bay Lodge redevelopment. Care facility occupancies are a special use case and are not subject to Step Code energy and carbon pollution performance metrics.

CRHC and CRHD developments are beholden to external funding limitations, and any additional green building requirements will require additional funding sources to achieve climate targets over and above BC Housing guidelines. As such, per the CRD's Green Building Policy, for buildings that are part of the CRHC and CRHD, external requirements (e.g., BC Housing Guidelines) may take precedence.

Provincial and Regional Buildings Policy Context

Provincially, the BC Building Code (BCBC) dictates provincial requirements, as well as potential local regulations, for new builds. The most recent revision to the BCBC makes Step Code performance mandatory as of May 1, 2023 and includes new authority for local governments to directly regulate carbon pollution from new builds. Future provincial regulations are expected for existing buildings, including new minimum 100% efficient appliance requirements, an all-new building alterations code, and time-of-sale energy labelling for existing homes. Local governments in the region are also expected to exercise their authority to require energy and emissions reporting.

The CRD, through the Climate Action service, plays a role in coordinating building policy in the region. Through capacity building and collaborative policy and planning endeavors, this includes supporting the adoption of Step Code and carbon pollution regulations for applicable occupancies, Electric Vehicle charging policies, and existing building policy and programs. There are also myriad different local policies from density to setbacks to building design guidelines that impact building construction, and these policies vary between different communities in the capital region. All CRD, CRHD and CRHC developments must adhere to municipal policies.

The CRD holds authority over buildings in the CRD Electoral Areas, including the Juan de Fuca, Salt Spring and Southern Gulf Islands. With Step Code becoming mandatory, CRD directors will have the opportunity to consider adopting some additional components of building code, such as the carbon pollution regulations for those communities in 2023.

Green Fleet Policy

In April 2022, the CRD started to enforce a Green Fleet Policy (Appendix B). The aim of the policy is to reduce corporate fleet emissions by increasing vehicle efficiencies, optimizing total fleet size, and switching to low-carbon fuels without significantly affecting service capability. It also embeds life-cycle costing and electric vehicle charging considerations within its procedures.

Carbon Price Policy

As noted above, life-cycle costing procedures are integrated within the CRD's Green Building and Green Fleet policies and are typically utilized during scoping of major infrastructure projects. To embed a climate consideration into life-cycle costing analysis during project development and procurement activities, as of April 3, 2023, the CRD's Carbon Price Policy (Appendix C) was established to set an internal corporate carbon price of $170 per tonne of carbon emissions.

CONCLUSION

The CRD Climate Action Strategy commits the CRD to undertaking numerous initiatives to achieve its climate action goals and targets. To integrate a climate lens into corporate decision making, three administrative policies have been developed and are being implemented across the organization. This includes the corporate Green Building, Green Fleet and Carbon Price policies.

RECOMMENDATION

There is no recommendation. This staff report is for information only.

Submitted by:	Nikki Elliott, Manager, Climate Action Programs
Concurrence:	Larisa Hutcheson, P. Eng., General Manager, Parks & Environmental Services
Concurrence:	Ted Robbins, B. Sc., C. Tech., Chief Administrative Officer

ATTACHMENTS

Appendix A: CRD Corporate Green Building Policy
Appendix B: CRD Corporate Green Fleet Policy
Appendix C: CRD Corporate Carbon Price Policy

APPENDIX A

Making a difference...together

CAPITAL REGIONAL DISTRICT

CORPORATE POLICY

Policy Type	Administration		
Section	Facilities Management and Climate Action		
Title	CORPORATE GREEN BUILDING POLICY		
Adopted Date	April 3, 2023	Policy Number	ADM103
Last Amended			
Policy Owner	Facilities Management and Climate Action		

1. POLICY:

It is the policy of the Capital Regional District (CRD) to ensure new construction and retrofits of CRD buildings are low carbon, use energy and water efficiently, minimize waste and utilize green infrastructure.

The CRD will meet minimum requirements and design standards and targets to develop low-carbon and efficient corporate buildings that promote sustainability.

2. PURPOSE:

The CRD is committed to sustainability and climate action and strives to reduce the environmental impacts of its operations.

This policy enables the CRD to demonstrate regional sustainability leadership and further align its actions with the Board Declaration of a Climate Emergency. It is a significant and essential part of achieving the greenhouse gas (GHG) emissions reduction targets to reduce corporate GHG emissions 45% by 2030 based on 2007 levels, and reach net-zero GHG emissions before 2050.

3. SCOPE:

This policy applies to new construction and major retrofits of buildings owned or financed by the CRD. For guidance to determine whether a project is considered a major retrofit, see SCHEDULE I MAJOR RETROFIT PRE-SCREENING CHECKLIST.

External funding requirements may take precedence over this policy for buildings that are constructed or operated by the Capital Regional Housing Corporation (CRHC) and Capital Regional Hospital District (CRHD). CRHC and CRHD projects may opt-out of this policy if project requirements dictate an alternative green or sustainable building strategy.

4. DEFINITIONS:

BC Energy Step Code	An optional compliance path in the BC Building Code that local governments may use to incentivize or require a level of energy efficiency in new construction that goes above the requirements of the BC Building Code.
Buildings	Any structure intended for regular occupancy.
Green Goal Discussion	A facilitated meeting between important project stakeholders to set "green" (i.e., energy efficiency, sustainability, carbon reduction) project goals early in the project design.
Green Infrastructure	The range of measures that use plant or soil systems, permeable pavement or other permeable surfaces or substrates, stormwater harvest and reuse, or landscaping to store, infiltrate, or evapotranspirate stormwater and reduce flows to sewer systems or to surface waters.
New Construction	Construction of entirely new structures or significant extensions to existing structures.
Major Retrofit	Major upgrades or replacement of major equipment, systems or external structure of an existing building (e.g., improving or replacing ventilation and heating systems, windows, or insulation). See SCHEDULE I MAJOR RETROFIT PRE-SCREENING CHECKLIST for further information.
Declaration of a Climate Emergency	Unanimous statement from the Capital Regional District Board on February 13, 2019, declaring a climate emergency and assuming a leadership role in achieving carbon neutrality by 2030.
Part 3 Building	A building, as defined by Part 3 of the BC Building Code commonly called a *complex building*. An office building or a shopping mall are examples of Part 3 buildings. Most CRD buildings are Part 3 buildings.
Part 9 Building	A building, as defined by Part 9 of the BC Building Code commonly called a *simple building*. A single-family home is an example of a Part 9 building.
Commissioning	A quality management process of systematic verification and testing that ensures building systems and equipment are installed and operating correctly.

5. PROCEDURE:

This policy achieves its goals by ensuring the following are included in building projects:

- performance-based energy targets and GHG intensity limits that align with provincial initiatives (e.g., BC Energy Step Code).
- low-carbon energy systems and low-carbon materials selected via life-cycle costing, including a cost of carbon.
- Green project goals that consider correlated priorities of the CRD, such as green infrastructure, biodiversity, water conservation, waste reduction and corporate and public Electric Vehicle charging strategies.

For new construction projects, see SCHEDULE A REQUIREMENTS FOR NEW CONSTRUCTION. For retrofits, SCHEDULE B REQUIREMENTS FOR RETROFITS.

While this policy sets minimum standards, these can be waived if reviewed to be unfeasible for a specific project. To apply for an exemption, see SCHEDULE G WAIVER REQUIREMENTS.

6. SCHEDULES:

A. REQUIREMENTS FOR NEW CONSTRUCTION

B. REQUIREMENTS FOR RETROFITS

C. STEP CODE TARGETS

D. EMISSION LIMITS

E. CLIMATE LEADERSHIP PATHWAYS

F. DESIGN PROCESS GUIDELINES

G. WAIVER REQUIREMENTS

H. GREEN GOALS DESIGN DISCUSSION CHECKLIST

I. MAJOR RETROFIT PRE-SCREENING CHECKLIST

7. AMENDMENT(S):

Adoption Date	Description:
April 3, 2023	ELT

8. REVIEW(S)

Adoption Date	Description:
None	

9. RELATED POLICY, PROCEDURE OR GUIDELINE:

Corporate Green Fleet Policy

SCHEDULE A
REQUIREMENTS FOR NEW CONSTRUCTION

The following outlines the mandatory requirements for new construction of CRD buildings. All of these requirements should be first discussed from the initiation of the project to plan for implementation.

1. Pre-design green goals discussions

During pre-design discussions, the project team shall hold a *green goal discussion* meeting to consider requirements and opportunities to support corporate sustainability priorities, including the following:

- Pursuing climate leadership options such as a higher level of Step Code, a high Leadership in Energy and Environmental Design rating target, Passive House certification or Net-zero ready design. See SCHEDULE E CLIMATE LEADERSHIP PATHWAYS.
- How to incorporate green priorities including low-impact development principles (e.g., capital region Green Stormwater Infrastructure Common Design Guidelines), water conservation, waste reduction, biodiversity and native plants, and Electric Vehicle charging.
- Incorporating low-carbon materials (e.g., mass timber) into the design.

During this meeting, the project team must complete SCHEDULE H GREEN GOALS DESIGN DISCUSSION CHECKLIST for record-keeping and ensure key topics have been covered. To satisfy this requirement, report back to the project steering committee, if applicable, for approval. Otherwise General Manager sign-off is required.

2. BC Energy Step Code target

A project shall select a performance-based energy target from the BC Energy Step Code. This target shall be the minimum as indicated in SCHEDULE C STEP CODE TARGETS or higher as determined by the project team.

BC Energy Step Code targets ensure energy efficiency and reduce operating costs.

3. Greenhouse gas intensity limit

A project shall follow the Greenhouse Gas (GHG) intensity limits outlined in SCHEDULE D EMISSIONS LIMITS.

GHG intensity limits minimize the amount of carbon emissions produced by building operation and ensure new construction will not compromise the CRD's climate targets.

4. Life-cycle costing that includes a cost-of-carbon

Projects shall conduct life-cycle costing for evaluation of actual project costs. In option studies, life-cycle costing shall be used as a criterion for selection between options. Life-cycle costing shall include an estimate of social cost due to carbon emissions based on a cost-per-tonne of carbon. The cost-per-tonne shall be aligned with what is used in other corporate policies (e.g., Green Fleet Policy).

Life-cycle costing ensures both upfront and operational costs are considered in project decision-making. Assigning a cost to carbon emissions helps make the business case for low-carbon technologies and considers the value of reducing the negative effects of carbon pollution.

5. Electric vehicle infrastructure plan

New construction projects shall have an Electric Vehicle (EV) infrastructure plan that indicates a project's capacity to support charging of corporate EVs while considering other electrical load requirements (e.g., equipment charging). This should also include public EV charging depending on the nature of the project.

6. Energy modelling with future climate predictions

To address climate resilience, project designs shall be modelled against future climate predictions to assess the suitability of the proposed design.

Modelling with future climate predictions ensures occupant comfort and safe building temperatures in the future as extreme temperatures worsen due to a changing climate. It helps to avoid costly retrofits in the future.

7. Construction waste landfill diversion plan

Projects shall have a construction waste landfill diversion plan that maximizes landfill diversion and reduces construction waste.

