Capital Regional District

625 Fisgard St.,
Victoria, BC V8W 1R7

Notice of Meeting and Meeting Agenda
Capital Regional District Board

Wednesday, August 12, 2020 | **1:00 PM** | **6th Floor Boardroom, 625 Fisgard Street, Victoria, BC**

1. TERRITORIAL ACKNOWLEDGEMENT

2. APPROVAL OF THE AGENDA

3. ADOPTION OF MINUTES

3.1. 20-441 Minutes of the July 08, 2020 Capital Regional District Board Meeting

Recommendation: That the minutes of the Capital Regional District Board meeting of July 08, 2020 be adopted as circulated.
(NWA)

Attachments: Minutes - July 08, 2020

4. REPORT OF THE CHAIR

5. PRESENTATIONS/DELEGATIONS

5.1. Presentations

5.2. Delegations

5.2.1. 20-465 Delegation - Nikki MacDonald; Representing the Mount Work Coalition: Re: Agenda Items 8.1. Solid Waste Management Plan - Phase One Engagement and Next Steps and 8.2. Solid Waste Management Plan - Traffic Impact Analysis

5.2.2. 20-466 Delegation: Kayla Vandermolen; Resident of Willis Point: Re: Agenda Items 8.1. Solid Waste Management Plan - Phase One Engagement and Next Steps and 8.2. Solid Waste Management Plan - Traffic Impact Analysis

5.2.3. 20-467 Delegation: Margaret Williams; Resident of Juan de Fuca Electoral Area: Re: Agenda Items 8.1. Solid Waste Management Plan - Phase One Engagement and Next Steps and 8.2. Solid Waste Management Plan - Traffic Impact Analysis

5.2.4. 20-468 Delegation - Elaine Klimke; Resident of Victoria: Re: Agenda Items 8.1. Solid Waste Management Plan - Phase One Engagement and Next Steps and 8.2. Solid Waste Management Plan - Traffic Impact Analysis

5.2.5. 20-469 Delegation - Hugh Stephens; Resident of Juan de Fuca Electoral Area: Re: Agenda Item 8.1. Solid Waste Management Plan - Phase One Engagement and Next Steps

5.2.6. 20-470 Delegation - Dianne Twamley; Resident of Highlands: Re: Agenda Item 8.1. Solid Waste Management Plan - Phase One Engagement and Next Steps

5.2.7. 20-471 Delegation - Daniel Kenway; Representing the Willis Point Community Association: Re: Agenda Items 8.1. Solid Waste Management Plan - Phase One Engagement and Next Steps and 8.2. Solid Waste Management Plan - Traffic Impact Analysis

5.2.8. 20-472 Delegation - Jason Hillis; Resident of Willis Point: Re: Agenda Items 8.1. Solid Waste Management Plan - Phase One Engagement and Next Steps and 8.2. Solid Waste Management Plan - Traffic Impact Analysis

5.2.9. 20-473 Delegation - Midori Hillis; Resident of Willis Point: Re: Agenda Items 8.1. Solid Waste Management Plan - Phase One Engagement and Next Steps and 8.2. Solid Waste Management Plan - Traffic Impact Analysis

5.2.10. 20-474 Delegation - Camille Halsey; Resident of the Juan de Fuca Electoral Area: Re: Agenda Item 8.1. Solid Waste Management Plan - Phase One Engagement and Next Steps

5.2.11. 20-475 Delegation - Robert Cormie; Resident of Willis Point: Re: Agenda Item 8.2. Solid Waste Management Plan - Traffic Impact Analysis

5.2.12. 20-476 Delegation - Ned Jackson; Resident of the Juan de Fuca Electoral Area: Re: Agenda Items 8.1. Solid Waste Management Plan - Phase One Engagement and Next Steps and 8.2. Solid Waste Management Plan - Traffic Impact Analysis

5.2.13. 20-477 Delegation - Catherine Bailey; Resident of Willis Point: Re: Agenda Item 8.1. Solid Waste Management Plan - Phase One Engagement and Next Steps

5.2.14. 20-478 Delegation - Linda McClung; Resident of the Juan de Fuca Area: Re: Agenda Items 8.1. Solid Waste Management Plan - Phase One Engagement and Next Steps and 8.2. Solid Waste Management Plan - Traffic Impact Analysis

5.2.15. 20-479 Delegation - Dr. Judith Finlayson; Resident of the Juan de Fuca Electoral Area: Re: Agenda Item 8.1. Solid Waste Management Plan - Phase One Engagement and Next Steps

5.2.16. 20-482 Delegation - Dylan Kos; Resident of Willis Point: Re: Agenda Item 8.1 Solid Waste Management Plan - Phase One Engagement and Next Steps

6. CONSENT AGENDA

6.1. 20-305 Wastewater Treatment Project Q1 2020 Quarterly Report

Recommendation: The Core Area Liquid Waste Management Committee recommend to the Capital Regional District Board:
That this report be received for information.
(NWA)

Attachments: Staff Report: WTP Q1 2020 Quarterly Report

6.2. 20-339 Wastewater Treatment Project April 2020 Monthly Report

Recommendation: The Core Area Liquid Waste Management Committee recommend to the Capital Regional District Board:
That this report be received for information.
(NWA)

Attachments: Staff Report: WTP April 2020 Monthly Report

6.3. 20-418 Wastewater Treatment Project May 2020 Monthly Report

Recommendation: The Core Area Liquid Waste Management Committee recommend to the Capital Regional District Board:
That this report be received for information.
(NWA)

Attachments: Staff Report: WTP May 2020 Monthly Report

6.4. 20-432 Regional Role in Economic Development

Recommendation: The Governance and Finance Committee recommends to the Capital Regional District Board:
That the Regional Role in Economic Development report be received for information.
(NWA)

Attachments: Staff Report: Regional Role in Economic Development

Appendix A: CRD Contributions to the Regional Economy

6.5. 20-446 Diversity and Inclusion Statement - Response to Notice of Motion

Recommendation: [At the July 29, 2020 meeting the Governance and Finance Committee amended the recommendation as noted:]
The Governance and Finance Committee recommends to the Capital Regional District Board:
That the following diversity and inclusivity statement be included on the agenda cover for each of the Capital Region Housing Corporation, Capital Regional Hospital District and Capital Regional District Boards and each of the standing committees of those Boards:
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.
(NWA)

Attachments: Staff Report: Diversity and Inclusion (Response to Notice of Motion)

Appendix A: Sample Statements from other Local Governments

6.6. 20-444 Sale of 808 and 836 Viewfield Road Properties

Recommendation: The Governance and Finance Committee recommends to the Capital Regional District Board:
That the net proceeds from the sale of 808 and 836 Viewfield in Esquimalt, BC, be used to reduce future borrowing requirements of the Core Area Wastewater Treatment service.
(WP - Langford, Esquimalt, Saanich, Victoria, View Royal, Colwood, Oak Bay)

Attachments: Staff Report: Sale of Viewfield Road Properties

6.7. 20-392 Response to Environmental Resource Management 2019 Progress Report Follow Up Questions

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

Attachments: Staff Report: Response to ERM 2019 Progress Report

Appendix A: Extended Producer Resp. Product Mgmt in BC

6.8. 20-412 Capital Region Coastal Flood Inundation Mapping Project Update

Recommendation: [At the July 15, 2020 meeting the Environmental Services Committee amended the recommendation as noted:]
The Environmental Services Committee recommends to the Capital Regional District Board:
That the results of the Capital Region Coastal Flood Inundation Mapping Project be received for information, be referred to all CRD municipalities, the Islands Trust, electoral areas and First Nations, and inform future emergency planning efforts and that feedback from the referrals be received back to inform further regional action.

[At the July 15, 2020 meeting the Planning, Transportation and Protective Services Committee amended the recommendation as noted:]
The Planning, Transportation and Protective Services Committee recommends to the Capital Regional District Board:
That the results of the Capital Region Coastal Flood Inundation Mapping Project be received for information, be referred to all CRD municipalities, electoral areas and First Nations, and inform future emergency planning efforts, and that feedback from referrals be received back to inform further regional actions.
(NWA)

Attachments: Staff Report: Capital Region Coastal Flood Inundation Mapping Project Update

Appendix A: Executive Summary - Coastal Flood Inundation Mapping Project

Presentation: Capital Region Coastal Flood Inundation Mapping Project

6.9. 20-455 2020 Financial Plan Amendment Panorama Recreation Commission

Recommendation: That Peninsula Recreation Commission recommends to the Capital Regional District Board:
That the 2020 Panorama Recreation financial plan be amended to reduce the planned transfers to the capital reserve by $411,204 and transfers to the operating reserve by $2,358 to cover the forecasted deficit of $413,562, as a result of the COVID-19 closures and phased re-opening plan, as outlined in Appendix A.
(WP - Sidney, North Saanich, Central Saanich)

Attachments: Staff Report: 2020 Financial Plan Amendment Peninsula Rec Commission

Appendix A: Amended 2020-2024 Panorama Rec Center Committee Summary

6.10. 20-456 2020 Financial Plan Amendment Sooke and Electoral Area Parks and Recreation Commission

Recommendation: That Sooke and Electoral Area Parks and Recreation Commission recommends to the Capital Regional District Board:
That the 2020 Sooke and Electoral Area Parks and Recreation Commission financial plan be amended, as shown in Appendix A, for reduced services and programs with no anticipated deficit, as a result of the COVID-19 closures and phased re-opening plan.
(WP - Sooke & JDF EA)

Attachments: Staff Report: 2020 Financial Plan Amendment SEAPARC Commission

Appendix A: Amended 2020-2024 SEAPARC Committee Summary

7. ADMINISTRATION REPORTS

8. REPORTS OF COMMITTEES

Environmental Services Committee

8.1. 20-415 Solid Waste Management Plan - Phase One Engagement and Next Steps

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

Attachments: Staff Report: Solid Waste Mgmt Plan - Phase 1 Engagement Next Steps

Appendix A: SWAC Staff Report

8.2. 20-395 Solid Waste Management Plan - Traffic Impact Analysis

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

[At the July 15, 2020 Environmental Services Committee meeting the following motion arising was made:]
The Environmental Services Committee recommends to the Capital Regional District Board:
That staff report back through the Environmental Services Committee on the following items:
1. The cost analysis of a shorter passing lane on Willis Point Road,
2. Impacts of relocation of road access on operation of landfill longer term,
3. Additional consultation plan for the resident of Willis Point and Highlands and;
4. Conduct a current season traffic study as an update to the Bunt & Associates report.
(WA)

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

8.3. 20-390 Regional Greenhouse Gas Inventory Study

Recommendation: [At the July 15, 2020 meeting, the Environmental Services Committee amended the recommendation as noted:]
The Environmental Services Committee recommends to the Capital Regional District Board:
That this report be received for information and be referred to all CRD municipalities, electoral areas and First Nations with the per capita information.
(NWA)

Attachments: Staff Report: Regional Greenhouse Gas Inventory Study
Appendix A (Updated): CRD 2018 GCP BASOC GHG Inventory Report
Appendix B (Updated): Energy & GHG Emissions Inventory Report
Appendix C (New): 2018 Per Capita and Per Hectare GHG Emissions

Juan De Fuca Land Use Committee

8.4. 20-372 Provision of Park Land for Subdivision of Lot A, District Lot 17, Renfrew District, Plan EPP10506 - 6505 Powder Main Road

Recommendation: That the Land Use Committee recommend to the CRD Board:
That cash in lieu of park land dedication in the amount of 5% of the value of the land being subdivided be requested pursuant to Section 510 of the Local Government Act for the proposed subdivision of Lot A, District Lot 17, Renfrew District, Plan EPP10506.
(Voting Block A - JDF EA, Colwood, Langford*, Metchosin, Sooke)

Attachments: Staff Report
Appendix A: Subject Property Map
Appendix B: Orthophoto Map
Appendix C: Plan of Subdivision
Appendix D: Commission Minutes May 26, 2020
LUC Minutes Excerpt

8.5. 20-373 Provision of Park Land for Subdivision of Parcel A (DD 143426I) of Section 97, Renfrew District, Except that part in Plans 15462, VIP77871 and EPP24972 - 17151 Parkinson Road

Recommendation: That the Land Use Committee recommend to the CRD Board:
That 5% park land dedication be requested pursuant to Section 510 of the Local Government Act for the proposed subdivision of Parcel A (DD 143426I) of Section 97, Renfrew District, Except that part in Plans 15462, VIP77871 and EPP24972, except that a lesser amount may be acceptable where the owner agrees to dedicate that portion of the subject property required to locate a trail along Parkinson Road to JdF Community Parks and Recreation standards, and that the owner agrees to construct the trail prior to subdivision approval.
(Voting Block A - JDF EA, Colwood, Langford*, Metchosin, Sooke)

Attachments:
- Staff Report
- Appendix A: Subject Property Map
- Appendix B: Orthophoto Map
- Appendix C: Plan of Subdivision
- Appendix D: Commission Minutes May 26, 2020
- Appendix E: Draft Port Renfrew Trails Plan
- LUC Minutes Excerpt

8.6. 20-383 Development Permit with Variance for Lot 2, District Lot 39, Malahat District, Plan 23012

Recommendation: That the Land Use Committee recommends to the Capital Regional District Board:
That Development Permit with Variance DV000071 for Lot 2, District Lot 39, Malahat District, Plan 23012 to authorize a 2-lot subdivision in a Sensitive Ecosystems Development Permit Area, and to vary Juan de Fuca Land Use Bylaw No. 2040, Part 2, Section 3.10(4) by reducing the minimum road frontage requirement from 10% (79.9 m) to 9.5% (76.4 m) for the purpose of authorizing a 2-lot subdivision, be approved.
(Voting Block A - JDF EA, Colwood, Langford*, Metchosin, Sooke)

Attachments:
- Staff Report
- Appendix A: Subject Property Map
- Appendix B: Subdivision Plan
- Appendix C: Development Permit Guidelines
- Appendix D: Environmental Assessment
- Appendix E: Permit DV000071
- LUC Minutes Excerpt

8.7. 20-384 Zoning and Official Community Plan Amendment Application for That Part of Section 17, Otter District, Lying East of Otter Point Road, Except Parcel C (DD43782I) And Except Parts in Plans 3054 And 17721 - 3542 & 1-3542 Otter Point Road

Recommendation: That the Land Use Committee recommends to the Capital Regional District (CRD) Board:
a) That the referral of proposed Bylaw No. 4316, "Juan de Fuca Land Use Bylaw, 1992, Amendment Bylaw No. 147, 2019" and Bylaw No. 4317, "Otter Point Official Community Plan Bylaw, 2014, Amendment Bylaw No. 2, 2019" to the Otter Point Advisory Planning Commission; the Juan de Fuca Electoral Area Parks and Recreation Advisory Commission; CRD departments; BC Hydro; Department of Fisheries and Oceans; District of Sooke; Ministry of Agriculture; Ministry of Environment and Climate Change Strategy; Ministry of Forests, Lands and Natural Resource Operations; Ministry of Transportation and Infrastructure; RCMP; Sooke School District #62; and T'Sou-ke First Nation be approved and the comments received;
b) That proposed Bylaw No. 4316, "Juan de Fuca Land Use Bylaw, 1992, Amendment Bylaw No. 147, 2019" be introduced and read a first time and read a second time;
c) That proposed Bylaw No. 4317, "Otter Point Official Community Plan Bylaw, 2014, Amendment Bylaw No. 2, 2019" be introduced and read a first time and read a second time;
d) That in accordance with the provisions of Section 469 of the Local Government Act, the Director for the Juan de Fuca Electoral Area, or Alternate Director, be delegated authority to hold a public hearing with respect to Bylaw No. 4316 and Bylaw 4317; and
e) That prior to adoption of the bylaws, the applicant:
i) Provide confirmation from a Qualified Environmental Professional that the vegetative screening requirements in the M-3 zone and the recommendations for restoration of the riparian area outlined in the Conditions and Impacts report prepared by Corvidae Environmental Consulting Inc., dated February 2020, have been implemented;
ii) Secure a covenant on title pursuant to Section 219 of the Land Title Act in favour of the CRD requiring that the fire protection works related to the sawmill operation, described in the letter from the Otter Point Volunteer Fire Department dated January 30, 2020, be installed and conveyed to CRD prior to subdivision or further building construction.
(Voting Block A - JDF EA, Colwood, Langford*, Metchosin, Sooke)

Attachments:
Staff Report
Appendix A: Subject Property Map
Appendix B: Summary of Referral Comments
Appendix C: Referral Comments
Appendix D: Development Proposal
Appendix E: Proposed Bylaw No. 4316
Appendix F: Proposed Bylaw No. 4317
Appendix G: Environmental Report
Appendix H: Conditions and Impacts Report
Appendix I: Industrial Zoning Map
LUC Minutes Excerpt
Board Submission - D. Brubaker

8.8. 20-411 Development Permit with Variance for Lot A, Section 89, Sooke District, Plan VIP54145

Recommendation: That the Land Use Committee recommends to the Capital Regional District Board: That Development Permit with Variance DV000072 for Lot A, Section 89, Sooke District, Plan VIP54145 to permit alterations to a single-family dwelling and deck located within in a Steep Slopes and a Shoreline Protection Development Permit Area; and to vary Part 2, Section 10.09(d) by decreasing the minimum rear yard setback from 10 m to 7.5 m, and to vary Juan de Fuca Land Use Bylaw No. 2040, Part 1, Section 4.10 (1)(a) by increasing the maximum deck projection allowance into the rear yard setback from 1 m to 1.6 m, be approved.
(Voting Block A - JDF EA, Colwood, Langford*, Metchosin, Sooke)

Attachments:
- Staff Report
- Appendix A: Subject Property Map
- Appendix B: Building Plans
- Appendix C: Site Plan with Variance
- Appendix D: Development Permit Guidelines
- Appendix E: Geotechnical Report
- Appendix F: Permit DV000072
- LUC Minutes Excerpt

Regional Parks Committee

8.9. 20-433 Non-Migratory Canada Goose Management

Recommendation: [At the July 22, 2020 Regional Parks Committee meeting the following motion arising was made:]
The Regional Parks Committee recommends to the Capital Regional District Board: That staff provide a report on a Canada Goose Management Program Service.
(WA)

Attachments:
- Staff Report: Non-Migratory Canada Goose Management
- Appendix A: Town of View Royal - Correspondence
- Appendix B: District of Central Saanich - Correspondence

9. BYLAWS

9.1. 20-448 Liquid Waste Management Core Area and Western Communities Service Establishment Bylaw No. 1, 1995, Amendment Bylaw No. 3, 2020

Recommendation: That Bylaw No. 4304 be adopted.
(WP - Saanich, Victoria, Oak Bay, Esquimalt, View Royal, Colwood and Langford)

Attachments: Bylaw No. 4304

10. NOTICE(S) OF MOTION

11. NEW BUSINESS

12. MOTION TO CLOSE THE MEETING

12.1. 20-453 Motion to Close the Meeting

Recommendation: 1. That the meeting be closed for Land Acquisition in accordance with Section 90(1)(e) of the Community Charter; and
2. That such disclosures could reasonably be expected to harm the interests of the Regional District. [3 items]
3. That the meeting be closed for Appointments in accordance with Section 90(1)(a) of the Community Charter. [1 item]
4. That the meeting be closed for Labour Relations under s. 90 (1)(c) of the Community Charter. [1 item]
(NWA)

13. RISE AND REPORT

14. ADJOURNMENT

Votinq Key:
NWA - Non-weighted vote of all Directors
NWP - Non-weighted vote of participants (as listed)
WA - Weighted vote of all Directors
WP - Weighted vote of participants (as listed)

Capital Regional District

625 Fisgard St.,
Victoria, BC V8W 1R7

Meeting Minutes

Capital Regional District Board

Wednesday, July 8, 2020 | **1:00 PM** | **6th Floor Boardroom, 625 Fisgard Street, Victoria, BC**

PRESENT
Directors: C. Plant (Chair), D. Blackwell (Vice-Chair), S. Brice, B. Desjardins, F. Haynes, L. Helps, M. Hicks, G. Holman, B. Isitt, J. Loveday, C. McNeil-Smith (EP), R. Martin, R. Mersereau, K. Murdoch, G. Orr, K. Kahakauwila (for J. Ranns)(EP), D. Screech, L. Seaton, M. Tait, N. Taylor, K. Williams, R. Windsor, G. Young

Staff: R. Lapham, Chief Administrative Officer; N. Chan, Chief Financial Officer; L. Hutcheson, General Manager, Parks and Environmental Services; K. Lorette, General Manager, Planning and Protective Services; K. Morley, General Manager, Corporate Services; T. Robbins, General Manager, Integrated Water Services; J. Lam, Manager, Arts Development; J. Nichols, Community Outreach Coordinator; E. Gorman, Deputy Corporate Officer; S. Closson, Committee Clerk (Recorder)

EP - Electronic Participation

Regrets: Directors D. Howe, J. Ranns

The meeting was called to order at 12:55 pm.

1. TERRITORIAL ACKNOWLEDGEMENT

A Territorial Acknowledgment was provided in the preceding meeting.

2. APPROVAL OF THE AGENDA

Director Haynes left the meeting at 1:00 pm.

MOVED by Director Helps, SECONDED by Director Loveday,
That the agenda for the July 08, 2020 Session of the Capital Regional District Board be approved.
CARRIED

3. ADOPTION OF MINUTES

3.1. 20-407 Minutes of the June 10, 2020 and June 24, 2020 Capital Regional District Board Meetings

MOVED by Director Seaton, SECONDED by Director Williams,
That the minutes of the Capital Regional District Board meeting of June 10, 2020 and June 24, 2020 be adopted as circulated.
CARRIED

Director Haynes returned to the meeting at 1:02 pm.

4. REPORT OF THE CHAIR

The Chair noted it was good to have everyone back meeting together as a Board. Beginning this month committee meetings recommence and work is being done to ensure public participation for delegations at meetings.

The Chair thanked staff and directors who attended the Hartland Residual Treatment Facility tour last month, and noted the hard work and commitment to safety. He was pleased to announce that the McLoughlin facility will be entering the commissioning phase later this summer.

There were updates from the last meeting, one being Saanich's acquisition of the Kings Road Nature Space where the report is not yet complete and will remain off the agenda for the time being. The other update is to confirm the letter was sent regarding investment in transit for stimulus spending to support a COVID recovery.

5. PRESENTATIONS/DELEGATIONS

5.1 Presentations

5.1.1. 20-396 Presentation: Arts & Culture 2019 Progress Report, Jeremy Loveday, Chair - CRD Arts Commission

Director Loveday presented the 2019 Arts & Culture Progress Report.

5.2 Delegations

There were no delegations.

6. CONSENT AGENDA

MOVED by Director Tait, SECONDED by Director Helps,
That Consent Agenda items 6.1. through 6.6. be approved as presented.
CARRIED

6.1. 20-354 Capital Regional District External Grants Update

That the Capital Regional District External Grants Update be received for information.
CARRIED

6.2. 20-336 Appointment of Officers

That for the purpose of Section 233 of the Local Government Act and Section 28(3) of the Offence Act and in accordance with Capital Regional District Bylaw No. 2681, Jesse Long, Taylor Marsh, Won Namgoong and Tod Purdy be appointed as Assistant Bylaw Officers.
CARRIED

6.3. 20-368 Union of British Columbia Municipalities Emergency Support Services -

Grant Motion of Support

That the Board support an application to the Union of British Columbia Municipalities Community Emergency Preparedness Fund for Juan de Fuca, Southern Gulf Islands, and Salt Spring Island emergency programs for Emergency Support Services equipment upgrades and direct staff to provide overall grant management.
CARRIED

6.4. 20-369 Union of British Columbia Municipalities Grant for Emergency Operations Centre - Motion of Support

That the Board support an application to the Union of British Columbia Municipalities Community Emergency Preparedness Fund for Juan de Fuca, Southern Gulf Islands, and Salt Spring Island Emergency Programs for Emergency Operations Centre equipment upgrades and direct staff to provide overall grant management.
CARRIED

6.5. 20-394 Provincial Urban Deer Cost Share Program Project Update

The Provincial Urban Deer Cost Share Program Project Update be received for information.
CARRIED

6.6. 20-382 MFABC Equipment Financing Program Borrowing Resolution for Pender Islands Fire and Emergency Response Service

That the following borrowing resolution be approved:
1. That the Board of the Capital Regional District authorizes up to $545,000 to be borrowed, under Section 403 of the Local Government Act, from the MFABC Equipment Financing Program, for the purchase of a fire truck for Pender Island Fire Protection and Emergency Service.
2. That the loan be repaid within five (5) years, with no rights of renewal.
CARRIED

7. ADMINISTRATION REPORTS

7.1. 20-358 CAO Quarterly Progress Report No. 2, 2020

R. Lapham provided an update on the CAO Quarterly Progress Report No. 2, 2020.

Discussion ensued on the main motion:
- rental revenue deferrals
- Oak Bay Lodge vacancy date
- Hartland gas methane capture
- intentions of Island Health for Mt. Tolmie Court

Discussion ensued on the motion arising:
- consideration of Oak Bay Lodge as a COVID-19 support property
- definition of 'temporary' on the proposal for potential housing support
- timeline for consulting on future development
- public engagement considerations

Director Haynes left the meeting at 1:18 pm.
Director Hicks left the meeting at 1:24 pm.

MOVED by Director Murdoch, SECONDED by Director Blackwell,
That the CAO Quarterly Progress Report No. 2 - 2020 be received for information.
CARRIED

Director Haynes returned to the meeting at 1:29 pm.
Director Hicks returned to the meeting at 1:33 pm.

MOVED by Director Helps, SECONDED by Director Loveday,
Direct staff to work with BC Housing and Island Health to explore the possibility of offering Oak Bay Lodge as a temporary COVID-19 related hospital facility and as temporary housing for people experiencing homelessness in the region during the COVID-19 pandemic, and report back to the CRHD Board with options.
CARRIED

7.2. 20-306 Bylaw No. 4359: Capital Regional District Recreation Services and Facilities Fees and Charges Bylaw No. 1, 2009, Amendment Bylaw No. 14, 2020

L. Hutcheson introduced Bylaw 4359.

MOVED by Director Hicks, SECONDED by Director Williams,
That Bylaw No. 4359, Capital Regional District Recreation Services and Facilities Fees and Charges Bylaw No. 1, 2009, Amendment Bylaw No. 14, 2020, be introduced, and read a first, second and third time.
CARRIED

MOVED by Director Hicks, SECONDED by Director Williams,
That Bylaw No. 4359 be adopted.
CARRIED

7.3. 20-352 Bylaw No. 4361: Security Issuing Bylaw No. 4, 2020

N. Chan introduced Bylaw 4361.

MOVED by Director Haynes, SECONDED by Director Windsor,
That Bylaw No. 4361, Security Issuing Bylaw No. 4, 2020, be introduced and read a first, second and third time.
CARRIED

MOVED by Director Haynes, SECONDED by Director Windsor,
That Bylaw No. 4361 be adopted.
CARRIED

7.4. 20-400 COVID Meeting Procedures

K. Morley spoke to CRD COVID-19 meeting procedures.

Discussion ensued on the following:
- voting options, mail in ballots for AGMs
- public meeting attendance and in-person/Webex options
- Chair required approval of electronic meetings

MOVED by Director Windsor, SECONDED by Director Desjardins,
1. Make all efforts to meet in-person and encourage all other committees and commissions to do so also, provided the meetings can be done in keeping with public health officer orders,
2. Authorize open meetings of the Regional Board, Hospital District Board and Housing Corporation Board as well as Standing, Select and Advisory Committees to be held without the public physically present provided that: agendas are posted with proper notice; agendas and minutes are available on the website; meetings are live webcasted and can be viewed electronically; and, that the public is able to provide comment as a delegation via written or electronic submission; and
3. Permit local area services and protective services to hold 2020 Annual General Meetings electronically when available meeting space cannot physically accommodate all area ratepayers, and conduct their election process for new committee members by way of mail-in ballot.
CARRIED

8. REPORTS OF COMMITTEES

Electoral Areas Committee

8.1. 20-403 Bylaw 4362 - Proposed Amendment to Bylaw 4029, Sooke and Electoral Area Recreation and Facilities Service Establishment Bylaw No. 1, 2016

Discussion ensued on the following:
- governance structure of SEAPARC commission
- map clarification

MOVED by Director Hicks, SECONDED by Director Holman,
1. That Bylaw No. 4362, "Sooke and Electoral Area Recreation and Facilities Service Establishment Bylaw No. 1, 2016, Amendment Bylaw No. 1, 2020" be introduced and read a first, second and third time.
2. That Bylaw No. 4362 be referred to the District of Sooke and the JDF EA Director for consent.
CARRIED

9. BYLAWS

There were no bylaws for consideration under this section.

10. NOTICE(S) OF MOTION

10.1. 20-388 Development of an Inclusion and Diversity Statement - Motion with Notice (Chair Plant)

MOVED by Director Blackwell, SECONDED by Director Helps,
That the Board ask the Governance and Finance committee to consider the matter of the Board developing an inclusion and diversity statement at the beginning of the meetings after the First Nations Territorial Acknowledgement and report back to the Board.
CARRIED

11. NEW BUSINESS

There was no new business.

12. MOTION TO CLOSE THE MEETING

12.1. 20-406 Motion to Close the Meeting

MOVED by Director Blackwell, SECONDED by Director Helps,
1. That the meeting be closed for Land Acquisition in accordance with Section 90(1)(e) of the Community Charter.
CARRIED

MOVED by Director Blackwell, SECONDED by Director Helps,
2. That such disclosures could reasonably be expected to harm the interests of the Regional District.
CARRIED

MOVED by Director Blackwell, SECONDED by Director Helps,
3. That the meeting be closed for a legal update in accordance with Section 90(1)(g) of the Community Charter.
CARRIED

MOVED by Director Blackwell, SECONDED by Director Helps,
4. That the meeting be closed for Labour Relations under s. 90 (1)(c) of the Community Charter.
CARRIED

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

The meeting was closed at 1:59 pm.

13. RISE AND REPORT

The Capital Regional District Board rose from closed session at 2:40 pm and reported on the following items:

3.3. Appointments to CRD Committees and Commissions

In accordance with Bylaw No. 4288, that the following person be appointed to the Juan de Fuca Board of Variance for a term to start July 9, 2020 and expire September 30, 2021: Brad Fitchett

In accordance with Bylaw No. 3654, that the following person be appointed to the Willis Point Fire Protection and Recreation Facilities Commission for a term to start July 9, 2020 and expire December 31, 2020: Gary Anderson

14. ADJOURNMENT

MOVED by Director Tait, SECONDED by Director Screech,
That the July 08, 2020 Capital Regional District Board meeting be adjourned at 2:40 pm.
CARRIED

_____

CHAIR

CERTIFIED CORRECT:

_____

CORPORATE OFFICER

Item 7.1

REPORT TO CORE AREA WASTEWATER TREATMENT PROJECT BOARD
MEETING OF THURSDAY, APRIL 30, 2020

SUBJECT **Wastewater Treatment Project Q1 2020 Quarterly Report**

ISSUE

To provide the Core Area Wastewater Treatment Project Board with the Wastewater Treatment Project Q1 2020 Quarterly Report

BACKGROUND

On May 25, 2016 the Regional Board of the CRD:

i) Adopted by resolution the Core Area Wastewater Treatment Project Board Terms of Reference (Project Board Terms of Reference) for the purposes of establishing principles governing the Core Area Wastewater Treatment Project (the Wastewater Treatment Project or the WTP);
ii) Established the Core Area Wastewater Treatment Project Board (Project Board) under Bylaw 4109 (the CRD Core Area Wastewater Treatment Board Bylaw No. 1, 2016) for the purposes of administering the Core Area Wastewater Treatment Project; and
iii) Delegated certain of its powers, duties and functions to the Project Board under Bylaw 4110 (the CRD Core Area Wastewater Treatment Project Board Delegation Bylaw No. 1, 2016).

On September 14, 2016 the Regional Board of the CRD:

i) Received the final report of the Project Board with respect to its recommendation for the CAWTP, dated September 7, 2016 (the Final Report); and
ii) Approved the business case attached as Appendix 1 (the Business Case) to the Final Report.

DISCUSSION

The Core Area Wastewater Treatment Project Board (the Project Board) Terms of Reference requires, amongst other things: that the Project Board provide the CRD Board with monthly progress reports and a comprehensive quarterly report on the Project.

The Quarterly report for the period of January to March 2020 is attached as Appendix A.

RECOMMENDATION

That the Core Area Wastewater Treatment Project Board approve the following resolution:

RESOLVED that:

The Staff Report, 'Wastewater Treatment Project Q1 2020 Quarterly Report, be received for information and forwarded to the Core Area Liquid Waste Management Committee and CRD Board for information.



Elizabeth Scott, Deputy Project Director
Wastewater Treatment Project



Dave Clancy, Project Director
Wastewater Treatment Project
Concurrence

Attachments: 1

Appendix A: Wastewater Treatment Project Q1 2020 Quarterly Report

ES:er

CRD Wastewater Treatment Project

Quarterly Report

Reporting Period: January to March 2020

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1 Executive Summary

1.1 Introduction

This Quarterly report covers the reporting period of January to March 2020 and outlines the progress made on the Wastewater Treatment Project over this time.

The Wastewater Treatment Project (the “Project”) includes three main Project Components (the “Project Components”): the McLoughlin Point Wastewater Treatment Plant (the “McLoughlin Point WWTP”), the Residuals Treatment Facility (the “RTF”) and the Conveyance System (which includes upgrades to the conveyance network including the construction of pump stations and pipes). The Project scope is being delivered through a number of contracts with a variety of contracting strategies.

Over the reporting period the COVID-19 public health emergency began to have impacts on the Project. The Project Team and Project contractors are actively monitoring the status of the COVID-19 public health emergency and are taking additional precautions to protect our staff, contractors, and the public. Construction is ongoing at all of the Project’s sites in accordance with guidelines established by the Provincial Health Officer.

While construction is ongoing, the public health emergency is impacting construction progress and may delay some interim project milestones, such as the transition to commissioning. However, based on current progress the Wastewater Treatment Project remains on schedule to meet the regulatory deadline for treatment by the end of 2020.

The McLoughlin Point WWTP Project Component is continuing with Harbour Resource Partners (“HRP” as the Design-Build Contractor for the McLoughlin Point WWTP) progressing construction in the Primary Treatment area including: installation of tube settlers in Densadeg 1 (DD1); completion of tank piping and equipment installation; Densadeg rake mechanism installation underway in all Densadegs; primary odour control tanks set in place; completion of pipe rack installation; fine screen building roofing is complete, cladding in progress, and drywall nearing completion. In the Secondary Treatment area progressing construction including: completed Moving Bed Bio Reactor (MBBR) #2 concrete; progression of penthouse building envelopes; completion of south Biological Aerated Filter (BAF)/ Tertiary tie-in slab; MBBR #2 and #1 process equipment nearing completion; and BAF gravel and biolite is installed in cells 11, 10, 8, 6, 4 and 2. In the Tertiary treatment area construction progress includes: progression of BAF tie-in walls and channels; initial Heating Ventilation and Air Conditioning(HVAC) and electrical work; ongoing installation of lower level 1 pumps and mechanical piping; outfall shaft concrete work nearing completion; progressing level 2 process piping; and cinder block masonry nearing completion. In the Operations and Maintenance (O&M Building) and off site utilities construction progress included: continued progress of HVAC and plumbing throughout the building; ongoing glazing installation on the first and second levels; completed raw influent line from Peters Street to the wye, including testing; installed water line to the main plant site from Peters Street; HVAC, plumbing and fire suppression trades are nearing completion on level 1; level 2 roof parapets were installed and preparing for roofing package installation; lower level stud build out and drywall nearing completion; and progression of north end tsunami and planter wall construction.

The RTF Project Component is continuing with Hartland Resource Management Group ("HRMG" as the Design-Build-Finance-Operate Maintain contractor for the RTF) progressing construction activities including: completing installation and finishing of drywall in Residuals Handling Building and Dryer Building; structural steel frame completed for the Water Pump House; installed motor control centre/electrical controls in Dryer Building electrical room; commenced erection of Digester #3 bolted steel tank; Digester 2 closed up in preparation for hydro testing; progressed mechanical and electrical in Digester Building; installed boilers and polymer pumps, epoxy flooring installed in chemical room, and installed valves and piping, in Residuals Handling Building; progressed mechanical installation, progressed metal stud and drywall installation and completed load out structure in Residuals Drying Facility; completed metal stud and drywall, completed valve installation around equalisation area, and progressing mechanical and electrical work in the Residuals Storage and Odour Control areas; metal stud walls completed with drywall commencing, and commenced window and door installation in the Operations and Maintenance building.

The Conveyance System is being delivered through seven construction contracts: two design-build contracts and five design-bid-build contracts.

The two design-build Conveyance System contracts progressed over the reporting period as follows:

- Clover Point Pump Station: Kenaidan Contracting Limited ("Kenaidan" as the Design-Build Contractor) progressed construction activities over the reporting period including: installation of process pipe knife gate and check valves; continued existing inlet channel and bypass pumping work testing and backfilling of the forcemain; progressing piping of domestic water service, and fire suppression service; installation of exterior retaining walls; pigging chamber waterline fused and bolted; relocation of existing screen and compactor; and installation of new screen and compactor.

- Macaulay Point Pump Station: Kenaidan Contracting Limited ("Kenaidan" as the Design-Build Contractor) progressed construction activities over the reporting period including: installation of bridge crane in the bin room; installation of screen room and Vortex grating; installation of HVAC and drain pipe in the screen room; completion and passing of the pressure test for the forcemain; ongoing backfill around the exterior wall; cross laminated timber roof and parapet have been installed; installation of the HVAC and drain pipes in the screen room; bridge cranes have been commissioned in the bin and pump rooms; ongoing unit heaters installation; poured wet well ogee block and duct bank for primary power cable; and insulation on the exterior walls and roof is nearing completion.

The design-bid-build Conveyance System contracts progressed over the reporting period, as follows:

- Clover Forcemain: Windley Contracting Ltd. ("Windley" as the Construction Contractor) continued construction activities including: progressing electrical lighting installation from Montreal Street to Lewis Street; ongoing installation of Clover Point storm catch basin; ongoing cycle track/road restoration between Government and Lewis Streets; ongoing cycle track paving; road restoration; electrical lighting installation; additional cycle path let downs; planted remaining trees at Douglas Street; and top lift paving from Niagara Street to Dock Street.

- Residual Solids Conveyance Line ("RSCL"): the RSCL is being delivered through two construction contracts, with work progressing as follows:

    - Residual Solids Pipes: Don Mann Excavating Ltd. ("Don Mann" as the Construction Contractor for the Residual Solids Pipes) continued construction activities over the reporting period, including: installation of valve chambers; final road restoration and line painting; and installation of approximately 2.2km of pipes.

    - Residual Solids Pump Stations: Knappett Projects Inc. ("Knappett" as the Construction Contractor for the Residual Solids Pump Stations) continued construction activities including: wet well walls and valve chamber slab were formed and poured, and the kiosk was landed at Pump Station 1; the valve chamber, flow meter and line valve manholes were installed at Pump Station 2; installation of underground conduits, genset and electrical kiosk and generator placed on pad at Pump Station 3; completion of pipe installation along Interurban Road; completion of the RTF Chamber at Willis Point Road; Hartland reservoir slab was poured, formed and the reservoir was fully erected; work progressed under Tillicum Bridge with the installation of all anchor bolts, and the Interurban base lift asphalt was paved.

- Arbutus Attenuation Tank ("AAT"): NAC Constructors Ltd. (as the Construction Contractor for the Arbutus Attenuation Tank) continued construction activities including: continued drilling operation and installation of plain and reinforced secant piles; mobilization of second drill rig to site to assist in secant pile production rate; maintaining the dewatering system; on-site steel welding for lateral strut reinforcement; preparatory works for ring beam construction; removal of construction ramp into tank footprint to facilitate installation of remaining secant piles and installation of diagonal and lateral struts atop the secant piles.

- Trent Forcemain Jacob Bros. Construction Inc. (as the Construction Contractor for the Trent Forcemain) progressed planning and commenced construction activities including: submitting construction management plans for the Project Team's Review; undertaking utility pre-locate works; and Memorial Crescent storm main and sanitary realignment work.

1.2 Dashboard

Table 1 indicates the high level status of the Project and each Project Component with regards to the six Key Performance Indicators ("KPI") that were defined within the Project Charter.

There were no changes made to the KPIs over the reporting period. Although the COVID-19 public health emergency did begin to have impacts on the Project over the reporting period, construction is ongoing at all of the Project's sites in accordance with guidelines established by the Provincial Health Officer.

The safety KPI for the Project and the conveyance system remains yellow. Over the reporting period no recordable safety incidents occurred and the total incident frequency decreased from 1.5 at the end of the fourth quarter of 2019 to 1.2. The Project Team continues to work with and ensure that all of the prime contractor partners maintain safety as their number one priority. The

Project Team is also actively monitoring the status of the COVID-19 public health emergency and is taking additional precautions to protect our staff, contractors, and the public. The BC Government has designated construction as an essential service, and issued guidelines for construction sites to minimize the risks of COVID-19 transmission or illness. All Project contractors have implemented additional precautions to ensure the health and safety of their workers. These measures follow the direction set by the BC Government, including emphasizing the importance of maintaining social distance, increasing handwashing stations, reducing in-person meetings and increasing cleaning of common areas. The Project Team will continue to monitor contractors' compliance with the direction of the government as the situation evolves.

The schedule KPI for the Project overall and the Project components remains green. The COVID-19 public health emergency is impacting construction progress and may delay some interim project milestones, such as the transition to commissioning. However, construction is ongoing at all of the Project's sites, in accordance with provincial guidelines, and based on current progress the Wastewater Treatment Project remains on schedule to meet the regulatory deadline for treatment by the end of 2020.

The cost KPI for the Project overall and the conveyance system remained red over the reporting period, and are expected to remain red for the duration of the Project, primarily as a result of inflation in the Vancouver Island construction market. Other factors that have contributed to budget pressures include: design development to incorporate stakeholder input; geotechnical considerations including removal and disposal of contaminated material; and schedule constraints associated with the requirement to provide wastewater treatment by the regulatory deadline of December 31, 2020.

Based on the value of the contracts awarded to-date and the refreshed cost estimate for the scope remaining to be procured, the Project Team has forecast the cost to complete to Project at $775M, or $10M over the Project's control budget. In May 2019 the CRD Board approved an increase in the Project's budget by $10M to $775M.

Many contractors have advised that they are beginning to see cost impacts from the COVID-19 public health emergency. Impacts include labour availability, work modifications to comply with provincial guidelines, and delays to the delivery of equipment and supplies. It is too early to determine the cost impact to the Project, but if construction continues at the current pace the Project Team remain confident that the Project cost will be within the Project's $775M budget.

Table 1- Executive Summary Dashboard

Key Performance Indicators		Project Overall	WWTP	RTF	Conveyance System	Comments
Safety	Deliver the Project safely with zero fatalities and a total recordable incident frequency (TRIF) of no more than 1*.	🟡	🟢	🟢	🟡	No recordable incidents occurred over the period. Site inspections are ongoing. The Project Team is actively monitoring the status of the COVID-19 public health emergency and is taking additional precautions to protect our staff, contractors, and the public. All Project contractors have implemented additional precautions to ensure the health and safety of their workers. The Project Team will continue to monitor and follow the direction of the government during this evolving situation.
Environment	Protect the environment by meeting all legislated environmental requirements and optimizing opportunities for resource recovery and greenhouse gas reduction.	🟢	🟢	🟢	🟢	Two minor environmental incidents occurred over the period: both were small (<1 litre) releases of hydraulic fluid from mobile equipment. One was from a drill rig at the Arbutus Attenuation Tank site, and the second was from an excavator working on the RSCL. Both leaks were contained within the excavation and were cleaned up immediately. No adverse environmental effects resulted from either leak.
Regulatory Requirements	Deliver the Project such that the Core Area complies with provincial and federal wastewater regulations.	🟢	🟢	🟢	🟢	No regulatory issues.
Stakeholders	Continue to build and maintain positive relationships with First Nations, local governments, communities, and other stakeholders.	🟢	🟢	🟢	🟡	Engagement activities were ongoing over the reporting period. Significant efforts were made to provide accurate and timely information to stakeholders.
Schedule	Deliver the Project by December 31, 2020.	🟢	🟢	🟢	🟢	The COVID-19 public health emergency is impacting construction progress and may delay some interim project milestones, such as the transition to commissioning. The Wastewater Treatment Project has made significant progress and currently remains on schedule to meet the regulatory deadline for treatment by the end of 2020.
Cost	Deliver the Project within the Control Budget ($765 million).	🔴	🟢	🟢	🔴 🔴	Based on the value of the contracts awarded to-date and a refreshed cost estimate for the scope remaining to be procured, the Project Team has forecast the cost to complete the Project at $775M, or $10M over the Project's Control Budget. This is primarily as a result of inflation in the Vancouver Island construction market. Other factors that have contributed to budget pressures include: design development to incorporate stakeholder input; geotechnical considerations including removal and disposal of contaminated material; and schedule constraints associated with the requirement to provide wastewater treatment by the regulatory deadline of December 31, 2020. The CRD Board have approved an increase in the Project's budget by $10M, to $775M. Many contractors have advised that they are beginning to see cost impacts from the COVID-19 public health emergency. It is too early to determine the cost impact to the Project, but if construction continues at the current pace the Project Team remain confident that the Project cost will be within the Project's $775M budget.

* A TRIF of no more than 1 means that there is 1 or fewer recordable incidents (being a work-related injury or illness that requires medical treatment beyond first aid or causes death, days away from work, restricted work or transfer to another job, or loss of consciousness) for every 200,000 person-hours of work

Status	Description
	KPI unlikely to be met
	KPI at risk unless correction action is taken
	KPI at risk but corrective action has been identified/is being implemented
	Good progress against KPI

2 Wastewater Treatment Project Progress

2.1 Safety

Safety information for the reporting period and cumulative for the Project from January 1, 2017 is summarized in Table 3.

The Project Team is actively monitoring the status of the COVID-19 public health emergency and is taking additional precautions to protect our staff, contractors, and the public. The BC Government has designated construction as an essential service, and issued guidelines for construction sites to minimize the risks of COVID-19 transmission or illness.

All Project contractors have implemented additional precautions to ensure the health and safety of their workers. These measures follow the direction set by the BC Government, including emphasizing the importance of maintaining social distance, increasing handwashing stations, reducing in-person meetings and increasing cleaning of common areas. The Project Team will continue to monitor contractors' compliance with the direction of the government during this evolving situation.

Site safety tours and weekly safety inspections were carried out by Project Management Office ("PMO") construction and safety personnel over the reporting period at all active worksites: McLoughlin Point WWTP, RTF, Macaulay Point Pump Station, Clover Point Pump Station, Clover Forcemain, Residual Solids Pipes, Residual Solids Pump Stations; Arbutus Attenuation Tank and Trent Forcemain.

Over the reporting period (January to March) 48 safety incidents occurred in total: seventeen in January, thirteen in February, and eighteen in March; comprising: twelve first-aid, twenty-six report only, one high potential near-miss and nine near miss incidents; as summarized in Table 2.

Table 2: Safety Incidents over the Reporting Period

Date	Work Site	Incident Type	Description	Outcome	Corrective Action Taken
January 6, 2020	Residual Solids Pipes	Report Only	Excavator struck an overhead utility line while working during the night on Interurban Road.	Shaw was called and reinstalled the service.	Tool-box talk discussion to have a spotter when working in close proximity to overhead utilities.
January 15, 2020	RTF	Report Only	Malfunction of a Diesel Heater created a loud noise while a worker was in the immediate vicinity.	The Heater immediately shut down, and unit was removed from service.	Unit was removed from the site to be inspected Worker sent to medical aid for an assessment as an extra precaution.

Date	Work Site	Incident Type	Description	Outcome	Corrective Action Taken
January 16, 2020	McLoughlin Pt WWTP	First Aid	Worker struck hand while walking past rebar. Protective gloves were being worn.	Worker reported to First Aid. Minor injury addressed and returned to work.	Worker reminded to be more aware of surroundings that have potential hazards.
January 17, 2020	McLoughlin Pt WWTP	First Aid	Worker slipped on a patch of ice, rolling ankle.	Worker reported to First Aid to report incident and have ankle assessed.	Workers ankle was iced and wrapped and worker was placed on modified duty. Workers reminded that weather conditions are poor and to use extreme caution when walking on slippery surfaces.
January 17, 2020	Residual Solids Pipes	Near Miss	A driver ignored signal persons direction and drove in between delineators that were set up as a control zone around the worksite.	The vehicle stopped in close proximity to the construction trench. Signal person directed the vehicle back to the travel portion of the road.	Extra delineators and barriers were placed around the open trench. Additional lighting was installed to better illuminate the work area.
January 17, 2020	McLoughlin Pt WWTP	Report Only	Worker injured hand while moving construction material.	Workers thumb was assessed at First Aid with no treatment provided and returned to work.	Tool-box talk on the use of proper techniques for lifting or passing of materials.
January 19, 2020	RTF	Report Only	A Telehandler operator struck a light standard while trying to back up.	Operator did not have a valid ticket to operate mobile equipment.	Employee was restricted from using mobile equipment. Tool-box talk with crew to review the site policy on equipment use and certifications required to operate equipment.
January 21, 2020	McLoughlin Pt WWTP	Near Miss	Workers were attempting to lower a pump base into place. Before lowering a test lift was performed and then the procedure began. Approximately 4 feet from the floor the base split and fell.	A reviewed of the lifting procedures and rigging indicated all was in order.	Tool-box talk to remind crews the importance of staying out of lifting areas.
January 22, 2020	Residual Solids Pipes	Report Only	Road plate shifted causing the pin securing it to pop up.	Road plate pins caused damage to vehicle tires.	Contractor immediately dispatched a crew to fix the road plate and re-secure the Contractor covered the cost of the drivers tires.
January 22, 2020	Residual Solids Pipes	Report Only	A vehicle ignored a TCP's stop sign almost hitting an oncoming vehicle.	Heavy rain and possible visual impairment from a light tower may have contributed to the incident.	Light tower was repositioned and a Safety meeting was held with TCP personnel to review procedures for traffic control.
January 23, 2020	Residual Solids Pipes	Near Miss	While pressure testing a length of pipe a cap dislodged.	There was nobody in the vicinity and no injuries. A restraining collar which held the cap had to be repaired.	The restraining collar was correctly used so a secondary brace will be added for any further testing in the event there is another failure.

Date	Work Site	Incident Type	Description	Outcome	Corrective Action Taken
January 23, 2020	Residual Solids Pipes	Near Miss	A dump truck pulled forward while box was raised almost striking a utility line.	The driver stopped in time and backed the truck up and lowered the dump box.	Tool-box talk held to discuss the use of spotters when working near any overhead utility lines. Dump box on truck to be fully lowered before moving vehicle.
January 23, 2020	McLoughlin Pt WWTP	Report Only	Worker tripped on an uneven surface and landed on their left knee.	Worker reported to First Aid but no follow up required. Worker returned to their duties.	Tool-box talk held to discuss awareness of hazards in the area.
January 24, 2020	McLoughlin Pt WWTP	Report Only	A worker received an electrical shock when they grabbed the connection between two power cords.	Worker reported to First Aid but no follow up required. Worker returned to their duties.	Tool-box discussion on electrical hazards when working in wet conditions.
January 27, 2020	McLoughlin Pt WWTP	First Aid	A worker pinched their finger while moving a beam.	Worker taken to the clinic for an assessment and returned to work.	Tool-box talk about being aware of hands in the “bite” when moving materials.
January 27, 2020	Residual Solids Pipes	Near Miss	Steel plates used across a trench did not have sufficient overhang required to secure the plates.	Due to the heavy rain and traffic movement the soil beneath the plate sluffed into the excavation.	A crew working next to the site was dispatched to the location in order to remove the road plates and backfilling the excavation.
January 27, 2020	McLoughlin Pt WWTP	First Aid	A worker sustained a hand injury while trying to force close a cam lock fitting.	The worker reported to first aid. Injury was addressed and the worker returned to their duties.	Safety discussion with worker to review the actions that lead to the injury and reemphasized using the correct tool for the job.
February 4, 2020	Macaulay Point Pump Station	Near Miss	A water leak at a valve during a pressure test sprayed a worker in the trench.	Leak was isolated and no one was injured in the incident.	The valve assembly was repaired.
February 4, 2020	McLoughlin Pt WWTP	First Aid	A worker sustained a hand injury when they lost their balance while using an impact gun.	Worker sustained a small ½” cut on left index finger and reported to First Aid to have the wound treated and bandaged.	Tool-box talk reviewing the proper use of small hand was held.
February 5, 2020	Residual Solids Pipes	First Aid	A worker sustained a hand injury while cutting a hose.	First Aid referred worker to medical aid to have the cut assessed but no further treatment was required other than a bandage.	Tool-Box talk in regards to the safe use of pocket knives and the wearing of appropriate gloves when cutting.
February 5, 2020	RTF	Report Only	A propane heater malfunctioned damaging the exhaust stack on the unit.	No one was injured.	Unit was removed from service and sent in to the rental provider for an inspection and repair
February 10, 2020	Residual Solids Pump Stations	First Aid	A worker while mixing concrete had the product splash up under their protective glasses.	Worker used an emergency eye wash on site and was taken to Victoria General Hospital for further assessment. No further treatment was required and the individual returned to work.	The need for additional PPE was reviewed and Goggles will now be worn whenever mixing concrete to prevent a reoccurrence.

Date	Work Site	Incident Type	Description	Outcome	Corrective Action Taken
February 12, 2020	McLoughlin Pt WWTP	Report Only	While backing up a truck (without a spotter) the driver struck the corner of a grout mixer.	Minor damage to the mixer was reported but no injuries to the driver.	Tool-box talk was held to reinforce the requirement of having a spotter whenever a vehicle is backing up or moving in a congested area.
February 13, 2020	McLoughlin Pt WWTP	Report Only	When lowering a piece of equipment a workers arm became wedged between the equipment and a steel beam.	Worker sustained small bruise to right foreman. Worker was wearing long sleeves, rain jacket and gloves at the time of the incident.	Tool-box talk to remind workers of good communication when moving equipment and to be aware of your surroundings and potentials for injuries to limbs.
February 14, 2020	RTF	Report Only	While moving an aerial platform the operator struck a HVAC duct.	Minor damage to the duct was reported but no injuries to the operator or the aerial platform.	Tool-Box talk with Sub-Contractors in regards to having a spotter while moving equipment inside any building due to congestion.
February 20, 2020	McLoughlin Pt WWTP	Near Miss	A Traffic Control Person (TCP) was struck by a vehicle;s mirror after the driver ignored a stop direction.	Proper signage, personnel, and closures were in place at time of occurrence. No injuries reported.	The company that owned the vehicle was notified of the Safety Incident with the TCP. Tool-Box talk with TCP to review proper positioning to limit potential for contact from vehicles that ignore signage or direction.
February 24, 2020	McLoughlin Pt WWTP	Report Only	A worker while carrying construction materials lost their footing and felt pain in back.	Worker reported the incident to First Aid and returned to work.	Tool-box talk and daily safety newsletter issued to remind workers about appropriate lifting and carrying techniques and to be aware of their surroundings on site with uneven areas or slippery conditions while carrying any material.
February 24, 2020	Residual Solids Pump Stations	Report Only	While lifting a road plate a worker was in close proximity to the activity.	When the road plate was lowered it skimmed the workers boot. Worker was not injured in the incident.	Tool-Box talk to remind workers to stay back a safe distance when road plates are being moved.
February 27, 2020	McLoughlin Pt WWTP	First Aid	A worker injured their hand while releasing the leg of a trailer.	Worker received a small laceration and reported to First Aid to have it cleaned and bandaged.	Worker reminded to complete a Field Level Risk Assessment prior to starting any task to identify any hazards that may be present.
February 28, 2020	McLoughlin Pt WWTP	Near Miss	While cutting drywall a worker dropped their knife and it landed next to another worker below.	The knife was self-retracting, however the slider was sticky so the blade was out when the knife fell.	Knife was removed from service and the job site Tool-box talk was held to remind crews to inspect their tools prior to use and remove any defective equipment. Control the area with barricade tape to keep other workers out of area if tools or other equipment cannot be 100% controlled.
March 2, 2020	McLoughlin Pt WWTP	Report Only	Worker rolled their ankle on uneven surface.	Worker was not injured and reported incident to first aid.	Tool-box talk reminding workers to be aware of their surroundings.

Date	Work Site	Incident Type	Description	Outcome	Corrective Action Taken
March 2, 2020	Mcloughlin Pt WWTP	Report Only	While driving home a worker experienced discomfort in left leg. Felt it was related to work activity.	They reported incident to first aid when they returned to work on Monday. No follow up was required.	Tool-box talk in regards to Micro-stretching and moving around if in a fixed position for a long period of time and need for timely reporting of injuries.
March 3, 2020	Residual Solids Pump Stations	Report Only	Prime Contractor Supervisor was contacted regarding drug paraphernalia that was found in a portable toilet on site at Tillicum Bridge.	After picking up a sharps container and personal protective equipment the Supervisor and company Safety representative attended the site and found multiple needles both used and unused as well as other drug paraphernalia.	Drug items were disposed of and Coast Environmental was called to switch the portable toilet out with another unit. Portable toilet is now locked.
March 4, 2020	Arbutus Attenuation Tank	High Potential Near Miss	A mobile crane's boom collapsed while lifting a tailings bin from the excavation.	Scene was frozen and WorkSafeBC was notified as per the Serious Incident Reporting requirements. No workers were in the area when the incident occurred.	An engineer was requested to inspect the crane by WorkSafeBC. Boom line samples were taken to send to a 3rd party for analysis WorkSafeBC investigation in progress to determine Root Cause High Potential Near Miss incident review performed.
March 5, 2020	McLoughlin Pt WWTP	First Aid	A job built handrail came free causing a worker to fall backwards between the tank wall and ladder, sliding approximately 10 feet to the ground below.	Worker reported to first aid and was treated for minor abrasion to left hip and right shoulder. Worker was assessed by First Aid and put on modified duties for 2 days.	Handrail was removed and replaced as it had not been correctly installed. All work areas with job built handrails were re-inspected to ensure they were installed correctly.
March 5, 2020	McLoughlin Pt WWTP	Report Only	While lifting a worker felt pain in their back.	They reported to First Aid and were assessed with no further follow up.	Tool-box talk was held in regards to proper lifting techniques or the use of a mechanical lifting device.
March 5, 2020	Residual Solids Pipes	Report Only	Utility strike while excavating on Tillicum Road.	Utility company was contacted to repair conduit.	Contractor called for locates unfortunately the conduit was not identified.
March 7, 2020	McLoughlin Pt WWTP	Report Only	A worker felt minor pains in their chest and ribs but did not report it to their supervisor or first aid. Monday morning worker was still feeling discomfort and reported to First Aid.	Worker was put on Modified Duty for the day and returned to regular duty the following day.	Tool-Box talk to remind workers to report ALL incidents regardless of severity.
March 9, 2020	McLoughlin Pt WWTP	Report Only	A worker rolled ankle while walking on uneven surface.	Worker was assessed by First Aid with no treatment provided.	Worker was placed on Modified Duty until their ankle felt better.
March 10, 2020	Residual Solids Pump Stations	Report Only	An excavator snagged a road plate pulling it into a fence panel on the side of the road.	Minor damage to a fence panel. No injury sustained to workers.	Tool-box talk with equipment operators was held with regards to proper control of the excavator.

Date	Work Site	Incident Type	Description	Outcome	Corrective Action Taken
March 16, 2020	McLoughlin Pt WWTP	Report Only	A worker sustained minor facial injury while installing a cable tray.	Worker reported to first aid but no treatment required.	Tool-Box talk to remind workers to pay attention to body positioning when moving materials and equipment into place.
March 16, 2020	McLoughlin Pt WWTP	Report Only	A worker fell on uneven surface.	Worker reported incident to First Aid but no treatment was provided.	Tool-box talk to remind workers to continually assess their routes for tripping hazards or loose grave.
March 16, 2020	Clover Point Pump Station	Near Miss	Electricians isolated an existing screen and inadvertently cut a live cable.	Job was immediately stopped and a review of the lockout was performed. The cable that was cut had been mislabeled during routing through a common wall penetration. A zero energy check had been performed for the first screen that was removed but was not performed on the second screen. No one was injured.	A root cause analysis of the incident was undertaken. A full review of the lockout procedures and process to ensure cable isolation was conducted with all of the electricians on site. Requirement for two step confirmation of cable isolation is now in place.
March 18, 2020	McLoughlin Pt WWTP	Report Only	Worker sustained a trip injury while stepping off the back of a low trailer.	Worker reported to First Aid to report incident but no further treatment was provided.	Tool-box talk to remind workers to be aware of surrounding conditions and footing prior to getting off of trailers or out of the back of trucks.
March 19, 2020	McLoughlin Pt WWTP	First Aid	Worker while drilling fiberglass above, wearing safety glasses and half mask had dust enter their eyes.	Worker was sent to medical aid for assessment and assistance. The eye was rinsed and the individual returned to work.	Worker reminded to wear goggles or full-face shield when completing the task.
March 20, 2020	McLoughlin Pt WWTP	First Aid	Worker removed gloves to complete a task and sustained a laceration on their hand.	Worker reported to first aid where the wound was cleaned and bandaged.	Tool-box talk to remind workers to wear their gloves while performing task.
March 24, 2020	McLoughlin Pt WWTP	First Aid	Worker while picking up a grinding wheel injured their hand.	Worker reported to first aid where the wound cleaned and bandaged.	Tool-box talk to remind workers how to handle sharp items.
March 31, 2020	Clover Point Pump Station	Report Only	While lowering, a pipe assembly slipped from its rigging which caused a flange connection to be damaged.	Flange was repaired on site.	Good control zone in place prevented anyone from being injured.

Key safety activities conducted during January included:

- bi-weekly project update meetings with prime contractors: Kenaidan, Windley, Don Mann, HRP, Knappett and NAC;
- weekly project update meetings with prime contractor: HRMG;
- updated Office and First Aid Hazard Assessment for 2020;
- attended chartering session for Trent Forcemain;
- sent out safety notices for cold stress conditions;
- conduct quality safety assurance audit on Residuals Solids Pump Stations Prime Contractor;
- conducted New Worker Office Orientations for WTP staff;
- monthly incident Investigation reviews;

- reviewed site specific safety plans and high risk tasks such as Confined Space and Silica work;
- WTP Safety Manager and/or Construction Manager conducting regular site inspections at all active Project work sites;
- host Prime Contractor Safety Coordination Meeting focusing on resuming work in 2020 and expectations and goals for Primes; and
- review Prime Contractor document submissions for Trent Forcemain.

Key safety activities conducted during February included:

- bi-weekly project update meetings with prime contractors: Kenaidan, Windley, Don Mann, HRP, Knappett and NAC;
- weekly project update meetings with prime contractor: HRMG;
- conduct Quality Safety Assurance Audit on Arbutus Attenuation Tank Prime Contractor;
- attended site Safety Meeting at the CRD Hartland site with the CRD and Prime Contractors;
- monthly incident investigation reviews;
- reviewed site specific safety plans and high risk tasks;
- issued a safety notice regarding lifting equipment;
- WTP Safety Manager and/or Construction Manager conducting regular site inspections at all active Project work sites; and
- reviewing Prime Contractor document submissions for Trent Forcemain.

Key safety activities conducted during March included:

- bi-weekly project update meetings with prime contractors: Kenaidan, Windley, Don Mann, HRP, Knappett and NAC;
- weekly project update meetings with prime contractor: HRMG;
- monthly incident investigation reviews;
- hosted high potential for harm cane incident debrief with CRD, Prime Contractor and Sub-Contractor;
- hosted Prime Contractor Safety Coordination Meeting with Project safety representatives;
- reviewed site specific safety plans and high risk tasks;
- WTP Safety Manager and/or Construction Manager conducting regular site inspections at all active Project work sites;
- development of COVID-19 Prime Contractor Site Compliance Checklist;
- COVID-19 Safe Work procedure review for project sites; and
- updated PMO Safety Bulletin Board with COVID-19 Information.

Table 3: WTP Safety Information

	Reporting Period (January- March 2020)	Project Totals
Person Hours		
PMO	10 540	138 028
Project Contractor	317 285	1 672 756
Total Person Hours	327 825	1 810 784
PMO	31	
Project Contractors (& Project Consultants) working on Project Sites	573	
Total Number of Employees	604	
Near Miss Reports	9	45
High Potential Near Miss Reports	1	6
Report Only	26	142
First Aid	12	46
Medical Aid	0	5
Medical Aid (Modified Duty)	0	2
Lost Time	0	4
Total Recordable Incidents	0	11
		Project Frequency (from January 1, 2017)
First Aid Frequency		5.0
Medical Aid Frequency		0.7
Lost time Frequency		0.4
Total Recordable Incident Frequency		1.2

2.2 Environment and Regulatory Management

Environmental and regulatory activities continued over the reporting period relating to both the planning and permitting of upcoming work and the execution of current work.

2.2.1 Environment

Environmental work progressed as planned over the reporting period. The focus was on environmental monitoring of construction activities, and responding to BC Ministry of Environment and Climate Change Strategy (ENV) questions related to the MWR Registration application and the Operational Certificate application.

Key environmental management activities completed in January included:

- In response to heavy rain events, McElhanney Consulting Services (as the qualified environmental professional for Knappett, Don Mann and NAC Constructors Ltd. – being the Construction Contractor for the Residual Solids Pump Stations, the Residual Solids Pipes, and the Arbutus Attenuation Tank, respectively) completed environmental monitoring and inspections at numerous sites over the course of the reporting period. Generally improvements to environmental controls that were implemented in response to heavy December rains were effective, however McElhanney's inspections confirmed the importance of checking those controls often

Key environmental management activities completed in February included:

- Stantec (as the Owner's Engineer for the Project) and the CRD prepared a technical memo addressing a request from ENV for additional information on the EIS that evaluated how the Project would reduce overflows within the core area wastewater system.
- HRP (as the Design-Build Contractor for the McLoughlin Point WWTP), Stantec and the CRD prepared a technical memo addressing a request from ENV for additional information on the EIS that evaluated how discharges from the McLoughlin Point WWTP would affect the marine environment.

Key environmental management activities completed in March included:

- HRMG (as the Design-Build-Finance-Operate Maintain contractor for the RTF) prepared a technical memo addressing a request from ENV for additional technical information on odour control equipment and estimated emissions from standby equipment.

Over the reporting period there were two environmental incidents:

- On January 28th, a minor environmental incident occurred when a hydraulic line on an excavator working on the Residual Solids Pipes broke, leaking approximately one litre of hydraulic fluid into the trench that was being excavated. Don Mann (the Construction Contractor for the Residual Solids Pipes) staff deployed sorbent pads into the trench to absorb fluid that had spilled into the trench. The sorbent pads were disposed of at an appropriately licenced facility. No adverse environmental effects resulted from the leak.

- On February 13th there was a release of approximately 1 litre from one of the drill rigs at the Arbutus Attenuation Tank site. The leak was contained in a ditch within the tank excavation and absorbent pads were deployed to soak up the hydraulic fluid. The absorbent pads were disposed of at an appropriately licenced facility. No adverse environmental effects resulted from the leak.

2.2.2 Regulatory Management

During the reporting period, the Project Team continued to monitor the advancement of construction-related regulatory approvals and supported or led the advancement of permit applications.

Key permitting activities for January included:

- Stantec (as the archaeological consultant for the Trent Forcemain) added the Trent Forcemain scope to their *Heritage Conservation Act* Site Inspection Permit.
- The CRD submitted the technical memo prepared by Lorax Environmental Services (Lorax, the CRD's dispersion modelling consultant) that addressed a request for additional information from the BC Ministry of Environment and Climate Change Strategy (ENV).

Key permitting activities for February included:

- The CRD, HRP and Stantec met with ENV to discuss the results of their review of the two EISs that were prepared as part of the MWR Registration application.

Key permitting activities for March included:

- The CRD submitted two memos to ENV in support of the MWR Registration application.

The status of key Project permits are summarized in Table 4. The table is not a list of all required Project permits, but rather a summary of the status of key Project permits. There was one change made from the table presented in the Project's Q4 2019 Quarterly Report: the anticipated date for receipt of the MWR Registration was changed from Q1 2020 to Q2 2020, to reflect the current status of ENV's review of the application.

Table 4- Key Permits Status

Permit/Licence	*Anticipated Date*	*Status*	*Party Responsible for Obtaining Perming*
McLoughlin Point WWTP			
Municipal Wastewater Regulation ("MWR") Registration	Q2 2020	Submitted September 2019	CRD
McLoughlin Point Harbour Crossing			
Transport Canada Lease	Following completion of construction	On track	HRP
McLoughlin Point Outfall			
Transport Canada Lease	Following completion of construction	On track	HRP
Residuals Treatment Facility			
Operational Certificate	Prior to start of RTF operations	Submitted May 2019	HRMG

2.3 First Nations

First Nations communication and engagement was ongoing over the reporting period. Meetings with the Esquimalt and Songhees' liaisons continued, with a focus on the development of interpretive signage for installation at several locations and the procurement of Indigenous art for installation at Clover Point and Macaulay Point.

Key Activities in January included:

- First Nations communication and engagement was ongoing over the reporting period. Meetings with the Esquimalt and Songhees' liaisons continued, with a focus on the development of interpretive signage for installation at several locations and the procurement of Indigenous art for installation at Clover Point and Macaulay Point.
- Millennia Research (as the Project's archaeological advisor) continued archaeological monitoring of excavations along the RSCL and Clover Forcemain routes with members of local First Nations

Key Activities in February included:

- Millennia Research (as the Project's archaeological advisor) continued archaeological monitoring of excavations along the RSCL and Clover Forcemain routes with members of local First Nations. Stantec, as the archaeological adviser for the Trent Forcemain portion of the Project, began preparing for pre-construction archaeological digs in areas of high archaeological potential.
- On February 5th, the Chair of the Project Board, along with members of the Project Team and the CRD's First Nations Relations department were hosted by W̱SÁNEĆ Nations at a Burning ceremony at SṈIDȻEŁ (Tod Inlet). The Burning ceremony was in the custom of the W̱SÁNEĆ Peoples and was held in relation to ground disturbing work undertaken and ongoing in the construction of Project components.

Key activities in March included:

- Stantec (as the archaeological consultant for the Trent Forcemain) completed pre-construction archaeological investigations along the Dallas Road seawall.
- The CRD met with the W̱SÁNEĆ Leadership Council's recently-appointed Project Liaison. The focus of the meeting was making introductions and sharing Project information.

2.4 Stakeholder Engagement

The Project maintained its ongoing two-way Communications and Engagement Plan to provide Project information to stakeholders, communities and the public and to respond to public inquiries. The key focus of the communications and engagement activities over the period was to keep residents and stakeholders informed of Project plans, progress and construction information, and to receive and respond to questions and concerns raised by the community. A variety of communications tools and engagement activities were utilized to support the implementation of the plan, including stakeholder meetings, Project website updates and notifications of construction through notices and a public inquiry program, among other methods.

January Overview

One information bulletin was issued to stakeholders in January:

- Final Contract Awarded for the Wastewater Treatment Project (January 9, 2020) (Appendix A)

Over the month of January, the Project website, wastewaterproject.ca, was updated with information about the Project. One information bulletin was posted and the photo gallery section was updated with additional photos. Two alerts were added, and resolved once complete, to indicate overnight work along the intersections at Tillicum/Gorge and Interurban/Wilkinson roads. These alerts were also posted on the CRD's Twitter account. A map showing the progress of construction along the Residual Solids Conveyance Line (Appendix B) was updated.

The CRD's Twitter account was used to provide Project information to the public, including notifications about overnight construction along the RSCL route.

The Project Team held meetings with the following community groups and representatives, and municipality representatives:

- City of Victoria staff;
- City of Victoria Technical Working Group;
- District of Saanich Technical Working Group; and
- Township of Esquimalt Liaison Committee.

February overview

Three construction notices were issued to stakeholders in February:

- Trent Forcemain Construction (February 5, 2020) (Appendix C);
- Residual Solids Conveyance Line: Esson and Portage Roads (February 14, 2020) (Appendix D); and
- Macaulay Point Pump Station: Bypass Pumping (February 21, 2020) (Appendix E)

The Project Team hand delivered the three construction notices in the community: the Trent Forcemain construction notice was hand-delivered to 196 residences in the Fairfield area; the Residual Solids Conveyance Line construction notice was hand-delivered to 58 residences in the nearby neighbourhood; and the Macaulay Point Pump Station construction notice was hand-delivered to 15 residences near the construction site. The Trent Forcemain construction notice was also circulated to 399 stakeholders via email. As well, a letter regarding construction updates for paving Peters Street was delivered to 16 residences in Esquimalt (Appendix F).

Over the month of February, the Project website, wastewaterproject.ca, was updated with information about the Project: three construction notices were posted; one information sheet was updated ('About the Wastewater Treatment Process', see Appendix G); the photo gallery section was updated with additional photos; and a map showing the progress of construction along the Residual Solids Conveyance Line (Appendix H) was updated.

The CRD's Twitter account was used to provide Project information to the public, including notifications about overnight construction along the RSCL route, pipe installation and upcoming construction of the Trent Forcemain.

The Project Team held meetings with the following community groups and representatives, and municipality representatives:

- City of Victoria staff;
- City of Victoria Technical Working Group;
- District of Saanich Technical Working Group; and
- Township of Esquimalt Liaison Committee.

March Overview

One construction notice was issued to stakeholders in March:

- Clover Point Pump Station: Extended Work Hours (March 2020) (Appendix I)

The Project Team hand delivered the construction notice to 50 residences along Dallas Road.

Three information sheets were updated.

- Biosolids (Appendix J)
- Project Schedule (Appendix K)
- Trent Forcemain (Appendix L)

Over the month of March, the Project website, wastewaterproject.ca, was updated with information about the Project. One construction notice and three information sheets were posted and the photo gallery section was updated with additional photos. A map showing the progress of construction along the Residual Solids Conveyance Line (Appendix M) was updated. Additionally, an update was posted to the front page of the Project website regarding construction and the impact of COVID-19.

The CRD's Twitter account was used to provide Project information to the public, including notifications about paving along Dallas Road and a progress photo of the McLoughlin Point Wastewater Treatment Plant.

The Project Team held meetings with the following community groups and representatives, and municipality representatives:

- City of Victoria Technical Working Group;
- Township of Esquimalt Liaison Committee.

Public Inquiries

Public inquiry numbers from the Project email address and 24/7 information phone line (1 844 815-6132) are noted in Table 5.

Table 5 – Project Inquiries- January – March 2020

Inquiry Source	Contacts for Q1
Information phone line inquiries	66
Email inquiries responded to	50

Key themes of the public inquiries were as follows:

- questions regarding the timeline for final restoration along the RSCL;
- interest in becoming a supplier or employee of the Project;
- interest in timelines for work on the Trent Forcemain;
- identification of areas in need of restoration or repair;
- questions regarding construction work during the current public health emergency;
- questions regarding timelines for lawn restoration and landscaping along the RSCL and Clover Forcemain routes; and
- Identification of noise issues related to road plates and generators.

2.5 Resolutions from Other Governments

There were no resolutions related to the Project passed by other governments during the reporting period.

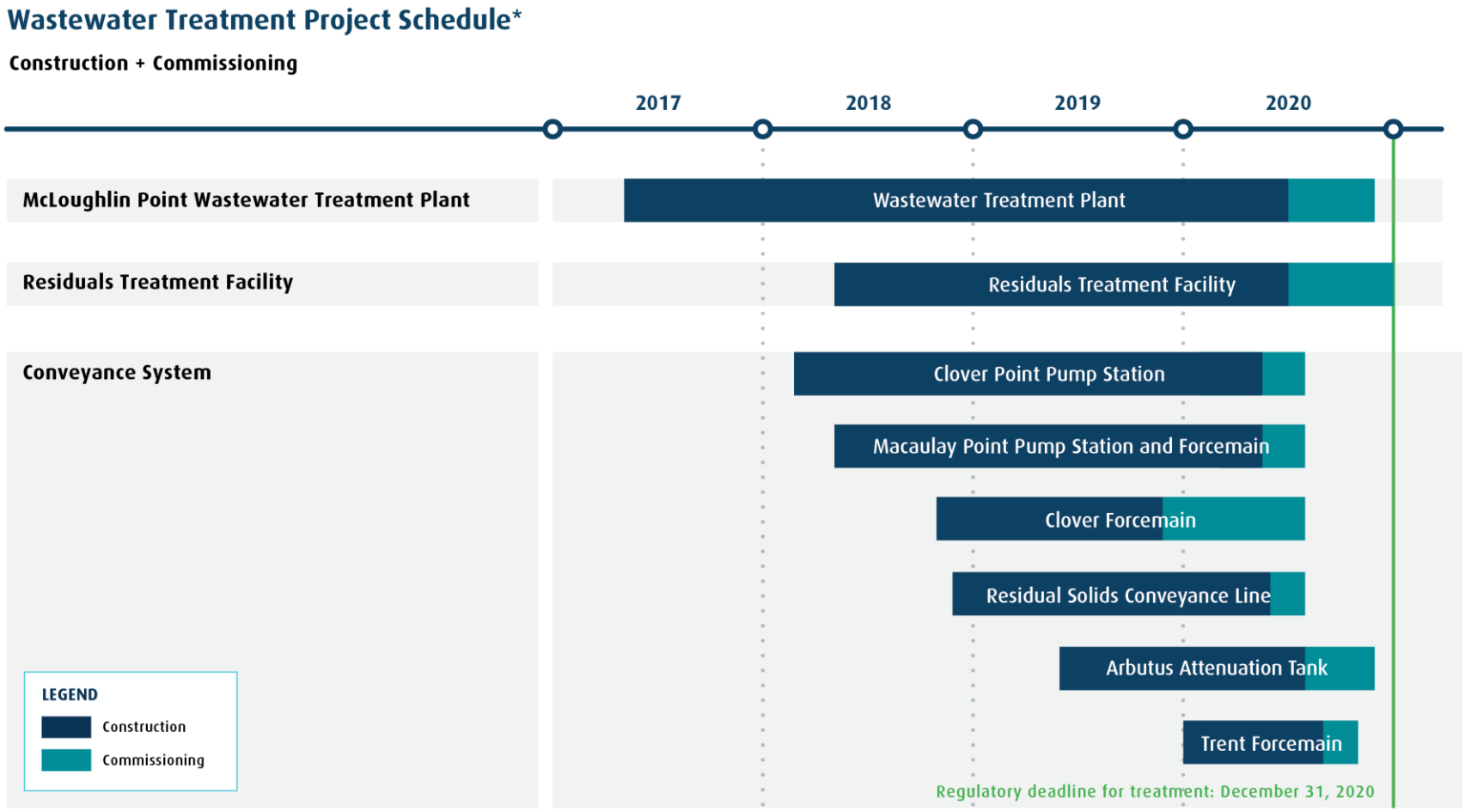
2.6 Schedule

Progress over the reporting period is summarized in Section 2.9.

Figure 1 shows the high-level Project schedule. The schedule has changed from that shown in the Project's Q4 2019 Quarterly Report as the date for transition from construction to commissioning for both the Macaulay Point Pump Station & Forcemain (previously March 2020) and the Clover Point Pump Station (previously Feb 2020), were updated to May 2020 based on construction progress. The schedule remains subject to optimization as the project and commissioning planning progresses.

Over the reporting period the COVID-19 public health emergency began to have impacts on the Project. Specifically, the COVID-19 public health emergency is impacting construction progress and may delay some interim project milestones, such as the transition to commissioning. However, construction is ongoing at all of the Project's sites, in accordance with provincial guidelines, and based on current progress the Wastewater Treatment Project remains on schedule to meet the provincial and federal regulations for treatment for the Core Area's wastewater by December 31, 2020.

Figure 1- High-Level Project Schedule



*Schedule subject to updates as Project planning progresses.

2.6.1 30 day look ahead

Key activities and milestones for the next 30 days (April) are outlined below by function.

Safety

- close out Quality Safety Assurance Audit on Arbutus Attenuation Tank Prime Contractor;
- CRD corporate occupational health and safety coordination committee meeting conference call;
- participate in weekly and bi-weekly prime contractor progress meetings;
- host Prime Contractor Safety Coordination Meeting with Project safety representatives;
- WTP Safety Manager and/or Construction Manager conducting regular site inspections at all active Project work sites;
- review of any site specific safety plans or high risk tasks;
- send out any new Safety Notices or Incident Notifications to Prime Contractor;
- review COVID-19 document submissions;
- WTP Safety Manager and/or Construction Manager will conduct regular site inspections at all active Project work sites; and
- incident reporting review with prime contractors at active work locations.

Environment and Regulatory Management

- ongoing environmental monitoring at construction sites; and
- finalise the MWR Registration and Operational Certificate applications.

First Nations

- continue meeting with the First Nation Liaisons.

Stakeholder Engagement

- ongoing construction communications with stakeholders; and
- ongoing community liaison meetings.

Cost Management and Forecast

- prepare cost reports;
- monitor schedule; and
- submit funding claims to Infrastructure Canada (under the Building Canada Fund and Green Infrastructure Fund).

Construction

McLoughlin Point

- continue construction of tsunami walls;
- install stairs, roofing and glazing at odour control;
- continue with electrical, instrumentation and controls throughout;
- install Densadeg 2 and 3 tank covers;
- install polymer system piping, chlorinated water piping and, ferric chloride system piping in Densadeg 2 and 3;
- install natural gas and HVAC in heat recovery room;
- install exhaust fans and unit heaters in tertiary treatment/outfall chamber;
- install elevator in O&M building; and
- install drywall, firestop and painting throughout O&M building.

Clover Point Pump Station

- demolish existing pumps and check valves;
- install grit separators;
- install masonry block walls for fuel storage rooms;
- demolish existing Motor Control Centre (MCC) and obsolete electrical equipment;
- remove existing generator and install new generator;
- commence installation of split stone face on exterior retaining wall;
- install HVAC, plumbing fixtures and masonry block walls in public washroom; and
- install doors, frames, and hardware to new and existing pump station.

Macaulay Point Pump Station

- backfill and reinstate twin 900mm forcemain;
- grout equipment and structural steel bases;
- form, rebar and pour diversion chamber;
- install stairs and walkways in pump room;
- install wet well maintenance platform;
- install doors and frames and glazing in aluminium doors;
- install plumbing fixtures;
- continue site paving and sidewalks; and
- commence functional start-up of equipment.

Residuals Treatment Facility

- investigation and repair of damage caused to Digester 1;
- start hydro testing and pneumatic testing at Digester 2;
- complete tank erection and internal piping at Digester 3;
- continue mechanical and electrical installations at the Digester Building;
- commence hydro testing at the Digested Sludge Storage Tank;
- commence hydro testing at the Water Storage Tank;
- continue finishes at Operations Building;
- continue electrical cabling and install pumps and headers and receiving hopper at Other Municipal Solids Receiving Facility;
- continue electrical cabling, process piping, polymer equipment, and building systems at the Residuals Handling Building;
- continue building systems, equipment and electrical installation and process piping at the Dryer Building;
- continue mechanical and electrical work at Equalization Building;
- continue process mechanical and electrical at the Water Pump House; and
- continue equipment installation at Odour Control Area.

Clover Forcemain

- continue road/cycle track;
- complete road restoration Government Road to Douglas Street to Douglas Street; and complete additional surface works between Lewis Street to Government Street.

Residual Solids Pipes

- complete MOTI crossing pipe and watermain;
- complete installation of pipe on Portage Road;
- complete installation of line, valves, low point drains and air valves; and
- complete final road restoration.

Residual Solids Pump Stations

- Marigold valve chamber final surface restoration;
- install pipe under Tillicum bridge;
- install pump station 3 instrumentation and controls;
- install fencing and final grading at pump station 3;
- complete pump station 2 odour control and surge tank installation;
- install HVAC and site fencing at pump station 2;
- pump station 2 submersible sewage pump installation;
- install kiosk and generator at pump station 1; and
- complete tie-in of pipe at Pump Station 3, Willis Point, Pump Station 2, Grange Road, Pump Station 1, and Marigold.

Arbutus Attenuation Tank (AAT)

- complete installation of secant piles;
- complete installation of steel saddles for cross and diagonal strut beams;
- complete installation of cross and diagonal strut beams atop secant piles;
- commence installation of ring beam (formwork, rebar, pour concrete, testing), start on western third and progress eastward;
- Complete 3 of 4 pours for the ring beam;
- commence installation of nelson studs; and
- commence electrical ductbank and manhole install for BC Hydro connection.
-

Trent Forcemain

- install sanitary sewer and watermain at Fairfield Road;
- install storm sewer at Bushby Street;
- install sanitary sewer at St. Charles Street; and
- install sanitary sewer at Brooke Street.

2.6.2 60 day look ahead

Key activities and milestones for the next 60 days (May) are outlined below by function.

Safety

- CRD corporate occupational health and safety coordination committee meeting;
- host Prime Contractor Safety Coordination Meeting with Project safety representatives via conference call;
- weekly and bi-weekly prime contractor progress meetings;
- review of any site specific safety plans or high risk tasks;
- review prime contractor document submissions;
- WTP Safety Manager and/or Construction Manager will conduct regular site inspections at all active Project work sites; and
- incident reporting review with prime contractors at active work locations.

Environment and Regulatory Management

- CRD anticipates receiving the MWR Registration for the McLoughlin Point WWTP and the Operational Certificate for the Residuals Treatment Facility.

First Nations

- CRD to continue meeting with the First Nation Liaisons.

Stakeholder Engagement

- ongoing construction communications with stakeholders; and
- ongoing community liaison meetings.

Cost Management and Forecast

- prepare cost reports;
- monitor schedule; and
- submit funding claims to Infrastructure Canada (under the Building Canada Fund and Green Infrastructure Fund).

Construction

McLoughlin Point

- install perimeter water line – hydrants and storm drains;
- continue construction of planter wall and complete tsunami wall;
- continue all areas building envelope, glazing, doors, roofing, metal cladding etc.;
- continue process electrical, instrumentation, and mechanical in all areas;
- continue installation of Biolite in BAF tanks;
- complete elevator installation in O&M building;
- install communication and security system in O&M building;
- install cabinetry and millwork in O&M building; and
- commence commissioning walk downs and punch lists.

Clover Point Pump Station

- complete installation of masonry walls;
- complete installation of split stone to exterior;
- start up and test generator; and
- commence operational testing of equipment.

Macaulay Point Pump Station

- install 900mm pipe to pigging chamber;
- install incoming watermain;
- install chain link fence around transformer containment area;
- tie-in to diversion chamber, implement bypass pumping;
- install door frames, doors, glazing and door hardware;
- install plumbing fixtures; and
- install fire hydrant.

Residuals Treatment Facility

- continue repair of damage caused to Digester 1;
- install relief valve at Digester 2;
- start hydro testing and pneumatic testing at Digester 3;
- continue mechanical and electrical installations at the Digester Building;
- complete hydro testing at the Digested Sludge Storage Tank;
- complete hydro testing at the Water Storage Tank;
- continue finishes at Operations Building;
- continue electrical cabling and install pumps and headers and receiving hopper at Other Municipal Solids Receiving Facility;
- continue electrical cabling, process piping, polymer equipment, and building systems at the Residuals Handling Building;

- continue building systems, equipment and electrical installation and process piping at the Dryer Building;
- continue installation of Biogas Conditioning System;
- continue mechanical and electrical work at Equalization Building;
- continue process mechanical and electrical at the Water Pump House; and
- continue equipment installation at Odour Control Area.