8. Airtightness testing and system commissioning

To ensure construction meets the intended design quality, projects involving building envelop construction or improvement shall undergo airtightness testing that confirms design criteria have been met.

Projects involving mechanical systems shall be commissioned after installation to ensure proper operation as designed and uncover potential installation errors.

Airtightness testing and system commissioning act as quality assurance that a building or retrofit performs as designed. It prevents additional operating costs due to system inefficiencies or poor construction and holds contractors accountable for their quality of work.

9. Water management plan

Projects shall have a water management plan outlining water conservation and management strategies, including domestic water, process water, rainwater, irrigation, and stormwater. Water reduction, conservation and reuse, as well as green infrastructure and low-impact development should be prioritized

SCHEDULE B
REQUIREMENTS FOR RETROFITS

The following outlines the mandatory requirements for major retrofits of CRD buildings. All of these requirements should be first discussed from the initiation of the project to plan for implementation.

1. Pre-design green goals discussions

The project team shall hold a green goal discussion meeting during pre-design discussions to consider requirements and opportunities to support corporate sustainability priorities.

During this meeting, the project team must complete SCHEDULE H GREEN GOALS DESIGN DISCUSSION CHECKLIST for record-keeping and to ensure key topics have been covered. To satisfy this requirement, report back to the project steering committee, if applicable, for approval. Otherwise General Manager sign-off is required.

2. Greenhouse gas intensity limit

A project shall follow the Greenhouse Gas (GHG) intensity limits outlined in SCHEDULE D EMISSIONS LIMITS.

3. Life-cycle costing that includes a cost-of-carbon

Projects shall conduct life-cycle costing for evaluation of actual project costs. In option studies, life-cycle costing shall be used as a criterion for selection between options. Life-cycle costing shall include an estimate of social cost due to carbon emissions based on a cost-per-tonne of carbon. The cost-per-tonne shall be aligned with that used in other corporate policies (e.g., Green Fleet Policy).

4. Energy modelling with future climate predictions

To address climate resilience, project designs shall be modelled against future climate predictions to assess the suitability of the proposed design.

5. Construction waste landfill diversion plan

Projects shall have a construction waste landfill diversion plan that maximizes landfill diversion and reduces construction waste.

6. Airtightness-testing

To ensure construction meets the intended design quality, projects involving building envelop construction or improvement shall undergo airtightness testing that confirms design criteria have been met.

SCHEDULE C
STEP CODE TARGETS

The current BC Energy Step Code targets for the CRD Green Building Policy are outlined in Table 1 below. They set the standard that the CRD is one step-code level ahead of building code requirements for buildings defined under part 3 of building code, and two step-code levels ahead of building code for for buildings defined under part 9 of building code. This represents an 80% energy-efficiency improvement above the 2018 BC Building Code minimum requirements for Part 9, and a 40% improvement for Part 3.

Table 1: Green Building Policy Step Code Requirements 2023-2024

Building Class	**CRD Step Code Target**
Part 9	Step 5
Part 3	Step 3

In 2027, the above target for Part 3 will become standardized in the BC Building Code. To continue to drive corporate leadership in green building construction, the CRD Green Building Policy will increase its Step Code requirements in 2025 to pursue the next intended target of Step Code outlined in Table 2. It is anticipated this table will be updated upon the release of the Zero Carbon Step Code.

Table 2: Green Building Policy Step Code Requirements 2025-onwards

Building Class	**CRD Step Code Target**
Part 9	Step 5
Part 3	Step 4 or highest applicable step*

*Step 4 is not defined for all building types within the Step Code. The next highest step should be used instead.

SCHEDULE D
EMISSIONS LIMITS

New construction projects shall be designed for a maximum GHG intensity of 1.5 kg CO_2e/m^2/year.

Retrofits shall be designed for a maximum GHG intensity of 3 kg CO_2e/m^2/year.

If these targets are not feasible due to the specifics of a particular project, a waiver can be granted to increase the GHG intensity limit to 6 kg CO_2e/m^2/year or higher if necessary. This will require sign-off from Climate Action and the General Manager of the related department

(see SCHEDULE G WAIVER REQUIREMENTS).

These emission targets are according to the emissions factors given in 2020 BC Best Practices Methodology for Quantifying Greenhouse Gas Emissions published by the provincial government.

Table 3: Approximate implications of GHG intensity limits

GHG Intensity kg CO_2e/m^2/year	**Implication**
6	Space heating predominately electric, domestic hot water may remain gas
3	Space heating and domestic hot water to be electric; may have auxiliary gas for cooking, fireplaces, etc.
1.5	Nearly all building systems are electric (potential for gas backup)

SCHEDULE E
CLIMATE LEADERSHIP PATHWAYS

This section describes how a building project can demonstrate leadership by going above and beyond the policy requirements of energy efficiency and low-carbon operation. While not suitable for all projects, selecting a climate leadership pathway can demonstrate the values of the CRD, set an example for future projects, and support the growth of the local green building industry.

Deciding if a leadership pathway is a reasonable option for a project should be completed in the earliest stages of a project, during the conceptual design. To help frame this discussion, several possible pathways are presented below, these pathways are listed in a prioritized order, based on the CRD's climate targets. Individual projects should select the pathway that best suits both the ambition and reality of that project. **The CRD project lead will make the final decision as to which Climate Leadership Pathway is chosen, with the support of stakeholders and consultants.**

The pursuit of a leadership pathway will have an impact on the capital cost of a new construction project, this impact will vary drastically per project, and can range from 2-20% cost increases. It should be noted that the increase of capital cost is often recovered throughout the operation of the building. The use of lifecycle costing is required to quantify this cost impact.

This schedule is subject to change based on updates to these benchmarking systems.

Zero Carbon Building Standard

- A framework that guides the design of low-carbon, highly-efficient buildings, and sets a strong foundation for achieving zero carbon once the building is in operation.
- Buildings seeking certification under the standard must meet a number of additional requirements related to health, wellness, and resilience, as well as requirements related to occupant engagement and education.
- This pathway can be pursued as a Zero Carbon Building Standard (ZCB) Design v3 program, which is a one-time certification for new buildings and major renovations; and additionally the ZCB-Perfomance v2 certification can be pursued for an annual certification to ensure operational carbon stays below threshold values.

Leadership in Energy and Environmental Design

- Widely-used green building rating system, prioritizes diverse aspects of sustainability (including water efficiency, responsible material use, air quality, responsible land use, and innovation)
- Pursuing Leadership in Energy and Environmental Design (LEED) certification can achieve broader sustainability goals, shows commitment to a holistic approach to sustainability, and is a recongizable building certification program.
- Pursuing LEED Gold was shown to increase project costs by 2-5% in a Canadian study at Dalhousie University (Adamson, Ames, Odland, Robertson, & Taylor, 2016).

Passive House

- Strict high-performance building standard, focuses on maximizing energy efficiency, encourages low-carbon energy systems.
- Pursuing Passive House certification demonstrates climate leadership by committing to a very high international energy efficiency standard, indicating a willingness to go above-and-beyond common approaches.
- A study in Vancouver indicated Passive House design resulted in a 2-7% increase in project costs for a single-family home compared with minimum requirements in Vancouver (RDH Building Science Inc., 2016).

BC Energy Step Code: Higher Levels / Net-Zero Ready

- New projects can choose to target a higher level of Step Code than the CRD Green Building Policy requirements. The highest Step Code level is considered “Net-Zero Ready,” meaning the building is so energy efficient that it would be possible to generate enough electricity on-site to power the building. However, generating the power is not required to meet the target.
- Pursuing higher levels of Step Code demonstrates climate leadership by showing commitment to future provincial goals for building efficiency and paving the way for future projects in the community.
- A BC Housing report estimated that all levels of Step Code could be achieved, for Part 3 buildings in Climate Zone 4 (includes the CRD), for a less than 4% increase in capital cost (Morrison Hershfield; e3 Eco Group; Integral Group, 2018)

SCHEDULE F
DESIGN PROCESS GUIDELINES

The Green Building Policy is designed to integrate with existing project management processes at the CRD and to ensure the design team establishes the key goals and objectives for building performance as part of the regular design process.

The following design process guidelines are non-mandatory and are presented as an example to be referenced in developing a project's management plan.

These guidelines consist of five phases to ensure key deliverables, processes and outputs are completed from project inception to post-occupancy related to green buildings. While all projects are unique, this process provides a useful guide to defining the goals and expectations for the project overall and each phase separately.

These guidelines have been developed for the traditional design-bid-build approach. However, as the CRD's construction project approach evolves in alignment with industry patterns, alternative approaches such as design-build or construction management may be employed. In the event that a design-build or construction management approach is used, this process should be modified to suit the specific approach and embed the green building policy within its process.

Phase 1 – Initiation (Pre-Design)

Process:

- Define the project team, including all required consultants and project manager;
- Develop a fee schedule or contract that ensures or incentivizes consultants to optimize energy efficiency and minimize emitted and embodied carbon; and
- Host key meetings, such as project vision & preparation workshop, green goals discussion, building programming, facilities management, etc.

Key deliverables and outputs:

- Project Charter that includes project scope, objectives and targets; and
- Preliminary project budget that includes green initiatives.

Phase 2 – Planning (Schematic & Detailed Design)

Process:

- Hold stakeholder meetings as necessary to brainstorm, develop concepts and design;
- Add energy specialists to project team, as necessary;
- Assess feasibility of green initiatives and technologies; and
- Complete energy modelling.

Key deliverables and outputs:

- Energy modelling report; and
- Detailed cost estimate (capital & operating).

Phase 3 – Execution (Construction)

Process:

- Ensure green building aspects are included in Construction Documents; and
- Hold pre- and post-tender meetings to discuss green design intent.

Key deliverables and outputs:

- Procurement documents that clearly explain the responsibilities for contractors and sub-trades for green building documentation, training and supervision; and
- Develop a commissioning plan.

Phase 4 – Monitoring & Controlling (Commissioning)

Process:

- Train maintenance & operations staff and occupants; and
- Establish tools and processes for monitoring building performance.

Key deliverables and outputs:

- Commissioning reports for green technologies; and
- Training for maintenance staff on green technologies;

Phase 5 – Closing (Building Start-up & Post Occupancy)

Process:

- Educate staff about green building initiatives;
- Establish a building performance evaluation team to monitor ongoing energy performance; and
- Put monitoring equipment and methods in place.

Key deliverables and outputs:

- Measurement and monitoring data; and
- Continuous monitoring & evaluation of building performance, including energy costs.

SCHEDULE G
WAIVER REQUIREMENTS

While it is understood that certain requirements of the Green Building Policy may not be feasible for certain projects, it is important that the CRD's corporate climate goals are carefully considered before allowances are given.

A specific policy requirement can be waived for individual projects by providing the following:

(1) A clear statement of reasons for seeking a waiver of a requirement.
(2) A detailed description of the impact of the waived requirement as compared to following policy, including an estimated increase of corporate climate emissions.
(3) General Manager approval and report to Executive Leadership Team.