Clover Forcemain

- continue road/cycle pass construction, Montreal Street to Dock Street and Dock Street to Pilot Street;
- removal of seawall;
- install new wall; and
- build new railings.

Residual Solids Pipes

- commence turnover of project record documents;
- final paving and restoration as required;
- complete MOTI watermain highway crossing; and
- complete pipe installation on Portage Road.

Residual Solids Pump Stations

- complete Admirals Bridge crossing pipe installation and testing;
- Pump Station 1, install fencing, and final grading, paving and landscaping;
- Pump Station 2, install fencing, and final grading, paving and landscaping;
- Pump Station 1, 2 & 3, commence start-up testing and commissioning;

Arbutus Attenuation Tank (AAT)

- continue installation of ring beam (formwork, rebar, pour concrete, testing) from western third and progress eastward;
- complete last of 4 pours for the ring beam;
- continue installation of nelson studs;
- commence excavation within tank footprint to base slab elevation;
- commence subgrade prep and mud-mat installation;
- prep for and initiate excavation for valve chamber; and
- preparation for rock anchor installation.

Trent Forcemain

- install sanitary sewer on Brooke Street, Stannard Avenue and Fairfield Road

2.7 Cost Management and Forecast

The monthly cost report for March and the quarterly report for the reporting period (January – March 2020) are shown in Appendices N and O respectively. The cost report summarizes Project expenditures and commitments by Project Components and the major cost centres common to the Project Components.

The Project Team has been reporting budget pressures through its monthly reports to the Project Board (and CRD Board) since September 2017, and these pressures steadily increased as each conveyance contract was awarded. The Project Team forecasts that the Project can be completed at a total cost of $775M, or $10M (1.3%) over the Project's control budget. In May 2019 the CRD Board approved to increase the Project's budget by $10M to $775M, and on August 14, 2019, the associated amendment to the 2019-2023 Financial Plan was approved.

Over the reporting period the COVID-19 public health emergency began to have impacts on the Project. Many contractors have advised that they are beginning to see cost impacts from the COVID-19 public health emergency. Impacts include labour availability, work modifications to comply with provincial guidelines, and delays to the delivery of equipment and supplies. It is too early to determine the cost impact to the Project, but if construction continues at the current pace the Project Team remain confident that the Project cost will be within the Project's $775M budget.

2.7.1 Commitments

Commitments were made over the reporting period in furtherance of delivering the Project. The net commitments made during the reporting period resulted in an increase in committed costs of $1.95 million. The significant commitments made in the reporting period comprised the approval of provisional items in construction contracts and contract change orders, and an increased commitment to the Project's archaeological advisor (Millennia Research), required as a result of a greater level of archaeological effort being required than was originally anticipated.

2.7.2 Expenses and Invoicing

The Project expenditures for the reporting period were as expected and were within the budget allocations for each of the budget areas. The main Project expenditures incurred over the reporting period were associated with construction activities and project management office-related costs.

2.7.3 Contingency and Program Reserves

Contingency draws totalling $718,890 were made over the reporting period, as summarised in Table 6. In addition contingency credits totalling $22,545 were made over the reporting period, as a result of BC Hydro credits applied to Seaterra costs and a return of funds from Craigflower contract close out. The draws to-date, remaining contingency and program reserve balances are summarized in Table 6.

Table 6- Contingency and Program Reserve Draw-Down Table

WTP Contingency and Program Reserve Draws and Reallocations	Draw Date	$ Amount
Contingency and Program Reserve (in Control Budget)		**$ 69,318,051**
Net Contingency and Program Reserve draws to December 31, 2019		$ (52,610,777)
Contingency and Program Reserve balance as at December 31, 2019		**$ 16,707,274**
BC Hydro credits applied to Seaterra costs	Jan-20	$ 4,000
Telemetry upgrades to SCADA	Jan-20	$ (6,420)
Remediation of Contaminated Soils on DND Lands	Jan-20	$ (230,923)
Remediation of WWTP Site	Jan-20	$ (45,740)
Supervening Event: Regulated Site Condition at Outfall	Feb-20	$ (283,234)
Remediation of Contaminated Soils on DND Lands	Feb-20	$ (23,206)
Certificate of Compliance Preparation	Mar-20	$ (66,704)
Residual Solids Testing Port	Mar-20	$ (62,663)
WWTP Total Draw		$ (714,890)
BC Hydro credits applied to Seaterra costs	Jan-20	$ 1,208
RTF Total Draw		$ 1,208
BC Hydro credits applied to Seaterra costs	Jan-20	$ 1,331
Return of funds from Craigflower Pumpstation close out	Feb-20	$ 16,005
Conveyance Total Increase		$ 17,336
PMO Total Draw		$ -
BC Hydro Total Draw		$ -
WTP Program Reserve Draw		$ -
Contingency and Program Reserve credits in the reporting period		$ 22,545
Contingency and Program Reserve draws in the reporting period		$ (718,890)
Contingency and Program Reserve balance as at March 31, 2020		**$ 16,010,930**

2.7.4 Project Funding

The federal and provincial governments are assisting the Capital Regional District in funding the Project.

The Government of British Columbia will provide $248 million towards the three components of the Project, while the Government of Canada is contributing:

- $120 million through the Building Canada Fund Major infrastructure Component towards the McLoughlin Point WWTP;
- $50 million through the Green Infrastructure Fund towards the conveyance system; and
- up to $41 million towards the RTF through the P3 Canada Fund.

The Project Team has applied to the Federation of Canadian Municipalities (FCM) for additional funding and has executed a grant agreement for the contribution of up to $346,900 towards the delineation of the contamination and remediation and risk assessment for the McLoughlin Point Wastewater Treatment Plant.

The status of funding claims is summarised in Table 7. Note that the timing for the provision of Government of British Columbia and Government of Canada's funding differs by funding source. The Project Team will submit claims to the funding partners in accordance with the relevant funding agreements. In accordance with the funding agreements, funding from the P3 Canada Fund and the remainder of the funding from the Government of British Columbia cannot be claimed until relevant Project components are substantially complete, which is scheduled to occur in 2020. Over the reporting period the timing for the receipt of part of the funding from the Government of British Columbia was brought forward, and $124 million of provincial funding was received on March 30, 2020.

Table 7- Project Funding Status

Funding Source	Maximum Contribution	Funding Received in the Reporting Period	Funding Received to Date
Government of Canada (Building Canada Fund)	$120M	$8.7M	$100.8M
Government of Canada (Green Infrastructure Fund)	$50M	$4.9M	$40.7M
Government of Canada (P3 Canada Fund)	$41M	-	-
Government of British Columbia	$248M	$124M	$186.0M
Federation of Canadian Municipalities	$0.3M	-	-
TOTAL	**$459.3M**	**$137.6M**	**$327.5M**

2.8 Key Risks and issues

The Project Team actively identified and managed Project risks over the reporting period. Table 8 summarizes the highest-level risks that were actively managed over the reporting period, as well as the mitigation steps identified and/or undertaken over the reporting period.

While the Project Team did not make any changes to the active risks summary from that presented in the Project's Q4 2019 Quarterly Report, the COVID-19 public health emergency did begin to have impacts on the Project over the reporting period. It is anticipated that these impacts may affect several of the Project's risks. The Project Team are currently evaluating the impact of the public health emergency on the Project's risks, and anticipates that changes may be made to several of the risks as the situation evolves. Those risks that the Project Team have identified as potentially impacted, and that are currently under review, are identified in Table 8.

Table 8- Project Active Risks Summary

Risk Event	Description of Risk Event	Risk mitigation activities undertaken or planned in the reporting period	Assessed risk level	Trend in risk level from previous reporting period
Project				
Misalignment between First Nations' interests and the implementation of the Project.	The assessed risk level reflects the Project Team's priority of establishing strong and effective relationships with First Nations interfacing with, or interested in, the Project.	First Nations engagement activities remained ongoing over the reporting period (see section 2.3 for further details).	M	No change
Divergent interests between multiple parties and governance bodies whose co-operation is required to successfully deliver the Project.	The assessed risk level reflects the Project Team's priority of establishing strong and effective relationships with municipal, provincial and federal government departments.	The Project Team continued engagement with municipal, provincial and federal government departments throughout the reporting period.	L	No change
Misalignment between Project objectives/scope and stakeholder expectations.	The assessed risk level reflects the Project Team's priority of establishing strong and effective community stakeholder engagement.	Community engagement activities were ongoing over the reporting period (see section 2.4 for further details).	L	No change
Lack of integration between Project Components.	Planning challenges and system integration between the McLoughlin point WWTP, RTF and Conveyance System components of the Project results in schedule delays and/or additional Project costs.	Physical and schedule interfaces are clearly delineated in all construction contracts along with the requirement for commissioning and control plans. The Project Team has used a single Owner's engineer (Stantec) to develop the indicative design for all critical project components with significant interfaces. Commissioning and control plans are under development	L	No change
Senior government funds issue delayed.	The assessed risk level reflects the Project Team's priority of ensuring Project funding commitments are honoured.	Responsibility for meeting funding commitments has been assigned and is being monitored.	L	No change

Risk Event	Description of Risk Event	Risk mitigation activities undertaken or planned in the reporting period	Assessed risk level	Trend in risk level from previous reporting period
Downstream works delays.	Delay to the commissioning of the conveyance projects delays commissioning of the WWTP and the RTF.	Schedule has sufficient time allowance to ensure conveyance elements complete prior to requirement. Contractor agreements will include terms that require the contractor to recover schedule delays and/or allow for CRD acceleration.	M	No change but this risk may be impacted by the COVID-19 public health emergency (assessment is currently underway)
Upstream works delays.	Delay to the commissioning of either the WWTP or the RTF impacts the commissioning of the other plant.	Contracts with HRP (as the Design-Build Contractor for the McLoughlin Point WWTP) and HRMG (as the Design-Build-Finance-Operate Maintain contractor for the RTF) include terms that require the contractor to recover schedule delays and/or allow for CRD acceleration. Liquidated damages for late delivery are included in both HRP and HRMG contracts.	L	No change but this risk may be impacted by the COVID-19 public health emergency (assessment is currently underway)
Municipal Wastewater Regulation (MWR) Registration is not achieved or is delayed.	A delay to achieving MWR Registration of the wastewater treatment system would mean that the CRD could not discharge treated effluent, and therefore would not be able to commission the WWTP or RTF.	The Project Team (with HRP and Stantec representatives) have been meeting regularly with Ministry of Environment representatives since September 2017 to review the MWR Registration application requirements and the Project's schedule, in order to mitigate the risk of an incomplete application and/or schedule delays in the registration. The MWR Registration application was submitted to the Ministry of Environment in September 2019. The Project Team, MOE and relevant contractors have continued to meet regularly to track progress and discuss issues.	M	No change
Public directly contacting contractors at sites.	Direct contact between the public and contractors could expose both parties to worksite hazards and potential injuries.	Communications and engagement plan and coverage of communications in contractor orientations.	M	No change

Risk Event	Description of Risk Event	Risk mitigation activities undertaken or planned in the reporting period	Assessed risk level	Trend in risk level from previous reporting period
Change in law.	A change in law impacts the scope, cost or schedule of the Project.	Keep apprised of proposed modifications to relevant regulations so as to do the following as appropriate: submit comments on proposed modifications; and/or consider including anticipated modifications in contracts.	M	No change but this risk may be impacted by the COVID-19 public health emergency (assessment is currently underway)
Labour - availability and/or cost escalation.	There is insufficient labour available to construct the Project, and/or there is significant labour cost.	The Project Team will, through the use of competitive selection processes for all construction contracts, ensure that all Project contractors have appropriate experience and therefore understand labour risk.	M	No change but this risk may be impacted by the COVID-19 public health emergency (assessment is currently underway)
Disagreement on contractual obligations of the construction contractors.	There is a disagreement between the Project Team and a contractor regarding the performance of their contractual obligations.	The Project Team takes a proactive management approach to the resolution of any changes, claims and disputes that arise, working expeditiously to achieve resolution with the goal of minimizing any impacts to budget and schedule while ensuring adherence to the terms of the construction contracts.	M	No change but this risk may be impacted by the COVID-19 public health emergency (assessment is currently underway)
McLoughlin Point Wastewater Treatment Plant				
Unexpected contaminated soil conditions during excavation.	Site has more contaminated soils than initial assessment.	CRD and HRP (as the Design-Build Contractor for the McLoughlin Point WWTP) are working collaboratively to minimize the costs associated with remediating the McLoughlin Point site while ensuring that contaminated materials are removed and disposed of in accordance with all applicable legislation.	L	No Change

Risk Level Key - Assessed risk level (based on likelihood and potential impact			
Low	**Medium**	**High**	**Closed**
L	**M**	**H**	**C**

2.9 Status (Engineering, Procurement and Construction)

2.9.1 Wastewater Treatment Plant (McLoughlin Point WWTP)

The McLoughlin Point WWTP Project Component is continuing with Harbour Resource Partners ("HRP" as the Design-Build Contractor for the McLoughlin Point WWTP) progressing construction in the Primary Treatment area including: installation of tube settlers in Densadeg 1 (DD1); completion of tank piping and equipment installation; Densadeg rake mechanism installation underway in all Densadegs; primary odour control tanks set in place; completion of pipe rack installation; fine screen building roofing is complete, cladding in progress, and drywall nearing completion. In the Secondary treatment area progressing construction including: completed Moving Bed Bio Reactor (MBBR) #2 concrete; progression of penthouse building envelopes; completion of south Biological Aerated Filter (BAF)/ Tertiary tie-in slab; MBBR #2 and #1 process equipment nearing completion; and BAF gravel and biolite is installed in cells 11, 10, 8, 6, 4 and 2. In the Tertiary treatment area construction progress includes: progression of BAF tie-in walls and channels; initial Heating Ventilation and Air Conditioning(HVAC) and electrical work; ongoing installation of lower level 1 pumps and mechanical piping; outfall shaft concrete work nearing completion; progressing level 2 process piping; and cinder block masonry nearing completion. In the Operations and Maintenance (O&M Building) and off site utilities construction progress included: continued progress of HVAC and plumbing throughout the building; ongoing glazing installation on the first and second levels; completed raw influent line from Peters Street to the wye, including testing; installed water line to the main plant site from Peters Street; HVAC, plumbing and fire suppression trades are nearing completion on level 1; level 2 roof parapets were installed and preparing for roofing package installation; lower level stud build out and drywall nearing completion; and progression of north end tsunami and planter wall construction.

Key construction activities in progress or completed by HRP in January were as follows:

- Primary treatment area:
  - completion of primary area roof parapets and curbs;
  - completion of miscellaneous equipment pads;
  - ongoing masonry in chemical pump room;
  - fine screen and chemical room steel stud underway;
  - installed tube settlers in Densadeg1 (DD1);
  - commenced installation of tube settler in Densadeg2 (DD2);
  - installed reactors for DD1 and DD2;
  - commenced installation of clarifier mechanism on DD1;
  - sludge lines underway for all Densadegs and plate settlers;
  - completion of tank piping and equipment installation; and
  - completion of storage and plant drain tank piping and equipment installation.
  -
- Secondary treatment area:
  - completed MBBR #2 concrete;
  - progressed MBBR #1 concrete work;
  - progression of south biological aerated filter (BAF) / Tertiary tie-in slab complete, upper channels;
  - installation of 16 inch pipe is nearing completion;
  - completion of BAF scouring air distribution systems in all cells except 12, 9 and 7;
  - electricians continue to progress where possible in the BAF gallery;
  - all blowers set on final housekeeping pads;
  - ongoing installation of Cable tray and supports in all three penthouse structures;

- progression of penthouse building envelopes;
- progress on pipe rack 10 and 11; and
- setup for BAF nozzle and lateral air testing.

- Tertiary treatment area:
  - progression of BAF tie-in walls and channels;
  - upper disk filter walls continue;
  - installation of level one pumps and mechanical piping nearing completion;
  - continued progress of level two pump pads; and
  - initial HVAC and electrical work is in progress.

- O&M building:
  - progressed cinder block wall;
  - continued progress of HVAC and plumbing throughout the building;
  - progressing electrical work throughout the building;
  - ongoing glazing installation on the first and second levels;
  - roofing membrane installation is complete on the level one roof; and
  - steel stud well underway on level 2.

- Off-Site Utilities:
  - completed raw influent line from Peters street to the wye, including test;
  - installed water line to the main plant site from Peters street;
  - installation of pig receiving piping;
  - continued raw influent piping; and
  - commenced commissioning of external major electrical equipment.

Key construction activities in progress or completed by HRP in February were as follows:

- Primary treatment area:
  - sprinkler, HVAC and process piping systems in progress in north pump room;
  - commenced suction and discharge lines for all three Densadegs;
  - tube settlers set in place for all Densadegs;
  - Densadeg rake mechanism installation underway in all Densadegs;
  - Densadeg launder channel installation commenced in Densadeg 1;
  - reactors for all Densadegs set in place and installation ongoing;
  - primary odour control tanks set in place;
  - coring complete for pipe racks 4, 5, and 6;
  - installation of plate settler tank covers has commenced;
  - Fine screen building has been sheathed and membrane installed;
  - Fine screen building cinder block masonry underway; and
  - Fine screen building roofing underway.

- Secondary treatment area:
  - MBBR #2 process equipment installed;
  - MBBR #1 concrete work complete;
  - south BAF / Tertiary tie-in slab complete, upper channels nearing completion;
  - BAF nozzles and laterals are installed and tested in Cells 10, 8, 6, 4, and 2;
  - BAF gravel is installed in cells 8 and 6;
  - BAF nozzle and lateral installation in cells 1, 3 and 5 are nearing completion;
  - electrical cable tray and cable pulling has commenced between exterior electrical gear and main electrical room;

  - cable tray installation on pipe rack 10 and 11 ongoing;
  - electrical work progressed in the BAF gallery;
  - blower room drywall and paint complete;
  - heat recovery room drywall nearing completion; and
  - penthouse building envelopes continue progressing.

- Tertiary treatment area:
  - continued upper disk filter walls;
  - lower level 1 pumps and mechanical piping install nearing completion;
  - level 2 process piping continues; and
  - level 2 masonry ongoing.

- O&M building:
  - lower level interior stud build-out nearing completion;
  - lower level drywall installation has commenced;
  - HVAC, plumbing and fire suppression trades are nearing completion on level 1;
  - electrical trade is beginning to close out rooms to allow for drywall installation on level 1;
  - level 2 HVAC, plumbing and fire suppression are also progressing;
  - steel stud install on level 2 ongoing;
  - spray foam insulation completed; and
  - level 2 roof parapets were installed and preparing for roofing package installation.

Key construction activities in progress or completed by HRP in March were as follows:

- Primary treatment area:
  - sprinkler, HVAC and process piping systems nearing completion in north pump room and primary odour control;
  - suction and discharge lines for all three Densadegs are in progress;
  - Densadeg 1 nearing completion, Densadegs 3 and 2 are in progress;
  - commenced primary odour control fiberglass reinforced plastic (FRP) pipe installation;
  - completion of pipe rack installation;
  - installation of plate settler tank covers in progress;
  - fine screen building roofing is complete, cladding in progress, and drywall nearing completion;
  - fine screen building cinder block walls complete, stairwell steel in progress; and
  - main electrical room distribution cables pull in progress.

- Secondary treatment area:
  - MBBR #2 and #1 process equipment nearing completion;
  - South BAF / Tertiary tie-in concrete complete;
  - BAF nozzles and laterals are installed in all cells outside of 7, 12 & 9;
  - BAF gravel and biolite is installed in cells 11, 10, 8, 6, 4 and 2;
  - electrical cable bus is complete from external gear to main electrical room.
  - cable pulls are ongoing.
  - electricians continue to progress work in the BAF gallery.
  - progressing cable pulls in the Blower room;
  - heat recovery room drywall nearing completion; and
  - progression of Penthouse building envelopes.

- Tertiary treatment area:
  - upper disk filter walls are ongoing;
  - progressing installation of lower level 1 pumps and mechanical piping;
  - level 2 process pipe is in progress;
  - cinder block masonry nearing completion; and
  - outfall shaft concrete work nearing completion.

- O&M building:
  - lower level interior stud build-out nearing completion;
  - lower level drywall installation in progress;
  - HVAC, plumbing and fire suppression trades are nearing completion on level 1;
  - electrical trade is closing out rooms to allow for drywall installation on level 1;
  - Level 2 HVAC, plumbing and fire suppression are in progress;
  - steel stud installation on level 2 is in progress, and drywall has commenced;
  - Level 2 roof is complete, transitioning to Level 1; and
  - progression of North end tsunami and planter wall construction is in progress.

Photographs of construction progress over the month of March at McLoughlin Point WWTP are shown in Figures 2-6.



Figure 2− McLoughlin Point Wastewater Treatment Plant - Bolting up valve and fittings at pigging chamber preparing for pressure test.



Figure 3– McLoughlin Point Wastewater Treatment Plant- Cladding installation on north end of heat recovery room.



Figure 4– McLoughlin Point Wastewater Treatment Plant- Fibreglass reinforced plastic beams installed and ready for covers at DD3 final clarifier.



Figure 5– McLoughlin Point Wastewater Treatment Plant- delivery of turbine blade for Densadeg reactor.



Figure 6– McLoughlin Point Wastewater Treatment Plant- Cinder block installation at northeast stairwell of tertiary treatment structure.

2.9.2 Residuals Treatment Facility

The RTF Project Component is continuing with Hartland Resource Management Group ("HRMG" as the Design-Build-Finance-Operate Maintain contractor for the RTF) progressing construction activities including: completing installation and finishing of drywall in Residuals Handling Building and Dryer Building; structural steel frame completed for the Water Pump House; installed motor control centre/electrical controls in Dryer Building electrical room; commenced erection of Digester #3 bolted steel tank; Digester 2 closed up in preparation for hydro testing; progressed mechanical and electrical in Digester Building; installed boilers and polymer pumps, epoxy flooring installed in chemical room, and installed valves and piping, in Residuals Handling Building; progressed mechanical installation, progressed metal stud and drywall installation and completed load out structure in Residuals Drying Facility; completed metal stud and drywall, completed valve installation around equalisation area, and progressing mechanical and electrical work in the Residuals Storage and Odour Control areas; metal stud walls completed with drywall commencing, and commenced window and door installation in the Operations and Maintenance building.

Key construction activities in progress or completed by HRMG in January were as follows:

- completed erection of Water Storage Tank;
- erected structural steel frame work of the Operations Building;
- installed interior steel stud walls and supporting members installed for installation of exterior insulated metal cladding panels;
- completed installation and finishing of drywall in Residuals Handling Building and Dryer Building;
- electrical equipment and controls installed in Residuals Handling electrical room, cables and wiring being pulled throughout building;
- structural steel frame completed for Water Pump House;
- ongoing installation of mechanical/process piping in Digester Equipment Building;
- Digester #1 sealed up and filled for hydrostatic testing;
- installation of mechanical/process piping in Dryer Building;
- exterior of Dryer Building weathertight, cladding, glazing and flashings installed;
- completed product storage silo on south side of Dryer Building;
- placed concrete for housekeeping pads in Odour Control Building and Residuals Handling Building boiler room;
- installed exterior insulated metal cladding panels, flashing and gutters on Equalization Building and Water Pump House;
- formed up and placed concrete for Propane Storage Tank foundation slab;
- installed motor control centre/ electrical controls in Dryer Building electrical room;
- installed interior process piping and mixing nozzles in DSST;
- commenced erection of Digester #3 bolted steel tank;
- installed process mechanical piping between Residuals Solids Tanks and Equalization Building;
- installed mixing pumps in Digester Equipment Building, cored walls for installation of mechanical/process piping between digesters, DSST and Digester Equipment Building; and
- slope stabilization work ongoing on south slope/upper Hartland access road.

Key construction activities in progress or completed by HRMG in February were as follows:

- Digester Area
  - Digester 2 closed up in preparation for hydro testing;
  - continued erection of Digester 3 tank;
  - installed pipe and pipe supports for Digested Solids Storage Tank (DSST); and
  - progressed mechanical and electrical in Digester Building.

- Residuals Handling Building
  - completed drywall and painting;
  - installed boilers and polymer pumps;
  - epoxy flooring installed in chemical room; and
  - electrical work continued in the electrical room.

- Residuals Drying Facility
  - progressed mechanical installation;
  - electrical cable tray installation was completed with cabling being pulled and terminated;
  - progressed metal stud and drywall installation; and
  - load out structure is in progress.

- Residuals Storage & Odour Control and Equalization Building
  - completed metal stud and drywall.

- Water Pump house
  - pump skids installed and building closed up;
  - mechanical and electrical work is in progress; and
  - trickling tower installed on odour control pad.

- Operations Building
  - metal stud walls completed with drywall commencing; and
  - mechanical and electrical is in progress.

Key construction activities in progress or completed by HRMG in March were as follows:

- Digester Area
  - Digester 2 filled with water for hydro test;
  - Digester 3 tank erection complete;
  - Digested Sludge Storage Tank (DSST) closed and made ready for water; and
  - Digester Building mechanical and electrical is in progress.

- Other Municipal Solids Receiving Facility
  - installed valves; and
  - commenced installation of electrical cable tray and cable.

- Residuals Handling Building
  - installed valves and piping;
  - electrical work continued in all areas; and
  - commenced installation of Fiberglass Reinforced Plastic (FRP) grating.

- Residuals Drying Facility
  - continuing mechanical installation;
  - continuing electrical terminations;
  - completed metal stud and drywall;
  - completed load out structure; and
  - commenced installation of generator room louvres.

- Residuals Storage & Odour Control
  - completed valve installation around equalisation area;
  - progressing mechanical and electrical work; and
  - completed hydro test on Residual Solids Tank 1 and 2.

- Operations Building
  - continued drywall installation;
  - commenced painting and flooring install;
  - progressed mechanical and electrical; and
  - commenced window and door installation.

Photographs of construction progress over the month of March at the Residuals Treatment Facility are shown in Figures 7-10.



Figure 7− Residuals Treatment Facility- FRP supports being assembled for grating around centrifuges in Residuals Handling Building.

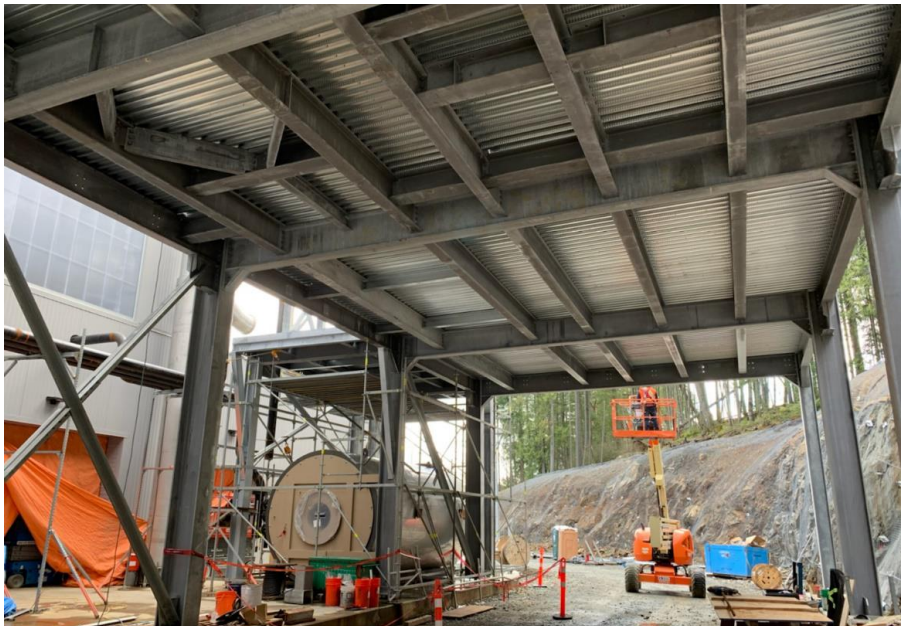


Figure 8– Residuals Treatment Facility- Installation of Q deck roofing system ongoing on product load out structure.



Figure 9– Residuals Treatment Facility- Chopper pumps wired in digester equipment building.



Figure 10− Residuals Treatment Facility – Interior painting and flooring installation ongoing in operations building

2.9.3 Conveyance System

2.9.3.1 Clover Point Pump Station

Kenaidan Contracting Limited ("Kenaidan" as the Design-Build Contractor) progressed construction activities over the reporting period including: installation of process pipe knife gate and check valves; continued existing inlet channel and bypass pumping work testing and backfilling of the forcemain; progressing piping of domestic water service, and fire suppression service; installation of exterior retaining walls; pigging chamber waterline fused and bolted; relocation of existing screen and compactor; and installation of new screen and compactor.

Key construction activities in progress or completed by Kenaidan in January include:

- installation of process pipe knife gate and check valves;
- ongoing installation of cable tray and cable;
- ongoing cable loop checks;
- completion of transformer, switch gear, neutral grounding resistor and motor control centre (MCC) installation checks;
- ongoing south retaining wall structure work;
- ongoing high density polyethylene forcemain work;
- continued existing inlet channel and bypass pumping work;
- installation of HVAC ducting in pump and screening rooms; and
- installation of flow, level and gas detection instrumentation is being installed.

Key construction activities in progress or completed by Kenaidan in February included:

- forcemain bolted, tested and backfilling in progress;
- upper pump room pipe supports poured;
- pigging chamber water line fused and bolted;
- air intake structure slab poured;
- domestic water service piping in progress;
- fire suppression system piping ongoing;
- installing exterior retaining walls; and
- installing gravity inlet sewer stub out.

Key construction activities in progress or completed by Kenaidan in March included:

- installation of FRP piping to new odour control system in progress;
- forcemain bolted, testing and backfilling in progress;
- poured air intake structure slab;
- completed domestic water service piping;
- fire suppression system ongoing;
- installation of exterior retaining walls and backfilling;
- relocation of existing screen and compactor;
- installation of new screen and compactor; and
- cable tray installation into existing building ongoing.

Photographs of construction progress over the month of March at Clover Point are shown in Figures 11-13.



Figure 11−Clover Point Pump Station- Existing screen installation to new inlet channel.



Figure 12−Clover Point Pump Station- Lower pump room



Figure 13- Clover Pump Station – Forcemain pressure test.

2.9.3.2 Macaulay Point Pump Station and Forcemain

Kenaidan Contracting Limited ("Kenaidan" as the Design-Build Contractor) progressed construction activities over the reporting period including: installation of bridge crane in the bin room; installation of screen room and Vortex grating; installation of HVAC and drain pipe in the screen room; completion and passing of the pressure test for the forcemain; ongoing backfill around the exterior wall; Cross laminated Timber roof and parapet have been installed; installation of the HVAC and drain pipes in the screen room; bridge cranes have been commissioned in the bin and pump rooms; ongoing unit heaters installation; poured wet well ogee block and duct bank for primary power cable; and insulation on the exterior walls and roof is nearing completion.

Key construction activities in progress or completed by Kenaidan in January were as follows:

- installation of cable trays in the screen room and genset room;
- installation of bridge crane in the bin room;
- ongoing backfill around exterior wall;
- installation of screen room and Vortex grating;
- installation of Cross Laminated Timber roof and parapets;
- barrier wall and pump room hatch curb have been poured;
- slide gate installation has commenced in the screen room; and
- installation of HVAC and drain pipe in the screen room.

Key construction activities in progress or completed by Kenaidan in February were as follows:

- pressure test on the Forcemain has completed and passed;
- bypass pumping for coupling installation has been completed;
- cable tray has been installed in the screen room and genset room;
- bridge cranes have been commissioned in the bin room and pump room;
- backfill around exterior wall is ongoing;
- screen room and vortex grating has been installed;
- Cross Laminated Timber roof and parapet have been installed;
- barrier wall and pump room hatch curb have been poured;
- slide gate installation has started in the screen room; and
- HVAC and drain pipes have been installed in the screen room.

Key construction activities in progress or completed by Kenaidan in March were as follows:

- unit heaters installation;
- poured wet well concrete slide;
- backfill on the south, west and north sides;
- poured wet well ogee block and duct bank for primary power cable;
- installed genset room exhaust pipe;
- insulation on the exterior walls and roof is nearing completion; and
- poured wet well benching slab and containment area.

Photographs of construction progress over the month of March at Macaulay Point are shown in Figures 14-15.



Figure 14−Macaulay Point Pump Station- Genset room progression.



Figure 15−Macaulay Point Pump Station- Stainless steel pipe installation to Forcemain.

2.9.3.3 Clover Forcemain (CFM)

Windley Contracting Ltd. ("Windley" as the Construction Contractor) continued construction activities including: progressing electrical lighting installation from Montreal Street to Lewis Street; ongoing installation of Clover Point storm catch basin; ongoing cycle track/road restoration between Government and Lewis Streets; ongoing cycle track paving; road restoration; electrical lighting installation; additional cycle path let downs; planted remaining trees at Douglas Street; and top lift paving Niagara Street to Dock Street.

Key construction activities in progress or completed by Windley in January were as follows:

- ongoing cycle track/road restoration between Government and Lewis Streets;
- progressed electrical lighting installation from Montreal Street to Lewis Street;
- progressed installation of Montreal Street bump out curbing and sidewalk;
- ongoing installation of Clover Point storm catch basin; and
- progressed Camas curb extension.

Key construction activities in progress or completed by Windley in February included:

- cycle track/road restoration Lewis Street to Government Street;
- electrical lighting installation Montreal Street to Lewis Street;
- Clover Point storm catch basin installation;
- Camas Curb Extension; and
- landscape restoration.

Key construction activities in progress or completed by Windley in March included:

- cycle track/road restoration Government St to Lewis St;
- cycle track/road restoration Lewis St to Dock St North side;
- installed electrical lighting from Montreal Street to Lewis Street;
- additional cycle path let downs;
- planted remaining trees at Douglas Street;
- landscape restoration; and
- top lift paving Niagara Street to Dock Street.

Photographs of construction progress over the month of March on the Clover Forcemain are shown in Figures 16-19.



Figure 16−Clover Forcemain- Cycle track/road restoration from Government to Lewis Street.



Figure 17−Clover Forcemain- Electrical lighting installation Montreal Street to Lewis Street



Figure 18−Clover Forcemain− Trees planted at Douglas Street.



Figure 19−Clover Forcemain- Top lift of paving Niagara Street to Dock Street.

2.9.3.4 Residual Solids Conveyance Line

The RSCL is being delivered through two construction contracts:

- Residual Solids Pipes; and
- Residual Solids Pump Stations

Residual Solids Pipes: Don Mann Excavating Ltd. ("Don Mann" as the Construction Contractor for the Residual Solids Pipes) continued construction activities over the reporting period, including: installation of valve chambers; final road restoration and line painting; and installation of approximately 2.2km of pipes.

Key construction activities in progress or completed by Don Mann in January were as follows

- segment #1 Tillicum Road from Gosper Crescent to Tillicum Bridge and Vincent Ave to Tillicum Bridge; and
- segment #2 Interurban Road from Meadowview Place to Wilkinson Road and Roy Road to Wilkinson Road.

Key construction activities in progress or completed by Don Mann in February were as follows:

- segment #1 Tillicum Road from Gorge Rd to Tillicum Bridge; installation of line valves, low point drain valves and air valves on Head Street and Tillicum Road;
- segment #2 Interurban Road from Roy Road to North Road: temporary asphalt restoration on Interurban Road south of Wilkinson to North Road;
- segment #3, installation of an air valve on Interurban Trail and a low point drain valve on Interurban Road at Viaduct Ave West, temporary asphalt restoration on Interurban Road at Goward Road; and
- segment #4, final surface restoration on Interurban Trail from Prospect Lake Road to Wallace Drive and Willis Point Road.

Key construction activities in progress or completed by Don Mann in March were as follows:

- segment #1:
  - Tillicum: installation of the 250 mm main resumed;
  - final paving and line painting on Arm Street, Craigflower Road & Dominion Road; and
  - tie-in at Wollaston & Head streets.

- segment #2**:**
  - Interurban Road – south, with the arrival of the required bends, the crew completed the Peers Creek crossing;
  - final asphalt reinstatement: Interurban, Grange Road to Wilkinson Road
  - Interurban Road – north, the focus in this area was finalizing underground work in preparation for final paving. This included tying test sections together and conducting visual leak testing on couplings prior to backfilling;
  - Installed line valves and low point drains;
  - final asphalt reinstatement: Interurban Road, Charlton Road to Hector Road;
  - Portage Road: continued installing pipe on Portage to the location of the line valve, then relocated to the bottom of Esson Road and installed pipe up-station toward the section occupied by the McKenzie Interchange project. The crew then began to cross Admirals Road but ran into a conflicting unknown pipe. They once again relocated to the Colquitz side of the Admirals Bridge.

- segment #3:
  - tying-in test points, repairing grouting deficiencies, and setting castings.

- segment #4:
  - Interurban Trail**:** South of Prospect Lake Road, raked out the base gravel windrow on each side of the trail left by the grader and dressed the edges with topsoil

Photographs of construction progress over the month of March on the Residual Solids Pipes are shown in Figures 20-23.



Figure 20− Residual Solids Pipes-Sidewalk, curb and gutter preparation on Interurban Road at Charlton Road



Figure 21−Residual Solids Pipes- Installation of pipe through Tillicum Bridge abutment.



Figure 22−Residual Solids Pipes – Installing spacers on highway crossing pipe.

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Figure 23−Residual Solids Pipes - Sidewalk, curb and gutter preparation on corner of Burnside Road and Grange Road.

Residual Solids Pump Stations: Knappett Projects Inc. ("Knappett" as the Construction Contractor for the Residual Solids Pump Stations) continued construction activities including: wet well walls and valve chamber slab were formed and poured; and the kiosk was landed at Pump Station 1; excavation and installation of flow meter manhole; and commenced leak testing of the wet well; the valve chamber, flow meter and line valve manholes were installed at Pump Station 2; installation of underground conduits, genset and electrical kiosk and generator placed on pad at Pump Station 3; completion of pipe installation along Interurban Road; completion of the RTF Chamber at Willis Point Road; Hartland reservoir slab was poured, formed and the reservoir was fully erected; work progressed under Tillicum Bridge with the installation of all anchor bolts, and the interurban base lift asphalt was paved.

Key construction activities in progress or completed by Knappett in January included:

- Pump Station 1: wet well walls were formed and poured; and the formwork was removed after adequate cure time;
- Pump Station 2: excavation and installation of flow meter manhole; and commenced leak testing of the wet well;
- Pump Station 3: the underground conduits were installed. Work on the spools throughout the chambers continued;
- 118 m pipe installed on Interurban Road;
- Marigold Pump Station concrete slab was formed and poured; and
- Hartland Reservoir site was prepped for the underground spools and work started on formwork for the slab

Key construction activities in progress or completed by Knappett in February included:

- Pump Station 1 wet well was patched. The valve chamber slab was then prepped and poured once the wet well damp proofing had been backfilled;
- Pump Station 2 wet well passed the leak test and was then damp proofed and partially backfilled. The valve chamber, flow meter and line valve manholes were installed;
- Pump Station 3 genset and electrical kiosk were installed, the odour control pad was prepped and Spools were grouted in place in various chambers;
- completion of the RTF Chamber at Willis Point Road;
- completion of pipe installation along Interurban Road;
- Marigold Pump Station walls and roof slab were formed and poured; and
- Hartland Reservoir slab was formed, poured and then the reservoir was fully erected.

Key construction activities in progress or completed by Knappett in March included:

- Pump Station 1 kiosk was landed on the concrete pad. The spool installation began throughout all of the chambers and the valve chamber lid was delivered and lifted in place. Coring, coatings and install of line valve and flowmeter chambers also took place;
- Pump Station 2 kiosk pad and retaining wall was poured. Various conduit and spool installation were progressed;
- Pump Station 3, work on grouting the chamber cores took place. The Generator was placed on the pad and odour control unit pad prep occurred;
- Marigold Pump Station, the installation of the drain line from the valve chamber to sanitary manhole took place;
- work progressed under Tillicum Bridge with the installation of the anchor bolts; and
- Interurban base lift asphalt was paved.

Photographs of construction progress over the month of March on the Residual Solids Pump Stations are shown in Figures 24-25.



Figure 24−Residual Solids Pump Stations– Pump Station 3 – Emery Electric performing a 5– hour load test on the generator.



Figure 25 −Residual Solids Pump Stations – Pump Station1 Survey layout for generator and odour control unit pads.

2.9.3.5 Arbutus Attenuation Tank

NAC Constructors Ltd. (as the Construction Contractor for the Arbutus Attenuation Tank) continued construction activities including: continued drilling operation and installation of plain and reinforced secant piles; mobilization of second drill rig to site to assist in secant pile production rate; maintaining the dewatering system; on-site steel welding for lateral strut reinforcement; preparatory works for ring beam construction; removal of construction ramp into take footprint to facilitate installation of remaining secant piles and installation of diagonal and lateral struts atop the secant piles.

Key construction activities in progress or completed by NAC Constructors Ltd. in January include:

- continued drilling operation and installation of plain and reinforced secant piles;
- mobilization of second drill rig to site to assist in secant pile production rate;
- steel splicing works for installation of deep piles (>17m depth); and
- ongoing site dewatering work.

Key construction activities in progress or completed by NAC Constructors Ltd. in February include:

- site welding / fabrication including installation of saddles on the secant piles and welding steel plate reinforcement for lateral and cross struts;
- construction of secant piles, focusing on the eastern section of site; and
- preparatory work for ring beam installation including securing formwork, reinforcement, localized excavation around secant piles for grade adjustments.

Key construction activities in progress or completed by NAC Constructors Ltd. in March include:

- removal of construction ramp into tank footprint to facilitate installation of the remainder of the secant piles; and
- installation of diagonal and lateral struts atop the secant piles.

A photograph of construction progress during the month of March at the Arbutus Attenuation Tank is shown in Figure 26.



Figure 26−Arbutus Attenuation Tank-Installed diagonal and lateral struts atop the secant piles.

2.9.3.6 Trent Forcemain

Jacob Bros. Construction Inc. (as the Construction Contractor for the Trent Forcemain) commenced construction activities including: execution of the construction contract in accordance with the Invitation to Tender; progressed planning and permitting activities including submitting construction management plans for the Project Teams Review; completed utility pre-locate works for entire route; and completed Memorial Crescent storm main and sanitary realignment work.

Key construction activities in progress or completed by Jacob Bros. in January include:

- The Project Team executed the construction contract with the tenderer selected in accordance with the Invitation to Tender: Jacob Bros. Construction Inc. The contractor started submitting construction management plans for the Project Team's review.

Key construction activities in progress or completed by Jacob Bros. in February include

- submitting construction management plans for the Project Team's review.

Key construction activities in progress or completed by Jacob Bros. in March include:

- archaeological investigation work completed;
- soil borehole investigation work;
- utility pre-locate works completed for entire Forcemain route from Dallas Road to St Charles;
- all existing utilities surveyed;
- pre-locate work investigating conflicts between existing manholes and proposed;
- Memorial Crescent Storm Main realignment work completed; and
- Memorial Crescent Sanitary realignment work completed.

Appendix A– Final Contract Awarded for the Wastewater Treatment Project (January 9, 2020)

Wastewater Treatment Project

Information Bulletin

For Immediate Release
January 9, 2020

Final Contract Awarded for the Wastewater Treatment Project

Victoria, BC– The Capital Regional District (CRD) has awarded a $6.8-million contract to Jacob Bros Construction to construct the Trent Forcemain. This is the final major construction contract for the Wastewater Treatment Project.

Jacob Bros was selected by the CRD through a competitive selection process. Jacob Bros is a multi-discipline general contractor that focuses on heavy civil and building construction. They are based in Surrey, B.C. with a satellite office in Victoria.

Construction for the Trent Forcemain is anticipated to begin early in 2020 and take approximately 10 months to complete. This 1.9km pipe will be installed as part of the Wastewater Treatment Project's conveyance system. It will run from the intersection of Chandler Avenue and St Charles Street connecting to the Clover Point Pump Station. This addition to the eastern branch of the CRD's core area conveyance system will increase the capacity of the system and reduce wet weather overflows.

The Wastewater Treatment Project remains on schedule to treat wastewater from the core area by December 31, 2020 with a budget of $775 million.

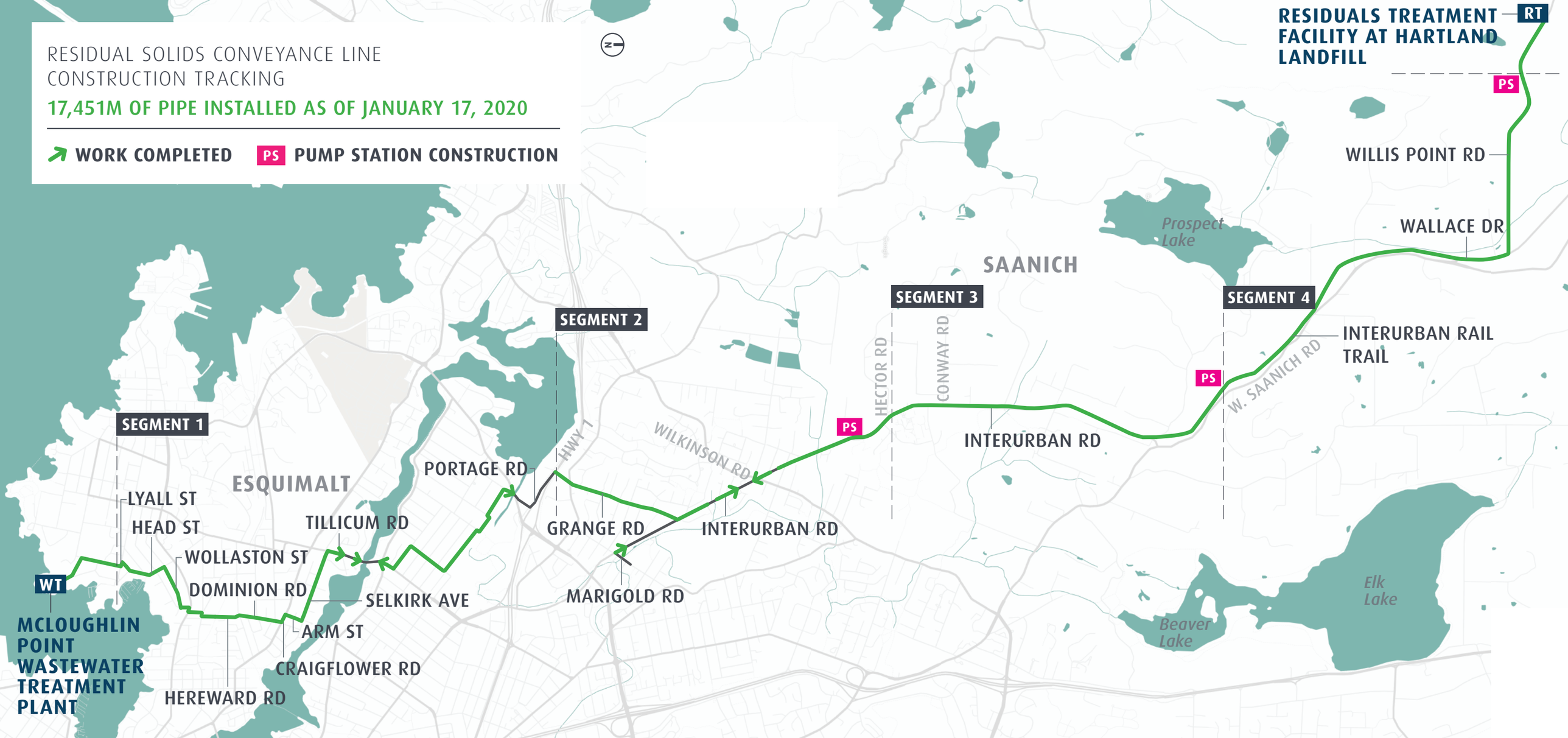
The Wastewater Treatment Project is being funded by the Government of Canada, the Government of British Columbia and the CRD.

About the Wastewater Treatment Project

The Wastewater Treatment Project will provide tertiary treatment for wastewater from the core area municipalities of Victoria, Esquimalt, Saanich, Oak Bay, View Royal, Langford and Colwood, and the Esquimalt and Songhees Nations. The Project will be built so we comply with federal regulations by the end of 2020, and consists of the McLoughlin Point Wastewater Treatment Plant, the Residuals Treatment Facility at Hartland Landfill, and the conveyance system that will carry wastewater from across the core area to the McLoughlin Point Wastewater Treatment Plant, and residual solids to the Residuals Treatment Facility. For more information, visit www.wastewaterproject.ca.

For media inquiries, please contact:
Andy Orr, Senior Manager
CRD Corporate Communications
Tel: 250.360.3229
Cell: 250.216.5492

Appendix B– Residual Solids Conveyance Line Map (January 17, 2020)


RESIDUAL SOLIDS CONVEYANCE LINE CONSTRUCTION TRACKING
17,451M OF PIPE INSTALLED AS OF JANUARY 17, 2020
WORK COMPLETED
PS PUMP STATION CONSTRUCTION
RESIDUALS TREATMENT FACILITY AT HARTLAND LANDFILL
RT
PS
WILLIS POINT RD
WALLACE DR
Prospect Lake
SAANICH
SEGMENT 3
SEGMENT 4
SEGMENT 2
SEGMENT 1
HECTOR RD
CONWAY RD
INTERURBAN RAIL TRAIL
W. SAANICH RD
INTERURBAN RD
WILKINSON RD
HWY 1
PORTAGE RD
ESQUIMALT
LYALL ST
HEAD ST
TILLICUM RD
WOLLASTON ST
DOMINION RD
SELKIRK AVE
ARM ST
CRAIGFLOWER RD
HEREWARD RD
GRANGE RD
MARIGOLD RD
WT
MCLOUGHLIN POINT WASTEWATER TREATMENT PLANT
Elk Lake
Beaver Lake

Appendix C– Trent Forcemain Construction (February 5, 2020)

Wastewater Treatment Project
Treated for a cleaner future

Construction Notice

February 5, 2020

Trent Forcemain Construction

The Wastewater Treatment Project includes construction of the Trent Forcemain, 1.9km of pipes that will be installed from the intersection of Chandler Avenue and St Charles Street to the Clover Point Pump Station (see map on reverse). This addition will increase the capacity of the wastewater system and reduce wet weather overflows.

The contractor for this component of the Project, Jacob Bros Construction Inc., will begin work the week of February 10 and construction is anticipated to take approximately 10 months to complete.

What to Expect

- A site office and laydown area will be established on Memorial Crescent.
- Existing utilities (storm, sewer, water, gas) will be relocated in preparation for forcemain installation.
- The pipe will be installed in segments.
- A trench will be excavated, the pipe will be installed, and the trench will be backfilled. The surface will be temporarily restored at the end of each work day.
- Rock encountered in the trench will be removed by blasting or mechanical means.
- Final restoration will take place once the pipe has been installed and tested.
- Pipes and equipment will be temporarily stored in the area while this work is completed.
- Noise associated with this work includes excavation machinery and truck back-up beepers.

Work Hours

- Monday to Friday from 7:00 a.m. to 7:00 p.m.
- Saturday from 10:00 a.m. to 7:00 p.m.

Traffic Impacts

- There will be single lane alternating traffic during work hours in the construction zone.
- The northbound lane on Memorial Crescent from Dallas Road to Bushby Street will be closed during construction. Traffic will be diverted to the southbound lane to accommodate two-way traffic (see map on reverse).
- Parking along Memorial Crescent between Bushby Street and Dallas Road will be unavailable for the duration of construction of the Trent Forcemain.
- Traffic control areas will be delineated by cones and signs and controlled by flaggers.
- Parking will be temporarily impacted in the construction zone.

Access

- Vehicle access to residences may be temporarily restricted. Notification will be provided in advance and access to residential driveways will be restored at the end of each work day.
- Emergency services will have access at all times.
- Garbage and recycling services will be picked up as usual.

Thank you for your patience as this work is completed.

Any questions about the work, please contact the Project Team.

24/7 Phone Line
1.844.815.6132

Email
wastewater@crd.bc.ca

Website
wastewaterproject.ca

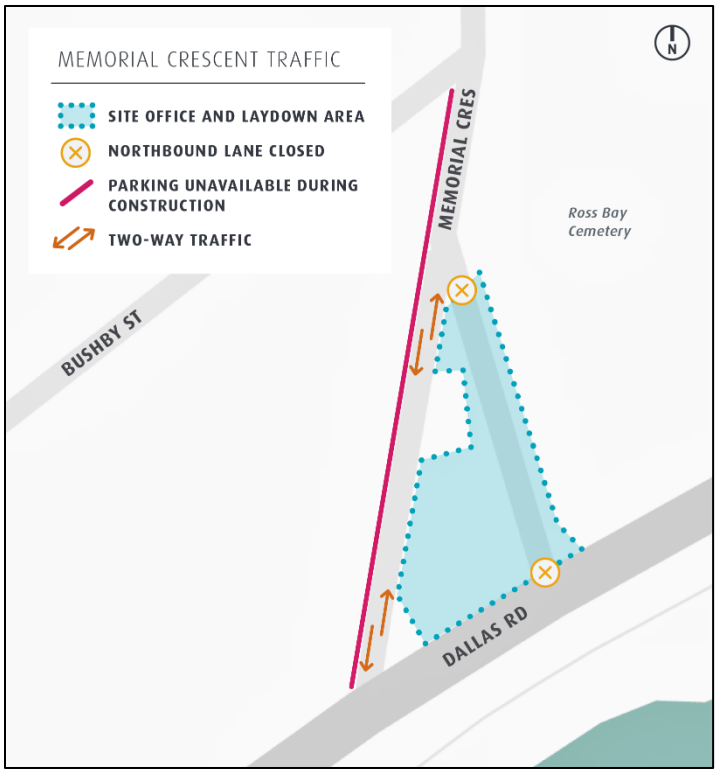
Wastewater Treatment Project
Treated for a cleaner future

Construction Notice

Trent Forcemain Route



Memorial Crescent



About the Wastewater Treatment Project
The Wastewater Treatment Project will provide tertiary treatment for wastewater from the core area municipalities of Victoria, Esquimalt, Saanich, Oak Bay, View Royal, Langford and Colwood, and the Esquimalt and Songhees Nations by the end of 2020.

Any questions about the work, please contact the Project Team.

24/7 Phone Line
1.844.815.6132

Email
wastewater@crd.bc.ca

Website
wastewaterproject.ca

Appendix D− Residual Solids Conveyance Line: Esson and Portage Roads (February 14, 2020)

Wastewater Treatment Project
Treated for a cleaner future

Construction Notice

February 14, 2020

Residual Solids Conveyance Line: Esson and Portage Roads

As part of the Wastewater Treatment Project, construction of the Residual Solids Conveyance Line along Esson and Portage roads is anticipated to start the week of February 18 and continue to the end of April. Two crews will be installing pipes: one crew starting at Admirals Road and a second crew starting at the intersection of Portage and Grange roads.

What to Expect

- The pipe will be installed in segments.
- A trench will be excavated, the pipe will be installed, and the trench will be backfilled. The surface will be temporarily restored at the end of each work day.
- Final restoration will take place after the section has been tested and completed.
- Rock encountered in the trench will be removed by blasting or mechanical means.
- A staging area at the intersection of Portage and Grange roads will be set up to feed pipes into the pre-installed casings under the Trans-Canada Highway.
- Noise associated with this work includes excavation machinery and truck back-up beepers.
- Pipes and equipment will be temporarily stored in the area while this work is completed.

Work Hours

- Monday to Friday from 7:00 a.m. to 7:00 p.m.
- Occasional Saturday work may be required from 7:00 a.m. to 7:00 p.m.

Traffic Impacts

- There will be single lane alternating traffic during work hours.
- Traffic control areas will be delineated by cones and signs and controlled by flaggers.
- Parking will be temporarily impacted as construction moves along the route.

Access

- Vehicle access to residences will be temporarily restricted when work is underway and will be reinstated at the end of each work day. Residents will be notified of temporary closures in advance.

Thank you for your patience as this work is completed.

About the Wastewater Treatment Project
The Wastewater Treatment Project will provide tertiary treatment for wastewater from the core area municipalities of Victoria, Esquimalt, Saanich, Oak Bay, View Royal, Langford and Colwood, and the Esquimalt and Songhees Nations by the end of 2020.

Any questions about the work, please contact the Project Team.

24/7 Phone Line
1.844.815.6132

Email
wastewater@crd.bc.ca

Website
wastewaterproject.ca

Appendix E− Macaulay Point Pump Station: Bypass Pumping (February 21, 2020)

Wastewater Treatment Project
Treated for a cleaner future

Construction Notice

February 21, 2020

Macaulay Point Pump Station: Bypass Pumping

Construction of the Macaulay Point Pump Station requires temporary sewer bypass pumping on Monday, February 24, 2020 to replace a section of the existing sewer pipe to accommodate construction for the new pump station. Once started, this work must be completed and may run past regular working hours.

What to Expect

- Diesel powered generators will be running to provide sewer bypass pumping.
- A small section of the existing sewer pipe will be replaced.
- Bypass pumps will be removed once work is complete.
- Construction equipment will be in operation, including lights and truck back-up beepers.
- Noise associated with construction may occur overnight.

Work Hours

- The work will take place during the day but may take up to 24 hours, proceeding overnight past regular working hours.

Traffic Impacts

- No traffic impacts are expected.

About the Wastewater Treatment Project

The Wastewater Treatment Project will provide tertiary treatment for wastewater from the core area municipalities of Victoria, Esquimalt, Saanich, Oak Bay, View Royal, Langford and Colwood, and the Esquimalt and Songhees Nations by the end of 2020.

Any questions about the work, please contact the Project Team.

24/7 Phone Line
1.844.815.6132

Email
wastewater@crd.bc.ca

Website
wastewaterproject.ca

Appendix F- Peters Street Paving update (February 13, 2020)

Wastewater Treatment Project

February 13, 2020

Dear Resident,

We are writing to notify you that final paving along Peters Street is expected to take place next week, weather permitting.

Peters Street will be closed to vehicles 24 hours/day from Tuesday, February 18 to Friday, February 21 to prepare and pave the road. All vehicles on Peters Street must be relocated by 7 a.m. Tuesday morning. Parking will be available on Gault and Lyall streets.

There will be pedestrian access to all residences and emergency services will have access at all times. Garbage will be picked up as usual.

We appreciate your patience while this work is being completed. Please feel free to contact us at our 24/7 phone line 1-844-815-6132 or email wastewater@crd.bc.ca if you have any questions or if there is anything we can do to assist.

Thank you,

Wastewater Treatment Project Team

Appendix G– About the Wastewater Treatment Process

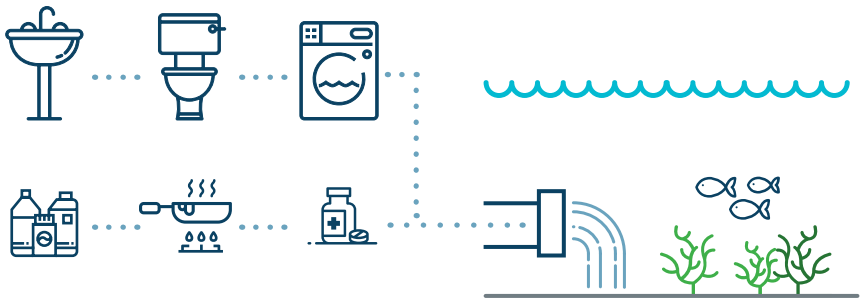
Wastewater Treatment Project
Treated for a cleaner future

Wastewater Treatment Project

Treated for a cleaner future

What is wastewater?

- Wastewater is used water from human activities such as washing dishes, doing laundry, and flushing the toilet.
- Some pollutants in wastewater include industrial and commercial waste, detergents, cooking fats, and prescription drugs.



Why we treat wastewater

- To reduce contaminants prior to releasing the effluent into the environment, helping to protect and maintain healthy waterways.
- If pollutants in wastewater are not removed, they flow directly into the ocean. This can threaten fisheries, wildlife habitat, recreation, quality of life, and public health.

About the system

- Wastewater flows from residences and businesses into a sewer pipe that connects to larger pipes under our streets, which ultimately connect to either the Clover Point Pump Station or the Macaulay Point Pump Station.
- At present, wastewater is screened at these pump stations and then discharged into the Strait of Juan de Fuca without treatment.
- The Wastewater Treatment Project will connect these two pump stations to the McLoughlin Point Wastewater Treatment Plant so that wastewater can be treated to a tertiary level prior to discharge.

Did you know?

In the Core Area:

- There are **seven municipalities** (Victoria, Esquimalt, Saanich, Oak Bay, View Royal, Langford, and Colwood) and the Esquimalt and Songhees Nations.
- The population is approximately **320,000 people** covering **215km²**.
- There are over **175 pump stations** and **110km** of existing sanitary sewer pipes.
- The McLoughlin Point Wastewater Treatment Plant will treat up to **108,000,000 litres** of wastewater per day, providing capacity to accommodate future population growth.
- Every person produces an average of **185–200 litres** of wastewater per day.
- Wastewater flows are greater on rainy days.

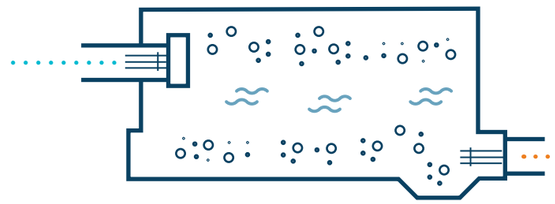
Treatment Process

1 CONVEYANCE SYSTEM

Collects wastewater from across the core area and conveys it to the Clover Point and Macaulay Point pump stations.

Screening
Wastewater is screened (6mm) to remove stones, paper, cloth, plastics and other debris.

Grit Removal
A vortex system uses centrifugal force to keep the organic material suspended while grit settles and is removed.



Pumping
Wastewater will be pumped to the new treatment plant.

The grit and screenings are compacted and trucked to an approved landfill.

Storm Outfalls
Currently, untreated wastewater is discharged out of the Clover Point and Macaulay Point outfalls. Once the Project is built, these outfalls will only be used to discharge storm flows associated with heavy-rain events. To reduce the need to discharge storm flows, a buried underground concrete tank (the Arbutus Attenuation Tank) will be built in Saanich to temporarily store flows during high volume storm events. In addition, core area municipalities have committed to an inflow and infiltration program that will reduce the volume of storm flows that need to be discharged.

2 MCLOUGHLIN POINT WASTEWATER TREATMENT PLANT

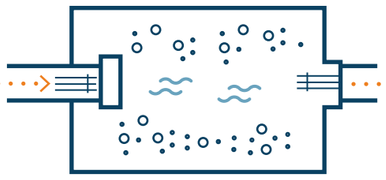
PRIMARY TREATMENT
Is the physical separation of solids from wastewater.

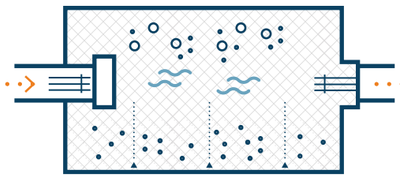
Removing Solids
Heavier solids settle to the bottom and lighter 'scum' floats to the top.

SECONDARY TREATMENT
Is a biological process that removes dissolved and suspended organic compounds in the wastewater.

Fine Screening
Primary effluent will be finely screened (2mm) to remove smaller debris.

Biological Reactors
Wastewater flows through tanks where microorganisms grow. The microorganisms consume organic compounds in the wastewater and reproduce to form cells that result in residual biological solids. Solids are removed and sent to the Residuals Treatment Facility for further treatment. Treated secondary effluent is sent to tertiary treatment.

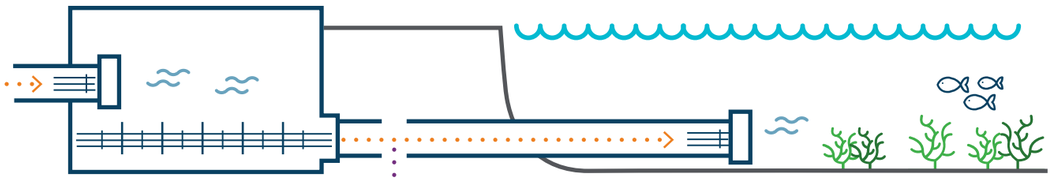




TERTIARY TREATMENT
Is one of the highest levels of treatment, reducing contaminants that remain after the secondary treatment process.

Disc Filter
Wastewater will pass through a fabric disc filter (5-micron), reducing many pharmaceuticals, hormones, microplastics and other contaminants.

OUTFALL
The tertiary-treated effluent will flow through the outfall and discharge into the ocean approximately 2km from shore and 60m deep.



As wastewater moves through the treatment process, residual solids are removed. These solids will be pumped to the Residuals Treatment Facility for further treatment.

3 RESIDUALS TREATMENT FACILITY

Digestion
The residual solids undergo anaerobic digestion in which microorganisms will break down biodegradable material in the absence of oxygen and produce biogas.

Biogas
Biogas produced during the digestion process will be collected and reused within the facility as fuel for the dryer.

Drying
The residual solids are dewatered and then heated at a very high temperature (220°C).

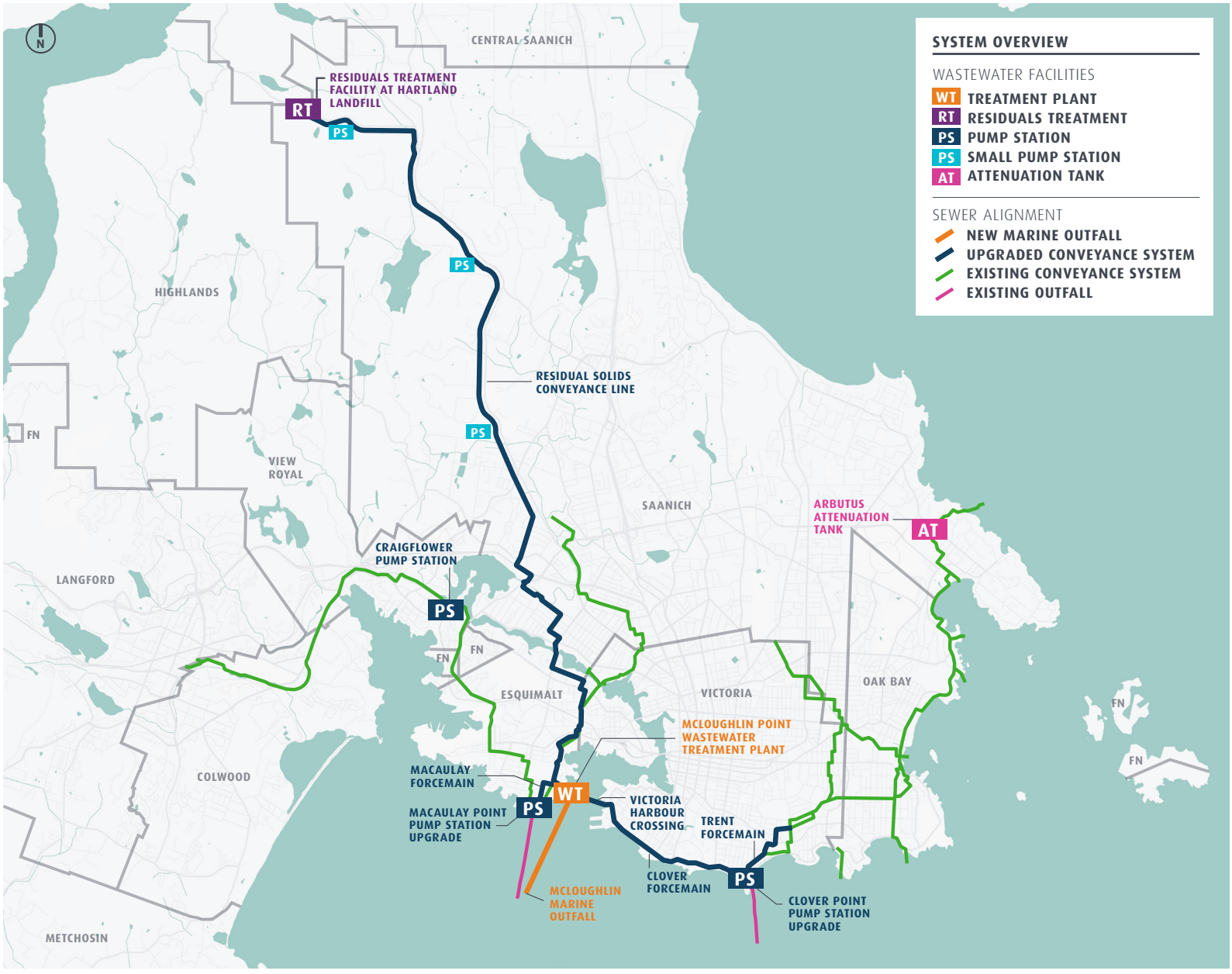


Biosolids
Dried Class A biosolids will be produced that will contain almost no detectable levels of pathogens. These are the highest standard of biosolids and are suitable for beneficial use. The biosolids will be dark, dry granular pellets.

Residual Solids Conveyance Line
Will consist of two pipes and three small pump stations to transport all residual solids to the Residuals Treatment Facility. Liquid removed from the residual solids during the treatment process will be returned to the McLoughlin Point Wastewater Treatment Plant through the conveyance system.

Wastewater Treatment Project Components

The Wastewater Treatment Project is being built to meet the provincial and federal regulations for treatment by December 31, 2020.



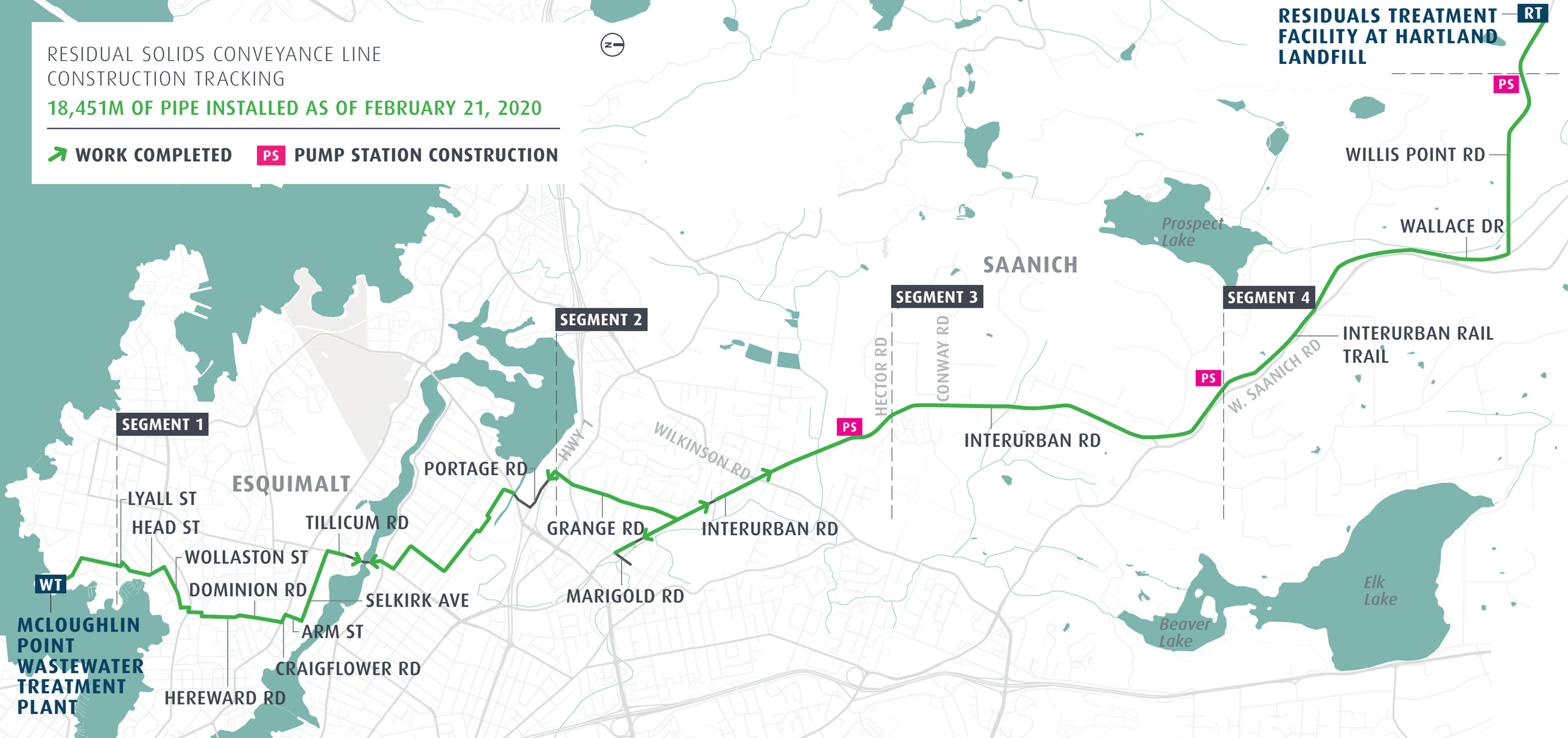
For more information

Website
wastewaterproject.ca

Email
wastewater@crd.bc.ca

24–7 Project information line
1.844.815.6132

Appendix H− Residual Solids Conveyance Line (February 21, 2020)


RESIDUAL SOLIDS CONVEYANCE LINE CONSTRUCTION TRACKING
18,451M OF PIPE INSTALLED AS OF FEBRUARY 21, 2020
WORK COMPLETED
PS PUMP STATION CONSTRUCTION
RESIDUALS TREATMENT FACILITY AT HARTLAND LANDFILL
RT
PS
WILLIS POINT RD
WALLACE DR
Prospect Lake
SAANICH
SEGMENT 3
SEGMENT 4
SEGMENT 2
SEGMENT 1
HECTOR RD
CONWAY RD
INTERURBAN RAIL TRAIL
W. SAANICH RD
INTERURBAN RD
WILKINSON RD
HWY 1
PORTAGE RD
ESQUIMALT
LYALL ST
HEAD ST
TILLICUM RD
GRANGE RD
INTERURBAN RD
WOLLASTON ST
DOMINION RD
SELKIRK AVE
MARIGOLD RD
WT
MCLOUGHLIN POINT WASTEWATER TREATMENT PLANT
ARM ST
CRAIGFLOWER RD
HEREWARD RD
Beaver Lake
Elk Lake

Appendix I– Clover Point Pump Station: Extended Work Hours (March 2020)

Wastewater Treatment Project
Treated for a cleaner future

Construction Notice

March 16, 2020

Clover Point Pump Station: Extended Work Hours

Construction of the Clover Point Pump Station is temporarily extending work hours from 7:00 a.m. to 2:00 a.m. to complete screen relocation work. This work is scheduled to begin today and take approximately two weeks to complete. This work is weather dependent.

What to Expect

- The majority of work will take place inside the pump station.
- Noise and lights associated with construction equipment may be expected.
- Diesel-powered pumping units will be in operation and are equipped with acoustic enclosures to reduce noise.
- Measures are in place to mitigate any construction-related impacts to the surrounding community.

Work Hours

- Monday to Friday 7:00 a.m. to 2:00 a.m.
- Saturday from 10:00 a.m. to 7:00 p.m.

Traffic Impacts

- There will be no traffic impacts.
- The Dallas Road Waterfront Trail between the Clover Point Pump Station and the crosswalk at Memorial Crescent remains closed until April 2020.

Construction at Clover Point is anticipated to be complete by summer 2020.

Thank you for your patience as this work is completed.

About the Wastewater Treatment Project
The Wastewater Treatment Project will provide tertiary treatment for wastewater from the core area municipalities of Victoria, Esquimalt, Saanich, Oak Bay, View Royal, Langford and Colwood, and the Esquimalt and Songhees Nations by the end of 2020

Any questions about the work, please contact the Project Team.

24/7 Phone Line
1.844.815.6132

Email
wastewater@crd.bc.ca

Website
wastewaterproject.ca

Appendix J– Biosolids

Biosolids

WHAT ARE BIOSOLIDS?

Biosolids are a safe, resource-rich byproduct of wastewater treatment that are produced by treating organic material removed during the treatment process. Biosolids can be used for a number of beneficial uses.

The treatment process at the Residuals Treatment Facility will create Class A biosolids.

The biosolids produced in our region will be a minimum 90% dry and will be dark, dry granular pellets. Approximately 7,000 tonnes of Class A biosolids will be produced each year, starting in 2021.



WHAT IS IN BIOSOLIDS?

Biosolids contain nutrients and energy that can be recovered and used. For example biosolids contain nutrients such as nitrogen, phosphorus, calcium, sulphur, iron, and others that are required for vegetation growth. The nutrient content and organic matter in biosolids are often used to promote vegetation establishment and growth; alternatively, their energy can be harnessed through combustion as an alternate fuel.

Class A biosolids must meet regulatory requirements set by the Province of B.C. through the Organic Matter Recycling Regulation. These requirements dictate maximum allowable levels of pathogens and contaminants (e.g. heavy metals) to ensure protection of human health and the environment. These regulations also provide strict controls on how and where biosolids may be used.

HOW ARE BIOSOLIDS MADE?

During the wastewater treatment process at McLoughlin Point Wastewater Treatment Plant, residual solids will be removed from wastewater and conveyed to the Residuals Treatment Facility for further treatment.

Each treatment step at McLoughlin Point and the Residuals Treatment Facility will contribute to a higher quality of effluent and biosolids.

At the Residuals Treatment Facility, the residual solids undergo anaerobic digestion in which microorganisms will break down biodegradable material in the absence of oxygen and produce biogas. The residual solids are then dewatered and heated at a very high temperature (220°C), creating Class A biosolids. Biogas produced during the digestion process will be collected within the facility and fully used as fuel for the dryer.

BENEFICIAL USE OF BIOSOLIDS

Once treated, biosolids can be used for a number of beneficial purposes. Beneficial use means that the nutrient and organic matter and/or energy content of the biosolids are utilized. The B.C. Ministry of Environment & Climate Change Strategy establishes and enforces standards for wastewater treatment and the beneficial use of biosolids.

Using these biosolids beneficially aligns with the CRD's commitment to climate action and environmental stewardship.

Visit **crd.bc.ca/biosolids** to learn about the CRD's plan for the beneficial use of biosolids.

Any questions about the work, please contact the Project Team.

24/7 Phone Line
1.844.815.6132

Email
wastewater@crd.bc.ca

Website
wastewaterproject.ca

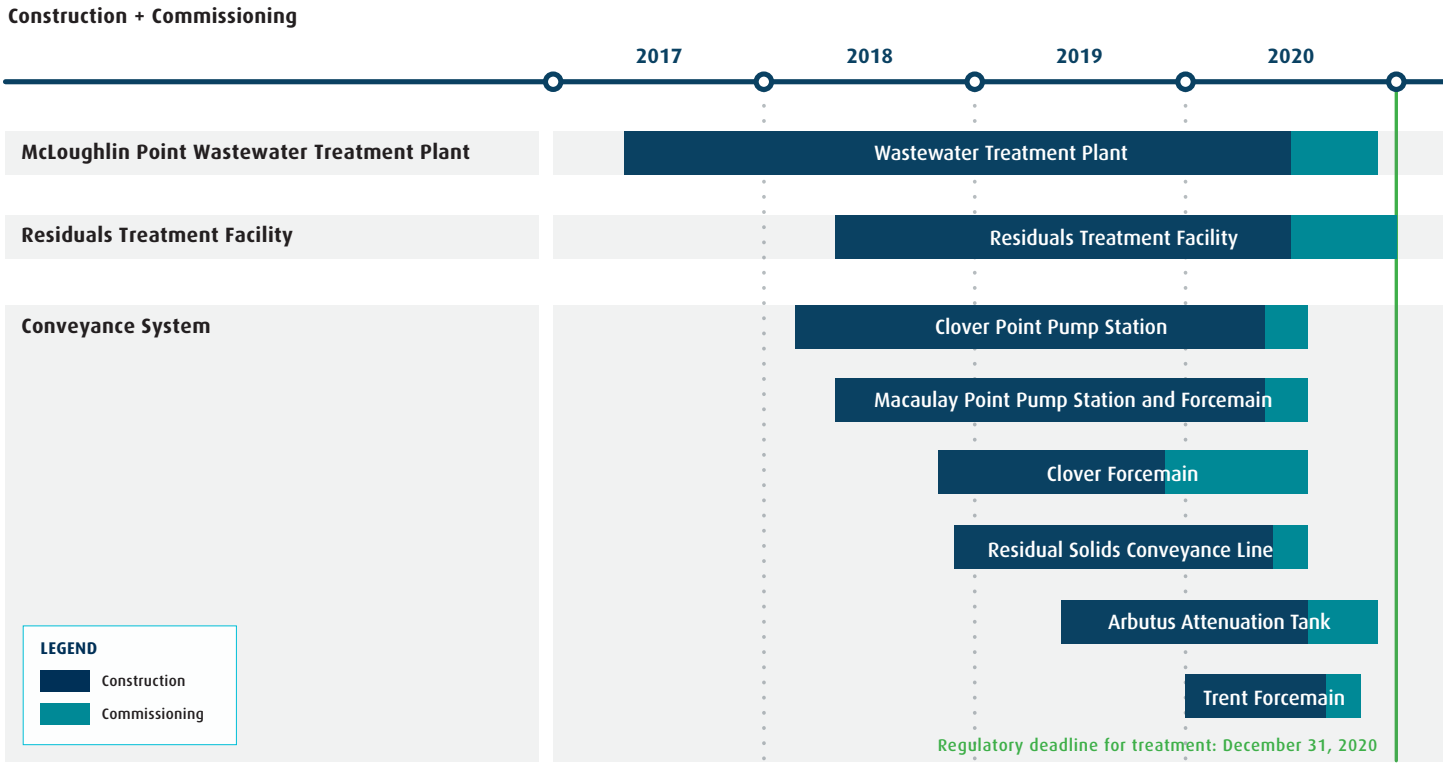
Appendix K– Project Schedule

Wastewater Treatment Project
Treated for a cleaner future

Information Sheet

Wastewater Treatment Project Schedule*

The Wastewater Treatment Project will be constructed through nine separate elements, and construction will be staged to the end of 2020. Communications and engagement activities will take place in advance of project construction beginning in each area.



*Schedule subject to updates as Project planning progresses.

About the Wastewater Treatment Project

The Wastewater Treatment Project will provide tertiary treatment for wastewater from the core area municipalities of Victoria, Esquimalt, Saanich, Oak Bay, View Royal, Langford and Colwood, and the Esquimalt and Songhees Nations. The Wastewater Treatment Project will be built so we comply with federal regulations by the end of 2020, and is being funded by the Government of Canada, the Government of British Columbia and the CRD.

For More Information

Website: wastewaterproject.ca
Email: wastewater@crd.bc.ca
24-7 Project Information Line: 1.844.815.6132

Appendix L– Trent Forcemain

Wastewater Treatment Project
Treated for a cleaner future

Information Sheet
March 2020

Trent Forcemain

The Trent Forcemain will be installed as part of the Wastewater Treatment Project's conveyance system. This 1.9km pipe will run from the intersection of Chandler Avenue and St Charles Street connecting to the Clover Point Pump Station. The Trent Forcemain consists of a 0.9m diameter pipe and a 1.5m diameter pipe.

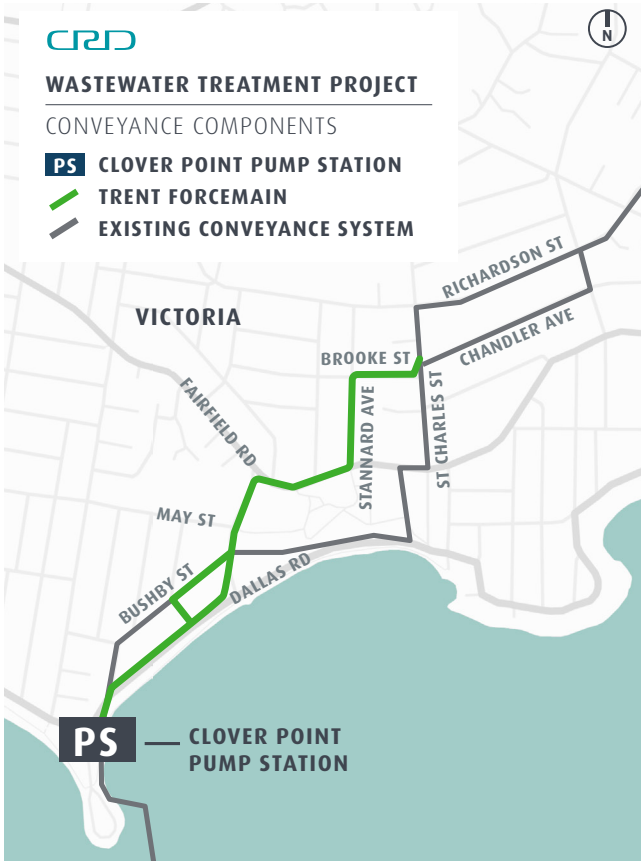
The eastern branch of the Capital Regional District's core area conveyance system collects wastewater from Saanich, Oak Bay, and Victoria, directing it to the Clover Point Pump Station. Construction of the Trent Forcemain will increase the capacity of this system and reduce wet weather overflows.

CONSTRUCTION

Construction for the Trent Forcemain began in February 2020 and is anticipated to take approximately 10 months to complete.

Anticipated work hours are Monday to Friday from 7:00 a.m. to 7:00 p.m. and Saturday from 10:00 a.m. to 7:00 p.m. The pipe will be installed in segments to minimize the impact to residents. It will be constructed within existing road rights of way in accordance with a traffic management plan to minimize impacts to vehicle traffic, cyclists and pedestrians. Single lane alternating traffic will be in place with signage and flaggers directing traffic as required.

Any temporary impacts to driveway access and parking will be coordinated in advance.



The pipe will be installed along the Dallas Road Waterfront Trail from the Clover Point Pump Station to Eberts Street. The waterfront trail will be closed during construction but access to the beach will remain open. Following construction, the trail will be restored to its original condition.

ABOUT THE WASTEWATER TREATMENT PROJECT

The Wastewater Treatment Project will provide tertiary treatment for wastewater from the core area municipalities of Victoria, Esquimalt, Saanich, Oak Bay, View Royal, Langford and Colwood, and the Esquimalt and Songhees Nations. The Wastewater Treatment Project will be built so we comply with federal regulations by the end of 2020, and is being funded by the Government of Canada, the Government of British Columbia and the CRD.

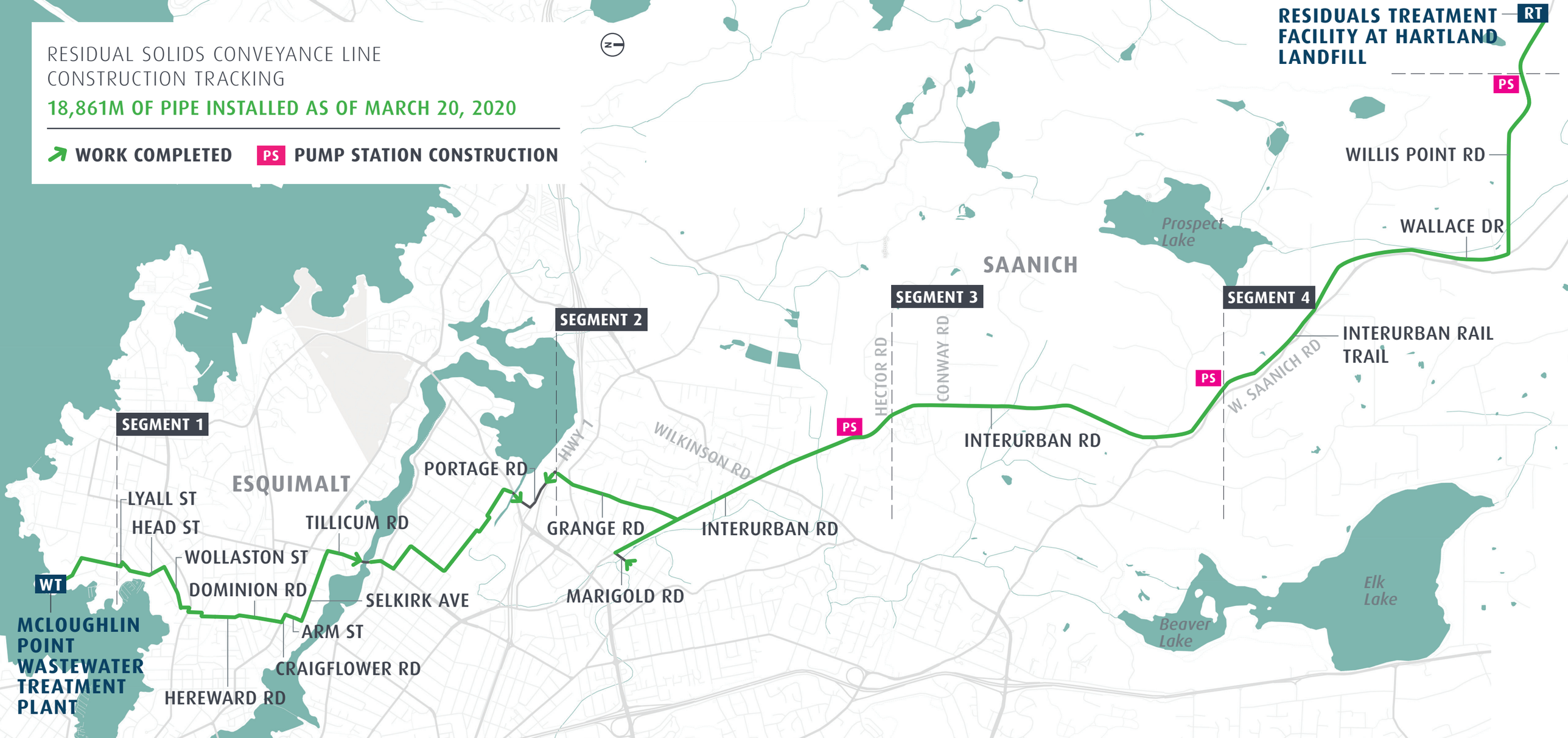
Any questions about the work, please contact the Project Team.

24/7 Phone Line
1.844.815.6132

Email
wastewater@crd.bc.ca

Website
wastewaterproject.ca

Appendix M– Residual Solids Conveyance Line Map (March, 2020)


RESIDUAL SOLIDS CONVEYANCE LINE CONSTRUCTION TRACKING
18,861M OF PIPE INSTALLED AS OF MARCH 20, 2020
WORK COMPLETED
PS PUMP STATION CONSTRUCTION
RESIDUALS TREATMENT FACILITY AT HARTLAND LANDFILL
RT
PS
WILLIS POINT RD
WALLACE DR
Prospect Lake
SAANICH
SEGMENT 3
SEGMENT 4
SEGMENT 2
SEGMENT 1
HECTOR RD
CONWAY RD
INTERURBAN RAIL TRAIL
W. SAANICH RD
INTERURBAN RD
WILKINSON RD
HWY 1
PORTAGE RD
ESQUIMALT
LYALL ST
HEAD ST
TILLICUM RD
GRANGE RD
INTERURBAN RD
WOLLASTON ST
DOMINION RD
SELKIRK AVE
MARIGOLD RD
WT
MCLOUGHLIN POINT WASTEWATER TREATMENT PLANT
ARM ST
CRAIGFLOWER RD
HEREWARD RD
Beaver Lake
Elk Lake

Appendix N− Monthly Cost Report (March)

MONTHLY COST REPORT
as at March 31, 2020

Description	BUDGET		COST EXPENDED					COMMITMENTS			FORECAST		VARIANCE	
	Control Budget	Allocated Budget	Expended to February 29, 2020	Expended over reporting period (March 2020)	Expended to March 31, 2020	Expended to March 31, 2020 as a % of Allocated Budget	Remaining (Unexpended) Allocated Budget at March 31, 2020	Total Committment at March 31, 2020	Unexpended Commitment at March 31, 2020	Uncommitted Allocated Budget at March 31, 2020	Forecast to Complete	Forecast at Completion	Variance at Completion $	Variance at Completion as a % of Allocated Budget
McLoughlin Point Wastewater Treatment Plant	**331.4**	**328.1**	**277.5**	**5.0**	**282.5**	**86%**	**45.6**	**320.5**	**38.0**	**7.6**	**45.6**	**328.1**	**-**	**0%**
Construction	306.7	320.3	276.9	5.0	281.8	88%	38.5	319.8	38.0	0.5	38.5	320.3	-	0%
Contingency	14.9	0.9	-	-	-	0%	0.9	-	-	0.9	0.9	0.9	-	0%
Financing	9.8	6.9	0.7	-	0.7	9%	6.2	0.7	0.0	6.2	6.2	6.9	-	0%
Residuals Treatment Facility	**159.4**	**139.7**	**10.3**	**0.3**	**10.6**	**8%**	**129.1**	**138.7**	**128.1**	**1.0**	**129.1**	**139.7**	**-**	**0%**
Construction	145.4	138.7	10.3	0.3	10.6	8%	128.1	138.7	128.1	0.0	128.1	138.7	-	0%
Contingency	12.3	0.2	-	-	-	0%	0.2	-	-	0.2	0.2	0.2	-	0%
Financing	1.7	0.8	0.0	-	0.0	4%	0.8	0.0	0.0	0.8	0.8	0.8	-	0%
Conveyance System	**158.1**	**216.0**	**144.9**	**7.4**	**152.3**	**71%**	**63.6**	**194.5**	**42.2**	**21.5**	**63.6**	**216.0**	**-**	**0%**
Macaulay Point Pump Station	25.4	30.8	23.9	1.4	25.3	82%	5.4	30.8	5.4	0.0	5.4	30.8	-	0%
Macaulay Forcemain	5.6	7.4	6.5	0.1	6.6	88%	0.9	7.4	0.9	-	0.9	7.4	-	0%
Craigflower Pump Station	12.5	12.4	12.4	-	12.4	100%	-	12.4	-	-	-	12.4	-	0%
Clover Point Pump Station	23.7	27.4	24.3	0.3	24.6	90%	2.8	27.2	2.6	0.2	2.8	27.4	-	0%
Currie Pump Station^	2.8	0.1	0.1	-	0.1	100%	-	0.1	-	-	-	0.1	-	0%
Arbutus Attenuation Tank	14.2	24.6	10.9	0.6	11.5	47%	13.1	23.1	11.6	1.4	13.1	24.6	-	0%
Clover Forcemain	14.6	32.5	27.5	0.6	28.0	86%	4.4	32.0	4.0	0.4	4.4	32.5	-	0%
Currie Forcemain^	3.3	0.2	0.2	-	0.2	100%	-	0.2	-	-	-	0.2	-	0%
Trent Forcemain	9.5	11.3	0.2	0.5	0.7	6%	10.6	7.9	7.2	3.4	10.6	11.3	-	0%
Residual Solids Conveyance Line	19.1	36.1	30.5	1.2	31.7	88%	4.3	35.8	4.1	0.3	4.3	36.1	-	0%
Residual Solids Pump Stations & Bridge Crossings	4.6	18.4	7.7	2.8	10.5	57%	7.8	16.8	6.3	1.6	7.8	18.4	-	0%
Residual Solids Conveyance Line – Highway Crossing	-	0.4	0.3	-	0.3	74%	0.1	0.4	0.1	0.1	0.1	0.4	-	0%
Contingency	16.8	10.4	-	-	-	0%	10.4	-	-	10.4	10.4	10.4	-	0%
Financing	5.8	4.1	0.3	-	0.3	8%	3.7	0.3	0.0	3.7	3.7	4.1	-	0%
Project Management Office ("PMO")	**75.9**	**77.9**	**52.2**	**1.7**	**53.8**	**69%**	**24.0**	**68.5**	**14.6**	**9.4**	**24.0**	**77.9**	**-**	**0%**
Project costs Aug 2016-Dec 2016	2.2	2.2	2.2	-	2.2	100%	-	2.2	-	-	-	2.2	-	0%
Owner's Engineering	17.2	17.3	12.8	0.6	13.4	77%	3.9	17.3	3.9	-	3.9	17.3	-	0%
Conveyance Design	5.0	9.7	7.0	0.4	7.4	76%	2.3	8.1	0.7	1.6	2.3	9.7	-	0%
Advisors & Professional Support	7.0	15.0	9.8	0.2	10.0	67%	5.0	11.1	1.1	3.8	5.0	15.0	-	0%
Project Team & Project Board	31.3	24.5	15.9	0.4	16.3	66%	8.2	23.7	7.5	0.8	8.2	24.5	-	0%
CRD Allocations	3.4	3.4	2.4	0.1	2.4	71%	1.0	3.4	1.0	-	1.0	3.4	-	0%
Office, Supplies & Expenses	3.9	2.5	1.6	0.0	1.6	66%	0.9	2.0	0.4	0.4	0.9	2.5	-	0%
Computer Hardware, Software & Training	1.0	1.1	0.6	0.0	0.6	54%	0.5	0.6	-	0.5	0.5	1.1	-	0%
Contingency	4.8	2.3	-	-	-	0%	2.3	-	-	2.3	2.3	2.3	-	0%
BC Hydro	**12.9**	**4.3**	**2.0**	**-**	**2.0**	**47%**	**2.3**	**2.0**	**0.0**	**2.3**	**2.3**	**4.3**	**-**	**0%**
Third Party Commitments	**8.1**	**8.1**	**3.7**	**0.1**	**3.7**	**46%**	**4.4**	**6.8**	**3.1**	**1.3**	**4.4**	**8.1**	**-**	**0%**
Program Reserves	**19.2**	**0.9**	**-**	**-**	**-**	**0%**	**0.9**	**-**	**-**	**0.9**	**0.9**	**0.9**	**-**	**0%**
Core Area Wastewater Treatment Project	**765.0**	**775.0**	**490.6**	**14.4**	**505.0**	**65%**	**269.9**	**731.0**	**226.0**	**43.9**	**269.9**	**775.0**	**-**	**0%**

* Values presented in $millions, results in minor rounding differences
** Cost report presents approved expenditures
^ Component no longer required, and would not provide any value therefore removed from Project Scope; Costs include Seaterra initiation, planning and design

Appendix O- Quarterly Cost Report

QUARTERLY COST REPORT
as at March 31, 2020

Description	BUDGET		COST EXPENDED					COMMITMENTS			FORECAST		VARIANCE	
	Control Budget	Allocated Budget	Expended to December 31, 2019	Expended over reporting period (Q1 2020 Jan-Mar)	Expended to March 31, 2020	Expended to March 31, 2020 as a % of Allocated Budget	Remaining (Unexpended) Allocated Budget at March 31, 2020	Total Committment at March 31, 2020	Unexpended Commitment at March 31, 2020	Uncommitted Allocated Budget at March 31, 2020	Forecast to Complete	Forecast at Completion	Variance at Completion $	Variance at Completion as a % of Allocated Budget
McLoughlin Point Wastewater Treatment Plant	**331.4**	**328.1**	**267.6**	**14.9**	**282.5**	**86%**	**45.6**	**320.5**	**38.0**	**7.6**	**45.6**	**328.1**	**-**	**0%**
Construction	306.7	320.3	266.9	14.9	281.8	88%	38.5	319.8	38.0	0.5	38.5	320.3	-	0%
Contingency	14.9	0.9	-	-	-	0%	0.9	-	-	0.9	0.9	0.9	-	0%
Financing	9.8	6.9	0.7	(0.1)	0.7	9%	6.2	0.7	0.0	6.2	6.2	6.9	-	0%
Residuals Treatment Facility	**159.4**	**139.7**	**9.3**	**1.4**	**10.6**	**8%**	**129.1**	**138.7**	**128.1**	**1.0**	**129.1**	**139.7**	**-**	**0%**
Construction	145.4	138.7	9.2	1.4	10.6	8%	128.1	138.7	128.1	0.0	128.1	138.7	-	0%
Contingency	12.3	0.2	-	-	-	0%	0.2	-	-	0.2	0.2	0.2	-	0%
Financing	1.7	0.8	0.0	-	0.0	4%	0.8	0.0	0.0	0.8	0.8	0.8	-	0%
Conveyance System	**158.1**	**216.0**	**134.4**	**17.4**	**152.3**	**71%**	**63.6**	**194.5**	**42.2**	**21.5**	**63.6**	**216.0**	**-**	**0%**
Macaulay Point Pump Station	25.4	30.8	21.2	4.1	25.3	82%	5.4	30.8	5.4	0.0	5.4	30.8	-	0%
Macaulay Forcemain	5.6	7.4	6.3	0.3	6.6	88%	0.9	7.4	0.9	-	0.9	7.4	-	0%
Craigflower Pump Station	12.5	12.4	12.4	0.0	12.4	100%	-	12.4	-	-	-	12.4	-	0%
Clover Point Pump Station	23.7	27.4	24.0	0.6	24.6	90%	2.8	27.2	2.6	0.2	2.8	27.4	-	0%
Currie Pump Station^	2.8	0.1	0.1	-	0.1	100%	-	0.1	-	-	-	0.1	-	0%
Arbutus Attenuation Tank	14.2	24.6	9.7	1.7	11.5	47%	13.1	23.1	11.6	1.4	13.1	24.6	-	0%
Clover Forcemain	14.6	32.5	26.8	1.2	28.0	86%	4.4	32.0	4.0	0.4	4.4	32.5	-	0%
Currie Forcemain^	3.3	0.2	0.2	-	0.2	100%	-	0.2	-	-	-	0.2	-	0%
Trent Forcemain	9.5	11.3	0.2	-	0.7	6%	10.6	7.9	7.2	3.4	10.6	11.3	-	0%
Residual Solids Conveyance Line	19.1	36.1	27.2	4.5	31.7	88%	4.3	35.8	4.1	0.3	4.3	36.1	-	0%
Residual Solids Pump Stations & Bridge Crossings	4.6	18.4	5.5	5.0	10.5	57%	7.8	16.8	6.3	1.6	7.8	18.4	-	0%
Residual Solids Conveyance Line – Highway Crossing	-	0.4	0.3	-	0.3	74%	0.1	0.4	0.1	0.1	0.1	0.4	-	0%
Contingency	16.8	10.4	-	-	-	0%	10.4	-	-	10.4	10.4	10.4	-	0%
Financing	5.8	4.1	0.4	(0.1)	0.3	8%	3.7	0.3	0.0	3.7	3.7	4.1	-	0%
Project Management Office ("PMO")	**75.9**	**77.9**	**50.6**	**3.2**	**53.8**	**69%**	**24.0**	**68.5**	**14.6**	**9.4**	**24.0**	**77.9**	**-**	**0%**
Project costs Aug 2016-Dec 2016	2.2	2.2	2.3	(0.1)	2.2	100%	-	2.2	-	-	-	2.2	-	0%
Owner's Engineering	17.2	17.3	12.5	0.8	13.4	77%	3.9	17.3	3.9	-	3.9	17.3	-	0%
Conveyance Design	5.0	9.7	7.0	0.4	7.4	76%	2.3	8.1	0.7	1.6	2.3	9.7	-	0%
Advisors & Professional Support	7.0	15.0	9.7	0.3	10.0	67%	5.0	11.1	1.1	3.8	5.0	15.0	-	0%
Project Team & Project Board	31.3	24.5	14.8	1.4	16.3	66%	8.2	23.7	7.5	0.8	8.2	24.5	-	0%
CRD Allocations	3.4	3.4	2.3	0.2	2.4	71%	1.0	3.4	1.0	-	1.0	3.4	-	0%
Office, Supplies & Expenses	3.9	2.5	1.5	0.1	1.6	66%	0.9	2.0	0.4	0.4	0.9	2.5	-	0%
Computer Hardware, Software & Training	1.0	1.1	0.6	0.0	0.6	54%	0.5	0.6	-	0.5	0.5	1.1	-	0%
Contingency	4.8	2.3	-	-	-	0%	2.3	-	-	2.3	2.3	2.3	-	0%
BC Hydro	**12.9**	**4.3**	**2.0**	**0.0**	**2.0**	**47%**	**2.3**	**2.0**	**0.0**	**2.3**	**2.3**	**4.3**	**-**	**0%**
Third Party Commitments	**8.1**	**8.1**	**3.4**	**0.3**	**3.7**	**46%**	**4.4**	**6.8**	**3.1**	**1.3**	**4.4**	**8.1**	**-**	**0%**
Program Reserves	**19.2**	**0.9**	**-**	**-**	**-**	**0%**	**0.9**	**-**	**-**	**0.9**	**0.9**	**0.9**	**-**	**0%**
Core Area Wastewater Treatment Project	**765.0**	**775.0**	**467.3**	**37.2**	**505.0**	**65%**	**269.9**	**731.0**	**226.0**	**43.9**	**269.9**	**775.0**	**-**	**0%**

* Values presented in $millions, results in minor rounding differences
** Cost report presents approved expenditures
^ Component no longer required, and would not provide any value therefore removed from Project Scope; Costs include Seaterra initiation, planning and design

Wastewater Treatment Project
Treated for a cleaner future

REPORT TO CORE AREA WASTEWATER TREATMENT PROJECT BOARD
MEETING OF TUESDAY, MAY 26, 2020

SUBJECT **Wastewater Treatment Project April 2020 Monthly Report**

ISSUE

To provide the Core Area Wastewater Treatment Project Board with the Wastewater Treatment Project April 2020 Monthly Report.

BACKGROUND

On May 25, 2016 the Regional Board of the CRD:

i) Adopted by resolution the Core Area Wastewater Treatment Project Board Terms of Reference (Project Board Terms of Reference) for the purposes of establishing principles governing the Core Area Wastewater Treatment Project (the Wastewater Treatment Project or the WTP);
ii) Established the Core Area Wastewater Treatment Project Board (Project Board) under Bylaw 4109 (the CRD Core Area Wastewater Treatment Board Bylaw No. 1, 2016) for the purposes of administering the Core Area Wastewater Treatment Project; and
iii) Delegated certain of its powers, duties and functions to the Project Board under Bylaw 4110 (the CRD Core Area Wastewater Treatment Project Board Delegation Bylaw No. 1, 2016).

On September 14, 2016 the Regional Board of the CRD:

i) Received the final report of the Project Board with respect to its recommendation for the CAWTP, dated September 7, 2016 (the Final Report); and
ii) Approved the business case attached as Appendix 1 (the Business Case) to the Final Report.

DISCUSSION

The Core Area Wastewater Treatment Project Board (the Project Board) Terms of Reference requires, amongst other things: that the Project Board provide the CRD Board with monthly progress reports and a comprehensive quarterly report on the Project.

The Monthly report for the period of April 2020 is attached as Appendix A.

RECOMMENDATION

That the Core Area Wastewater Treatment Project Board approve the following resolution:

RESOLVED that:

The Staff Report, 'Wastewater Treatment Project April 2020 Monthly Report', be received for information and forwarded to the Core Area Liquid Waste Management Committee and CRD Board for information.



Elizabeth Scott, Deputy Project Director
Wastewater Treatment Project



Dave Clancy, Project Director
Wastewater Treatment Project
Concurrence

Attachments: 1

Appendix A: Wastewater Treatment Project April 2020 Monthly Report

ES:er

Wastewater Treatment Project
Treated for a cleaner future

CRD Wastewater Treatment Project

Monthly Report

Reporting Period: April 2020

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1 Executive Summary

1.1 Introduction

This Monthly Report covers the reporting period of April 2020 and outlines the progress made on the Wastewater Treatment Project over this time.

The Wastewater Treatment Project (the "Project") includes three main Project Components (the "Project Components"): the McLoughlin Point Wastewater Treatment Plant (the "McLoughlin Point WWTP"), the Residuals Treatment Facility (the "RTF") and the Conveyance System (which includes upgrades to the conveyance network including the construction of pump stations and pipes). The Project scope is being delivered through a number of contracts with a variety of contracting strategies.

Over the reporting period the COVID-19 public health emergency continued to have impacts on the Project. The Project Team and Project contractors are actively monitoring the status of the COVID-19 public health emergency and are taking additional precautions to protect our staff, contractors, and the public. Construction is ongoing at all of the Project's sites in accordance with guidelines established by the Provincial Health Officer.

While construction is ongoing, the public health emergency is impacting construction progress and may delay some interim project milestones, such as the transition to commissioning. However, based on current progress the Wastewater Treatment Project remains on schedule to meet the regulatory deadline for treatment by the end of 2020.

The McLoughlin Point WWTP Project Component is continuing with Harbour Resource Partners ("HRP" as the Design-Build contractor for the McLoughlin Point WWTP) progressing: installation of Densadegs 1, 2 and 3; installing north pump room equipment and completing fine screen building roofing, cladding and drywall in the Primary treatment area; completing heat recovery room drywall, moving bed bio reactor (MBBR) 1 and 2 process equipment reinstallation, and progressing electrical work in the blower building in the secondary treatment area; continued upper disk filter walls, including outfall shaft roof slab, and pumps in the tertiary treatment area; completion of heating ventilation and air conditioning (HVAC) plumbing and fire suppression on level 1, completion of lower level interior stud build out and dry wall and elevator installation in the Operations and Maintenance (O&M) Building.

The RTF Project Component is continuing with Hartland Resource Management Group ("HRMG" as the Design-Build-Finance-Operate-Maintain contractor for the RTF) progressing construction activities including: external pipe connections to Digester 1; pipe installation and concrete supports in Digester 3; mechanical and electrical installation in the Digester Building; installation of windows, and louvers; fiberglass reinforced plastic (FRP) grating installation in progress in the Residuals Handling Building; ongoing mechanical and insulation installation in the Residuals Drying facility; completion of hydro test in the effluent tank in the Residuals Storage and Odour control area; and drywall, ceiling tile, and flooring completed in the Operations Building.

The Conveyance System is being delivered through seven construction contracts: two design-build contracts and five design-bid-build contracts.

The two design-build Conveyance System contracts progressed over the reporting period as follows:

- Clover Point Pump Station: Kenaidan Contracting Limited ("Kenaidan" as the Design-Build Contractor) progressed construction activities over the reporting period including: completed relocation of existing screens to new inlet storm channel; completed existing pump room demolition; resumed work on the gender neutral public washroom; and forcemain successfully tested and backfilled.

- Macaulay Point Pump Station: Kenaidan Contracting Limited ("Kenaidan" as the Design-Build Contractor) progressed construction activities over the reporting period including: completion of wet well concrete pour; commenced wood siding panel installation; installed recycle water system; and installation of unit heaters and cable pulling and termination for the pumps is complete.

The design-bid-build Conveyance System contracts progressed over the reporting period, as follows:

- Clover Forcemain: Windley Contracting Ltd. ("Windley" as the Construction Contractor) continued construction activities including: commencing construction on the seawall balustrade replacement; cycle track and road restoration; and top lift paving from Douglas Street to Lewis Street.

- Residual Solids Conveyance Line ("RSCL"): the RSCL is being delivered through two construction contracts, with work progressing as follows:

    - Residual Solids Pipes: Don Mann Excavating Ltd. ("Don Mann" as the Construction Contractor) continued construction activities over the reporting period, including: completion of pipe installation, installation of valve chambers; final road restoration and line painting; and final trail reinstatements near Pump Station 3.

    - Residual Solids Pump Stations: Knappett Projects Inc. ("Knappett" as the Construction Contractor) continued construction activities including: pipe spools and electrical works at all three pump stations; lamp standards were installed at pump stations two and three; and the Marigold crossing was completed.

- Arbutus Attenuation Tank ("AAT"): NAC Constructors Ltd. (as the Construction Contractor) continued construction activities including: completion of 232 secant piles and commenced installation of form work and concrete pour for three out of four sections of the ring beam.

- Trent Forcemain: Jacob Bros. Construction Inc. (as the Construction Contractor) progressed construction activities including: completion of Fairfield road storm and sanitary main relocation work; completion of seawall investigation works; and completion of Fairfield Road watermain relocation.

1.2 Dashboard

Table 1 indicates the high level status of the Project and each Project Component with regards to the six Key Performance Indicators ("KPI") that were defined within the Project Charter.

There were no changes made to the KPIs over the reporting period.

The safety KPI for the Project and the conveyance system remains yellow. Over the reporting period three recordable safety incidents occurred and the total incident frequency increased from 1.2 at the end of the first quarter of 2020 to 1.5. The Project Team continues to work with and ensure that all of the prime contractor partners maintain safety as their number one priority. The Project Team is also actively monitoring the status of the COVID-19 public health emergency and is taking additional precautions to protect our staff, contractors, and the public. The BC Government has designated construction as an essential service, and issued guidelines for construction sites to minimize the risks of COVID-19 transmission or illness. All Project contractors have implemented additional precautions to ensure the health and safety of their workers. These measures follow the direction set by the BC Government, including emphasizing the importance of maintaining social distance, increasing handwashing stations, reducing in-person meetings and increasing cleaning of common areas. The Project Team will continue to monitor contractors' compliance with the direction of the government as the situation evolves.

The schedule KPI for the Project overall and the Project components remains green. The COVID-19 public health emergency is impacting construction progress and may delay some interim project milestones, such as the transition to commissioning. However, construction is ongoing at all of the Project's sites, in accordance with provincial guidelines, and based on current progress the Wastewater Treatment Project remains on schedule to meet the regulatory deadline for treatment by the end of 2020.

The cost KPI for the Project overall and the conveyance system remained red over the reporting period, and are expected to remain red for the duration of the Project, primarily as a result of inflation in the Vancouver Island construction market. Other factors that have contributed to budget pressures include: design development to incorporate stakeholder input; geotechnical considerations including removal and disposal of contaminated material; and schedule constraints associated with the requirement to provide wastewater treatment by the regulatory deadline of December 31, 2020.

Based on the value of the contracts awarded to-date and the refreshed cost estimate for the scope remaining to be procured, the Project Team forecast the cost to complete the Project at $775M, or $10M over the Project's control budget. In May 2019 the CRD Board approved an increase in the Project's budget by $10M to $775M.

Subsequent to May 2019 there have been two opposing budget drivers:

i) The Project's financing costs to-date have been lower than budgeted for two reasons: firstly as a result of low interest rates since the start of the Project, and secondly due to the receipt of funding from the provincial government earlier than forecast; and

ii) The Project's construction costs may be higher than budgeted as many contractors have advised that there are cost impacts from the COVID-19 public health

emergency. Impacts include labour availability, work modifications to comply with provincial guidelines, and delays to the delivery of equipment and supplies.

It is too early to determine the cost impact to the Project, but if construction continues at the current pace the Project Team remain confident that the Project cost will be within the Project's $775M budget.

Table 1- Executive Summary Dashboard

Key Performance Indicators		Project Overall	WWTP	RTF	Conveyance System	Comments
Safety	Deliver the Project safely with zero fatalities and a total recordable incident frequency (TRIF) of no more than 1*.					Three recordable incidents occurred over the period. Site inspections are ongoing. The Project Team is actively monitoring the status of the COVID-19 public health emergency and is taking additional precautions to protect our staff, contractors, and the public. All Project contractors have implemented additional precautions to ensure the health and safety of their workers. The Project Team will continue to monitor and follow the direction of the government during this evolving situation.
Environment	Protect the environment by meeting all legislated environmental requirements and optimizing opportunities for resource recovery and greenhouse gas reduction.					No environmental incidents this month.
Regulatory Requirements	Deliver the Project such that the Core Area complies with provincial and federal wastewater regulations.					No regulatory issues.
Stakeholders	Continue to build and maintain positive relationships with First Nations, local governments, communities, and other stakeholders.					Engagement activities were ongoing over the reporting period. Significant efforts were made to provide accurate and timely information to stakeholders.
Schedule	Deliver the Project by December 31, 2020.					The COVID-19 public health emergency is impacting construction progress and may delay some interim project milestones, such as the transition to commissioning. The Wastewater Treatment Project has made significant progress and currently remains on schedule to meet the regulatory deadline for treatment by the end of 2020.
Cost	Deliver the Project within the Control Budget ($765 million).					Based on the value of the contracts awarded to-date and a refreshed cost estimate for the scope remaining to be procured, the Project Team has forecast the cost to complete the Project at $775M, or $10M over the Project's Control Budget. This is primarily as a result of inflation in the Vancouver Island construction market. Other factors that have contributed to budget pressures include: design development to incorporate stakeholder input; geotechnical considerations including removal and disposal of contaminated material; and schedule constraints associated with the requirement to provide wastewater treatment by the regulatory deadline of December 31, 2020. The CRD Board have approved an increase in the Project's budget by $10M, to $775M. Many contractors have advised that there are cost impacts from the COVID-19 public health emergency. It is too early to determine the cost impact to the Project, but if construction continues at the current pace the Project Team remain confident that the Project cost will be within the Project's $775M budget, as a result of offsetting savings in financing costs.

* A TRIF of no more than 1 means that there is 1 or fewer recordable incidents (being a work-related injury or illness that requires medical treatment beyond first aid or causes death, days away from work, restricted work or transfer to another job, or loss of consciousness) for every 200,000 person-hours of work	
Status	Description
	KPI unlikely to be met
	KPI at risk unless correction action is taken
	KPI at risk but corrective action has been identified/is being implemented
	Good progress against KPI

2 Wastewater Treatment Project Progress

2.1 Safety

Safety information for the reporting period and cumulative for the Project from January 1, 2017 is summarized in Table 3.

The Project Team is actively monitoring the status of the COVID-19 public health emergency and is taking additional precautions to protect our staff, contractors, and the public. The BC Government has designated construction as an essential service, and issued guidelines for construction sites to minimize the risks of COVID-19 transmission or illness.

All Project contractors have implemented additional precautions to ensure the health and safety of their workers. These measures follow the direction set by the BC Government, including emphasizing the importance of maintaining social distance, increasing handwashing stations, reducing in-person meetings and increasing cleaning of common areas. The Project Team will continue to monitor contractors' compliance with the direction of the government during this evolving situation.

Site safety tours and weekly safety inspections were carried out by Project Management Office ("PMO") construction and safety personnel over the reporting period at all active worksites: McLoughlin Point WWTP, RTF, Macaulay Point Pump Station, Clover Point Pump Station, Clover Forcemain, Residual Solids Pipes, Residual Solids Pump Stations; Arbutus Attenuation Tank and Trent Forcemain.

Over the reporting period (April 2020) eighteen safety incidents occurred; comprising: three medical aid recordable, seven first-aid, and eight report-only incidents; as summarized in Table 2.

Table 2: Safety Incidents over the Reporting Period

Date	Work Site	Incident Type	Description	Outcome	Corrective Action Taken
April 3, 2020	Residual Solids Pump Stations	First Aid	A worker stepped backwards and fell approximately 6 feet into an excavation. Worker stopped their fall causing them to injure their wrist.	Employee was assessed and treated on scene and put on Modified Duty. No further medical attention was required.	Tool-box talk reminding workers to be aware of their surroundings and their proximity to the work area was held.
April 6, 2020	McLoughlin Pt WWTP	First Aid	Worker was removing wire wheel from grinder when a wire poked through palm of their welding glove.	Worker notified Supervisor and reported to First Aid. No further medical treatment was required.	Tool-box talk held to remind workers to check their grinder for any possible hazards and that puncture resistant gloves must be worn when using a grinder.

Date	Work Site	Incident Type	Description	Outcome	Corrective Action Taken
April 7, 2020	Residual Solids Pump Stations	First Aid	A worker while chipping concrete had concrete dust enter their eye. Worker was wearing eye protection at the time.	Workers eye was flushed and they returned to work.	Toolbox talk reviewing the appropriate eye and face protection to be used for tasks that generate a significant amount of dust was held.
April 7, 2020	McLoughlin Pt WWTP	First Aid	Worker's wrench slipped pinching their hand between two surfaces.	Worker reported to First Aid to have the injury attended to. No further medical aid was needed.	Tool-box talk with workers was held to discuss the proper use of wrenches while loosening or tightening and keeping hands safe from being pinched in the event of slippage.
April 7, 2020	McLoughlin Pt WWTP	First Aid	Worker sustained a foot injury while stacking plywood. Worker was wearing appropriate footwear.	Worker was assessed by First Aid with no treatment provided and returned to work	Worker reminded to use proper lifting techniques and obtain assistance with awkward tasks.
April 11, 2020	Residual Solids Pipes	Report Only	Inspector observed an excavator operator hoisting a worker out of an excavation greater than 3 meters.	Meeting between Senior members of the Project Team and the contractor was held to review the incident and enforce that unsafe practices will not be tolerated.	Tool-box talk with the crew to reinforce safe work practices was held. Seriousness of the issue was clearly presented to the crew by the Contractors senior management.
April 13, 2020	Residual Solids Pump Stations	Report Only	The contractor discovered that some of their equipment at the Willis Point road lay down had been vandalized.	Incident reported to Police	Contractor reviewed their security at the laydown area and removed some of their equipment from the site.
April 15, 2020	McLoughlin Pt WWTP	Report Only	Workers while lifting felt some discomfort in their back. Worker continued to work but later reported it to their Supervisor	Worker was taken to First Aid and reported the incident and returned to work.	Tool-box talk on proper lifting techniques was held.
April 16, 2020	Clover Point Pump Station	Medical Aid Recordable	Worker was assisting with lowering a section of pipe and sustained a hand injury.	Worker was sent for a Medical Assessment. Worker fractured a knuckle and was put on modified duty.	Tool-Box talk on awareness of your surroundings and fully understanding the task at hand and properly assessing the risks prior to undertaking the task was held.
April 17, 2020	McLoughlin Pt WWTP	Medical Aid Recordable	Worker adjusting forks on the telehandler sustained a serious hand injury.	Worker was sent to Medical Aid and received 16 stitches and placed on Modified duty	Tool-Box talk on awareness of your surroundings and fully understanding the task at hand and properly assessing the risks prior to undertaking the task was held.
April 20, 2020	RTF	Report Only	A pressure test of digester 2 caused some of the bolts holding the roof sheets to pull through the panels.	Test was immediately stopped and tank depressurized. No workers were in the area during the pressure test.	Control zone was appropriate for the test. Issue with Digester 2 is under review.
April 22, 2020	McLoughlin Pt WWTP	Report Only	Worker's hand slipped while installing mechanical flange resulting in them over extending their elbow.	Worker reported incident to First Aid and returned to work.	Tool-box talk with crew on proper body positioning and securing the grip on a wrench to prevent slippage.

Date	Work Site	Incident Type	Description	Outcome	Corrective Action Taken
April 22, 2020	McLoughlin Pt WWTP	Report Only	Worker while lifting strained their back.	Worker reported incident to First Aid and returned to work.	Tool-box talk reviewing proper lifting methods and the use of mechanical lifting devices when moving heavy or awkward equipment was held.
April 23, 2020	Residual Solids Pump Stations	Report Only	An altercation between a TCP and a driver occurred at the intersection of Violet and Interurban.	Police were called to investigate the incident. No injuries were reported.	TCP asked to record license numbers of problematic drivers and to report them to their supervisor for follow up.
April 24, 2020	Residual Solids Pipes	Medical Aid Recordable	A worker sustained a hand injury from a hand grinder. The worker was wearing gloves at the time of the incident.	Worker was sent for a Medical Assessment and received 3 stitches	A tool-box talk reviewing the Safe Work Practice for the use of small hand tools was held. Also included in the talk was a review of the use of the correct gloves for the task.
April 28, 2020	Arbutus Attenuation Tank	Report Only	A worker while stepping down from a platform flexed their knee.	Worker reported to First Aid Attendant for assessment and returned to work.	Workers reminded in Tool-Box talk to be aware of their surroundings and to have platforms or other type of set-ups in place to aid in getting on and off platforms.
April 29, 2020	McLoughlin Pt WWTP	First Aid	Worker slipped engaging his safety harness causing them to strike their back on the edge of a plate settlers.	Worker reported to First Aid Attendant for assessment and returned to work.	Tool-box talk to ensure workers are aware of proper placement of their safety equipment and to always be aware of their surroundings.
April 30, 2020	McLoughlin Pt WWTP	First Aid	While guiding a pipe into position a worker overextended their wrist.	Workers wrist was assessed by First Aid and worker put on Modified Duties for the rest of the day	Tool-Box talk on proper assessments of work areas and proper lifting techniques was held.

Key safety activities conducted during April included:

- bi-weekly project update meetings with prime contractors: Kenaidan, Windley, Don Mann, HRP, Knappett, Jacob Bros and NAC;
- weekly project update meetings with prime contractor: HRMG;
- monthly incident investigation reviews;
- hosted prime contractor safety coordination meeting with Project Contractors' safety representatives;
- reviewed site specific safety plans and high risk tasks;
- WTP Safety Manager and/or Construction Manager conducting regular site inspections at all active Project work sites with a focus on reviewing compliance with the BC Government's guidelines for construction sites to minimise the risks of COVID-19 transmission or illness;
- developed COVID-19 Project Sites Special Requirements Checklist for CRD staff, Compliance Inspectors and Guests;
- developed COVID 19 Prime Contractor Safety Challenge; and
- sent out safety notices: hand injuries in the workplace and wind warning.

Table 3: WTP Safety Information

	Reporting Period (April 2020)	Project Totals
Person Hours		
PMO	3 559	141 587
Project Contractor	101 862	1 774 618
Total Person Hours	105 421	1 916 205
PMO	30	
Project Contractors (& Project Consultants) working on Project Sites	587	
Total Number of Employees	617	
Near Miss Reports	0	45
High Potential Near Miss Reports	0	6
Report Only	8	150
First Aid	7	53
Medical Aid	3	8
Medical Aid (Modified Duty)	0	2
Lost Time	0	4
Total Recordable Incidents	3	14
		Project Frequency (from January 1, 2017)
First Aid Frequency		5.5
Medical Aid Frequency		1.0
Lost time Frequency		0.4
Total Recordable Incident Frequency		1.5

2.2 Environment and Regulatory Management

Environmental and regulatory activities continued over the reporting period relating to both the planning and permitting of upcoming work and the execution of current work.

2.2.1 Environment

Environmental work progressed as planned over the reporting period. The focus was on environmental monitoring of construction activities.

Key environmental management activities completed in April included:

- Kenaidan completed work at Clover Point pump station that required screened wastewater to be discharged out of the short outfall. As discharges from the short outfall may pose a health risk to people entering the waters along the affected shorelines (being those between Radcliffe Lane and Dock St including Gonzales Bay, Ross Bay, Clover Point, Holland Point and Ogden Point in Victoria and Harling Point, McNeill Bay and McMicking Point in Oak Bay), the CRD implemented its Overflow Response Procedure during the work. This involved posting public health advisory signs and closing nearby beaches to swimming and then completing water quality sampling prior to opening them up again. The work was completed successfully and beaches were

reopened following two rounds of sampling that showed water quality to be below the recreational limit.

2.2.2 Regulatory Management

During the reporting period, the Project Team continued to monitor the advancement of construction-related regulatory approvals and supported or led the advancement of permit applications.

Key permitting activities for April included:

- On April 15th, the CRD placed an Environmental Protection Notice in two newspapers (the Times Colonist and Saanich News) providing a notice of intent regarding the issuance of an Operational Certificate for the Residuals Treatment Facility. In accordance with the Public Notification Regulation, the Environmental Protection Notice stated where on the CRD's website a copy of the draft Operational Certificate was posted, and how comments on the draft could be provided;
- The CRD and HRMG met with the BC Ministry of Environment and Climate Change Strategy (ENV) to review the draft Operational Certificate for the Residuals Treatment Facility;
- The CRD and HRP provided additional material to ENV in support of the MWR Registration;
- Kenaidan (as the Design-Build Contractor for the Macaulay Point Pump Station) applied to ENV for a Bypass Authorization to allow discharge from the short outfall at Macaulay Point Pump Station for a limited period during tie-in activities;
  HRP and their sub-consultants submitted an application for a Certificate of Compliance for the McLoughlin Point WWTP site. The Certificate of Compliance is a Provincial legal instrument that demonstrates that a contaminated site has been remediated to regulated standards; and
- Stantec (as the Trent Forcemain archaeological consultant) submitted an application to the Provincial Archaeology Branch to alter two recently discovered archaeological sites along Dallas Road and the adjacent seawall. The archaeological sites were discovered during pre-construction investigations.

The status of key Project permits are summarized in Table 4. The table is not a list of all required Project permits, but rather a summary of the status of key Project permits.

Table 4- Key Permits Status

Permit/Licence	*Anticipated Date*	*Status*	*Party Responsible for Obtaining Perming*
McLoughlin Point WWTP			
Municipal Wastewater Regulation ("MWR") Registration	Q2 2020	Submitted September 2019	CRD
McLoughlin Point Harbour Crossing			
Transport Canada Lease	Following completion of construction	On track	HRP
McLoughlin Point Outfall			
Transport Canada Lease	Following completion of construction	On track	HRP
Residuals Treatment Facility			
Operational Certificate	Prior to start of RTF operations	Submitted May 2019	HRMG

2.3 First Nations

First Nations communication and engagement was ongoing over the reporting period. Meetings with the Esquimalt and Songhees' liaisons continued, and meetings with the WSANEC Leadership Council's (WLC) liaison began. The meetings are a forum for covering both Project-related issues with the potential to impact First Nations, as well as an opportunity for broader discussion of CRD-related issues.

Key Activities in April included:

- the CRD shared information with the Songhees, Esquimalt and WLC liaisons about the Macaulay Point Pump Station Bypass Authorization and Trent Forcemain Site Alteration Permit applications (see Section 2.2) that will be referred by the Province to their respective Nations.

2.4 Stakeholder Engagement

The Project maintained its ongoing two-way Communications and Engagement Plan to provide Project information to stakeholders, communities and the public and to respond to public inquiries. The key focus of the communications and engagement activities over the period was to keep residents and stakeholders informed of Project plans, progress and construction information, and to receive and respond to questions and concerns raised by the community. A variety of communications tools and engagement activities were utilized to support the implementation of the plan, including stakeholder meetings, Project website updates and notifications of construction through notices and a public inquiry program, among other methods.

Construction Communications

Four construction notices were issued to stakeholders in the reporting period:

- Overnight Work: Fairfield Watermain Shut-off (April 3, 2020) (Appendix A);
- Trent Forcemain: Bushby and Eberts Streets (April 14, 2020) (Appendix B);
- Clover Point Pump Station Overnight Work (April 15, 2020) (Appendix C); and
- Temporary Overnight Work: Marigold Road (April 17, 2020) (Appendix D).

Construction notices were hand delivered in the community: the Overnight Work notice in Fairfield (distributed to 56 residences); Trent Forcemain notice (117 residences in the Fairfield area); Clover Point notice (57 residences near the Pump Station); and the Marigold Road construction notice (44 residences). In addition, as part of ongoing construction communications, residents affected by localized, temporary disruptions, such as driveway or water impacts, were notified by hand-delivery of notices. The Residual Solids Conveyance Line: Gorge Bridge construction notice (Appendix E) was reposted with updated construction dates.

Three public service announcements were distributed to local media and posted online as an alert.

- Core Area Wastewater Discharge Notice (April 14, 2020) (Appendix F);
- Update: Core Area Wastewater Discharge Notice (April 17, 2020) (Appendix G); and
- Beaches Reopen Following Core Area Wastewater Discharge (April 24, 2020) (Appendix H).

Project Website

Over the reporting period, the Project website, wastewaterproject.ca, was updated with information about the Project. Four construction notices were posted and the photo gallery section was updated with additional photos. A map showing the progress of construction along the Residual Solids Conveyance Line (Appendix I) was updated.

The CRD's Twitter account was used to provide Project information to the public, including notifications about the temporary pedestrian lane on the Gorge Bridge, closures on Interurban Road on the long weekend, and screened wastewater being discharged out of the short outfall at the Clover Point Pump Station.

Two alerts were added, and resolved once complete, to indicate the Interurban Road closure and the wastewater discharge at Clover Point.

Community Meetings

Over the reporting period the Project Team held meetings with the following community groups and representatives, and municipality representatives:

- City of Victoria staff;
- City of Victoria Technical Working Group; and
- Township of Esquimalt Liaison Committee.

Public Inquiries

Public inquiry numbers from the Project email address and 24/7 information phone line (1 844 815-6132) are noted in Table 5.

Table 5 – Project Inquiries- April 2020

Inquiry Source	Contacts for April
Information phone line inquiries	27
Email inquiries responded to	14

Key themes of the public inquiries were as follows:

- Questions regarding overnight work for the Trent Forcemain;
- Interest in finding out when the Project and restoration will be complete; and
- Questions regarding the wastewater discharge at the Clover Point Pump Station.

2.5 Resolutions from Other Governments

There were no resolutions related to the Project passed by other governments during the reporting period.

2.6 Schedule

Progress over the reporting period is summarized in Section 2.9.

Figure 1 shows the high-level Project schedule. This schedule has not changed from that shown in the Project's Q1 2020 quarterly report, and remains subject to optimization as the Project progresses.

Over the reporting period the COVID-19 public health emergency continued to have impacts on the Project. Specifically, the COVID-19 public health emergency is impacting construction progress and may delay some interim project milestones, such as the transition to commissioning. However, construction is ongoing at all of the Project's sites, in accordance with provincial guidelines, and based on current progress the Wastewater Treatment Project remains on schedule to meet the provincial and federal regulations for treatment for the Core Area's wastewater by December 31, 2020.

Figure 1- High-Level Project Schedule



*Schedule subject to updates as Project planning progresses.

2.6.1 30 day look ahead

Key activities and milestones for the next 30 days (May) are outlined below by function.

Safety

- CRD corporate occupational health and safety coordination committee meeting;
- participate in weekly and bi-weekly prime contractor progress meetings;
- host Prime Contractor Safety Coordination Meeting with Project safety representatives;
- review of any site specific safety plans or high risk tasks;
- send out any new Safety Notices or Incident Notifications to Prime Contractor;
- WTP Safety Manager and/or Construction Manager will conduct regular site inspections at all active Project work sites;
- incident reporting review with prime contractors at active work locations;
- Safety Manager to attend “Dangerous Daze: Handling Negative Emotions" on-line seminar for dealing with COVID 19;
- issue Safety Notices for trending observations or similar incident occurring on project sites; and
- close out Quality Safety Assurance Audit on Arbutus Attenuation Tank Prime Contractor.

Environment and Regulatory Management

- CRD anticipates receiving the MWR Registration for the McLoughlin Point WWTP, and the Operational Certificate for the Residuals Treatment Facility.

First Nations

- CRD to continue meeting with the First Nation Liaisons.

Stakeholder Engagement

- ongoing construction communications with stakeholders; and
- ongoing community liaison meetings.

Cost Management and Forecast

- prepare cost reports;
- monitor schedule; and
- submit funding claims to Infrastructure Canada (under the Building Canada Fund and Green Infrastructure Fund).

Construction

McLoughlin Point

- install perimeter water line, hydrants and storm drains;
- continue construction of planter wall and complete tsunami wall;
- continue all areas building envelope, glazing, doors, roofing, metal cladding etc.;
- continue process electrical, instrumentation, and mechanical in all areas;
- continue installation of Biolite in Biological Aerated Filter (BAF) tanks;
- complete elevator installation in Operations & Maintenance(O&M) building;
- install communication and security system in O&M building;
- install cabinetry and millwork in O&M building; and
- commence commissioning walk downs and punch lists.

Clover Point Pump Station

- complete installation of masonry walls;
- continue installation of split stone to exterior;
- start up and test generator; and
- commence operational testing of equipment.

Macaulay Point Pump Station

- install 900mm pipe to pigging chamber;
- install incoming watermain;
- install chain link fence around transformer containment area;
- tie-in to diversion chamber, implement bypass pumping;
- install door frames, doors, glazing and door hardware;
- install plumbing fixtures; and
- install fire hydrant.

Residuals Treatment Facility

- commencing functional start-up, wet testing and initial system verification;
- continue investigation and development of rectification plan for digesters 1, 2 and 3, as a result of digester 1 and 2 not passing the pneumatic test;
- continue mechanical and electrical installations at the Digester Building;
- complete finishes at Operations Building;
- continue electrical and piping work at Other Municipal Solids Receiving Facility;
- continue electrical cabling, process piping, odour control ductwork, and building systems at the Residuals Handling Building;
- continue electrical installation and process piping at the Dryer Building;
- continue installation of Biogas Conditioning System;
- continue mechanical and electrical work at Equalization Building;
- continue process mechanical and electrical at the Water Pump House; and
- continue electrical and ductwork installation at Odour Control Area.

Clover Forcemain

- continue road/cycle path construction, Dock Street to Pilot Street;
- removal of seawall balustrade;
- install new wall; and
- build new railings.

Residual Solids Pipes

- final paving and restoration;
- complete MOTI watermain highway crossing; and
- complete pipe installation on Portage Road.

Residual Solids Pump Stations

- Pump Station 1, install fencing, and final grading, paving and landscaping; and
- Pump Station 2, install fencing, and final grading, paving and landscaping.

Arbutus Attenuation Tank (AAT)

- complete ring beam construction including formwork, rebar, and concrete works for the 4th and last section;
- complete installation of nelson studs;
- commence excavation within tank footprint to base slab elevation;

- commence excavation for valve chamber;
- commence excavation for primary utility connections (hydro and water); and
- preparation for rock anchor installation.

Trent Forcemain

- completion of concrete flow through drain structure;
- Bushby Street storm relocation works ongoing;
- complete Memorial Crescent water main final tie-in works;
- complete Fairfield Road water main final tie-in works; and
- commencement of sewage forcemain on Stannard Avenue.

2.6.2 60 day look ahead

Key activities and milestones for the next 60 days (June) are outlined below by function.

Safety

- CRD corporate occupational health and safety coordination committee meeting;
- host Prime Contractor Safety Coordination Meeting with Project safety representatives;
- weekly and bi-weekly prime contractor progress meetings;
- review of any site specific safety plans or high risk tasks;
- review prime contractor document submissions;
- issue Safety Notices for trending observations or similar incidents occurring on project sites;
- WTP Safety Manager and/or Construction Manager will conduct regular site inspections at all active Project work sites; and
- incident reporting review with prime contractors at active work locations.

Environment and Regulatory Management

- The CRD and Stantec anticipate receiving a Site Alteration Permit to allow work to proceed in recently discovered archaeological sites along Dallas Road and the adjacent seawall.

First Nations

- CRD to continue meeting with the First Nation Liaisons.

Stakeholder Engagement

- ongoing construction communications with stakeholders; and
- ongoing community liaison meetings.

Cost Management and Forecast

- prepare cost reports;
- monitor schedule;
- prepare CRD WTP annual budget; and
- submit funding claims to Infrastructure Canada (under the Building Canada Fund and Green Infrastructure Fund).

Construction

McLoughlin Point

- demobilize south tower crane;
- backfill planter walls;
- construct road structure including line painting;
- install stairway in primary odour control;
- install monorail in dirty backwash tanks;
- install roofing and cladding west entry stairwell;
- complete electrical terminations and finishes;
- install plumbing fixtures, flooring, cabinetry, and millwork in O&M;
- install fire sprinkler system;
- install exterior finishes; and
- conduct walkdowns and commence functional testing.

Clover Point Pump Station

- install sound dampening in generator room;
- form and pour North retaining wall and buttresses; and
- reinstall existing slide gates.

Macaulay Point Pump Station

- install outdoor site furnishings;
- complete backfill of new pump station;
- install foul air ducting to diversion chamber;
- install slide gate;
- install fire stop throughout;
- install architectural louvres;
- install HVAC control equipment;
- install green roof system;
- install supply and exhaust air ducting at mezzanine level;
- interior painting throughout;
- install platform and grating over grit separator;
- install exterior spilt stone finish; and
- install interior finishes in public washroom.

Residuals Treatment Facility

- continue functional start-up, wet testing and initial system verification;
- complete instrumentation at the Digester Building;
- complete works at Digested Solids Storage Tank;
- substantial completion of Operations Building;
- complete electrical and piping work at Other Municipal Solids Receiving Facility;
- complete electrical cabling, process piping, odour control ductwork, and building systems at the Residuals Handling Building;
- complete electrical installation and process piping at the Dryer Building;
- complete Biogas Conditioning System;
- complete electrical work at Equalization Building;
- complete process mechanical and electrical at the Water Pump House; and
- complete electrical and ductwork installation at Odour Control Area.

Clover Forcemain

- road and cycle track construction Montreal to Dock Street;
- demolish existing seawall; and
- install new seawall and build new railings.

Residual Solids Pipes

- final paving and restoration as required.

Residual Solids Pump Stations

- Pump Station 1, 2 & 3, commence start-up testing and commissioning;
- complete final civil works at RTF chamber;
- backfill and road pull out at leachate chamber;
- complete pipe installation at Admirals bridge; and
- system testing throughout.

Arbutus Attenuation Tank (AAT)

- complete excavation within tank footprint;
- subgrade preparation within tank footprint;
- commence installation of rock anchors within tank footprint; and
- commence installation of mud mat within tank footprint.

Trent Forcemain

- install forcemain at Fairfield Road from Thurlow Road to Stannard Ave;
- Complete surface restoration;
- Saw cut and remove pavement, sidewalk and curbs on Memorial Cres; and
- Install sanitary sewer on Memorial Cres from Dallas Road to Thurlow Ave.

2.7 Cost Management and Forecast

The monthly cost report for April is shown in Appendix J. The cost report summarizes Project expenditures and commitments by Project Components and the major cost centres common to the Project Components.

The Project Team has been reporting budget pressures through its monthly reports to the Project Board (and CRD Board) since September 2017, primarily as a result of inflation in the Vancouver Island construction market. Other factors that have contributed to budget pressures include: design development to incorporate stakeholder input; geotechnical considerations including removal and disposal of contaminated material; and schedule constraints associated with the requirement to provide wastewater treatment by the regulatory deadline of December 31, 2020.

Based on the value of the contracts awarded to-date and the refreshed cost estimate for the scope remaining to be procured, the Project Team forecast the cost to complete the Project at $775M, or $10M (1.3%) over the Project's control budget. In May 2019 the CRD Board approved an increase in the Project's budget by $10M to $775M, and on August 14, 2019, the associated amendment to the 2019-2023 Financial Plan was approved.

Subsequent to May 2019 there have been two opposing budget drivers:

i) The Project's financing costs to-date have been lower than budgeted for two reasons: firstly as a result of low interest rates since the start of the Project, and secondly due to the receipt of funding from the provincial government earlier than forecast; and

ii) The Project's construction costs may be higher than budgeted as many contractors have advised that there are cost impacts from the COVID-19 public health emergency. Impacts include labour availability, work modifications to comply with provincial guidelines, and delays to the delivery of equipment and supplies.

It is too early to determine the cost impact to the Project, but if construction continues at the current pace the Project Team remain confident that the Project cost will be within the Project's $775M budget.

2.7.1 Commitments

Commitments were made over the reporting period in furtherance of delivering the Project. The net commitments made during the reporting period resulted in an increase in committed costs of $1.0 million. The significant commitments made in the reporting period comprised the approval of provisional items in construction contracts and contract change orders, and a new commitment for asset management services to be provided by the owner's engineer for the Project (Stantec).

2.7.2 Expenses and Invoicing

The Project expenditures for the reporting period were as expected and were within the budget allocations for each of the budget areas. The main Project expenditures incurred over the reporting period were associated with construction activities and project management office-related costs.

2.7.3 Contingency and Program Reserves

Contingency draws totalling $369,954 were made over the reporting period, as summarised in Table 6. The draws to-date, remaining contingency and program reserve balances are summarized in Table 6.

Table 6- Contingency and Program Reserve Draw-Down Table

WTP Contingency and Program Reserve Draws and Reallocations	Draw Date		$ Amount
Contingency and Program Reserve (in Control Budget)		**$**	**69,318,051**
Net Contingency and Program Reserve draws to March 31, 2020		$	(53,307,121)
Contingency and Program Reserve balance as at March 31, 2020		**$**	**16,010,930**
Phone System for Mcloughlin Point WWTP	Apr-20	$	(92,000)
Radio Telemetry for Mcloughlin Point WWTP	Apr-20	$	(277,954)
WWTP Total Draw		$	(369,954)
RTF Total Draw		$	-
Conveyance Total Increase		$	-
PMO Total Draw		$	-
BC Hydro Total Draw		$	-
WTP Program Reserve Draw		$	-
Contingency and Program Reserve draws in the reporting period		$	(369,954)
Contingency and Program Reserve balance as at April 30, 2020		**$**	**15,640,976**

2.7.4 Project Funding

The federal and provincial governments are assisting the Capital Regional District in funding the Project.

The Government of British Columbia will provide $248 million towards the three components of the Project, while the Government of Canada is contributing:

- $120 million through the Building Canada Fund Major infrastructure Component towards the McLoughlin Point WWTP;
- $50 million through the Green Infrastructure Fund towards the conveyance system; and
- up to $41 million towards the RTF through the P3 Canada Fund.

The Project Team has applied to the Federation of Canadian Municipalities (FCM) for additional funding and has executed a grant agreement for the contribution of up to $346,900 towards the delineation of the contamination and remediation and risk assessment for the McLoughlin Point Wastewater Treatment Plant.

The status of funding claims is summarised in Table 7. Note that the timing for the provision of Government of British Columbia and Government of Canada's funding differs by funding source. The Project Team will submit claims to the funding partners in accordance with the relevant funding agreements. In accordance with the funding agreements, funding from the P3 Canada Fund and the remainder of the funding from the Government of British Columbia cannot be claimed until relevant Project components are substantially complete.

Table 7- Project Funding Status

Funding Source	Maximum Contribution	Funding Received in the Reporting Period	Funding Received to Date
Government of Canada (Building Canada Fund)	$120M	-	$100.8M
Government of Canada (Green Infrastructure Fund)	$50M	$2.5M	$43.3 M
Government of Canada (P3 Canada Fund)	$41M	-	-
Government of British Columbia	$248M	-	$186.0M
Federation of Canadian Municipalities	$0.3M	-	-
TOTAL	**$459.3M**	**$2.5M**	**$330.1M**

2.8 Key Risks and issues

The Project Team actively identified and managed Project risks over the reporting period. Table 8 summarizes the highest-level risks that were actively managed over the reporting period, as well as the mitigation steps identified and/or undertaken over the reporting period.

The Project Team made the following change to the active risks summary from that presented in the Project's Q1 2020 Quarterly Report: the risk of encountering unexpected contaminated soil conditions during excavation at the McLoughlin Point WWTP was closed because the excavation is complete and the application for a Certificate of Compliance has been submitted to the Province.

In addition, the COVID-19 public health emergency continued to have impacts on the Project over the reporting period. It is anticipated that these impacts may affect several of the Project's risks. The Project Team are currently evaluating the impact of the public health emergency on the Project's risks, and anticipates that changes may be made to several of the risks as the situation evolves. Those risks that the Project Team have identified as potentially impacted, and that are currently under review, are identified in Table 8.

Table 8- Project Active Risks Summary

Risk Event	Description of Risk Event	Risk mitigation activities undertaken or planned in the reporting period	Assessed risk level	Trend in risk level from previous reporting period
Project				
Misalignment between First Nations' interests and the implementation of the Project.	The assessed risk level reflects the Project Team's priority of establishing strong and effective relationships with First Nations interfacing with, or interested in, the Project.	First Nations engagement activities remained ongoing over the reporting period (see section 2.3 for further details).	M	No change
Divergent interests between multiple parties and governance bodies whose co-operation is required to successfully deliver the Project.	The assessed risk level reflects the Project Team's priority of establishing strong and effective relationships with municipal, provincial and federal government departments.	The Project Team continued engagement with municipal, provincial and federal government departments throughout the reporting period.	L	No change
Misalignment between Project objectives/scope and stakeholder expectations.	The assessed risk level reflects the Project Team's priority of establishing strong and effective community stakeholder engagement.	Community engagement activities were ongoing over the reporting period (see section 2.4 for further details).	L	No change
Lack of integration between Project Components.	Planning challenges and system integration between the McLoughlin point WWTP, RTF and Conveyance System components of the Project results in schedule delays and/or additional Project costs.	Physical and schedule interfaces are clearly delineated in all construction contracts along with the requirement for commissioning and control plans. The Project Team has used a single Owner's engineer (Stantec) to develop the indicative design for all critical project components with significant interfaces. Commissioning and control plans are under development	L	No change
Senior government funds issue delayed.	The assessed risk level reflects the Project Team's priority of ensuring Project funding commitments are honoured.	Responsibility for meeting funding commitments has been assigned and is being monitored.	L	No change

Risk Event	Description of Risk Event	Risk mitigation activities undertaken or planned in the reporting period	Assessed risk level	Trend in risk level from previous reporting period
Downstream works delays.	Delay to the commissioning of the conveyance projects delays commissioning of the WWTP and the RTF.	Schedule has sufficient time allowance to ensure conveyance elements complete prior to requirement. Contractor agreements will include terms that require the contractor to recover schedule delays and/or allow for CRD acceleration.	M	No change but this risk may be impacted by the COVID-19 public health emergency (assessment is currently underway)
Upstream works delays.	Delay to the commissioning of either the WWTP or the RTF impacts the commissioning of the other plant.	Contracts with HRP (as the Design-Build Contractor for the McLoughlin Point WWTP) and HRMG (as the Design-Build-Finance-Operate Maintain contractor for the RTF) include terms that require the contractor to recover schedule delays and/or allow for CRD acceleration. Liquidated damages for late delivery are included in both HRP and HRMG contracts.	L	No change but this risk may be impacted by the COVID-19 public health emergency (assessment is currently underway)
Municipal Wastewater Regulation (MWR) Registration is not achieved or is delayed.	A delay to achieving MWR Registration of the wastewater treatment system would mean that the CRD could not discharge treated effluent, and therefore would not be able to commission the WWTP or RTF.	The Project Team (with HRP and Stantec representatives) have been meeting regularly with Ministry of Environment representatives since September 2017 to review the MWR Registration application requirements and the Project's schedule, in order to mitigate the risk of an incomplete application and/or schedule delays in the registration. The MWR Registration application was submitted to the Ministry of Environment in September 2019. The Project Team, MOE and relevant contractors have continued to meet regularly to track progress and discuss issues.	M	No change
Public directly contacting contractors at sites.	Direct contact between the public and contractors could expose both parties to worksite hazards and potential injuries.	Communications and engagement plan and coverage of communications in contractor orientations.	M	No change

Risk Event	Description of Risk Event	Risk mitigation activities undertaken or planned in the reporting period	Assessed risk level	Trend in risk level from previous reporting period
Change in law.	A change in law impacts the scope, cost or schedule of the Project.	Keep apprised of proposed modifications to relevant regulations so as to do the following as appropriate: submit comments on proposed modifications; and/or consider including anticipated modifications in contracts.	M	No change but this risk may be impacted by the COVID-19 public health emergency (assessment is currently underway)
Labour - availability and/or cost escalation.	There is insufficient labour available to construct the Project, and/or there is significant labour cost.	The Project Team will, through the use of competitive selection processes for all construction contracts, ensure that all Project contractors have appropriate experience and therefore understand labour risk.	M	No change but this risk may be impacted by the COVID-19 public health emergency (assessment is currently underway)
Disagreement on contractual obligations of the construction contractors.	There is a disagreement between the Project Team and a contractor regarding the performance of their contractual obligations.	The Project Team takes a proactive management approach to the resolution of any changes, claims and disputes that arise, working expeditiously to achieve resolution with the goal of minimizing any impacts to budget and schedule while ensuring adherence to the terms of the construction contracts.	M	No change but this risk may be impacted by the COVID-19 public health emergency (assessment is currently underway)
McLoughlin Point Wastewater Treatment Plant				
Unexpected contaminated soil conditions during excavation.	Site has more contaminated soils than initial assessment.	CRD and HRP (as the Design-Build Contractor for the McLoughlin Point WWTP) are working collaboratively to minimize the costs associated with remediating the McLoughlin Point site while ensuring that contaminated materials are removed and disposed of in accordance with all applicable legislation.	C	This risk has been closed because the excavation is complete and an application for a Certificate of Compliance has been submitted to the Province.

Risk Level Key - Assessed risk level (based on likelihood and potential impact			
Low	**Medium**	**High**	**Closed**
L	**M**	**H**	**C**

2.9 Status (Engineering, Procurement and Construction)

2.9.1 Wastewater Treatment Plant (McLoughlin Point WWTP)

The McLoughlin Point WWTP Project Component is continuing with Harbour Resource Partners ("HRP" as the Design-Build contractor for the McLoughlin Point WWTP) progressing: installation of Densadegs 1, 2 and 3; installing north pump room equipment and completing fine screen building roofing, cladding and drywall in the Primary treatment area; completing heat recovery room drywall, moving bed bio reactor (MBBR) 1 and 2 process equipment reinstallation, and progressing electrical work in the blower building in the secondary treatment area; continued upper disk filter walls, including outfall shaft roof slab, and pumps in the tertiary treatment area; completion of heating ventilation and air conditioning (HVAC) plumbing and fire suppression on level 1, completion of lower level interior stud build out and dry wall and elevator installation in the Operations and Maintenance (O&M) Building.

Key construction activities in progress or completed by HRP in April were as follows:

- Primary treatment area:
  - progressed Densadeg 1, 2 and 3 installation;
  - continued installation of primary odour control fiberglass reinforced plastic (FRP) pipe and equipment;
  - installation of plate settler 1 tank covers complete, and continued plate settler 2 installation;
  - installed north pump room equipment with progression of electrical work;
  - completed fine screen building roofing, cladding and drywall, protecting panelling is ongoing;
  - completed fine screen building stairwell steel; and
  - secondary odour control FRP piping installation is progressing.

- Secondary treatment area:
  - Moving Bed Bio Reactor (MBBR) #2 and #1 process equipment re-installation complete;
  - Biological Aerated Filter (BAF) nozzles and laterals are installed in all cells except 12 & 9;
  - BAF gravel and biolite is installed in all cells except 12 & 9;
  - main exterior electrical gear installation complete;
  - glanding and terminations well underway in the main electrical room;
  - progressing electrical work in the blower building;
  - completed heat recovery room drywall;
  - penthouse building envelopes nearing completion;
  - installed translucent panels in 2 buildings; and
  - BAF cell 12 scouring air header installation is in progress.

- Tertiary treatment area:
  - continued upper disk filter walls, including outfall shaft roof slab;
  - lower level 1 pumps and mechanical piping install nearing completion; and
  - cinder block masonry nearing complete.

- O&M building:
  - completed lower level interior stud build-out and drywall;
  - level 1 heating ventilation and air conditioning (HVAC), plumbing and fire suppression trades are complete;

- electrical trade is beginning to close out rooms to allow for drywall installation on level 1;
- level 2 HVAC, plumbing and fire suppression are nearing completion;
- steel stud install on level 2 nearing completion, drywall mudding & taping well underway;
- level 1 and 2 roof complete with the exception of the North canopy;
- continued construction of north end tsunami and planter wall;
- glazing installation complete on level 1 and level 2;
- steel stairwells installed; and
- elevator installed.

- Site Works:
  - Pig receiving station foundations constructed; and
  - Demobilized north tower crane.

Photographs of construction progress over the month of April at McLoughlin Point WWTP are shown in Figures 2-6.



Figure 2– McLoughlin Point Wastewater Treatment Plant - Installing elevator cab.



Figure 3– McLoughlin Point Wastewater Treatment Plant- Installing concrete architectural panel on operations and maintenance building.



Figure 4– McLoughlin Point Wastewater Treatment Plant- Installing distribution and lighting panel boards in blower electrical room.



Figure 5– McLoughlin Point Wastewater Treatment Plant- Installing process air piping to Biological Aerated Filter cells 2, 4, 6, 8, 10, and 11.



Figure 6– McLoughlin Point Wastewater Treatment Plant- Installing aluminium cladding on east face of Heat Recovery Room.

2.9.2 Residuals Treatment Facility

The RTF Project Component is continuing with Hartland Resource Management Group ("HRMG" as the Design-Build-Finance-Operate-Maintain contractor for the RTF) progressing construction activities including: external pipe connections to Digester 1; pipe installation and concrete supports in Digester 3; mechanical and electrical installation in the Digester Building; installation of windows, and louvers; fiberglass reinforced plastic (FRP) grating installation in progress in the Residuals Handling Building; ongoing mechanical and insulation installation in the Residuals Drying facility; completion of hydro test in the effluent tank in the Residuals Storage and Odour control area; and drywall, ceiling tile, and flooring completed in the Operations Building.

Key construction activities in progress or completed by HRMG in April were as follows:

- Digester Area:
  - Digester 1 external pipe connections;
  - Investigation and rectification plan under development as a result of digester 1 and 2 not passing the pneumatic test;
  - Digester 3 Pipe install and concrete supports;
  - Digested Solids Storage Tank instrumentation install; and
  - Digester Building mechanical and electrical is in progress.

- Other Municipal Solids Receiving Facility:
  - electrical cable install and terminations is in progress.

- Residuals Handling Building:
  - electrical work continued in all areas;
  - FRP grating install is in progress;
  - FRP ducting commenced install;
  - windows installed; and
  - louvres installed.

- Residuals Drying Facility:
  - mechanical installation is in progress;
  - electrical terminations continued;
  - insulation install is in progress; and
  - generator room louvres completed.

- Residuals Storage & Odour Control:
  - mechanical and electrical work is in progress;
  - hydro test completed in effluent tank; and
  - chemical piping install commenced.

- Operations Building:
  - drywall completed;
  - ceiling tile and flooring completed;
  - painting in progress;
  - millwork in progress;
  - windows completed; and
  - door install in progress.

Photographs of construction progress over the month of April at the Residuals Treatment Facility are shown in Figures 7-10.



Figure 7− Residuals Treatment Facility- Wiring of Residuals Handling Building Motor Control Centre/electrical room nearing completion.



Figure 8− Residuals Treatment Facility- Main power distribution –Construction walk down and punch list preparation being undertaken.



Figure 9− Residuals Treatment Facility- Installation of fibreglass ducting for odour control system ongoing in Residuals Handling Building.



Figure 10− Residuals Treatment Facility – Interior finishing of Operations Building ongoing.

2.9.3 Conveyance System

2.9.3.1 Clover Point Pump Station

Kenaidan Contracting Limited ("Kenaidan" as the Design-Build Contractor) progressed construction activities over the reporting period including: completed relocation of existing screens to new inlet storm channel; completed existing pump room demolition; resumed work on the gender neutral public washroom; and forcemain successfully tested and backfilled.

Key construction activities in progress or completed by Kenaidan in April included:

- completed relocation of existing screens to new inlet storm channel;
- installation of new sanitary screens in the existing inlet sanitary channel;
- new exhaust plenum poured and stripped;
- completed existing pump room demolition;
- demolition of HVAC and electrical equipment on existing mezzanine floor ongoing;
- resumed work on gender neutral public washroom;
- 1500mm stub out completed;
- installed caisson for north retaining wall;
- completed commissioning of Storm Overflow components of the new facility;
- new pump station in operation under interim operating phase;
- forcemain successfully tested and backfilled; and
- moved bypass pumps back to complete diversion chamber tie in.

Photographs of construction progress over the month of April at Clover Point are shown in Figures 11-13.



Figure 11−Clover Point Pump Station- Electrical equipment demolition in the old electrical room.



Figure 12−Clover Point Pump Station- Backfilling of the forcemain ongoing.



Figure 13- Clover Point Pump Station – Demolition of room.

2.9.3.2 Macaulay Point Pump Station and Forcemain

Kenaidan Contracting Limited ("Kenaidan" as the Design-Build Contractor) progressed construction activities over the reporting period including: completion of wet well concrete pour; commenced wood siding panel installation; installed recycle water system; and installation of unit heaters and cable pulling and termination for the pumps is complete.

Key construction activities in progress or completed by Kenaidan in April were as follows:

- installed unit heaters;
- HVAC fans installation is nearing completion;
- completed wet well concrete pour;
- commenced wood siding panel installation;
- install recycle water system;
- genset fuel tanks have been installed;
- stainless steel pipe to the pigging chamber has been delivered; and
- cable pulling and termination for the pumps is complete.

Photographs of construction progress over the month of April at Macaulay Point Pump Station are shown in Figures 14-15.



Figure 14−Macaulay Point Pump Station- Base course of asphalt on Anson Street.



Figure 15−Macaulay Point Pump Station- Fuel tank positioned in containment area.

2.9.3.3 Clover Forcemain (CFM)

Windley Contracting Ltd. ("Windley" as the Construction Contractor) continued construction activities including: commencement of construction on the seawall balustrade replacement; cycle track and road restoration, and top lift paving from Douglas Street to Lewis Street.

Key construction activities in progress or completed by Windley in April included:

- commence seawall balustrade replacement construction;
- cycle track/road restoration between Government Street and Lewis Street;
- landscape restoration; and
- top lift paving Douglas Street to Lewis Street.

Photographs of construction progress over the month of April on the Clover Forcemain are shown in Figures 16-17.



Figure 16−Clover Forcemain- Cycle track/road restoration from Government Street to Lewis Street.



Figure 17−Clover Forcemain- Seawall balustrade construction set up.

2.9.3.4 Residual Solids Conveyance Line

The RSCL is being delivered through two construction contracts:

- Residual Solids Pipes; and
- Residual Solids Pump Stations

Residual Solids Pipes: Don Mann Excavating Ltd. ("Don Mann" as the Construction Contractor for the Residual Solids Pipes) continued construction activities over the reporting period, including: completion of pipe installation, installation of valve chambers; final road restoration and line painting; and final trail reinstatements near Pump Station 3.

Key construction activities in progress or completed by Don Mann in April were as follows:

- Segment #1
  - installation of the 250 mm main completed including:
  - valve Chamber installations;
  - final Paving in all areas of Segment 1;
  - line painting at various locations; and
  - successfully pressure tested pipe from south side of Tillicum bridge to Peters Street.

- Segment #2**:**
  - installation of the Air Valve chamber at Grange Road;
  - final asphalt reinstatement Grange Road at the Galloping Goose to Wilkinson Road and Interurban Road; and
  - commence Line Valve installation at the Galloping Goose Trail.

- Segment #3:
  - installation of the line valve and low point drain valve commenced at Interurban Rd north of Quayle Road;
  - curb/sidewalk replacement and final paving was completed at several locations, including boulevard restoration;
  - final surface restoration was completed on the remaining sections of the Interurban Trail within the Segment; and
  - final trail reinstatement.

- Segment #4
  - line painting was completed at the various road crossings within the segment;
  - extruded asphalt curbs were replaced within the Prospect Lake Rd/West Saanich Rd intersection;
  - final trail reinstatement was completed on the remaining section north of Pump Station 3; and
  - final Interurban Trail reinstatement from Goward Road north to Pump Station 3.

Photographs of construction progress over the month of April on the Residual Solids Pipes are shown in Figures 18-21.



Figure 18− Residual Solids Pipes- Backfill and compaction around line valve at Admirals Bridge.



Figure 19−Residual Solids Pipes- Setting of grade rings at low point drain on Interurban Road.



Figure 20−Residual Solids Pipes – Aligning pipe for line valve on Colquitz Road.



Figure 21−Residual Solids Pipes - Installing culvert across Interurban Trail.

Residual Solids Pump Stations: Knappett Projects Inc. ("Knappett" as the Construction Contractor for the Residual Solids Pump Stations) continued construction activities including: pipe spools and electrical works at all three pump stations; lamp standards were installed at pump stations two and three; and the Marigold crossing was completed.

Key construction activities in progress or completed by Knappett in April included:

- Pump Station 1
  - pipe spools and electrical installations were both advanced;
  - genset was landed on the concrete pad and the lamp standard was installed; and
  - most of the chamber cores were grouted in.
- Pump Station 2
  - pigging chamber, flow meter and line valve were installed and backfilled;
  - pipe spool pieces were installed throughout all the chambers and are ongoing;
  - electrical work was advanced on the kiosk and the valve chamber; and
  - lamp standard was installed.
- Pump Station 3
  - Odour Control Unit underground piping was completed;
  - pipe spool piece installation was completed;
  - electrical works in the valve chamber was also completed; and
  - lamp standard was erected.
- Marigold Crossing:
  - Marigold Road crossing was completed and pipe was installed to the line valve on Violet Street.
- Tillicum Bridge:
  - pipe spool installation began after all the hangers were installed and epoxied in place with levelling shims.

Photographs of construction progress over the month of April on the Residual Solids Pump Stations are shown in Figures 22-23.



Figure 22−Residual Solids Pump Stations– Pump Station 1 – Grouting and sealing of pipe penetrations in valve chamber.



Figure 23 –Residual Solids Pump Stations – Pump Station 3 Installing formwork and rebar for odour control unit slab.

2.9.3.5 Arbutus Attenuation Tank

NAC Constructors Ltd. (as the Construction Contractor for the Arbutus Attenuation Tank) continued construction activities including: completion of 232 secant piles and commenced installation of form work and concrete pour for three out of four sections of the ring beam.

Key construction activities in progress or completed by NAC Constructors Ltd. in April include:

- completed installation of 232 secant piles;
- completed installation of diagonal and lateral struts atop the secant piles; and
- commenced formwork installation, rebar installation, and concrete pour for 3 of 4 sections for the ring beam.

A photograph of construction progress during the month of April at the Arbutus Attenuation Tank is shown in Figure 24.



Figure 24−Arbutus Attenuation Tank-Installed diagonal and lateral struts atop the secant piles, formwork and rebar installed for section 1 of ring beam.

2.9.3.6 Trent Forcemain

Jacob Bros. Construction Inc. (as the Construction Contractor for the Trent Forcemain) commenced construction activities including: completion of Fairfield road storm and sanitary main relocation work; completion of seawall investigation works, and completion of Fairfield Road watermain relocation.

Key construction activities in progress or completed by Jacob Bros. in April include:

- completed Fairfield Road Storm Main relocation work;
- completed Fairfield Road Sanitary Main relocation work;
- new line valve installed at Fairfield Road and Stannard Ave;
- completed seawall investigation works;
- completed Memorial Crescent watermain relocation works; and
- completed Fairfield Road watermain relocation works.

A photograph of construction progress during the month of April at the Trent Forcemain is shown in Figure 25.



Figure 25- Trent Forcemain – Bushby Street – excavate and demolish existing brick drain.

Appendix A− Overnight Work: Fairfield Watermain Shut-off (April 3, 2020) (Appendix A)

Wastewater Treatment Project
Treated for a cleaner future

Construction Notice

April 3, 2020

Overnight Work: Fairfield Watermain Shut-off

On Monday, April 6, as part of construction for the Trent Forcemain there will be a temporary water service interruption on Fairfield Road between Memorial Crescent and Lillian Road. This includes water service disruption to your property.

The temporary water service interruption will be conducted at night to minimize the impact to residents. This work is necessary to facilitate construction of City of Victoria watermain and sanitary sewer on Memorial Crescent.

If you require the use of water during these hours, we ask that you prepare prior to the shut-off time of 9:00 p.m. on Monday, April 6. Service will be reinstated at 5:00 a.m. on Tuesday, April 7.

What to Expect

- Water supply will be shut-off from approximately 9:00 p.m. to 5:00 a.m.
- A trench will be excavated, a new pipe will be installed underneath the existing watermain, the trench will be backfilled, and the surface will be temporarily restored.
- Construction lights will be used to illuminate the work zone for safety and traffic control.
- Noise associated with this work includes excavation machinery and truck back-up beepers.
- Pipes and equipment will be temporarily stored in the area while this work is completed.

Traffic Impacts

- There will be single lane alternating traffic.
- Traffic control areas will be delineated by cones and signs and controlled by flaggers.

Thank you for your patience as this work is completed.

About the Wastewater Treatment Project
The Wastewater Treatment Project will provide tertiary treatment for wastewater from the core area municipalities of Victoria, Esquimalt, Saanich, Oak Bay, View Royal, Langford and Colwood, and the Esquimalt and Songhees Nations by the end of 2020.

Construction is ongoing at all of the Wastewater Treatment Project's sites in accordance with the guidelines established by the Provincial Health Officer.

Any questions about the work, please contact the Project Team.

24/7 Phone Line
1.844.815.6132

Email
wastewater@crd.bc.ca

Website
wastewaterproject.ca

Appendix B− Trent Forcemain: Bushby and Eberts Streets (April 14, 2020) (Appendix B)

Wastewater Treatment Project
Treated for a cleaner future

Construction Notice

April 14, 2020

Trent Forcemain: Bushby and Eberts Streets

As part of the Wastewater Treatment Project, a concrete chamber will be constructed which requires a lane closure within the intersection of Bushby and Eberts Streets. This work is anticipated to begin by the end of this week and take approximately four weeks to complete.

What to Expect

- Barriers and fencing will be installed around the site.
- The area will be excavated, the concrete chamber installed, and the site restored.
- Rock encountered during excavation will be removed by blasting or mechanical means.
- Noise associated with this work includes excavation machinery and truck back-up beepers.
- Pipes and equipment will be temporarily stored in the area while this work is completed.
- Garbage and recycling services will be picked up as usual.

Traffic Impacts

- One lane within the intersection of Bushby and Eberts streets will be closed
- Traffic control areas will be delineated by cones and signs.
- Parking will be temporarily impacted around the intersection of Eberts and Bushby streets to facilitate traffic flow around the closure.
- BC Transit routes will be modified to accommodate the closure.

Access

- Local traffic access will be maintained on Eberts and Bushby streets.
- Vehicle access to residences will not be impacted.

Work Hours

- Monday to Friday from 7:00 a.m. to 7:00 p.m.
- Occasional Saturday work may be required from 10:00 a.m. to 7:00 p.m.

Thank you for your patience while this work is completed.

About the Wastewater Treatment Project
The Wastewater Treatment Project will provide tertiary treatment for wastewater from the core area municipalities of Victoria, Esquimalt, Saanich, Oak Bay, View Royal, Langford and Colwood, and the Esquimalt and Songhees Nations by the end of 2020.

Any questions about the work, please contact the Project Team.

24/7 Phone Line
1.844.815.6132

Email
wastewater@crd.bc.ca

Website
wastewaterproject.ca

Appendix C− Clover Point Pump Station Overnight Work (April 15, 2020) (Appendix C)

Wastewater Treatment Project
Treated for a cleaner future

Construction Notice

April 15, 2020

Clover Point Pump Station: Overnight Work

Construction of the upgrades to the Clover Point Pump Station requires bypass pumping to the short outfall for approximately four days. This work will begin today and includes diesel-powered pumps running overnight. This work is required to allow the upgraded Clover Point Pump Station to pump wastewater to the new treatment plant at McLoughlin Point.

What to Expect

- The majority of work will take place inside the pump station.
- Noise and lights associated with construction equipment.
- Diesel-powered pumping units will be in operation and are equipped with acoustic enclosures to reduce noise.
- Wastewater will be screened and discharged out of the short outfall during this work and residents are advised to avoid entering the water along the shoreline on Dallas Road between St Charles Street and Dock Street, including at Ross Bay, Clover Point, Holland Point and Ogden Point.
- Public health advisory signs will be posted until sample results are below the health guidelines.

Work Hours

- The diesel-powered pumping units will be running continuously until this work is complete with crews onsite for the duration of this work.

Traffic Impacts

- There will be no traffic impacts.
- The Dallas Road Waterfront Trail between the Clover Point Pump Station and the crosswalk at Memorial Crescent remains closed.

Construction at Clover Point is anticipated to be complete by summer 2020.

Thank you for your patience as this work is completed.

About the Wastewater Treatment Project
The Wastewater Treatment Project will provide tertiary treatment for wastewater from the core area municipalities of Victoria, Esquimalt, Saanich, Oak Bay, View Royal, Langford and Colwood, and the Esquimalt and Songhees Nations by the end of 2020

Any questions about the work, please contact the Project Team.

24/7 Phone Line
1.844.815.6132

Email
wastewater@crd.bc.ca

Website
wastewaterproject.ca

Appendix D− Temporary Overnight Work: Marigold Road (April 17, 2020) (Appendix D)

Wastewater Treatment Project
Treated for a cleaner future

Construction Notice

April 17, 2020

Temporary Overnight Work: Marigold Road

As part of the Wastewater Treatment Project, construction of the Residual Solids Conveyance Line will be crossing Marigold Road at Violet Avenue during the week of April 20th. Part of this work will require the closure of Marigold Road between Interurban Road and Daisy Avenue. This closure will be done at night from 7:00 p.m. to 7:00 a.m. to limit traffic impacts. The overnight work is expected to take place Wednesday night and be completed within one night, but it is weather dependent so the timing may change.

What to Expect

- A trench will be excavated, the new pipe will be installed, the trench will be backfilled, and the surface will be temporarily restored.
- Final restoration will take place after the section has been tested and completed.
- Noise associated with this work includes excavation machinery and truck back-up beepers.
- Pipes and equipment will be temporarily stored in the area while this work is completed.
- During night work, construction lights will be used to illuminate the work zone for safety and traffic control.

Traffic Impacts

- Marigold Road will be open to single lane alternating traffic from 7:00 a.m. to 7:00 p.m.
- Traffic control areas will be delineated by cones and signs and controlled by flaggers.
- Marigold Road will be closed from 7:00 p.m. Wednesday to 7:00 a.m. Thursday.

Work Hours

- Monday to Friday from 7:00 a.m. to 7:00 p.m.
- Overnight work on Wednesday from 7:00 p.m. to 7:00 a.m. Thursday

Thank you for your patience as this work is completed

About the Wastewater Treatment Project
The Wastewater Treatment Project will provide tertiary treatment for wastewater from the core area municipalities of Victoria, Esquimalt, Saanich, Oak Bay, View Royal, Langford and Colwood, and the Esquimalt and Songhees Nations by the end of 2020.

Any questions about the work, please contact the Project Team.

24/7 Phone Line
1.844.815.6132

Email
wastewater@crd.bc.ca

Website
wastewaterproject.ca

Appendix E− Residual Solids Conveyance Line: Gorge Bridge Construction Update

Wastewater Treatment Project
Treated for a cleaner future

Construction Notice

UPDATE

April 23, 2020

Residual Solids Conveyance Line: Gorge Bridge Construction

As part of the Wastewater Treatment Project, a pipe is being installed under the Gorge Bridge on Tillicum Road. This work is anticipated to be complete mid-May.

What to Expect

- Scaffolding has been erected on the side of the bridge and a pipe will be installed under the bridge.
- Noise associated with this work includes construction machinery and truck back-up beepers.

Traffic Impacts

- Southbound traffic has been reduced to one lane to provide a pedestrian walkway that supports social distancing.
- Northbound traffic will retain two lanes.
- Pedestrian access will be maintained on the east side of Gorge Bridge.