Green Building Policy Requirement Waiver - Example

Project	
Requirement	
Rationale for waiving requirement	
Description of the impact of the waived requirement	
Estimated increase of corporate GHG emissions	

Additional Notes

Sign-offs

_____ _____

General Manager Date

Report to ELT Date: _____

SCHEDULE H
GREEN GOALS DESIGN DISCUSSION CHECKLIST

Project Name _____

Date of Green Goals Meeting(s) _____

Facilitator _____

Attendees _____

_____

_____

_____

_____

_____

_____

_____

_____

Instructions

This checklist ensures that new construction projects identify requirements and consider opportunities to support corporate sustainability priorities of the CRD. Check off each topic as they are discussed in the green goals meeting. Indicate if participants will choose to make each topic a project priority. If a topic is not selected as a priority, provide a brief rationale for this decision. To satisfy the requirements of the corporate Green Building Policy, this checklist must be signed off by the General Manager of the related department.

Green Building Policy Requirements

Requirement	Achievable	Comments
☐ **BC Energy Step Code target***	☐ Yes ☐ No	
☐ **Greenhouse Gas intensity limit**	☐ Yes ☐ No	
☐ **Life-cycle costing that includes a cost-of-carbon**	☐ Yes ☐ No	
☐ **Electric Vehicle infrastructure plan***	☐ Yes ☐ No	
☐ **Energy modelling with future climate predictions**	☐ Yes ☐ No	
☐ **Construction waste landfill diversion plan**	☐ Yes ☐ No	
☐ **Airtightness testing**	☐ Yes ☐ No	
☐ **Water management plan***	☐ Yes ☐ No	

**optional for retrofit projects*

Additional Notes

Green Priorities

Voluntary

Topic	Project Priority?	Comments / Rationale
☐ **Correlated priorities of the CRD**	☐ Yes ☐ No	
☐ • Increased Water Conservation	☐ Yes ☐ No	
☐ • Green Stormwater Management	☐ Yes ☐ No	
☐ • Increased Waste Reduction	☐ Yes ☐ No	
☐ • Biodiversity Support and Native Plants/Xeriscaping	☐ Yes ☐ No	
☐ • Other:	☐ Yes ☐ No	
☐ **Public Electric Vehicle Charging**	☐ Yes ☐ No	
☐ **Climate Leadership Pathway**	☐ Yes ☐ No	
☐ • Increased Step Code Target	☐ Yes ☐ No	
☐ • Leadership in Energy and Environmental Design Gold/Platinum	☐ Yes ☐ No	
☐ • Zero Carbon Building Standard	☐ Yes ☐ No	
☐ • Passive House	☐ Yes ☐ No	
☐ • Net-Zero Ready	☐ Yes ☐ No	
☐ • Other:	☐ Yes ☐ No	
☐ **Low-carbon materials**	☐ Yes ☐ No	

Topic		Project Priority?	Comments / Rationale
☐	• Mass Timber Construction	☐ Yes ☐ No	

Additional Notes

Project Steering Committee / General Manager Sign-off

I understand that the project team discussed the topics above and I accept and support the selection of sustainable priorities selected by the project team above.

General Manager Date

SCHEDULE I
MAJOR RETROFIT PRE-SCREENING CHECKLIST

This information serves to help determine if a project is considered a major retrofit and should be subject to the CRD Green Building Policy.

A “major retrofit” can generally be considered a significant upgrade or replacement of major equipment, systems or external structure of an existing building (e.g., improving or replacing ventilation and heating systems, windows, or insulation).

To classify a specific project, a major retrofit likely satisfies one or more of the following criteria:

- ❑ Does this retrofit involve replacing the majority of a building’s **exterior insulation** or **windows**?
- ❑ Does this retrofit involve replacing **the primary mechanical equipment** of a building system (e.g., air handling unit, boiler, domestic hot water tank)?
- ❑ Does this retrofit involve replacing or improving **multiple aspects of a building** that affect the performance of one another?
- ❑ Does this retrofit require **engineering design**?
- ❑ Does this retrofit significantly impact the amount of **heating or cooling energy** required for the building?
- ❑ Does this retrofit present an opportunity to significantly **reduce the amount of fossil fuels** required to operate the building?

If a project meets any of the above criteria, but the project team does not believe it should follow the CRD Green Building Policy, the team should complete a waiver form as found in SCHEDULE G WAIVER REQUIREMENTS.

Making a difference...together

CAPITAL REGIONAL DISTRICT
CORPORATE POLICY

Policy Type	Administrative		
Section			
Title	CORPORATE GREEN FLEET POLICY		
Adopted Date	29 April 2021	Policy Number	ADM89
Last Amended			
Policy Owner	EPro (Climate Action) & IWS (Fleet Services)		

1. POLICY

It is the policy of the Capital Regional District (CRD) to transition to and operate a low-carbon "green" fleet in order to reduce corporate greenhouse gas (GHG) emissions.

The CRD will reduce fleet emissions by increasing vehicle efficiencies, optimizing total fleet size, and switching to low-carbon fuels without significantly affecting service capability.

Fleet managers, building managers, and Climate Action Team members will work together to achieve these goals.

2. PURPOSE

The purpose of this policy is to decrease the carbon intensity of the CRD corporate fleet to align with corporate GHG emission reduction targets.

This policy will support achieving the corporate commitment to reduce operational GHG emissions, as emphasized by the 2019 Capital Regional District Board declaration of a Climate Emergency.

3. SCOPE

This policy applies to the CRD, CRHC and CRHD.

4. PROCEDURE

This policy incorporates the following criteria into fleet procurement decision-making:

1. Lifecycle costing
2. Fleet rightsizing (i.e. optimization)
3. Fuel preference hierarchy
4. Internal carbon pricing
5. NPV variance threshold

See Schedule A for complete details.

5. SCHEDULE:

The following schedules are attached at the end of this document. Schedules may be revised and optimized, independent of overarching policy revisions, as determined by Fleet Services and Climate Action.

A. PROCEDURE
B. FLEET ASSET ACQUISITION PROCESS
C. CRD VEHICLE REQUEST
D. CRD MOBILE EQUIPMENT REQUEST
E. CRD FIRE/RESCUE VEHICLE REQUEST
F. FLEET ASSET ACQUISITION FORM

6. AMENDMENT(S):

Adoption Date	Description:
April 29, 2021	ELT

7. REVIEW(S)

Review Date	Description:
None	(Insert date of scheduled review; results of review; and dates of next review in new table entry)

8. RELATED POLICY, PROCEDURE OR GUIDELINE:

Corporate Fleet Policy

SCHEDULE A: PROCEDURE

A1. Principles

Fleet procurement decision-making will implement the following:

1. *Net Present Value (NPV) Lifecycle Costing*: Decision criteria includes fuel consumption, maintenance, carbon pricing, depreciation and other costs over the expected timeframe the fleet asset will be in operation, not just lowest purchase cost.

2. *Rightsizing*: Optimizing and increasing fuel efficiency of fleet assets, and rightsizing the total number of fleet assets by requirements sharing.

3. *Fuel Hierarchy*: Internal Combustion Engine fleet assets are only considered when all zero/low emissions alternative fuel options are unable to meet requirements, and rightsizing practices have been unable to provide an alternative to share those requirements.

4. *$150/tonne Carbon Pricing*: An internal carbon price used in financial decision making to quantify the benefits of reducing tailpipe emissions of fleet asset. This price would only be applied to business case analysis, with no transfer of funds occurring. $150/tonne CO_2e will be the initial price point, with potential price revisions assessed every three years at minimum.

5. *10% NPV Variance*: Carbon pricing and NPV life cycle costing used to determine the cost-effective threshold of 10% over in-kind replacement. If the price variance is less than 10%, the low carbon option is purchased. When outside of these parameters, a conventional ICE fleet asset may be considered.

A2. Key Performance Indicators

The following Key Performance Indicators (KPIs) will be used to assess requesting department adherence to and impact of this policy.

- Percentage of fleet assets purchased at each level of vehicle fuel hierarchy
- Percentage of fleet asset purchases postponed awaiting near-term green vehicle market availability
- Tonnes CO_2e reduced per fleet asset (as per carbon modelling)
- Total tonnes CO_2e reduced (as per carbon modelling)
- $/tonne of CO_2e reduced (as per carbon modelling) based on NPV and purchase price

KPI analysis will be completed in conjunction between Fleet Services and Climate Action.

Policy review is to occur upon the earlier of two years or completion of the overarching Fleet Policy.

A2. Definitions

Atlas Fleet Procurement Analysis Tool – a Microsoft Excel-based tool that provides decision-relevant information on the financial viability and environmental impact of light-duty vehicle fleet procurements. It was developed in partnership with the U.S. Department of Energy and is supported by Plug-in BC. The tool compares procurements side-by-side on a cost-per-distance-traveled basis and provides an analysis of cash flows and location-specific lifecycle emissions.

BEV – Battery Electric Vehicle. A type of electric vehicle that exclusively uses electric motors and motor controllers instead of internal combustion engines for propulsion.

Carbon Pricing – An internal carbon price used in financial decision making to quantify the benefits of reducing tailpipe emissions of fleet asset. This price would only be applied to business case analysis, with no transfer of funds occurring.

Charging Infrastructure – Infrastructure required to support BEV charging, including but not limited to Level 1 or Level 2 charging stations, electrical conduit, transformers, and other parking requirements.

Circuit Sharing – Multiple Level 2 chargers supplied from a single branch circuit, with demand controlled to ensure circuit rating is not exceeded.

CO_2e – Carbon dioxide equivalent.

Facility Manager – The individual(s) in charge of maintenance and capital projects at a given facility with required technical authority with respect to electrical charging infrastructure upgrades. In the majority of cases, this will be the Facilities Management department, but may be an equivalent representative at an individual facility.

Fleet Asset – All vehicles, as well as mobile light and heavy equipment, including, but not limited to: passenger vehicles, trailers, backhoes, tractors, service trucks, buses and fire trucks.

Fleet Asset Request Form – Form to request new fleet asset. May refer to CRD Vehicle Request form, CRD Mobile Equipment Request form, or CRD Fire/Rescue Vehicle Request form.

Fuel Hierarchy – A hierarchy of preferred fuel types used in fleet assets scaled for low emissions, with ZEVs at the top, PHEV and HEVs in the middle, and ICE vehicles at the bottom.

Hierarchy is as follows:

I. Zero Emission Vehicle (ZEV), such as Battery Electric or Hydrogen Fuel Cell
II. Plug-in Hybrid Electric Vehicle (PHEV)
III. Regenerative Hybrid Electric Vehicle (HEV)
IV. High Efficiency Diesel/Gasoline Internal Combustion Engine (ICE)

GHG – Greenhouse Gas.

HEV – Regenerative Hybrid Electric Vehicle. These vehicles are primarily powered by internal combustion engines, with greater efficiencies than conventional vehicles, due to batteries charged by regenerative braking.

ICE – Internal Combustion Engine (fuelled by gasoline or diesel).

KPI – Key Performance Indicators.

Level 1 Charging – BEV charging using conventional 120V wall sockets. This is the slowest form of charging.

Level 2 Charging – BEV charging using specialized 240V connections. Level 2 infrastructure charges BEVs three to seven times faster than Level 1 chargers.

Lifecycle Costing – All costs of an asset incurred over its lifespan, including upfront investment, operating costs, ongoing maintenance, fuel costs and less salvage value.

NPV – Net present value (NPV) is the value of all future cash flows (positive and negative) over the entire life of an investment, discounted by the time value of money to the present. This policy incorporates lifecycle costing and shadow carbon pricing to determine the most full cycle cost-effective option while also considering climate impact.

PHEV – Plug-in Hybrid Electric Vehicle. These vehicles are powered with a battery primarily charged from the electrical grid, but also contain an internal combustion engine.

Rightsizing of Fleet – Optimizing and increasing fuel efficiency of fleet assets, and rightsizing the total number of fleet asset by requirements sharing.

Telematics – is a method of monitoring an asset (car, truck, heavy equipment, etc.) by using GPS and/or onboard diagnostics to record data regarding movements, fuel use, and performance.

ZEV – Zero Emission Vehicle, such as Battery Electric or Hydrogen Fuel Cell.

A3. Description of Procedure

The following outlines the fundamental steps of the procedure for fleet asset procurement under this policy.

See Schedule B – Fleet Asset Acquisition Process for flowchart.

It is noted that the details of this procedure may be optimized and adjusted with time.

1 Fleet Asset Request form submitted to Fleet Services

Upon identifying a need for a new or replacement fleet asset, requesting department completes *Fleet Asset Request*s of the following types:

- CRD Vehicle Request (Schedule C) – relates to conventional passenger vehicles, as well as service trucks, vans and buses.
- CRD Mobile Equipment Request (Schedule D) – relates to mobile equipment used for construction, forestry, trail, garden, etc.
- CRD Fire/Rescue Vehicle Request (Schedule E) – relates to emergency response vehicles, such as firetrucks or other rescue equipment.

1.1 Make and Model

Fleet assets will be assessed on requirements listed in the Fleet Asset Request form, and carbon emissions measures in this policy. Specific fleet asset models may only be requested if requirements cannot be met with other models.

1.2 Facility Manager consultation and charging infrastructure

Facilities Management must be consulted to complete the Fleet Asset Request form to ensure parking and potential ZEV charging requirements are gathered.

An electrical panel load analysis and/or comprehensive engineering study must be performed at the facility to identify capacity for charging installation unless the new fleet asset will not require charging (i.e., specialized equipment with no ZEV/PHEV options). Older studies are acceptable, pending no major electrical equipment has been installed since the date of analysis.

2 Fleet Services Evaluations

Fleet Services assesses Fleet Asset Request form, ensuring rightsizing considerations have been taken into account, and identifying the appropriate level of the fuel hierarchy the requested vehicle will sit within based on the process described below and shown in Figure 2.

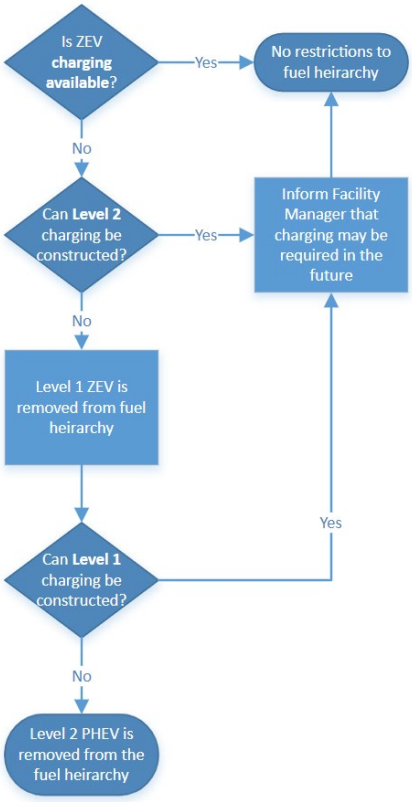


Figure 1: Fleet Services Evaluation Process

- If access to ZEV charging at facility is available currently or in the near future, no restrictions on fuel hierarchy are required.
- If access to ZEV charging at facility is unavailable, but no significant limitations to construction are identified, no restrictions on fuel hierarchy are required. Fleet Services informs Facility Manager that charging may be required in near future.
- If access to Level 2 charging is unavailable and cannot be constructed, Level 1 ZEV is removed from fuel hierarchy.
- If access to Level 1 charging is unavailable and cannot be constructed, Level 2 PHEV is removed from fuel hierarchy.

2.1 Engine Idle Limiters

The installation of engine idle limiters on all new PHEV, HEV and ICE fleet assets is required to save fuel, reduce engine run hours and decrease emissions. Where necessary, idle-limiting technologies able to bypass idle limitation for accessory equipment use, (i.e. service cranes), are to be installed. For staff using their vehicle to stay warm or cool during offsite work, suitable equipment can be installed that does not require idling the engine (eg. Electric cab heaters).

3 Climate Action evaluates the requirements and discusses with fleet

Climate Action reviews Fleet Asset Request form and initial fleet recommendations.

3.1 Emerging Technologies

Fleet Services and Climate Action assess additional technologies and operational changes to reduce emissions, including, but not limited to telematics, and implement when operationally and financially viable.

3.2 Purchase Delay

As ZEV technology matures, new vehicle types and classes are being added to the market. For fleet asset types with currently limited low carbon options, delaying purchasing may allow a purchase to move up the fuel hierarchy (e.g., from an ICE to a PHEV or ZEV).

Fleet Services and Climate Action will identify relevant opportunities to delay if new technologies are on the immediate horizon (e.g. within a year), which will be discussed during rightsizing conversations. Short-term leases may be included as stop-gap options.

It will be ultimately a decision of the requesting General Manager or other signing authority to weigh operational requirements as to whether the fleet asset purchase may be delayed.

4 Revisions Required

If issues are identified during 5.2 and 5.3, revisions are made to vehicle requirements in consultation with requesting department, Fleet Services and Climate Action.

If no revisions required, continue to 5.5.

5 Fleet Asset request is sent out for procurement

Fleet Services initiates procurement process based upon requirements gathered and scoped.

6 Fleet Services reviews the submissions and identifies appropriate fleet assets to undergo carbon modelling

Upon receiving procurement submissions, Fleet Services reviews proposals, initially populates Fleet Asset Acquisition form (Schedule C), and identifies potential fleet assets to undergo carbon modelling. Recommendations sent to Climate Action.

7 Climate Action performs carbon modelling, lifecycle costing and NPV analysis

Climate Action performs carbon modelling using Atlas Fleet Procurement Analysis Tool. NPV lifecycle costing and carbon pricing determines the cost-effective threshold of 10% over in-kind replacement. If the price variance is less than 10%, the low carbon option is purchased.

Differences in vehicle class lifespan are incorporated into NPV analysis using depreciation ratios, as per Atlas Fleet Procurement Analysis Tool.

When outside of these parameters, further procurement or selecting a fleet asset lower on the fuel hierarchy may be considered.

Climate Action populates relevant sections of the Fleet Asset Request form for Fleet review and provides and signs off on recommendation through the Fleet Asset Acquisition form.

8 Selected vehicle and associated cost is sent for review to requesting department for General Manager approval

Fleet Services finalizes Fleet Asset Request form and sends to requesting department for General Manager approval.

8.1 If new charging infrastructure will be required, facility manager is included in review

Inform Facility Manager of recommendation of vehicle and associated charging infrastructure requirement.

9 Revisions needed?

If no revisions are required, continue to 5.10.

In the event selected fleet asset is denied, discussions between the requesting department, Fleet Services and Climate Action will identify and rectify concerns.

- If concerns can be addressed with other received procurement documents, which fit within climate scope, redirect to section 5.8.
- If concerns can be addressed by going back out for procurement, redirect to section 5.2.
- If concerns cannot be addressed, fleet asset request is terminated.

10 Fleet asset acquisition and charging installation

Fleet asset and related parking arrangements are purchased and installed.

10.1 Fleet asset is ordered and purchased

Fleet Services orders/purchases fleet asset.

10.2 Facility Manager constructs appropriate charging infrastructure

Facility Manager makes parking arrangements, including construction of appropriate charging infrastructure, funded by that facility's capital budget.

If sufficient load capacity is unavailable, the electrical service is to be upgraded to allow for requested vehicle and futureproofed for future additional installs. If location and infrastructure costs are lower than upgrading existing equipment, additional dedicated electrical grid connections may also be considered.

The installation of Level 2 chargers is preferred. Level 1 charging may be substituted when facility budgets are restricted. Level 1 charging is insufficient for charging BEVs.

Circuit sharing across chargers is encouraged to address limited load capacity concerns, pending analysis showing operational requirements of vehicle will not be impacted.

11 Upon delivery, vehicle is internally outfitted with corporate logo, and when applicable, additional equipment and/or options are installed

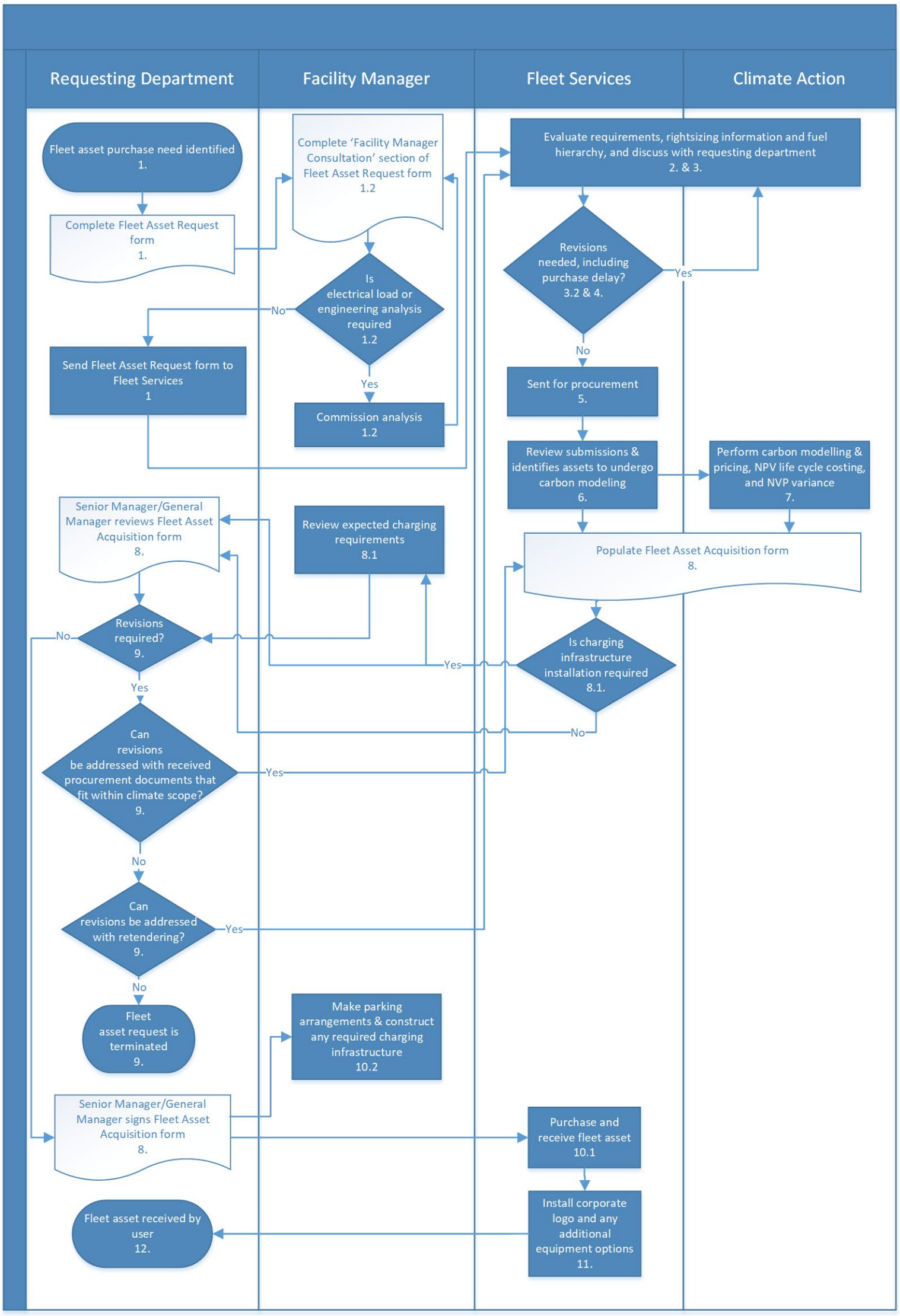
Fleet Services coordinates decals and equipment installation.