Work Hours

- Monday to Friday from 7:00 a.m. to 7:00 p.m.

About the Wastewater Treatment Project

The Wastewater Treatment Project will provide tertiary treatment for wastewater from the core area municipalities of Victoria, Esquimalt, Saanich, Oak Bay, View Royal, Langford and Colwood, and the Esquimalt and Songhees Nations by the end of 2020.

Any questions about the work, please contact the Project Team.

24/7 Phone Line
1.844.815.6132

Email
wastewater@crd.bc.ca

Website
wastewaterproject.ca

Appendix F− Core Area Wastewater Discharge Notice (April 14, 2020)

Making a difference...together

Public Service Announcement

For Immediate Release
April 14, 2020

Core Area Wastewater Discharge Notice

Victoria, BC- Construction for the Wastewater Treatment Project at the Clover Point Pump Station requires screened wastewater to be discharged out of the short outfall at Clover Point beginning the evening of April 14, 2020 for approximately four days. The shorelines that will be affected are:

- Dallas Road between St Charles St and Dock St including Ross Bay, Clover Point, Holland Point and Ogden Point in Victoria.

As a result of the discharge, residents are advised to avoid entering the waters along the affected shorelines, as the wastewater may pose a health risk to people entering the water.

As a precaution and in consultation with Island Health and the local municipalities, beaches within the affected areas will be posted with public health advisory signs until sample results indicate enterococci levels are below the 70CFU/100mL recreational limit.

For updates, please visit www.crd.bc.ca and follow us on Twitter @crd_bc

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. Visit us online at www.crd.bc.ca.

-30-

For media inquiries, please contact:
Andy Orr, Senior Manager
CRD Corporate Communications
Tel: 250.360.3229
Cell: 250.216.5492

Appendix G− Update: Core Area Wastewater Discharge Notice (April 17, 2020)

Making a difference...together

Public Service Announcement

For Immediate Release
April 17, 2020

UPDATE: Core Area Wastewater Discharge Notice

Victoria, BC- Construction for the Wastewater Treatment Project at the Clover Point Pump Station requires screened wastewater to be discharged out of the short outfall at Clover Point. The shorelines affected are:

- Between Radcliffe Lane and Dock St including Gonzales Bay ***NEW***, Ross Bay, Clover Point, Holland Point and Ogden Point in Victoria
- Harling Point, McNeill Bay and McMicking Point in Oak Bay ***NEW***

As a result of the discharge, residents are advised to avoid entering the waters along the affected shorelines, as the wastewater may pose a health risk to people entering the water.

As a precaution and in consultation with Island Health and the local municipalities, beaches within the affected areas will be posted with public health advisory signs until sample results indicate enterococci levels are below the 70CFU/100mL recreational limit.

For updates, please visit www.crd.bc.ca and follow us on Twitter @crd_bc

For questions or more information on this advisory, please call 1.844.815.6132.

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. Visit us online at www.crd.bc.ca.

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For media inquiries, please contact:
Andy Orr, Senior Manager
CRD Corporate Communications
Tel: 250.360.3229
Cell: 250.216.5492

Appendix H− Beaches Reopen Following Core Area Wastewater Discharge (April 24, 2020)

Making a difference...together

Public Service Announcement

For Immediate Release
April 24, 2020

Beaches Reopen Following Core Area Wastewater Discharge

Victoria, BC- Following the successful completion of construction activities at Clover Point Pump Station that required screened wastewater to be discharged out of the short outfall, all of the affected beaches have been reopened. Testing of samples was completed this week and results indicate enterococci levels are below the 70CFU/100mL recreational level.

In consultation with Island Health, public health advisory signs have been removed from all of the affected shorelines:

- Between Radcliffe Lane and Dock St including Gonzales Bay, Ross Bay, Clover Point, Holland Point and Ogden Point in Victoria and Harling Point, McNeill Bay and McMicking Point in Oak Bay

Thank you for your patience while this work was completed.

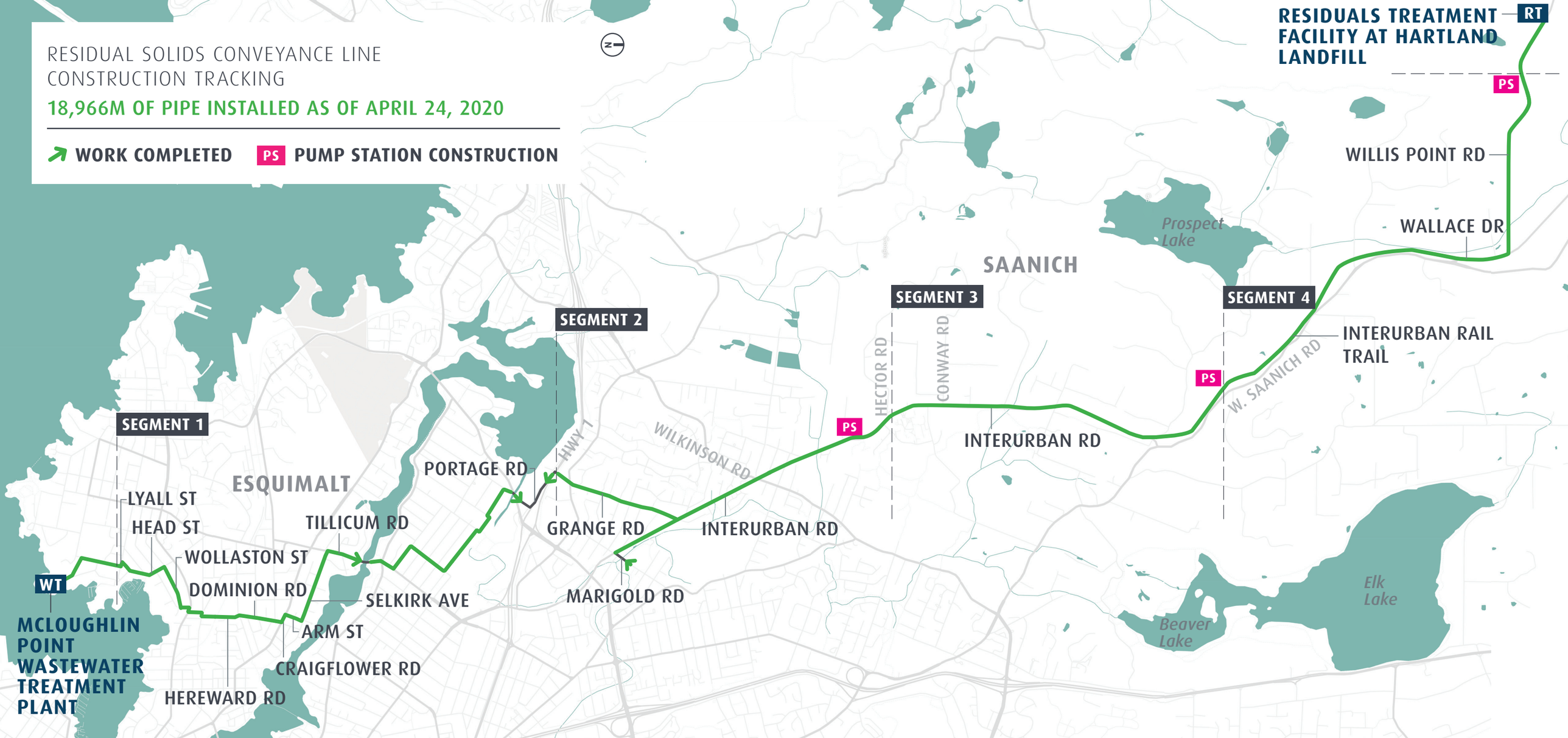
For updates, please visit www.crd.bc.ca and follow us on Twitter @crd_bc

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. Visit us online at www.crd.bc.ca.

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For media inquiries, please contact:
Andy Orr, Senior Manager
CRD Corporate Communications
Tel: 250.360.3229
Cell: 250.216.5492

Appendix I– Residual Solids Conveyance Line Map (April 24, 2020)


RESIDUAL SOLIDS CONVEYANCE LINE CONSTRUCTION TRACKING
18,966M OF PIPE INSTALLED AS OF APRIL 24, 2020
WORK COMPLETED
PS PUMP STATION CONSTRUCTION
RESIDUALS TREATMENT FACILITY AT HARTLAND LANDFILL
RT
PS
WILLIS POINT RD
WALLACE DR
Prospect Lake
SAANICH
SEGMENT 3
SEGMENT 4
SEGMENT 2
SEGMENT 1
INTERURBAN RAIL TRAIL
W. SAANICH RD
HECTOR RD
CONWAY RD
INTERURBAN RD
WILKINSON RD
HWY 1
PORTAGE RD
GRANGE RD
INTERURBAN RD
MARIGOLD RD
ESQUIMALT
LYALL ST
HEAD ST
TILLICUM RD
WOLLASTON ST
DOMINION RD
SELKIRK AVE
ARM ST
CRAIGFLOWER RD
HEREWARD RD
WT
MCLOUGHLIN POINT WASTEWATER TREATMENT PLANT
Beaver Lake
Elk Lake

Appendix J− Monthly Cost Report (April)

MONTHLY COST REPORT
as at April 30, 2020

Description	BUDGET		COST EXPENDED					COMMITMENTS			FORECAST		VARIANCE	
	Control Budget	Allocated Budget	Expended to March 31, 2020	Expended over reporting period (April 2020)	Expended to April 30, 2020	Expended to April 30, 2020 as a % of Allocated Budget	Remaining (Unexpended) Allocated Budget at April 30, 2020	Total Committment at April 30, 2020	Unexpended Commitment at April 30, 2020	Uncommitted Allocated Budget at April 30, 2020	Forecast to Complete	Forecast at Completion	Variance at Completion $	Variance at Completion as a % of Allocated Budget
McLoughlin Point Wastewater Treatment Plant	**331.4**	**328.1**	**282.5**	**5.6**	**288.1**	**88%**	**40.0**	**320.8**	**32.8**	**7.3**	**40.0**	**328.1**	**-**	**0%**
Construction	306.7	320.7	281.8	5.7	287.5	90%	33.2	320.2	32.7	0.5	33.2	320.7	-	0%
Contingency	14.9	0.5	-	-	-	0%	0.5	-	-	0.5	0.5	0.5	-	0%
Financing	9.8	6.9	0.7	(0.1)	0.6	9%	6.3	0.7	0.1	6.2	6.3	6.9	-	0%
Residuals Treatment Facility	**159.4**	**139.8**	**10.6**	**(0.0)**	**10.6**	**8%**	**129.1**	**138.8**	**128.1**	**1.0**	**129.1**	**139.8**	**-**	**0%**
Construction	145.4	138.7	10.6	0.0	10.6	8%	128.1	138.7	128.1	0.0	128.1	138.7	-	0%
Contingency	12.3	0.2	-	-	-	0%	0.2	-	-	0.2	0.2	0.2	-	0%
Financing	1.7	0.8	0.0	(0.0)	0.0	3%	0.8	0.0	0.0	0.8	0.8	0.8	-	0%
Conveyance System	**158.1**	**215.9**	**152.3**	**2.6**	**155.0**	**72%**	**61.0**	**194.6**	**39.6**	**21.3**	**61.0**	**215.9**	**-**	**0%**
Macaulay Point Pump Station	25.4	30.8	25.3	0.9	26.2	85%	4.6	30.8	4.6	0.0	4.6	30.8	-	0%
Macaulay Forcemain	5.6	7.4	6.6	0.1	6.6	89%	0.8	7.4	0.8	-	0.8	7.4	-	0%
Craigflower Pump Station	12.5	12.4	12.4	-	12.4	100%	-	12.4	-	-	-	12.4	-	0%
Clover Point Pump Station	23.7	27.3	24.6	-	24.6	90%	2.7	27.2	2.6	0.1	2.7	27.3	-	0%
Currie Pump Station^	2.8	0.1	0.1	-	0.1	100%	-	0.1	-	-	-	0.1	-	0%
Arbutus Attenuation Tank	14.2	24.6	11.5	0.3	11.8	48%	12.7	23.1	11.3	1.4	12.7	24.6	-	0%
Clover Forcemain	14.6	32.5	28.0	0.9	29.0	89%	3.5	31.9	2.9	0.6	3.5	32.5	-	0%
Currie Forcemain^	3.3	0.2	0.2	-	0.2	100%	-	0.2	-	-	-	0.2	-	0%
Trent Forcemain	9.5	11.3	0.7	0.5	1.2	11%	10.1	8.0	6.8	3.3	10.1	11.3	-	0%
Residual Solids Conveyance Line	19.1	36.1	31.7	-	31.7	88%	4.3	35.8	4.1	0.3	4.3	36.1	-	0%
Residual Solids Pump Stations & Bridge Crossings	4.6	18.3	10.5	-	10.5	57%	7.8	16.9	6.3	1.5	7.8	18.3	-	0%
Residual Solids Conveyance Line – Highway Crossing	-	0.4	0.3	-	0.3	74%	0.1	0.4	0.1	0.1	0.1	0.4	-	0%
Contingency	16.8	10.4	-	-	-	0%	10.4	-	-	10.4	10.4	10.4	-	0%
Financing	5.8	4.1	0.3	(0.1)	0.3	7%	3.8	0.3	0.1	3.7	3.8	4.1	-	0%
Project Management Office ("PMO")	**75.9**	**77.9**	**53.8**	**1.0**	**54.8**	**70%**	**23.1**	**68.9**	**14.1**	**8.9**	**23.1**	**77.9**	**-**	**0%**
Project costs Aug 2016-Dec 2016	2.2	2.2	2.2	-	2.2	100%	-	2.2	-	-	-	2.2	-	0%
Owner's Engineering	17.2	17.5	13.4	0.4	13.7	78%	3.8	17.5	3.8	0.0	3.8	17.5	-	0%
Conveyance Design	5.0	9.5	7.4	0.0	7.4	78%	2.1	8.2	0.8	1.2	2.1	9.5	-	0%
Advisors & Professional Support	7.0	15.0	10.0	0.1	10.1	68%	4.8	11.2	1.0	3.8	4.8	15.0	-	0%
Project Team & Project Board	31.3	24.5	16.3	0.3	16.6	68%	7.9	23.7	7.2	0.8	7.9	24.5	-	0%
CRD Allocations	3.4	3.4	2.4	0.1	2.5	73%	0.9	3.4	0.9	-	0.9	3.4	-	0%
Office, Supplies & Expenses	3.9	2.5	1.6	0.0	1.6	67%	0.8	2.1	0.4	0.4	0.8	2.5	-	0%
Computer Hardware, Software & Training	1.0	1.1	0.6	0.1	0.6	60%	0.4	0.6	-	0.4	0.4	1.1	-	0%
Contingency	4.8	2.3	-	-	-	0%	2.3	-	-	2.3	2.3	2.3	-	0%
BC Hydro	**12.9**	**4.3**	**2.0**	**0.0**	**2.0**	**48%**	**2.3**	**2.1**	**0.0**	**2.2**	**2.3**	**4.3**	**-**	**0%**
Third Party Commitments	**8.1**	**8.1**	**3.7**	**0.1**	**3.8**	**47%**	**4.3**	**6.8**	**3.0**	**1.3**	**4.3**	**8.1**	**-**	**0%**
Program Reserves	**19.2**	**0.9**	**-**	**-**	**-**	**0%**	**0.9**	**-**	**-**	**0.9**	**0.9**	**0.9**	**-**	**0%**
Core Area Wastewater Treatment Project	**765.0**	**775.0**	**505.0**	**9.3**	**514.3**	**66%**	**260.6**	**732.0**	**217.7**	**42.9**	**260.6**	**775.0**	**-**	**0%**

* Values presented in $millions, results in minor rounding differences
** Cost report presents approved expenditures
^ Component no longer required, and would not provide any value therefore removed from Project Scope; Costs include Seaterra initiation, planning and design

Item 7.1

REPORT TO CORE AREA WASTEWATER TREATMENT PROJECT BOARD
MEETING OF TUESDAY, JULY 7, 2020

SUBJECT **Wastewater Treatment Project May 2020 Monthly Report**

ISSUE

To provide the Core Area Wastewater Treatment Project Board with the Wastewater Treatment Project May 2020 Monthly Report.

BACKGROUND

On May 25, 2016 the Regional Board of the CRD:

i) Adopted by resolution the Core Area Wastewater Treatment Project Board Terms of Reference (Project Board Terms of Reference) for the purposes of establishing principles governing the Core Area Wastewater Treatment Project (the Wastewater Treatment Project or the WTP);
ii) Established the Core Area Wastewater Treatment Project Board (Project Board) under Bylaw 4109 (the CRD Core Area Wastewater Treatment Board Bylaw No. 1, 2016) for the purposes of administering the Core Area Wastewater Treatment Project; and
iii) Delegated certain of its powers, duties and functions to the Project Board under Bylaw 4110 (the CRD Core Area Wastewater Treatment Project Board Delegation Bylaw No. 1, 2016).

On September 14, 2016 the Regional Board of the CRD:

i) Received the final report of the Project Board with respect to its recommendation for the CAWTP, dated September 7, 2016 (the Final Report); and
ii) Approved the business case attached as Appendix 1 (the Business Case) to the Final Report.

DISCUSSION

The Core Area Wastewater Treatment Project Board (the Project Board) Terms of Reference requires, amongst other things: that the Project Board provide the CRD Board with monthly progress reports and a comprehensive quarterly report on the Project.

The Monthly report for the period of May 2020 is attached as Appendix A.

RECOMMENDATION

That the Core Area Wastewater Treatment Project Board approve the following resolution:

RESOLVED that:

The Staff Report, 'Wastewater Treatment Project May 2020 Monthly Report', be received for information and forwarded to the Core Area Liquid Waste Management Committee and CRD Board for information.



Elizabeth Scott, Deputy Project Director
Wastewater Treatment Project



Dave Clancy, Project Director
Wastewater Treatment Project
Concurrence

Attachments: 1

Appendix A: Wastewater Treatment Project May 2020 Monthly Report

ES:er

CRD Wastewater Treatment Project

Monthly Report

Reporting Period: May 2020

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1 Executive Summary

1.1 Introduction

This Monthly Report covers the reporting period of May 2020 and outlines the progress made on the Wastewater Treatment Project over this time.

The Wastewater Treatment Project (the "Project") includes three main Project Components (the "Project Components"): the McLoughlin Point Wastewater Treatment Plant (the "McLoughlin Point WWTP"), the Residuals Treatment Facility (the "RTF") and the Conveyance System (which includes upgrades to the conveyance network including the construction of pump stations and pipes). The Project scope is being delivered through a number of contracts with a variety of contracting strategies.

Over the reporting period the COVID-19 public health emergency continued to have impacts on the Project. The Project Team and Project contractors are actively monitoring the status of the COVID-19 public health emergency and are taking additional precautions to protect our staff, contractors, and the public. Construction is ongoing at all of the Project's sites in accordance with guidelines established by the Provincial Health Officer.

While construction is ongoing, the public health emergency is impacting construction progress and may delay some interim project milestones, such as the transition to commissioning. However, based on current progress the Wastewater Treatment Project remains on schedule to meet the regulatory deadline for treatment by the end of 2020.

The McLoughlin Point WWTP Project Component is continuing with Harbour Resource Partners ("HRP" as the Design-Build contractor for the McLoughlin Point WWTP) progressing: installation of the chemical distribution system; roofing and envelopes in the Primary treatment area; Biological Aerated Filter (BAF) tank covers in the Secondary treatment area; secondary effluent fiberglass reinforced plastic (FRP) baffles; lower level 1 pumps and mechanical piping in the tertiary treatment area; Lower level interior flooring, millwork painting and door installation; the green roof installation. In addition the blind was removed from the outfall, and FRP baffles installed, pig receiving station piping completed, and installation of main plant water service is ongoing on site.

The RTF Project Component is continuing with Hartland Resource Management Group ("HRMG" as the Design-Build-Finance-Operate-Maintain contractor for the RTF) progressing construction activities including: external pipe connections on Digester 1 and the Digested Solids Storage Tank (DSST); ongoing electrical work, and commissioning of the overhead crane in the Residuals Handling Building; mechanical and insulation installation and the generator run and load test are completed in the Residuals Drying Facility; completed hydro test of water storage tank, chemical piping installation and fiberglass reinforced plastic (FRP) duct installation continued in the Residuals Storage and Odour Control Building; and the architectural finishes are complete and electrical and mechanical deficiencies are being closed out in the Operations Building.

The Conveyance System is being delivered through seven construction contracts: two design-build contracts and five design-bid-build contracts.

The two design-build Conveyance System contracts progressed over the reporting period as follows:

- Clover Point Pump Station: Kenaidan Contracting Limited ("Kenaidan" as the Design-Build Contractor) progressed construction activities over the reporting period including: completed pipe supports, completed bypass pumping for tie-in at new inlet channel installed fuel storage tank and exhaust fan for diesel generator; progressed work on fuelling system; and progressed work at the new public plaza and washroom.

- Macaulay Point Pump Station: Kenaidan Contracting Limited ("Kenaidan" as the Design-Build Contractor) progressed construction activities over the reporting period including: completed fiberglass reinforced plastic (FRP) platform and ducting in the wet well; completed installation of wood siding on the north side of the building; ongoing installation of penthouse louver; installed the inlet fire damper in the genset room; ongoing commissioning of the programmable logic control (PLC) and motor control centres (MCC); and exposing and cutting pigging chamber wall and cut pipe penetration opening.

The design-bid-build Conveyance System contracts progressed over the reporting period, as follows:

- Clover Forcemain: Windley Contracting Ltd. ("Windley" as the Construction Contractor) continued construction activities including: seawall balustrade replacement, poured new concrete wall and commenced grading for new sidewalk.

- Residual Solids Conveyance Line ("RSCL"): the RSCL is being delivered through two construction contracts, with work progressing as follows:

    - Residual Solids Pipes: Don Mann Excavating Ltd. ("Don Mann" as the Construction Contractor) continued construction activities over the reporting period, including: completing pipe installation and pressure testing section from the north side of Tillicum Bridge to the south side of Admirals Bridge, completed air valve chamber on Grange Road, and addressed deficiencies across all segments.

    - Residual Solids Pump Stations: Knappett Projects Inc. ("Knappett" as the Construction Contractor) continued construction activities including: installation of odour control unit underground vent and drain piping, and general backfill of the site at Pump Station 1; the BC Hydro line installed and the odour control slab was poured at Pump Station 2; pressure testing and finishing items continued within the wet well and valve chamber at Pump Station 3; and the Marigold crossing was completed.

- Arbutus Attenuation Tank ("AAT"): NAC Constructors Ltd. (as the Construction Contractor) continued construction activities including: completed fourth concrete pour, installed ducting from BC Hydro Pole to BC Hydro meter base, and commenced bulk excavation.

- Trent Forcemain: Jacob Bros. Construction Inc. (as the Construction Contractor) progressed construction activities including: completion of storm sewer relocation on

Bushby Street, commenced forcemain installation on Stannard Avenue, and concrete flow through chamber stripped and backfilled.

1.2 Dashboard

Table 1 indicates the high level status of the Project and each Project Component with regards to the six Key Performance Indicators ("KPI") that were defined within the Project Charter.

There were no changes made to the KPIs over the reporting period.

The safety KPI for the Project and the conveyance system remains yellow. Over the reporting period two recordable safety incidents occurred and the total recordable incident frequency increased from 1.5 at the end of the April 2020 to 1.6. The Project Team continues to work with and ensure that all of the prime contractor partners maintain safety as their number one priority. The Project Team is also actively monitoring the status of the COVID-19 public health emergency and is taking additional precautions to protect our staff, contractors, and the public. The BC Government has designated construction as an essential service, and issued guidelines for construction sites to minimize the risks of COVID-19 transmission or illness. All Project contractors have implemented additional precautions to ensure the health and safety of their workers. These measures follow the direction set by the BC Government, including emphasizing the importance of maintaining social distance, increasing handwashing stations, reducing in-person meetings and increasing cleaning of common areas. The Project Team will continue to monitor contractors' compliance with the direction of the government as the situation evolves.

The schedule KPI for the Project overall and the Project components remains green. The COVID-19 public health emergency is impacting construction progress and may delay some interim project milestones, such as the transition to commissioning. However, construction is ongoing at all of the Project's sites, in accordance with provincial guidelines, and based on current progress the Wastewater Treatment Project remains on schedule to meet the regulatory deadline for treatment by the end of 2020.

The cost KPI for the Project overall and the conveyance system remained red over the reporting period, and are expected to remain red for the duration of the Project, primarily as a result of inflation in the Vancouver Island construction market. Other factors that have contributed to budget pressures include: design development to incorporate stakeholder input; geotechnical considerations including removal and disposal of contaminated material; and schedule constraints associated with the requirement to provide wastewater treatment by the regulatory deadline of December 31, 2020.

Based on the value of the contracts awarded to-date and the refreshed cost estimate for the scope remaining to be procured, the Project Team forecast the cost to complete the Project at $775M, or $10M over the Project's control budget. In May 2019 the CRD Board approved an increase in the Project's budget by $10M to $775M.

Subsequent to May 2019 there have been two opposing budget drivers:

i) The Project's financing costs to-date have been lower than budgeted for two reasons: firstly as a result of low interest rates since the start of the Project, and secondly due to the receipt of funding from the provincial government earlier than forecast; and

ii) The Project's construction costs may be higher than budgeted as many contractors have advised that there are cost impacts from the COVID-19 public health emergency. Impacts include labour availability, work modifications to comply with provincial guidelines, and delays to the delivery of equipment and supplies.

It is too early to determine the cost impact to the Project, but if construction continues at the current pace the Project Team remain confident that the Project cost will be within the Project's $775M budget.

Table 1- Executive Summary Dashboard

Key Performance Indicators		Project Overall	WWTP	RTF	Conveyance System	Comments
Safety	Deliver the Project safely with zero fatalities and a total recordable incident frequency (TRIF) of no more than 1*.					Two recordable incidents occurred over the period. Site inspections are ongoing. The Project Team is actively monitoring the status of the COVID-19 public health emergency and is taking additional precautions to protect our staff, contractors, and the public. All Project contractors have implemented additional precautions to ensure the health and safety of their workers. The Project Team will continue to monitor and follow the direction of the government during this evolving situation.
Environment	Protect the environment by meeting all legislated environmental requirements and optimizing opportunities for resource recovery and greenhouse gas reduction.					Two minor environmental incidents occurred over the reporting period.
Regulatory Requirements	Deliver the Project such that the Core Area complies with provincial and federal wastewater regulations.					No regulatory issues.
Stakeholders	Continue to build and maintain positive relationships with First Nations, local governments, communities, and other stakeholders.					Engagement activities were ongoing over the reporting period. Significant efforts were made to provide accurate and timely information to stakeholders.
Schedule	Deliver the Project by December 31, 2020.					The COVID-19 public health emergency is impacting construction progress and may delay some interim project milestones, such as the transition to commissioning. The Wastewater Treatment Project has made significant progress and currently remains on schedule to meet the regulatory deadline for treatment by the end of 2020.
Cost	Deliver the Project within the Control Budget ($765 million).					Based on the value of the contracts awarded to-date and a refreshed cost estimate for the scope remaining to be procured, the Project Team has forecast the cost to complete the Project at $775M, or $10M over the Project's Control Budget. This is primarily as a result of inflation in the Vancouver Island construction market. Other factors that have contributed to budget pressures include: design development to incorporate stakeholder input; geotechnical considerations including removal and disposal of contaminated material; and schedule constraints associated with the requirement to provide wastewater treatment by the regulatory deadline of December 31, 2020. The CRD Board have approved an increase in the Project's budget by $10M, to $775M. Many contractors have advised that there are cost impacts from the COVID-19 public health emergency. It is too early to determine the cost impact to the Project, but if construction continues at the current pace the Project Team remain confident that the Project cost will be within the Project's $775M budget, as a result of offsetting savings in financing costs.

* A TRIF of no more than 1 means that there is 1 or fewer recordable incidents (being a work-related injury or illness that requires medical treatment beyond first aid or causes death, days away from work, restricted work or transfer to another job, or loss of consciousness) for every 200,000 person-hours of work

Status	Description
	KPI unlikely to be met
	KPI at risk unless correction action is taken
	KPI at risk but corrective action has been identified/is being implemented
	Good progress against KPI

2 Wastewater Treatment Project Progress

2.1 Safety

Safety information for the reporting period and cumulative for the Project from January 1, 2017 is summarized in Table 3.

The Project Team is actively monitoring the status of the COVID-19 public health emergency and is taking additional precautions to protect our staff, contractors, and the public. The BC Government has designated construction as an essential service, and issued guidelines for construction sites to minimize the risks of COVID-19 transmission or illness.

All Project contractors have implemented additional precautions to ensure the health and safety of their workers. These measures follow the direction set by the BC Government, including emphasizing the importance of maintaining social distance, increasing handwashing stations, reducing in-person meetings and increasing cleaning of common areas. The Project Team will continue to monitor contractors' compliance with the direction of the government during this evolving situation.

Site safety tours and weekly safety inspections were carried out by Project Management Office ("PMO") construction and safety personnel over the reporting period at all active worksites: McLoughlin Point WWTP, RTF, Macaulay Point Pump Station, Clover Point Pump Station, Clover Forcemain, Residual Solids Pipes, Residual Solids Pump Stations; Arbutus Attenuation Tank and Trent Forcemain.

Over the reporting period (May 2020) 12 safety incidents occurred, comprising: 1 medical aid recordable, 2 first-aid, 1 lost time recordable and 8 report-only incidents; as summarized in Table 2.

Table 2: Safety Incidents over the Reporting Period

Date	Work Site	Incident Type	Description	Outcome	Corrective Action Taken
May 1, 2020	Residual Solids Pump Stations	**Lost Time**	A worker sustained a hand injury when they lost their balance and crushed their finger between the handle of a cabinet and the steel cabinet.	Worker was sent to First Aid for assessment. An X-rays confirmed a fracture of the finger.	Tool-box talk held with crews to bring attention to the increase of hand injuries. They also reviewed the need for Hazard Assessments before starting work and in this case a working platform was recommended and installed.

Date	Work Site	Incident Type	Description	Outcome	Corrective Action Taken
May 5, 2020	Residual Solids Pump Stations	First Aid	Worker sustained a minor hand injury while trimming a piece of wood.	Worker reported to first aid where the laceration was cleaned and bandaged. No further follow up was required.	Tool-box talk to remind workers to wear the appropriate rated gloves for task was conducted.
May 6, 2020	McLoughlin Pt WWTP	First Aid	A Worker sustained a minor hand injury when they grabbed the end of a piece of pipe. Worker was wearing gloves at time of incident.	Worker reported to first aid where the laceration was cleaned and bandaged. No further follow up was required.	Tool-box talk to remind workers to wear the appropriate rated gloves for task was conducted.
May 11, 2020	Residual Solids Pipes	Medical Aid	A worker sustained a hand injury by striking their finger with a sledge hammer.	Worker reported to First Aid and was sent for x-rays. X-ray confirmed that the finger was fractured.	Tool-box talk with workers to remind them to focus on task and understand the hazards with the work being undertaken was conducted.
May 12, 2020	Residual Solids Pump Stations	Report Only	Worker was pulling a cable and experienced shoulder pain.	Worker reported to First Aid where they were evaluated with no follow up required.	Worker reminded to use good ergonomic practices and to perform stretching prior to any awkward task.
May 13, 2020	Residual Solids Pipes	Report Only	A worker over torqued a steel bolt on a pipe coupler causing it to break.	The pipe was under pressure and released water into the work area. No one was hurt in incident.	Tool-box talk reminding workers to be aware of the task at hand. Along with the proper use of small hand tools.
May 19, 2020	Clover Point Pump Station	Report Only	A member of the public disregarded notices indicating that Clover Point is a construction worksite and opened the construction gate.	A worker still on site inform the driver this was a construction site and they were trespassing. The driver accelerated around the worker and in doing so struck the workers hand with their mirror. The worker reported to First Aid and no further follow up was required.	The incident was reported to Police. A tool box talk reviewing the process of deescalating situations with members of the public was conducted.
May 20, 2020	Trent Forcemain	Report Only	A gas line was damaged by material sloughing into the excavation.	All equipment was immediately shut down and the area evacuated. Fortis was called and repaired the gas line.	A tool-box talk reviewing means and methods in securing the slope in an excavation was conducted.
May 21, 2020	Trent Forcemain	Report Only	While excavating a phone line was damaged interrupting the service to a nearby residence.	Locates were arranged prior to digging. Phone cable was not highlighted.	Phone Company attended site and repaired the service.
May 26, 2020	Residual Solids Pump Stations	Report Only	An inspector while descending using precast ladder rungs in a manhole fell approximately 1m.	One of the ladder rungs dislodged causing him to fall backwards striking his lower back against a pipe support. He reported to a medical facility to be evaluated with no treatment provided.	Safety Notice was issued to all Prime Contractors in regards to incident. All contractors were instructed to inspect ladder rungs in pre-cast manholes. No other issues were reported from any of the sites.
May 29, 2020	Arbutus Attenuation Tank	Report Only	A worker rolled their ankle on an uneven surface.	Worker reported incident to First Aid Attendant on site with no further treatment provided	Tool-box talk to discuss ensuring awareness of the work area and identification of hazards was conducted.

Date	Work Site	Incident Type	Description	Outcome	Corrective Action Taken
May 29, 2020	Residual Solids Pump Stations	Report Only	Worker was using a torque wrench on the bolts of a flange when the wrench slipped striking the worker in the face.	Worker received 2 chipped front teeth. Worker was assessed by First Aid Attendant and instructed to see a dentist to evaluate damaged teeth.	Tool-box talk to discuss proper body positioning when using handheld tools was conducted.

Key safety activities conducted during May included:

- bi-weekly project update meetings with prime contractors: Kenaidan, Windley, Don Mann, HRP, Knappett, Jacob Bros and NAC;
- weekly project update meeting with prime contractor: HRMG;
- monthly Incident Investigation reviews;
- hosted Prime Contractor Safety Coordination Meeting with Project safety representatives;
- reviewed site specific safety plans and high risk tasks;
- WTP Safety Manager and/or Construction Manager conducting regular site inspections at all active Project work sites;
- compliance checks of COVID-19 Safe Work Plans of our Prime Contractors; and
- safety email sent out to inform Prime Contractors of high incidents “hand injuries” on the Project.

Table 3: WTP Safety Information

	Reporting Period (May 2020)	Project Totals
Person Hours		
PMO	3 492	145 079
Project Contractor	98 376	1 872 994
Total Person Hours	101 868	2 018 073
PMO	30	
Project Contractors (& Project Consultants) working on Project Sites	581	
Total Number of Employees	611	
Near Miss Reports	0	45
High Potential Near Miss Reports	0	6
Report Only	8	158
First Aid	2	55
Medical Aid	1	9
Medical Aid (Modified Duty)	0	2
Lost Time	1	5
Total Recordable Incidents	2	16
		Project Frequency (from January 1, 2017)
First Aid Frequency		5.4
Medical Aid Frequency		1.1
Lost time Frequency		0.5
Total Recordable Incident Frequency		1.6

2.2 Environment and Regulatory Management

Environmental and regulatory activities continued over the reporting period relating to both the planning and permitting of upcoming work and the execution of current work.

2.2.1 Environment

Environmental work progressed as planned over the reporting period. The focus was on environmental monitoring of construction activities.

Key environmental management activities completed in May included:

- The CRD, District of Saanich and Knappett met at the Colquitz River crossing site to discuss plans for riparian restoration and tree replacement; and
- The CRD, Parsons, Don Mann and their environmental consultant McElhanney met at the site of a culvert replacement on the Interurban Trail. The purpose of the visit was to discuss upcoming in-stream work to facilitate fish passage through the culvert.

Over the reporting period, there were two minor environmental incidents at the Clover Point pump station:

- Overnight on May 6th, there was an unplanned discharge at Clover Point Pump Station when flows were diverted to the short outfall channel as a result of an electrical fault. The CRD's overflow response procedure was implemented: the CRD posted public health advisory signs and closed nearby beaches to swimming for approximately 36 hours.
- Overnight on May 29th, there was an unplanned discharge at Clover Point Pump Station when flows were diverted to the short outfall channel as a result of loss of power to the screens. The CRD's overflow response procedure was implemented: the CRD posted public health advisory signs and closed nearby beaches to swimming for approximately 5.5 days.

2.2.2 Regulatory Management

During the reporting period, the Project Team continued to monitor the advancement of construction-related regulatory approvals and supported or led the advancement of permit applications.

Key permitting activities for May included:

- The BC Ministry of Environment and Climate Change Strategy (ENV) issued an Operational Certificate to the CRD that authorizes air emissions from the Residuals Treatment Facility; and
- The CRD met with ENV to review and provide feedback on the draft MWR Registration letter.

The status of key Project permits are summarized in Table 4. The table is not a list of all required Project permits, but rather a summary of the status of key Project permits. Receipt of the Operational Certificate is the only change from the Key Permits Status table in April's monthly report.

Table 4- Key Permits Status

Permit/Licence	*Anticipated Date*	*Status*	*Party Responsible for Obtaining Perming*
McLoughlin Point WWTP			
Municipal Wastewater Regulation ("MWR") Registration	Q2 2020	Submitted September 2019	CRD
McLoughlin Point Harbour Crossing			
Transport Canada Lease	Following completion of construction	On track	HRP
McLoughlin Point Outfall			
Transport Canada Lease	Following completion of construction	On track	HRP
Residuals Treatment Facility			
Operational Certificate	Prior to start of RTF operations	Received	HRMG

2.3 First Nations

First Nations communication and engagement was ongoing over the reporting period. Meetings with the Esquimalt and Songhees' liaisons continued, as did meetings with the WSANEC Leadership Council's (WLC) liaison. The meetings are a forum for covering both Project-related issues with the potential to impact First Nations, as well as an opportunity for broader discussion of CRD-related issues.

Key activities in May included:

- The CRD and the Esquimalt and Songhees liaisons continued to develop content for interpretive signs for installation at Clover Point, Macaulay Point and Mcloughlin Point.

2.4 Stakeholder Engagement

The Project maintained its ongoing two-way Communications and Engagement Plan to provide Project information to stakeholders, communities and the public and to respond to public inquiries. The key focus of the communications and engagement activities over the period was to keep residents and stakeholders informed of Project plans, progress and construction information, and to receive and respond to questions and concerns raised by the community. A variety of communications tools and engagement activities were utilized to support the implementation of the plan, including stakeholder meetings, Project website updates and notifications of construction through notices and a public inquiry program, among other methods.

Construction Communications

One construction notice was issued to stakeholders in the reporting period:

- Trent Forcemain: Water Service Shutdown Notice Update (May 11, 2020) (Appendix A)

The Trent Forcemain notice was hand delivered to 190 residences in the Fairfield area. As well, as part of ongoing construction communications, residents affected by localized, temporary disruptions, such as driveway or water impacts, were notified by hand delivery of notices.

Two public service announcements were distributed to local media and posted online as an alert.

- Core Area Wastewater Discharge Notice (May 7, 2020) (Appendix B); and
- Core Area Wastewater Discharge Notice (May 30, 2020) (Appendix C).

Project Website

Over the reporting period the Project website, wastewaterproject.ca, was updated with information about the Project. One construction notice and two public service announcements were posted. A map showing the progress of construction along the Residual Solids Conveyance Line (Appendix D) was updated.

The CRD's Twitter account was used to provide Project information to the public, including updates about wastewater discharge at the Clover Point Pump Station.

Two alerts were posted regarding the wastewater discharge at Clover Point following the CRD's response protocol.

Community Meetings

Over the reporting period the Project Team held meetings with the following community groups and representatives, and municipality representatives:

- City of Victoria staff;
- City of Victoria Technical Working Group;
- District of Saanich Technical Working Group;
- PISCES (Portage Inlet Sanctuary Colquitz Estuary Society); and
- Township of Esquimalt Liaison Committee.

Public Inquiries

Public inquiry numbers from the Project email address and 24/7 information phone line (1 844 815-6132) are noted in Table 5.

Table 5 – Project Inquiries- May 2020

Inquiry Source	Contacts for May
Information phone line inquiries	33
Email inquiries responded to	6

Key themes of the public inquiries were as follows:

- interest in work on Grange Road;
- questions regarding water shut-off for the Trent Forcemain; and
- questions about final restoration.

2.5 Resolutions from Other Governments

There were no resolutions related to the Project passed by other governments during the reporting period.

2.6 Schedule

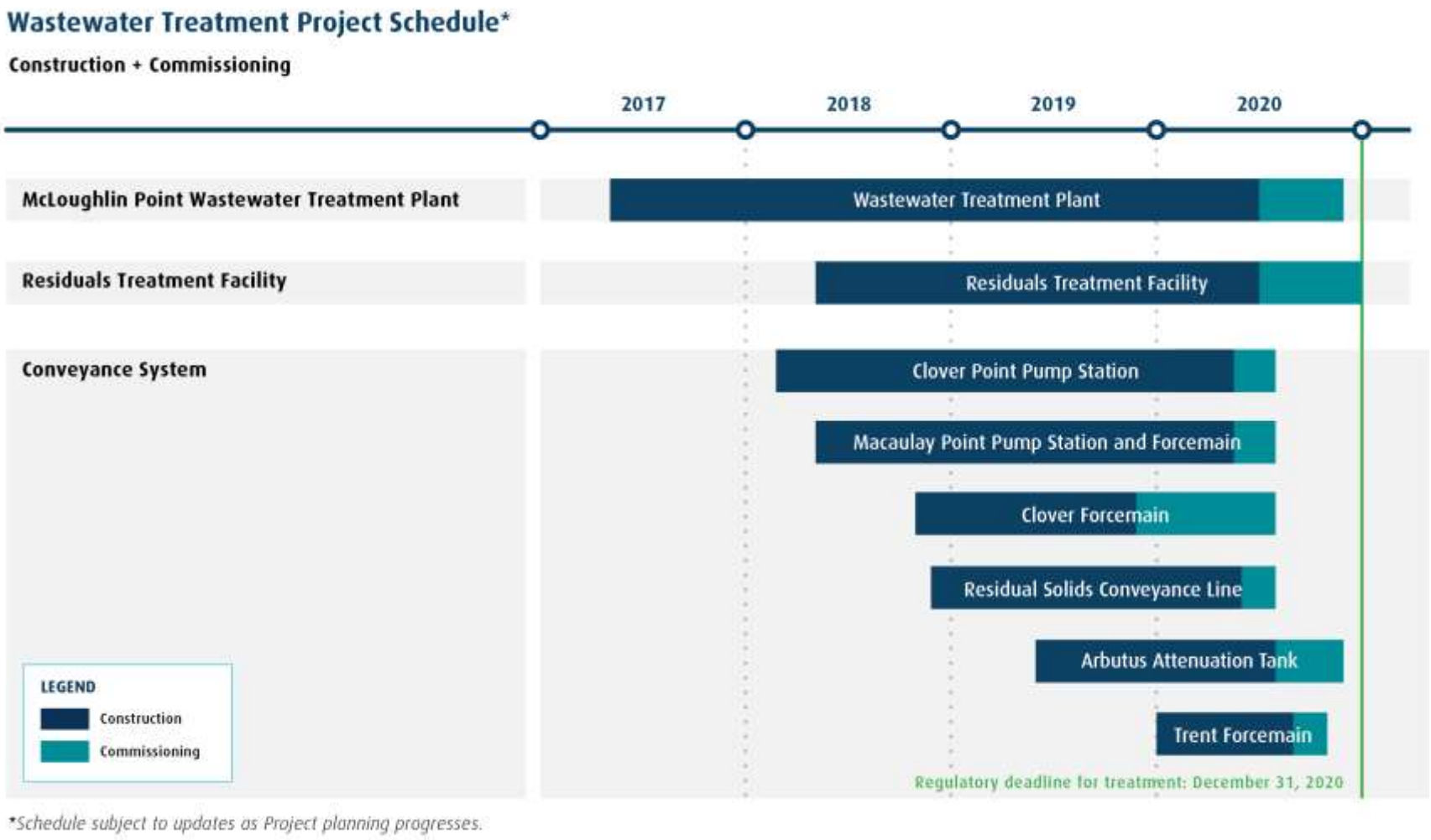
Progress over the reporting period is summarized in Section 2.9.

Figure 1 shows the high-level Project schedule. This schedule has not changed from that shown in the April 2020 Monthly Report.

The Project schedule remains subject to optimization as the Project progresses.

Over the reporting period the COVID-19 public health emergency continued to have impacts on the Project. Specifically, the COVID-19 public health emergency is impacting construction progress and may delay some interim project milestones, such as the transition to commissioning. However, construction is ongoing at all of the Project's sites, in accordance with provincial guidelines, and based on current progress the Wastewater Treatment Project remains on schedule to meet the provincial and federal regulations for treatment for the Core Area's wastewater by December 31, 2020.

Figure 1- High-Level Project Schedule



*Schedule subject to updates as Project planning progresses.

2.6.1 30 day look ahead

Key activities and milestones for the next 30 days (June) are outlined below by function.

Safety

- CRD corporate occupational health and safety coordination committee meeting;
- weekly and bi-weekly prime contractor progress meetings;
- host Prime Contractor Safety Coordination Meeting with Project safety representatives;
- review of any site specific safety plans or high risk tasks;
- send out any new Safety Notices or Incident Notifications to Prime Contractor;
- WTP Safety Manager and/or Construction Manager will conduct regular site inspections at all active Project work sites;
- incident reporting review with prime contractors at active work locations;
- participate in CRD Fatigue Management Seminar; and
- issue Safety Notices for trending observations or similar incident occurring on project sites.

Environment and Regulatory Management

- The CRD anticipates receiving the MWR Registration from ENV.
- The CRD and Stantec anticipate receiving a Site Alteration Permit to allow work to proceed in recently discovered archaeological sites along Dallas Road and the adjacent seawall.

First Nations

- CRD to continue meeting with the First Nation Liaisons.

Stakeholder Engagement

- ongoing construction communications with stakeholders;
- ongoing community liaison meetings; and
- distribution of Project Update #9.

Cost Management and Forecast

- prepare cost reports;
- monitor schedule;
- prepare CRD WTP annual budget; and
- submit funding claims to Infrastructure Canada (under the Building Canada Fund and Green Infrastructure Fund).

Construction

McLoughlin Point

- demobilize south tower crane;
- backfill planter walls;
- construct road structure including line painting;
- install stairway in primary odour control;
- install monorail in dirty backwash tanks;
- install roofing and cladding west entry stairwell;
- complete electrical terminations and finishes;
- install plumbing fixtures, flooring, cabinetry, and millwork in Operations & Maintenance building(O&M);
- install fire sprinkler system;

- install exterior finishes; and
- conduct walk downs and commence functional testing.

Clover Point Pump Station
- install sound dampening in generator room;
- form and pour North retaining wall and buttresses; and
- reinstall existing slide gates.

Macaulay Point Pump Station
- install outdoor site furnishings;
- complete backfill of new pump station;
- install foul air ducting to diversion chamber;
- install slide gate;
- install fire stop throughout;
- install architectural louvres;
- install heating ventilation and air conditioning (HVAC) control equipment;
- install green roof system;
- install supply and exhaust air ducting at mezzanine level;
- interior painting throughout;
- install platform and grating over grit separator;
- install exterior spilt stone finish; and
- install interior finishes in public washroom.

Residuals Treatment Facility
- continue functional start-up, wet testing and initial system verification;
- commence repair to damaged panels at Digester #1;
- complete repair to roof panels and redo pneumatic test at Digester #2;
- hydro test at Digester #3;
- complete works and hydro testing at Digested Solids Storage Tank;
- continue instrumentation at the Digester Building;
- continue installation of hopper and shelter at Other Municipal Solids Receiving Facility;
- continue biogas piping, odour control ductwork, and building systems at the Residuals Handling Building;
- continue stair installation, exterior doors & hardware, HVAC, lighting, finishes, electrical installation, load-out structure, and process piping at the Dryer Building;
- continue biogas system installation at the Digester Building;
- complete Biogas Conditioning System;
- complete electrical work at Equalization Building;
- complete electrical at the Water Pump House;
- continue electrical and ductwork installation at Odour Control Area;
- substantial completion of Operations Building; and
- continue site grading and retention ponds.

Clover Forcemain
- road and cycle track construction Montreal to Dock Street;
- demolish existing seawall; and
- install new seawall and build new railings.

Residual Solids Pipes

- final paving and restoration as required.

Residual Solids Pump Stations

- Pump Station 1, 2 & 3, commence start-up testing and commissioning;
- complete final civil works at RTF chamber;
- backfill and road pull out at leachate chamber;
- complete pipe installation at Admirals bridge; and
- system testing throughout.

Arbutus Attenuation Tank (AAT)

- complete excavation within tank footprint;
- rock removal within tank footprint;
- commence subgrade preparation within tank footprint;
- commence installation of rock anchors within tank footprint; and
- commence installation of mud mat within tank footprint.

Trent Forcemain

- install forcemain at Fairfield Road from Thurlow Road to Stannard Avenue;
- complete surface restoration;
- saw cut and remove pavement, sidewalk and curbs on Memorial Crescent; and
- install sanitary sewer on Memorial Cres from Dallas Road to Thurlow Avenue.

2.6.2 60 day look ahead

Key activities and milestones for the next 60 days (July) are outlined below by function.

Safety

- participate in CRD corporate occupational health and safety coordination committee meeting;
- host Prime Contractor Safety Coordination Meeting with Project safety representatives via Team Meeting conference call
- weekly and bi-weekly prime contractor progress meetings;
- review of any site specific safety plans or high risk tasks;
- review prime contractor document submissions;
- issue Safety Notices for trending observations or similar incidents occurring on project sites
- WTP Safety Manager and/or Construction Manager will conduct regular site inspections at all active Project work sites; and
- incident reporting review with prime contractors at active work locations.

First Nations

- The CRD and First Nation liaisons to continue planning post-construction archaeological artifact displays for community members.

Stakeholder Engagement

- ongoing construction communications with stakeholders; and
- ongoing community liaison meetings.

Cost Management and Forecast

- prepare cost reports;
- monitor schedule;
- prepare CRD WTP annual budget; and
- submit funding claims to Infrastructure Canada (under the Building Canada Fund and Green Infrastructure Fund).

Construction

McLoughlin Point

- complete backfill of tsunami and planter walls;
- construct road structure;
- commence landscaping;
- continue building envelope throughout;
- continue process mechanical and electrical throughout;
- install cabinetry and millwork in O&M building;
- complete fire sprinkler system in O&M building;
- complete accessory installation in offices, control room and restrooms;
- complete system walk downs; and
- commence functional testing.

Clover Point Pump Station

- complete construction of existing Pumping Station upgrades;
- continue landscaping;
- complete construction Public Washroom;
- install coating for floor, walls and ceilings in screen/degritter room, wet well access room and odour control screen room;
- complete electrical works;
- commence functional and operational testing of equipment; and
- install split stone to exterior retaining walls.

Macaulay Point Pump Station

- install 1800 Weholite pipe extension;
- install slide gate;
- install fire stopping and smoke seals;
- install stainless steel door hardware;
- apply paint and sealants throughout;
- install office furniture and accessories;
- install washroom accessories and partitions; and
- install green roof system.

Residuals Treatment Facility

- continue functional start-up, wet testing and initial system verification;
- complete repair to damaged panels and redo hydrotest at Digester #1;
- commence insulation at Digester #2;
- commence insulation at Digester #3;
- complete works at the Digester Building;
- install jib crane at Other Municipal Solids Receiving Facility;
- complete biogas piping and odour control ductwork at the Residuals Handling Building;
- complete truck load-out assembly and continue ducting insulation at the Dryer Building;

- continue biogas system installation at the Digester Building;
- complete Biogas Conditioning System;
- complete instrumentation work at Equalization Building;
- complete electrical work at the Water Pump House;
- complete electrical and ductwork installation at Odour Control Area;
- set up Control Room at Operations Building; and
- continue site grading and retention ponds.

Clover Forcemain

- form and pour new seawall;
- install new seawall railings;
- install new modified curbs
- install new sidewalks;
- install new bollards; and
- complete Dallas Road surface works.

Residual Solids Pump Stations

- continue construction in Pump Stations, including completion of equipment installation, Electrical and Site Works;
- conduct interim commissioning with water in Pump Stations;
- complete construction and start of Commissioning in Marigold Control Valve Chamber;
- complete Residual Solids Forcemain and Centrate Return Line tie-in, test and commissioning; and
- complete installation of Admiral Bridge Pipe and pressure testing.

Arbutus Attenuation Tank (AAT)

- complete installation of rock anchors;
- form, rebar and install floor drains and piping in slab;
- commence installation of sumps and commence installation of FRP one sided walls;
- complete installation of temporary power for site in coordination with BC Hydro; and
- complete installation of water service for site in coordination with District of Saanich.

Trent Forcemain

- complete installation of 900mm PVC Forcemain in Fairfield Rd;
- install new 900mm PVC Forcemain in Memorial Crescent;
- install new 900mm Sanitary Sewer Main in Bushby Street;
- install new 900mm PVC Forcemain in Brooke Street; and
- supply and install blowdown assembly with manhole frame & cover in Fairfield Road, Stannard Ave and Memorial Crescent.

2.7 Cost Management and Forecast

The monthly cost report for May is shown in Appendix E. The cost report summarizes Project expenditures and commitments by Project Components and the major cost centres common to the Project Components.

The Project Team has been reporting budget pressures through its monthly reports to the Project Board (and CRD Board) since September 2017, primarily as a result of inflation in the Vancouver Island construction market. Other factors that have contributed to budget pressures

include: design development to incorporate stakeholder input; geotechnical considerations including removal and disposal of contaminated material; and schedule constraints associated with the requirement to provide wastewater treatment by the regulatory deadline of December 31, 2020.

Based on the value of the contracts awarded to-date and the refreshed cost estimate for the scope remaining to be procured, the Project Team forecast the cost to complete the Project at $775M, or $10M (1.3%) over the Project's control budget. In May 2019 the CRD Board approved an increase in the Project's budget by $10M to $775M, and on August 14, 2019, the associated amendment to the 2019-2023 Financial Plan was approved.

Subsequent to May 2019 there have been two opposing budget drivers:

i) The Project's financing costs to-date have been lower than budgeted for two reasons: firstly as a result of low interest rates since the start of the Project, and secondly due to the receipt of funding from the provincial government earlier than forecast; and

ii) The Project's construction costs may be higher than budgeted as many contractors have advised that there are cost impacts from the COVID-19 public health emergency. Impacts include labour availability, work modifications to comply with provincial guidelines, and delays to the delivery of equipment and supplies.

It is too early to determine the cost impact to the Project, but if construction continues at the current pace the Project Team remain confident that the Project cost will be within the Project's $775M budget.

2.7.1 Commitments

Commitments were made over the reporting period in furtherance of delivering the Project. The net commitments made during the reporting period resulted in an increase in committed costs of $0.9 million. The significant commitments made in the reporting period comprised the approval of provisional items in construction contracts and contract change orders.

2.7.2 Expenses and Invoicing

The Project expenditures for the reporting period were as expected and were within the budget allocations for each of the budget areas. The main Project expenditures incurred over the reporting period were associated with construction activities and project management office-related costs.

2.7.3 Contingency and Program Reserves

Contingency draws totalling $282,892 were made over the reporting period, as summarised in Table 6. The draws to-date, remaining contingency and program reserve balances are summarized in Table 6.

Table 6- Contingency and Program Reserve Draw-Down Table

WTP Contingency and Program Reserve Draws and Reallocations	Draw Date	$ Amount
Contingency and Program Reserve (in Control Budget)		**$ 69,318,051**
Net Contingency and Program Reserve draws to April 30, 2020		$ (53,677,075)
Contingency and Program Reserve balance as at April 30, 2020		**$ 15,640,976**
Preparation of the application for a Certificate of Compliance for McLoughlin Point	May-20	$ (217,924)
Procurement and installation of equipment to allow for the continuous monitoring of odor control treatment System emissions via SCADA	May-20	$ (64,968)
WWTP Total Draw		$ (282,892)
RTF Total Draw		$ -
Conveyance Total Increase		$ -
PMO Total Draw		$ -
BC Hydro Total Draw		$ -
WTP Program Reserve Draw		$ -
Contingency and Program Reserve draws in the reporting period		$ (282,892)
Contingency and Program Reserve balance as at May 31, 2020		**$ 15,358,084**

2.7.4 Project Funding

The federal and provincial governments are assisting the Capital Regional District in funding the Project.

The Government of British Columbia will provide $248 million towards the three components of the Project, while the Government of Canada is contributing:

- $120 million through the Building Canada Fund Major infrastructure Component towards the McLoughlin Point WWTP;
- $50 million through the Green Infrastructure Fund towards the conveyance system; and
- up to $41 million towards the RTF through the P3 Canada Fund.

The Project Team has applied to the Federation of Canadian Municipalities (FCM) for additional funding and has executed a grant agreement for the contribution of up to $346,900 towards the delineation of the contamination and remediation and risk assessment for the McLoughlin Point Wastewater Treatment Plant.

The status of funding claims is summarised in Table 7. Note that the timing for the provision of Government of British Columbia and Government of Canada's funding differs by funding source. The Project Team will submit claims to the funding partners in accordance with the relevant funding agreements. In accordance with the funding agreements, funding from the P3 Canada Fund and the remainder of the funding from the Government of British Columbia cannot be claimed until relevant Project components are substantially complete.

Table 7- Project Funding Status

Funding Source	Maximum Contribution	Funding Received in the Reporting Period	Funding Received to Date
Government of Canada (Building Canada Fund)	$120M	$2.5M	$103.3M
Government of Canada (Green Infrastructure Fund)	$50M	$0.7M	$44.0 M
Government of Canada (P3 Canada Fund)	$41M	-	-
Government of British Columbia	$248M	-	$186.0M
Federation of Canadian Municipalities	$0.3M	-	-
TOTAL	**$459.3M**	**$3.2M**	**$333.3M**

2.8 Key Risks and issues

The Project Team actively identified and managed Project risks over the reporting period. Table 8 summarizes the highest-level risks that were actively managed over the reporting period, as well as the mitigation steps identified and/or undertaken over the reporting period.

There were no changes to the active risks summary in the reporting period. The COVID-19 public health emergency continued to have impacts on the Project over the reporting period. It is anticipated that these impacts may affect several of the Project's risks. The Project Team are currently evaluating the impact of the public health emergency on the Project's risks, and anticipates that changes may be made to several of the risks as the situation evolves. Those risks that the Project Team have identified as potentially impacted, and that are currently under review, are identified in Table 8.

Table 8- Project Active Risks Summary

Risk Event	Description of Risk Event	Risk mitigation activities undertaken or planned in the reporting period	Assessed risk level	Trend in risk level from previous reporting period
Project				
Misalignment between First Nations' interests and the implementation of the Project.	The assessed risk level reflects the Project Team's priority of establishing strong and effective relationships with First Nations interfacing with, or interested in, the Project.	First Nations engagement activities remained ongoing over the reporting period (see section 2.3 for further details).	M	No change
Divergent interests between multiple parties and governance bodies whose co-operation is required to successfully deliver the Project.	The assessed risk level reflects the Project Team's priority of establishing strong and effective relationships with municipal, provincial and federal government departments.	The Project Team continued engagement with municipal, provincial and federal government departments throughout the reporting period.	L	No change
Misalignment between Project objectives/scope and stakeholder expectations.	The assessed risk level reflects the Project Team's priority of establishing strong and effective community stakeholder engagement.	Community engagement activities were ongoing over the reporting period (see section 2.4 for further details).	L	No change
Lack of integration between Project Components.	Planning challenges and system integration between the McLoughlin point WWTP, RTF and Conveyance System components of the Project results in schedule delays and/or additional Project costs.	Physical and schedule interfaces are clearly delineated in all construction contracts along with the requirement for commissioning and control plans. The Project Team has used a single Owner's engineer (Stantec) to develop the indicative design for all critical project components with significant interfaces. Commissioning and control plans are under development	L	No change
Senior government funds issue delayed.	The assessed risk level reflects the Project Team's priority of ensuring Project funding commitments are honoured.	Responsibility for meeting funding commitments has been assigned and is being monitored.	L	No change

Risk Event	Description of Risk Event	Risk mitigation activities undertaken or planned in the reporting period	Assessed risk level	Trend in risk level from previous reporting period
Downstream works delays.	Delay to the commissioning of the conveyance projects delays commissioning of the WWTP and the RTF.	Schedule has sufficient time allowance to ensure conveyance elements complete prior to requirement. Contractor agreements will include terms that require the contractor to recover schedule delays and/or allow for CRD acceleration.	M	No change but this risk may be impacted by the COVID-19 public health emergency (assessment is currently underway)
Upstream works delays.	Delay to the commissioning of either the WWTP or the RTF impacts the commissioning of the other plant.	Contracts with HRP (as the Design-Build Contractor for the McLoughlin Point WWTP) and HRMG (as the Design-Build-Finance-Operate Maintain contractor for the RTF) include terms that require the contractor to recover schedule delays and/or allow for CRD acceleration. Liquidated damages for late delivery are included in both HRP and HRMG contracts.	L	No change but this risk may be impacted by the COVID-19 public health emergency (assessment is currently underway)
Municipal Wastewater Regulation (MWR) Registration is not achieved or is delayed.	A delay to achieving MWR Registration of the wastewater treatment system would mean that the CRD could not discharge treated effluent, and therefore would not be able to commission the WWTP or RTF.	The Project Team (with HRP and Stantec representatives) have been meeting regularly with Ministry of Environment representatives since September 2017 to review the MWR Registration application requirements and the Project's schedule, in order to mitigate the risk of an incomplete application and/or schedule delays in the registration. The MWR Registration application was submitted to the Ministry of Environment in September 2019. The Project Team, MOE and relevant contractors have continued to meet regularly to track progress and discuss issues.	M	No change
Public directly contacting contractors at sites.	Direct contact between the public and contractors could expose both parties to worksite hazards and potential injuries.	Communications and engagement plan and coverage of communications in contractor orientations.	M	No change

Risk Event	Description of Risk Event	Risk mitigation activities undertaken or planned in the reporting period	Assessed risk level	Trend in risk level from previous reporting period
Change in law.	A change in law impacts the scope, cost or schedule of the Project.	Keep apprised of proposed modifications to relevant regulations so as to do the following as appropriate: submit comments on proposed modifications; and/or consider including anticipated modifications in contracts.	M	No change but this risk may be impacted by the COVID-19 public health emergency (assessment is currently underway)
Labour - availability and/or cost escalation.	There is insufficient labour available to construct the Project, and/or there is significant labour cost.	The Project Team will, through the use of competitive selection processes for all construction contracts, ensure that all Project contractors have appropriate experience and therefore understand labour risk.	M	No change but this risk may be impacted by the COVID-19 public health emergency (assessment is currently underway)
Disagreement on contractual obligations of the construction contractors.	There is a disagreement between the Project Team and a contractor regarding the performance of their contractual obligations.	The Project Team takes a proactive management approach to the resolution of any changes, claims and disputes that arise, working expeditiously to achieve resolution with the goal of minimizing any impacts to budget and schedule while ensuring adherence to the terms of the construction contracts.	M	No change but this risk may be impacted by the COVID-19 public health emergency (assessment is currently underway)

Risk Level Key - Assessed risk level (based on likelihood and potential impact			
Low	**Medium**	**High**	**Closed**
L	**M**	**H**	**C**

2.9 Status (Engineering, Procurement and Construction)

2.9.1 Wastewater Treatment Plant (McLoughlin Point WWTP)

The McLoughlin Point WWTP Project Component is continuing with Harbour Resource Partners ("HRP" as the Design-Build contractor for the McLoughlin Point WWTP) progressing:

- Primary treatment area:
  - Densadeg 1, 2 and 3 are going through final walk downs prior to hand over to commissioning;
  - primary odour control fiberglass reinforced plastic (FRP) pipe and equipment nearing completion;
  - plate settler 1 & 2 are progressing through final walk downs prior to hand over to commissioning;
  - chemical distribution systems installation ongoing, PVC piping is progressing; and
  - roofing and envelopes are nearing completion across the primary area.

- Secondary treatment area:
  - moving bed bio reactor (MBBR) 1 & 2 are mechanically complete, covers are complete;
  - Biological Aerated Filter (BAF) cell 12 is complete;
  - electrical teams have transitioned to field terminations by system from the work in the main electrical room;
  - all motor control centres are now powered;
  - communication network is ongoing;
  - electrical work in the blower building is nearing completion;
  - heat recovery room is progressing;
  - penthouse building envelopes are nearing completion; and
  - BAF tank covers are progressing.

- Tertiary treatment area:
  - continued upper disk filter walls, including outfall shaft roof slab, concrete is complete;
  - installation of secondary effluent FRP baffles ongoing;
  - lower level 1 pumps and mechanical piping installation is nearing completion;
  - level 2 process pipe continued with installation of UV system and pumps; and
  - cinder block masonry is ongoing.

- O&M building:
  - lower level interior flooring and millwork in progress;
  - lower level drywall is complete;
  - lower level painting and suspended ceiling is progressing;
  - door installation is in progress;
  - level 2 heating ventilation and air conditioning (HVAC) plumbing and fire suppression are all nearing completion;
  - steel stud installation on level 2 is nearing completion and drywall, paint, drop ceilings, flooring and millwork are underway;
  - roofing is complete, cladding on all levels is nearing completion, green roof installation is in progress; and
  - glazing installation complete on level 1 and nearing completion on level 2.

- Site Works:
  - removed outfall blind and installed FRP baffles;
  - pig receiving station piping complete;
  - installation of main plant water service is ongoing; and
  - storm line no.2 installed and backfill progressed across site.

Photographs of construction progress over the month of May at McLoughlin Point WWTP are shown in Figures 2-5.



Figure 2− McLoughlin Point Wastewater Treatment Plant - Coating of leading edge Operations & Maintenance roofing.



Figure 3− McLoughlin Point Wastewater Treatment Plant- Installed floor coating in the laboratory.

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Figure 4− McLoughlin Point Wastewater Treatment Plant- Installation of Hydronic lines to Odour Control roof to unit.



Figure 5− McLoughlin Point Wastewater Treatment Plant- Installing insulation and cladding on east face of Blower Building.

2.9.2 Residuals Treatment Facility

The RTF Project Component is continuing with Hartland Resource Management Group ("HRMG" as the Design-Build-Finance-Operate-Maintain contractor for the RTF) progressing construction activities including:

- Digester Area:
  - Digester 1 external pipe connections;
  - Digester 2 Pneumatic test;
  - Digester 3 Close up and make ready for hydro test;
  - Digested Solids Storage Tank external pipe connections; and
  - Digester Building mechanical and electrical is in progress.

- Other Municipal Solids Receiving Facility:
  - Electrical cable terminations are in progress.

- Residuals Handling Building:
  - electrical work continued in all areas;
  - FRP grating install is in progress;
  - FRP ducting install ongoing; and
  - overhead crane commissioning completed.

- Residuals Drying Facility:
  - mechanical installation is in progress;
  - electrical terminations continued;
  - insulation install is in progress; and
  - generator run and load test completed.

- Residuals Storage & Odour Control:
  - mechanical and electrical work is in progress;
  - FRP duct install is progressing;
  - hydro test of water storage tank was completed; and
  - chemical piping install commenced.

- Operations Building:
  - completed all architectural finishes; and
  - electrical and mechanical deficiency's being closed out.

Photographs of construction progress over the month of May at the Residuals Treatment Facility are shown in Figures 6-8.



Figure 6− Residuals Treatment Facility- Installation of fiberglass reinforced plastic ducting for odour control systems being installed as well as structural supports.



Figure 7− Residuals Treatment Facility- Installation of fire alarm systems ongoing throughout site.



Figure 8− Residuals Treatment Facility – Fire protection water system mechanical installations nearing completion in Water Pump House.

2.9.3 Conveyance System

2.9.3.1 Clover Point Pump Station

Kenaidan Contracting Limited ("Kenaidan" as the Design-Build Contractor) progressed construction activities over the reporting period including: completed pipe supports, completed bypass pumping for tie-in at new inlet channel; installed fuel storage tank and exhaust fan for diesel generator; progressed work on fuelling system; and progressed work at the new public plaza and washroom.

Key construction activities in progress or completed by Kenaidan in May included:

- progressed civil works (saw cut/demolition);
- completed pipe supports;
- progressed drag struts;
- completed bypass pumping for 1500mm tie-in at new inlet channel;
- installed fuel storage tank and exhaust fan for diesel generator;
- progressed work on fuelling system;
- progressed civil/concrete works at existing inlet sanitary channels;
- progressed de-gritter cone/head cell works;
- progressed demolition/concrete works at new inlet channel; and
- progressed works at the new public plaza and washroom.

Photographs of construction progress over the month of May at Clover Point are shown in Figures 9-11.



Figure 9−Clover Point Pump Station- Headcell installation.



Figure 10−Clover Point Pump Station- Diesel fuel tank storage room location.



Figure 11- Clover Point Pump Station – Cable tray installation in screen & degritter room.

2.9.3.2 Macaulay Point Pump Station and Forcemain

Kenaidan Contracting Limited (“Kenaidan” as the Design-Build Contractor) progressed construction activities over the reporting period including:

- completed fiberglass reinforced plastic (FRP) platform in the wet well;
- ongoing installation of FRP platform and stairs in the pump room;
- completed installation of FRP ducting in the wet well;
- completed installation of wood siding on North side of the building;
- ongoing process piping installation in the pump room is ongoing;
- inlet fire damper in the genset room is installed;
- installation of louver on the west side of the building;
- ongoing installation of penthouse louver;
- ongoing commissioning of programmable logic control and motor control centres;
- pigging chamber outfall pipe has been received and fused;
- exposed Pigging chamber wall and cut pipe penetration opening; and
- ongoing installation of Weholite pipe to the drop structure.

Photographs of construction progress over the month of May at Macaulay Point Pump Station are shown in Figures 12-13.



Figure 12−Macaulay Point Pump Station- Wet well fiberglass reinforced plastic platform installation.



Figure 13−Macaulay Point Pump Station- Pump Room progression.

2.9.3.3 Clover Forcemain (CFM)

Windley Contracting Ltd. (“Windley” as the Construction Contractor) continued construction activities including:

- continued seawall balustrade replacement construction;
- commenced pouring new concrete wall; and
- commenced new sidewalk grading.

Photographs of construction progress over the month of May on the Clover Forcemain are shown in Figures 14-15.



Figure 14−Clover Forcemain- Curb and gutter and sidewalk prep at Dock Street and Dallas road looking west.



Figure 15−Clover Forcemain- New concrete wall replacing old balustrade wall, rebar installed for sidewalk and concrete curb delineating Cycle Track and sidewalk, Dallas Road from Dock Street looking east.

2.9.3.4 Residual Solids Conveyance Line

The RSCL is being delivered through two construction contracts:

- Residual Solids Pipes; and
- Residual Solids Pump Stations

Residual Solids Pipes: Don Mann Excavating Ltd. ("Don Mann" as the Construction Contractor for the Residual Solids Pipes) continued construction activities over the reporting period, including:

- Segment #1
  - completed pipe installation and a pressure test was conducted from the north side of Tillicum Bridge to south side of Admirals Bridge (Pass).
- Segment #2**:**
  - completed air valve chamber on Grange Road; and
  - pipe leak was detected and repaired.

- Segment #3:
  - cleaned up and demobilized after base-paving around the low point drains at Interurban Road north of Quayle Road;
  - completed the installation of the relocated line valve on Interurban Road; and
  - final restoration (line painting, etc.) and deficiency repairs were completed along the Interurban Road and trail.

- Segment #4
  - final deficiencies were addressed, including sign and bollard reinstallation, soil and seed placement, etc.

Photographs of construction progress over the month of May on the Residual Solids Pipes are shown in Figures 16-18.



Figure 16− Residual Solids Pipes- Milling asphalt prior to paving on Grange Road.



Figure 17−Residual Solids Pipes- Back fill and compaction on Grange Road after coupler repair.

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Figure 18−Residual Solids Pipes -Installing plug valves at Selkirk Ave.

Residual Solids Pump Stations: Knappett Projects Inc. ("Knappett" as the Construction Contractor for the Residual Solids Pump Stations) continued construction activities including:

- Pump Station 1
  - installed odour control unit underground vent and drain piping;
  - commenced the south pipe tie in;
  - electrical crews worked on the kiosk, installed conduit, and finished items in the wet well; and
  - general backfill took place across the site.

- Pump Station 2
  - BC Hydro line was installed;
  - pressure testing continued along with associated tie ins; and
  - The odour control slab was poured.

- Pump Station 3
  - surge tank line valve was installed and the line was trenched; and
  - pressure testing and finishing items continued within the wet well and valve chamber.

- Marigold Crossing:
  - Marigold crossing was completed, with asphalt paving left to complete.

- Tillicum Bridge:
  - Pipe spools were installed along with associated deflection spools and flexible couplings; and
  - The pipe was pressure tested and passed.

- Admirals Bridge:
  - Pipe hanger installation commenced.

Photographs of construction progress over the month of May on the Residual Solids Pump Stations are shown in Figures 19-20.



Figure 19−Residual Solids Pump Stations– Marigold Road – Backfilling and compaction of pipe installed on east side of Colquitz Creek.



Figure 20 −Residual Solids Pump Stations – Tillicum Bridge pipe installed under Tillicum Bridge.

2.9.3.5 Arbutus Attenuation Tank

NAC Constructors Ltd. (as the Construction Contractor for the Arbutus Attenuation Tank) continued construction activities including:

- completed concrete pour #4 for the tie beam;
- installed ducting from BC Hydro pole to BC Hydro meter base;
- concrete equipment pad for BC Hydro meter base formed and poured; and
- bulk excavation commenced and continued throughout the month.

A photograph of construction progress during the month of May at the Arbutus Attenuation Tank is shown in Figure 21.



Figure 21−Arbutus Attenuation Tank- Excavation continues with placement of base course gravel installed.

2.9.3.6 Trent Forcemain

Jacob Bros. Construction Inc. (as the Construction Contractor for the Trent Forcemain) progressed construction activities including:

- concrete flow through chamber stripped and backfilled;
- completed storm sewer relocation on Bushby Street;
- completed Memorial Cres and Fairfield Road watermain tie-in works; and
- commenced forcemain installation on Stannard Ave.

A photograph of construction progress during the month of May at the Trent Forcemain is shown in Figure 22.



Figure 22- Trent Forcemain – Stannard Avenue – Forcemain installation progresses.

Appendix A− Trent Forcemain: Water Service Shutdown Notice Update (May 11, 2020) (Appendix A)

Wastewater Treatment Project
Treated for a cleaner future

Construction Notice

UPDATE

May 11, 2020

Trent Forcemain: Water Service Shutdown Notice

As part of construction for the Trent Forcemain, a water main is being relocated along Fairfield Road and Memorial Crescent. Connecting the new water main to the existing system requires a temporary interruption of water service between the hours of 10:00 a.m. and 2:00 p.m. on the following dates:

- Wednesday, May 13
- Thursday, May 14

If you require the use of water during these hours, we ask that you prepare prior to the shut-off time of 10:00 a.m. each day.

What to Expect

- Water service will be temporarily shut off each day from approximately 10:00 a.m. to 2:00 p.m.
- The actual duration of the shut-off will depend on the conditions encountered.
- The water may be discoloured after the water service is restored. While the water is safe for consumption, we encourage you to run the tap on cold in the tub or shower until the water runs clear.

Traffic Impacts

- Fairfield Road will have single lane alternating traffic on Wednesday, May 13.
- Memorial Crescent will have single lane alternating traffic on Thursday, May 14.
- Traffic control areas will be delineated by cones and signs and controlled by flaggers.

Work Hours

- Monday to Friday from 7:00 a.m. to 7:00 p.m.

If you have any further questions about the water disruption, please contact the Project Team at our 24/7 phone line 1-844-815-6132.

Thank you for your patience as this work is completed. We apologize for any inconvenience this may cause.

About the Wastewater Treatment Project
The Wastewater Treatment Project will provide tertiary treatment for wastewater from the core area municipalities of Victoria, Esquimalt, Saanich, Oak Bay, View Royal, Langford and Colwood, and the Esquimalt and Songhees Nations by the end of 2020.

Any questions about the work, please contact the Project Team.

24/7 Phone Line
1.844.815.6132

Email
wastewater@crd.bc.ca

Website
wastewaterproject.ca

Appendix B− Core Area Wastewater Discharge Notice (May 7, 2020) (Appendix B)

Making a difference...together

Public Service Announcement

For Immediate Release
May 7 2020

Core Area Wastewater Discharge Notice

Victoria, BC- Construction at the Clover Point Pump Station resulted in an unplanned wastewater discharge out the short outfall the morning of May 7, 2020. The areas affected are in the vicinity of Clover Point Park, between Cook Street and Hollywood Place. This pump station is currently undergoing upgrades related to the Wastewater Treatment Project.

As a result of this discharge, residents are advised to avoid entering the waters along the affected shorelines, as the wastewater may pose a health risk.

As a precaution and in consultation with Island Health, beaches within the affected areas will be posted with public health advisory signs for one day. Due to the small amount of discharge, the advisory signs are anticipated to be removed tomorrow afternoon.

For updates, please visit www.crd.bc.ca and follow us on Twitter @crd_bc

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. Visit us online at www.crd.bc.ca.

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For media inquiries, please contact:
Andy Orr, Senior Manager
CRD Corporate Communications
Office 250.360.3229
Cell 250.216.5492

Appendix C− Core Area Wastewater Discharge Notice (May 30, 2020) (Appendix C)

Making a difference...together

Public Service Announcement

For Immediate Release
May 30 2020

Core Area Wastewater Discharge Notice

Victoria, BC- Construction at the Clover Point Pump Station resulted in an unplanned wastewater discharge out the short outfall the night of May 29, 2020. The areas affected are in the vicinity of Clover Point Park, between Cook Street and Hollywood Place. This pump station is currently undergoing upgrades related to the Wastewater Treatment Project.

As a result of this discharge, residents are advised to avoid entering the waters along the affected shorelines, as the wastewater may pose a health risk.

As a precaution and in consultation with Island Health and the local municipalities, beaches within the affected areas will be posted with public health advisory signs until sample results indicate enterococci levels are below the 70CFU/100mL recreational limit.

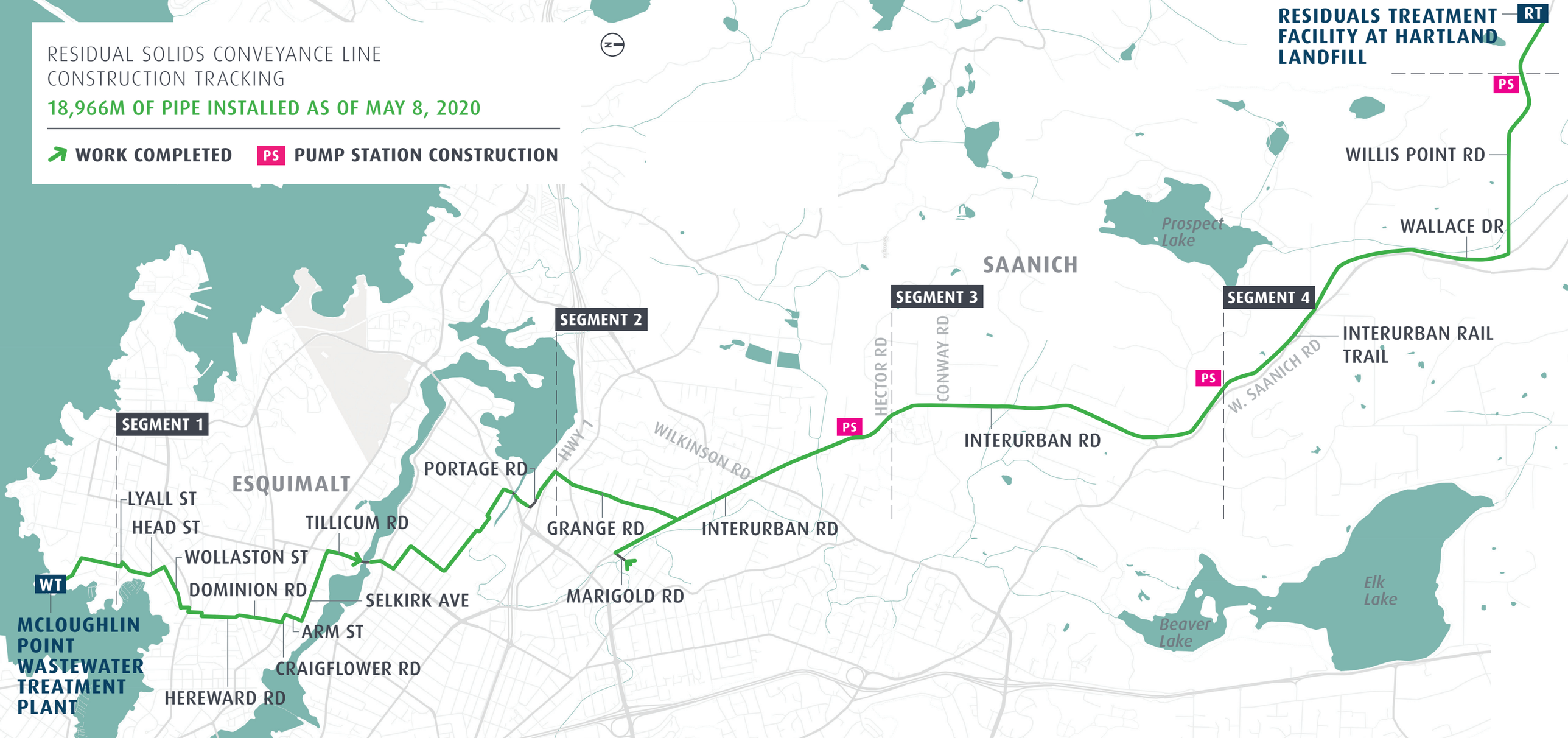
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For media inquiries, please contact:
Andy Orr, CRD, Senior Manager, Corporate Communications
Office 250.360.3229 Cell 250.216.5492

Appendix D– Residual Solids Conveyance Line Map (May 8, 2020)


RESIDUAL SOLIDS CONVEYANCE LINE CONSTRUCTION TRACKING
18,966M OF PIPE INSTALLED AS OF MAY 8, 2020
WORK COMPLETED
PS PUMP STATION CONSTRUCTION
RESIDUALS TREATMENT FACILITY AT HARTLAND LANDFILL
RT
PS
WILLIS POINT RD
WALLACE DR
Prospect Lake
SAANICH
SEGMENT 4
SEGMENT 3
SEGMENT 2
SEGMENT 1
INTERURBAN RAIL TRAIL
W. SAANICH RD
HECTOR RD
CONWAY RD
INTERURBAN RD
WILKINSON RD
HWY 1
PORTAGE RD
GRANGE RD
INTERURBAN RD
MARIGOLD RD
ESQUIMALT
LYALL ST
HEAD ST
TILLICUM RD
WOLLASTON ST
DOMINION RD
SELKIRK AVE
ARM ST
CRAIGFLOWER RD
HEREWARD RD
WT
MCLOUGHLIN POINT WASTEWATER TREATMENT PLANT
Beaver Lake
Elk Lake

Appendix E− Monthly Cost Report (May)

MONTHLY COST REPORT
as at May 31, 2020

Description	BUDGET		COST EXPENDED					COMMITMENTS			FORECAST		VARIANCE	
	Control Budget	Allocated Budget	Expended to April 30, 2020	Expended over reporting period (May 2020)	Expended to May 31, 2020	Expended to May 31, 2020 as a % of Allocated Budget	Remaining (Unexpended) Allocated Budget at May 31, 2020	Total Committment at May 31, 2020	Unexpended Commitment at May 31, 2020	Uncommitted Allocated Budget at May 31, 2020	Forecast to Complete	Forecast at Completion	Variance at Completion $	Variance at Completion as a % of Allocated Budget
McLoughlin Point Wastewater Treatment Plant	**331.4**	**328.1**	**288.1**	**5.8**	**293.8**	**90%**	**34.3**	**321.1**	**27.3**	**7.0**	**34.3**	**328.1**	**-**	**0%**
Construction	306.7	321.0	287.5	5.8	293.3	91%	27.7	320.5	27.2	0.5	27.7	321.0	-	0%
Contingency	14.9	0.2	-	-	-	0%	0.2	-	-	0.2	0.2	0.2	-	0%
Financing	9.8	6.9	0.6	-	0.6	8%	6.3	0.7	0.1	6.2	6.3	6.9	-	0%
Residuals Treatment Facility	**159.4**	**139.8**	**10.6**	**0.2**	**10.9**	**8%**	**128.9**	**138.8**	**127.9**	**1.0**	**128.9**	**139.8**	**-**	**0%**
Construction	145.4	138.8	10.6	0.2	10.9	8%	127.9	138.8	127.9	0.0	127.9	138.8	-	0%
Contingency	12.3	0.2	-	-	-	0%	0.2	-	-	0.2	0.2	0.2	-	0%
Financing	1.7	0.8	0.0	-	0.0	2%	0.8	0.0	0.0	0.8	0.8	0.8	-	0%
Conveyance System	**158.1**	**215.9**	**155.0**	**6.0**	**160.9**	**75%**	**55.0**	**194.8**	**33.9**	**21.1**	**55.0**	**215.9**	**-**	**0%**
Macaulay Point Pump Station	25.4	30.8	26.2	0.7	26.9	87%	3.9	30.8	3.9	0.0	3.9	30.8	-	0%
Macaulay Forcemain	5.6	7.4	6.6	0.8	7.4	99%	0.1	7.4	0.1	-	0.1	7.4	-	0%
Craigflower Pump Station	12.5	12.4	12.4	-	12.4	100%	-	12.4	-	-	-	12.4	-	0%
Clover Point Pump Station	23.7	27.3	24.6	0.1	24.7	91%	2.6	27.2	2.5	0.1	2.6	27.3	-	0%
Currie Pump Station^	2.8	0.1	0.1	-	0.1	100%	-	0.1	-	-	-	0.1	-	0%
Arbutus Attenuation Tank	14.2	24.6	11.8	0.4	12.2	50%	12.3	23.1	10.9	1.4	12.3	24.6	-	0%
Clover Forcemain	14.6	32.5	29.0	0.2	29.2	90%	3.3	31.9	2.7	0.6	3.3	32.5	-	0%
Currie Forcemain^	3.3	0.2	0.2	-	0.2	100%	-	0.2	-	-	-	0.2	-	0%
Trent Forcemain	9.5	11.3	1.2	0.5	1.7	15%	9.6	8.1	6.4	3.2	9.6	11.3	-	0%
Residual Solids Conveyance Line	19.1	36.1	31.7	2.1	33.8	94%	2.3	36.0	2.2	0.1	2.3	36.1	-	0%
Residual Solids Pump Stations & Bridge Crossings	4.6	18.3	10.5	1.2	11.7	64%	6.6	16.9	5.1	1.4	6.6	18.3	-	0%
Residual Solids Conveyance Line – Highway Crossing	-	0.4	0.3	-	0.3	74%	0.1	0.4	0.1	0.1	0.1	0.4	-	0%
Contingency	16.8	10.4	-	-	-	0%	10.4	-	-	10.4	10.4	10.4	-	0%
Financing	5.8	4.1	0.3	-	0.2	6%	3.8	0.3	0.1	3.7	3.8	4.1	-	0%
Project Management Office ("PMO")	**75.8**	**77.9**	**54.8**	**1.0**	**55.8**	**72%**	**22.0**	**69.4**	**13.5**	**8.5**	**22.0**	**77.9**	**-**	**0%**
Project costs Aug 2016-Dec 2016	2.2	2.2	2.2	-	2.2	100%	-	2.2	-	-	-	2.2	-	0%
Owner's Engineering	17.2	17.5	13.7	0.4	14.1	81%	3.4	17.5	3.4	-	3.4	17.5	-	0%
Conveyance Design	5.0	9.5	7.4	0.2	7.6	80%	1.9	8.4	0.8	1.1	1.9	9.5	-	0%
Advisors & Professional Support	7.0	15.0	10.1	0.1	10.2	68%	4.8	11.4	1.2	3.6	4.8	15.0	-	0%
Project Board	2.0	1.3	0.9	0.0	0.9	71%	0.4	0.9	-	0.4	0.4	1.3	-	0%
Project Board Expenses	0.3	0.1	0.1	-	0.1	64%	0.0	0.1	-	0.0	0.0	0.1	-	0%
Project Team	29.1	23.1	15.6	0.3	15.9	69%	7.2	22.8	6.9	0.3	7.2	23.1	-	0%
Project Team Expenses	1.2	0.5	0.3	-	0.3	60%	0.2	0.3	-	0.2	0.2	0.5	-	0%
CRD Financial Services	1.5	1.4	0.9	0.0	0.9	64%	0.5	1.4	0.5	-	0.5	1.4	-	0%
CRD Human Resources	0.3	0.3	0.2	0.0	0.2	85%	0.0	0.3	0.0	-	0.0	0.3	-	0%
CRD Corporate Communications	0.2	0.2	0.2	-	0.2	86%	0.0	0.2	0.0	-	0.0	0.2	-	0%
CRD Real Estate	0.3	0.3	0.2	-	0.2	88%	0.0	0.3	0.0	-	0.0	0.3	-	0%
CRD Information Technology	0.4	0.4	0.3	0.0	0.3	68%	0.1	0.4	0.1	-	0.1	0.4	-	0%
CRD Insurance	0.1	0.0	0.0	-	0.0	100%	-	0.0	-	-	-	0.0	-	0%
CRD Operations	0.6	0.6	0.5	0.0	0.5	81%	0.1	0.6	0.1	-	0.1	0.6	-	0%
CRD Legislative Services	0.1	0.1	0.1	-	0.1	100%	-	0.1	-	-	-	0.1	-	0%
CRD Corporate Safety	0.2	0.2	0.2	-	0.2	100%	-	0.2	-	-	-	0.2	-	0%
CRD Executive Services	-	0.1	0.1	-	0.1	71%	0.0	0.1	0.0	-	0.0	0.1	-	0%
Office Lease	1.5	1.3	0.8	0.0	0.8	65%	0.4	1.2	0.4	0.1	0.4	1.3	-	0%
Office Supplies, Communications & Vehicles	1.2	0.7	0.5	0.0	0.5	79%	0.2	0.5	0.0	0.1	0.2	0.7	-	0%
Computer Hardware, Software & Training	1.0	1.1	0.6	-	0.6	60%	0.4	0.6	-	0.4	0.4	1.1	-	0%
Contingency	4.8	2.3	-	-	-	0%	2.3	-	-	2.3	2.3	2.3	-	0%
BC Hydro	**12.9**	**4.3**	**2.0**	**-**	**2.0**	**48%**	**2.3**	**2.1**	**0.0**	**2.2**	**2.3**	**4.3**	**-**	**0%**
Third Party Commitments	**8.1**	**8.1**	**3.8**	**0.1**	**3.9**	**47%**	**4.3**	**6.8**	**2.9**	**1.3**	**4.3**	**8.1**	**-**	**0%**
Program Reserves	**19.2**	**0.9**	**-**	**-**	**-**	**0%**	**0.9**	**-**	**-**	**0.9**	**0.9**	**0.9**	**-**	**0%**
Core Area Wastewater Treatment Project	**765.0**	**775.0**	**514.3**	**13.0**	**527.3**	**68%**	**247.6**	**733.0**	**205.6**	**42.0**	**247.6**	**775.0**	**-**	**0%**

* Values presented in $millions, results in minor rounding differences
** Cost report presents approved expenditures
^ Component no longer required, and would not provide any value therefore removed from Project Scope; Costs include Seaterra initiation, planning and design

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REPORT TO GOVERNANCE AND FINANCE COMMITTEE
MEETING OF WEDNESDAY, JULY 29, 2020

SUBJECT Regional Role in Economic Development

ISSUE SUMMARY

To receive an overview of the Capital Regional District's (CRD) current contribution to the region's economic development and its role in the region's future prosperity and resilience.