12 Fleet Asset is received by user

Vehicle is picked up from corporate fleet facility by end-user or arrangements are made for delivery to location.

Any necessary operator or mechanic familiarization and training will be offered at this time.

SCHEDULE B: FLEET ASSET ACQUISITION PROCESS



SCHEDULE C: CRD VEHICLE REQUEST

Purpose:

To assess and meet the requirements of new or replacement vehicles in accordance with their intended use throughout their life cycle in a fiscally responsible fashion, simultaneously supporting CRD's climate action goals.

Planning:

Before requesting a new vehicle, a requester should consider whether a new requirement could be met using the existing fleet. They should examine current vehicle utilization to determine whether pooling is feasible, particularly if some vehicles are being underutilized. For example, if two vehicles with low annual kilometres or low daily use are parked near each other, perhaps one of them could be pooled and the other one disposed of.

Similar considerations should be made for specialized vehicle requirements such as tow capacity or off road use. For example, if a passenger vehicle can suffice for the majority of usage, efforts should be made to purchase a passenger vehicle and share a medium or heavy duty vehicle when necessary. Similarly, high efficiency or alternative fuel vehicles of the same vehicle class should be prioritized when functionality requirements are not adversely impacted.

Background:

With a Corporate vision of achieving exemplary environmental stewardship and carbon neutrality, Fleet Services must exercise due diligence through a systematic evaluation process to ensure appropriate vehicles are selected for the task at hand.

As vehicle's account for over half of the corporation's Greenhouse Gas Emissions (GHG), it's essential we prioritize the deployment of zero-emission vehicles (ZEVs); ZEVs vehicles include pure battery plug-in electric, plug-in hybrid electric, and hydrogen fuel cell. Only when such technology is not available, inadequate or non-financially viable, low emission technologies is to be sourced where operationally feasible including regenerative breaking hybrid electric.

Funding:

Funding for a replacement or new acquisition must take into consideration the vehicle cost, along with the acquisition and installation of additional equipment. And when applicable, the revenues from the vehicle being disposed/replaced of. Financial Advisor should be consulted to ensure availability of funds.

Charging:

If not already complete, electrical panel load analysis must be performed at the facility at which the charging infrastructure is to be installed. If sufficient capacity is unavailable, the electrical service is to be upgraded to allow for requested vehicle and futureproofed for future additional installs. Additional dedicated electrical services may also be considered if location and infrastructure costs are lower than upgrading existing equipment.

Similar to conventional parking infrastructure, the facility at which the vehicle will be parked is responsible for the installation, maintenance and related costs of charging infrastructure via capital and operating budgets.

Requested By: _____ Date requested: _____

Department: _____ Division: _____

Section: _____

Is this a new entitlement: Yes ☐ No ☐

If No; Unit#: _____

Make Model: _____

Year: _____

Odometer Reading: _____

Distance Traveled over Prior three years: _____

Current Vehicle condition; what may cause excessive down time in the next six months:

Budget:

How much is budgeted for this vehicle: _____

New Vehicle Requirements:

What role is the vehicle intended for:

In addition to the driver, on average how many passengers will be travelling?: _____

Based on 160 hours/month what percentage is the expected use: _____

Average kilometers per month: _____

Average daily kilometers travelled: _____

Maximum distance travelled for a single trip (Km): _____

Average numbers of daily trips: _____

Location and or area of use - Geographical boundaries travelled:

The amount of “road” to “off road” monthly use (%): _____

Is there potential for sharing usage with existing fleet vehicles to meet the needs noted above?:

Yes ☐ No ☐

If no; why not. If yes, how and which vehicle(s):

Vehicle required to carry equipment and tooling: Yes ☐ No ☐

If yes; identify what type of equipment and approximate weight & size:

Vehicle required to tow a trailer: Yes ☐ No ☐

If yes; what are the trailer(s) in question? List unit number(s):

What percentage of time will equipment & towing be required?: _____

Is there potential for sharing equipment/off road/towing requirements with other vehicles:

Yes ☐ No ☐

If no; why not. If yes, how and which vehicle(s):

Adaptive / Assistive Technology for persons with disabilities: Yes ☐ No ☐

If yes; specify the requirements:

Other operational consideration for this vehicle not mentioned above:

Safety Options		**General Options**	
Emergency Braking	☐	Flashing amber light	☐
Collision Avoidance	☐	Directional light bar	☐
Rear Cross - Traffic monitoring	☐	2 Way radio	☐
Blind Spot Monitoring	☐	Seat Covers	☐
Bumper Proximity Sensors	☐	12V / 120V Power Inverter	☐
Backup Camera	☐	What electrical item(s) are going to be used:	
Backup alarm	☐	_____	
Bluetooth Hands Free	☐		

List any other special requirements and/or options:

When a pickup truck is a preferred option

Cab Type (select only one)		**Cargo Box size** (select only one)	
2 Doors (1 row of seating)	☐	5.5’ box	☐
Extended cab (rear doors - ½ size)	☐	6’ box	☐
Crew Cab (rear doors - full size)	☐	8’ box	☐
Headache rack	☐	Bed Slide	☐
Canopy		Running boards	☐
With side storage compartment	☐	Rear Flood lights	☐
No Side storage compartment	☐		

Facility Manager Consultation:

What facility (address) will the vehicle be located at overnight (if multiple, identify % parking expected at each facility):

What parking lot will the vehicle be located at overnight (if multiple, identify % parking expected at each lot):

What is the expected timeframe the vehicle will be not in service, and parked at above location (ex. 6 PM-8 AM):

At the above location, is there access to an electric vehicle charging station: Yes ☐ No ☐

If no charging station; has a load analysis or engineering study been completed to identify potential for charging infrastructure installation: Yes ☐ No ☐

If yes; what is the potential capacity and cost of a charger install (if available)

If no charging station; is charging infrastructure planned for the near future: Yes ☐ No ☐

If yes; identify plans including # of chargers and expected timeline below.

If no; identify significant limitations to installing a charging station (ex. load capacity, conduit locations):

Are there maximum height or length restrictions for vehicles parked at this location: Yes ☐ No ☐

Max. Height: _____ Max. Length: _____

Has Facility Manager identified other parking limitations or concerns: Yes ☐ No ☐

If yes; identify limitations or concerns:

Facility Manager Review Print Sign Date

Approvals

Manager	Print	Sign	Date
Senior Manager	Print	Sign	Date

You are agreeing to allow Fleet Services to solicit tenders for a new / replacement vehicle. By no means is this request intended to authorize the expenditures toward the acquisition of a vehicle.

Additional Comments:

Climate Action Comments:

Climate Action Reviewer	Print	Sign	Date

SCHEDULE D: CRD MOBILE EQUIPMENT REQUEST

Purpose: To assess and meet the requirements of new or replacement equipment (construction, forestry, trail, garden, etc.) in accordance with their intended use throughout their life cycle in a fiscally responsible fashion, simultaneously supporting CRD's climate action goals.

Note: For regular vehicle requests (cars, buses, trucks), use the CFS Vehicle Request form.

Requested By:		Date requested:	
Department:		Division:	
Section:		Parking Location:	

Existing Asset Information

Is this request for a replacement of an existing asset? Yes ☐ No ☐ If Yes:

Unit number:		Year:	
Meter Reading:		Make & Model:	

Existing equipment condition; what may cause excessive down time in the next six months:

New Asset Funding

ERF-E Order ☐		Capital Projects ☐		Cost Center ☐	
Settlement Cost Center:		Purchase Budget:			

New Asset Requirements

Briefly describe the new equipment requirements:
New auxiliary equipment to be purchased with the new asset:
Existing auxiliary equipment for which the new asset should be compatible:

List any other special requirements or options for the new asset:

Facility Manager Consultation:

Is there 120v electricity at this location which could be used for light equipment charging?:

Yes ☐ No ☐

If no; identify limitations (e.g. location is off-grid, limited plug availability etc.):

Has Facility Manager identified other limitations or concerns: Yes ☐ No ☐

If yes; identify limitations or concerns:

Facility Manager Review Print Sign Date

Approvals

Manager	Print	Sign	Date
Senior Manager	Print	Sign	Date

You are agreeing to allow Fleet Services to solicit tenders for a new / replacement vehicle. By no means is this request intended to authorize the expenditures toward the acquisition of an asset.

Additional Comments:

Climate Action Comments:

Climate Action Reviewer	Print	Sign	Date

SCHEDULE E: CRD FIRE/RESCUE VEHICLE REQUEST

Purpose: To assess and meet the requirements of new or replacement emergency response vehicles in accordance with their intended use throughout their life cycle in a fiscally responsible fashion, simultaneously supporting CRD's climate action goals.

Note: For regular vehicle requests (cars, buses, trucks), use the CFS Vehicle Request form.

Requested By:		Date requested:	
Department:		Division:	
Section:		Parking Location:	

Existing Asset Information

Is this request for a replacement of an existing asset? Yes ☐ No ☐ If Yes:

Unit number:		Year:	
Meter Reading:		Make & Model:	

Existing vehicle condition; what may cause excessive down time in the next six months:

New Asset Funding

ERF-E Order ☐		Capital Projects ☐		Cost Center ☐	
Settlement Cost Center:		Purchase Budget:			

New Fire/Rescue Vehicle Requirements

Briefly describe the new requirements:
New auxiliary equipment to be purchased with the new asset:
Existing auxiliary equipment for which the new asset should be compatible:

List any other special requirements or options for the new asset:

Facility Manager Consultation:

What facility (address) will the vehicle be located at overnight (if multiple, identify % parking expected at each facility):

What parking lot will the vehicle be located at overnight (if multiple, identify % parking expected at each lot):

At the above location, is there access to an electric vehicle charging station: Yes ☐ No ☐

If no charging station; has a load analysis or engineering study been completed to identify potential for charging infrastructure installation: Yes ☐ No ☐

If yes; what is the potential capacity and cost of a charger install (if available)

If no charging station; is charging infrastructure planned for the near future: Yes ☐ No ☐

If yes; identify plans including # of chargers and expected timeline below.

If no; identify significant limitations to installing a charging station (ex. load capacity, conduit locations):

Are there maximum height or length restrictions for vehicles parked at this location:

Yes ☐ No ☐

Max. Height: _____ Max. Length: _____

Has Facility Manager identified other parking limitations or concerns: Yes ☐ No ☐

If yes; identify limitations or concerns:

Facility Manager Review Print Sign Date

Approvals

Manager	Print	Sign	Date
Senior Manager	Print	Sign	Date

You are agreeing to allow Fleet Services to solicit tenders for a new / replacement vehicle. This request does not authorize the expenditure toward the acquisition of a vehicle.

Additional Comments:

Climate Action Comments:

Climate Action Reviewer	Print	Sign	Date

SCHEDULE F: FLEET ASSET ACQUISITION

Fleet

Requested By:		Date requested:	
Department:		Division:	
Section:		Vehicle Location:	
☐ New Vehicle ☐ Replacement Vehicle			
Background and Rightsizing:			

New Vehicle/Equipment Recommendation

Is the lowest carbon option being recommended: ☐ Yes ☐ No ☐ N/A			
Year, Make, Model:		Type:	
Purchase Price:		☐ Standard vehicle specification	☐ Custom build
Recommendation notes:			

(1) Pricing includes taxes and delivery and applicable government incentive programs:

Vehicle Being Replaced

Unit number:	N/A
EMR #:	N/A
Asset #:	N/A

Year, Make & Model:	N/A
Odometer:	N/A

New Vehicle/Equipment Funding

ERF-E Order ☐		Capital Projects ☐		Cost Center ☐	
Disposal: ☐ Transfer ☐ Auction ☐ Trade In				Estimated Value:	N/A
Settlement Cost Center:		Monthly Charge out rate:			

Tender Information

Tender Date:			Tender #:			Zero Emission Vehicle Bids received:	Yes ☐ No ☐
Bids received:		Low:		High:		Delivery from Order date:	

(1) Pricing includes taxes and delivery and applicable government incentive programs:

Life Cycle Assessment:

Proponent	Description	Price	Lifecycle Cost		Lifecycle GHG Emissions	
			NPV*	% from Baseline**	Tonnes CO2e*	% from Baseline***
	Option 1 - Baseline					
	Option 2					
	Option 3					

(1) Pricing includes taxes and delivery and applicable government incentive programs

* Values obtained from Atlas Fleet Procurement Analysis Tool

** Baseline vehicle is MRSP of an equivalent gasoline vehicle. May not be the lowest NPV cost. Negative values indicate price is lower than baseline.

***Negative values indicate carbon savings. Positive values indicate vehicle emits more carbon than baseline.

Concurrences

Print

Manager Signature Date

Corporate Fleet

Print

Senior Manager Signature Date

Environmental Protection

Print

Requesting Manager Signature Date

Purchase Approvals

Print

Senior Manager	Signature	Date
Requesting Division		

Print

General Manager	Signature	Date
Requesting Department		

You agree to allow Fleet Services to purchase the above vehicle on your behalf.

Maintenance Management

Unit number (F Order): _____

Equipment Master Record #: _____

Equipment Master Record Description: _____

Finance

E Order: _____

RF Order: _____

Asset #: _____

APPENDIX C

Making a difference...together

CAPITAL REGIONAL DISTRICT
CORPORATE POLICY

Policy Type	Administrative		
Section			
Title	CORPORATE CARBON PRICE		
Adopted Date	April 3, 2023	Policy Number	ADM101
Last Amended			
Policy Owner	Parks & Environmental Services (Climate Action)		

1. POLICY:

It is the policy of the Capital Regional District (CRD) to apply an internal price per tonne of carbon emissions to represent the social, environmental and economic benefits of carbon pollution reduction.

This carbon price will be considered in life-cycle cost analyses for project or procurement option analyses that fall within the scope of this policy and provide a consistent dollar value to be used in related policies and procedures.

2. PURPOSE:

Applying the carbon price to life-cycle cost analyses for CRD projects and procurement will help prioritize energy efficiency and carbon-mitigating projects while aiding the CRD in achieving its greenhouse gas reduction targets and climate action priorities.

3. SCOPE:

The carbon price policy applies to all options analyses that use Life-cycle Cost Analysis (see definitions) involving the following assets and operations:

1. Fleet Purchases
2. New Buildings
3. Building Retrofits
4. Fuel-burning Equipment
5. Energy Purchases

This policy applies to all CRD entities, including hospital and housing districts. The carbon price outlined in this policy may be used outside of this scope if determined to be useful for a specific project or procurement process.

4. DEFINITIONS:

Carbon Dioxide Equivalent (CO_2e)	The standard metric used to quantify and compare the effects of different types of greenhouse gas emissions expressed in equivalent tonnes of carbon dioxide over a 100- year timeframe.
Carbon Price	The dollar value assigned by the CRD to one tonne of CO2e emissions.
Life-cycle Cost Analysis	The process of assessing the total costs of an asset, project, or process (including upfront, operation and maintenance, and disposal costs) to inform decision making.
Options Analysis	A process in project design or purchasing where a shortlist of options is assessed against a range of criteria in order for project decision-makers to choose or recommend an option for implementation within a project (e.g., selecting a building

	heating system type) or a purchase (e.g., purchasing a new fleet vehicle).
Building Retrofits	Upgrades or replacement of major equipment, systems or external structure of an existing building (e.g., improving or replacing ventilation and heating systems, windows, or insulation).

5. PROCEDURE:

If a project or procurement process requires a life-cycle cost assessment and falls within the scope of this policy, then the cost assessment must apply the cost of carbon, as defined in Schedule A, for the estimated carbon emissions of each option over the defined assessment period. This cost of carbon should be used instead of the federal carbon tax for these assessments to prevent double-counting (e.g., adding the cost of carbon on top of the federal carbon tax). Schedule B presents a recommended process for decision making when using a carbon price, noting that final decisions will be subject to a review of all criteria including service and budgetary requirements.

6. SCHEDULE:

A. CARBON PRICE SPECIFICATION

B. DECISION MAKING PROCESS GUIDANCE

C. EXAMPLE LIFE-CYCLE COST ASSESSMENTS WITH A CARBON PRICE

7. AMENDMENT(S):

Adoption Date	Description:
April 3, 2023	ELT

8. REVIEW(S):

Review Date	Description:
None	(Insert date of scheduled review; results of review; and dates of next review in new table entry)

9. RELATED POLICY, PROCEDURE OR GUIDELINE:

Green Fleet Policy

Green Building Policy

SCHEDULE A: CARBON PRICE SPECIFICATION

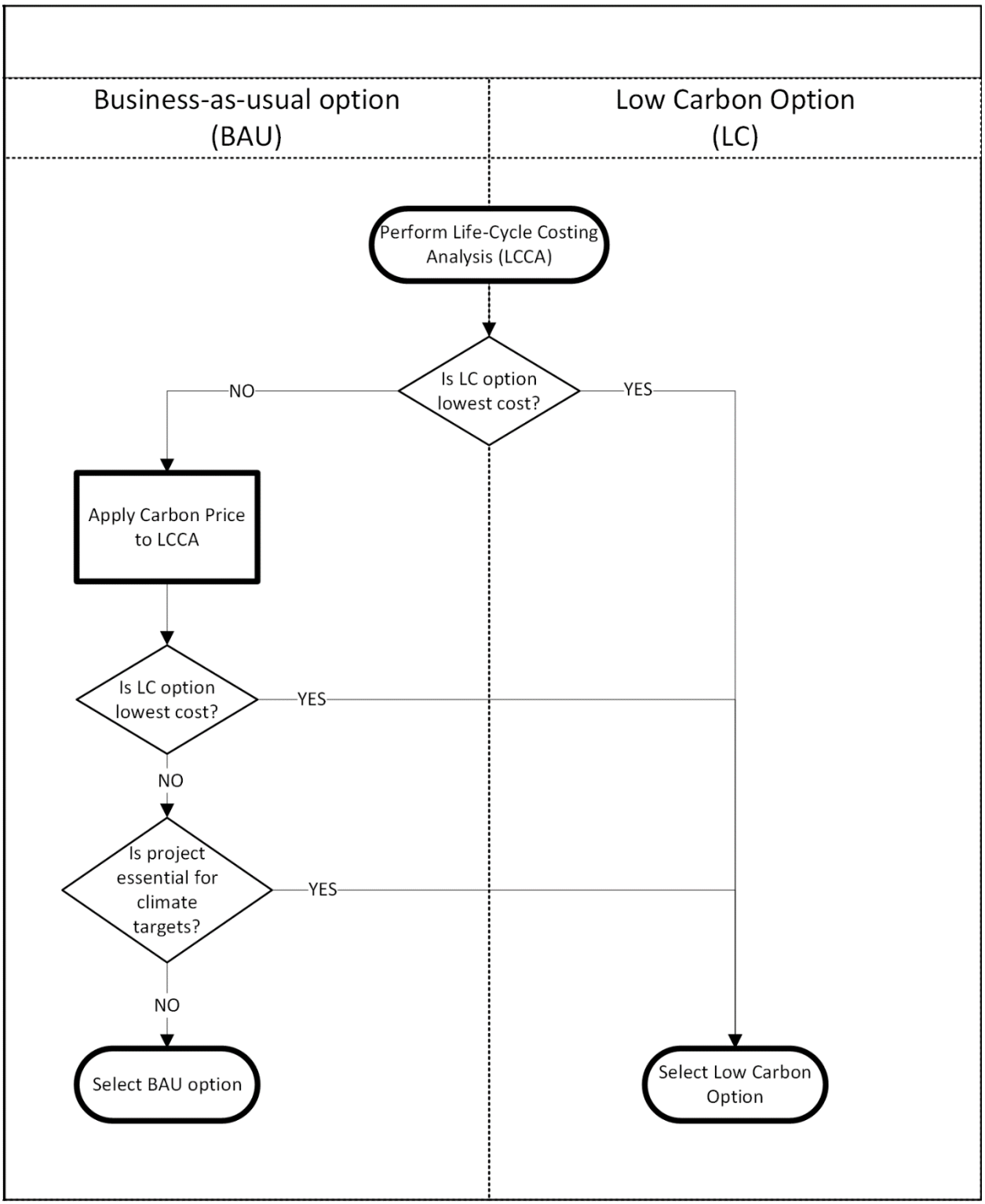
The internal carbon price used by the CRD is $170 per tonne of CO_2e emissions.

This price is in line with the federal carbon tax level to be applied in 2030. This price may be amended, acting reasonably, considering provincial or federal equivalents, by the CAO.

SCHEDULE B: DECISION MAKING PROCESS GUIDANCE

The flowchart below presents a recommended process to use a carbon price in an options analysis using life-cycle costing to select the best-value choice.

Final decision making is still subject to staff review of all decision making criteria as well as funding limitations. Low carbon options must still meet all of the minimum functional and service requirements.