BACKGROUND

At its May 13, 2020 meeting, the CRD Board directed staff to review the CRD's role in regional economic development. Discussion focused on economic recovery from the COVID 19 pandemic and the roles of the CRD, municipalities and the South Island Prosperity Partnership (SIPP) in the region's economic development. The ongoing challenge presented by the global pandemic has increased the focus on structural changes and new opportunities and limitations to grow our economy, existing needs that must be addressed through a strong economy, including supporting families who are struggling, economic recovery and the need to continue protecting the environment and addressing climate change.

Modern economic development relies on partnership contributions from all levels of government and non-government organizations. These partnerships recognize that economic development occurs on a spectrum, where each partner uses the tools and authorities for which they have responsibility to achieve common goals. The spectrum includes both direct and indirect investments that build economic and social capacity to improve household prosperity and overall quality of life. Common goals for a community are typically defined through strategy or policy documents, developed in collaboration with partners.

On the spectrum of economic development tools, local governments typically rely on the following:

1. **Advocacy & Knowledge:** data analysis (e.g., demographics, projections) and partnership coordination.
2. **Policy & Regulation:** Land use and infrastructure planning, economic development strategy.
3. **Funding:** Purchasing and financing power, dissemination of grant funding, land banking.
4. **Community Investment:** Capital projects, service delivery that sustains quality of life.

In accordance with provincial legislation, local governments are limited in their ability to provide direct economic contributions to the private sector. Senior levels of government contribute primarily through fiscal policy and the creation of sector-specific legal and operating frameworks, as well as the injection of capital or grant funding. Non-government organizations such as business associations, partnerships and chambers of commerce provide coordination and business strategy development, contribute knowledge and expertise on attractive business investment climates, provide marketing and advertising, support business incubators / accelerators and provide data analysis on economic indicators.

Across British Columbia, the economic development tools deployed by local governments depend on their bylaws, strategic direction and mandates. For example, in some communities a business organization leads coordination and strategy development, and in others this is the responsibility of the local government or an economic development corporation. The degree and type of involvement is highly dependent on factors such as demographics, economic conditions, financial and human resources, existing local government service mandates and civic culture.

ALTERNATIVES

Alternative 1
The Governance and Finance Committee recommends to the Capital Regional District Board:
That the Regional Role in Economic Development report be received for information.

Alternative 2
That the Regional Role in Economic Development report be referred back to staff for more information based on Governance and Finance Committee direction.

IMPLICATIONS

Service Delivery Implications
The CRD's mandate is developed through the Board's Strategic Plan and the organization's Corporate Plan and formalized, where provincial authority requires, through service establishment bylaws with participating municipalities and electoral areas. Through its existing mandate, the CRD supports economic development as follows:

- Administers two electoral area economic development commissions;
- Undertakes data analysis and research projects and coordinates sector-specific opportunities, as requested;
- Sound planning and strategic investment in major projects such as wastewater treatment, water servicing, affordable housing and hospital district supports a stable and sustainable development environment;
- Provides services that contribute to the health, safety and quality of life for regional residents, such as indoor and outdoor recreation activities, a thriving arts scene, safe drinking water supply and natural environment protection; and,
- Responsible financial management and stable fiscal environment provides businesses with the confidence to invest.

Appendix A provides more detail on the contributions of CRD services to the regional economy.

Community/Stakeholder Implications
The economic development stakeholder landscape has evolved over time with various groups and sectors responding to arising needs. No one entity is responsible for defining an economic development strategy across the whole region. The Chambers of Commerce each provide a range of services in their specific geographies, while SIPP has earned the support of municipalities and businesses alike. The Downtown Victoria Business Association (DVBA) focuses on downtown Victoria, while groups hosted by Tourism Victoria and Victoria Innovation, Advanced Technology and Entrepreneurship Council (VIATEC) attend to those sectors respectively.

Formal CRD membership to economic development stakeholder organizations are limited. Most recently, discussions with SIPP concerning CRD membership did not advance given SIPP's membership bylaw and financial contribution structure. Opportunities for partnerships should continue to be explored, given the CRD's significant role in strategic infrastructure investment and quality of life contributions.

Intergovernmental Implications
The CRD supports staff-level intergovernmental coordination on topics such as planning, transportation, community health, climate action and recreation through working groups and committees. Recently, many of these working groups and committees have provided a forum to discuss economic recovery implications. The CRD plays a convener role, working through established channels to identify, coordinate and report out on opportunities of interest.

Partnerships with the provincial and federal government are critical to fund long term infrastructure investments which stimulate the economy, support growth and create a long term stable platform for other forms of investment. The CRD works closely with senior levels of government to align funding opportunities that will achieve shared strategic objectives such as affordable housing, sustainable infrastructure development and climate action.

The CRD is preparing an indigenous economic development model feasibility study. The study will identify the economic opportunities and interests of First Nations within the CRD spectrum of services. The long-term objective is to establish a process that will enable enhanced partnership opportunities with First Nations to support achievement of their desired economic development outcomes. An example of such is the partnership with T'Sou-ke First Nation to operate and maintain the Sooke Potholes Campground.

Regional Growth Strategy Implications
Since its adoption in 2003, the RGS has been a tool representing the region's collective vision for its future. RGS Section 5 sets out policies to help realize the region's economic potential. The policies focus on building on the region's quality of life advantage, preserving employment lands, prioritizing attraction of businesses that support climate action and protecting the working land base. These policies could help inform an economic development framework.

Alignment with Board & Corporate Priorities
Economic development is one of 15 community needs in the 2019-2022 Corporate Plan. Regional economic development is a Board priority and providing data and recommendations on the CRD's role in economic development is a key corporate initiative.

CONCLUSION

The CRD's current role in economic development is based on its service mandates. The CRD contributes directly to the region's economy through infrastructure planning and development, and indirectly through significant community investment in quality of life. Through this work, the CRD ensures a reliable and sustainable investment climate that supports business attraction and retention. As a committed contributor to the economic health of the region, the CRD has a strong interest in supporting a regional economic development strategy and partnering with senior levels of government and stakeholders on economic development initiatives.

RECOMMENDATION

The Governance and Finance Committee recommends to the Capital Regional District Board:
That the Regional Role in Economic Development report be received for information

Submitted by:	Emily Sinclair, MCIP, RPP, Senior Manager, Regional & Strategic Planning
Concurrence:	Kevin Lorette, P. Eng., MBA, General Manager, Planning & Protective Services
Concurrence:	Robert Lapham, MCIP, RPP, Chief Administrative Officer

ATTACHMENT(S)

Appendix A: CRD Contributions to the Regional Economy

Appendix A: CRD Contributions to the Regional Economy

The regional economy represents $15.9 billion (B) in Gross Domestic Product (GDP) and 221,000 jobs, more than 10% of the province's total 2.4 million (M) total jobs. Institutional employers and a small and medium enterprises specializing in government, real estate, high-tech, finance, insurance and tourism services anchor the regional economy. Institutional, office, and retail activities have been key to the successful development of Urban Centres across the region. The CRD supports this economic activity through long-range regional growth management, transportation planning and sustainable infrastructure servicing.

The CRD has an annual capital budget of approximately $400M to invest in critical infrastructure, development and asset maintenance. The CRD has successfully attracted significant senior government grants, leveraging our capital investments to secure large funding envelopes. It is anticipated that senior governments will provide additional infrastructure grant funding to support pandemic recovery. The CRD is in a strong position to continue attracting grants for projects that will stimulate economic growth while achieving Board priorities for affordable housing and climate action. Through wise financial management, the CRD provides a stable fiscal climate that supports business attraction and retention.

The following table outlines the CRD's contributions, based on the spectrum of economic development tools available to local government and the CRD's current service mandate.

Advocacy & Knowledge	Policy & Regulation	Funding	Community Investment
✓ Data analysis (demographics, projections, building permits) ✓ Convener for discussion on sector-specific matters of interest	✓ Create an attractive, reliable and sustainable investment climate through long-range growth management and wise service planning ✓ Administer economic development commissions for two electoral areas responsible for items such as advocacy, sector-specific business attraction, a rural business accelerator program, coordination, strategy development and business support. ✓ Prepare an indigenous economic development model feasibility study	✓ Received and distributed over $500M in grant funding from senior levels of government ✓ Nearly $1B 5-year capital plan allows CRD to leverage senior government grants and accelerate debt repayment ✓ Project employment is a significant economic generator, contributing approximately 750 jobs as a result of construction and operation	✓ $120M in affordable housing construction, operation and maintenance, providing 1418 housing units for residents, with a goal of adding 2,000 more ✓ $775M in tertiary wastewater treatment, serving residents and protecting the environment ✓ Provide parks, recreation and arts facilities and services that support quality of life and contribute competitive advantage for business attraction and retention

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REPORT TO GOVERNANCE AND FINANCE COMMITTEE
MEETING OF WEDNESDAY, JULY 29, 2020

SUBJECT **Diversity and Inclusion Statement – Response to Notice of Motion**

ISSUE SUMMARY

At the July 8, 2020 meeting the CRD Board directed consideration of an inclusion and diversity statement at the beginning of meetings. A proposed statement is included for consideration of the Board, with the intent that if approved it be added to CRD Board and standing committee meeting agendas going forward.

BACKGROUND

At the July 8, 2020 meeting the CRD Board endorsed the following notice of motion:

> That the Board ask the Governance and Finance committee to consider the matter of the Board developing an inclusion and diversity statement at the beginning of the meetings after the First Nations Territorial Acknowledgement and report back to the Board.

In June 2019, the CRD Board amended the CRD Board Procedures Bylaw to include a territorial acknowledgement in the order of proceedings which requires all Boards, committees and commissions to follow the procedures bylaw to include an acknowledgement at meetings. This initiative arose out of the recommendations of the Special Task Force on First Nations Relations; the Task Force report also suggested work in the areas of "eliminating barriers and systemic discrimination to ensure a corporate environment that promotes equity and diversity in the workplace". The Chief Administrative Officer is delivering on this recommendation through the Organizational Development Plan and internal initiatives and working groups.

Recent global events, including the Black Lives Matter movement, have turned significant attention to equality and diversity and the need for more awareness and sensitivity to how differences are treated and perceived culturally, socially, organizationally and individually. A statement acknowledging this and reminding the Board to be conscious of it in their meetings and deliberations is timely.

Other local governments include equity, diversity and inclusion statements for their organization or at their public meetings; a sample of those statements is included in Appendix A.

ALTERNATIVES

Alternative 1
The Governance and Finance Committee recommends to the Capital Regional District Board:
That the following diversity and inclusivity statement be included on the agenda cover for each of the Capital Region Housing Corporation, Capital Regional Hospital District and Capital Regional District Boards and each of the standing committees of those Boards:

> The Capital Regional District strives to be a place where inclusion is paramount and people are treated with dignity, regardless of race, colour, ancestry, place of origin,

> religion, marital status, family status, physical or mental disability, sex, sexual orientation, gender identity or expression, or economic status.
>
> We are grateful for the efforts underway in our community while recognizing our ongoing responsibility to create a safe space for everyone to be heard. We pledge to make our meetings a place where all feel welcome and respected.

Alternative 2
The Governance and Finance Committee recommends to the Capital Regional District Board:
That staff consult with internal working groups, organizational consultants and community leaders on the proposed statement and report back to committee.

Alternative 3
That this report be referred back to staff for additional information given the scope clarification provided by the Governance and Finance Committee.

IMPLICATIONS

The CRD Board would be joining many local governments in adopting a statement to be included in public meeting agenda documentation. The proposed statement includes a list of groups that is identical to the list included in the City of Victoria statement as it seemed to be the most inclusive. While we could draft a unique statement in consultation with community leaders, if the committee chooses to endorse this approach, staff would benefit from direction on who to select for consultation as there is potentially a broad group that would feel named or impacted by the statement. In addition, we would want to ensure that we are not duplicating the work of our member municipalities in this area, as we all live one region and serve the same constituents. If the Board chooses to endorse the statement as drafted, the Board could choose to update the statement at any time if it feels the need to refresh the message.

CONCLUSION

The CRD Board has requested consideration of the development of an inclusion and diversity statement at the beginning of CRD Board and committee meetings. A proposed statement is included for the review of the Board to adopt or to request community involvement in the refinement of the statement.

RECOMMENDATION

The Governance and Finance Committee recommends to the Capital Regional District Board:
That the following diversity and inclusivity statement be included on the agenda cover for each of the Capital Region Housing Corporation, Capital Regional Hospital District and Capital Regional District Boards and each of the standing committees of those Boards:

> The Capital Regional District strives to be a place where inclusion is paramount and people are treated with dignity, regardless of race, colour, ancestry, place of origin, religion, marital status, family status, physical or mental disability, sex, sexual orientation, gender identity or expression, or economic status.
>
> We are grateful for the efforts underway in our community while recognizing our ongoing responsibility to create a safe space for everyone to be heard. We pledge to make our

meetings a place where all feel welcome and respected.

Submitted by:	Emilie Gorman, MPA, Manager, Legislative Services & Deputy Corporate Officer
Concurrence:	Kristen Morley, J.D., General Manager, Corporate Services & Corporate Officer
Concurrence:	Robert Lapham, MCIP, RPP, Chief Administrative Officer

ATTACHMENT(S)

Appendix A: Sample Statements from other Local Governments

The following are 6 examples of inclusivity statements from municipal councils:

CITY OF VICTORIA

Council is committed to ensuring that all people who speak in this chamber are treated in a fair and respectful manner. No form of discrimination is acceptable or tolerated. This includes discrimination because of race, colour, ancestry, place of origin, religion, marital status, family status, physical or mental disability, sex, sexual orientation, gender identity or expression, or economic status. This Council chamber is a safe place where all human rights are respected and where we all take responsibility to create a safe, inclusive environment for everyone to participate. Link

CITY OF COLWOOD

Colwood City Council is a safe place where every person is to be treated with respect. Verbal abuse, bullying, or threats of any kind will result in removal from City Hall. Link

CITY OF YELLOWKNIFE

We are grateful for our city, for our homes, for our neighbours, and for our freedom. We are grateful for the opportunity we have to meet here and to serve our fellow citizens.

May we bring both the strength of our convictions, and the willingness to listen and learn, to our discussions. May we consider the needs and aspirations of all our fellow citizens in our decisions. And may we always represent our constituents with dignity, integrity, and honesty. Link

CITY OF DELTA

The City of Delta absolutely and unequivocally condemns racism. There is no place for racism, hate, or discrimination at the City or in the community.

We can do more and continue to listen and learn, and are working to support anti-racism activities in the community so we can be part of positive change. Visit Delta.ca/Diversity for details on Delta's actions to promote diversity. Link

CITY OF SALMON ARM (Website only)

The City of Salmon Arm joins the community in recognizing the importance of building an inclusive community where everyone is accepted, respected, free from violence and fear, and able to thrive, regardless of race, colour, cultural background, religion, age, sex, gender identity, sexual/affectional orientation, or level of ability.

There has never been, nor will there ever be a place for racism, discrimination, or hatred in our community. We stand in unity with Indigenous Peoples and Nations, with the Black Lives Matter movement, and with other communities in calling for an end to racism and other forms of violence.

We are supportive, deeply grateful, and committed to best practices and continuous improvement of our many agencies who support and safeguard our most vulnerable community members.

The only way through what has been a difficult, challenging and community rallying time, is together. We recognize the role each of us play in building an inclusive community and thank you for helping us to do all we can to make Salmon Arm a safe and inclusive place to live. Be kind always.

In friendship, appreciation and community, thank you. Link

CITY OF VANCOUVER (Website only)

We are working on ways to address many of these issues, including the Healthy City Strategy activities and joint committees such as the Trans, Gender Diverse, and Two Spirit Inclusion Advisory Committee, among others.

We are always striving for improvement and to work towards a fairer, safer, more inclusive city. Link

Making a difference...together

REPORT TO GOVERNANCE AND FINANCE COMMITTEE
MEETING OF WEDNESDAY, JULY 29, 2020

SUBJECT **Sale of 808 and 836 Viewfield Road Properties**

ISSUE SUMMARY

To receive direction on $3.7 million of net proceeds generated through the disposition of 808 and 836 Viewfield Road.

BACKGROUND

808 and 836 Viewfield Road were two properties purchased on September 30, 2014, for $17.4 million by the Core Area Wastewater Treatment service as a potential site for residuals treatment within the wastewater treatment project. Through various engagements, consultations, and project scoping exercises, the CRD Board concluded the properties would not be used in the treatment process and as a result, staff were directed to recover expenditures in a fiscally responsible manner. Subsequently, the properties underwent improvements of $1.7 million to attract lease tenants and increase resale value. Over the past five years, building operations have generated a surplus of $2.1 million or $0.6 million net of interest costs related to debt.

On June 24, 2019, the property located at 808 Viewfield Road was sold for $11.3 million to Spinnakers Brewery. Furthermore, on July 23, 2020, 836 Viewfield Road was sold for $11.1 million to the 836 Viewfield Limited Partnership. The completed sale of both properties has resulted in a net gain on sale of $3.1 million.

Combining both the operating surplus and gain on sale, net proceeds total $3.7 million.

ALTERNATIVES

Alternative 1
The Governance and Finance Committee recommends to the Capital Regional District Board:
That the net proceeds from the sale of 808 and 836 Viewfield in Esquimalt, BC, be used to reduce borrowing requirements of the Core Area Wastewater Treatment service.

Alternative 2
The Governance and Finance Committee recommends to the Capital Regional District Board:
That the net proceeds from the sale of 808 and 836 Viewfield in Esquimalt, BC, be transferred to reserves and staff report back with additional options.

IMPLICATIONS

Financial Implications

Table 1 provides additional details on one-time and ongoing impacts related to the Viewfield properties since 2014. Highlights include the $2.1 million operating surplus from building operations and a simple return on investment of 16.7%. Net proceeds total $3.7 million to the benefit of the core area service participants.

Table 1: Timing of One-time and Operating Impacts ($ millions)

	2014	2015	2016	2017	2018	2019	2020	Total
One-Time Impacts								
Purchase of Properties	(17.4)							(17.4)
Improvements			(1.2)	(0.3)	(0.2)			(1.7)
Proceeds of Sale						11.2	11.0	22.2
Net Gain of Sale								**3.1**
Ongoing Impacts								
Leasing Revenue	0.3	0.9	0.2	0.5	0.8	0.7	0.2	3.6
Building Expenses		(0.5)	(0.4)	(0.3)	(0.2)	(0.1)		(1.5)
Gross Operating								***2.1***
Interest Costs	(0.1)	(0.2)	(0.2)	(0.2)	(0.4)	(0.3)	(0.1)	(1.5)
Net Operating								**0.6**
Net Proceeds of Sale								**3.7**
Return on Investment (ROI)								16.7%

The participant share of net proceeds is based on the design capacity benefit allocation and summarized below in table 2.

Table 2: Participant Share of Net Proceeds ($ millions)

Colwood	0.158	4.26%
Esquimalt	0.246	6.65%
Langford	0.468	12.66%
Oak Bay	0.239	6.45%
Saanich	1.130	30.54%
Victoria	1.341	36.25%
View Royal	0.118	3.19%
Total Apportionment	**3.700**	**100%**

Alternative 1

As a one-time benefit, the typical procedure would be retention of net proceeds within the service to reduce future borrowings. Within the 2020-2024 Financial Plan, the Core Area Wastewater Treatment service has planned borrowings of approximately $25 million. Reducing debt by $3.7 million would save an estimated $4.3 million in principal and interest payments through 2034.[1]

Alternative 2

Alternatively, as a one-time benefit, the net proceeds could be transferred to reserves of the Core Area Wastewater Treatment service participants as shown in table 2. The existing reserve structure is currently under review. The aforementioned planned borrowings would proceed and be recovered from participants as needed.

[1] Assumptions: CRD Financial Planning Guidelines – Interest rate of 1.9%

CONCLUSION

The CRD has successfully recovered expenditures and generated net proceeds of $3.7 million through the building operations and sale of the 808 and 836 Viewfield properties. This building was funded through the Core Area Wastewater Treatment service and therefore will be credited to the service participants.

RECOMMENDATION

The Governance and Finance Committee recommends to the Capital Regional District Board: That the net proceeds from the sale of 808 and 836 Viewfield in Esquimalt, BC, be used to reduce future borrowing requirements of the Core Area Wastewater Treatment service.

Submitted by:	Rianna Lachance, BCom, CPA, CA, Senior Manager, Financial Services
Concurrence:	Nelson Chan, MBA, CPA, CMA, Chief Financial Officer
Concurrence:	Kristen Morley, J.D., General Manager, Corporate Services & Corporate Officer
Concurrence:	Robert Lapham, MCIP, RPP, Chief Administrative Officer

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ERM 20-26

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

SUBJECT **Response to Environmental Resource Management 2019 Progress Report Follow Up Questions**

ISSUE SUMMARY

To respond to questions regarding solid waste management and recycling raised by the Capital Regional District Board (CRD) at its meeting of May 27, 2020.

BACKGROUND

At its meeting of May 27, 2020, the CRD Board received the Environmental Resource Management (ERM) 2019 Progress Report for information. While discussing the report, a number of questions arose with respect to solid waste management and recycling in the region.

1. *What percentage of materials collected through Extended Producer Responsibility (EPR) stewardship programs are recycled as compared to disposed?*

   The percentage of materials collected through EPR programs that are recycled varies by product type, as some toxic materials cannot be recycled and need to be safely disposed while 100% of other product streams, such as beverage containers, are fully recycled. Where the products are recyclable the vast majority are recycled. Appendix A provides further details of how various EPR products are managed in British Columbia.

2. *What changes have been observed in the monthly quantities of garbage being disposed of at Hartland Landfill as a result of the COVID-19 pandemic?*

   Given that garbage generation and disposal is influenced by a number of parameters, the impact of the pandemic on the receipt of garbage at Hartland Landfill cannot be precisely determined. In broad terms, the quantities of solid waste received at Hartland for the months of April and May 2020 are down approximately 10% as compared to the same months in 2018 and 2019. Staff believe that this is largely attributable to the slowing of economic activity due to the pandemic.

3. *Has the pandemic impacted residential curbside blue box recycling?*

   Based on curbside recycling program data for the months of March, April and May of 2020, as compared to the same months in 2019, it would appear that the pandemic has had an effect on the quantity of recyclable materials being placed out for collection. On average, the total monthly quantity of materials that were collected is up 12%. This includes a 37% increase in glass containers being collected. While glass is collected and tracked separately, all other recyclables are collected in two commingled collection streams (paper fibres and containers) so separate data on individual products types, such as packaging from online purchasing, is not available. While the reasons for these increases cannot be exactly determined, it is reasonable to assume that with restaurants having been largely

closed during the pandemic, residents have been having more meals at home and packaging associated with preparing those meals has been recycled at the curb. An increase in online purchasing may also have contributed to an increase in packaging materials being recycled through the blue box program. There may also have been an increase in residents undertaking clean-ups of their residences while they are isolating at home resulting in more materials, such as accumulations of old magazines, being placed out for recycling.

CONCLUSION

At its meeting of May 27, 2020, the CRD Board posed questions with respect to solid waste management and recycling in the region, including a question about recycling rates associated with EPR programs and what impacts the COVID-19 pandemic may be having on solid waste and recycling operations. In EPR programs where the materials are recyclable and not toxic, the vast majority are recycled. The COVID-19 pandemic has apparently impacted solid waste and recycling operations with a 10% decline in quantities of waste being landfilled and an increase in recyclable materials being collected through the residential curbside recycling program.

RECOMMENDATION

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

That this report be received for information.

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

ATTACHMENT

Appendix A: Details on Extended Producer Responsibility Product Management in British Columbia

What percentage of materials collected through EPR programs are recycled as compared to disposed?

Products subject to extended producer responsibility under the BC Recycling Regulation must be managed in the order of preference within the pollution prevention hierarchy. Producers of these products typically work with stewardship agencies to develop five year stewardship plans and deliver programs on their behalf. Performance targets for product materials are laid out in these provincially approved plans and reported on annually.

Product	Stewardship Agency	Reused	Recycled	Energy Recovery	Incinerated	Landfilled
Beverage containers	Encorp Pacific (Canada)		100%			
Electronics	Electronic Products Recycling Association		93%			7%
Latex Paint	Product Care Association	2%	92%	6%		
Alkyd Paint				100%		
Smoke alarms			100% of metal and plastic			
Flammable liquids & gasoline				100%		
Pesticides					100%	
Packaging & Printed Paper	Recycle BC		92%	2%		6%
Small appliances	Canadian Electrical Stewardship Association		94%			6%
Medications	Health Products Stewardship Association				100%	
Tires	Tire Stewardship BC		100% of steel and 88.5% rubber	11.4% rubber and 100% fibre		0.1%
Light bulbs	Product Care Association		100% of glass and metal			100% for phosphor powder and mercury
PCBs - ballasts	Product Care Association				100%	
Batteries under 5kg	Call2Recycle		100%			

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EEP 20-27

REPORT TO ENVIRONMENTAL SERVICES COMMITTEE/
PLANNING, TRANSPORTATION & PROTECTIVE SERVICES COMMITTEE
MEETING OF WEDNESDAY, JULY 15, 2020

SUBJECT **Capital Region Coastal Flood Inundation Mapping Project Update**

ISSUE SUMMARY

To provide the results of the Capital Region Coastal Flood Inundation Mapping Project.

BACKGROUND

Under both the British Columbia Local Government Act and the Emergency Program Act, local governments have a responsibility to understand, plan for and manage coastal flooding risk.

In May 2019, working with and on behalf of local governments, the Capital Regional District (CRD) received a $705,000 grant from the provincially and federally funded National Disaster Mitigation Program to undertake the Capital Region Coastal Flood Inundation Mapping Project. Associated Engineering, DHI and Westmar Advisors were retained to complete the work.

The purpose of this regional project is to help inform the CRD, its local governments, First Nations and other interested stakeholders of the risk of coastal flooding due to sea level rise and tsunamis, and the subsequent impacts as a result of inundation. The results of this project may be used to develop coastal flood hazard policy in the region's respective local governments, and inform emergency mitigation and evacuation plans. This project builds upon previous regional work, offering new and detailed information on coastal flood hazards related to both climate change and earthquake impacts.

Staff from the CRD Climate Action and Emergency Management programs have worked collaboratively on the project. Staff have also been working with an inter-municipal multidisciplinary project team with counterparts from seven local governments throughout the process. During the technical phase, CRD staff coordinated two workshops (over 30 staff in attendance per workshop) for representatives from all local governments in the region: one to refine the methodology and project outputs, and the other to review draft technical results. Updates have been provided throughout the project via existing inter-municipal staff committees (climate and emergency management) and directly with key stakeholders, as required.

A number of similar initiatives have been recently completed, are ongoing, or are in the procurement phase on Vancouver Island and the Lower Mainland. As such, throughout the project, staff have connected with other local governments to share learnings and resources.

Results

This project involved three main tasks with distinct methodologies, results of which are provided in three separate reports:

- Task 1: Digital Elevation Model Development Report
- Task 2: Sea Level Rise Modelling and Mapping Report
- Task 3: Tsunami Modelling and Mapping Report

Refer to Appendix A for an executive summary that provides information on the local government legislative context, and a summary of project methodologies and results. The reports in their entirety and frequently asked questions can be found at www.crd.bc.ca/coastalflood.

Next Steps

The findings in this project can be used for a variety of different purposes and will serve as an important data input for further regional emergency mitigation, planning and policy related initiatives. In addition, information found within these reports will be used to update emergency public education and build upon existing communications materials.

The reports, with an accompanying geographic information system, will be shared directly with CRD and local government staff, regional emergency management committees, and provincial and federal agencies, as a condition of the grant. Staff will continue to connect with coastal First Nations to provide the data and deliverables in a format that is usable to them.

CRD will continue to support existing inter-municipal and inter-agency committees to understand opportunities for further collaboration.

As technology and science improves, risk modelling related to both sea level rise and tsunamis will need to be continually conducted to update emergency preparedness, planning and response.

ALTERNATIVES

Alternative 1

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

That the results of the Capital Region Coastal Flood Inundation Mapping Project be received for information, be referred to all CRD municipalities, electoral areas and First Nations, and inform future emergency planning efforts.

Alternative 2

That this report be referred back to staff for additional information.

CONCLUSION

Working with and on behalf of local governments, the CRD received a $705,000 grant from the provincially and federally funded National Disaster Mitigation Program to undertake the Capital Region Coastal Flood Inundation Mapping Project. The purpose of this regional project is to help inform the CRD, its local governments, First Nations and other interested stakeholders of the risk of coastal flooding due to sea level rise and tsunamis, and support further planning, policy and communication efforts. The CRD will provide the results of the project to regional stakeholders and work with existing inter-municipal and inter-agency committees to understand opportunities for further collaboration.

RECOMMENDATION

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

That the results of the Capital Region Coastal Flood Inundation Mapping Project be received for information, be referred to all CRD municipalities, electoral areas and First Nations, and inform future emergency planning efforts.

Submitted by:	Glenn Harris, Ph.D., R.P.Bio., Senior Manager, Environmental Protection
Concurrence:	Larisa Hutcheson, P.Eng., General Manager, Parks & Environmental Services
Concurrence:	Kevin Lorette, P.Eng., MBA, General Manager, Planning & Protective Services
Concurrence:	Robert Lapham, MCIP, RPP, Chief Administrative Officer

ATTACHMENT

Appendix A: Capital Region Coastal Flood Inundation Mapping Project – Executive Summary (July 2020)

CAPITAL REGION COASTAL FLOOD INUNDATION MAPPING PROJECT
EXECUTIVE SUMMARY

July 2020

The Capital Regional District (CRD) retained Associated Engineering, DHI and Westmar Advisors to undertake the Capital Region Coastal Flood Inundation Mapping Project (the Project) in 2019-2020.

This work was completed to:

- Provide the CRD, local governments, First Nations and other interested stakeholders with a comprehensive picture of coastal flooding due to rising sea levels and tsunamis.
- Help planners and emergency managers prepare the region for tsunami events that may strike southern Vancouver Island and the Southern Gulf Islands.
- Offer guidance to regional stakeholders to inform coastal flood hazard policy, planning and future regulatory efforts, including Flood Construction Levels.
- Better understand the infrastructure, ecosystems and cultural sites that may be at risk due to future sea level rise through an intertidal risk assessment.
- To identify risks to residents and infrastructure (e.g., harbours/marinas/docks) within the capital region, as a result of tsunami waves and currents through a targeted tsunami risk assessment.

The Project was completed by undertaking three main tasks, and results are found in the following reports:

- Task 1: Digital Elevation Model Development Report (Task 1 Report)
- Task 2: Sea Level Rise Modelling and Mapping Report (Task 2 Report)
- Task 3: Tsunami Modelling and Mapping Report (Task 3 Report)

This executive summary is intended to provide a brief overview of the Project only. It is important for users to fully understand methodologies and limitations. Refer to the Project reports in their entirety, available at www.crd.bc.ca/coastalflood, for further information.

Context – General

Under the *British Columbia Local Government Act*, local governments are responsible for managing natural hazards through land use planning and regulations. The 2004 provincial Flood Hazard Area Land Use Management Guidelines (the Guidelines) provide direction for local governments to implement land use management plans and make subdivision approval decisions for flood hazard areas. Local governments must consider the Guidelines in making bylaws under Section 910 of the *Local Government Act*. It is the responsibility of each municipality and electoral area to review, interpret and consider how to implement the Guidelines and incorporate them into related local land use regulatory, policy and planning tools, including flood construction levels. The Province also recommends considering tsunami risk when establishing flood hazard regulations, such as flood construction levels.

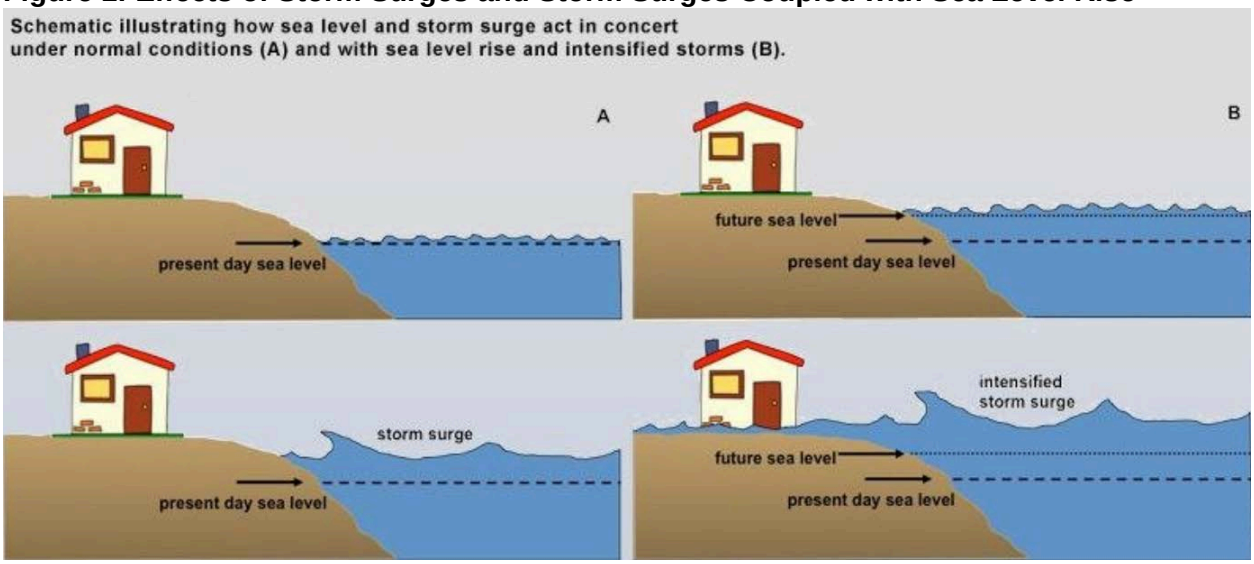
Under the E*mergency Program Act*, local authorities are responsible for assessing risk and planning for potential emergencies and disasters, and should consider coastal flooding when developing local emergency plans. Local emergency plans set out procedures, and other preparedness, response and recovery measures to reduce possible impacts on people and

property during emergencies and disasters. Through their Emergency Operations Centres, local authorities also coordinate and lead the response and recovery of emergency events.

Context – Sea Level Rise

The capital region has a long and complex coastline (approx. 1,300 km), with several low-lying areas exposed to coastal flood hazard now, and into the future with sea level rise. Most coastal flooding occurs today, due to a combination of storm surge, wind and waves occurring at high tide. Sea Level Rise (SLR) means that the still-water elevation of the oceans surrounding the region will rise. SLR is the direct effect of climate change on the global oceans. Melting sea and glacier ice, and the thermal expansion of ocean waters, have resulted in increasing mean sea levels.

Figure 1: Effects of Storm Surges and Storm Surges Coupled with Sea Level Rise



Source:https://www.researchgate.net/figure/Effects-of-storm-surges-and-storm-surges-coupled-with-SLR-Source_fig2_305692060

In 2004, the provincial government passed responsibility for flood management to local governments. The Guidelines were amended in 2018 to incorporate climate projections and tsunami considerations into coastal building setbacks and Flood Construction Levels.

The Guidelines state a 0.5 m SLR increase by the year 2050, 1 m SLR increase by 2100, and 2 m by 2200. This appears to be overly conservative, based on observed water levels to date. However, in 2019, the Intergovernmental Panel on Climate Change indicated sea levels are projected to increase at a rate faster than previously identified, as we move through the century. While there is still great uncertainty in how exactly SLR rates will change in the coming years, it is prudent that local governments consider this uncertainty (and tsunami considerations) in their coastal flood hazard land use policies.

In 2015, CRD staff worked with members of the CRD Climate Action Inter-Municipal Working Group to complete an initial SLR study. This analysis only considered 24 sites, used a more basic analysis, and did not include all of the criteria required to inform Flood Construction Levels. This work identified the need for further study, including a more fulsome regional analysis. The current project (2020) provides further analysis and recommendation on appropriate Flood Construction Levels for the entirety of the capital region.

Context – Tsunami

The west coast of Canada is vulnerable to tsunamis generated by earthquakes beneath the Pacific Ocean. The largest tsunamis in BC result from earthquakes in the Cascadia Subduction Zone, where the oceanic Juan de Fuca plate moves underneath North America. The last significant Cascadia Subduction Zone event occurred on January 26, 1700. The BC coast is also affected by tsunamis of more distant Pacific earthquakes, as experienced by an Alaskan earthquake in 1964. The region around the southern end of Vancouver Island, including the San Juan Islands and water bodies, such as the Juan de Fuca Strait, Salish Sea and Strait of Georgia, are also possibly subject to the effects of local fault systems running through Vancouver Island and adjacent areas to the south and east (see Section 1.3, Task 3 Report).

The Province is responsible for the *Emergency Program Act* (1996), which provides the legislative framework for the management of disasters and emergencies in BC. The provincial government provides guidance to local governments on emergency planning through Emergency Management BC. The Province, through Emergency Management BC, is the current notifying agency for local authorities and First Nation governments for tsunami alerts. Under the *Emergency Program Act*, local authorities are responsible for assessing risk and planning for potential emergencies and disasters.

Regionally, the Regional Emergency Management Partnership (REMP) is an inter-governmental entity working to improve emergency management at all levels of government in the capital region. The REMP Steering Committee is responsible for overseeing the development and delivery of a coordinated seamless regional emergency management strategy supported by an integrated concept of emergency operations, strategic priorities and supporting plans. The Local Government Emergency Program Advisory Commission provides advisory recommendations on the direction of the REMP and initiatives that may be undertaken to provide consistency and coordination among local government emergency programs, and will advise the Regional Emergency Coordinators Advisory Commission on any local government program developments/initiatives that may benefit or otherwise affect other emergency programs in the region.

In January 2018, a 7.9 M earthquake in the Gulf of Alaska triggered a tsunami warning for Vancouver Island, including the communities in the capital region. Prior to this event, distant tsunamis were not known risks to the capital region. The region's emergency programs took the lessons learned from this event and identified the need for additional tsunami modelling to provide further insight on various tsunami scenarios and their impacts to their communities, under the guidance of researchers and field experts. The purpose of this study also aimed to validate the previous regional modelling to ensure that updated results were used in current emergency notification alerts. As technology and science improves, risk modelling, including tsunamis, need to be continually conducted to update emergency preparedness, planning and response.

Methodology – General

Following provincial and international guidelines, and peer-reviewed best practices, the consultant team completed the Project based on the overarching steps summarized below:

- **Background Data Collection:** Gathered the available historic reports, analyses and geospatial data.

- **Digital Elevation Model Development**: Using newly-available topographic and bathymetric data, created a Digital Elevation Model that can be used in hydraulic models to simulate coastal flooding.
- **Sea Level Rise Flooding Analysis**: Developed coastal Flood Construction Levels for the capital region using a transect analyses (199 total representing the region's coastline), as well as detailed flood modelling in select locations (Victoria Harbour/Gorge Waterway, McNeill Bay/Oak Bay, Cadboro Bay, Sidney/Tulista Park, Sidney/Roberts Bay). These sites were chosen due to their low-lying topography, potential susceptibility to coastal flooding and their relatively high population density.
- **Tsunami Model and Mapping Report:** Assessed flooding, due to tsunami activity in the entire region, undertook a detailed analysis within Victoria/Esquimalt, Saanich/Oak Bay, Sidney, Sooke and Port Renfrew, and qualitatively assessed the risk to harbours/marinas/docks within the capital region, as a result of tsunami waves and currents hitting these vulnerable facilities.
- **Final Report:** Summarized the significant volume of technical work completed in concise reporting (via three distinct reports), accompanied by inundation and Flood Construction Level mapping and associated geographic information system deliverables, for the entire project area. The three main reports in their entirety are found at www.crd.bc.ca/coastalflood.

Methodology – Sea Level Rise

This project used a refined form of the 'Probabilistic Method' from the provincial guidelines to estimate the total water levels for the four sea level rise scenarios (0 m, 0.5 m, 1.0 m and 2.0 m), for five annual exceedance probabilities (AEP). This accounts for the joint probability of occurrence of all the different processes contributing to coastal flooding: SLR, high tide, local and regional surge and wave effects (set-up and run-up). This Project's probabilistic methodology is consistent with other detailed studies carried out in the province, where a reduction in conservatism is a key objective. As such, results differ from previous studies done by both the CRD in 2015 and North Saanich in 2017.

Flood construction levels were derived for all four relative sea level rise (RSLR) scenarios following the provincial recommendations of using a 1:200 (0.5%) AEP total water height and adding 600 mm of freeboard. An AEP gives a sense of how often a flood of a certain magnitude could be expected (i.e., 1:200-year flood can be expected to happen once every 200 years or has a 0.5% chance of happening in any given year). Freeboard is a commonly used factor of safety in floodplain planning and was used in this analysis.

In addition, as a separate sub-task, the consultant team utilized existing regional-scale data sets to complete a high-level intertidal risk assessment to understand SLR impacts on coastal ecosystems and known archaeological sites.

Several different mapping efforts were completed:
- mapping the Flood Construction Levels
- mapping total water level for a 0.5% (1:200) AEP for all four SLR scenarios
- detailed modelling and subsequent mapping of flood extent and depth for the five study sites

Other deliverables include:
- recommended flood construction levels by transect across the region
- total water height for all relative sea level rise scenarios and the five different AEPs

Methodology – Tsunami

The Project involved a review of available scientific literature and analyses to select appropriate tsunami-generating sources for modelling. Previous tsunami modelling for the capital region focused on potential events in the Cascadia Subduction Zone, and although this is an important focus, there existed a need to explore hazards from other tsunami sources. The selected scenarios, 11 in total, in this project included distant (e.g., Alaska and Haida Gwaii), subductions zone (e.g., various Cascadia scenarios, including a worst-case and more likely scenario), and local source (e.g., Devils Mountain and Southern Whidbey Island Fault) tsunami sources. Each of these 11 events have resulted in different maximum water levels in each community within the capital region, but also have different expected dates of occurrence (i.e., return periods), which is important to consider this when reviewing the results. The selection of the sources and the magnitudes were guided by researchers and experts in this field.

The Project developed hydraulic models to simulate tsunami wave propagation from source to inundation of the coast. Following international standards, a tsunami model was used to analyze the whole region by 30 m grids. Five sites were further analyzed in 4 m grids to give detailed results on flood levels, currents, and whirling motion of the water utilizing a tsunami model. The five locations that received the higher detailed analysis include sites within Victoria/Esquimalt, Saanich/Oak Bay, Sidney, Sooke and Port Renfrew. These areas were also chosen because they have a high level of exposure to the tsunami events from the Cascadia Subduction Zone.

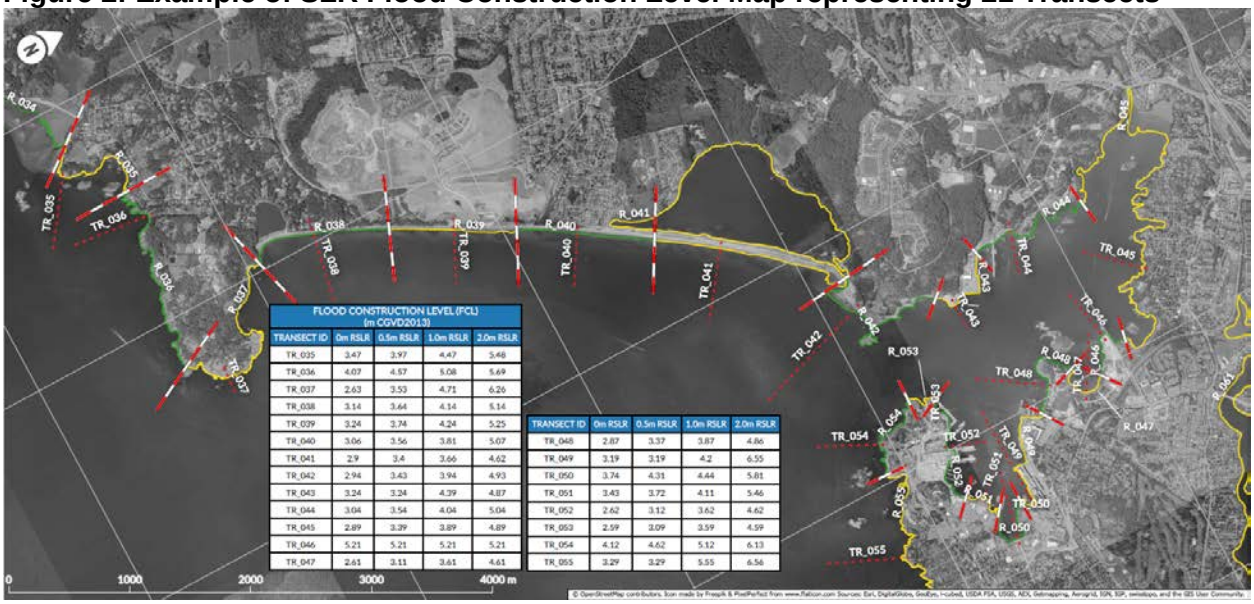
As a sub-task to the tsunami analysis, the consultant team undertook an assessment to identify the potential risk of damage to ports and harbours at selected sites across the region, as a result of flooding and strong currents generated by tsunami waves.

Summary Results – Sea Level Rise

The majority of the capital region's coastline is quite elevated, such that the general risk of extensive flooding is low. However, low-lying areas in the region are susceptible to coastal storm flooding–the extents of which are set to increase significantly over time, due to SLR.

SLR Flood Construction Level results for all 199 transacts were developed for different scenarios of SLR, and associated maps were produced (see Section 3.3, Appendix C, Task 2 Report). Figure 1 provides an example of the SLR Flood Construction Level mapping output for one area.

Figure 2: Example of SLR Flood Construction Level Map representing 21 Transects



Source: Map sheet 11, Appendix C, Task 2: Sea Level Rise Modelling and Mapping Report, Associated Engineering (June 2020)

The following table provides a summary of average RSLR Flood Construction Level results within each local government, using the 200-year (0.5% AEP) total water level plus 600 mm freeboard, as per provincial guidelines. The 95th percentile means that 95% of the time data points are below that value and 5% of the time they are above that value. The report provides detailed information on recommended Flood Construction Levels for local government consideration.

Table 1: Summary of Average and 95 Percentile Relative Sea Level Rise Flood Construction Levels

Local Government/ Electoral Area	0.0 m RSLR FCL (m CGVD2013)		0.5 m RSLR FCL (m CGVD2013)		1.0 m RSLR FCL (m CGVD2013)		2.0 m RSLR FCL (m CGVD2013)	
	Ave.	95%ile	Ave.	95%ile	Ave.	95%ile	Ave.	95%ile
Central Saanich	3.17	3.93	3.63	4.43	4.11	4.89	5.09	5.67
Colwood	3.07	3.24	3.49	3.70	4.01	4.35	4.96	5.20
Esquimalt	3.29	3.95	3.68	4.45	4.48	5.65	5.62	6.55
Highlands	3.84	3.84	4.34	4.34	4.84	4.84	5.34	5.34
Juan de Fuca Electoral Area	3.47	4.39	3.96	4.90	4.50	5.38	5.58	6.48
Langford	2.76	2.76	3.27	3.27	3.77	3.77	4.83	4.83
Metchosin	3.21	3.80	3.69	4.30	4.14	4.86	5.26	5.92
North Saanich	3.43	4.70	3.91	5.21	4.35	5.72	5.33	6.33
Oak Bay	3.70	4.99	4.18	5.39	4.48	5.89	5.35	6.71
Saanich	3.19	4.15	3.72	4.66	4.20	5.17	5.19	6.18
Salt Spring Electoral Area	3.36	4.29	3.83	4.64	4.34	5.21	5.27	5.91
Sidney	3.20	3.51	3.70	3.99	4.11	4.29	5.10	5.31
Sooke	2.88	3.23	3.40	3.73	3.90	4.23	4.90	5.23
Southern Gulf Islands Electoral Area	3.48	4.82	3.88	4.90	4.33	5.28	5.38	6.44
Victoria	3.50	4.28	3.98	4.69	4.38	5.60	5.51	6.62
View Royal	3.39	4.86	3.77	4.94	4.14	5.01	4.89	5.16

Source: Page 4-3, Task 2: Sea Level Rise Modelling and Mapping Report, Associated Engineering (June 2020)

The SLR Flood Construction Levels presented in this report differ in comparison to previously established levels and studies completed in the region. In some instances, the difference can be quite pronounced. For example, in a 2017 study for the District of North Saanich, reported Flood Construction Levels differ by as much as 4 m when compared to the values for the same locations presented in this study. This difference can be attributed to the following:

- The scope of the capital region Coastal Flood Inundation Mapping Project enabled the project team to invest additional resources in the analysis that drives the derivation of Flood Construction Levels.
- This Project's 'Probabilistic' approach leads to a significant reduction in conservatism, resulting in maximum water levels more representative of a '200-year event', based on the available gauge records in the local area.

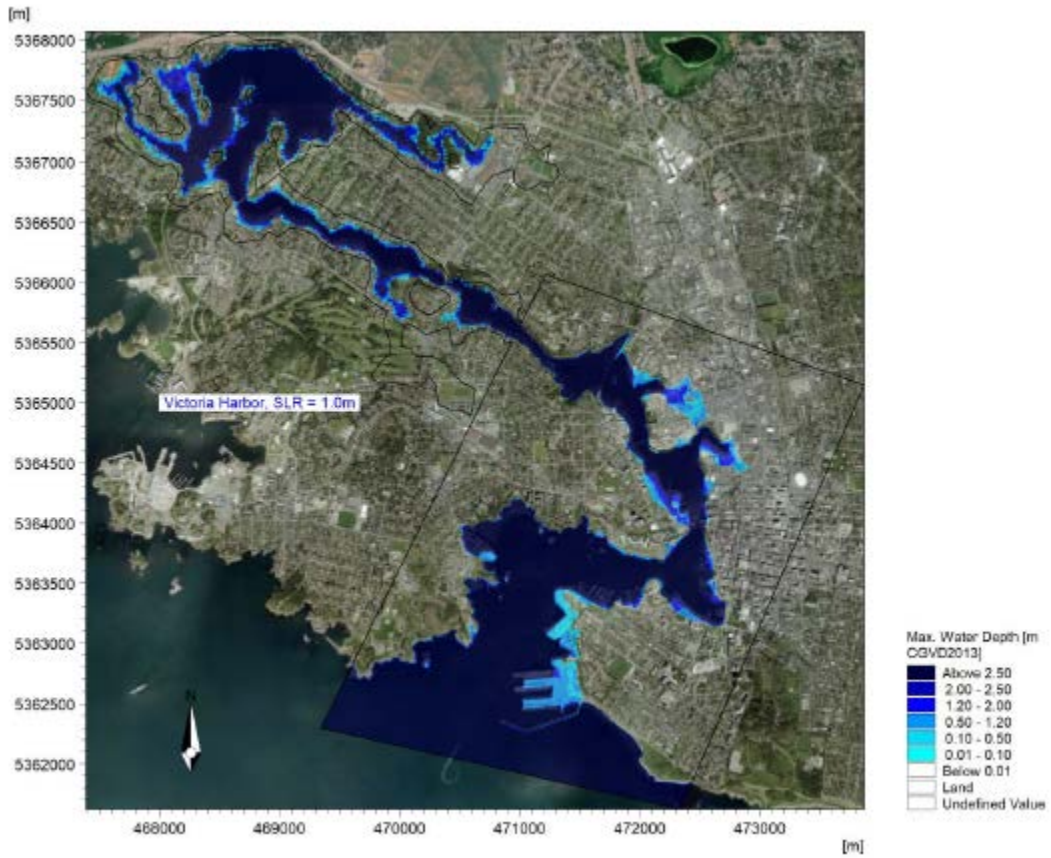
While the setting of Flood Construction Levels is a matter for each local government, the consultant team has given recommendations on selecting an appropriate Flood Construction Level in a tsunami-prone area of the region, depending on if SLR or tsunami hazard governs at that particular transect location.

While the analysis has been comprehensive, the consultant team has recommended further detailed inundation modelling in some low-lying locations to help strengthen understanding of potential flood risk and supplement the data at their transects.

Sea Level Rise – Detailed Modelling

As suspected, during initial investigation, the low-lying areas chosen for detailed inundation modelling show increasing vulnerability to coastal flooding as mean sea levels increase. These sites include: Victoria Harbour/Gorge Waterway, McNeill Bay/Oak Bay, Cadboro Bay, Sidney/Tulista Park, Sidney/Roberts Bay. Individual figures showing flood extent, maximum depth of flood and water surface elevation for each area and all four RSLR scenarios are included in the Task 2 Report, Appendix E. Below is an example from one of the sites with a 1 m SLR scenario:

Figure 3: Example - Victoria Harbour/Gorge Waterway 1 m SLR, Annual Exceedance Probability 0.5% (200 year)



Source: Appendix E, Task 2: Sea Level Rise Modelling and Mapping Report, Associated Engineering (June 2020)

Sea Level Rise – Inter-Tidal Ecosystem and Cultural Sites Risk Assessment

Utilizing existing regional scale data, terrestrial ecosystems that are important for biodiversity were identified, categorized and mapped and overlaid with SLR criteria and mapped across the region. Similarly, documented archaeological and historic sites, collated from the provincial Remote Access to Archaeological Data were also mapped using a generalized format. Results found that a number of coastal ecosystems and known historical sites will be impacted by SLR. See Section 5 of the Task 2 Report for further information.

Summary Results – Tsunami

The report included modelling of various tsunami sources, including distant, subduction and local locations. Tsunami sources were shortlisted to 11 for purposes of this study. The selected tsunami sources impact the communities within the capital region in different ways. These sources also have different probabilities of when they may occur and should be considered as results are reviewed. For example, it is important to understand that the Cascadia Subduction Zone – L1 (CSZ-L1) event has the highest magnitude and highest impact for the capital region communities, but has the lowest probability to occur, due to its 2,500-year return period. In comparison, the Cascadian Subduction Zone – Northern Segment (CSZ-NS) event, has a lower magnitude, lower impact to the capital region's communities, but has a higher probability of occurrence with an approximate 500-year return period. Table 2 provides a summary for the probabilities of each modelled event.

Table 2: Summary of Tsunami Sources Modelled in this Project

Source	Abbrv.	Magnitude	Probability	Comment
Cascadia Subduction Zone - L1 Source	CSZ-L1	9.1-9.2	2500-yr return period	Worst-case earthquake scenario (L1)
Cascadia Subduction Zone - Northern Segment	CSZ-NS	8.5-9.0	500-600 yr return period	Rupture of northern segment
Cascadia Subduction Zone - Central Segment	CSZ-CS	8.5	500-600 yr return period	Rupture of central segment (southern Washington, northern Oregon), identified by Wang et al., 2013
Alaskan 1964	AL	9.2	500-1000 yr return period	Same as 1964 earthquake
Aleutian Trench	UN	8.6	unknown	1946 Aleutian Trench earthquake, off Unimak Island
Haida Gwaii	HG1	7.7	unknown	2012 earthquake
South of Haida Gwaii	HG2	7.5	unknown	Hypothetical event spanning between Haida Gwaii failure and Nootka fault
Devil's Mountain Fault Mw 7.5	DM1	7.5	2000-yr return period	Worst-case earthquake – Long transpressive rupture (>50 km)
Devil's Mountain Fault Mw 6.5	DM2	6.5	<2000-yr return period	Middle length transpressive rupture (<50 km)
Southern Whidbey Island Fault Mw 7.5	SW1	7.5	2000-yr return period	Worst-case earthquake – Long transpressive rupture (>50 km)
Southern Whidbey Island Fault Mw 6.5	SW2	6.5	<2000-yr return period	Shorter transpressive rupture (<50 km)

Source: page 2-3, Task 3: Tsunami Modelling and Mapping Report, Associated Engineering (June 2020)

Modelling results found that the capital region is at risk of tsunami activity, which would cause high waves to strike the coastline, and cause flooding in low-lying areas.

Depending on the tsunami scenario and the geographic location across the region, modelled results indicate a range of average water surface elevations. The following table provides a summary of results for all the earthquake scenarios assessed by local government.

Table 3: Summary of Modelled Average Water Surface Elevations for Various Tsunami Events

Tsunami Source / Local Government or Electoral Area	CSZ-L1 (CSZ - L1 Source)	CSZ-NS (CSZ - Northern Segment)	CSZ-CS (CSZ - Central Segment)	AL (Alaskan 1964)	UN (Aleutian Trench)	HG1 (Haida Gwaii)	HG2 (South of Haida Gwaii)	DM1 (Devil's Mountain Mw 7.5)	DM2 (Devil's Mountain Mw 6.5)	SW1 (Southern Whidbey Mw 7.5)	SW2 (Southern Whidbey Mw 6.5)
Central Saanich	4.27	3.26	1.43	1.44	1.25	Event used for calibration purposes only. Effects in capital region minimal.	Effects in capital region minimal.	3.37	1.31	2.38	1.27
Colwood	6.76	4.44	1.09	1.02	0.83			3.53	0.88	2.41	0.88
Esquimalt	6.85	4.47	1.08	1.03	0.84			3.58	0.87	2.40	0.88
Highlands	3.54	2.94	1.41	1.37	1.28			1.97	1.25	1.72	1.24
Juan de Fuca Electoral Area	7.42	4.94	1.48	1.37	1.15			1.83	1.17	1.98	1.17
Langford	3.60	3.06	1.42	1.39	1.25			2.58	1.31	2.05	1.28
Metchosin	5.22	3.51	1.03	0.94	0.79			2.07	0.86	1.71	0.86
North Saanich	3.86	2.74	1.40	1.34	1.23			2.47	1.29	1.96	1.26
Oak Bay	3.81	2.68	0.94	0.92	0.78			3.55	0.90	2.04	0.91
Saanich	3.57	2.62	0.96	0.90	0.78			3.52	0.93	1.92	0.84
Salt Spring Electoral Area	3.26	2.52	1.35	1.30	1.23			2.06	1.26	1.78	1.25
Sidney	4.69	3.02	1.42	1.38	1.24			3.40	1.31	2.29	1.27
Sooke	7.13	4.36	1.30	1.23	1.06			1.47	1.06	1.44	1.07
Southern Gulf Islands Electoral Area	3.11	2.41	1.36	1.33	1.23			2.03	1.26	1.74	1.25
Victoria	5.55	3.88	1.02	0.97	0.79			3.18	0.85	2.23	0.87
View Royal	8.45	6.29	1.18	1.14	0.90			4.57	0.96	3.64	0.97

Source: page 4-4, Task 3: Tsunami Modelling and Mapping Report, Associated Engineering (June 2020)

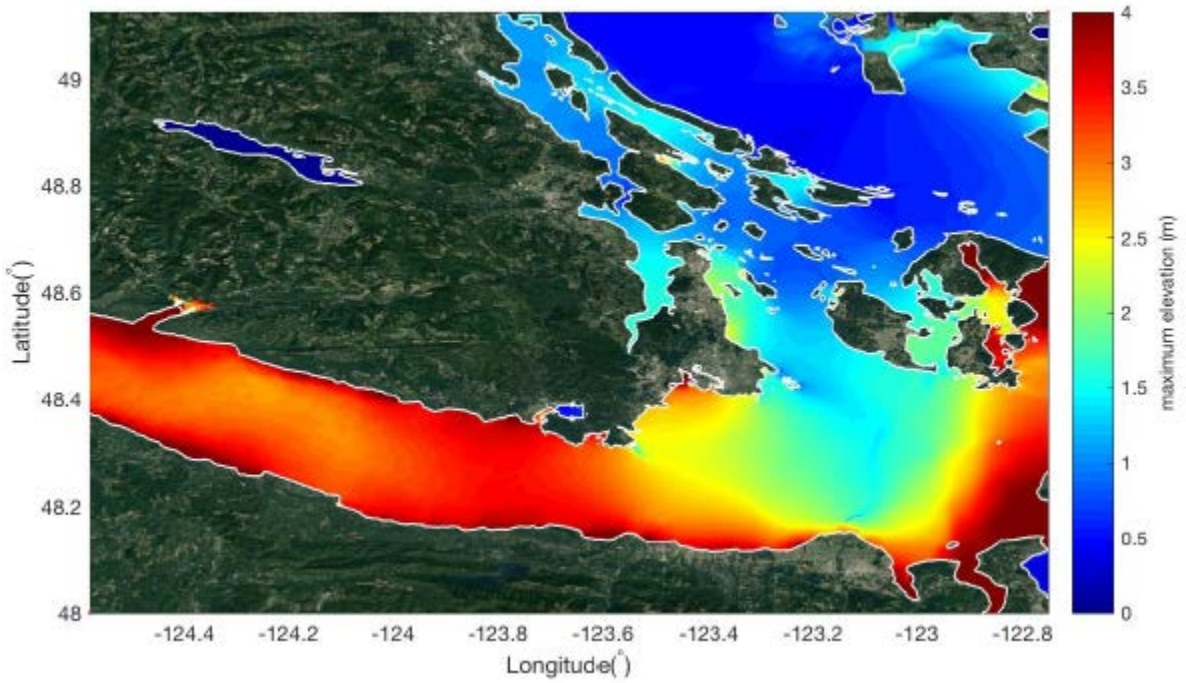
The results show that a Cascadia Subduction Zone – L1 event, (i.e., the worst-case scenario, low probability 2500-year event) would significantly affect the entire study region and would cause the largest water level values.

An event similar to the 1700 Cascadia Subduction Zone earthquake, known as the CSZ-NS event for purposes of this study, found similar results to previous regional analysis completed in 2013. A few anomalies (including Esquimalt Harbour) have been described in the Task 3 Report, Section 4.3.

The more distant Alaskan earthquake, would have a lower impact within the capital region. The low probability, local crustal events (Devils Mountain Fault line sources) would impact parts of Sidney, Saanich and Oak Bay.

Figure 4 provides an example of a mapping result for the CSZ-NS scenario at a 30 m resolution. Similar maps for all modelled tsunami scenarios, are found in Section 4.3 and Appendix A of Task 3 Report.

Figure 4: Example - CSZ-NS (500-year return period) Maximum Water Surface Elevation Model Results



Source: Appendix A, Task 3: Tsunami Modelling and Mapping Report, Associated Engineering (June 2020)

The approximate travel times for each tsunami scenario, for each local government/electoral area are given in the table below. Travel times denote the amount of time in minutes required for the first tsunami wave to travel to a particular location, after generation at the source. These numbers will give decision-makers a sense of how much time is available to emergency services and the greater community to facilitate evacuation (if required).

Table 4: Summary of Approximate Arrival Time for Each Modelled Tsunami Event (mins)

Tsunami Source	CSZ-L1	CSZ-NS	CSZ-CS	AL	UN	HG1	HG2	DM1	DM2	SW1	SW2
Central Saanich	100	100	125	280	325	170	170	5	5	5	5
Colwood	75	75	100	255	300	145	145	5	5	5	5
Esquimalt	75	75	100	255	300	145	145	5	5	5	5
Highlands	120	120	145	300	345	190	190	30	30	30	30
Juan de Fuca Electoral Area	40	40	65	220	265	110	110	15	15	15	15
Langford	75	75	100	255	300	145	145	5	5	5	5
Metchosin	70	70	95	250	295	140	140	5	5	5	5
North Saanich	105	105	130	285	330	175	175	10	10	10	10
Oak Bay	85	85	105	265	310	155	155	5	5	5	5
Saanich	90	90	115	270	315	160	160	5	5	5	5
Salt Spring Electoral Area	115	115	135	290	340	180	180	15	15	15	15
Sidney	110	110	135	290	335	180	180	15	15	15	15
Sooke	60	60	85	240	285	130	130	15	15	15	15
Southern Gulf Islands Electoral Area	100	100	125	280	325	170	170	5	5	5	5
Victoria	80	80	105	260	305	150	150	5	5	5	5
View Royal	80	80	105	260	305	150	150	5	5	5	5

Source: page 4-5, Task 3: Tsunami Modelling and Mapping Report, Associated Engineering (June 2020)

Detailed flood modelling illustrating maximum water levels was carried out at a grid resolution of 4 m for areas, including Victoria/Esquimalt, Sidney, Saanich, Oak Bay, Sooke, and Port Renfrew for the following scenarios (Table 5).

Table 5: Matrix of Detailed Tsunami Inundation Scenarios Modelled at Each Domain

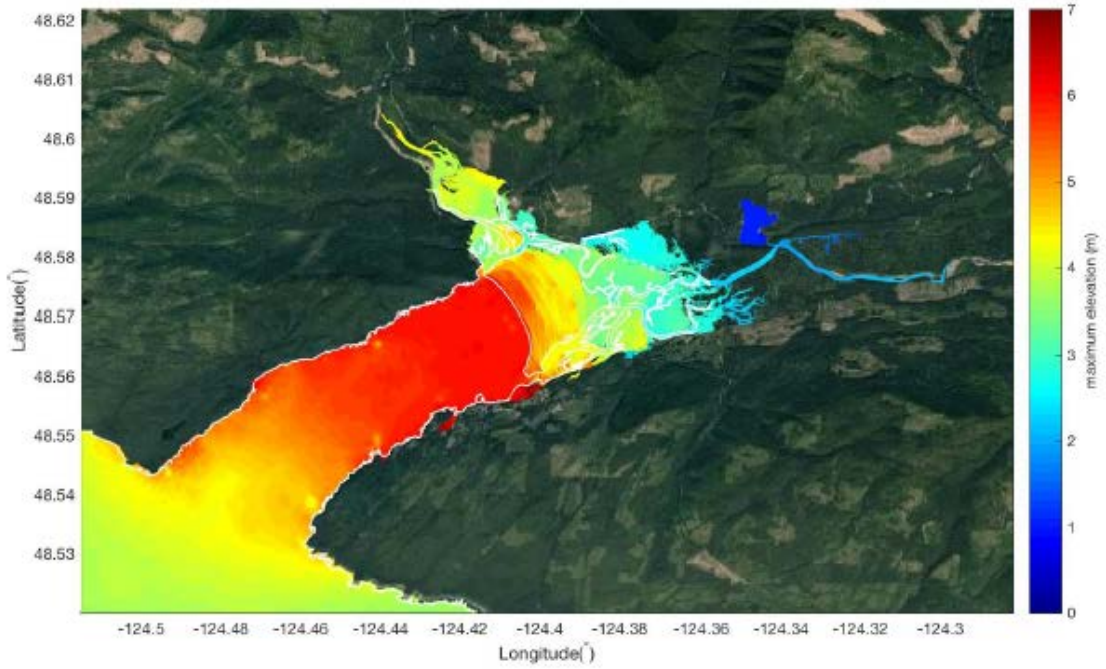
Detailed Modelling Scenarios	Abbrv.	Victoria/ Esquimalt	Saanich/ Oak Bay	Sidney	Sooke	Port Renfrew
Cascadia Subduction Zone - L1 Source	CSZ-L1	✓	✓	✓	✓	✓
Cascadia Subduction Zone - Northern Segment	CSZ-NS	✓	✓	✓	✓	✓
Cascadia Subduction Zone - Central Segment	CSZ-CS	✓	✓	✓	✓	✓
Alaskan 1964	AL	✗	✗	✗	✓	✓
Aleutian Trench	UN	✗	✗	✗	✓	✓
Haida Gwaii	HG1	✗	✗	✗	✗	✗
South of Haida Gwaii	HG2	✗	✗	✗	✗	✗
Devil's Mountain Fault Mw 7.5	DM1	✓	✓	✓	✗	✗
Devil's Mountain Fault Mw 6.5	DM2	✓	✓	✓	✗	✗
Southern Whidbey Island Fault Mw 7.5	SW1	✓	✓	✓	✗	✗
Southern Whidbey Island Fault Mw 6.5	SW2	✓	✓	✓	✗	✗

✓ - Source modelled for that detailed tsunami inundation domain
✗ - Source not modelled for that detailed tsunami inundation domain

Source: page 2-29, Task 3: Tsunami Modelling and Mapping Report, Associated Engineering (June 2020)

Results of the detailed modelling and mapping are further described in Section 4.4 and appendices E through M in the Task 3 Report. Figure 5 is an example of the modelling outputs.

Figure 5: Example – Maximum Occurring Water Surface Elevation in Port Renfrew: CSZ-NS Event



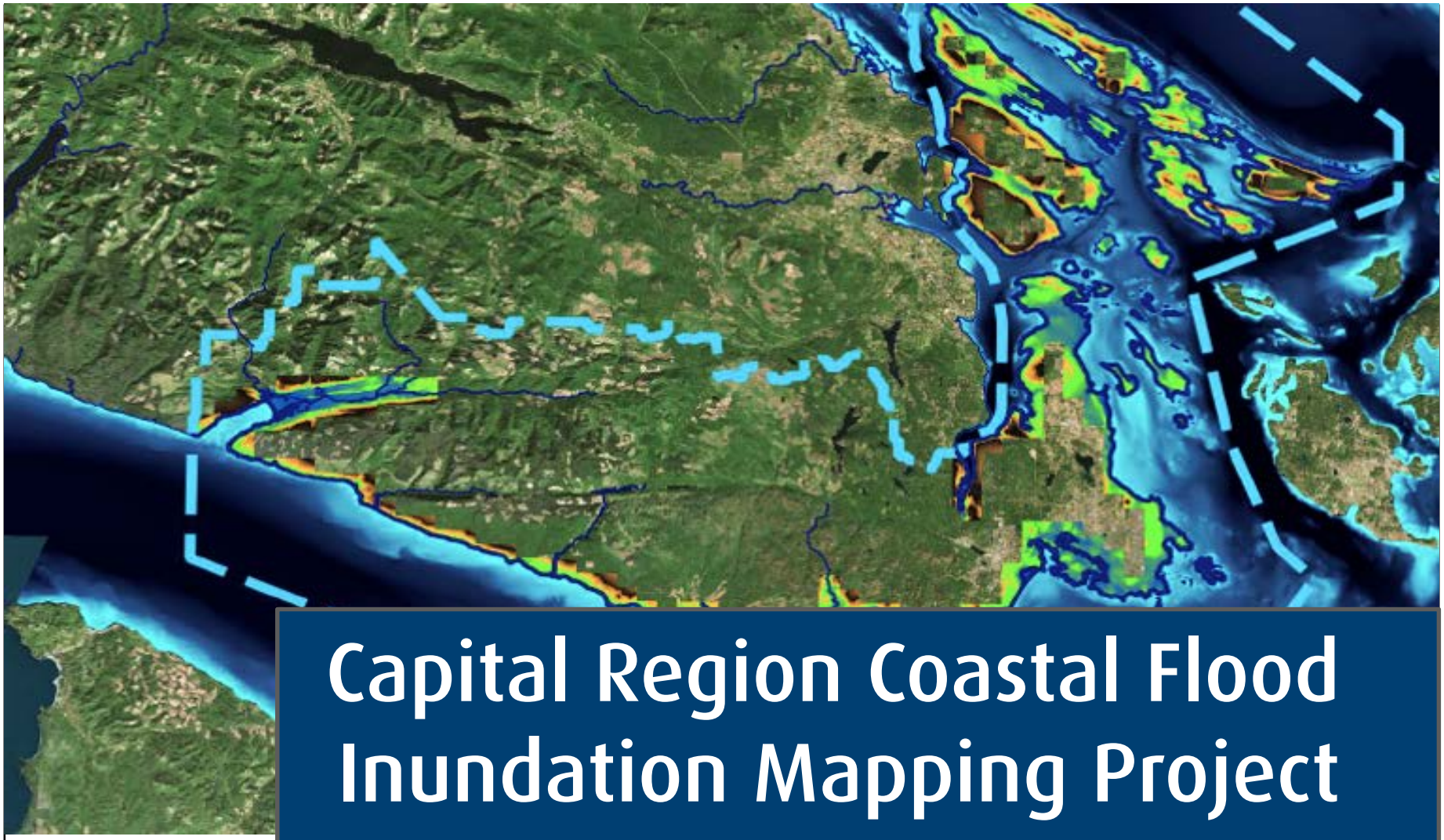
Source: Appendix F, Task 3: Tsunami Modelling and Mapping Report, Associated Engineering (June 2020)

Tsunami – Risk Assessment

As a sub-task to the tsunami analysis, the consultant team did an assessment to identify the potential risk of damage to ports and harbours, as a result of flooding and strong currents generated by tsunami waves on selected locations across the region (see Section 5.2, Task 3 report). Utilizing public data sets, public and privately-managed marine infrastructure (i.e., harbours, ports, marinas, etc.) from across the region were identified. The water surface elevation and current velocity results from three tsunami scenarios (CSZ-L1, DM1, AL) from the study were then used to assess potential impact. Impacts to marine infrastructure were most expected from the CSZ-L1 scenario and DM1 scenario. More information can be found in Section 5, Task 3 report.

Dominant Hazards to inform Local Government Flood Construction Level Policy

The tsunami report recommends using CSZ-NS as the standard, where tsunami risk exceeds the corresponding RSLR Flood Construction Level at the specific location. This includes areas within Colwood, Juan de Fuca, Sooke and View Royal (see Task 2 Report, Section 6.3). The report recommends results should always be checked against the results for the specific transect of interest (as summarized in Appendix B of the Task 2 Report, and Appendix D of the Task 3 Report).



Capital Region Coastal Flood Inundation Mapping Project

July 15, 2020

Legislative Context

→ *British Columbia Local Government Act*: local governments are responsible for understanding and managing the risk of flood events through land use planning and regulations.

→ Under the *Emergency Program Act 1996*, local governments are responsible for incorporating potential emergencies and disasters that could affect all or any part of their jurisdictional area in emergency plans for which the local authority has responsibility.

Project Process

→ The CRD established an **inter-municipal, inter-disciplinary project team** to scope and execute project.

→ The *Capital Region Coastal Flood Inundation Mapping Project* was **completed to inform the CRD, its local governments, First Nations and other interested stakeholders** of the future hazards associated with coastal flooding related to sea level rise and tsunamis.

The Project

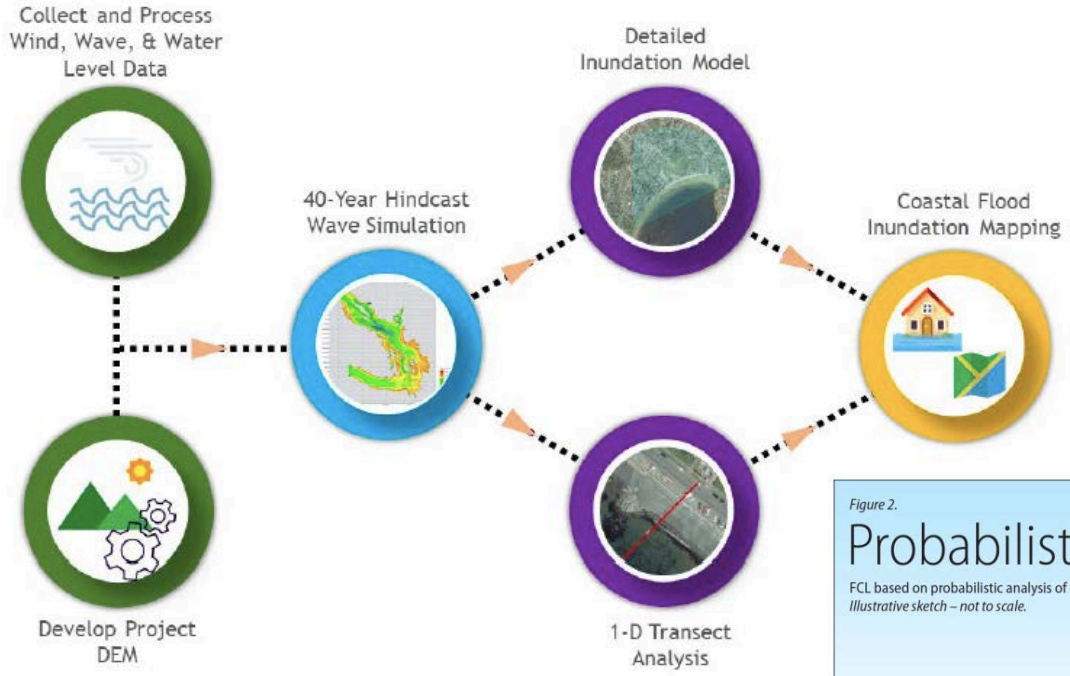
1. Digital Elevation Model (DEM) Development
2. Sea Level Rise Modelling and Mapping Report
3. Tsunami Modelling and Mapping Report





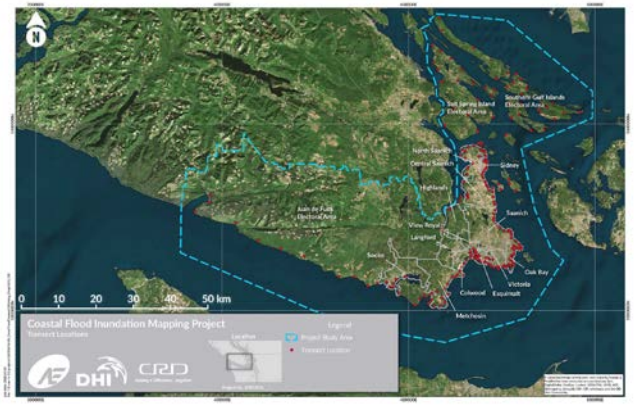


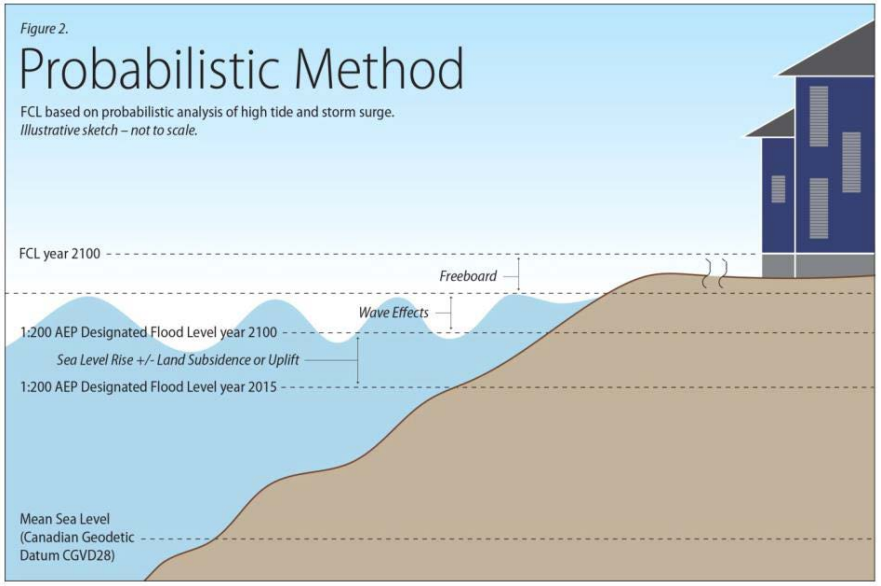
Sea Level Rise Methodology



→ 199 transects for regional coverage

→ five detailed sites





Provincial Probabilistic Method for Derivation of FCLs (BC MoE, 2011b)

Sea Level Rise Summary Findings

Summary of 95%ile Flood Construction Levels by local government/electoral area

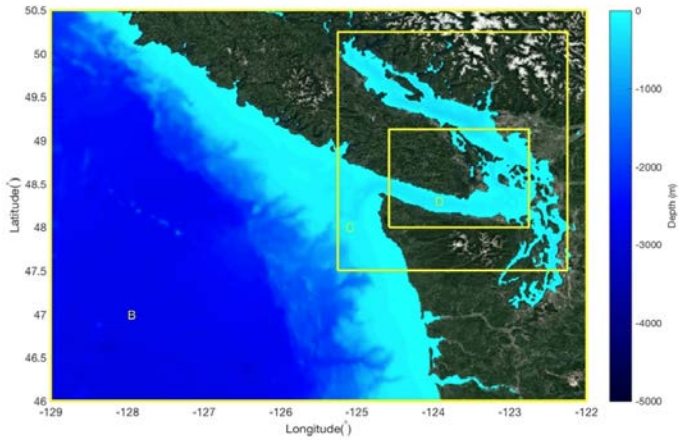
Local Government / Electoral Area	0.0 m RSLR FCL (m CGVD2013)	0.5m RSLR FCL (m CGVD2013)	1.0 m RSLR FCL (m CGVD2013)	2.0 m RSLR FCL (m CGVD2013)
Central Saanich	3.93	4.43	4.89	5.67
Colwood	3.24	3.70	4.35	5.20
Esquimalt	3.95	4.45	5.65	6.55
Highlands	3.84	4.34	4.84	5.34
Juan de Fuca Electoral Area	4.39	4.90	5.38	6.48
Langford	2.76	3.27	3.77	4.83
Metchosin	3.80	4.30	4.86	5.92
North Saanich	4.70	5.21	5.72	6.33
Oak Bay	4.99	5.39	5.89	6.71
Saanich	4.15	4.66	5.17	6.18
Salt Spring Electoral Area	4.29	4.64	5.21	5.91
Sidney	3.51	3.99	4.29	5.31
Sooke	3.23	3.73	4.23	5.23
Southern Gulf Islands Electoral Area	4.82	4.90	5.28	6.44
Victoria	4.28	4.69	5.60	6.62
View Royal	4.86	4.94	5.01	5.16

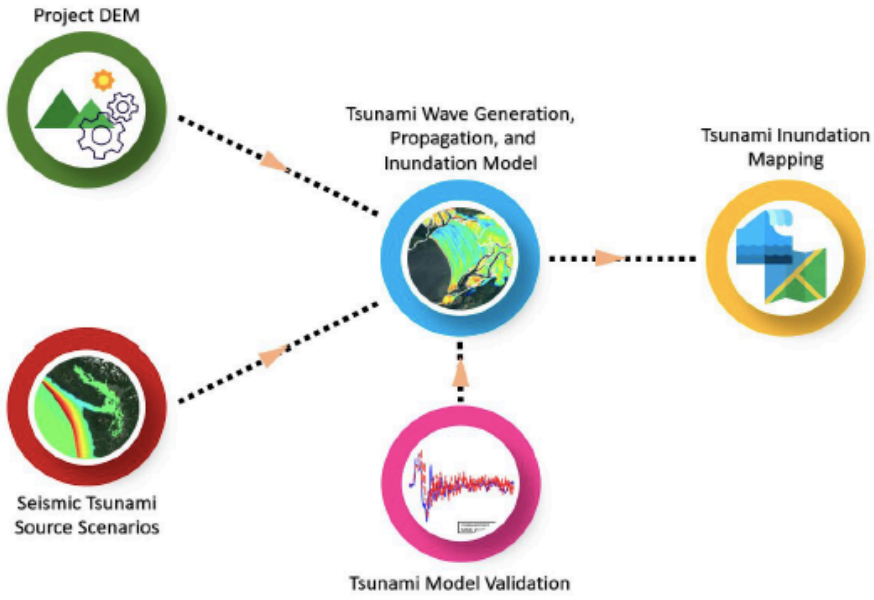
→ The majority of the capital region's coastline is quite elevated

→ Low-lying areas in the region are susceptible to coastal storm flooding

→ Should consider tsunami in flood construction levels (FCLs)

Tsunami Methods





→ 11 tsunami scenarios

→ Entire region modelled to 30 m cell resolution (1arc-second)

→ Five areas were selected for detailed inundation modelling, resolution of 4 m

Tsunami Methods Continued

Source	Abbrv.	Magnitude	Probability	Comment
Cascadia Subduction Zone, CSZ L1	CSZ – L1	9.1-9.2	2500-yr return period	Worst-case earthquake scenario (L1)
Cascadia Subduction Zone, CSZ Northern Segment	CSZ-NS	8.5-9.0	500-600 yr return period	Rupture of northern segment
Cascadia Subduction Zone, CSZ Central Segment	CSZ-CS	8.5	500-600 yr return period	Rupture of central segment (southern Washington, northern Oregon), identified by Wang et al., 2013
Devil's Mountain Island fault Mw 7.5.	DM1	7.5	2000-yr return period	Worst-case earthquake – Long transpressive rupture (>50 km)
Devil's Mountain Island fault Mw 6.5	DM2	6.5	<2000-yr return period	Middle length transpressive rupture (<50 km)
Southern Whidbey Island fault Mw 7.5	SW1	7.5	2000-yr return period	Worst-case earthquake – Long transpressive rupture (>50 km)
Southern Whidbey Island fault Mw 6.5	SW2	6.5	<2000-yr return period	Shorter transpressive rupture (<50 km)
Alaskan 1964	AL	9.2	500-1000 yr	Same as 1964 earthquake
Aleutian Trench	UN	8.6	unknown	1946 Aleutian Trench earthquake, off Unimak Island
Haida Gwaii	HG1			2012 earthquake
South of Haida Gwaii	HG2			Hypothetical event spanning region between Haida Gwaii failure and Nootka fault

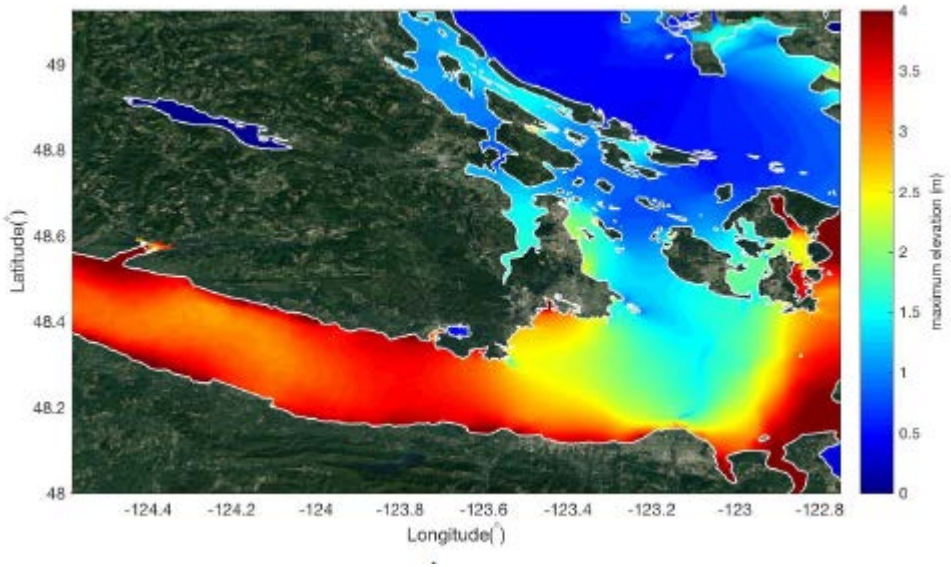
Detailed Modelling Scenario Selection

Table 2-3
Matrix of Detailed Tsunami Inundation Scenarios Modelled at Each Domain

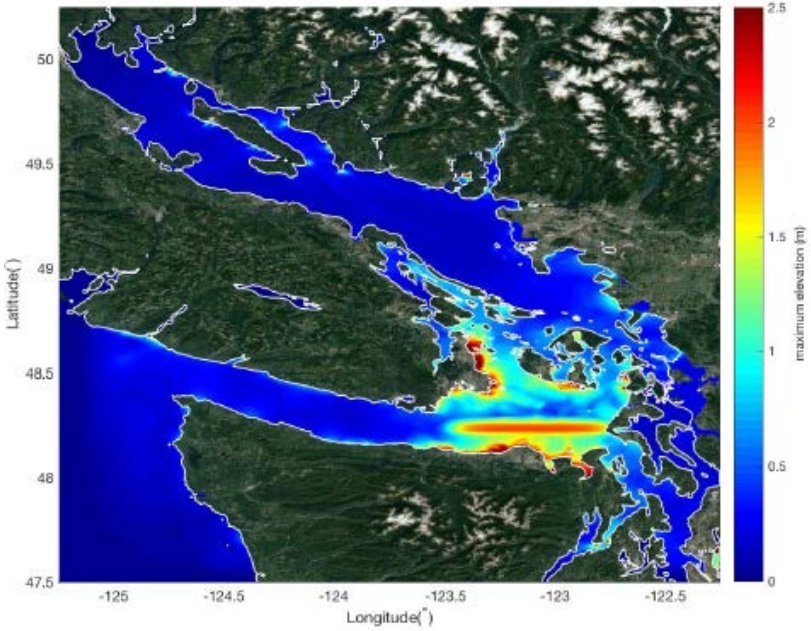
Detailed Modelling Scenarios	Abbrv.	Victoria/ Esquimalt	Saanich/ Oak Bay	Sidney	Sooke	Port Renfrew
Cascadia Subduction Zone - L1 Source	CSZ-L1	✓	✓	✓	✓	✓
Cascadia Subduction Zone - Northern Segment	CSZ-NS	✓	✓	✓	✓	✓
Cascadia Subduction Zone - Central Segment	CSZ-CS	✓	✓	✓	✓	✓
Alaskan 1964	AL	✗	✗	✗	✓	✓
Aleutian Trench	UN	✗	✗	✗	✓	✓
Haida Gwaii	HG1	✗	✗	✗	✗	✗
South of Haida Gwaii	HG2	✗	✗	✗	✗	✗
Devil's Mountain Fault Mw 7.5	DM1	✓	✓	✓	✗	✗
Devil's Mountain Fault Mw 6.5	DM2	✓	✓	✓	✗	✗
Southern Whidbey Island Fault Mw 7.5	SW1	✓	✓	✓	✗	✗
Southern Whidbey Island Fault Mw 6.5	SW2	✓	✓	✓	✗	✗

✓ - Source modelled for that detailed tsunami inundation domain
✗ - Source not modelled for that detailed tsunami inundation domain

Surface Water Elevation



Maximum water surface elevation, CSZ–NS



Maximum water surface elevation, Devil's Mountain Fault, Mw 7.5

Arrival Times - Example



Next Steps

→ Provide reports and associated deliverables to local governments, First Nations and senior levels of government and emergency coordination bodies.