Business-as-usual option (BAU)
Low Carbon Option (LC)
Perform Life-Cycle Costing Analysis (LCCA)
Is LC option lowest cost?
NO
YES
Apply Carbon Price to LCCA
Is LC option lowest cost?
YES
NO
Is project essential for climate targets?
YES
NO
Select BAU option
Select Low Carbon Option

SCHEDULE C: EXAMPLE LIFE-CYCLE COST ASSESSMENTS WITH A CARBON PRICE

Example 1: Selecting a heating source for a detached home (Gas furnace versus electric heat pump)

The following example shows a simple application of a carbon price policy. The table shows a life-cycle costing option evaluation for a new heating system for an average-sized detached home in Victoria and applies a carbon price of $170 per tonne. It considers full life-cycle costs including equipment, installation and disposal, maintenance, and energy costs. A similar process would be applied to commercial buildings.

If a cost of carbon is excluded, the analysis shows the gas furnace costing less overall ($18,187 versus $20,300). However, the electric heat pump costs approximately 25% less when a cost of carbon is incorporated ($20,994 versus $26,668), which considers the overall benefits of reducing carbon pollution. Therefore, in this option analysis with a carbon price policy of $170 per tonne, the electric heat pump would be selected as the option that provides the best value.

			OPTION 1 **Gas furnace**	OPTION 2 **Electric Heat Pump**
Criteria	Lifetime*	years	15	15
	Heating Load[1]	kWh	17000	17000
	Efficiency*	%	92%	250%
	Annual Energy Use	kWh	18478	6800
	Energy Unit Cost*	$/kWh	$0.04	$0.10
	GHG intensity[2,3]	kg CO2e/kWh	0.18	0.04
	Annual GHGs	tCO2e	3.33	0.272
	Internal Carbon Price	$/tCO2e	$170.00	$170.00
Fixed Costs	Equipment & Installation*		$5,000.00	$14,000.00
	Government Rebates		$0.00	-$6,000.00
	End of Life Disposal*		$300.00	$300.00
Annual Costs	Annual Cost of Carbon		$565.43	$46.24
	Annual Energy Costs		$739.13	$680.00
	Annual Maintenance*		$120.00	$120.00
	TOTAL Annual Costs		**$1,424.57**	**$846.24**
	TOTAL Without Cost of Carbon		$859.13	$800.00
Total Cost	Lifetime of Annual Costs		$21,368.48	$12,693.60
	Sum of Fixed Costs		$5,300.00	$8,300.00
	TOTAL Life-cycle Cost		**$26,668.48**	**$20,993.60**
	TOTAL Without Cost of Carbon		$18,186.96	$20,300.00

* Estimated values

References

1 https://www.nrcan.gc.ca/sites/www.nrcan.gc.ca/files/energy/pdf/energystar/Heating_with_Electricity.pdf
2 https://www2.gov.bc.ca/gov/content/environment/climate-change/industry/reporting/quantify/electricity
3 2020 B.C. Methodological Guidance for Quantifying Greenhouse Gas Emissions

Example 2: Purchasing a Fleet Vehicle (Electric Vehicle versus Internal Combustion Engine)

The following outlines an example of the application of the carbon price policy to a vehicle purchase decision between an electric vehicle and an internal combustion engine vehicle of the same type, a 2021 Kia Soul. The analysis is a summary of the output from Atlas, a fleet vehicle life-cycle costing tool. The analysis includes full life-cycle costs including retail price (MSRP), fuel, maintenance, and resale value at the end of the eight-year period.

The results of the analysis show that the electric vehicle costs the least over the total ownership period, even without the carbon price included ($38,537 versus $47,768). Including the cost of carbon indicates even better value for the electric vehicle when considering life-cycle cost ($38,585 versus $49,832). This option analysis would therefore recommend that the electric vehicle be purchased.

			Internal Combustion Vehicle	**Electric Vehicle**
Criteria	Vehicle Model		2021 Kia Soul	2021 Kia Soul EV
	Lifetime	years	8	8
	Annual Vehicle Mileage	km	15,000	15,000
	Fuel Consumption	L/100km	8	2.02
	GHG intensity	kg CO2e/kWh	2.88	0.03
	Annual GHGs	tCO2e	3.3	0.1
	Internal Carbon Price	$/tCO2e	$170.00	$170.00
Fixed Costs	MSRP		$21,195.00	$42,995.00
	Rebates		$0.00	-$8,000.00
	Resale Value		-$4,587.00	-$8,194.00
Annual Costs	Annual Cost of Carbon		$258.00	$6.00
	Annual Fuel Costs		$1,633.00	$336.00
	Annual Maintenance		$2,262.00	$1,131.00
	TOTAL Annual Costs		**$4,153.00**	**$1,473.00**
	TOTAL Without Cost of Carbon		$3,895.00	$1,467.00
Total Cost	Lifetime of Annual Costs		$33,224.00	$11,784.00
	Sum of Fixed costs		$16,608.00	$26,801.00
	TOTAL Life-cycle Cost		**$49,832.00**	**$38,585.00**
	TOTAL Without Cost of Carbon		$47,768.00	$38,537.00

References

Atlas Fleet Procurement Analysis Tool v1.20
https://www.atlasevhub.com/resource/fleet-procurement-analysis-tool/

Making a difference...together

EEP 23-19

REPORT TO ENVIRONMENTAL SERVICES COMMITTEE
MEETING OF WEDNESDAY, APRIL 19, 2023

SUBJECT **Healthy Waters Project for Tod Creek on the Saanich Peninsula**

ISSUE SUMMARY

To provide the Committee with information related to resources, service mandate and regulatory framework related to the Healthy Waters project proposal for Tod Creek on the Saanich Peninsula.

BACKGROUND

At the February 15, 2023 Environmental Services Committee meeting, directors requested feedback on an unsolicited proposal from the Raincoast Conservation Foundation to monitor the Tod Creek watershed (Appendix A). The objectives of this proposed monitoring program are "to conduct a risk-based evaluation of contaminants of concern in Tod Creek watershed in support of healthy fish habitat" and "to document possible sources of contaminants of concern in the Tod Creek watershed, including Hartland Landfill and local land use."

Well documented by community groups and other sources, the Tod Creek watershed has experienced historical impacts from development and agricultural practices, including the draining of Tod Creek flats and the movement of the physical creek bed itself. Present day pressures continue, and the cumulative effects of these activities have impacted water quality and flow and continue to diminish the potential of the watershed to support fish and other aquatic life.

Under the Capital Regional District's (CRD) current service mandate, there are two monitoring programs in the Tod Creek watershed:

1. **Hartland Landfill Compliance** – Staff monitor groundwater at multiple locations throughout and around the landfill to confirm leachate is not leaving the site. Surface water quality is also monitored quarterly in the creeks to the north and south of the landfill, including Heal and Durrance creeks, Durrance Lake and Tod Creek, and various tributaries to confirm the quality of surface water and performance of onsite leachate containment systems. Surface water samples are analyzed for a broad suite of parameters, including nutrients and metals, and leachate surrogates, such as chloride, conductivity and ammonia. This monitoring is undertaken and submitted to the Province to satisfy regulatory requirements imposed as a condition of landfill operation. The CRD monitoring began in 1983, and it was this monitoring that confirmed legacy impacts to the Tod Creek watershed, and ultimately led to the installation of the engineered leachate control systems that are in place today.

2. **Stormwater Quality** – Staff measure water quality at the mouth of Tod Creek twice per year, and more intensively throughout the watershed every five to six years, to provide information about watershed health. This monitoring (last done in 2017 and planned for 2023) includes measurement of a broad suite of water quality parameters, as well as collection of sediment and benthic invertebrates. The stormwater monitoring is undertaken to satisfy commitments in the CRD's Liquid Waste Management Plans.

In addition, The Friends of Tod Creek Watershed, a local community organization, measure conventional water quality parameters monthly at eight sites within the watershed and conduct restoration activities. Restoration activities are most often done in conjunction with The Peninsula Streams Society, another non-profit community group committed to watershed protection and restoration. The CRD regularly coordinates and shares data with both groups. A figure illustrating CRD and The Friends of Tod Creek Watershed sampling locations can be found in Appendix B.

The Healthy Waters proposal includes assessment of a broader suite of potential environmental contaminants of concern, many of which are already assessed in landfill leachate directly. Environmental risk can be inferred from the leachate data and indicator parameters that are already measured in the watershed by the CRD. While there may be scientific interest in characterizing these contaminants in the environment, their analysis comes at significant expense and staff anticipate challenges with attributing contaminant sources to low-level concentrations under the proposed project design. In addition, existing CRD and community-based monitoring programs have already identified the most significant issues affecting the watershed's ability to support fish and other aquatic life: primarily low oxygen, elevated nutrients, alterations to watershed structure and variable stormwater flow.

ALTERNATIVES

Alternative 1
The Environmental Services Committee recommends to the Capital Regional District Board:
That the Capital Regional District not support the Healthy Waters project proposal for Tod Creek on the Saanich Peninsula.

Alternative 2
The Environmental Services Committee recommends to the Capital Regional District Board:
That staff be directed to identify a source of funding and support the Healthy Waters project proposal for Tod Creek on the Saanich Peninsula.

IMPLICATIONS

Environmental Implications

The CRD and The Friends of Tod Creek monitoring confirm that, in general, the mouth of the creek is healthy (with very few exceedances of water quality guidelines), but at upstream sites, particularly near Farmington Road, impacts to aquatic life are anticipated. At these upstream locations, dissolved oxygen levels were below guidelines for protection of aquatic life, and elevated phosphorus, turbidity, iron and zinc were also observed. However, none of these exceedances are associated with landfill leachate parameters, supporting the conclusion that engineered landfill controls are functioning as designed and there are no complete pathways offsite from the landfill.

Financial Implications

Current program budgets (e.g., landfill monitoring, stormwater monitoring, wastewater monitoring) are insufficient to support the Healthy Waters project. As proposed, the project would extend for more than a year with a budget of approximately $145,000. Funding would be required, and some staff resources would need to be reallocated, to support the project.

Social Implications

While staff anticipate the project will have limited additional scientific or technical value, it may provide value to the community in the form of reassurance that the CRD and community-based monitoring programs are adequate to confirm that current and future landfill activities are not linked to any offsite concerns in the watershed.

CONCLUSION

Monitoring programs through CRD service delivery and local community groups confirm that Hartland Landfill operations are not adversely impacting the Tod Creek watershed. This monitoring has indicated, however, that water quality in parts of the watershed is impacted by other stressors and in some areas is likely insufficient to support aquatic life for reasons unrelated to landfill activities. Existing monitoring program budgets and staff capacity are insufficient to support the Healthy Waters project, as proposed. Staff anticipate the project would be of interest to the community but would add minimal additional scientific technical or regulatory value to the current monitoring programs.

RECOMMENDATION

The Environmental Services Committee recommends to the Capital Regional District Board:
That the Capital Regional District not support the Healthy Waters project proposal for Tod Creek on the Saanich Peninsula.