→ Work together to better understand how to prepare for future coastal floods and tsunami risk.
- Inform planning and policy, public education, communication and other related activities.
- Coordination opportunities on local government flood policies (i.e., FCLs).
  - Consideration of tsunami risks within FCLs.

→ Opportunities for collaboration and capacity building with intermunicipal committees.
- Regional Emergency Management Partnership
- Local Government Emergency Program Advisory Commission
- CRD Climate Action Inter-Municipal Working Group

→ Continued work that incorporates best available science.

Making a difference...together

REPORT TO PENINSULA RECREATION COMMISSION
MEETING OF TUESDAY, JULY 21, 2020

SUBJECT **2020 Financial Plan Amendment**

ISSUE SUMMARY

To seek approval from the Capital Regional District (CRD) Board to amend the 2020 Panorama Recreation financial plan for forecasted deficit due to COVID-19.

BACKGROUND

At its June 8, 2020 meeting, the Peninsula Recreation Commission approved the proposed phased reopening of facilities, programs and services. The forecasted deficit of the phased reopening of facilities, programs and services (including the aquatic facility) is $413,562.

In alignment with Local Government Act Section 374 (5), the Panorama Recreation Centre service is required to balance the change in the budget by ensuring proposed expenditures and transfers do not exceed the total proposed funding.

ALTERNATIVES

Alternative 1

The Peninsula Recreation Commission recommends to the Capital Regional District Board:

That the 2020 Panorama Recreation financial plan be amended to reduce the planned transfers to the capital reserve by $411,204 and transfers to the operating reserve by $2,358 to cover the forecasted deficit of $413,562, as a result of the COVID-19 closures and phased re-opening plan, as outlined in Appendix A.

Alternative 2

That the 2020 Panorama Recreation financial plan amendment be referred back to staff for additional information.

IMPLICATIONS

Financial Implications

At its January 23, 2020 meeting, the Peninsula Recreation Commission approved the transfer of the 2019 year-end operating surplus to the capital reserve. The 2019 operating surplus for 2019 was $571,638.

The transfer of the 2019 operating surplus effectively pre-paid the 2020 capital transfers and results in no negative impact on the 2020-2024 capital plan. The ending capital reserves balance was projected for December 31, 2024, at $2,803,008 in the 2020-2024 capital plan. With the addition of the 2019 operating surplus transfer and the reduction of the 2020 transfer, the new

estimated balance of the capital reserve at December 31, 2024, is $3,032,767. The reduction of the 2020 transfers to capital have no negative impact on the capital plan.

In an effort to mitigate costs and potential losses as a result of the facility closure, auxiliary staff were laid off on March 31, 2020; regular staff, excluding maintenance, as of April 27, 2020, were placed on furlough and redeployed to other CRD operations. In development of the phased re-opening plan, staff balanced mitigating costs and meeting the Commission's mission and goals of making available a wide range of services and maximizing participation under the guidelines provided from BCRPA, Island Health and WorkSafeBC.

Looking forward to 2021, staff have not built any impacts of COVID-19 into the current 2020-2024 financial plan. This will be reviewed in October when service levels are considered and the provisional budget for 2021 to 2025 is presented.

CONCLUSION

As a result of the forecasted deficit from the COVID-19 closures and phased re-opening of facilities, programs and services, an amendment is required to balance the 2020 budget. Appendix A shows the proposed amendment to Panorama Recreation Center's 2020-2024 Committee Summary. The amendment balances the forecasted deficit by reducing the 2020 budgeted contribution to capital reserve by $411,204 and operating reserve by $2,358.

RECOMMENDATION

The Peninsula Recreation Commission recommends to the Capital Regional District Board:

That the 2020 Panorama Recreation financial plan be amended to reduce the planned transfers to the capital reserve by $411,204 and transfers to the operating reserve by $2,358 to cover the forecasted deficit of $413,562, as a result of the COVID-19 closures and phased re-opening plan, as outlined in Appendix A.

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

ATTACHMENT

Appendix A: Amended 2020-2024 Panorama Recreation Center Committee Summary

PANORAMA RECREATION	2019 BOARD BUDGET	2019 ACTUAL	Approved Budget 2020 CORE BUDGET	2020 ONGOING	2020 ONE-TIME	2020 TOTAL	Revised Budget 2020 TOTAL	FUTURE PROJECTIONS 2021 TOTAL	2022 TOTAL	2023 TOTAL	2024 TOTAL
OPERATING COSTS:											
Salaries and Wages	4,758,947	4,917,867	5,085,320	114,298	-	5,199,618	3,827,584	5,334,523	5,458,888	5,572,751	5,688,935
Utilities	645,422	554,524	756,547	-	-	756,547	655,576	714,265	635,974	659,955	684,862
Recreation Programs and Special Events	474,171	458,888	448,774	-	-	448,774	165,103	508,220	465,869	474,812	482,047
Operating Supplies & Promotion	404,082	291,638	343,393	-	-	343,393	226,934	350,691	363,726	366,161	379,904
Maintenance and Repairs	413,710	377,007	373,016	-	-	373,016	330,521	407,401	455,657	461,059	428,115
Internal Allocations	368,322	389,766	429,387	9,200	-	438,587	436,587	481,475	525,903	536,682	547,681
Licences/Surveys/Legal/Meeting	146,481	154,390	161,337	-	-	161,337	138,106	174,625	183,561	193,339	204,116
Advertising/Printing/Brouchures/Signs	124,916	87,144	105,133	-	-	105,133	42,693	106,443	107,759	109,081	110,412
Telephone/IT & Network Systems	58,129	49,688	54,378	-	-	54,378	54,378	56,326	57,672	59,059	60,587
Vehicles and Travel	73,533	65,636	85,008	-	-	85,008	55,361	88,016	89,227	90,433	92,639
Insurance	42,390	42,390	41,980	-	-	41,980	41,980	42,900	43,840	44,810	45,800
Contingency	50,000	-	50,000	-	-	50,000	50,000	50,000	50,000	50,000	50,000
TOTAL OPERATING COSTS	**7,560,103**	**7,388,938**	**7,934,273**	**123,498**	**-**	**8,057,771**	**6,024,822**	**8,314,886**	**8,438,076**	**8,618,142**	**8,775,098**
CAPITAL / RESERVE											
Transfer to Operating Reserve Fund	7,575	7,575	7,728	-	-	7,728	5,370	7,805	7,883	7,962	8,042
Transfer to Capital Reserve Fund	391,680	963,333	411,204	-	-	411,204	-	419,428	427,816	436,372	920,363
Transfer to Equipment Replacement Fund	396,000	396,000	396,000	-	-	396,000	396,000	396,000	396,000	396,000	396,000
Capital & Equipment Purchases	-	-	-	-	-	-	-	-	-	-	-
TOTAL CAPITAL / RESERVES	**795,255**	**1,366,908**	**814,932**	**-**	**-**	**814,932**	**401,370**	**823,233**	**831,699**	**840,334**	**1,324,405**
DEBT CHARGES	832,041	799,108	771,574	46,455	-	818,029	756,214	926,637	926,637	857,737	378,110
TOTAL COSTS	**9,187,399**	**9,554,955**	**9,520,779**	**169,953**	**-**	**9,690,732**	**7,182,406**	**10,064,756**	**10,196,412**	**10,316,213**	**10,477,613**
Internal Recoveries											
Recoveries - Other	-	-	-	-		-		-	-	-	-
OPERATING LESS RECOVERIES	**9,187,399**	**9,554,955**	**9,520,779**	**169,953**	**-**	**9,690,732**	**7,182,406**	**10,064,756**	**10,196,412**	**10,316,213**	**10,477,613**
FUNDING SOURCES (REVENUE)											
Estimated balance C/F from current to Next year											
Balance C/F from Prior to Current year	-	-	-	-	-	-	-	-	-	-	-
Fee Income	(3,211,825)	(3,508,425)	(3,427,318)	(100,877)	-	(3,528,195)	(1,520,819)	(3,644,828)	(3,738,489)	(3,824,327)	(3,904,705)
Rental Income	(923,279)	(966,610)	(944,365)	(20,180)	-	(964,545)	(478,406)	(979,526)	(1,000,048)	(1,021,090)	(1,042,337)
Sponsorships	(47,069)	(69,412)	(35,770)	-	-	(35,770)	(12,459)	(35,770)	(35,770)	(35,770)	(35,770)
Transfer from Operating Reserve Fund	-	-	-	-	-	-	-	(51,000)	-	-	-
Payments - In Lieu of Taxes	(170,910)	(170,910)	(160,875)	-	-	(160,875)	(160,875)	(170,910)	(170,910)	(170,910)	(170,910)
Grants - Other	-	(5,283)	(7,500)	-	-	(7,500)	(16,000)	(7,500)	(7,500)	(7,500)	(7,500)
TOTAL REVENUE	(4,353,083)	(4,720,639)	(4,575,828)	(121,057)	-	(4,696,885)	(2,188,559)	(4,889,534)	(4,952,717)	(5,059,598)	(5,161,221)
REQUISITION	**(4,834,316)**	**(4,834,316)**	**(4,944,951)**	**(48,896)**	**-**	**(4,993,847)**	**(4,993,847)**	**(5,175,221)**	**(5,243,695)**	**(5,256,615)**	**(5,316,391)**
							0				
PARTICIPANTS: North Saanich. Sidney,Central Saanich											
AUTHORIZED POSITIONS:											
Salaried	31.35	31.35	31.35	3.50	0.00	34.85	34.85	34.85	34.85	34.85	34.85
Converted Auxillaries	0.50	0.50	0.50	0.00	0.00	0.50	0.50	0.50	0.50	0.50	0.50

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REPORT TO SOOKE AND ELECTORAL AREA PARKS AND RECREATION COMMISSION MEETING OF TUESDAY, JULY 28, 2020

SUBJECT **2020 Financial Plan Amendment**

ISSUE SUMMARY

To seek approval from the Capital Regional District (CRD) Board to amend the 2020 Sooke and Electoral Area Parks and Recreation Commission (SEAPARC) financial plan for forecasted changes due to COVID-19.

BACKGROUND

At its June 12, 2020 meeting, the Commission approved the proposed phased reopening of facilities, programs and services. No financial deficit is forecast in the phased reopening of facilities, programs and services including the aquatic facility for 2020. The closure and phased re-opening is forecasted to reduce revenue in 2020 by $753,940. This is balanced by a reduction in staff wages, utilities and other costs.

In alignment with Local Government Act Section 374 (5), the SEAPARC service is required to balance the change in the budget by ensuring proposed expenditures and transfers do not exceed the total proposed funding.

ALTERNATIVES

Alternative 1

The Sooke and Electoral Area Parks and Recreation Commission recommends to the Capital Regional District Board:

That the 2020 Sooke and Electoral Area Parks and Recreation Commission financial plan be amended, as shown in Appendix A, for reduced services and programs with no anticipated deficit, as a result of the COVID-19 closures and phased re-opening plan.

Alternative 2

That the 2020 Sooke and Electoral Area Parks and Recreation Commission financial plan amendment be referred back to staff for additional information.

IMPLICATIONS

Financial Implications

In an effort to mitigate costs and potential losses as a result of the facility closure, auxiliary staff were laid off on March 31, 2020. Regular staff (excluding maintenance staff), were placed on furlough and re-deployed to other CRD operations as of April 27. Most of the regular staff were subsequently recalled. In development of the phased re-opening plan, staff balanced mitigating costs and meeting the Commission's mission and goals of making available a wide range of

services and maximizing participation under the guidelines provided from the British Columbia Recreation and Parks Association, Island Health and WorkSafeBC.

SEAPARC will continue to monitor and respond to public demand. Should forecasted revenues or expenses materially change, staff will return to the Commission with an updated analysis in the fall. Looking forward to 2021, staff have not built any impacts of COVID-19 into the current 2020 -2024 financial plan. This will be reviewed in October when service levels are considered and the provisional budget for 2021 to 2025 is presented.

CONCLUSION

As a result of the COVID-19 closures and phased re-opening of facilities, programs and services, an amendment is proposed to balance the 2020 budget. Appendix A shows the proposed amendment to the SEAPARC 2020-2024 Committee Summary.

RECOMMENDATION

The Sooke and Electoral Area Parks and Recreation Commission recommends to the Capital Regional District Board:

That the 2020 Sooke and Electoral Area Parks and Recreation Commission financial plan be amended, as shown in Appendix A, for reduced services and programs with no anticipated deficit, as a result of the COVID-19 closures and phased re-opening plan.

Submitted by:	Steve Knoke, Manager
Concurrence:	Larisa Hutcheson, P. Eng., General Manager, Parks & Environmental Services
Concurrence:	Robert Lapham, MCIP, RPP, Chief Administrative Officer

ATTACHMENT

Appendix A: Amended 2020-2024 SEAPARC Committee Summary

SEAPARC - ALL SERVICE AREAS	**2019** BOARD BUDGET	**2019** ACTUAL	Budget **2020** TOTAL	Budget **2020** COVID Recast
OPERATING COSTS:				
Salaries and Wages	2,399,770	2,359,734	2,646,460	2,042,409
Electricity & Utilities	219,014	202,171	224,570	214,570
Operating Supplies & Promotion	286,698	274,591	310,660	218,301
Maintenance and Repairs	163,710	139,751	174,680	160,680
Internal Allocations	182,069	181,440	208,140	208,140
Contract for Services	91,800	57,955	86,530	56,120
Vehicles and Travel	28,860	24,025	30,520	26,960
Operating - Other	69,070	56,470	65,010	65,450
Insurance Cost	25,640	25,640	25,290	25,290
Contingency	20,000	-	20,000	20,000
TOTAL OPERATING COSTS	**3,486,631**	**3,321,777**	**3,791,860**	**3,037,920**
*Percentage increase over prior year				
CAPITAL / TRANSFER RESERVES				
Transfer to Operating Reserve Fund	-	-	5,000	5,000
Transfer to Capital Reserve Fund	370,000	524,119	320,000	320,000
Transfer to Equipment Replacement Fund	90,000	90,000	90,000	90,000
Capital Equipment Purchases	-	-		-
TOTAL CAPITAL / RESERVES	**460,000**	**614,119**	**415,000**	**415,000**
DEBT CHARGES	54,070	54,125	104,116	104,116
TOTAL COSTS	**4,000,701**	**3,990,021**	**4,310,976**	**3,557,036**
OPERATING LESS RECOVERIES	**4,000,701**	**3,990,021**	**4,310,976**	**3,557,036**
FUNDING SOURCES (REVENUE)				
Balance C/F from Current to Next year		-		
Balance C/F from Prior to Current year	-	-	-	
Fee Income	(874,410)	(889,185)	(1,102,527)	(455,631)
Rental Income	(336,760)	(326,303)	(343,530)	(236,486)
Transfer from Operating Reserve Fund	(15,000)	-	-	-
Payments - In Lieu of Taxes	(5,024)	(5,024)	(5,043)	(5,043)
TOTAL REVENUE	(1,231,194)	(1,220,512)	(1,451,100)	(697,160)
			17.86%	
REQUISITION	**(2,769,507)**	**(2,769,509)**	**(2,859,876)**	**(2,859,876)**

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ERM 20-31

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

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

ISSUE SUMMARY

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

BACKGROUND

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

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

CONCLUSION

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

RECOMMENDATION

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

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

ATTACHMENT(S)

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

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APPENDIX A

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

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

ISSUE SUMMARY

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

BACKGROUND

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

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

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

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

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

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

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

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

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

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

The following specific stakeholder topics were identified:

1. *Mountain Bike Trails*: The CRD's Environmental Resource Management and Parks staff met with representatives from the South Island Mountain Bike Society, went for a bike tour of the impacted mountain bike trails and collaborated with the Society to organize an open house for the mountain bike community at Hartland Learning Centre. Fifty-two respondents provided 85 comments regarding impacts on mountain biking and other recreational activities. Some opposed any expansion of the landfill within the landfill property, with the majority wanting to ensure that closed trails would be replaced by new ones. CRD staff will continue to work with the mountain bike park users.

2. *Willis Point Road Access*: CRD staff attended a community meeting at the Willis Point Community Hall and received 120 comments from 73 respondents via the feedback form. The issue of largest concern was traffic, followed by potential environmental and recreational impacts of the landfill footprint expansion. CRD staff are currently conducting a traffic impact analysis study and will report on the results in a future report.

3. *Cruise Ship Waste*: A significant number of respondents (90) commented on the acceptance of cruise ship waste with comments ranging from refusing all cruise ship waste to increased recycling requirements for the ships to charging a higher tipping fee for this waste.

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

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

CONCLUSION

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

RECOMMENDATION

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

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

ATTACHMENTS

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

Executive Summary

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

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

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

Public engagement

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

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

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

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

Participants

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

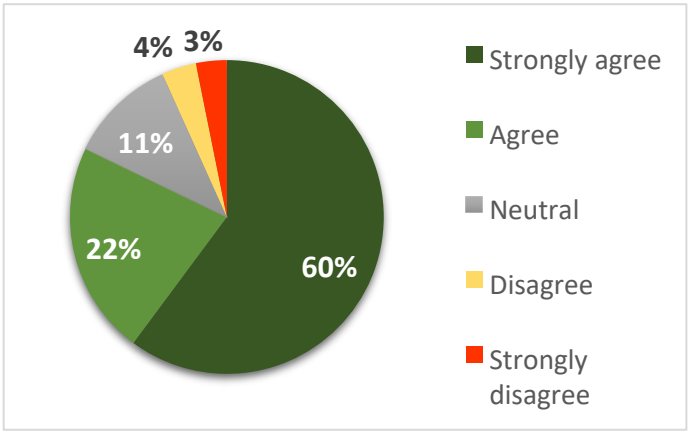
Results

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

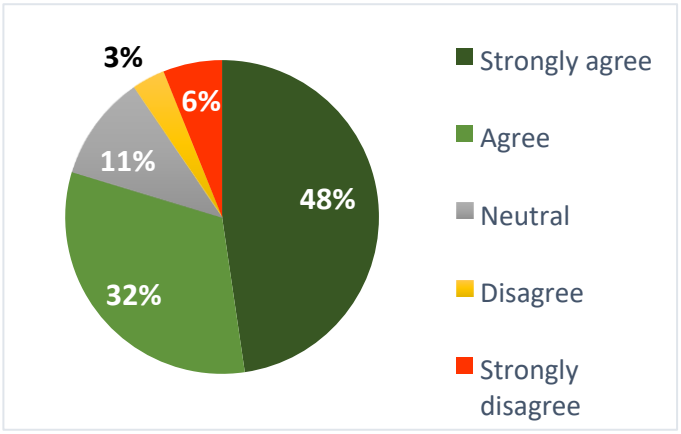
Respondents seemed to have a varied level of understanding regarding how the target was expressed, some of the terms used during the consultation (e.g. residuals, circular economy, extended producer programs), and aspects of waste management within the CRD's mandate.

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

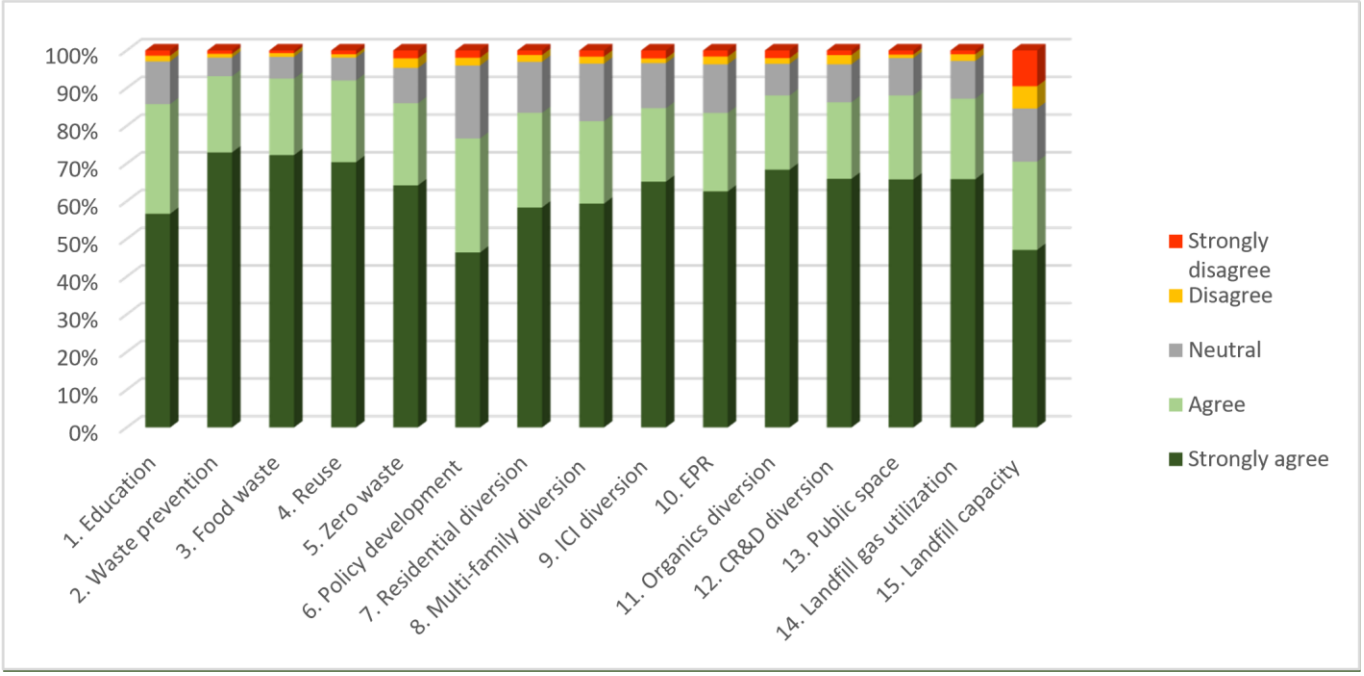
Level of support for proposed target (% of respondents)



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



Level of support for proposed strategies (% of respondents)



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

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



Capital Regional District
Solid Waste Management Plan

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

February 2020

JCA Judith Cullington & Associates

Front cover image: Capital Regional District

Executive Summary

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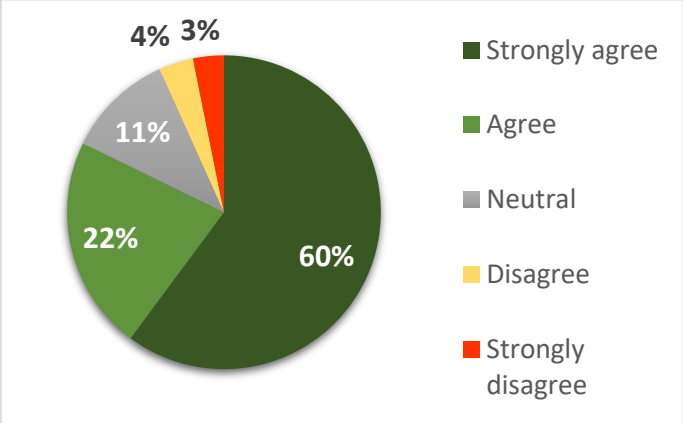
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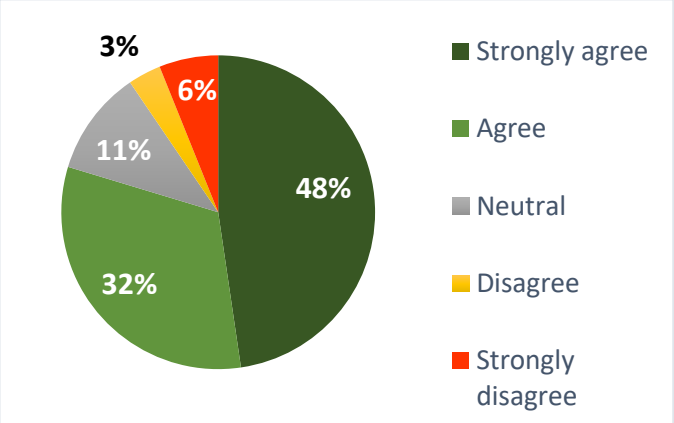
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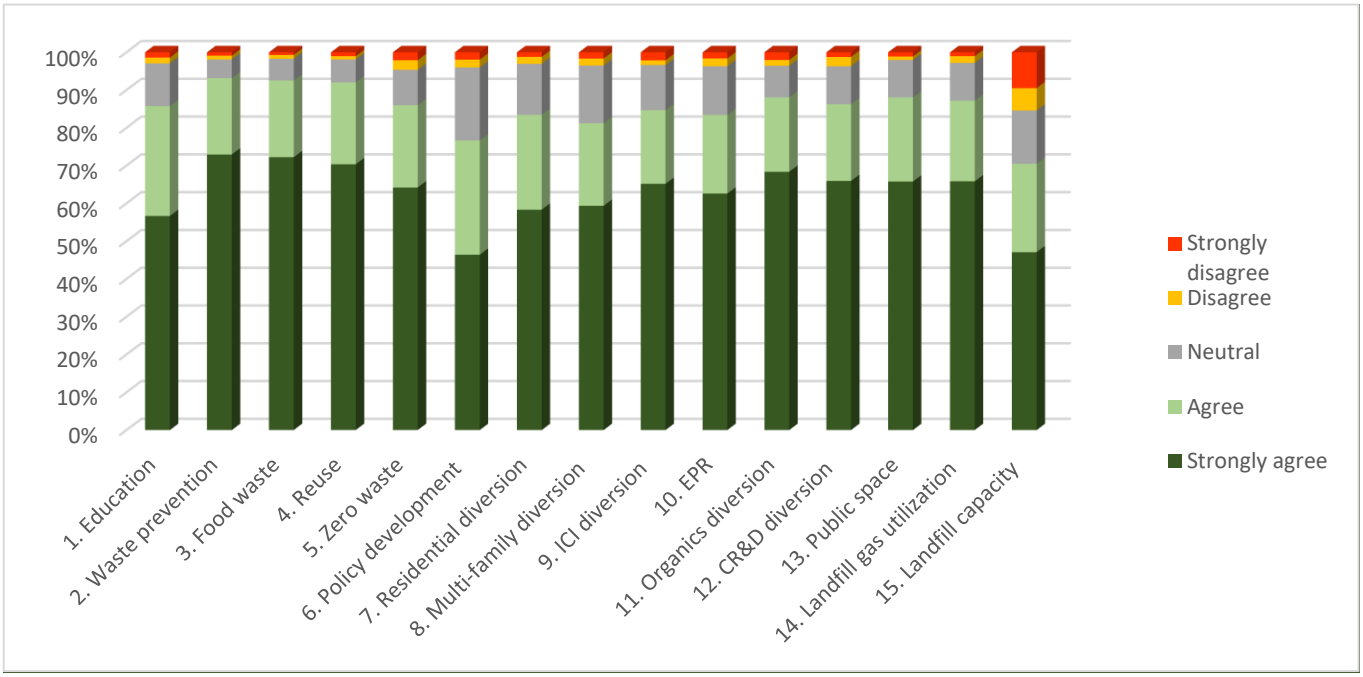
Level of support for proposed target (% of respondents)



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



Level of support for proposed strategies (% of respondents)



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

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

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1. Introduction

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

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

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

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

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

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

Figure 1: Consultation process



2. Public and Stakeholder Engagement Process

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

Promotion

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

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

Attachment 2 provides details and samples of the promotional materials.

Stakeholder outreach

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

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

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

Background information

Background information on the SWMP proposals was provided through:

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

Attachment 4 provides examples and links.

Results

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

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

Demographics

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

Figure 2: Number of respondents by community

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

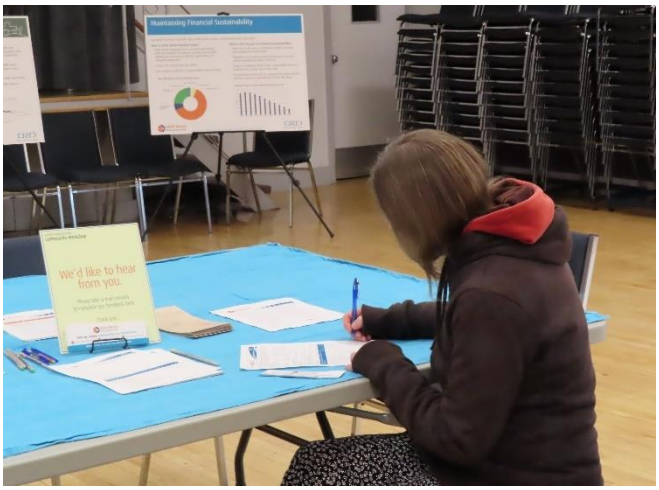
Figure 3: Number of respondents by dwelling type	
Single-family home	722
Multi-family home	267
Other	8
Not provided	33
	1,030

Figure 4: Number of respondents by respondent type	
Resident	987
Business	14
Non-government organization	8
Local government	2
School	1
Other	3
N/A	15
	1,030

Figure 5: Images from open houses













3. Summary of Comments

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

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

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

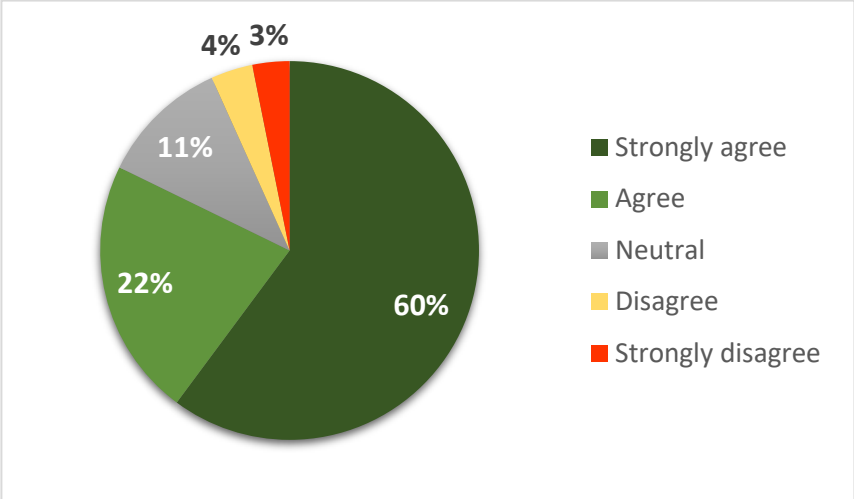
3.1. Proposed Target

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

Figure 6: Proposed target



Figure 7: Level of support for proposed target



What we heard

Explain how the disposal rate target is calculated

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

The target needs to be more aggressive in a shorter timeframe

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

The target is appropriate

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

The target may be unachievable

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

Achieving the target will require support from many sources

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

Ideas and suggestions

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

> *" Even a 33% reduction is too modest, given how wasteful our society is.*
>
> *" Would like to see a stronger target!*
>
> *" The sooner the better. These strategies need to be implemented now.*
>
> *" Ambitious target but hopefully it will work.*
>
> *" Let's be ambitious! We can be leaders in the country.*
>
> *" I would rather see a smaller target by 2022 and then increments from there.*
>
> *" Unlikely to reach a target like that.*
>
> *" I support the goal to reduce what's sent to Hartland, as long as it doesn't encourage people to dump their garbage elsewhere.*

3.2. Proposed Principles, Goals and Objectives

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

Figure 8: Proposed principles, goals and objectives

Guiding Principles:

Promote zero waste approaches and influence others in support of a circular economy

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

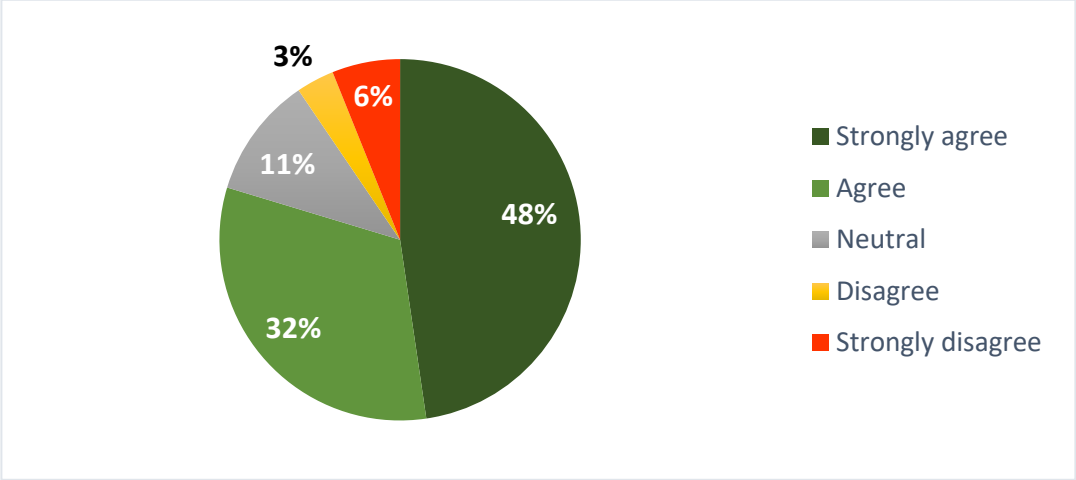
Plan Goals:

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

Plan Objectives

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

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



What we heard

General support for the principles, goals and objectives

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

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

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

> *" All common sense reasonable and good*
>
> *" Anything that can be done to reduce waste should be explored.*
>
> *" Why settle for just surpassing the provincial target, take a leading position and set your own goal beyond this. What can you REALLY achieve if you stretch?*
>
> *" While I support the principles, goals and objectives, these are high level and vague. I am pleased to see you get into more detail with actions.*
>
> *" The goals are not specific enough. Most should specify a measurable target. The "strategies" or general principles are mainly motherhood statements - it would be difficult to argue against them.*

3.3. Proposed Strategies and Actions

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

Figure 10: Proposed strategies



General Comments

The strategies need to be more specific and actionable

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

Identify and set priorities for sectors and materials

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

Ensure that implementation is affordable and costs are transparent

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

Create energy from waste

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

Recognize the climate impacts of solid waste decisions

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

Provide more enforcement

- Provide details on how enforcement will occur.

Rebuild trust and transparency about what happens to recyclables

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

Lead by example

- CRD corporate waste management actions should "walk the talk."

Improve waste management systems

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

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

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

Look at best practices in other jurisdictions

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

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

Ideas and suggestions

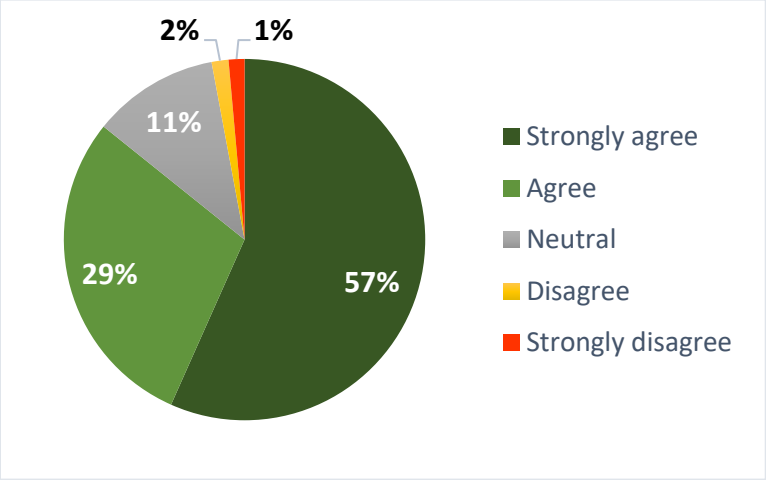
- Provide incentives to encourage the "right" behaviour, such as rebates, awards, contests and tax breaks.
- Waste management trucks should switch to electric vehicles.

Strategy 1: Continue and enhance education programs

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



Figure 11: Level of support for proposed education programs



What we heard

Provide clear information and frequent updates

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

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

Educate to support behaviour changes

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

Work with schools

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

> *" Education is needed to bring the citizens up to speed on what should be prevented, and how materials should be separated.*
>
> *" CRD needs to actively engage schools to integrate compost and recycling .*

Ideas and suggestions

- Put clear information (e.g., stickers) on garbage/recycle/compost bins to show what goes where.
- Create Public Service Announcements using local sports teams (e.g., Victoria Royals) and advertise on buses/bus shelters, at JumboTron.
- Use the principles of nudging[1] and create social, fun and competitive events to encourage waste reduction.
- Use TV infomercials.
- Challenge UVic Engineering students to find creative ways to implement recycling.

[1] Richard Thaler.

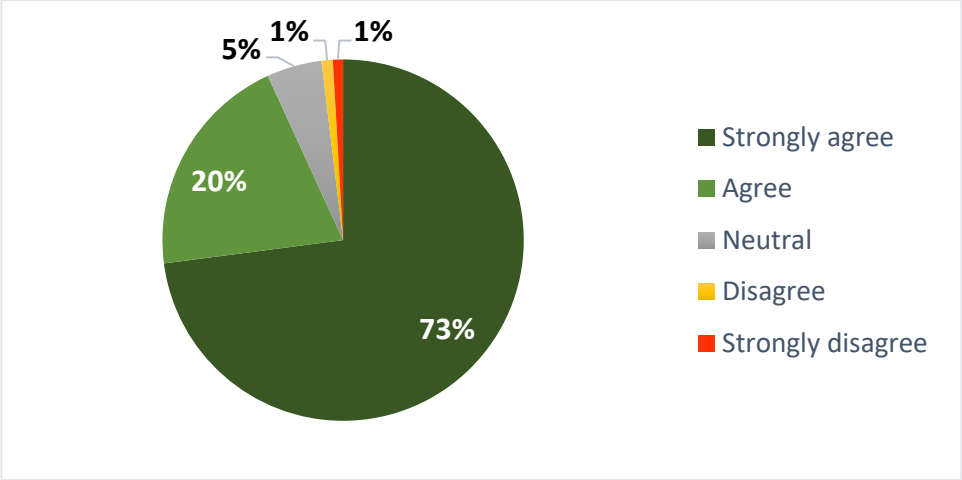
- Start a Speakers Bureau, with a small budget to pay for volunteer training and materials.
- Provide opportunities for residents to share their ideas with the CRD.

Strategy #2: Encourage waste prevention

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



Figure 12:Level of support for encouraging waste prevention



What we heard

Emphasize "reduce" over "reuse and recycle"

- "Refuse" should be the first of the Rs.

Promote reduced consumption and greater consumer responsibility

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

Reduce or ban single use items

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

Support packaging-free purchase options

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

Advocate for more sustainable design

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

Provide incentives for waste reduction

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

Place the onus on government and business (not individuals)

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

Ideas and suggestions

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

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

> *" Recycling is great, but ultimately, reducing consumption is a far more effective way to reach our zero-waste goals.*
>
> *" We are bombarded with BUY BUY BUY. So we create a lot of garbage.*
>
> *" It would be good to have a Canada wide ban on Styrofoam and single use plastic.*
>
> *" I am especially angry about the constant vigilance required since almost any form of consumption is accompanied by unnecessary and inappropriate packaging.*
>
> *" Waste reduction goals should not mainly be aimed at consumers and households but targeted at producers and suppliers, with policies to significantly minimize resource consumption in the first place.*

Strategy #3: Support reduction of avoidable food waste

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

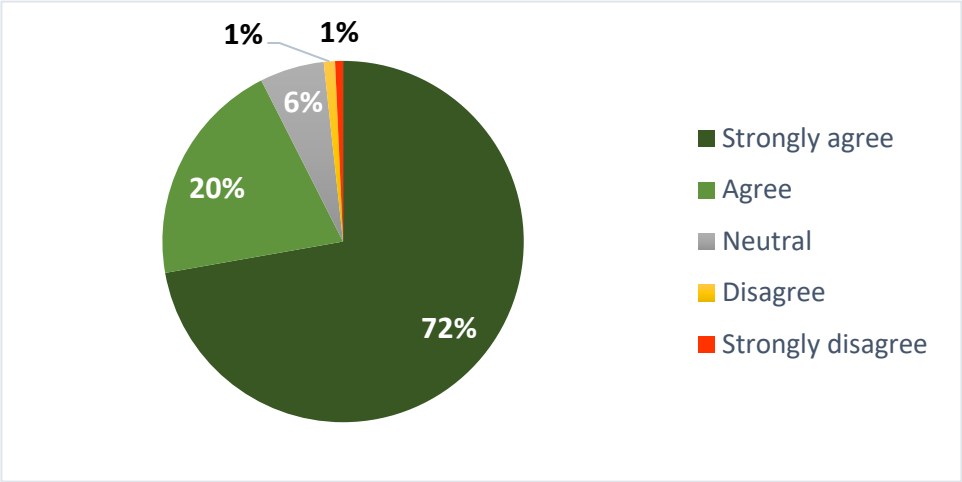


What we heard

Reduce food waste from homes

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

Figure 13: Level of support for reducing avoidable food waste



Reduce food waste from grocery stores and restaurants

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

Work with food recovery organizations

- Support organizations that are assisting with food recovery.

> *" I think it's very important to keep food waste out of landfill. It is a wonderful source of valuable nutrients that should be added back to our farmland.*
>
> *" My daughter worked at [grocery store] and was appalled by the amount of food which went straight into the dumpster every day.*

Ideas and suggestions

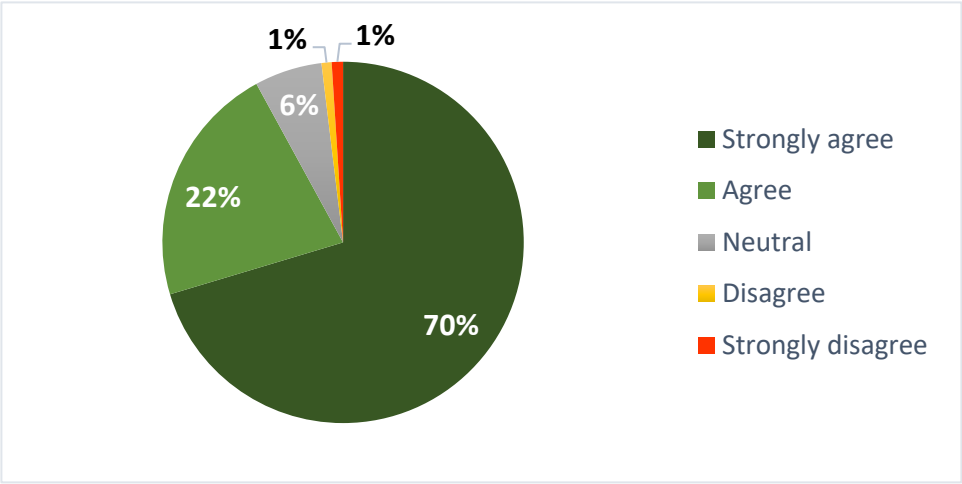
- Make donation of left-over products a business licence requirement for restaurants and grocery stores.

Strategy #4: Support reuse activities in the region

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



Figure 14: Level of support for reuse



What we heard

Investigate free store(s) at Hartland and other locations

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

Support reuse/renting/sharing programs

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

Promote donations to reuse establishments

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

Provide options for textile reuse and recycling

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

> *" I love the idea of the free store at Hartland.*
>
> *" I would also like to see ways to recycle or donate items that may be fixed for further use.*
>
> *" There are many entrepreneurial opportunities linked to repair and reuse and the products involved can be very diverse.*

Ideas and suggestions

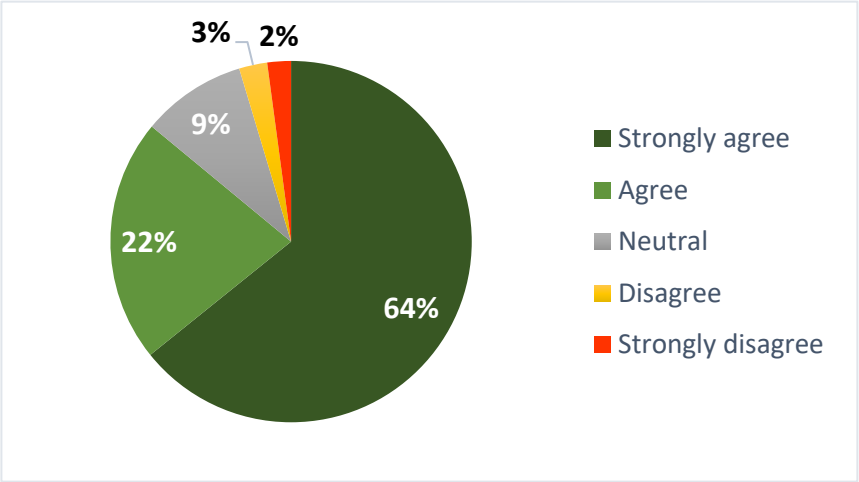
- Provide government funding to kick-start a second-hand mall.
- Create an initiative to highlight businesses like Zero Waste Emporium, thrift stores, and repair cafes.

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

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



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



What we heard

Zero waste is an important goal

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

Consider 'pay as you throw' approaches

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

Create new business opportunities in the circular economy

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

> *" My hope is for the day when we don't need a Hartland Landfill.*
>
> *" A circular economy is essential. We must take responsibility for our actions (especially producers).*
>
> *" Paying the true cost will change people's behaviour.*
>
> *" Provide incentives to reduce waste and charge household by the can, bag or weight.*

Ideas and suggestions

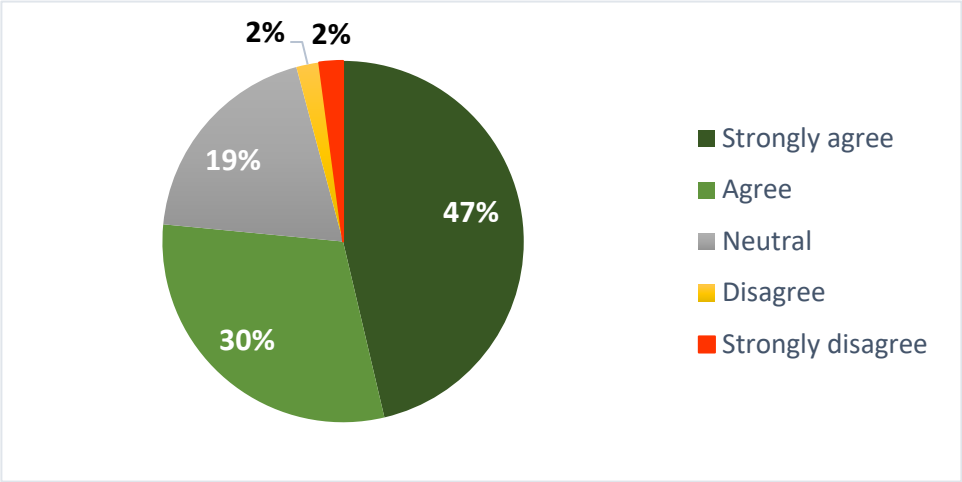
- CRD should buy goods with recycled material and locally-made compost.
- Provide residential garbage cans with a bar code; the can is weighed and resident charged per kg of garbage.

Strategy #6: Continue and enhance policy development

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



Figure 16: Level of support for policy development



What we heard

Create regulatory requirements for recycling

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

Expand the range of materials banned from landfill

- Ban wood waste and large furniture from the landfill.

Advocate for municipal laws, not just provincial and federal

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

Mandate recycled content/recyclability of packaging

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

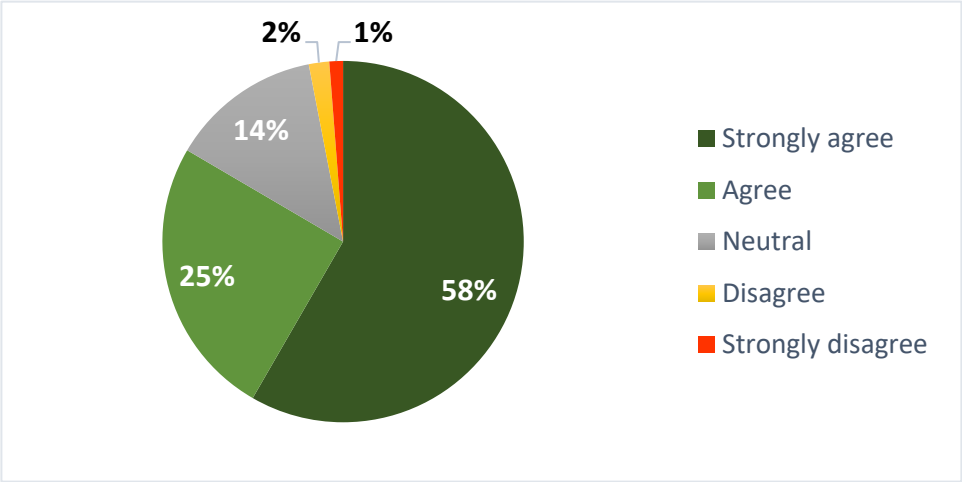
> *" I feel that the CRD and Victoria have done considerable education on the need to improve our waste management system. I believe that now is the time for action in the form of laws.*
>
> *" Push harder on municipal councils to create strong bylaws.*
>
> *" Force producers to use only recyclable materials.*
>
> *" We need mandatory recycling bylaws with deterrents to those who do not comply. This cannot be a choice. Putting a significant extra cost at the time of purchase to be followed by a refund upon return provides a strong incentive.*

Strategy #7: Increase residential diversion

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



Figure 17: Level of support for increased residential diversion



What we heard

Make recycling convenient

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

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

Reduce contamination

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

Accept more materials in the blue box

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

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

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

Ensure there are markets for recycled products

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

Other comments on recycling

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

Ideas and suggestions

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

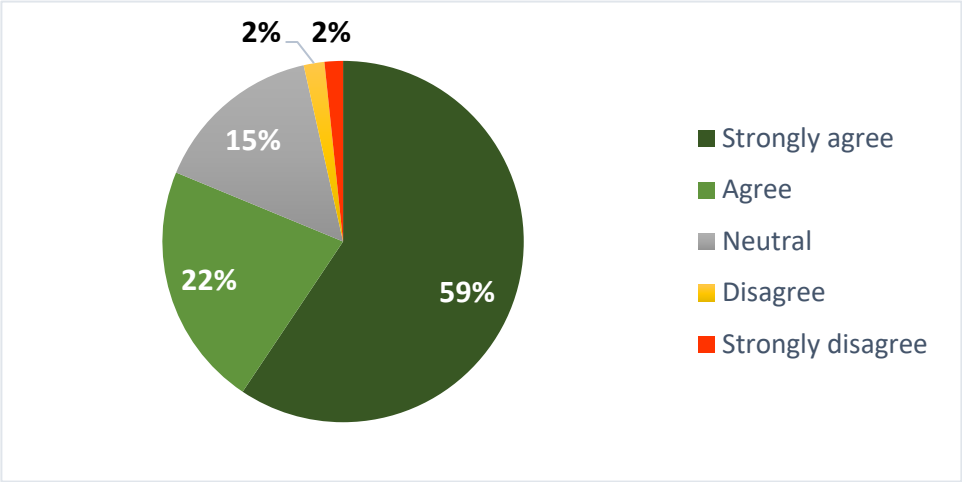
- *Happy to sort, sort, sort, just want to know that I'm doing it right, with clear and easy to understand information.*
- *I encourage development of any educational information that will make it clearer and simpler for residents handling the various materials and organics they sort into recycling and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

Strategy #8: Increase multi-family diversion

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



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



What we heard

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

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

Provide education for multi-family residents

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

> *" I would like to see better, stronger and more successful programs being developed for condos, apartments and multi-unit buildings for composting and recycling.*
>
> *" Apartments are the worst for not having food scrap bins!*

Ideas and suggestions

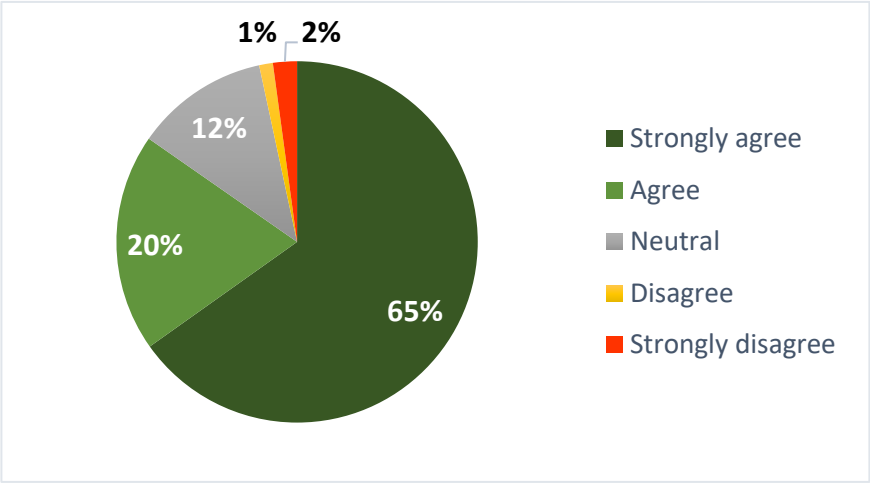
- Prepare and post signage above bins in multi-family buildings with pictures of what goes in and what doesn't.

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

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



Figure 19: Level of support for increased ICI diversion



What we heard

Increase Industrial, Commercial and Institutional (ICI) diversion

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

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

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

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

Enforce ICI diversion

Provide penalties for businesses who do not properly recycle wastes.

> *" A lot has been done for residential programs, but commercial and industrial practices are generally lacking.*
>
> *" Strongly support penalties for businesses not taking responsibility for the waste they produce*

Ideas and suggestions

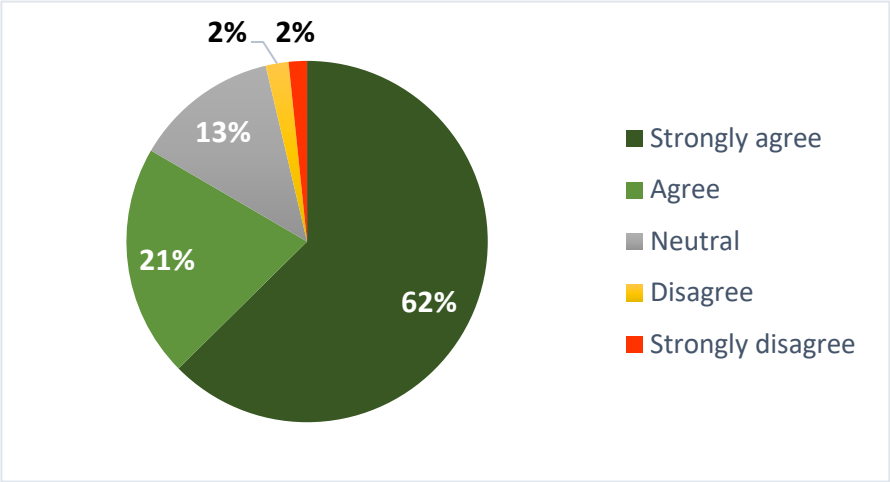
- Charge businesses a yearly recycling fee based on their size.

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

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



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



What we heard

Explain what extended producer responsibility (EPR) is

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

Expand range of EPR products

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

> *" EPR program is good, put a recycling fee on more items.*
>
> *" Any expansion of extended producer responsibility programs is essential as are regulations intended to make plastic recycling more feasible - more standardization of allowable packaging, better labelling, etc.*

Ideas and suggestions

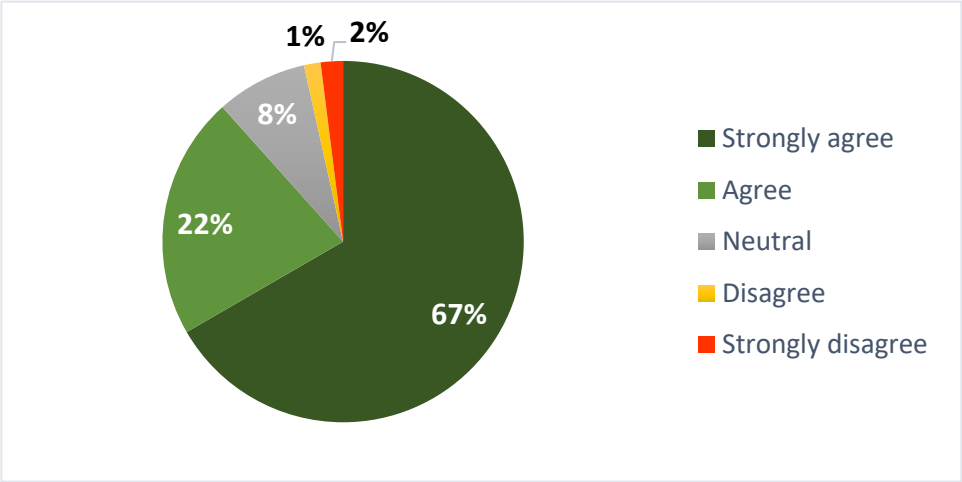
- Require higher deposits on bottles, cans, batteries, etc. and require deposits on items such as plastic and foam packing materials.

Strategy #11: Increase organics diversion and processing capacity

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



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



What we heard

Promote organics diversion

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

Investigate local organics processing infrastructure

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

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

Support compost markets by purchasing back finished material

- Allow individuals and businesses to buy the finished compost.

Simplify organics pick-up

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

Encourage at-home composting

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

Provide for disposal of yard waste

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

Develop a regional approach to invasive plants species disposal

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

Develop dog waste disposal options

- Alternatives for dog waste disposal would be welcomed.

Ideas and suggestions

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

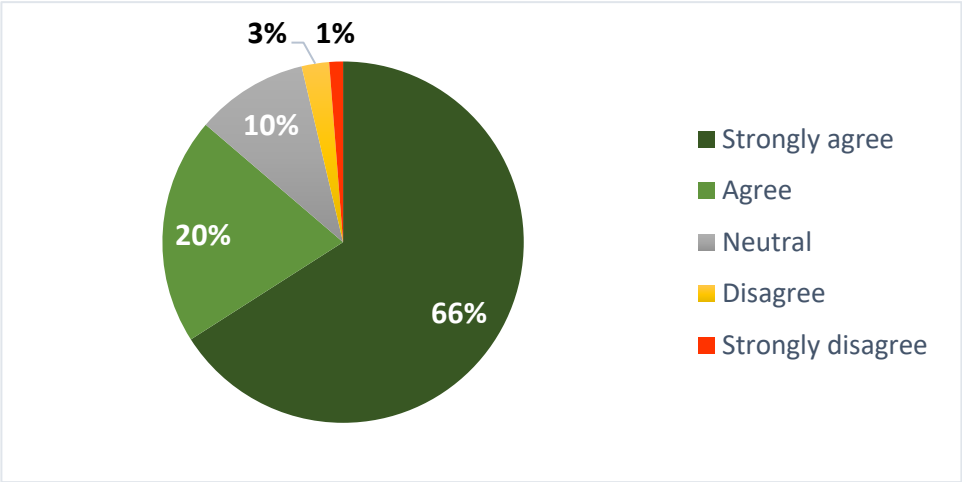
- *The composting program for kitchen waste is excellent.*
- *Keep nutrients in region and on ALR lands*
- *I would like to be able to put grass clippings etc. into the green bin.*
- *Compostables should be processed locally instead of being sent to the mainland.*
- *Promote organics pick up and/or drop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

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

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



Figure 22: Level of support for construction waste diversion



What we heard

Incentivize salvage or retention of existing structures

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

Provide options for diverting construction/demolition waste

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

> *" Make renovation materials easier to recycle. Provide screening services to allow more reno materials to be diverted. Set up free reno store.*
>
> *" Demolition is not environmentally sustainable.*
>
> *" I would like to see homeowners encouraged not to do unnecessary major renos as they are so wasteful.*

Ideas and suggestions

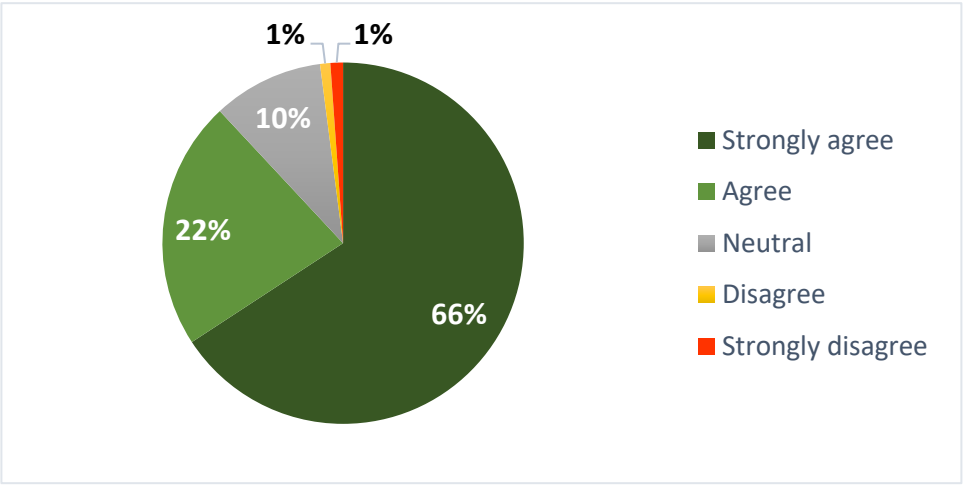
- Vancouver's Unbuilders provides examples of good salvage and recycling methods.
- Challenge Camosun's construction facility to find ways to use unneeded construction materials.

Strategy #13: Encourage proper public space waste management activities

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



Figure 23: Level of support for public space waste management



What we heard

Develop educational materials

- Promote the reuse/recycling of large household goods.

Provide options for disposal of bulky item disposal

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

Balance tipping fees with making disposal affordable

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

Consider enforcement options

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

Provide more recycling options in public spaces

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

> *" Standardize garbage and recycling container sizes and designs for public spaces and include pictures to help with sorting.*
>
> *" All the garbage, recycling containers in public spaces should all have sections for garbage, paper, and plastic.*

Ideas and suggestions

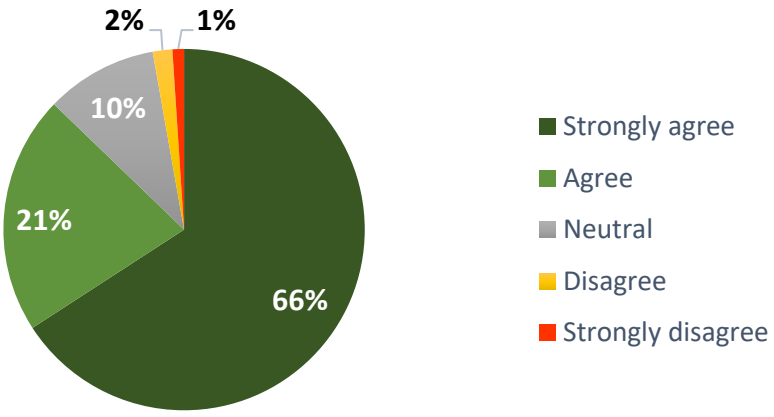
- Have a CRD truck parked once a month in denser neighbourhoods for residents to deposit items not currently included in blue box, including larger items.
- Have neighbourhood "swaps" and opportunities for disposal.
- Provide options for students (and others) moving out of accommodations (e.g., temporary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

Strategy 14: Optimize landfill gas management

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



Figure 24: Level of support for optimizing landfill gas management



What we heard

General support for utilizing landfill gas

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

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

Ideas and suggestions

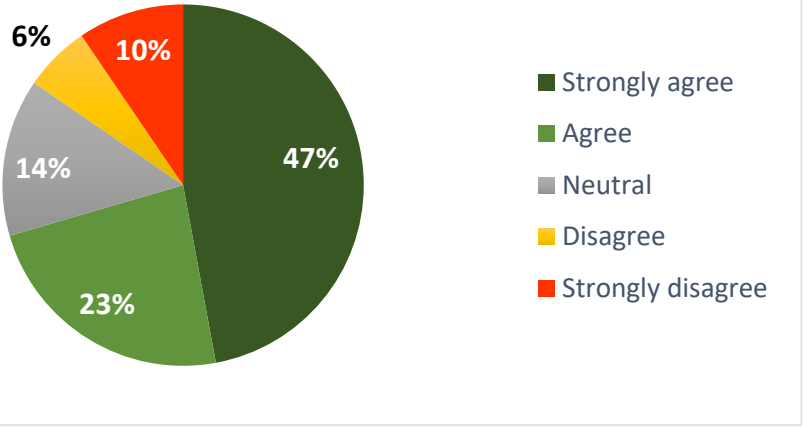
- Explore conversion of captured methane to solid nitrogen fertilizer.

Strategy #15: Enhance Hartland disposal capacity

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



Figure 25: Level of support for enhancing landfill capacity



What we heard

Reduce waste instead of expanding landfill

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

Do not expand the landfill

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

Provide an alternate landfill site

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

Consider impacts on recreational users (especially mountain bikers)

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

Concerns from Willis Point residents

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

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

Do not accept cruise ship waste

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

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

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

4. Conclusion

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

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

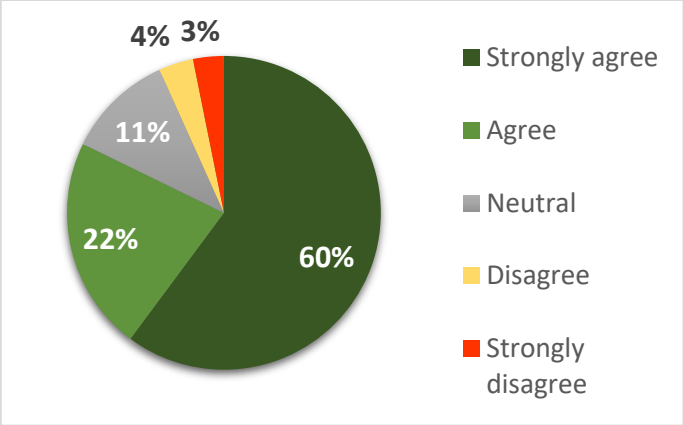


Figure 8: Level of support for proposed principles, goals and objectives (% of respondents)

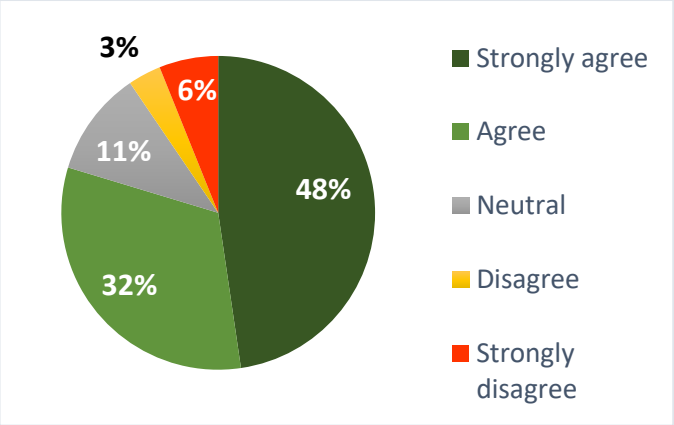
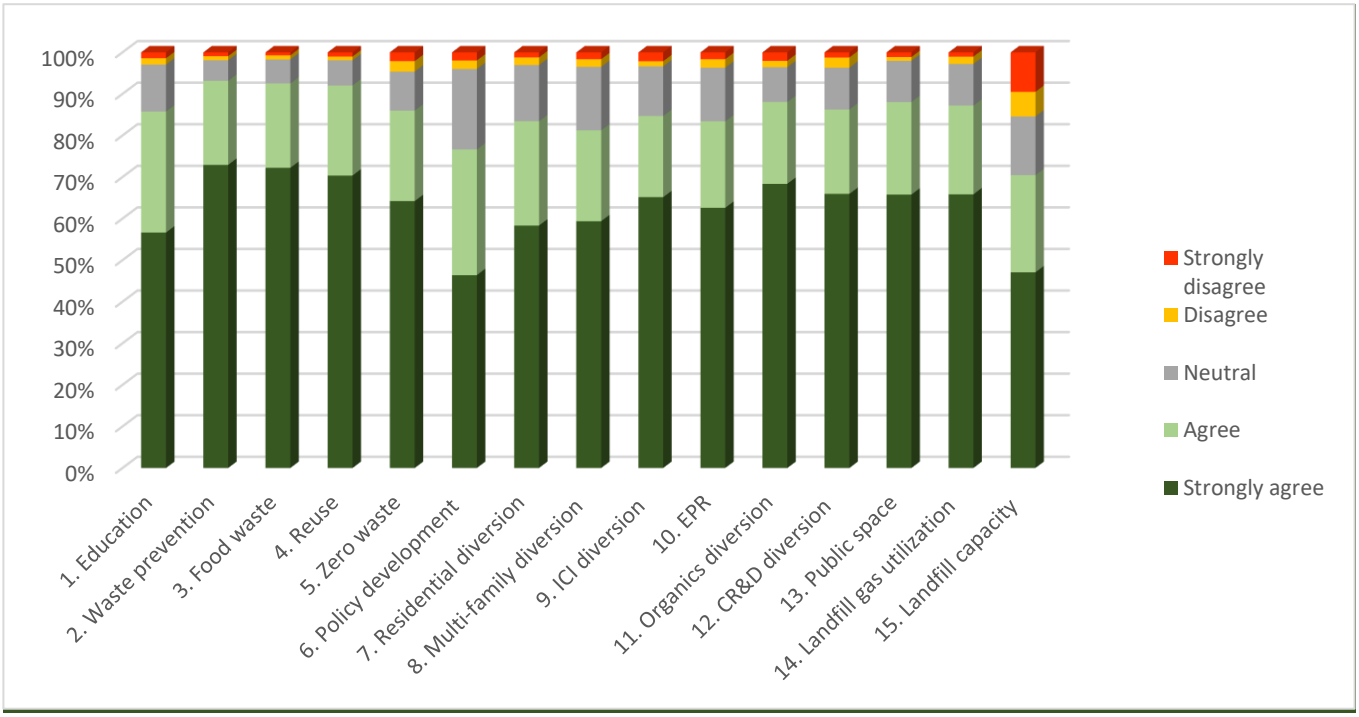


Figure 26: Level of support for proposed strategies (% of respondents)



Attachment 1. Solid Waste Advisory Committee

The list below reflects October 2019 membership.

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

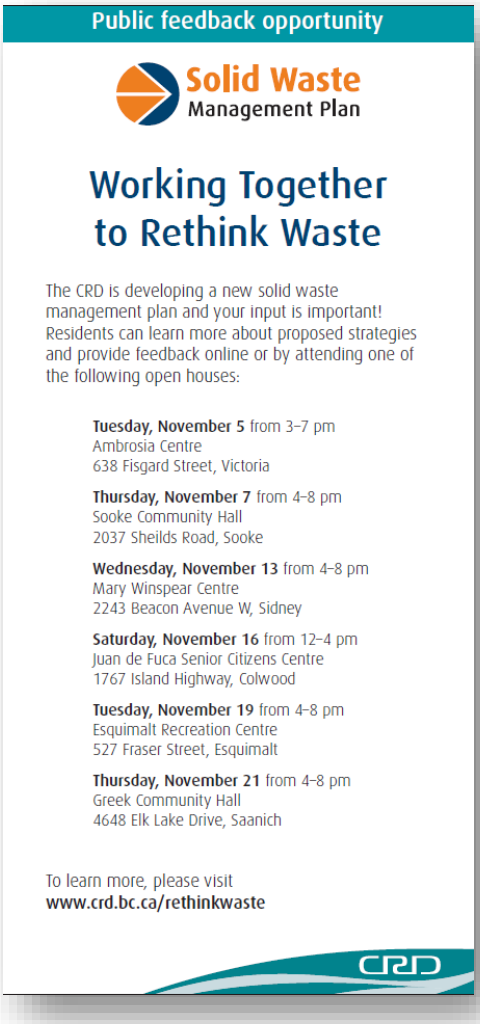
Sector	Member
PRIVATE SECTOR INDUSTRY COLLECTION SERVICE PROVIDERS (2)	**Aaron Lawson,** Atlas Junk Removal Inc.
	Jared Smith, Waste Management
COMPOSTING INDUSTRY REPRESENTATIVE (1)	**Dave Laing,** DL's Bins & Recycling Centre & Fisher Road Recycling
PRODUCT STEWARDSHIP AGENCY (1)	**Mark Kurschner,**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

Attachment 2. Promotional Materials

Paid advertising

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

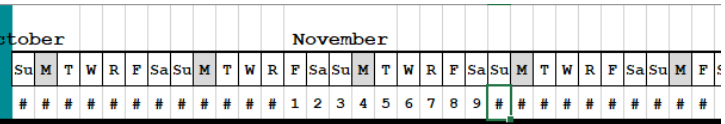
Sample print ads are provided below, and a copy of the media plan overleaf.





MEDIA PLAN - DRAFT

SWMP Open House Public Consultation



Online Advertising

Supplier	Details	Format	Views/Insertions
Used Victoria	Website + App ad	300x250	
SSI Exchange	Website	300x250	
Facebook	CRD Page	Static	TBA

Print Advertising

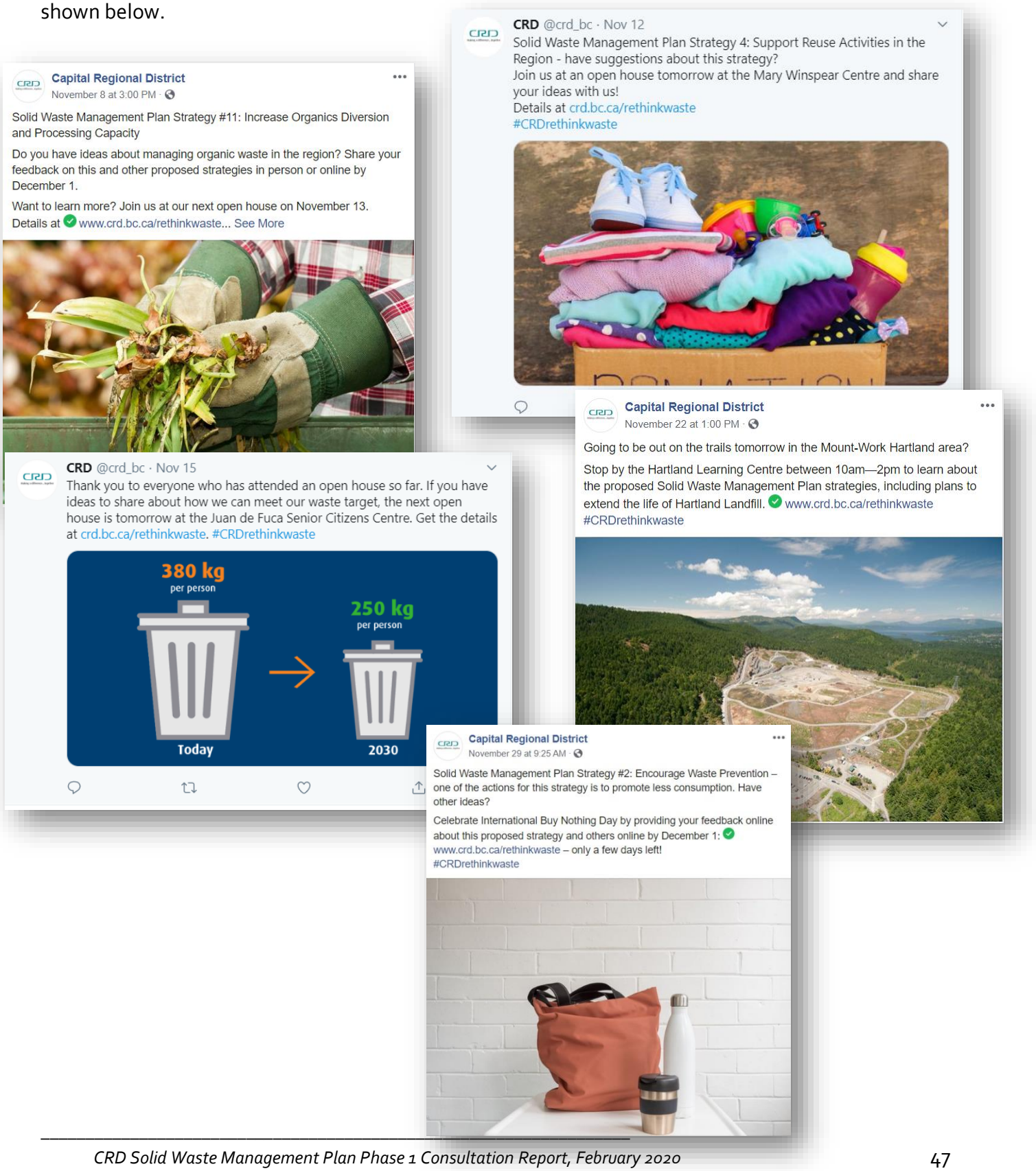
Supplier	Details	Fomat	Views/Insertions
Black Press	All workshops listed - SVGOP+Sooke colour	TBD	1
Black Press	All workshops remidner - SVGOP+Sooke colour	1/6th Page: 4 Cols (5.11" w) x	3
Black Press	SSI Driftwood	5 cols (5.08) x 4"	1
Times Colonist	All workshops listed - Capital Section colour	1/4 page (5 col x 10.85)	1
Times Colonist	General reminder - Capital Section colour	4.15" x 4.75"	2

Radio Advertising

Supplier	Station	Details	Views/Insertions
Rogers Communications	103.1 Jack FM	30 second	
Rogers Communications	98.5 The Ocean	30 second	
Bell Media	CFAX 1070	30 second	
Mell Media	Virgin 107.3	30 second	
Jim Patteson	100.3 The Q	30 second	
Jim Patteson	91.3 The Zone	30 second	

Social media posts

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



Bookmark

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

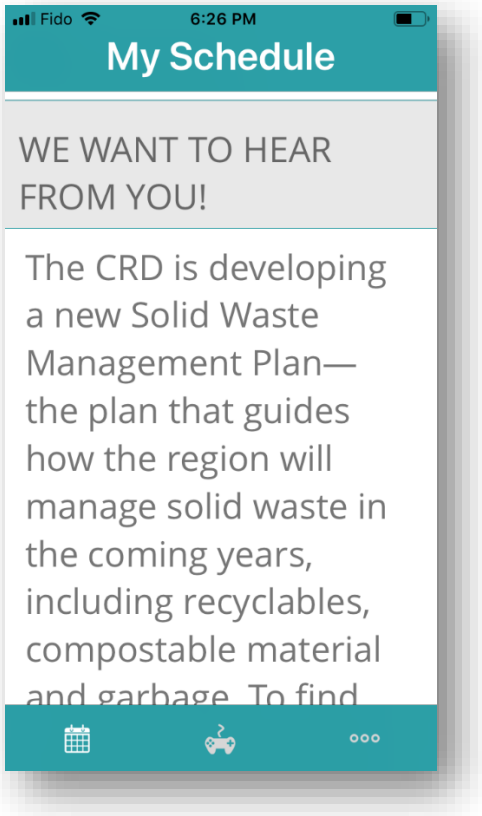




Other promotional materials

Additional promotional materials included:

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



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

Attachment 3. Stakeholder Outreach

Stakeholders contacted

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

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

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

Sample email to stakeholders

Making a difference...together

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

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

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

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

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

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

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

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

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

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

Connect with us on Twitter at @crd_bc and follow us on Facebook.