Submitted by:	Glenn Harris, Ph.D., R.P.Bio., Senior Manager, Environmental Protection
Concurrence:	Larisa Hutcheson, P. Eng., General Manager, Parks & Environmental Services
Concurrence:	Ted Robbins, B. Sc., C. Tech., Chief Administrative Officer

ATTACHMENTS

Appendix A: Original Project Proposal
Appendix B: Map – CRD and The Friends of Tod Creek Watershed – Sampling Locations

ORIGINAL PROJECT PROPOSAL

A '*Healthy Waters*' project for Tod Creek on the Saanich Peninsula for CRD consideration

A community-oriented project to deliver comprehensive water quality testing in support of healthy waters and healthy fish habitat

Project concept submitted by Peter S. Ross, Raincoast Conservation Foundation (Sidney BC)*

Objective: To conduct a risk-based evaluation of contaminants of concern in the Tod Creek watershed (Saanich Peninsula) in support of healthy fish habitat. Secondary objective: To document possible sources of contaminants of concern in the Tod Creek watershed, including Hartland landfill and local land use.

Background:
The health of fish habitat in British Columbia is impacted by a complex mixture of pollutants originating from many land-based sources, including municipal wastewater, landfill leachate, industrial discharges, agro-forestry operations and nonpoint source pollutants. Monitoring, deliberation and action have been the subject of long-standing discussions on the liquid and solid waste management file in the Capital Regional District (CRD) of Victoria. The completion of the new McLoughlin Point wastewater treatment plant in 2020 effectively reduced the release of contaminants of concern to the marine receiving environment, but led to new concerns about persistent contaminants found in retained biosolids. Some of these biosolids are being deposited at the Hartland Landfill site, where community concerns linger that they may leach into local waterways.

The intent of this project is to bring the expertise of the new Raincoast *Healthy Waters* (https://www.raincoast.org/waters/) program to the Saanich Peninsula, build on the strength of place-based WSANEC Indigenous Knowledge, and deliver high resolution data on a wide range of Contaminants of Emerging Concern (CoC). Raincoast applied a different version of this model following the catastrophic floods of late 2021, with the report available (Floodwater contaminants report | Raincoast Conservation Foundation). A near-term objective also exists for Raincoast to build a mobile lab to bring contaminant measurements to the community (Mobile lab | Raincoast Conservation Foundation). This effort has potential to inform land use practices, riparian protections, and stewardship initiatives in the Tod Creek watershed. This project also has strong potential to generate goodwill and trust with multiple members of the CRD community and Indigenous Nations.

The team:
Scientific staff: Raincoast Conservation Foundation will oversee the core study design, sampling protocols, analytical (lab) protocols, service lab selection, statistical evaluation, data interpretation and comparative evaluation (against other watersheds). Dr. Peter Ross, Senior Scientist and Director of *Healthy Waters*, will oversee the sampling, analysis and interpretation in this study. Dr Ross has published over 160 scientific articles and book chapters on topics in ecotoxicology and aquatic pollution. Raincoast will deliver an interim data summary report and a final report, as well as build a comparative web-based tool to share high level findings.

Community Advisory Team (CAT): Membership to be determined after invitation, with the following candidates:

- Tsartlip First Nation
- WSANEC Leadership Council
- Friends of Tod Creek
- Peninsula Streams
- Mt Work Coalition
- Willis Point Community Association
- Peninsula Biosolids Coalition
- Saanich Inlet Protection Society
- Butchart Gardens

The CAT will provide input into site selection, watershed features of cultural or ecological value, and land use concerns. All data, findings, and reports will be shared with the CAT.

Funder: Funding for this project is sought from CRD. CRD will have the opportunity to provide input into final study design, sample size and analyte list. Comparability of these data with relevant datasets from RCD programs is an important consideration. Raincoast will deliver data and reports to CRD.

Proposed study
We submit here a two-step proposal to allow for rapid initial ('snapshot') evaluation, followed by a one-year seasonal ('Healthy Waters') study. Findings will be summarized in two reports reflecting this two-tiered approach, and will inform the design of subsequent monitoring designs.

This project entails

i) the co-design of a watershed-based approach to sampling and analysing samples of surface water (and possibly biosolids and sediments) from a Saanich watershed of interest,
ii) the generation of CoC data in conjunction with risk-based evaluations of findings using pan-Canadian Environmental Quality Guidelines and the scientific literature,
iii) a comparative evaluation as measured against the findings from up to 10 other flagship watersheds across southern BC, and
iv) the participation of community champions and Indigenous Nations.

Samples will be analysed using the best available laboratories and instrumental protocols, thereby providing high quality data with the best opportunity for forensic exploration. This essentially allows for a good opportunity to discern source or source sector, and delivers insights into priorities, land use, and the formulation of any additional research designs. Data generated using proposed instrumental protocols at dedicated service labs will be used to generate signatures in support of source identification. Data interpretation will inform environmental risks. Overall results are expected to deliver a blend of answers and questions, with the latter serving to help guide the design of any more focused research questions and follow up monitoring plans.

Our principal objective is to improve water quality in and around fish habitat in coastal BC through the following deliverables:

1. The design and application of a monitoring program for community members and Indigenous partners in the selected Saanich Peninsula watershed. This training platform will offer a focal means of generating community and Indigenous technical capacity for water monitoring through training for i) water sampling techniques; ii) water analysis; and iii) solution-oriented water pollution prioritization using Canadian Environmental Quality Guidelines;
2. The preparation of a proposed list of priority water properties and contaminant analytes that captures local concerns, scientific topics of current interest, and emerging wastewater management concerns;
3. The co-design of a regimented water sampling and analysis program with protocols (safety, methods, equipment, frequency, analytes, and Quality Assurance/Quality Control [QA/QC]) that will enable a ranking of threats to the health of fish habitat;
4. *Snapshot assessment*

Community science project entailing YSI data (pH, T, DO, conductivity) and flow from selected watershed:

   a. *One-time* Tier 1: community data on temperature, salinity, pH, dissolved oxygen, and select metals using a YSI meter;
      i. microplastic concentrations and types in partnership with Ocean Diagnostics
   b. *One-time* Tier 2: Basic water quality data from partnering lab (CARO Analytical Services):
      i. Coliform
      ii. nutrients
      iii. metals
   c. *One-time* Tier 3: High resolution contaminant data at partnering labs (SGS AXYS):
      i. Pharmaceuticals and personal care products
      ii. Pesticides
      iii. Perfluoro-alkyl substances (PFAS)
      iv. high resolution hydrocarbons
      v. wastewater tracers (sucralose)

vi. tire-related chemicals (6-PPD Quinone)
vii. alkylphenol ethoxylates
viii. Microplastics

5. *Healthy Waters year*

New, high value data on contaminants in fish habitat:

a. *Weekly* Tier 1: community data on temperature, salinity, pH, dissolved oxygen, and select metals using a YSI meter and microplastics
b. *Quarterly* Tier 2: Basic water quality data from partnering lab (CARO Analytical Services)
c. *Quarterly* Tier 3: High resolution contaminant data at partnering labs (SGS AXYS)

6. A report interpreting findings in the context or Ecological risks, local land use and source identification;
7. A comparative web-based tool that enables a relative understanding of the health of Tod Creek alongside other watersheds in southern BC;
8. Expert support and interpretative data for community-based stewardship initiatives and relevant policies and practices for local, BC and federal agencies.

Backgrounder (*Healthy Waters*):

Healthy Waters is a program of the Raincoast Conservation Foundation. *Healthy Waters* is building on existing partnerships with, among others, the 30-member Indigenous-led Lower Fraser Fisheries Alliance (LFFA), the 16-member S'ólh Téméxw Stewardship Alliance (STSA), Parks Canada, Metro Vancouver, and DFO. We can therefore leverage this project across similar initiatives, with people, activities and data from the wider Healthy Waters team that add depth and breadth to the Saanich Peninsula findings.

The intent of *Healthy Waters* is to be transparent, to build a shareable dataset that allows communities to compare lessons learned, and to advance conservation and stewardship actions that are informed by water quality findings. Each place-based partnership will be built on trust, and will entail a close working relationship that provides data, advice and support to that community. We plan on building a data visualization tool akin to that of *PollutionTracker.org* which displays summary data for sediments and mussels along the coast of BC, whereby each site is sponsored by a single funder.

With this project, Tod Creek findings will benefit from outcomes at other Raincoast *Healthy Waters* watersheds in southern BC.

Candidate partnershipsfor *Healthy Waters* in 2023

False Creek, Vancouver	Cowichan River VI	Pitt River LFV
Squamish River	Fulford Harbour SSI	Terminal Creek Watershed BI
Quibble Creek, Surrey	Sumas Lake watershed LFV	Somass watershed VI

While *Healthy Waters* aims at an assessment of contaminants in water, concerns about contaminants that are more likely to attach to particles argues in favour of additional analysis of sediment and biosolids samples. This may include the analysis of PCBs, PBDEs, organochlorine pesticides, Dioxins / Furans, and HBCDD.

A) **Proposed budget for *Snapshot* assessment**

	Per sample	Total
Senior Scientist		0
Technician		0
Research & Communications		2,200
Safety gear		300
Data mgt & interpretation		1,200
Travel costs		600
Material & Supplies		550
Shipping		300
Tier 1 costs[1]		5,500
Tier 2 costs[2]	235 (seasonally x 5 sites)	1,175
Tier 3 costs[3]	5,400 (seasonally x 5 sites)	27,000
Sediments & Biosolids	3,850 (1)	3,850
Subtotal		42,675
Administration		4,268
Total		**46,943**

B) Proposed budget for a one-year *Healthy Waters* project – building from the Snapshot Assessment

	Per sample	Total
Senior Scientist		0
Technician		0
Research & Communications		5,500
Safety gear		600
Data mgt & interpretation		4,000
Travel costs		2,400
Material & Supplies		1,200
Shipping		800

Tier 1 costs[1]		6,000
Tier 2 costs[2]	235 (seasonally x 5 sites)	4,700
Tier 3 costs[3]	5,400 (seasonally x 5 sites)	108,000
Sediments & Biosolids	3,850 (12)	46,200
Subtotal		179,400
Administration		17,940
Total		**197,340**

[1]*Tier 1*: acquisition and deployment of YSI meter for community science use (T, pH, Dissolved oxygen and conductivity). Field protocols and safety gear will be included. Raincoast team will attend / oversee where needed.

[2]*Tier 2*: analysis of basic contaminants of concern – Fecal coliform nutrients and metals. Raincoast team will attend.

[3]*Tier 3*: advanced high-resolution analysis of contaminants of concern – pharmaceuticals and personal care products, polycyclic aromatic hydrocarbons, perfluoro-alkyl substances (PFAS), pesticides, tire chemicals, sucralose and alkyl phenol ethoxylates. Tier 3 includes a total of 379 analytes per sample. Raincoast team will attend.

Contact Peter S. Ross at peter@raincoast.org

[*]Raincoast (Raincoast Conservation Foundation | Informed advocacy) *is a team of scientists and conservationists empowered by our research to safeguard the land, waters, and wildlife of coastal British Columbia. We investigate to understand coastal species and processes. We inform by bringing science to decision-makers and communities. We inspire action to protect wildlife and wildlife habitats.*

Tod Creek Watershed

CRD
Making a difference...together