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

Meetings with stakeholders

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

Open houses

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

Media coverage

Print media

Launch October 18, 2019:

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

Other:

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

Radio and television

Launch October 18:

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

Other:

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

Social media

Social media posts results:

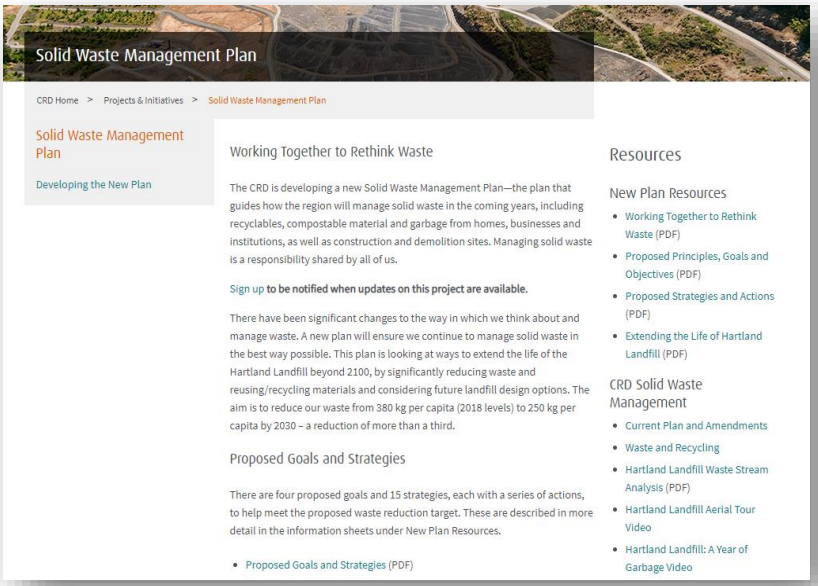
	FACEBOOK			TWITTER			
Date (2019)	**Reach**	**Likes &Shares**	**Comments**	**Likes**	**Retweets**	**Replies**	**Clicks**
Oct-22	0	0	0	7	7	2	12
Oct-22	4,349	86	38	8	7	2	0
Nov-04	1,543	24	0	1	1	0	0
Nov-08	1,855	22	3	4	3	0	0
Nov-12	1,141	18	5	0	0	0	0
Nov-15	1,001	20	4	0	0	0	0
Nov-18	1,236	15	1	2	1	0	0
Nov-22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

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

Attachment 4. Background Information

Website

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

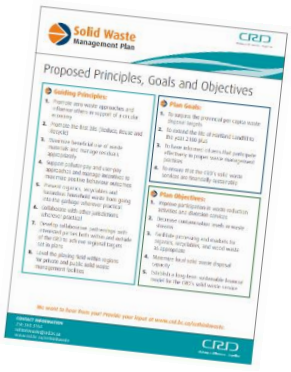


Backgrounders

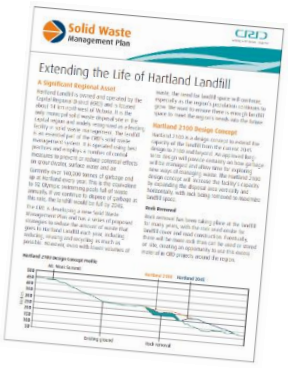
Four backgrounders were prepared to provide information on the Solid Waste Management Plan proposals:

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





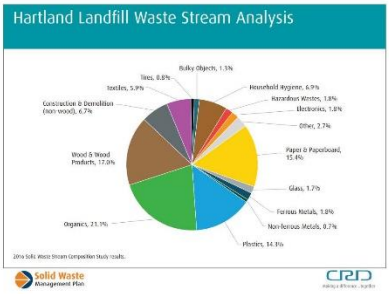




Open house display boards

















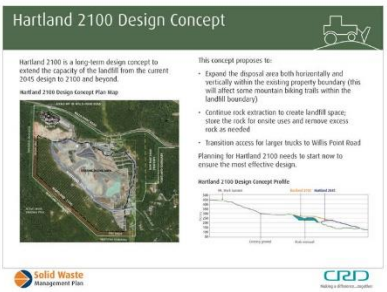














Target

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

Principles, goals and objectives

Guiding Principles

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

Plan Goals

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

Plan Objectives

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

Strategies and actions

Strategy #1: Continue and enhance education programs

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

Strategy #2: Encourage waste prevention

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

Strategy #3: Support reduction of avoidable food waste

A. Support residential food waste reduction, for example, by continuing "Love Food Hate Waste Canada" program
B. Support ICI food waste reduction, for example, by encouraging stores to donate edible food
C. Continue to support food recovery organizations
D. Advocate for regulation to clarify use-by versus Best Before dates and educate accordingly

Strategy #4: Support reuse activities in the region

A. Continue to provide funding to non-profits to help offset garbage tipping fees for unusable donated items
B. Continue to support and promote donations to reuse establishments
C. Support reuse, renting and sharing programs, such as tool libraries, repair cafes, and sewing hubs, and other materials exchange activities
D. Investigate free store at Hartland landfill or other facilities

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

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

Strategy #6: Continue and enhance policy development

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

Strategy #7: Increase residential diversion

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

Strategy #8: Increase multi-family diversion

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

Strategy #9: Increase ICI diversion

A. Allocate resources to increase ICI diversion, for example, a business waste reduction liaison
B. Advocate to expand the packaging and paper product EPR program to the ICI sector
C. Create a business waste reduction toolkit, including education about how to apply Circular Economy principles
D. Encourage municipalities to require waste management plans with business licenses
E. Develop policy guide for ICI space and access requirements
F. Work with local governments and private sector service providers to develop ICI waste source separation requirements
G. Investigate shifting disposal ban enforcement to generator, rather than hauler

Strategy #10: Support existing and new EPR programs

A. Advocate to the province to expand extended producer responsibility (EPR) programs. Note: The Province is currently conducting an EPR gap analysis and considering adding new materials
B. Collaborate with stewards to increase consumer awareness about EPR programs
C. Advocate for increased return-to-retailer opportunities
D. Advocate federally to standardize EPR programs across Canada

Strategy #11: Increase organics diversion and processing capacity

A. Continue to promote organics waste diversion
B. Investigate developing a resilient local organics processing infrastructure. Note: The CRD Board has directed staff to issue a RFEOI for an in-region or near-region organics processing facility.
C. Support compost markets by purchasing back materials

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

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

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

Strategy #13: Encourage proper public space waste management activities

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

Strategy #14: Optimize landfill gas management

A. Continue to capture landfill gas for beneficial use. Note: The CRD Board has directed staff to investigate landfill gas utilization options.
B. Investigate collaboration opportunities with educational institutions to research new beneficial uses and technologies.

Strategy #15: Enhance Hartland disposal capacity

A. Review ban enforcement levels, subject to recycling market conditions
B. Continue to operate Hartland landfill using best practices
C. Develop design options to maximize disposal capacity until 2100 and beyond. Note: A new fill plan is in development. Design and aggregate management options could extend landfill life significantly.
D. Continue to conduct research and investigate emerging technologies.

Attachment 5. Feedback Form

Rethink Waste **Solid Waste Management Plan**

Feedback Form

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

A. About you

Where do you live?

- ◯ Beecher Bay First Nation
- ◯ Central Saanich
- ◯ Colwood
- ◯ Esquimalt
- ◯ Esquimalt Nation
- ◯ Highlands
- ◯ Juan de Fuca
- ◯ Langford
- ◯ Metchosin
- ◯ North Saanich
- ◯ Oak Bay
- ◯ Pacheedaht First Nation
- ◯ Pauquachin First Nation
- ◯ Saanich
- ◯ Salt Spring Island
- ◯ Sidney
- ◯ Songhees Nation
- ◯ Sooke
- ◯ T'Sou-ke Nation
- ◯ Tsartlip First Nation
- ◯ Tseycum First Nation
- ◯ Southern Gulf Islands
- ◯ Victoria
- ◯ View Royal

What type of dwelling do you live in?

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

Are you responding as:

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

B. Proposed Principles, Goals and Objectives

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

◯ Strongly oppose ◯ Oppose ◯ Neutral ◯ Support ◯ Strongly support

C. Proposed Strategies

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

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

Over...

D. Proposed Target

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

◯ Strongly oppose ◯ Oppose ◯ Neutral ◯ Support ◯ Strongly support

Comments and suggestions:

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

Attachment 6: Input Received

1. Comments related to Target and Timeline

Explain how the disposal rate target is calculated

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

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

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

The target needs to be more aggressive in a shorter timeframe

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

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

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

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

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

Consider effect of population growth on garbage generation

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

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

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

The target is appropriate

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

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

The target may be unachievable

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

Achieving the target will require support from many sources

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

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

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

General support for the principles, goals and objectives

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

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

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

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

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

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

3. Comments related to Strategies and Actions

General comments

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

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

The strategies need to be more specific and actionable

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

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

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

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

Identify and set priorities for sectors and materials

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

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

Ensure that implementation is affordable and costs are transparent

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

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

Create energy from waste

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

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

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

- Invest in technology to sort waste and to safely incinerate rather than cause reason to hire more bureaucrats to administer poorly thought out strategies.
- Let's get real about this matter, all you have to do is copy the program Sweden is currently following. They burn is, let me rephrase that, incinerate it, at the end of the day it produces electricity at a cheap cost. It boggles the mind to think we keep going down the same road year after year. This the same mentality/ thinking that Victoria did when I was growing up, haul the garbage out to sea / dump it and all will wonderful, out of sight out of mind. Surely, we can progress past the mentality that we are in a climate emergency, incinerating it, sell the electricity and forget about the misuse of land that we call a landfill.
- Look at 21st century advanced high-tech incinerator options, that produce energy as a by-product, many of these facilities exist in Europe, specifically in Switzerland, where landfills were BANNED on Jan. 1st, 2000 and all non-recycled combustibles waste MUST be incinerated in one of the 30 municipal solid waste incinerating facilities (Nov. 2018)!
- Look at moving to a gasification plant to generate power and eliminate the need to expand the dump
- Look into existing innovative technology and how other countries are successfully disposing of waste without harming the environment (ex. Germany).
- Want to see solid waste used for production of heat and or electricity on site at Hartland
- We are currently using up hot water, detergent, time and a fleet of trucks to collect "recycling", a lot of which is not really recycled, or costs more to recycle than to make new. Instead we should consider building one or more Waste to Energy plants in the city, as is done in Northern Europe. All the paper, plastic etc. can then simply be left in the regular refuse and incinerated, there is much less trucking involved this way, and waste heat can be used to heat public buildings and provide hot water, which is used year round.
- We should stop wasting resources and human effort to separate food, paper etc. waste, and send it all to a Waste to Energy plant.
- I am opposed to landfills in general and I am in favour of state-of-the-art waste incineration plants with energy recovery, flue gas cleaning etc.
- The answer is obvious. Build a state of the art power generating plant that burns garbage, emitting no pollutants. The technology has been available for this application for years now. It would be a win/win situation. The generation of much needed power for the South Island and eliminating the need to bury garbage. That is a worthwhile goal to work toward, not "managing" the garbage people are allowed to generate & throw into the dump.
- Please buy/build an incinerator with good filters to divert CO_2. You have to look 100 years ahead, not 15 ("the coming years"). The stuff that's in your landfill will start to seep in ground water soon enough (in next 10 years). Think of 60+ years of poorly managed battery disposal, dumb people putting all kinds of toxic waste in their garbage, etc. Soon you will have to start digging up those items…
- The region is facing a situation where the easy recycling actions have already been implemented, and the difficult actions lay ahead. Unfortunately, the curbside program has facilitated unconscious consumption and the indiscriminate proliferation of unnecessary packaging. The CRD Waste initiative cannot reasonably expect the consumer products industry to curtail their use of packaging to allow local waste goals to be attained. Education of the population will have limited success, based on past performance. The CRD should be working with local industry to identify recovery options (like waste to energy) to stop the senseless movement of materials which have no value, are not recyclable on economic terms, but still have an energy content which has value.
- Technology can sort and incineration for energy can be done and it a more realistic long term solution.
- There also needs to be more diversion of rigid plastics, perhaps through the waste to energy or recycling.
- 3Rs: make sure they understand that waste to energy and incineration is not recycling

Recognize the climate impacts of solid waste decisions

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

- As mentioned, the total carbon footprint and what is going on outside Hartland must be taken into account. Without strong 3 government policing of burning, dumping and overpackaging, the numbers will be suspect and meaningless in a rapidly growing CRD. We need real solutions, and biochar is key. New book called Burn - Using Fire to Cool the Earth by Bates and Draper.
- Control of municipal-sourced GHG's on a mass scale;
- Waste generation is clearly linked to our climate crisis.
- While Hartland Landfill is a regional facility, it is critical that the CRD reduce its carbon footprint by establishing a landfill site in the western communities to reduce the distance waste travels for disposal. Expanding Hartland Landfill unnecessarily increase traffic along West Saanich Road, Wallace Drive, and Willis Point Road.
- While I think this is a reasonable goal, the current focus on GHG/Climate Change has overwhelmed the public's capacity to process the current situation with respect to local climate impacts and the translation of this information into personal actions. It would be worthwhile to start translating the current waste stream components into "carbon-equivalents" and get away from the emphasis on per-capita waste weights, this might start the re-education of the population to promote understanding of the carbon/climate impact of waste (and might be enlightening for everyone operating solid waste reduction efforts). I also think this approach will show the true environmental cost of organic waste and help drive true environmental savings. It is hard to get excited by slowing the rate of filling a hole in the ground (while it is quite important overall), it is easier to get aligned with reducing the rate of GHG generation through in-house actions.
- Centralizing waste for an area the size of Victoria does not achieve emission targets and creates a very large carbon footprint for trucking. In addition, it mixes industrial trucking with residential commuters and those who are trying to access recreational opportunities. There are inherent safety risks for commuters, cyclists and regular traffic on this road who will be negotiating large tandem trucks carrying aggregate and waste.
- The CRD should provide at least one other option for increased landfill capacity (e.g. a whole new landfill somewhere else). IE LANGFORD?!!!!!
- I want to know what the carbon footprint will be for the recycling - not point in reducing Hartland if you are just increasing the footprint by transporting the recycling a further distance. It all has to balance out in the end. At this point there is too much talk about the recycling we do actually ending up in landfills at the end of the day or being transported too far. Would like to see a detailed plan that clearly demonstrates how the recycling will be more environmentally friendly.
- Carbon neutral waste reduction strategies must be a priority. Cost benefit analysis must include all transport and storage costs as well as optimizing maximum benefits.
- Centralizing waste and trucking in garbage and out aggregate is not environmentally friendly (with respect to Co2 emissions).
- Gasification of waste is NOT a sustainable GHG emission strategy, prevention of gas is needed not infrastructure to utilize the gas which defeats practices to eliminate wastes that produce gas.
- I strongly oppose an expansion of the landfill. We have to stop burying our garbage! We have to look into incineration and other means. Other countries incinerate with zero emissions. It is madness to make mountains out of garbage
- I would also like to see the goal of reducing the use of fossil fuels in managing waste.
- Organic matters managed to avoid GHG emissions
- Reducing CO_2 and methane release is not mentioned - Perhaps you have heard of climate change?? Composting is bad for climate change - releases CO_2.
- So, some concerns that short term non sustainable and not environmentally friendly practices like obtaining natural gas from waste materials, which is not a good practice can become an addictive practice and cost a lot in infrastructure when it does NOT reduce GHG emissions and is NOT the best practice to reduce garbage. The CRD should not be doing gasification of any type of wastes or garbage.
- The goals have no mention of the need for waste management solutions reducing the region's carbon footprint/GHG emissions. Without this you are opening up the solution toolbox to incineration.
- The plan should consider this and other impacts in terms of need to minimize contributions to climate change.
- The total carbon footprint has to be calculated including the Blue box trucks and the whole recycling infrastructure and I think your plan falls short on real world challenges and sticks to where some of us where 25 years ago. My 2003 Ranger truck has been carbon neutral for 3 years with the quantities of biochar I make and the system of no turn, covered compost with biochar and active microorganisms gives off very little GHG's and produces a valuable growing product. I

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

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

Provide more enforcement

- No mention of enhancing/improving/increasing enforcement capabilities. How will companies, haulers, generators ' people generally' be made to adhere to the new/improved requirements? Case-in-point: in Saanich we have many by-laws. They are enforceable but there seems to be one by-law enforcement officer to cover a huge area. The result is that most people know they have a better-than-good chance of infringing any by-law. Change in behaviour doesn't happen voluntarily.
- Spend more money on actionable activities like one recycling truck for the district and one garbage truck for each district. Inspection for none compliance, summary judgement on an increasing rate per offense. Must must must have enforcement, as well as initial warnings. Drivers learn really fast when they mess up,
- Strong enforcement will also help.
- Stronger enforcement of residential diversion to recycling and EPR for major appliances, mattresses etc.
- The region should also crack down on recyclers who do not really recycle the materials they collect and/or are untruthful about their processes. These businesses do a great dis-service to the overall recycling effort by diminishing the magnitude of challenge involved in actually recycling the materials they collect under less than honest terms.
- The CRD communication plan involves a massive education plan, but without enforcement will be a waste of taxpayer money.
- I am not sure how you enforce this…it is not like I get a free 350kg now…so how would you measure this
- Certain areas of the city could also benefit from increased enforcement of residential recycling/composting.

Rebuilt trust and transparency about what happens to recyclables

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

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

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

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

Lead by example

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

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

Improve waste management systems

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

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

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

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

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

Look at best practices in other jurisdictions

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

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

#1 Continue and enhance education programs

Provide clear information and frequent updates

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

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

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

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

Educate to support behaviour change

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

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

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

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

Work with schools

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

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

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

#2 Encourage waste prevention

Emphasize 'reduce' over 'reuse and recycle'

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

Promote reduced consumption and greater consumer responsibility

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

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

Reduce or ban single use items

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

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

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

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

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

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

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

Advocate for more sustainable design

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

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

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

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

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

Provide incentives for waste reduction

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

Place the onus on government and business (not individuals)

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

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

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

#3 Support reduction of avoidable food waste

General

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

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

Reduce food waste from home

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

Reduce food waste from grocery stores and restaurants

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

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

Work with food recovery organizations

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

#4 Support reuse activities in the region

Investigate free store(s) at Hartland and other locations

- There should have always been a free store at Hartland, with smaller satellites throughout Greater Victoria.
- I like the idea of a free store at Hartland.
- A Free Store at the Landfill is a terrific idea.
- I love the idea of the free store at Hartland.
- I love the idea of a Free Store; I have seen this in some communities in the Gulf Islands and it seems to work well. Keep these things out of our landfill and hopefully prevent a new purchase for someone else!
- A free store at Hartland or in the community would be a great way to reduce waste going to the landfill.
- I would love to see more of a "free store" type set up to encourage re-use of items before they become landfill. While it seems unrelated, things like lending libraries, tool libraries could be supported to reduce waste.
- Start a free store at the Hartland dump like the ones they have on the gulf islands or Oak Bay
- Open a 'free store' where people could donate and pick up free items. Extended producers have no motivation to reduce ... 'Solutions' that make money may be prioritized
- The free store at Hartland is a great idea. Stuff is already being brought there and much of it may be re-useable by others but how do you prevent it from becoming a dumping ground for stuff that people just want to get rid of?
- Have free stores at locations in addition to Hartland. The people who will most use and need a free store will not easily be able to get to Hartland nor transport things home from Hartland (unless of course good public transit is added to make Hartland more accessible but even then, transporting things long distance on public transit is not easy).
- Definitely support development of free stores! Properly traded used stuff through both profit and NPO outlets - Thrift Stores, Salvation Army, Value Village, Used Victoria, so many great stores in Sidney, Russell Books (phenomenal!) - greatly reduces landfill waste. Free stores support the goals of almost all strategies listed above. Public education needs a new spin on Re-Use, making it very classy to proudly show off your third hand coat or kitchen dishes! Also, the upper socio-economic layer should be encouraged to donate unwanted stuff and of course to not buy so extravagantly to begin with - yahoo to the marches today protesting Black Friday !!!! Here on Salt Spring, the Blackburn Transfer Station has a 'free store' but it's by donation to a good cause being the high school scholarship fund and others. I am positive there's some skimming method going on, taking good stuff to second-hand consignment stores. There was a special metal storage unit keeping resalable stuff - maybe has stopped now. The other problem is that everything is in the open on MUD! So beautiful highchairs, sofas, electronics are thrown out if not taken by a resident. There needs to be a place closer to town so economically struggling folks can access easily and carry items by foot/bus. Needs properly managed and good shelter. Our tiny thrift stores can't handle 10K people's stuff. The Salt Spring Exchange also does a good job of moving stuff away from landfill but it's time consuming to search for an item and arrange to meet. Government funding to kick start a really great second-hand Mall would so help divert landfill items - and be soooo much fun. Way more community involvement than going to a big impersonal mall. Let's start a ReTuna https://www.huffingtonpost.ca/entry/recycled-mall-sweden-retuna_n_5bfd0762e4b0eb6d931346b3?ri18n=true including repair shops!!!
- Would like to see a recycling centre where people can take their usable furniture and other big items. Unfortunately, a lot of great furniture is considered out of fashion and impossible to sell. basically, a space where usable items are left for others. too much furniture is just thrown away these days. thanks.

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

Support reuse/renting/sharing programs

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

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

Promote donations to reuse establishments

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

Provide options for textile reuse and recycling

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

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

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

Zero waste is an important goal

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

Consider pay as you throw approaches

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

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

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

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

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

Create new business opportunities in the circular economy

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

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

#6 Continue and enhance policy development

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

Create regulatory requirements for recycling

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

Expand the range of materials banned from landfill

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

Advocate for municipal laws, not just provincial and federal

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

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

Mandate recycled content/recyclability of packaging

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

#7 Increase residential diversion

Make recycling convenient

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

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

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

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

Reduce contamination

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

Accept more materials in the blue box

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

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

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

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

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

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

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

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

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

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

Ensure there are markets for recycled products

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

Other

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

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

#8 Increase multifamily diversion

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

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

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

Provide education for multi-family residents

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

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

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

Increase ICI diversion

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

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

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

Enforce ICI diversion

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

#10 Support existing and new extended producer responsibility programs

Explain what extended producer responsibility (EPR) is

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

Expand range of EPR products

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

Other

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

#11 Increase organics diversion and processing capacity

Promote organics diversion

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

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

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

Investigate local organics processing infrastructure

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

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

Support compost markets by purchasing back finished material

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

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

Simplify organics pick-up

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

Encourage at-home composting

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

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

Provide for disposal of yard waste

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

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

Develop a regional approach to invasive plants species disposal

- There needs to be a means to harmonize the disposal of various weed species including invasive, across the region. Presently the different acceptance of various "garden" waste and invasive is an issue which causes confusion for residents, and the disposal of species that that are invasive.
- We support polluter-pay and user-pay approaches in general; however, there should be an exception when it comes to invasive species disposal. The updated plan should support an invasive species disposal program that makes it easier (or possibly free) for community members to dispose of invasive species (especially high-risk invasives) responsibly. Responsible disposal of invasive species is a community service that saves municipalities and regional districts from costs related to infrastructure damage, devaluation of properties, ecosystem degradation and biodiversity costs, and risks to human health and safety.
- Do you have a plan for disposal of invasive plant species such as knotweed or giant hogweed?
- Build a public composting facility that effectively deals with all organics including invasive species like English ivy.
- Not sure where this would lie... UBC has been undergoing trials of thermophilic composting of invasive species.
- Updates to the CRD's solid waste management plan is the best opportunity to improve how invasive species are responsibly disposed of in the CRD. The impacts of continued introduction and spread of invasive species in our region include (but are not limited to): human health and safety, increased municipal costs (management and damages), infrastructure damage, impacts to property values, impacts to recreation options, ecosystem degradation and biodiversity loss. It is important to note that the term 'invasive species 'covers two categories of speices1) high priority species with severe human health risks such as Giant Hogweed or significant ecosystems and infrastructure impacts, such as Knotweed species and 2) common and well established invasive such as Scotch broom, English ivy, and English holly. Effective disposal of invasive species is an important element of invasive species management. Disposal challenges can lead to the following issues, which are especially of concern for local governments: - Lack of disposal options reduces participation in removal of invasive species - Lack of disposal options (or easy disposal) contributes to dumping on public

lands and increased invasive spread and impact - Disposal and processing that doesn't effectively deal with invasive can become another vector for the spread and impact of invasive - Currently, any yard waste collection is very likely to include invasive species and can be contributing to further spread through transportation, ineffective processing and sales or re-use of composted or mulched materials We have identified the following concerns (but not limited to these): 1. Regional disposal management: there is much confusion for local residents, businesses and landscaping professionals about how to dispose of invasive species due to limited disposal options and inconsistent management across the region (public vs private, etc.) 2. Disposal fees: the fee charged to dispose of invasive species is a deterrent to some. In BC, some regional districts have decided not to charge for invasive species disposal. Could the CRD consider the options for accepting free invasive species for disposal, such as in support of community stewardship efforts and potentially for small loads? 3. Disposal Practices: we are concerned about verbal reports of declared invasive species being refused at the Hartland gate, and others with anything labeled 'invasive' being accepted. How can standards for disposal be improved and made more consistent? 4. Hartland Bylaw: The Hartland Bylaw lists invasive plant species as those set out in the Schedule to the Spheres of Concurrent Jurisdictions - Environment and Wildlife Regulation, BC Reg. 144/2004. This list has been out of date for some time and the out-of-date restriction impacts local governments' work to limit the spread of these species. We need a list that can be updated easily as new invasive species appear in our region. The species currently accepted at Hartland is very limited and does not meet priority needs in the region. We support exploring alternative options to invasive disposal due to: (1) potential risks of species like Knotweed in the landfill, 92) current risks due to (confirmed) OMRR regulations not addressing invasive species and this vector risk, and (3) potential for the bio-waste to be processed effectively with other waste in proposed future energy capture technologies. Can invasive species be addressed as part of the current work underway by the CRD related to organics processing? In many cases, yard waste and kitchen scraps are comingled and, thus, we need to assume that viable invasive species seeds will be in organics heading for processing. Will that processing ensure inactivation of any seeds? Municipal garden waste drop-off stations have not been equipped to provide separate disposal for invasive species. This is especially a concern for species of high risk (e.g. high difficulty in processing, high-impact species if spread further), like knotweeds, and species that could be also harmful to human health (such as contact by staff) like Giant Hogweed. Potential Solutions: ‚Ä¢ Develop an effective, regional approach to invasive species disposal (benefits residents and local governments, reduces costs and impacts due to further introductions and spread) ‚Ä¢ Include a plan that makes it easier (and possibly free) for residents to dispose of invasive species (especially high-risk invasive) ‚Ä¢ Standardize best practices for invasive disposal at municipal and private yard-waste drop-offs ‚Ä¢ Lead regional collaboration to develop new disposal options, such as: (1) potential future options for effective disposal through new organic waste processing (such as energy capture options being explored) which reduces or eliminates risk and results in a useful resource; (2) options for local incineration of specific, appropriate invasive plants; (3) consider closed in-vessel hot compost system that meets temperature thresholds proven to inactivate invasive species seeds; (4) develop Best Management Practices and Guidelines for Disposal for a region-specific approach and to provide guidance for other options, such as on-site treatment and disposal where appropriate; (5) offer rotating free invasive disposal at staffed temporary bins, on an 'event' type basis, including public education and potentially sending for incineration; (6) consider options for free invasive disposal at Hartland (or at least situations where invasive disposal could be offered for free); (7) Provide education and support to public and private solid waste staff in regards to invasive disposal and risks (including staff health risks from contact); and (8) collaborate on efforts currently underway with the provincial-local government Soil & Invasive Species Working Group (working to address vector reduction options for soil, compost, mulch, turf and aggregates).

Develop dog waste disposal options

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

#12 Increase construction, renovation and demolition material diversion

Incentivize salvage or retention of existing structures

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

Provide options for diverting construction/demolition waste

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

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

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

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

#13 Encourage proper public space waste management activities

Develop educational materials

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

Provide options for disposal of bulky items

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

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

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

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

Balance tipping fees with making disposal affordable

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

Consider enforcement options

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

Provide more recycling options in public spaces

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

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

#14 Optimize landfill gas management

General support for utilizing landfill gas

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

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

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

#15 Enhance Hartland disposal capacity

Reduce waste instead of expanding landfill

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

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

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

Do not expand the landfill

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

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

Provide an alternative landfill site

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

Consider impacts on recreational users (especially mountain bikers)

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

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

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

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

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

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

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

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

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

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

Concerns from Willis Point Residents

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

- Comments In particular regarding transitioning vehicles to Willis Point Road & expanding Hartland's mandate. It is obvious that the main strategy proposed to extend (not enhance!) the life of the Hartland Landfill is to expand its capacity. A major issue for all residents of Willis Point and the thousands of other people using Willis Point Road on a daily basis is safety. SAFETY Your brochure ,Extending the Life of Hartland Landfills' indicates that trucking significant amounts of excess rock out of the Landfill via Willis Point Road, rather than using your 'Purpose built' Hartland Avenue, will be safer. Safer for who? Certainly NOT for the current and rapidly increasing number of people on Willis Point Road and not for the truck drivers either! I am very opposed to the use of Willis Point Road as a refuse entrance. This is a recreational and residential road. Your trucks do not mix well with the current users of this road: local residents; school buses; hikers (Mt Work/McKenzie Bite parking lot is frequently full and overflowing onto the road); and, the thousands of young people heading to Durance Lake in the summer. The biggest, most recent change, has been the huge influx of traffic from the Western Communities and Up Island, attempting to avoid the Colwood crawl. I estimate this group is in excess of five thousand vehicles a day, heading back and forth to work on Willis Point Road. A large percentage of these vehicles are work trucks, travelling at excessive speeds on an unfamiliar road. Adding to this traffic, is the plan for Hartland to start sending commercial garbage trucks up Willis Point Road, I have been a resident of Willis Point since 1984 (35 years) and have had two vehicle incidents in the last year resulting from the increased volume and usage of Willis Point Road. My windshield was broken, caused by excess gravel on the road and, recently I was hit (while stationary) by a large work vehicle resulting in $10,000 worth of damage to my car: both directly a result of work being performed for the CRD on Willis Point Road. The road is already becoming more dangerous with increased activity. In the winter months, Willis Point Road is prone to black ice, resulting in numerous accidents. On the other hand, Hartland Avenue has reported few, if any accidents in the last 60 years! Hartland Avenue is a purpose built, dead end road with limited residential traffic. The number of trucks on this road has decreased substantially in the past twenty years, and vehicles are built better, resulting in a safer environment. Routing traffic up Willis Point Road will directly impact negatively the safety of Hartland Landfill and Willis Point traffic and increase the frustration of all involved. Trucks will have to stop to allow substantial volumes of traffic to enter The Red Barn; then wait to turn left onto Wallace Drive, crossing West Saanich at the bottom of a steep hill where traffic speed is increasing; stopping again to turn left across traffic onto Willis Point Road and a forth stop to cross traffic into the Heartland Landfill. All this, with traffic backing up behind them, dodging bicycles etc. I cannot see how this can be safer than one left turn onto a dead end road with limited residential traffic. Have waste management firms been canvassed to obtain their expert opinions on the future safety of their vehicles? I would like to see the results. AGGREGATE MINING, I am also opposed to the development of a large, ongoing mining operation within the Hartland Landfill. Residents will be constantly bombarded with the noise of blasting (will Willis Point Road be closed?). Suddenly we are living in the midst of an industrial park. I am concerned how this affects the overall environment in the area. Have there been any environmental studies completed to see the effects of this strategy (i.e. affects to the aqua fare)? PROPERTY VALUES I would never consider purchasing property on Hartland Avenue. I am sure property values are severely depressed because of the issues surrounding the access/traffic to the landfill. Property owners purchased lower priced homes fully aware of this issue. This strategy will be putting Willis Point Residents in the same position as the residents of Hartland Avenue if landfill traffic is routed up Willis Point Road. I would like to know how you are proposing to compensate residents for their loss in property values. ADDITIONAL NEW DEVELOPMENT PROJECTS Development of Organics Processing Facility (strategy #11): Why is Hartland considering the development of an organic processing facility at the landfill? I thought there is an issue with space. Shouldn't CRD strategies preclude further 'other' development in the landfill such as this or putting in a Free store at Hartland (strategy #4). Isn't this initiate better left in the hands of the private sector? The landfill has already developed a gas plant as well as taking on the Sewage Treatment Facility for all of greater Victoria. No wonder there is no space left for its business … managing a landfill! SUMMARY I was recently at an open house to review the CRD's Waste Management Plan in Willis Point. In my opinion, 14 out of the 15 strategies are fairly boiler plate and should already have been implemented by a proactive landfill management team. The real issue/strategy the CRD appears to have already made a decision on, is to extend (not enhance!) the life of Hartland Landfill, and the fallout from this decision. It is unfortunate that so little research has been done and was not available at the open house for discussion or to answer pertinent questions. In summary, my major concern is the strategy to transition vehicle access to Willis Point Road. The implications of this strategy have not been considered, even at a superficial level. There will be a substantial increase in risk for anyone travelling Willis Point Road, not a decrease as suggested by the CRD. Considering the large and ever increasing volumes of varied traffic already on Willis Point Road, it seems ludicrous and extremely risky to divert traffic from Hartland Avenue- a short, purpose built, dead end road with decreasing volumes, and limited varieties of traffic.

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

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

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

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

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

Do not accept cruise ship waste

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

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

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

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

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

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

Other

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

Additional Comments

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

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

Process/Survey

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

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

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

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

Advertisements related to waste management

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

4. Emails Received

Six emails were received and are included below.

Email #1:

From Director of Infrastructure Services, North Saanich
Subject: RE: November 14 Local Government Solid Waste Liaison Group Meeting
Russ,
At the meeting the other day you encouraged us, staff from the CRD's municipal partners, to provide some feedback on the solid waste management plan. I thought I would share a few thoughts that via email.
One general comment is that the plan seems to be heavily/primarily based on education strategies. While these may be somewhat inexpensive compared to other methods, I really question their effectiveness as the primary approach in having a significant (if any) impact on the reduction/diversion of waste to Hartland.
There also seemed to be a sensitivity to the local issues immediate to the proximity of Hartland which might supersede/override the greater/common good.

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

There seems to be a heavy reliance on other service providers to accept certain diverted waste/recyclables/reusables. Maximizing convenience/simplicity of service is most likely to encourage customers/users to participate/comply with waste reduction efforts. Turning folks away at Hartland is likely a significant factor resulting in improper disposal. In my opinion, to the extent possible, residents should be able to bring almost anything to Hartland for disposal, recycling. Anything that can be done to assist/facilitate simplicity/service for residents should be done.
In relation to the above, disposal of drywall is problematic. Some thoughts, if it's bagged in accordance with the requirements for that which may contain asbestos, it should be received, period. It is a lot of time, effort and cost to properly bag the stuff, if that is done, it should be accepted. There should be no expiry to testing. Once a homeowner knows there is asbestos in the drywall in their home, they should be able bring it to Hartland. Clean, asbestos free drywall, should be accepted at Hartland as it is at DL Bins (for example). This balance that the CRD is trying to maintain with private contractors/haulers is difficult to comprehend/defend/manage.
With respect to organics, the CRD has 'banned' kitchen scraps. Question how that ban can be effectively where organics collection is not uniform throughout the region. This would be difficult and costly to enforce effectively. Also, consider many homes have in sink garburators. With these, organics end up at the treatment plant. For those served by sewer on the peninsula, that goes to the WWTP, is treated and ends up as sludge which is then trucked to Hartland. I.e. it is not diverted or reused.

There is a lot of latent energy in all the waste, particularly in organics, which is simply wasted. Recovering this energy should be seriously considered and would reduce the volume of waste and extend the life of the landfill.
Suggest facilitating/supporting the development/operation of green waste/composting facilities in member municipalities should be part of the plan.
One of the nagging issues with recycling is the lack of real markets for most, if not all, of the recycled materials. Many in the community are painfully aware of this fact and this may contribute to cynicism and reduced participation in recycling programs. Not sure how to address this one, maybe need to look at recycling in a different manner or create local end markets for the materials. Ignoring or deceiving the population with the 'value' of recyclables and their ultimate true destination is also not effective.
A few thoughts, hopefully some of which are useful.
Regards,
Eymond Toupin l Director of Infrastructure Services
District of North Saanich

Email #2

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

- Facilitate and/or provide regional coordination for the development of Bear Smart community programs, in concert with a broad range of stakeholders, including businesses, agriculturalists, parks and recreation managers and general citizens.
- Establish set out times and / or container requirements for waste in their refuse collection bylaws.
- Install electric fencing around landfills that receive putrescible waste (landfills that receive only construction / demo waste would not require electric fencing).
- Ensure Municipal and regional Planning Departments will develop requirements for Bear Smart waste management, storage and collection systems in new developments.
- Develop a 'Wildlife Animal Bylaw' to regulate bear and wildlife attractants on all properties. The attractants to be considered for this bylaw include organic and garbage residues or stockpiles,

  composting, orphan and residential tree fruits and nuts, feeding of dangerous wildlife and storage of anti-freeze and paint.
- Develop model procurement policies for use by local governments for bear-resistant bins
- Investigate regulatory mechanisms to enforce day of pickup garbage/kitchen waste placement

Furthermore, CWCA suggests the following additions to the other proposed

Strategies: Strategy #3:

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

Strategy #5:

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

Strategy #9

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

Strategy #11

- Ensure all organics are placed in wildlife resistant bins.

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

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

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

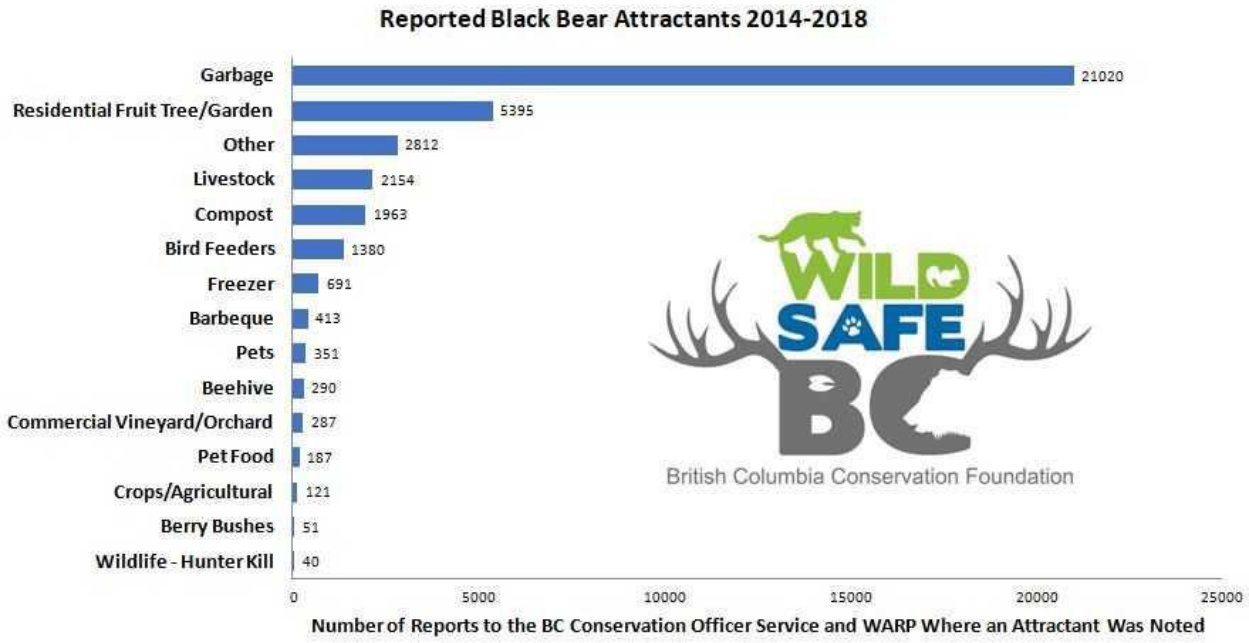
Solid Waste Advisory Committee (SWAC) and or the CRD Parks and Environment Committee to support their deliberations and to support the SWMP goal to reduce consumption and advocate for consumer responsibility. Please contact CWCA at: (email address)

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

Thank you for the opportunity to provide input.

APPENDIX 1

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



APPENDIX 2

Okanagan-Similkameen Regional District
http://www.rdosmaps.bc.ca/min_bylaws/ES/solid_waste/SWMP/2011_RDOS_SWMP_FINAL.pdf

21. Bear-Human Conflict Management: The South Okanagan-Similkameen Human-Bear Conflict Management Plan, completed in 2010 by the SOS Bear Smart Stewardship Committee, was developed to provide a framework to assist communities in developing their own solutions for human-bear conflict management. This plan identifies a range of options and provides suggestions for implementing specific options. The plan's recommendations were considered in the context of updating the Regional Solid Waste Management Plan and consequently, the following actions will be undertaken to reduce the potential for bear-human conflict:
1. The RDOS will work with the local Bear Aware Coordinator to provide education to the public on methods for managing garbage, compost and recyclables and other attractants in a manner that is "Bear Smart".
2. The RDOS will facilitate the development of Bear Smart community programs, in concert with a broad range of stakeholders, including agriculturalists and managers of parks and recreation areas.
3. The RDOS and municipalities will establish set out times and / or container requirements for

waste in their refuse collection bylaws.
4. The RDOS and municipalities will install electric fencing around landfills that receive putrescible waste (landfills that receive only construction / demo waste would not require electric fencing).
5. Municipal and regional Planning Departments will develop requirements for Bear Smart waste management, storage and collection systems in new developments.
6. The RDOS and municipalities will develop a 'Wildlife Animal Bylaw' to regulate bear and wildlife attractants on all non-agricultural properties. The attractants to be considered for this bylaw include organic and garbage residues or stockpiles, composting, orphan and residential tree fruits and nuts, feeding of dangerous wildlife and storage of anti-freeze and paint. 7. In partnership with Provincial, Federal and non-governmental organizations, the RDOS will create a regional program to implement the above actions.

Squamish-Lillooet Regional District

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

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

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

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

3.0 GENERAL REGULATIONS

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

4.3 The following rules apply in respect of Collection Containers:

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

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

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

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

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

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

Email #3

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

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

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

1. The expansion of Hartland to accommodate a solid waste facility will put extraordinary pressure on road systems in the Hartland area. The plan to open an additional access off Willis Point Road is rife with traffic challenges on Willis Point Road, Wallace Drive, West Saanich Road and all feeder roads in this system. Of primary importance is the potential for increased traffic accidents and interruptions to traffic flow.
2. The existing Hartland facility access is at the end of a dead end road. Not so for Willis Point Road which continues past Ross Durrance Lake, Gowland Tod Provincial Park, Mount Work and thence to the Willis Point Community. As a result, the road is relied on by a large population of residents and visitors throughout the week. Currently traffic flow is increasing on Willis Point Road. Under these circumstances, it would be wise to take a close look at the current Hartland access, which has not experienced any significant accident profile and as a dead end road experiences a decrease in traffic as it approaches its final destination.

1. The necessity for ongoing blasting at the solid waste site would raise issues of disruption for homes at the north end of Mark Lane in Willis Point where activities relating to the extraction of aggregate can be heard.
2. The preparation and operation of the solid waste facility would have a significant impact on the environment in the area. This area is an important location for wildlife (have you seen the frog migration?? Human use includes biking, hiking, road cyclists birding, (eagles nest in the area) We oppose the loss of this rich biological habitat to gravel production)
3. The community continues to be vitally concerned about the possibility of groundwater contamination, a threat which will be increased as a result of blasting and its fracturing potential.

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

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

Email #4

From a resident of Willis Point:
Subject: Extending the Life of Hartland Landfill – Comments
I am writing this email because the feedback form for the CRD Solid Waste Management Plan did not bother to designate 'Willis Point' as a specific area to collect feedback from: the area most affected by the plan. Instead our feedback is lumped in with Juan de Fuca.
In particular; vehicles accessing Hartland Landfill via Willis Point Road; reducing the footprint of Hartland Landfill or should the name be changed to Hartland Enterprises?
It is obvious that the main strategy proposed to extend (not 'enhance')the life of the Hartland Landfill is to expand its capacity. A major issue for all residents of Willis Point and, the thousands of other people using Willis Point Road on a daily basis, is Road safety.
SAFETY
Your brochure 'Extending the Life of Hartland Landfill' indicates that trucking significant amounts of excess rock out of the Landfill via Willis Point Road, rather than using your 'purpose built' Hartland Avenue, will be safer. Safer for who? Certainly NOT for the current and rapidly increasing number of people using Willis Point Road and NOT for the Hartland truck drivers either.
I am very opposed to the use of Willis Point Road as an entrance. This is a recreational and residential road. Your trucks do not mix well with the current users of this road: local residents; school buses; hikers (Mt Work/McKenzie Bite parking lot is frequently full and overflowing onto the road); and, the thousands of young people heading to Durrance Lake in the summer.

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

On the other hand, Hartland Avenue has reported few, if any accidents in the last 60 years! Hartland Avenue is a purpose built, dead end road with limited residential traffic. The number of trucks on this road has decreased substantially in the past twenty years, and vehicles are built better, resulting in a safer environment. Routing traffic up Willis Point Road will directly impact negatively the safety of Hartland Landfill and Willis Point Road traffic and increase the frustration of all involved.
Trucks will have to stop to allow substantial volumes of traffic entering The Red Barn; then wait to turn left onto Wallace Drive, crossing West Saanich at the bottom of a steep hill where traffic speed is increasing; stopping again to turn left across traffic onto Willis Point Road and a forth stop to cross traffic into the Heartland Landfill. All this, with traffic backing up behind them, dodging bicycles etc. I can not see how this can be safer than one left turn onto a dead end road with limited residential traffic. Have waste management firms been canvassed to obtain their expert opinions on the future safety of their vehicles? I would like to see the results.
AGGREGATE MINING
I am also opposed to the development of a large, ongoing mining operation within the Hartland Landfill. Residents will be constantly bombarded with the noise of blasting (will Willis Point Road be closed?). Suddenly we are living in the midst of of an industrial park. I am concerned how this affects the overall environment in the area. Have there been any environmental studies completed to see the affects of this strategy (ie affects to the aqua fare)?
PROPERTY VALUES
I would never consider purchasing property on Hartland Avenue. I am sure property values are severely depressed because of the issues surrounding the access/traffic to the landfill. Property owners purchased lower priced homes fully aware of this issue. This strategy will be putting Willis Point Residents in the same position as the residents of Hartland Avenue if landfill traffic is routed up Willis Point Road. I would like to know how you are proposing to compensate residents for their loss in property values.
ADDITIONAL NEW DEVELOPMENT PROJECTS
Development of Organics Processing Facility (strategy #11): Why is Hartland considering the development of an organic processing facility at the landfill? I thought there is an issue with space. Shouldn't CRD strategies preclude further 'other' development in the landfill such as this or putting in a 'free store' at Hartland (strategy #4). Aren't these initiates better left in the hands of the private sector? The landfill has already developed a gas plant as well as taking on the huge development of a Sewage Treatment Facility for all of greater Victoria. No wonder there is no space left for its business ... managing a landfill! Should we change the name to Hartland Enterprises?
SUMMARY
I was recently at an open house to review the CRD's Waste Management Plan in Willis Point. In my opinion, 14 out of the 15 strategies are fairly 'boiler plate' and should already have been implemented by a proactive landfill management team.
The real issue/strategy the CRD appears to have already made a decision on, is to extend (not enhance!) the life of Hartland Landfill, which includes the development and ongoing operation of an aggregate mining operation.

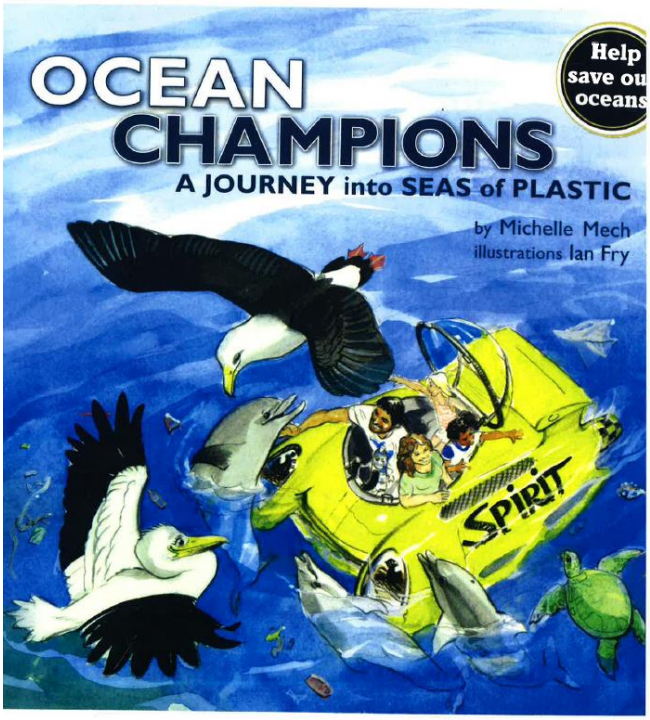
Mr Russ Smith says it will be SAFER to use Willis Point Road for all of the mining trucks, the sewage trucks, as well as rerouting refuse trucks up/down Willis Point Road. This is a blatant lie! My guess is that it's cheaper for Hartland to use the automated scales they built by the Willis Point access, because it certainly is NOT a safer route!
In summary, my major concern is the strategy to transition a variety of vehicles use access to Willis Point Road. The implications of this strategy have not been considered, even at a superficial level. There will be a substantial increase in risk for anyone travelling Willis Point Road, not a decrease as suggested by the CRD. Considering the large and ever increasing volumes of varied traffic already on Willis Point Road, it seems ludicrous and extremely risky to divert traffic from Hartland Avenue- a short, purpose built, dead end road with decreasing volumes, and limited varieties of traffic.
I sincerely question the research, if any, that has been put into this strategy.

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

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

CRD Solid Waste Management Plan - comments and suggested additions
Continue and enhance education programs

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



Encourage waste prevention

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

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

2. Work with the tourism industry (hotels, tours, etc.) in the CRD to reduce the use of single use plastics.

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

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

Support reduction of avoidable food waste

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

Support reuse activities

1. Advocate for programs like LOOP in supermarkets in the CRD. LOOP is being piloted by Loblaws in Toronto in January 2020.[1]
2. Advocate for all supermarkets and other food and household goods markets in the CRD to implement (if not already available) the ability to subtract the tare weight of customer owned/bought containers for all of their bulk food and produce, stock an adequate supply of reusable bags and containers, and convert to as much bulk food/use-your-own-containers availability as possible.
3. Support and promote remanufacturing to produce higher quality, longer lasting, repairable goods and support and promote refurbishment and repair initiatives.

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

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

Continue and enhance policy development

"Continue to expand material bans when viable alternatives exist." Caution must be taken in determining viable alternatives. For example:
Currently the only 'plastic' that is truly biodegradable and also marine biodegradable appears to be PHA (polyhydroxyalkanoates).[2]
Unless they can be home composted, compostable products are not an improvement over petroleum-based plastic products that can be recycled if there is no system in place for collection, sorting, and routing to an industrial composting facility. If this is not available, they will end up in landfills where, in most cases, they do not break down due to lack of oxygen.

Recycling strategies

Increased recycling:

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

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

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

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

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

A very good document on reuse models that are happening globally is "Reuse - Rethinking Packaging" which can be found at https://www.ellenmacarthurfoundation.org/publications/reuse.

1 About LOOP:

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

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

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

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

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

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

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

Email #6

A participant marked up the Strategies as follows:

STRATEGY #2:

Encourage waste prevention



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

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

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

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

STRATEGY #3:

Support reduction of avoidable food waste



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

STRATEGY #5:

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



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

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

STRATEGY #7:

Increase residential diversion

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

encourage the use of composters and digesters

STRATEGY #13:

Encourage proper public space waste management activities



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

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

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

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

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

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

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

Activity	**First Nation**	**Description**
Solid waste management education event – March 2019	Hosted by W̱JOŁEŁP attended by other W̱SÁNEĆ Nations	• Over 75 people attended • 200 blue bins, blue bags and information sheets were distributed to community members
First Nations solid waste outreach intern August – November 2019	Worked with several First Nations in the capital region	• Positive interest from engaged communities
Solid waste management education event – October 2019	Songhees and Esquimalt	• Over 60 people attended the event and ensuing feast • Waste stations set up in both band offices
Emails to First Nations administrators - September 2019	All First Nations in the CRD region	• Follow up meetings with W̱SÁNEĆ administrators and Lekwungen liaisons • No other responses
Face to face meetings with W̱SÁNEĆ administrators - October 2019	All four W̱SÁNEĆ Nations	• Interest in taking information to Chief and Council and community • Common theme of seeking education opportunities for members • Follow up in progress
In person meetings with Lekwungen liaisons - Ongoing	Songhees and Esquimalt	• Interest in continuing to build relationships • Offer to attend February community meeting • Suggestion for targeted online engagement to community
Formal letters to all Nations - November 2019	All First Nations in capital region	• No responses to date • Follow up in progress
Invitation to participate on Solid Waste Advisory Committee - December 2019	W̱JOŁEŁP	• Asked by administrator to send invitation to interested W̱JOŁEŁP Councillor • No response to date, follow up is planned

Making a difference...together

ERM 20-28

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

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

ISSUE SUMMARY

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

BACKGROUND

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

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

ALTERNATIVES

Alternative 1

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

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

Alternative 2

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

IMPLICATIONS

Service Delivery Implications

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

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

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

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

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

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

Environmental & Climate Implications

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

Social Implications

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

Financial Implications

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

CONCLUSION

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

RECOMMENDATION

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

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

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

ATTACHMENTS

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



CAPITAL REGIONAL DISTRICT

Hartland Landfill Alternate Access Transportation Impact Analysis

CRD Contract No. 30.20.01-01

DRAFT REPORT

PREPARED BY:

Bunt & Associates Engineering Ltd.

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

t. (250) 592-6122

JUNE 29, 2020

June 29, 2020
04-20-0118

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

Re: Hartland Landfill Alternate Access Transportation Impact Analysis
Draft Report

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

We found that moving the vehicle access location would not cause any significant impacts. We identified a few street infrastructure improvements for consideration; however, no improvements are required to accommodate changing the landfill's vehicle accesses.

Please let us know if we can be of any further assistance.

Yours truly,
Bunt & Associates

Simon Button, P.Eng., M.Eng.
Transportation Engineer

cc: Joshua Frederick, Capital Regional District

CORPORATE AUTHORIZATION

Prepared By: Simon Button, P.Eng.
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Project No. 04-20-0118
Approved By: (Final Only)
Status: Draft

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EXECUTIVE SUMMARY

Study Purpose

The Capital Regional District is developing its new Solid Waste Management Plan and is considering relocating vehicle access to the Hartland Landfill from Hartland Avenue to Willis Point Road. This study evaluates this potential vehicle access change.

Context

The landfill is in a rural area with houses on Hartland Avenue. There are also houses on Willis Point Road, over one kilometre west of the landfill. Vehicles accessing the landfill will not travel through any residential areas on Willis Point Road.

Landfill Operations

The annual weight of waste deposited has decreased since the 1990s. Additional measures planned by the CRD will maintain annual deposits at similar or lower levels for the next few decades.

Approximately 350 vehicles deposit material at the landfill each day causing 350 vehicles to enter and exit the landfill daily. Roughly one-third of this is commercial vehicles and the remainder is residential vehicles. The proportion of commercial vehicles is lower on Saturdays.

Scenarios

Three scenarios were developed to assess the positive and negative impacts of changing vehicle access from Hartland Avenue to Willis Point Road:

1. No change in vehicle access from the current arrangement with Hartland Avenue functioning as the primary access point for commercial vehicles and resident waste/recycling drop-off.
2. Move only the commercial vehicle access to Willis Point Road.
3. Move the primary vehicle access to Willis Point Road.

Multiple-Account Evaluation

Moving a portion or all 350 vehicles per day accessing the landfill from Hartland Avenue to Willis Point Road results in vehicles using intersections and streets that are more appropriate for higher vehicle use, particularly heavy commercial vehicles. This includes moving vehicles turning at the West Saanich Road & Hartland Avenue intersection with poor visibility to the West Saanich Road & Wallace Drive intersection with good visibility and the more appropriate horizontal and vertical design of Willis Point Road compared to Hartland Avenue which also has frequent driveways.

None of the scenarios require any street improvements to accommodate vehicle pattern change. Specifically, there is no need for an additional lane on Willis Point Road to accommodate additional landfill-bound vehicles. Willis Point Road only meets one of three criteria identified by TAC for adding a truck climbing lane. Most notably, the street grade does not cause heavy trucks to travel below the speed limit. Adding a lane on Willis Point Road would increase the number of speeding vehicles.

Recommendation

Moving the vehicle access causes minor impacts and there are more positive than negative impacts of moving either only commercial vehicles or all vehicles to access the site from Willis Point Road. Willis Point Road is more appropriate for higher vehicle use than Hartland Avenue.

Improvements

Regardless of if the vehicle access arrangement is changed, deteriorated pavement markings on Willis Point Road should be reinstalled following nearby construction of the Residual Treatment Facility. The District of Saanich should also review opportunities to reduce the speed of vehicles turning right from Wallace Drive onto West Saanich Road. Potential improvements could also include an improved connection to the Interurban Trail which terminates near the intersection.

1. INTRODUCTION

1.1 Study Purpose

As part of the continual evolution of the Hartland Landfill, the Capital Regional District (CRD) has identified the opportunity to relocate vehicle access from Hartland Avenue to Willis Point Road. As the CRD develops its new Solid Waste Management Plan it is integral to know where the primary access should be located in terms of public impact and landfill operations.

Bunt & Associates Engineering Ltd. has been engaged by the CRD to conduct a thorough investigation regarding the preferred location and routing for vehicle access.

1.2 Potential Access Changes

Figure 1.1 illustrates Hartland Landfill's location in the northwest portion of the District of Saanich as well as the existing two vehicle access routes. The Hartland Avenue access is currently the primary access, providing access for residential and commercial haulers as well as access to the landfill office and the Hartland Learning Centre. The Willis Point Road access currently provides access to the Residual Treatment Facility which is currently under construction. The access previously provided access to a composting facility which is no longer in operation.

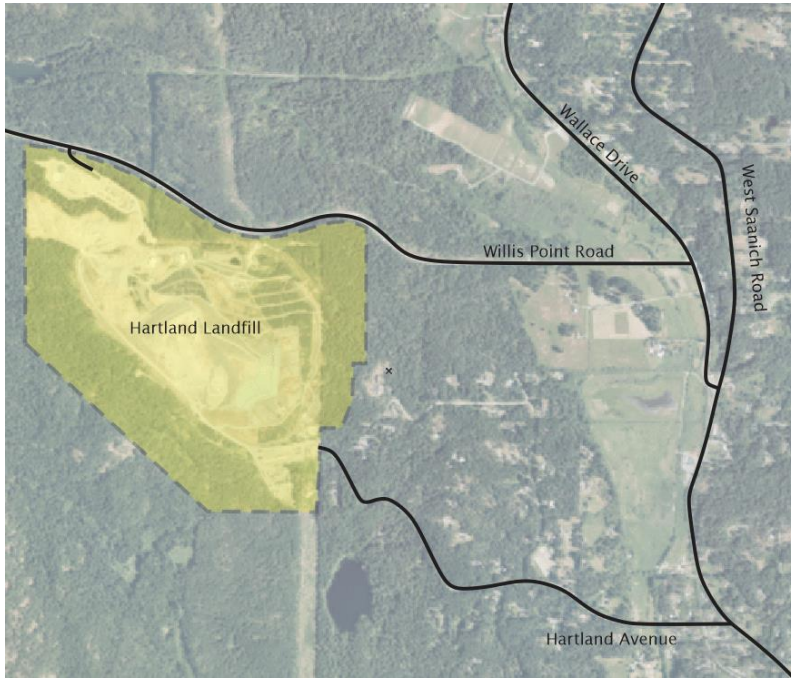


Figure 1.1: Site Location

1.3 Study Scope

This study evaluates the impacts (both positive and negative) of relocating the commercial hauling access to Willis Point Road or both the commercial and residential hauling access to Willis Point Road.

This study will evaluate the current access arrangement against the two potential alternatives described above by comparing their impacts on safety, vehicle operations, vehicle emissions and on-site landfill operations.

2. LANDFILL OPERATIONS

2.1 Facilities

The Hartland Landfill is the only regional solid waste disposal facility in the Capital Region. It is a multi-purpose facility providing collection for recycling, household hazardous waste, salvageable items as well as yard and garden waste collection and processing, controlled waste disposal and landfill service to commercial and residential customers.

2.2 Hauling Trends

Figure 2.1 illustrates the historical and forecasted waste to be deposited at the Hartland Landfill. There was a sharp increase in waste from the 1950s to 1990; however, the annual weight of waste deposited has decreased since then. Additional measures in the CRD's Solid Waste Management Plan, currently being developed, are anticipated to maintain annual deposits at similar or lower levels for the next 20-30 years.

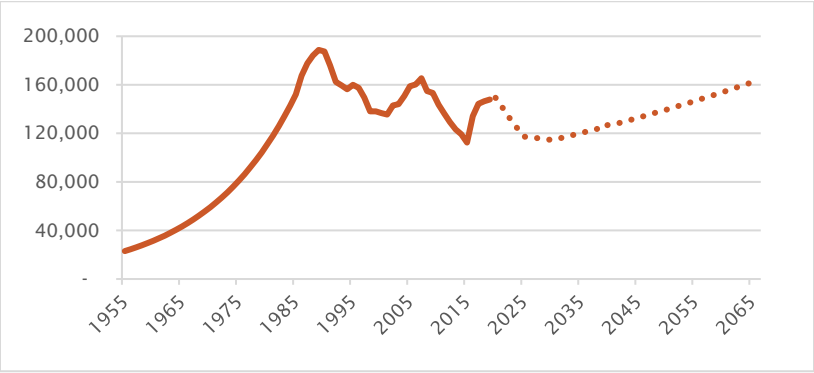


Figure 2.1: Historical and Forecasted Waste (Tonnes)

2.3 Users and Hours

Most users driving to the Hartland Landfill are municipal, commercial trucks (collectively called commercial haulers in this study) and residents arriving with household waste and/or recycling items. Commercial and municipal haulers with a registered account can use an automated scale that opens at 7 am on weekdays versus 9 am for non-registered users (typically residents). **Table 2.1** lists the facility's operating hours.

Table 2.1: Hartland Landfill Operating Hours

USER	MONDAY-FRIDAY	SATURDAY	SUNDAY
Commercial and Municipal Trucks	7 am – 5 pm	7 am – 2 pm	Closed
Residents	9am – 5pm	7am – 2pm	Closed

In addition to depositing solid waste, CRD staff, contractors and visitors also drive to the site.

2.4 Hauling Transactions

Bunt identified several important trends from the 2019 transaction data.

Figure 2.2 illustrates the monthly number of vehicles into three streams. The number of commercial vehicles remains relatively constant throughout the year with around 3,200 vehicles per month. There is more variation with the residential streams with an average of 6,200 vehicles per month, increasing up 8,000 during August.

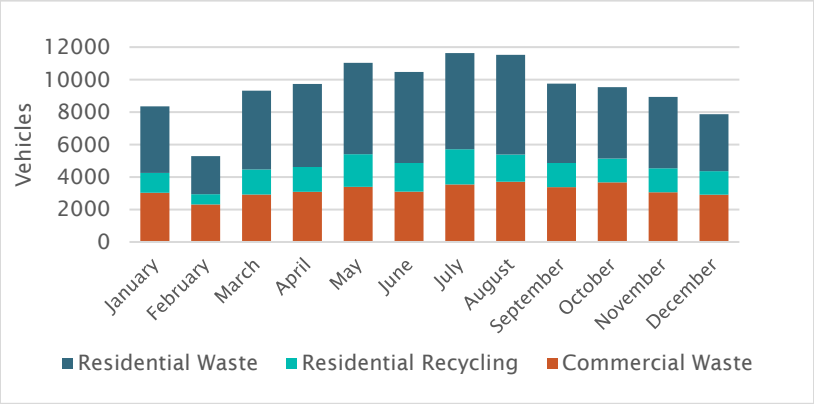


Figure 2.2: Monthly Number of Vehicles

Figure 2.3 illustrates the average daily number of vehicles which is consistently near 350. Most commercial vehicles arrive on weekdays whereas the peak day for residents is on Saturday.

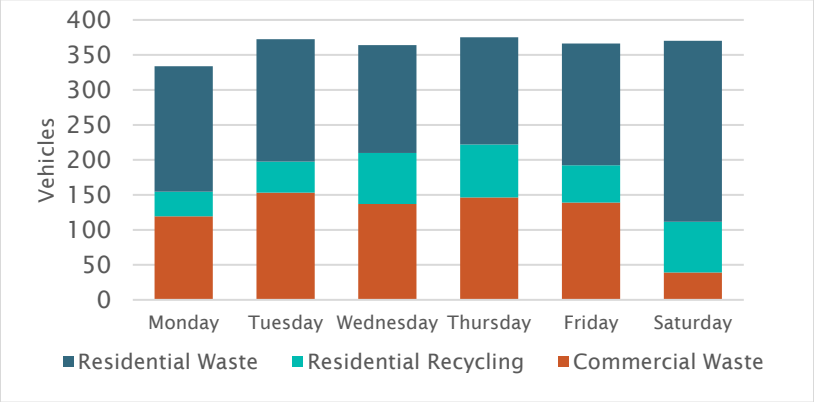


Figure 2.3: Daily Number of Vehicles

Figures 2.4 and 2.5 illustrate the hourly number of vehicles arriving on weekdays and Saturdays. The weekday number of vehicles is the average of Tuesday, Wednesday, and Thursday, i.e., the midweek period, which is typically used for weekday transportation systems analyses. Weekdays are consistently around 45 vehicles per hour from 9 am to 2 pm and Saturday's peak around 70 vehicles per hour between 1 and 2 pm. Generally speaking, the facility is generating on average about one inbound vehicle per minute during both the weekday and Saturday daytime periods.

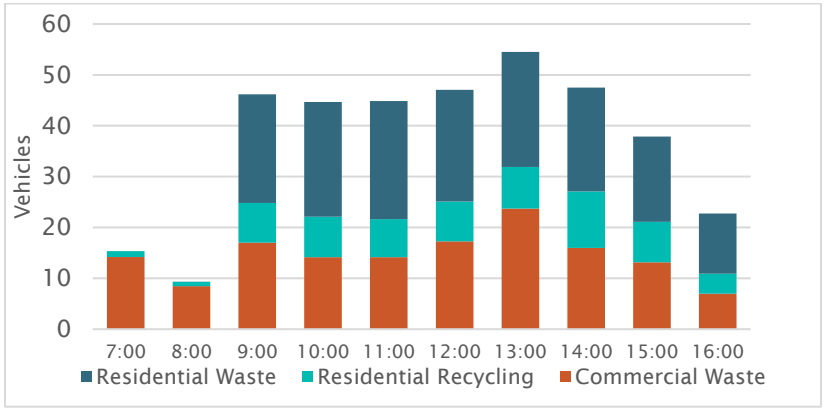


Figure 2.4: Number of Vehicles (Tuesday-Thursday)

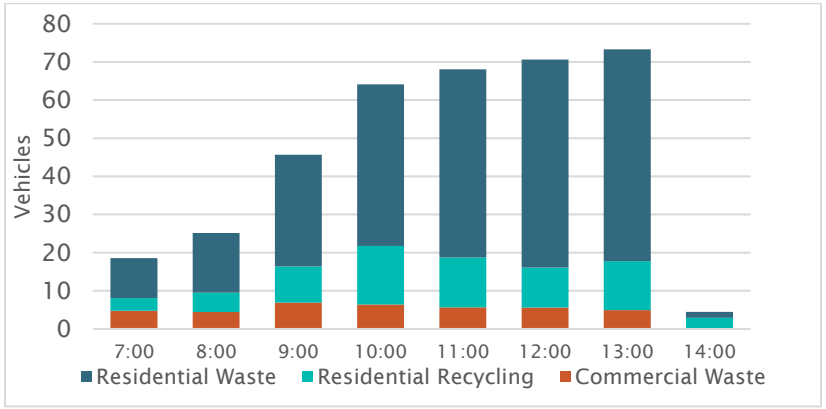


Figure 2.5: Hourly Number of Vehicles (Saturday)

3. SITE CONTEXT

3.1 Street Network

Exhibit 3.1 illustrates the nearby street network including the traffic laning at the study intersections:

- Willis Point Road & Hartland Landfill Access
- Willis Point Road & Wallace Drive
- West Saanich Road & Wallace Road
- West Saanich Road & Hartland Avenue

West Saanich Road is the primary north-south route through the area. Hartland Avenue is directly connected to West Saanich Road whereas Willis Point Road is connected to West Saanich Road via Wallace Drive. All roads one travel lane in each direction. West Saanich Road, Willis Point Road, and Hartland Avenue are designated truck routes. Wallace Drive is only a designated truck route between West Saanich Road and Willis Point Road.

3.2 Land use

The Hartland Landfill is in a rural area, outside of Saanich's Urban Containment Boundary. Nearby land uses include single-family homes with a few non-residential destinations (such as Red Barn Market and First Unitarian Church) located on West Saanich Road. Additional destinations are located further south at the Prospect Lake Road Village including an elementary school and a community hall as it forms the hub of the surrounding community.

There are a few dozen homes located on or off Hartland Avenue. There are also a number of homes located on or off Willis Point Road, beginning over one kilometre west of the landfill.

The Hartland Landfill is bounded by Mount Work Regional Park on three sides (north, west, and south). One of the park's primary trail head access points is located at the end of Hartland Avenue, adjacent to the landfill entrance. At the entrance near the trail head is a parking lot for the mountain biking community. It is a popular destination with almost 40,000 trail users during 2019. Additional secondary mountain bike trail access points are located on Willis Point Road.

3.3 Active Transportation

West Saanich Road has painted bicycle lanes through the study area. In addition, the Interurban Trail runs parallel to West Saanich Road from Hartland Avenue to Wallace Drive. Aside from the trail, there is no dedicated walking infrastructure which is not uncommon for rural settings.

As shown in the following list, West Saanich Road is the most frequently used street for cycling with over 500 cyclists per day or about 50 per hour during the peak hour (all data from April 2019). Few cyclists were observed on Hartland Avenue, likely due to the lack of road shoulders and the presence of large vehicles associated with the landfill.

- Willis Point Road: 150 bicycles/day
- Wallace Drive: 280 bicycles/day
- West Saanich Road: 550 bicycles/day
- Hartland Avenue: 15 bicycles/day

3.4 Transit Service

BC Transit operates bus route #83 on West Saanich Road with stops at Hartland Avenue and Wallace Drive being the closest locations to the landfill. The stops are 2 and 3 kilometres respectively from the landfill.

3.5 Multi-Modal Transportation Data

The District of Saanich (Saanich) provided historical multi-modal traffic data for various locations within the study area. This includes directional counts that provide three full days of data (Tuesday to Thursday) regarding the time, vehicle length, and vehicle speed on Willis Point Road, Wallace Drive, West Saanich Road, and Hartland Avenue.

Saanich also provided weekday intersection turning movement counts at the three intersections (from 2017 and 2019) which would have different vehicle travel patterns if Hartland Landfill's access shifted from Hartland Avenue to Willis Point Road:

- Wallace Drive & Willis Point Road
- West Saanich Road & Wallace Road
- West Saanich Road & Hartland Avenue

Vehicle Speeds. The average vehicle speed on Wallace Drive was approximately 60 km/h compared to the posted speed limit of 50 km/h. Higher average speeds in the high 60's were observed on West Saanich Road and Willis Point Road which have 60 km/h speed limits. Although Hartland Avenue has a speed limit of 40 km/h, the average vehicle speed at the Tod Creek bridge was around 60 km/h, likely because Hartland Avenue dips down to the bridge for traffic arriving in both directions.

Vehicle Growth. Over the past 10 years, there has been modest (1-2%) annual vehicle growth on Hartland Avenue, West Saanich Road, and Wallace Road. Vehicle growth on Willis Point Road has been higher with up to 10% annual increases eastbound during the weekday morning peak hour and westbound during the weekday afternoon peak hour. One possible rationale provided by an area resident at a previous CRD engagement event is that Willis Point Road is increasingly being used for commuters from West Shore to reach the Saanich Peninsula.

Bunt collected supplemental traffic data on Thursday, April 30, 2020, and Saturday, May 2, 2020. The COVID-19 pandemic was on-going during these dates which will have altered the typical travel patterns for the area, e.g., "work from home" advisories, closed schools and other public facilities and limited retail activity.

The weekday data collected in 2020 was compared to the weekday data collected in 2017 and 2019. From this dataset, vehicle volumes in April 2020 on West Saanich Road, Wallace Drive, and Willis Point Road were estimated to be 70% of normal. There was no significant difference between the weekday vehicle volume on Hartland Avenue which is aligned with data provided by the CRD which illustrates a slight increase in transactions at the Hartland Landfill on Thursday, April 30, 2020, compared to April 2019. The number of transactions at the Hartland Landfill on Saturday, May 2, 2020, was 80% of the same period last year.

3.6 Study Peak Hours

Figure 3.1 illustrates the weekday temporal profiles of vehicle use on West Saanich Road (both directions) and at the Hartland Landfill (inbound and outbound). The Hartland Landfill is typically busiest during the middle of the day which is different from the nearby streets which are typically busiest during the morning and afternoon commuting periods.

8:30 - 9:30 am and 3:30 – 4:30 pm were chosen as the study's weekday peak hours as they represent the best overlap between vehicle trips generated and not generated by the Hartland Landfill. 1:00 – 2:00 pm was chosen as the Saturday peak hour as

this is the busiest time period for the Hartland Landfill. Although hourly traffic data was not available for West Saanich Road, the Saturday peak hour for many streets is between 12:00 and 3:00 pm which aligns with the landfill's peak hour.

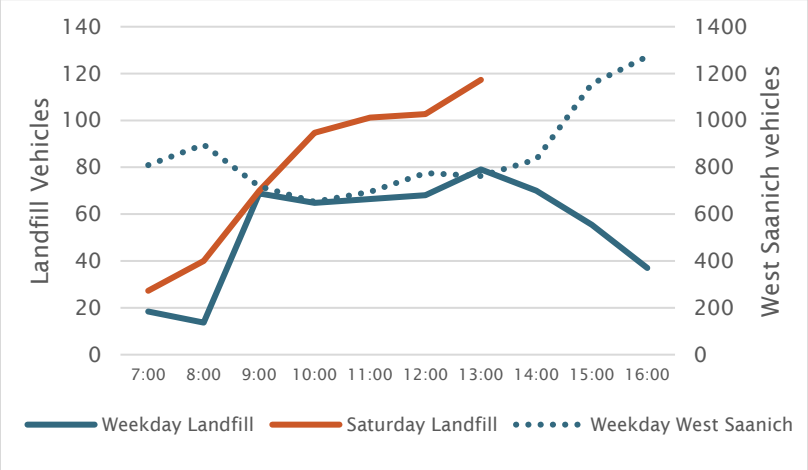


Figure 3.1: Hourly Vehicle Profiles

3.7 Peak Hour Vehicle Volumes

Exhibit 3.2 illustrates the estimated 2020 vehicle volumes for the three time periods considered in this study. The weekday morning and afternoon volumes were obtained from the data collected in 2017 and 2019 with a 1% annual increase applied to movements on West Saanich Road, Wallace Drive, and Willis Point Road which is a common average long-term vehicle growth rate for non-downtown locations. Although a 10% annual increase was previously observed on Willis Point Road in the peak commuting direction, this level of vehicle growth can typically not be sustained over the long-term. In addition, once the McKenzie Interchange is complete, driving from the West Shore to the Saanich Peninsula via the highway system is expected to become quicker, reducing the desire for people to commute on Willis Point Road. No increase was applied to Hartland Avenue as no vehicle growth has occurred on this street in recent years.

3.8 Vehicle Operations

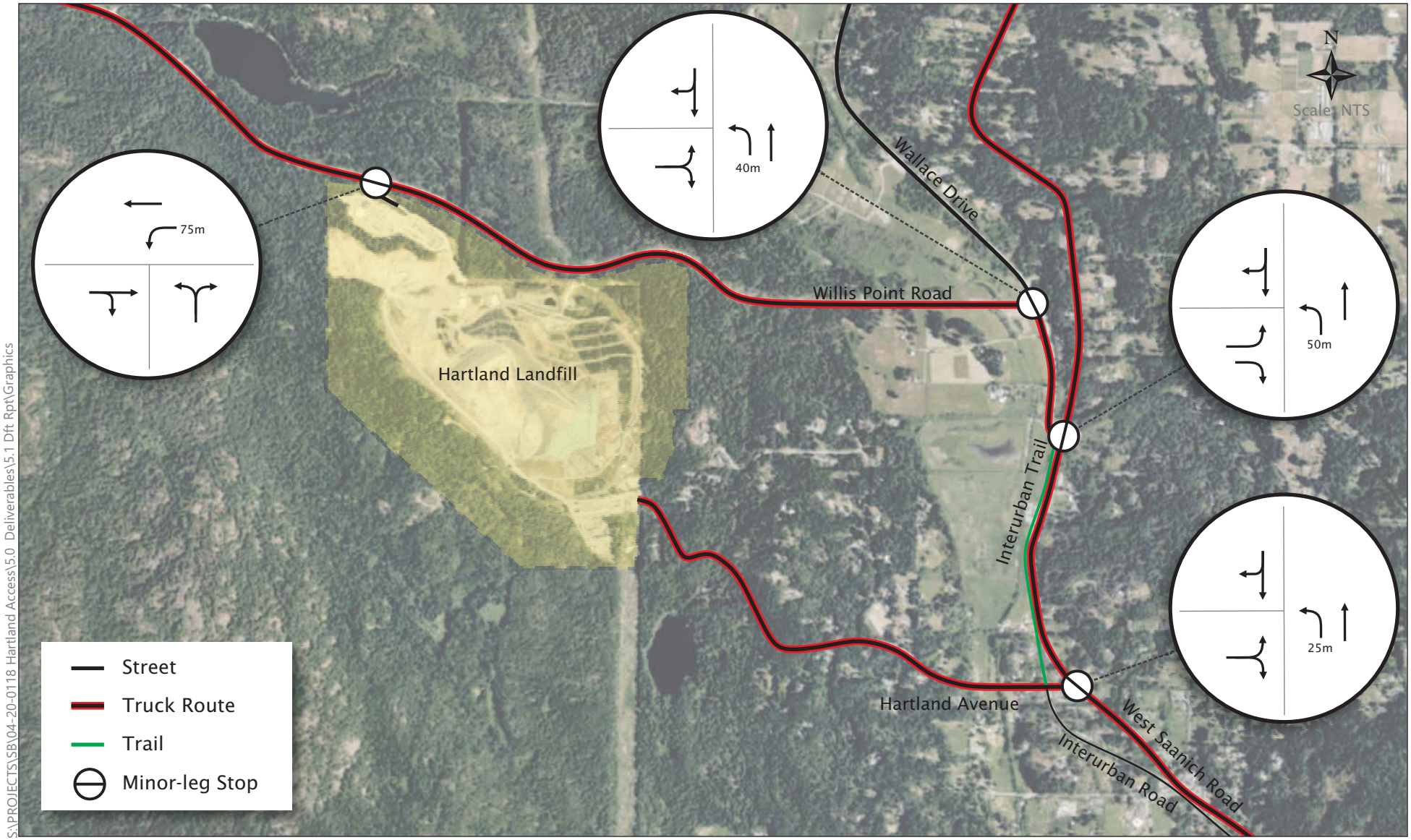
Exhibit 3.3 illustrates the Levels of Service (LOS) which were obtained from Synchro software. LOS measures the average number of seconds vehicles wait to travel through an intersection. Existing operations were assessed at the study intersections except for the Willis Point Road access which is currently only used for construction vehicles and workers.

For unsignalized intersections, LOS ranges from 'A' (0-10 seconds of delay) to 'F' (more than 50 seconds of delay). LOS D, E, and F can be common for critical turning throughout the region.

The analysis accounts for the observed peak hour factors, heavy vehicle percentage, and road grades. Key findings include:

- All movements operate at LOS D or better indicating there are no intersections with significant delay.
- The most critical movements are vehicles turning left from either Wallace Drive or Hartland Avenue onto northbound West Saanich Road during the weekday afternoon and Saturday peak traffic periods.

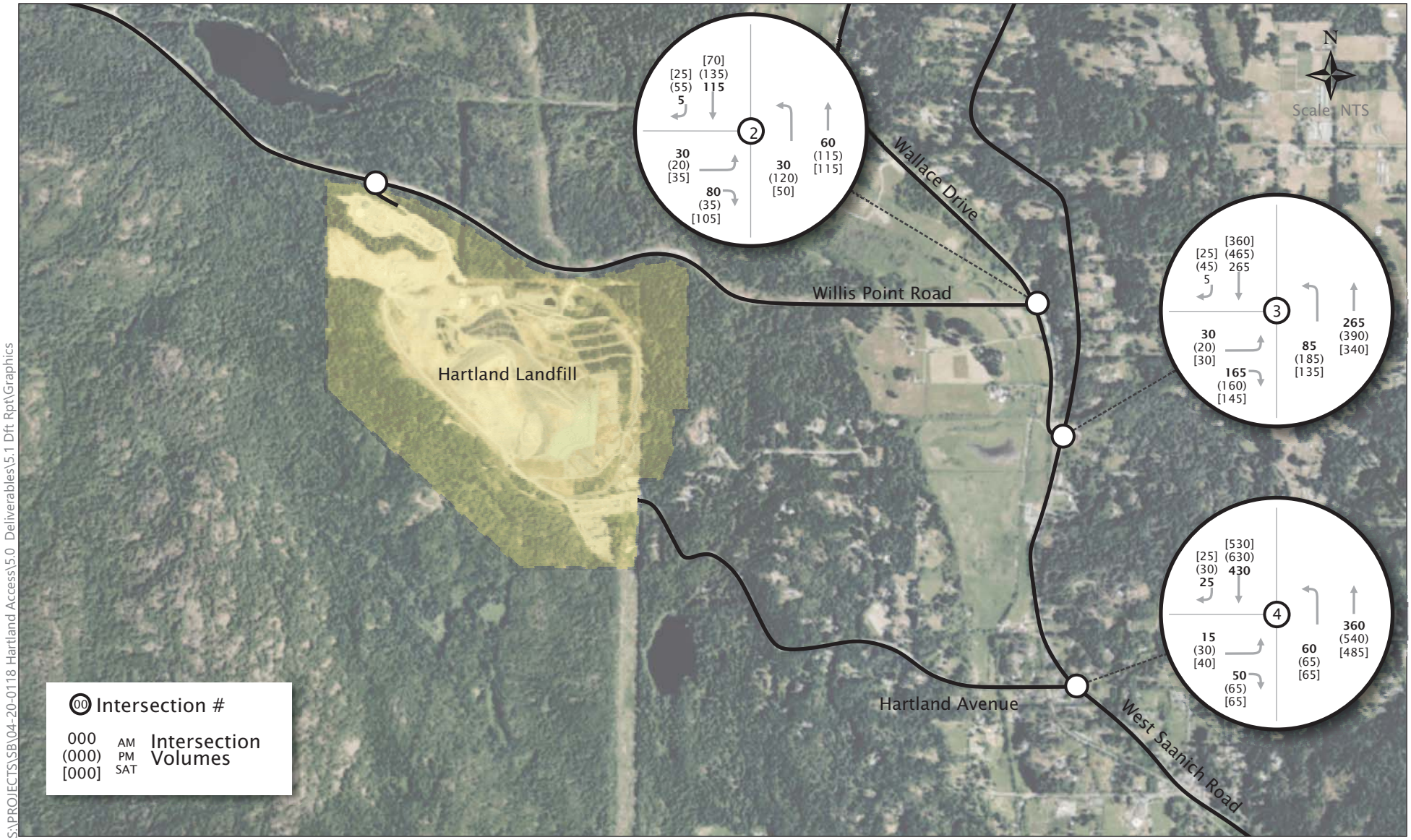
In addition to LOS, the volume to capacity ratio, and queue lengths were also assessed, however, for all scenarios they were low, indicating that there are no existing concerns for intersections operating near their theoretical capacity or substantial vehicle queues developing.



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Exhibit 3.1
Transportation Network

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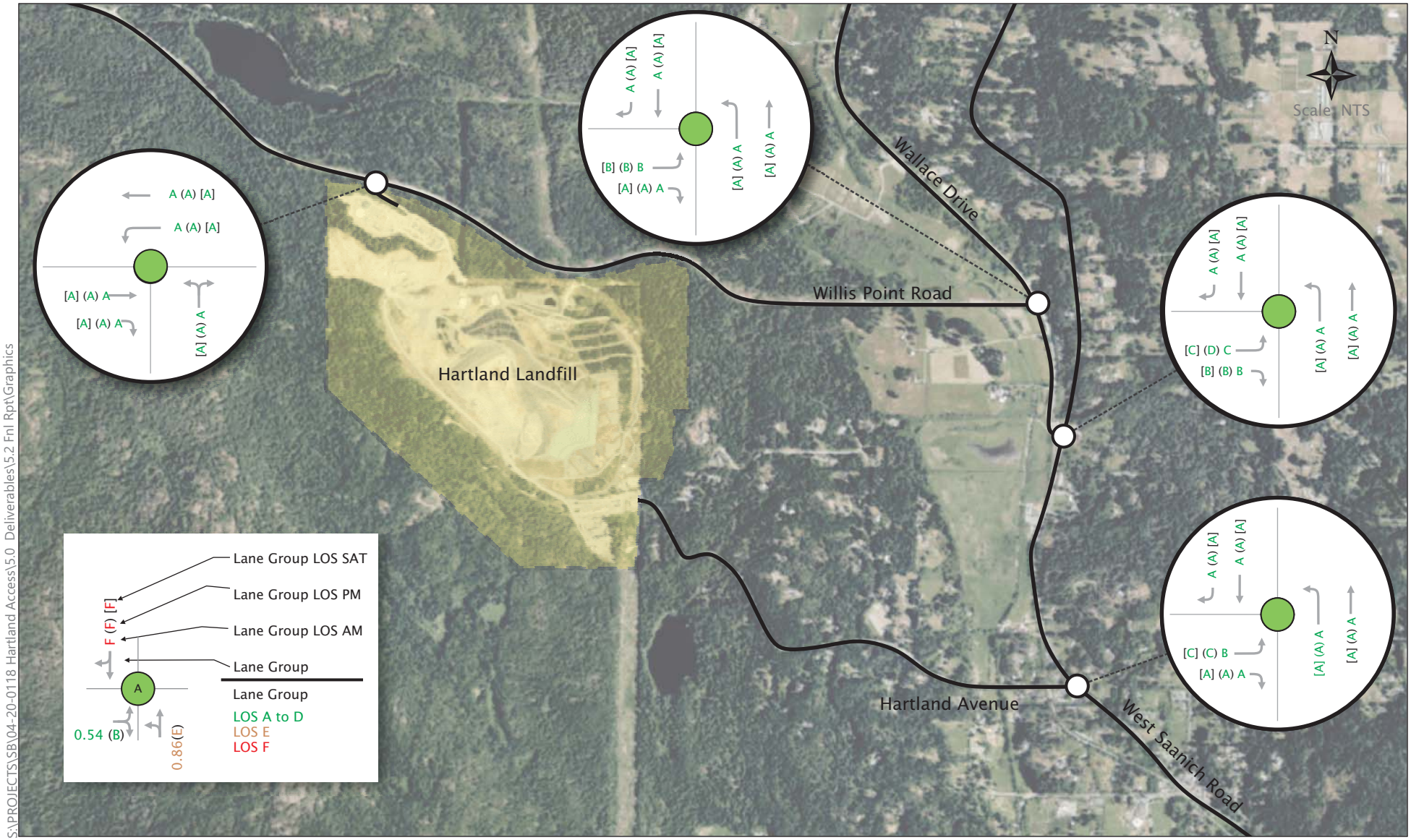
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Exhibit 3.2

Existing Vehicle Volumes

Hartland Landfill Alternate Access Transportation Impact Study
04-20-0118 June 2020

bunt & associates



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Exhibit 3.3
Existing Vehicle Levels of Service

Hartland Landfill Alternate Access Transportation Impact Study
04-20-0118 June 2020

bunt & associates

4. ANALYSIS

4.1 Scenarios

Three future scenarios were developed to assess the positive and negative impacts of changing the vehicle access routing for the Hartland Landfill from the current condition with Hartland Avenue as the primary access to Willis Point Road becoming the primary access:

1. **No change in vehicle access**
   a. The vehicle access arrangement remains as-is with no changes to how vehicles enter or exit the site
2. **Move commercial vehicle access to Willis Point Road**
   a. The automated scale is moved to near Willis Point Road which is where all registered haulers (commercial and municipal trucks) would enter and exit the site.
3. **Move the primary vehicle access to Willis Point Road**
   a. The large majority of vehicles accessing the site would do so via Willis Point Road including all residential traffic and the commercial haulers. The site office would also be relocated to near Willis Point Road. The Hartland Avenue access would remain for emergency use or landfill operations only.

4.2 Vehicle Volumes

Exhibit 4.1 illustrates the 2030 vehicle volumes if there is no change in vehicle access. They were estimated by applying a 1% annual increase to movements on West Saanich Road, Wallace Drive, and Willis Point Road. No increase was applied to Hartland Avenue as no vehicle growth has occurred on this street in recent years.

For the additional two scenarios, the existing number of vehicles and their route through the study area was estimated so that they could be re-assigned to use the Willis Point Road access.

Table 4.1 summarizes the average number of vehicles accessing the landfill between March and October of 2019. The vehicle trip estimates are based on the landfill's transaction data. Data from the winter (November to February) was excluded since there are fewer vehicles accessing the landfill during this period (see Figure 2.2).

Table 4.1: Existing Landfill Vehicle Trip Generation

TRIP GENERATOR	WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR			SATURDAY PEAK HOUR		
	Total	In	Out	Total	In	Out	Total	In	Out
Commercial Customers	**28**	14	14	**23**	11	12	**10**	5	5
Residential Customers	**34**	18	14	**52**	25	27	**150**	74	76
Staff/Contractors	**12**	10	2	**15**	5	10	**4**	2	2
TOTALS	74	42	30	**90**	41	49	**164**	81	83

Residential customers represent approximately two-thirds of the vehicles accessing the landfill during the weekday peak hours and almost all of the vehicles during the Saturday peak hour. The Saturday peak hour has the highest vehicle trip generation at approximately 80 vehicles both entering and exiting the landfill.

For analysis purposes, the landfill's vehicle trip generation was assumed to remain the same over the medium-term since the weight of deposited waste is forecasted to remain at a similar or lower level over the next 30 years (see Figure 2.1).

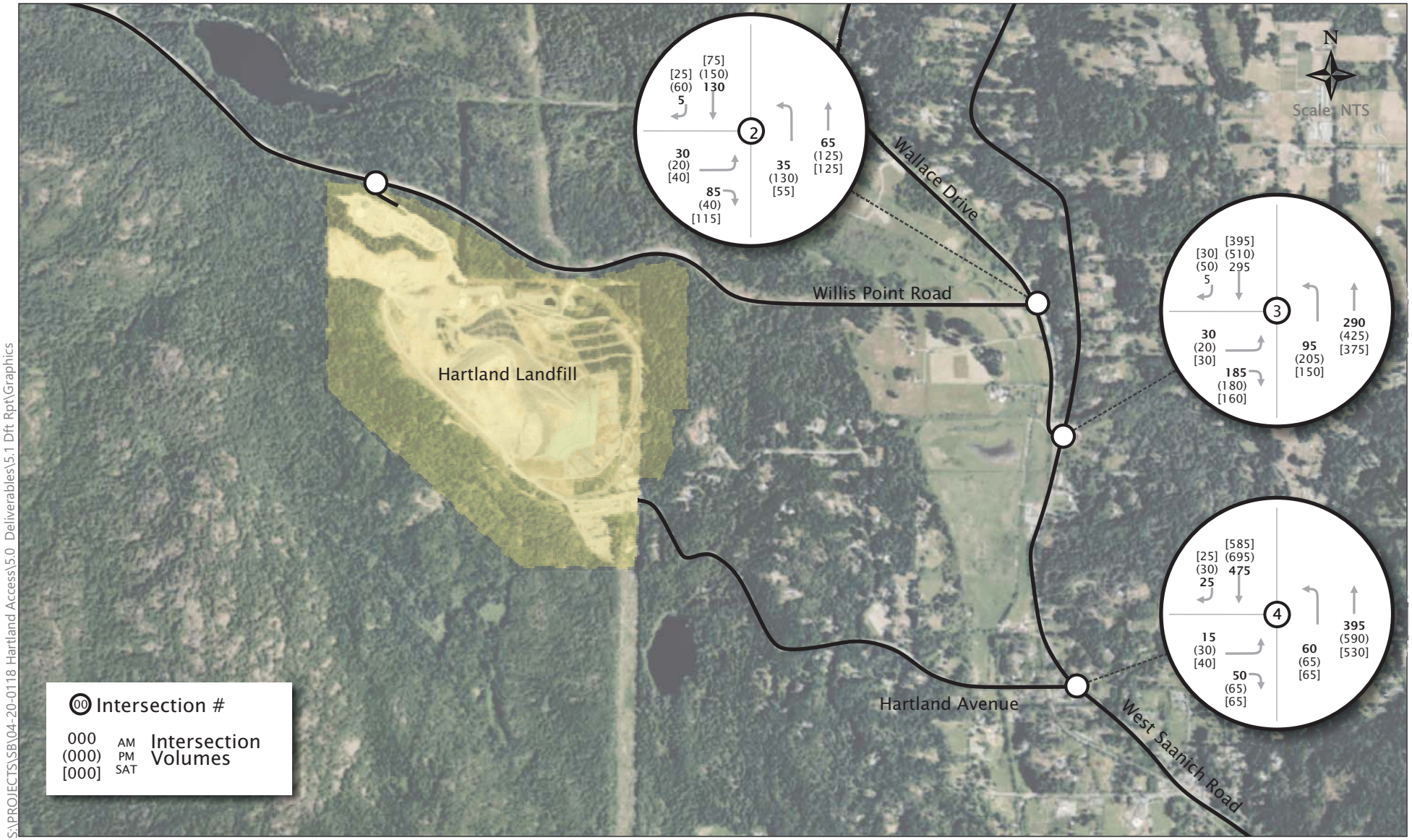
There is a potential for additional vehicle trips caused by aggregate production at the landfill. There is a potential for up to

12 additional round trips per hour on weekdays (12 trucks inbound and outbound) to remove aggregate from the landfill. Due to uncertainty regarding the vehicle trip generation during this study's weekday peak hours (8:30 - 9:30 am and 3:30 – 4:30 pm), the impacts of additional vehicle trips due to aggregate production (or other causes) is considered within **Section 4.4 and 4.5** which illustrates the excess vehicle capacity on the study streets and intersections.

Based on observed travel patterns for existing landfill traffic, it was assumed that 70% of vehicles accessing the site were coming to/from the south (via West Saanich Road) and 30% were coming to/from the north (20% via West Saanich Road and 10% via Wallace Drive).

Exhibit 4.2 illustrates the estimated change in vehicle volumes for changing the commercial vehicle access to Willis Point Road. For this scenario, 15 commercial vehicles (one vehicle each way every four minutes) are relocated from Hartland Avenue to Willis Point Road during the weekday morning peak hour with a lower amount during other hours. **Exhibit 4.3** presents the resulting 2030 vehicle volumes if the commercial vehicle access is changed to Willis Point Road.

Exhibit 4.4 illustrates the estimated change in vehicle volumes for the primary vehicle access to Willis Point Road. In this scenario, up to 80 vehicles (inbound and outbound) are relocated from Hartland Avenue to Willis Point Road during the Saturday peak hour which is the busiest period for residential hauling. **Exhibit 4.5** presents the resulting 2030 vehicle volumes if the primary vehicle access is changed to Willis Point Road.

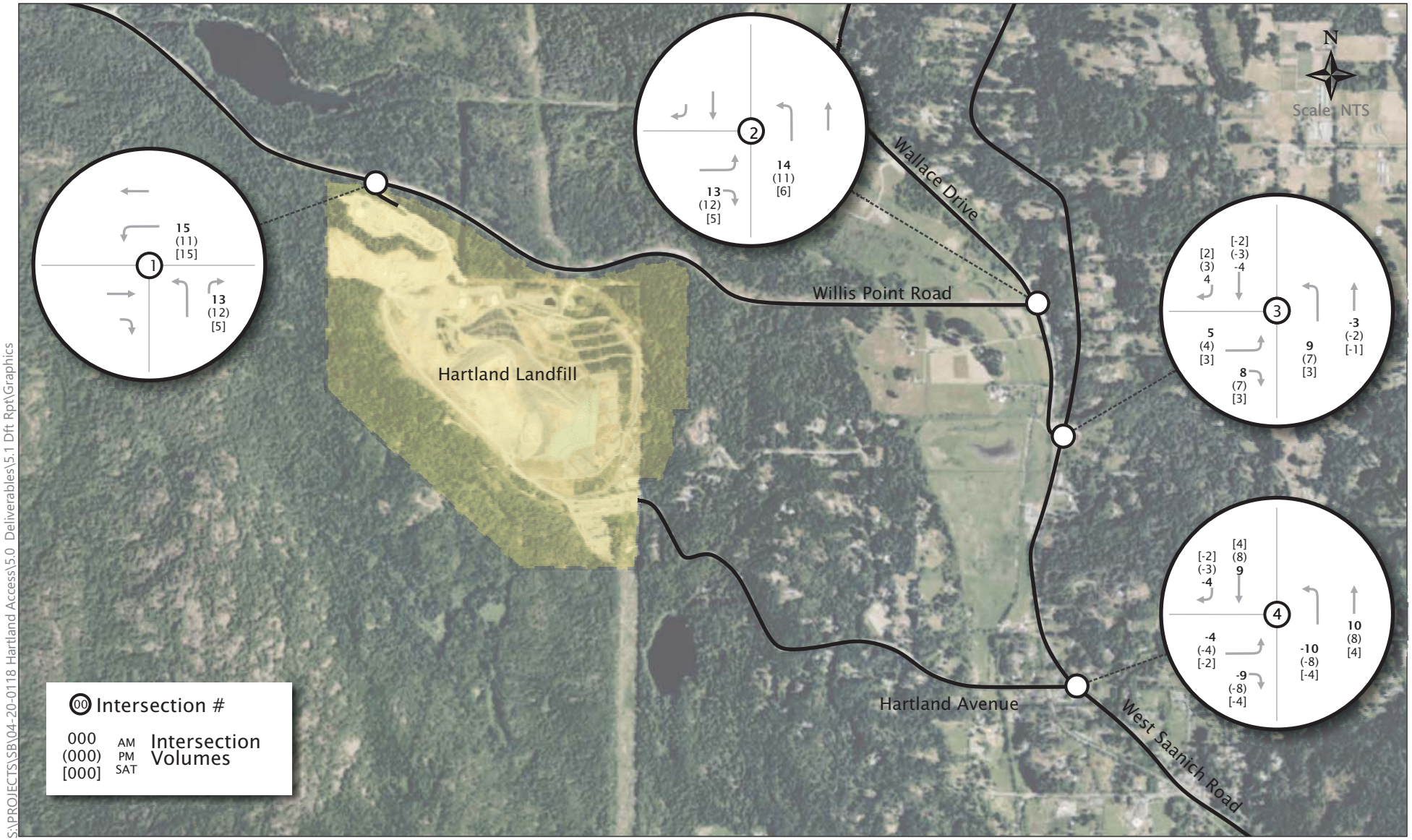


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Exhibit 4.1

2030 Vehicle Volumes - No Change in Vehicle Access

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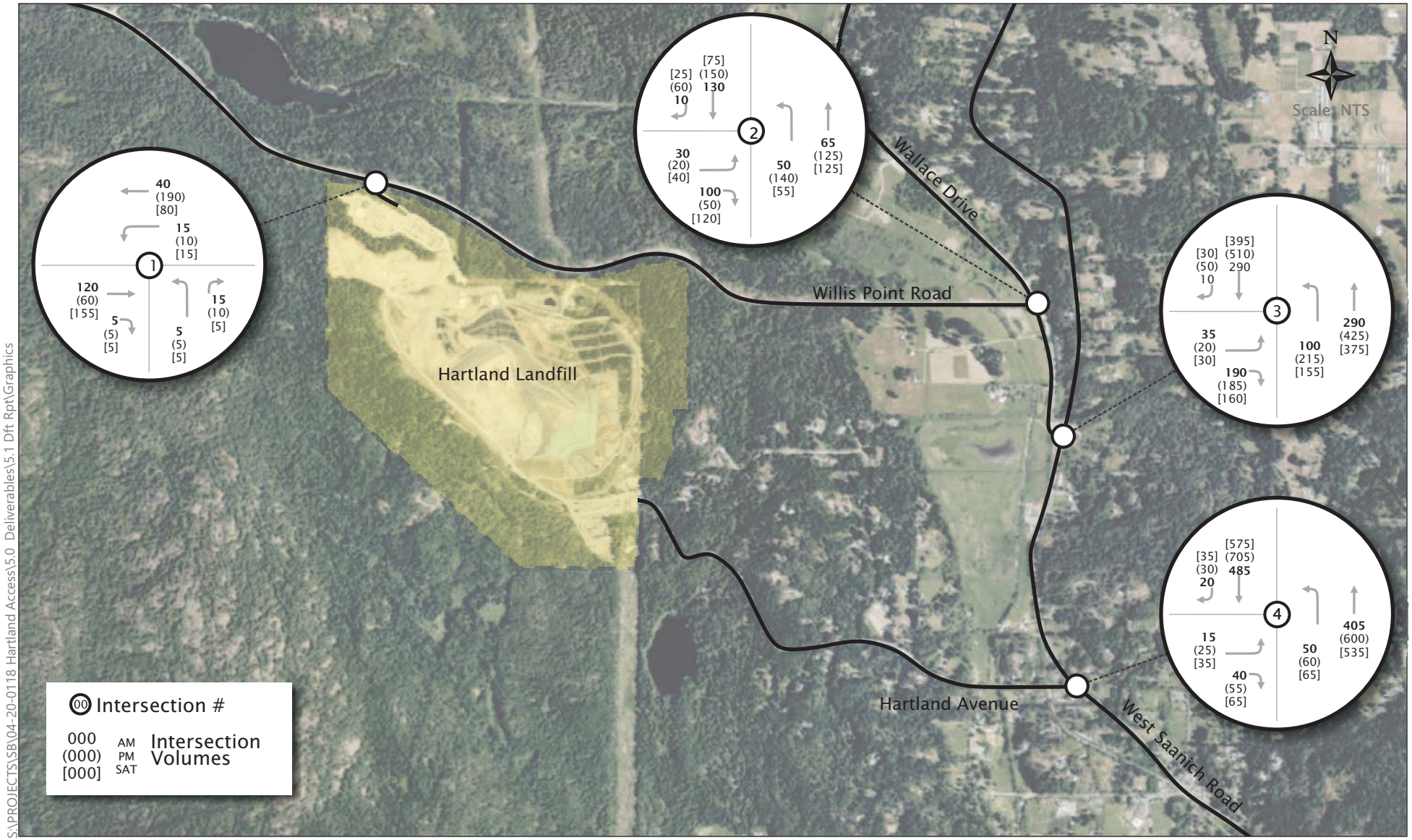


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Exhibit 4.2

Change in Vehicle Volumes - Move Commercial Vehicle Access to Willis Point Road

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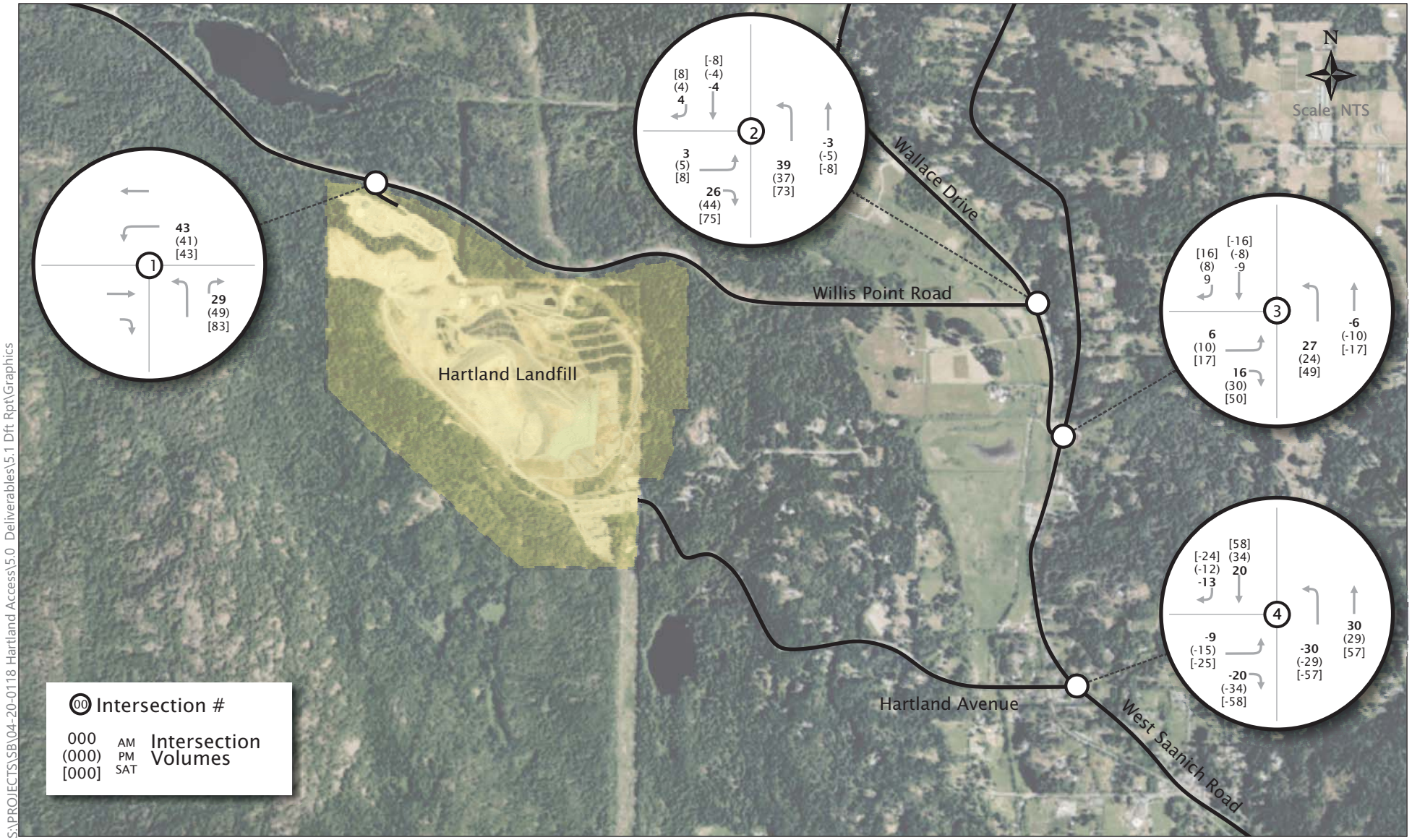


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Exhibit 4.3

2030 Vehicle Volumes - Move Commercial Vehicle Access to Willis Point Road

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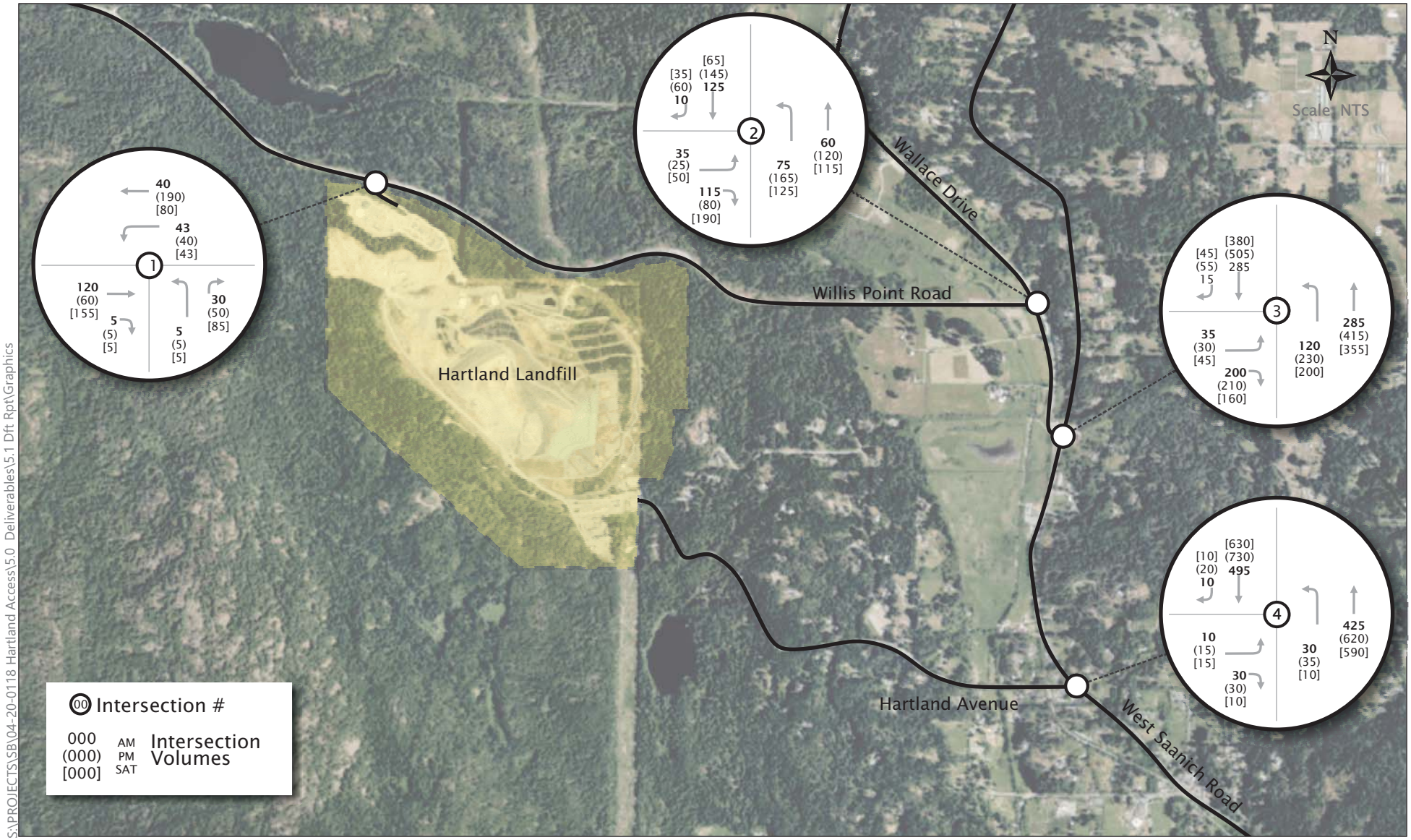


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Exhibit 4.4

Change in Vehicle Volumes - Move Primary Access to Willis Point Road

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Exhibit 4.5

2030 Vehicle Volumes - Move Primary Access to Willis Point Road

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4.3 Safety

4.3.1 Safety Review Process

A road safety review of the study area was completed with the goal of assessing the road safety impacts of changing local vehicle travel patterns by changing the landfill's vehicle access arrangement.

Collision data was obtained from ICBC's public website for the 5-year period from 2014 to 2018, for the different roads within the study area. Detailed collision data describing each reported collision was not available at the time of writing this report.

A site visit was completed during the daytime on April 30, 2020. Although the landfill typically does not operate when it is dark outside, for completeness, a nighttime review was completed on May 6, 2020, to identify visibility issues.

4.3.2 Collision Data

Table 4.2 summarizes the available collision data within the study area which is based on insurance claims submitted to ICBC for the 5-year period from 2014 to 2018 inclusive. There were no reported fatalities within this period. Overall, the majority of the collisions within the study area occur at the intersections of Wallace Drive with (i) Willis Point Road (four per year) and (ii) West Saanich Road (12 per year).

Table 4.2: 2014 – 2018 Collisions in the Study Area

LOCATION	TOTAL	INJURY	PDO	CYCLIST	PEDESTRIAN
Willis Point Road & Hartland Access	0	0	0	0	0
Willis Point Road	0	0	0	0	0
Wallace Drive & Willis Point Road	19	5	10	0	0
Wallace Drive	0	0	0	0	0
West Saanich Road & Wallace Drive	69	18	45	3	3
West Saanich Road	4	2	2	0	0
West Saanich Road & Hartland Avenue	3	1	2	0	0
Hartland Avenue	4	1	3	0	0

Source: ICBC

PDO – Property Damage Only

4.3.3 Audit Findings

Tables 4.3 and 4.4 summarize the audit findings for the study intersections and street segments, respectively. Pictures are provided following the audit finding tables.

The available Intersection Sight Distance (ISD) was measured and compared to the suggested distances in the Geometric Design Guide for Canadian Roads. The suggested distances were established by TAC with the goal of minimizing the speed drivers in the opposing direction must slow down to accommodate a vehicle turning in front of them. The critical sight direction is typically not the direction a driver is turning (i.e. the critical direction for a driver turning right onto the main road is looking left on the main road for oncoming vehicles).

Table 4.3: Safety Audit Findings - Intersections

INTERSECTION	INTERSECTION SIGHT DISTANCE		INFRASTRUCTURE OBSERVATIONS	BEHAVIOUR OBSERVATIONS
	Available	Suggested		
Willis Point Road & Hartland Access	NBL: 200 m NBR:300 m EBL: 330 m	NBL: 150 m NBR: 130 m EBL: 110 m (70 km/h design speed)	Pavement markings are faded and need to be replaced. [Picture 1]	No unusual or unsafe behaviour observed.
Wallace Drive & Willis Point Road	NBL: 150 m EBL: 110 m EBR: 125 m [Picture 2]	NBL: 95 m EBL: 130 m EBR: 110 m (60 km/h design speed)	Damage to channelization island from car tires. [Picture 3]	No unusual or unsafe behaviour observed.
West Saanich Road & Wallace Drive	NBL: 190 m EBL: 250 m EBR: 160 m [Picture 4]	NBL: 110 m EBL: 150 m EBR: 130 m (70 km/h design speed)	Multi-use trail terminates 20 m from the intersection which could cause conflicts for trail users. [Picture 5] Northbound bus stop located at the intersection could cause conflicts from the bus stopping in the intersection.	Vehicles were observed turning right very quickly from Wallace Drive to West Saanich Road.
West Saanich Road & Hartland Avenue	NBL: 70 m EBL: 150 m EBR: 60 m	NBL: 110 m EBL: 150 m EBR: 130 m (70 km/h design speed)	Very poor sight distance for drivers looking north on West Saanich Road due to topography. [Pictures 6 and 7] Northbound and southbound bus stops located at the intersection could cause conflicts from the bus stopping in the intersection.	Drivers turning from Hartland Avenue to West Saanich Road were observed creeping forward from the stop bar to gain additional sight distance and accelerate quickly indicating their concern of not knowing if there is an oncoming vehicle.

NB – Northbound, EB – Eastbound, SB – Southbound, L – Left, R - Right

Table 4.4: Safety Audit Findings – Street Segments

STREET	LAND USES	DRIVEWAY & INTERSECTION FREQUENCY	WIDTH	CHARACTERISTICS	INFRASTRUCTURE OBSERVATIONS
Willis Point Road	Hartland Landfill & Department of National Defence.	Minimal	Travel Lane: 3.5 m Shoulder: 1.2 – 1.4 m	Typical rural road.	The white line on the westbound shoulder needs to be repainted.
Wallace Drive	Rural	Infrequent	Travel Lane: 3.5 m Shoulder: 1.2 – 1.6 m	Typical rural road.	None
West Saanich Road	Rural residential and commercial	Moderate	Travel Lane: 3.5 m Shoulder: 1.3 – 1.8 m	Moderate horizontal and vertical curves.	None
Hartland Avenue	Rural residential	Frequent	Travel Lane: 3.6 m Shoulder: 0 – 0.2 m	Frequent horizontal and vertical curves. Unforgiving roadside due to vegetation, rocks, and vertical changes. [Picture 8]	The white line on the westbound shoulder needs to be painted.



1: Willis Point Road & Hartland Access – Worn pavement markings



2: Willis Point Road – Looking north on Wallace Drive (reasonable visibility but could be improved by trimming vegetation)



5: Willis Point Road & Wallace Drive – Damaged traffic island



4: Wallace Drive – Looking north on West Saanich Road (good visibility)



5: Interurban Trail trailhead located near West Saanich Road & Wallace Drive intersection



6: Hartland Avenue – Looking north on West Saanich Road from the stop bar (very poor visibility)



7: Hartland Avenue – Looking north on West Saanich Road from in front of the stop bar (only the roof of the oncoming vehicle is visible)



8: Hartland Avenue – Frequent horizontal and vertical profile changes. No shoulders.

4.3.4 Key Issues and Recommendations

Key issues and recommendations to improve safety include:

- The pavement markings at the Hartland Landfill access on Willis Point Road should be repainted following construction completion of the adjacent Residual Treatment Facility.
- The westbound white edge line on Willis Point Road should be repainted.
- Vegetation should be trimmed on a regular basis surrounding the Wallace Drive & Willis Point Road intersection to improve sight distances.
- The multi-use trail terminates at Wallace Drive, 20 metres from West Saanich Road. Two collisions involving people walking and cycling were reported to ICBC during the 5-year collision history which may be due to people accessing the trail without any connecting active transportation infrastructure. Saanich should investigate opportunities to allow people to cross Wallace Drive safely either at the West Saanich Road intersection or further away from the intersection.
- Drivers make the eastbound right turn from Wallace Drive to West Saanich Road very quickly. This could cause collisions either when vehicles merge onto West Saanich Road or if drivers need to stop abruptly and cause a rear-end collision with the vehicle behind them. This is potentially the reason for the high number of collisions reported to ICBC at this intersection. Saanich should consider options to reduce vehicle turning speed by reducing the turning radius while still providing sufficient space for large vehicles.
- There is very poor visibility of southbound vehicles on West Saanich Road approaching Hartland Avenue. Saanich should consider opportunities to reduce southbound vehicle speeds. Note, relocating the landfill's access to Willis Point Road will significantly reduce the number of vehicles turning at this intersection.
- A white edge line should be painted on Hartland Avenue in the westbound direction to improve nighttime visibility. The lack of shoulder on Hartland Avenue and unforgiving roadside containing many obstacles will increase the severity of collisions if vehicles depart from the travel lane

4.3.5 Comparison

Overall, the route to the Willis Point Road access is more suitable for larger volumes of vehicles and heavy vehicles since the West Saanich Road & Wallace Drive intersection provides improved turning opportunities (less oncoming traffic) than the West Saanich Road & Hartland Avenue, and vehicle sight-distance is better at both the Willis Point Road intersection with Wallace Road and at the Wallace Road intersection with West Saanich Road.

In addition, compared to Hartland Avenue, Willis Point Road has a more consistent horizontal and vertical road profile as well as providing road shoulders.

4.4 Street Capacity

The Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads notes that Rural Local Streets (the most applicable category for Hartland Avenue) typically have fewer than 1,000 vehicles per day and Rural Collector Streets (the most applicable category for Willis Point Road) typically have fewer than 5,000 vehicles per day. The difference between the categorization is due to Hartland Avenue primarily providing local access to locations on the street (i.e. frequent driveways), whereas Willis Point Road primarily provides vehicle travel through the street segment being evaluated (i.e. infrequent driveways).

Table 4.5 summarizes the average weekday vehicle volume on these streets compared to the typical maximum volumes noted by TAC (1,000 and 5,000 vehicles per day, respectively).

Hartland Avenue currently has more vehicles than a typical Rural Local Street (1,000 vehicles per day) and will operate below the threshold if the landfill's primary access is relocated to Willis Point Road (Scenario 3). Willis Point Road currently has less than half of the vehicles of a typical Rural Collector Street (5,000 vehicles per day) and is forecasted to remain 45% below the typical threshold even if all landfill access is relocated to Willis Point Road (Scenario 3).

Table 4.5: Ratio of Typical Street Classification Volume - Saturday

SCENARIO	VEHICLE GENERATOR	HARTLAND AVENUE	WILLIS POINT ROAD
Scenario 1	Landfill	70%	0%
	Non-landfill	71%	40%
	Total	**141%**	**40%**
Scenario 2	Landfill	42%	6%
	Non-landfill	71%	40%
	Total	**113%**	**45%**
Scenario 3	Landfill	0%	14%
	Non-landfill	71%	40%
	Total	**71%**	**54%**

4.5 Intersection Level of Service

Table 4.6 summarizes the vehicle operations for the three scenarios being analyzed. The LOS and volume/capacity (V/C) ratio is shown for each movement. A V/C ratio greater than 1.0 indicates that the movement is above its theoretical capacity. V/C ratios of 0.8-0.9 are common in urban settings. All movements are estimated to remain under 0.4 for all scenarios, indicating that they are forecasted to operate well within capacity.

The LOS does not vary between scenarios indicating that changing the landfill's vehicle access will not significantly impact the time it takes to travel through an intersection.

Table 4.6: 2030 Vehicle Level of Service

INTERSECTION	MOVEMENT	WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR			SATURDAY PEAK HOUR		
		Scenario 1	Scenario 2	Scenario 3	Scenario 1	Scenario 2	Scenario 3	Scenario 1	Scenario 2	Scenario 3
Willis Point Road & Hartland Access	EBT/R	-	-	-	-	-	-	-	-	-
	WBL	A, -	A, 0.01	A, 0.04	A, -	A, 0.01	A, 0.03	A, -	A, 0.00	A, 0.07
	WBT	-	-	-	-	-	-	-	-	-
	NBL/R	A, -	A, 0.02	A, 0.04	A, -	A, 0.01	A, 0.05	A, -	A, 0.01	A, 0.11
Wallace Drive & Willis Point Road	EBL	B, 0.05	B, 0.06	B, 0.07	B, 0.05	B, 0.05	C, 0.07	B, 0.08	B, 0.08	B, 0.12
	EBR	A, 0.11	A, 0.13	A, 0.15	A, 0.05	A, 0.06	A, 0.10	A, 0.14	A, 0.15	A, 0.23
	NBL	A, 0.03	A, 0.04	A, 0.06	A, 0.11	A, 0.11	A, 0.14	A, 0.04	A, 0.04	A, 0.10
	NBT	-	-	-	-	-	-	-	-	-
	SBT/R	-	-	-	-	-	-	-	-	-
West Saanich Road & Wallace Drive	EBL	C, 0.10	C, 0.11	C, 0.13	E, 0.15	E, 0.18	E, 0.25	D, 0.17	D, 0.18	D, 0.30
	EBR	B, 0.28	B, 0.29	B, 0.30	C, 0.35	C, 0.36	C, 0.40	B, 0.28	B, 0.28	B, 0.36
	NBL	A, 0.08	A, 0.09	A, 0.11	A, 0.22	A, 0.23	A, 0.25	A, 0.15	A, 0.15	A, 0.2
	NBT	-	-	-	-	-	-	-	-	-
	SBT/R	-	-	-	-	-	-	-	-	-
West Saanich Road & Hartland Avenue	EBL/R	B, 0.15	B, 0.012	B, 0.08	C, 0.32	C, 0.28	C, 0.16	C, 0.33	C, 0.32	C, 0.08
	NBL	A, 0.06	A, 0.05	A, 0.03	A, 0.08	A, 0.07	A, 0.05	A, 0.08	A, 0.07	A, 0.01
	NBT	-	-	-	-	-	-	-	-	-
	SBL/T	-	-	-	-	-	-	-	-	-

Notes:

- NB – Northbound, EB – Eastbound, SB – Southbound, L – Left, T – Through, R - Right
- Scenario 1 – No change in vehicle access
- Scenario 2 – Move commercial vehicle access to Willis Point Road, residential access to remain via Hartland Avenue
- Scenario 3 – Move the primary vehicle access to Willis Point Road for all vehicle streams arriving/departing the landfill
- The eastbound left-turn movements from Wallace Drive and Hartland Avenue are highlighted in grey since they are the movements most impacted by relocating the vehicle access to Willis Point Road. As shown, the impact is insignificant.

4.6 Street Grade

The steepness of a street can affect how fast vehicles travel as well as safety, particularly for larger vehicles, such as the commercial vehicles accessing the landfill. Within the study area, Willis Point Road and Hartland Avenue both have significant elevation changes of approximately 100 metres.

Willis Point Road has a single large hill with a maximum grade of 8% whereas Hartland Avenue has a number of rolling hills with grades up to 15%. TAC suggests a maximum grade of approximately 10% for these environments, indicating that the grades on Willis Point Road are more appropriate for the street's use, particularly for large vehicles.

4.7 Climbing Lanes

On two-lane roads, short segments of a third lane can assist with overtaking and reduce the amount of time vehicles trail other vehicles. When this is caused by trucks travelling slower than usual due to elevation gain, the preferred treatment is a truck climbing as opposed to a general passing lane.

Both routes to the landfill (Willis Point Road and Hartland Avenue) have a significant elevation gain from West Saanich Road. Depending on specific circumstances, this could cause heavy vehicles accessing the landfill to travel below typical speeds which could cause vehicles to queue behind the slower moving trucks.

The pavement markings on Willis Point Road indicate that passing is allowed in the opposing lane on the 800 metres closest to Wallace Drive. The remainder of Willis Point Road and all of Hartland Avenue do not provide safe passing opportunities in the opposing lane.

TAC suggests that a climbing lane should be considered when the following three conditions are met:

1. Total upgrade vehicle flow in excess of 200 vehicles per hour.
2. Upgrade truck flow in excess of 20 vehicles per hour.
3. One of the following:
    a. A 15 km/h or greater speed reduction is expected for a typical heavy truck.
    b. Level of Service E or F on the grade.
    c. A reduction of two or more levels of service is experienced when moving from the approach road.

The second criterion is currently met on both Willis Point Road and Hartland Avenue with upgrade truck flows exceeding 20 vehicles per hour during select hours of the day.

Neither the first or third criteria are met for either Willis Point Road or Hartland Avenue for the three analysis scenarios. Heavy vehicles were observed travelling near the speed limit through the study area.

The landfill currently generates 30 commercial vehicle trips per peak hour (15 in and out), or approximately one commercial vehicle every four minutes in each direction. Therefore, there is only a small probability of drivers encountering a commercial vehicle in front of them on weekdays and a minuscule probability on weekends. Therefore, the impact on other drivers on Willis Point Road and Hartland Avenue is minimal.

In addition to the financial and environmental implications of constructing a climbing lane, it would also cause drivers to increase their speed due to the street appearing wider. There is a direct relationship between the width of a street and the speed in which drivers choose to travel. Adding a lane on Willis Point Road is anticipated to increase vehicle speeds higher than the existing design where the average speed is already 10 km/h above the speed limit.

4.8 Active Transportation

The Interurban Trail is the primary walking facility through the study area with its trailhead at Wallace Drive. It also provides an off-road cycling connection. A significant number of cyclists (500 per day, 50 per hour) were recorded on West Saanich Road; Wallace Drive and Willis Point Road were recorded as having considerably less bike traffic, and Hartland Avenue even less.

Retaining Hartland Avenue as the primary access route to the landfill would retain a higher level of vehicles crossing the Interurban Trail and quite possibly discouraging people from cycling on Hartland Avenue due to the frequent passing vehicles.

Moving the vehicle access to Willis Point Road would reduce the number of vehicles crossing the Interurban Trail and would enable people to feel comfortable cycling on Hartland Avenue. However, it would also increase the number of vehicles on Willis Point Road which would reduce the comfort of cycling on that street.

4.9 Vehicle Emissions

The particles that vehicles emit from engine exhaust and as well from vehicle braking generate air pollution which has health impacts immediately surrounding the source. Engine exhaust also emits carbon dioxide which is a greenhouse gas contributing to climate change.

The difference in vehicle emissions was estimated using the SimTraffic traffic analysis model which considers vehicle volume, vehicle speed, driving distances, and street grades.

During landfill operating hours, moving the commercial vehicle access only to Willis Point Road is anticipated to increase vehicle emissions in the study area by 15%; with the relocation of all landfill vehicle traffic to Willis Point Road, this emissions increase is predicted to increase by up to 30%. Although Willis Point Road is flatter than Hartland Avenue, the longer route increases the amount of emissions.

However, since the landfill is a regional destination which people commonly drive 10 to 15 kilometres to reach, the net additional vehicle emissions for an entire trip to the landfill is likely 10 to 20% of the above percentages, resulting in a net increase of 1.5 to 3% in vehicle emissions if only commercial vehicles are relocated to Willis Point Road and 3 to 6% if all vehicles access the landfill from Willis Point road.

It is also noted that the number of residential properties in the vicinity of Willis Point Road is considerably less than along Hartland Avenue so the proximity-based health effects of air pollution would be lower.

4.11 On-site Circulation

Exhibit 4.6 illustrates the access routes between the two vehicle access points for the landfill with the active filling area which is planned to progress to the northwest over time. Only commercial and landfill trucks are used within the site.

The active filling area is currently 600 metres from the Hartland Avenue access, increasing to 1,100 metres over time. Conversely, it is currently 1,500 metres from the Willis Point Road access, reducing to 600 metres over time.

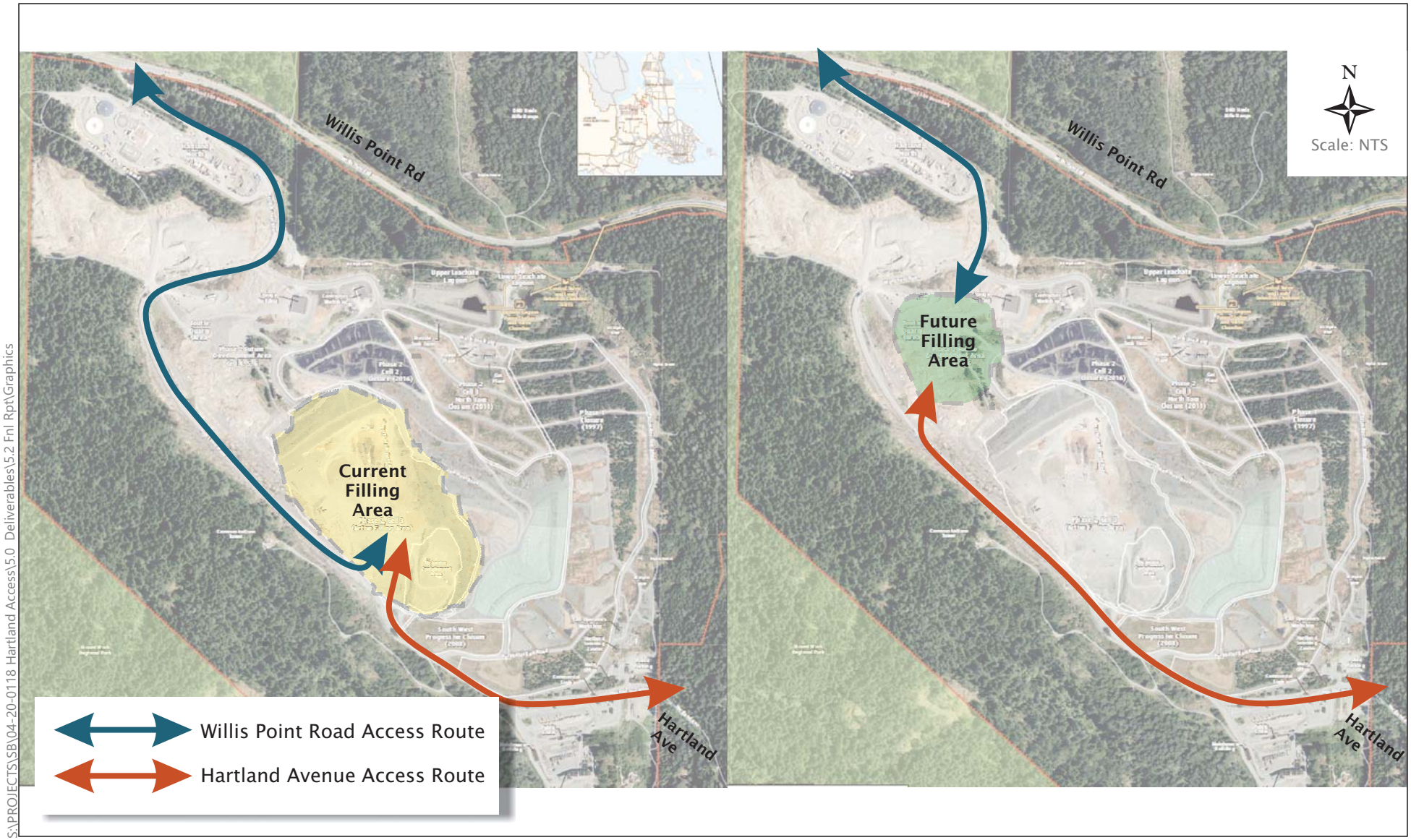
A site plan has not been provided illustrating where residential waste would be deposited near Willis Point Road, making it difficult to compare how the design would compare to the current design near Hartland Avenue. However, by moving only the commercial access to Willis Point Road, there would be fewer on-site conflicts between commercial and residential vehicles where they merge/diverge into their respective streams.

Another consideration is the Mount Work Regional Park mountain bike trailhead/parking lot located immediately before the existing Hartland Avenue landfill access. The current design causes landfill-bound vehicles to pass through the parking lot which can interrupt the ease of park users accessing the trails and restroom facilities. Relocating the landfill's vehicle access to Willis Point Road would allow for a trailhead/parking lot that is more inviting to trail users and reduces safety risks.

4.12 Infrastructure Condition

There is a short bridge on Hartland Avenue over Tod Creek 260 metres west of West Saanich Road. Although a bridge inspection was not completed, it appeared to be in a well-worn state. High use by heavy vehicles (such as commercial hauling trucks) significantly impacts a bridge's lifespan.

Maintaining vehicle access to the landfill on Hartland Avenue will cause the bridge to deteriorate at a faster rate than if vehicle access was on Willis Point Road. In addition, as the only entrance to the local area, if the bridge were damaged it would affect access to residents' homes, Mount Work Regional Park, and the landfill.



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Exhibit 4.6
On-site Circulation

Hartland Landfill Alternate Access Transportation Impact Study

04-20-0118 June 2020

bunt & associates

5. SUMMARY

There are benefits and drawbacks to the three scenarios considered, however, overall, the impacts of re-routing vehicles to/from the Hartland Landfill are relatively modest compared to the number of vehicles not related to the landfill travelling through the study area, and the entire distance vehicles must travel to reach the landfill.

Table 5.1 summarizes the assessment for each category analyzed indicating that there are some benefits of moving either only commercial vehicles or all vehicles to the landfill's Willis Point Road access.

The route to reach the Willis Point Road access is more appropriate for higher vehicle use than the Hartland Avenue access due to the street and intersection designs. Most notably, Willis Point Road is designed for through vehicle traffic whereas Hartland Avenue has many driveways and minor intersections. In addition, the West Saanich Road & Willis Point Road intersection is more appropriate for accommodating higher vehicle use than the West Saanich Road & Hartland Avenue intersection.

We do not view any significant concerns that would restrain the CRD from moving vehicle access to Willis Point Road, nor did we identify any additional off-site infrastructure improvements that are triggered by changing the vehicle access.

There is no need for an additional lane on either Willis Point Road or Hartland Avenue for any of the three vehicle access scenarios analyzed. Both streets only meet one of three criteria identified by TAC for adding a truck climbing lane. Most notably, the street designs do not cause heavy trucks to travel below the speed limit. Even if all vehicle access is relocated to Willis Point Road, the street would operate 45% below the typical threshold for a two-lane rural collector street. In addition to the financial and environmental impacts, adding a lane on Willis Point Road would also increase the number of speeding vehicles.

Regardless of if the vehicle access arrangement is changed, deteriorated pavement markings on Willis Point Road should be reinstalled following nearby construction of the Residual Treatment Facility. Saanich should also consider reviewing traffic safety at the West Saanich Road & Wallace Drive intersection and consider improvements to reduce the speed of vehicles turning right from Wallace Drive onto West Saanich Road. Potential improvements could also include an improved connection to the Interurban Trail which has a trailhead near the intersection.

Table 5.1: Scenario Comparison Summary

CATEGORY	NO CHANGE TO THE EXISTING ACCESS CONFIGURATION	MOVE COMMERCIAL VEHICLE ACCESS TO WILLIS POINT ROAD	MOVE PRIMARY VEHICLE ACCESS TO WILLIS POINT ROAD
Vehicles	The landfill accounts for 700 vehicles per day (350 vehicles each direction) on Hartland Avenue, 50% of current daily traffic	Daily traffic on Willis Road increases by 15% from 2,000 to 2,300 Daily traffic on Hartland Avenue decreases by 20% from 1,400 to 1,100	Daily traffic on Willis Road increases by 35% from 2,000 to 2,700 Daily traffic on Hartland Avenue decreases by 50% from 1,400 to 700
Safety	West Saanich Road & Hartland Avenue has poor visibility for passenger vehicle drivers, increasing the risk and severity of collisions	West Saanich Road & Hartland Avenue has poor visibility for passenger vehicle drivers, increasing the risk and severity of collisions	History of collisions at West Saanich Road & Wallace Drive manageable with modest improvements
Street Vehicle Volume Compared to Street Classification	Hartland Avenue - Higher than appropriate Willis Point Road - Appropriate	Hartland Avenue - Higher than appropriate Willis Point Road - Appropriate	Hartland Avenue - Appropriate Willis Point Road - Appropriate
Intersection Level of Service	No significant differences		
Street Grade	Poor	Better	Best
Truck Climbing Lane	Not warranted on Willis Point road or Hartland Avenue and would increase the number of speeding vehicles		
Active Transportation	Maintains vehicles crossing the Interurban Trail Minimizes vehicles on Willis Point Road	Elements of the other two scenarios	Reduces vehicles on Hartland Avenue including crossing the Interurban Trail Increases vehicles on Willis Point Road
Vehicle Emissions	-	A modest reduction in air pollution affecting the health of neighbouring residents A slight increase in greenhouse gas emissions affecting climate change	Most reduction in air pollution affecting the health of neighbouring residents A minor increase in greenhouse gas emissions affecting climate change
On-site Circulation	Closer to the current fill area Farther from the future fill area Highest vehicle volume travelling through the Mount Work mountain bike trailhead	Fewer on-site conflicts between vehicles Moderate vehicle volume travelling through the Mount Work mountain bike trailhead	Farther from the current fill area Closer to the future fill area No vehicles travelling through the Mount Work mountain bike trailhead
Infrastructure Condition	Increased risk of deterioration to the Hartland Avenue bridge	Reduced risk of deterioration to the Hartland Avenue bridge	Landfill traffic does not deteriorate the Hartland Avenue bridge

Black – No significant differences between scenarios
Green – Noticeable improvement compared to other scenarios
Red – Noticeable decrease compared to other scenarios

Willis Point Road

Truck Passing Lane - Class D - Opinion of Probable Cost

111720088 November 29, 2019

1.0 Civil Works	Unit	Quantity	Unit Price	Total
Mobilization/demobilization	LS	1	$ 200,000	$ 200,000
Traffic Control	LS	1	$ 50,000	$ 50,000
Environmental Protection	LS	1	$ 25,000	$ 25,000
Quality control/materials testing	LS	1	$ 25,000	$ 25,000
Sawcutting (1+170 to 3+160)	m	1,990	$ 10	$ 19,900
Asphalt milling and disposal	m2	995	$ 20	$ 19,900
Clearing and Grubbing (disposal at CRD site)	m2	14,500	$ 5	$ 72,500
Excavation and disposal (disposal at CRD site)	m3	6,780	$ 50	$ 339,000
Rock Excavation (disposal at CRD site)	m3	6,955	$ 275	$ 1,912,625
Subgrade Fill (provided by CRD)	m3	2,320	$ 20	$ 46,400
Base and subbase gravel (provided by CRD)	m3	3,310	$ 20	$ 66,200
Asphalt paving (80mm thick)	m2	7,738	$ 75	$ 580,313
Line Painting	m	5,970	$ 5	$ 29,850
Subtotal				**$ 3,386,688**

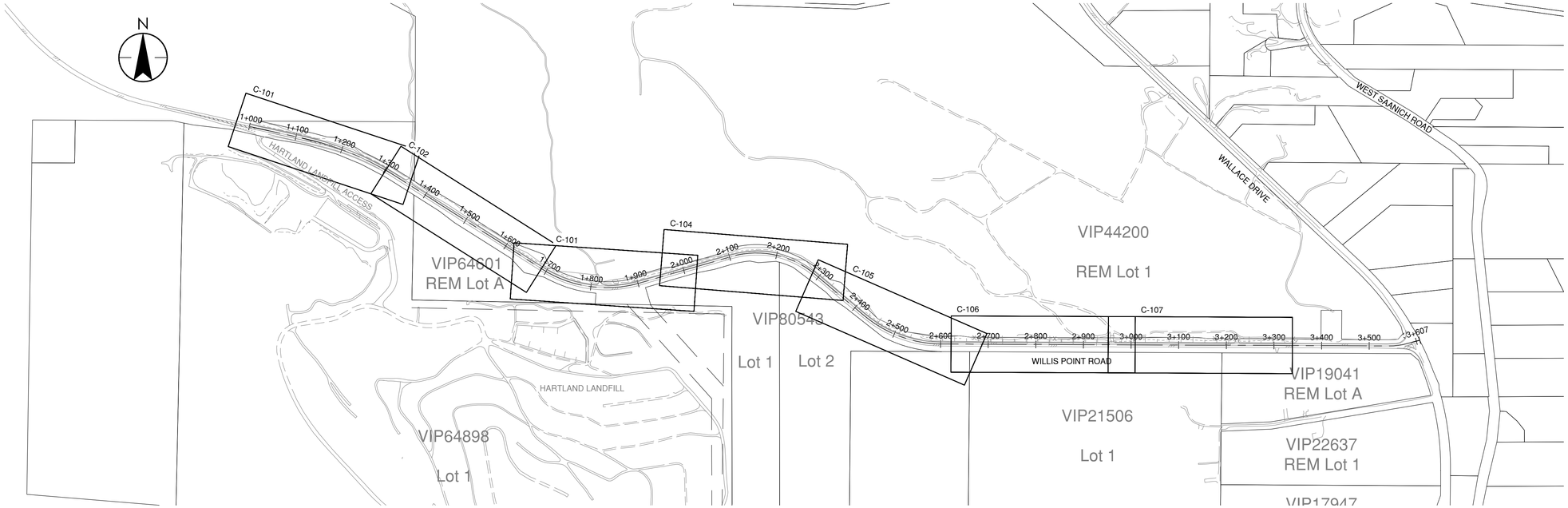
Subtotal	$3,386,688
40% Contingency	$1,354,675
10% Engineering	$338,669
Total	**$5,080,031**

Note: This estimate is preliminary for an order of magnitude cost for widening Willis Pt. Road from Wallace Drive to the left turn lane into the CRD Residual Solids Treatment facility.

Limits of Commission:
Whereas any opinions of probable cost prepared by Stantec Consulting Ltd. ("the Engineer") will be based on incomplete or preliminary information, and will also be based on factors over which the Engineer has no control, the Engineer does not guarantee the accuracy of these opinions of probable cost and shall have no liability where the probable costs are exceeded.

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By: KP
11/29/2019
20191127_willis_pt_opc_in_progress.xlsx



DRAWING INDEX		
Sheet Number	Sheet Title	Sheet Number
C-001	KEY PLAN AND DRAWING INDEX	C-001
C-101	PLAN - PROFILE	C-101
C-102	PLAN - PROFILE	C-102
C-103	PLAN - PROFILE	C-103
C-104	PLAN - PROFILE	C-104
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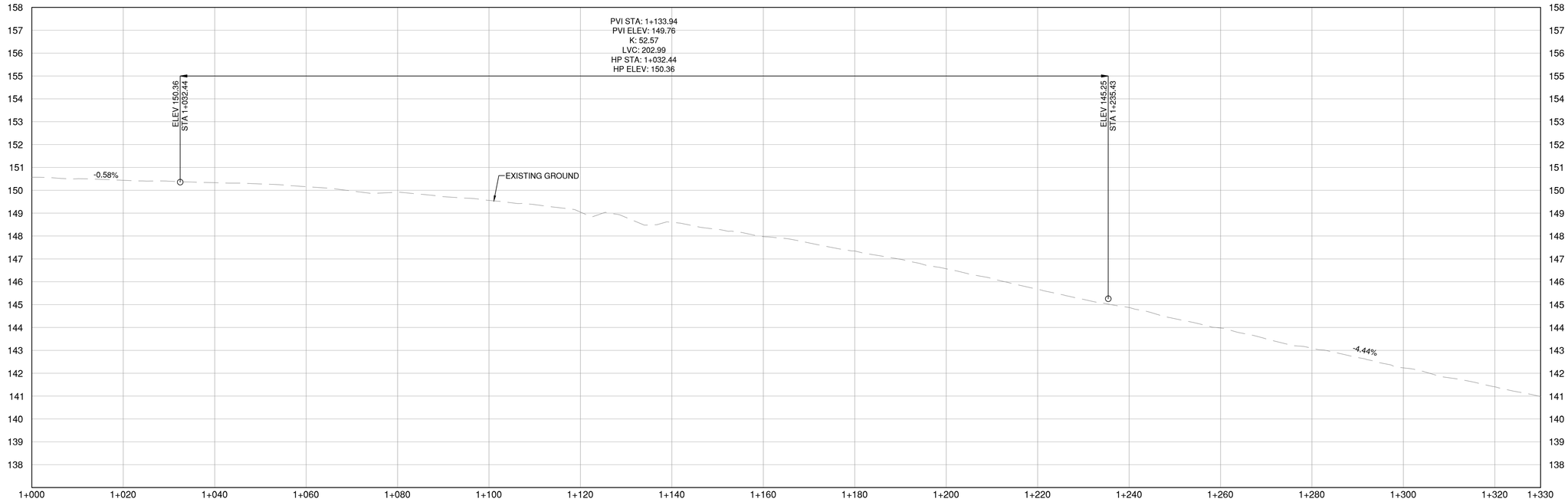
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WILLIS POINT ROAD WIDENING

KEY PLAN AND DRAWING INDEX

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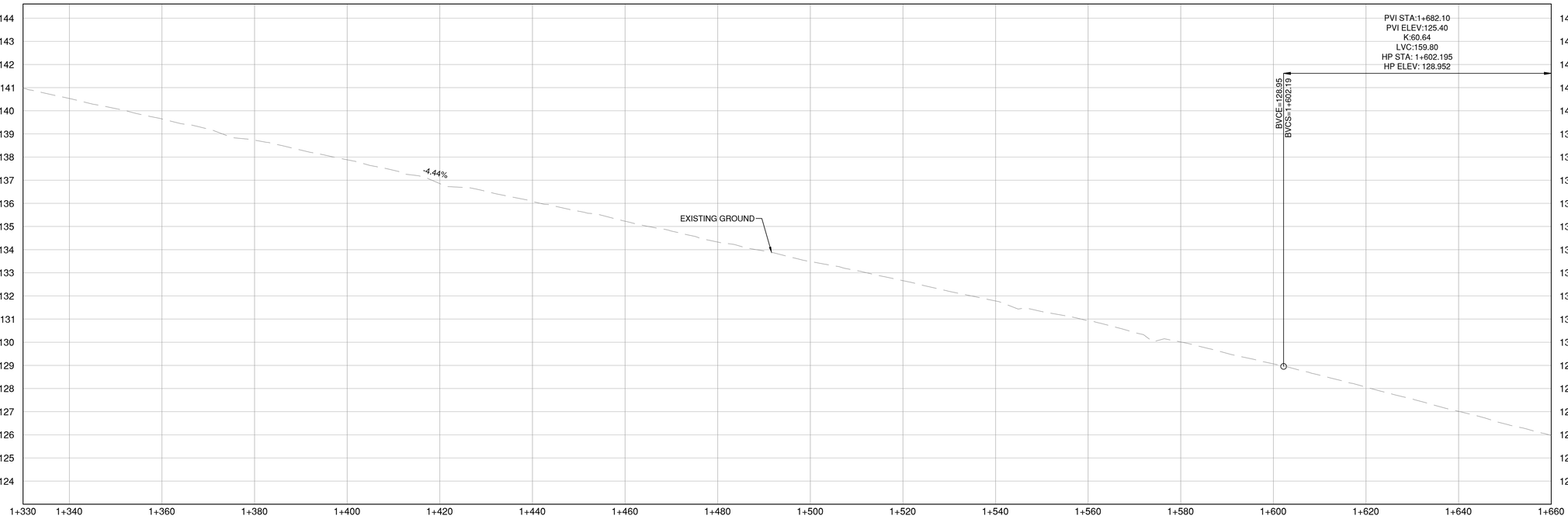
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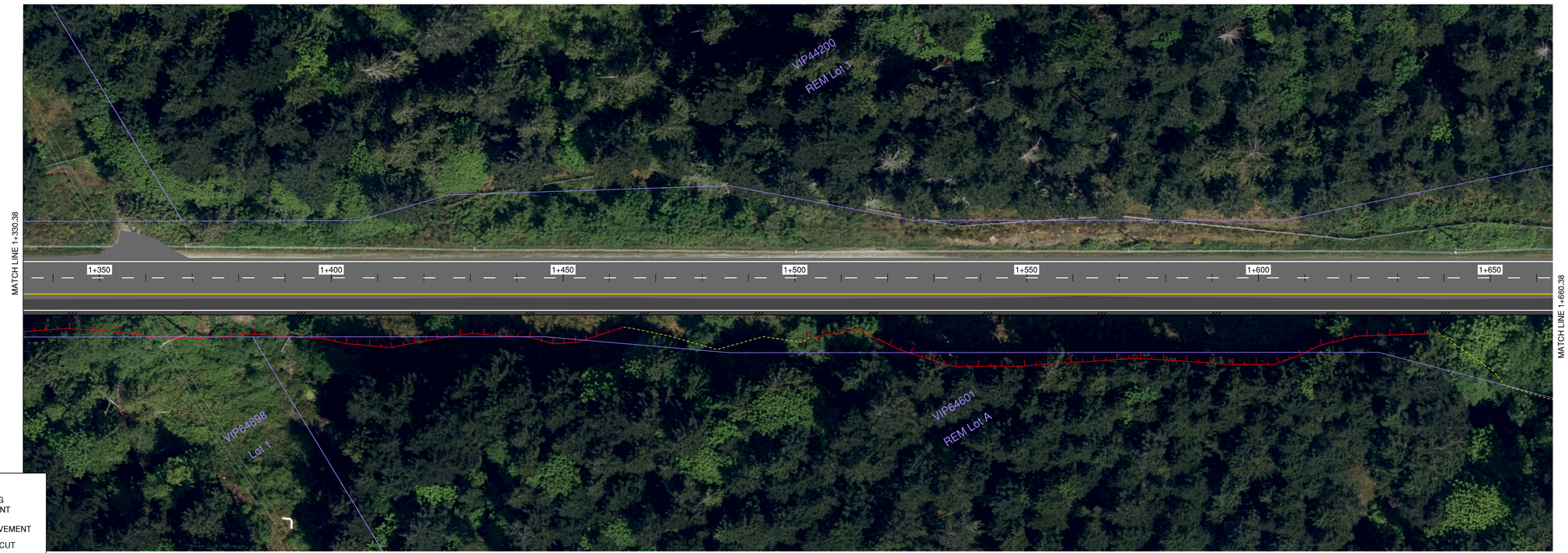
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PLAN - PROFILE
STATION 1+000 TO 1+330

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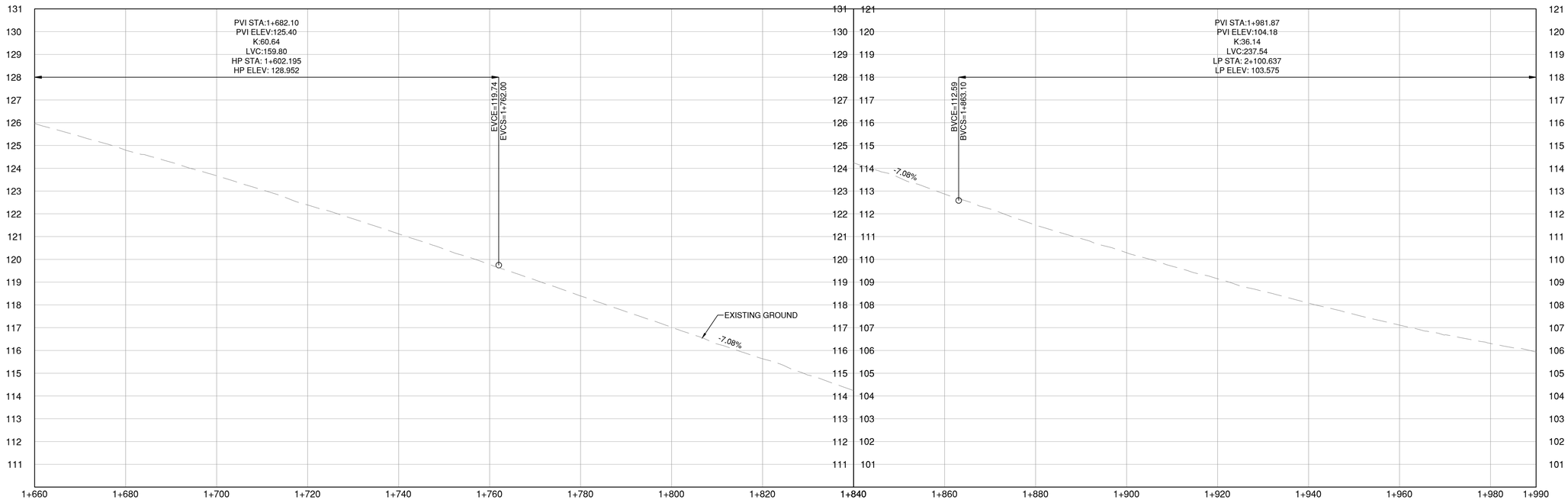
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PLAN - PROFILE
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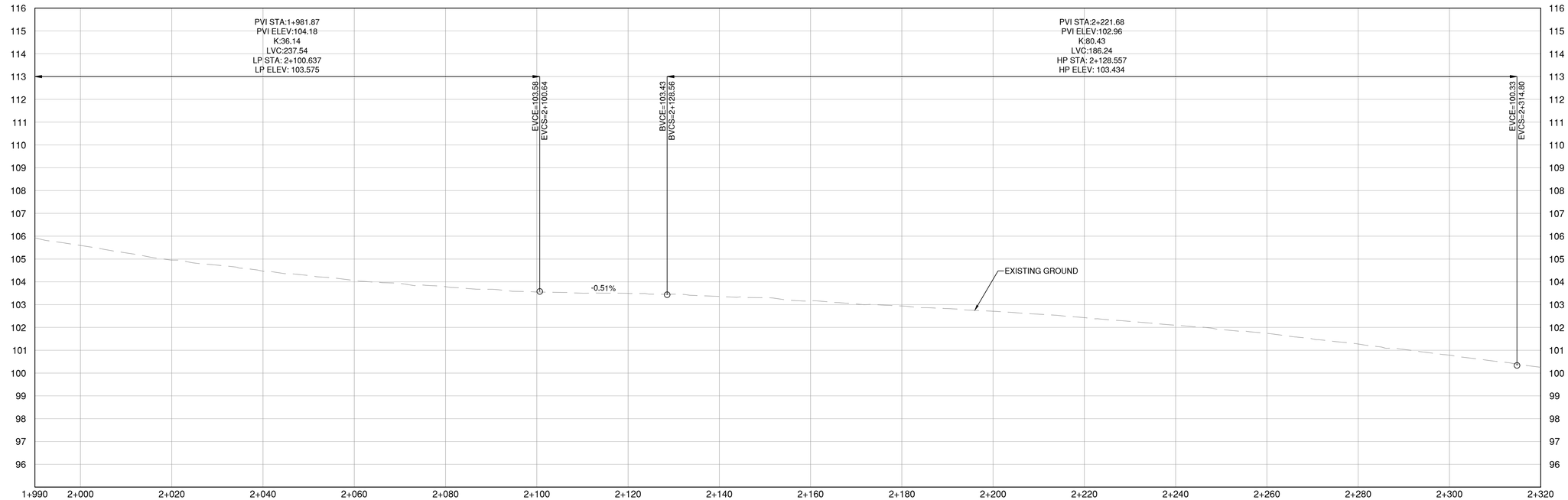
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WILLIS POINT ROAD WIDENING

PLAN - PROFILE
STATION 1+660 TO 1+990

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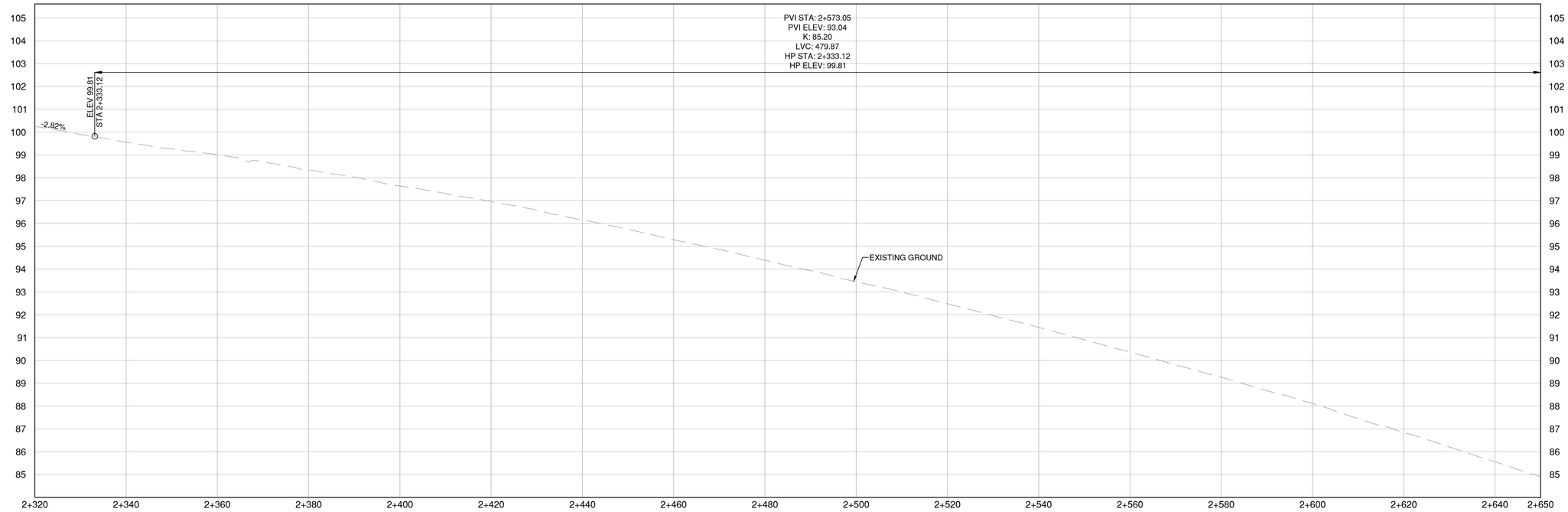
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STATION 1+990 TO 2+320

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BY	DATE	No.	REVISION	ENG.
				2
				1

No.	DATE	ISSUE
	19.09.13	ISSUED FOR TENDER
	19.07.05	ISSUED FOR 70% DESIGN REVIEW

Making a difference...together

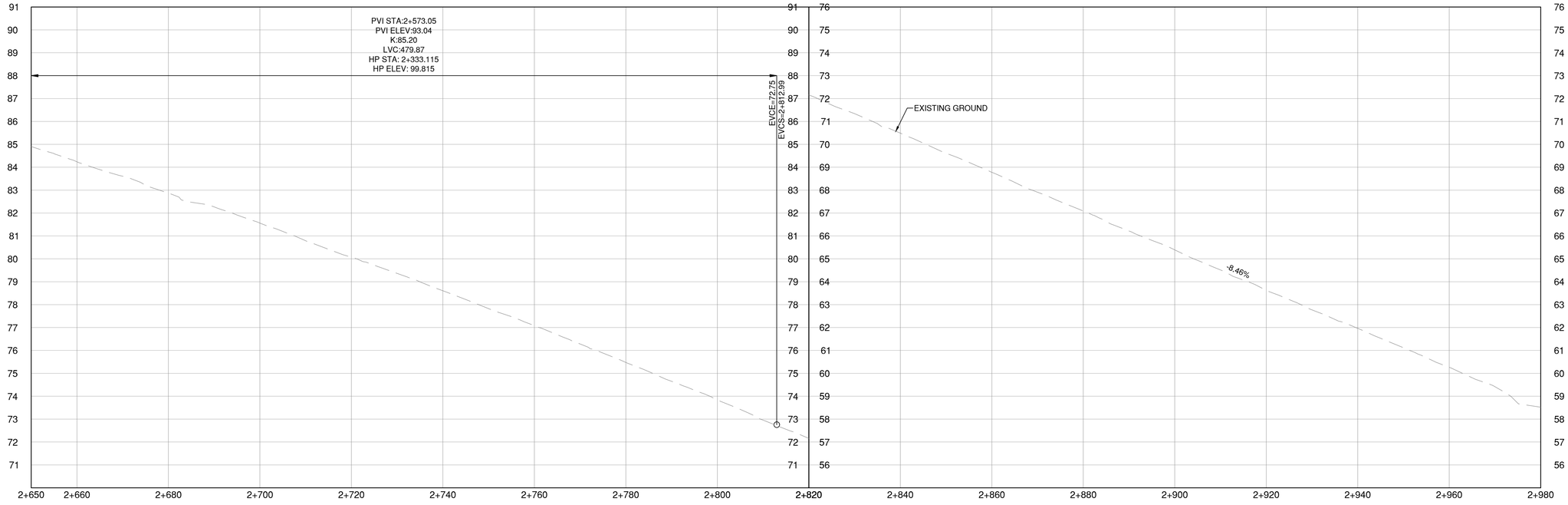
Capital Regional District			
DESIGNED	H.L.	SURVEYED	
DRAWN	H.L.	DATE	2019.10.29
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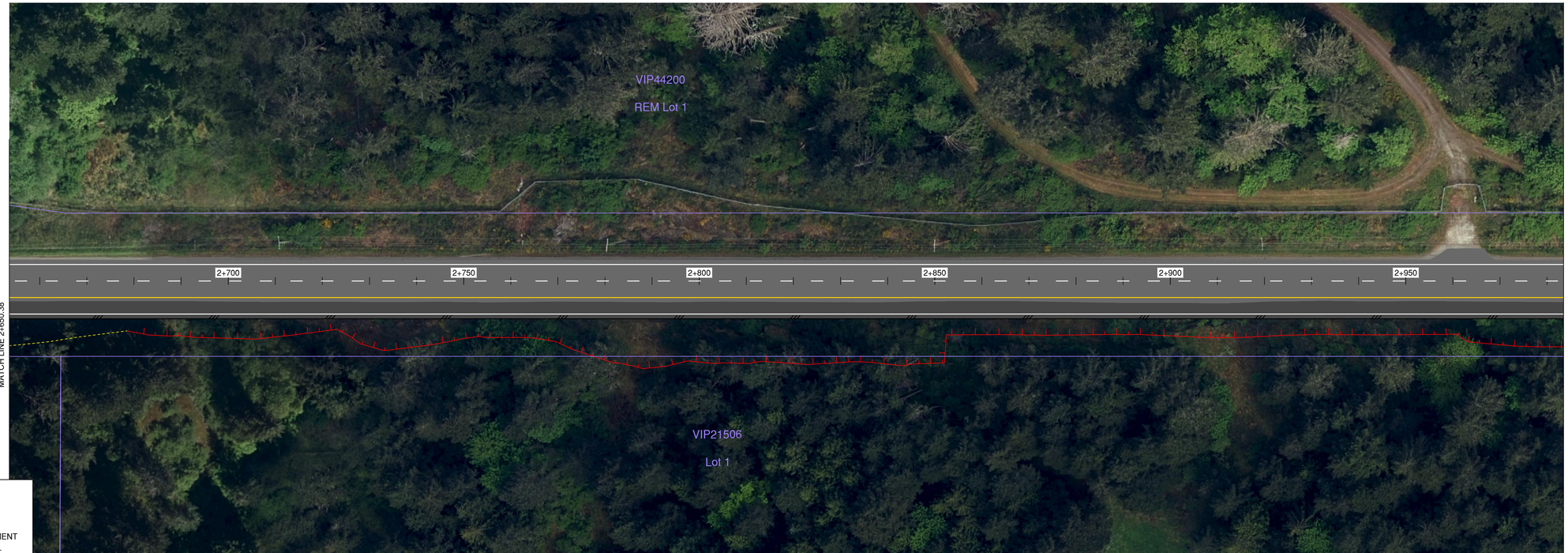
WILLIS POINT ROAD WIDENING

PLAN - PROFILE
STATION 2+320 TO 2+650

CONTRACT NUMBER	DRAWING NUMBER	ISSUE	SHT. No. OF
-	C-105		

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N

LEGEND

- EXISTING PAVEMENT
- NEW PAVEMENT
- TOP OF CUT
- BOTTOM OF FILL

PRELIMINARY NOT FOR CONSTRUCTION

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VERT.1:100 0 1 3 5m

HORIZ.1:500 0 5 15 25m

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BY	DATE	No.	REVISION	ENG.
		2	ISSUED FOR TENDER	19.09.13
		1	ISSUED FOR 70% DESIGN REVIEW	19.07.05

No.	DATE	ISSUE

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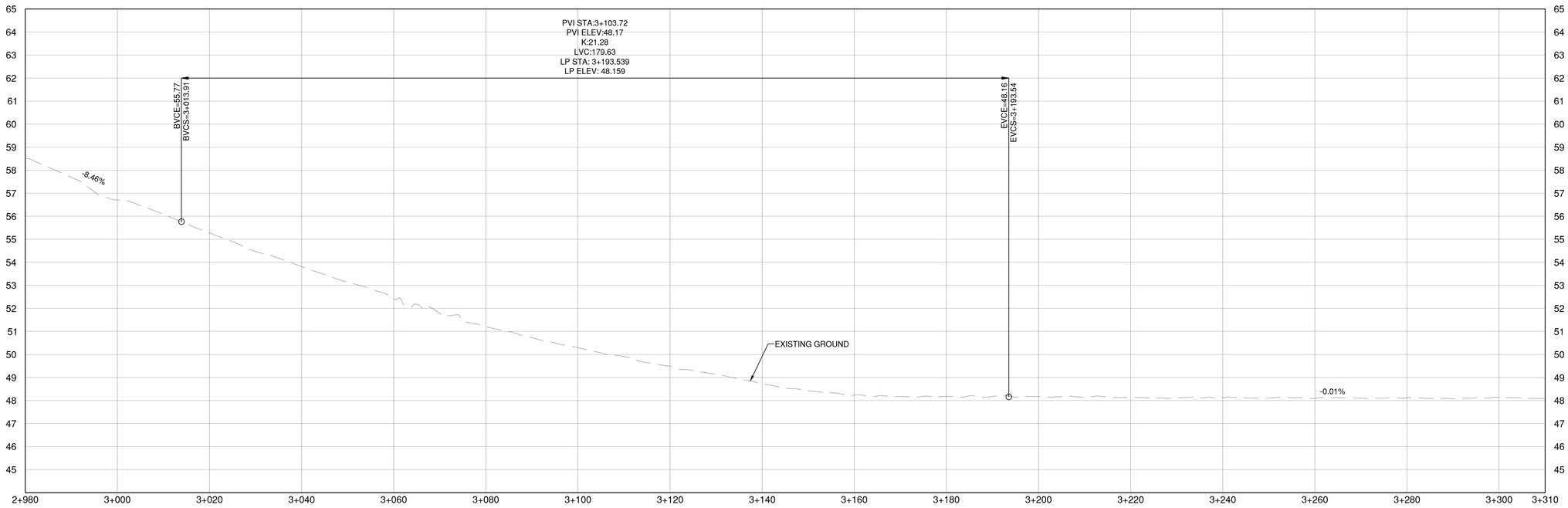
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DESIGNED	H.L.	**SURVEYED**	
DRAWN	H.L.	**DATE**	2019.10.29
SCALE HORIZONTAL	1:500	**CHECKED**	-
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WILLIS POINT ROAD WIDENING

PLAN - PROFILE
STATION 2+650 TO 2+980

CONTRACT NUMBER	-	DRAWING NUMBER	C-106	ISSUE	SHT. No. OF

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- BOTTOM OF FILL

PRELIMINARY NOT FOR CONSTRUCTION

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VERT. 1:100 — 0 1 3 5m

HORIZ. 1:500 — 0 5 15 25m

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					1	19.07.05	ISSUED FOR 70% DESIGN REVIEW

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Capital Regional District

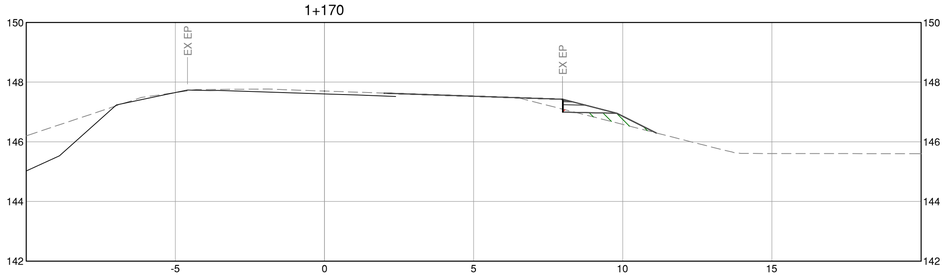
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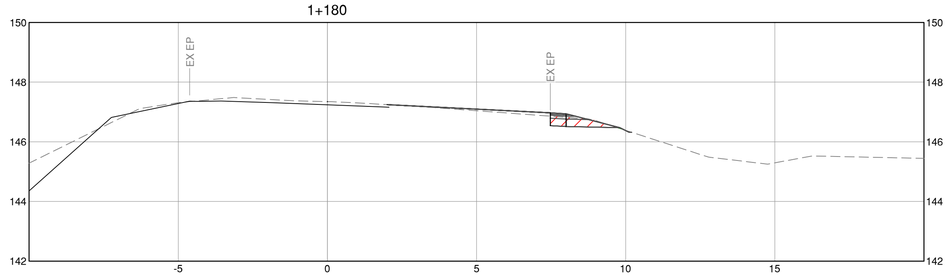
WILLIS POINT ROAD WIDENING

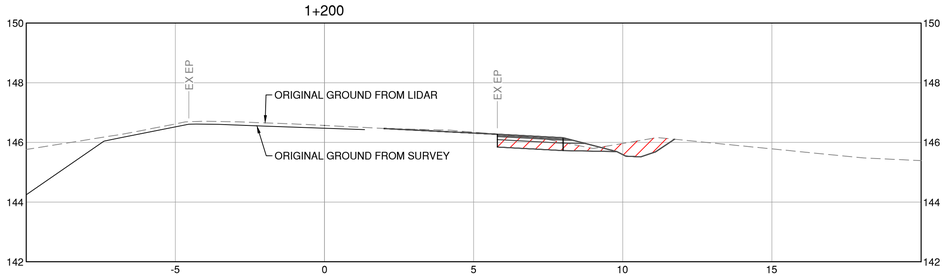
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STATION 2+980 TO 3+160

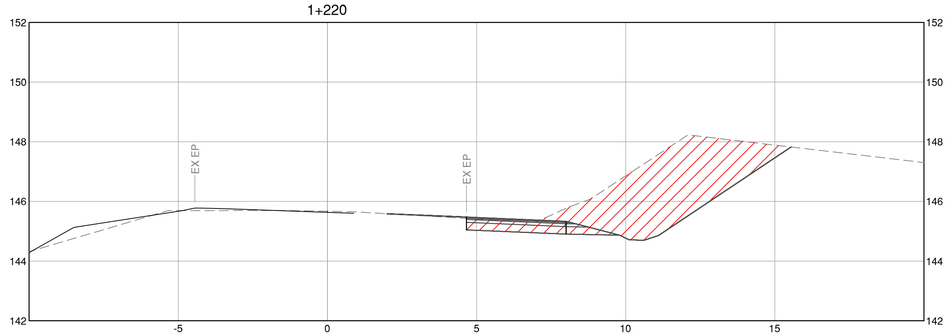
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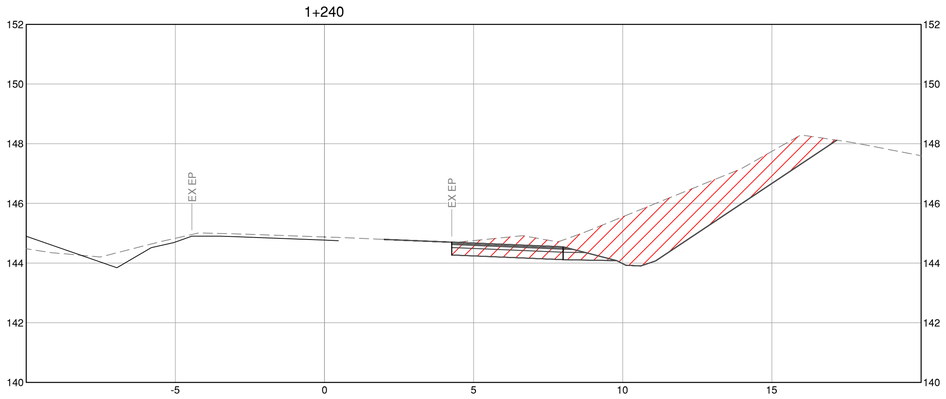
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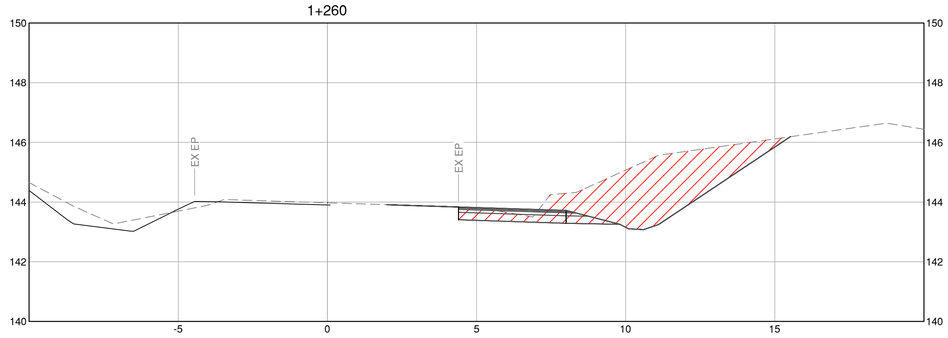












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SCALE VERTICAL	1:100	APPROVED	-

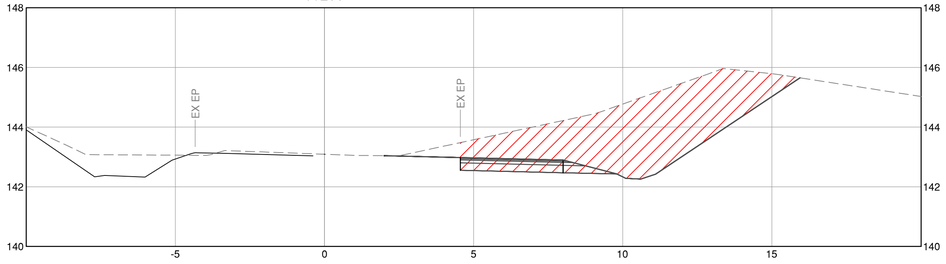
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CROSS SECTIONS

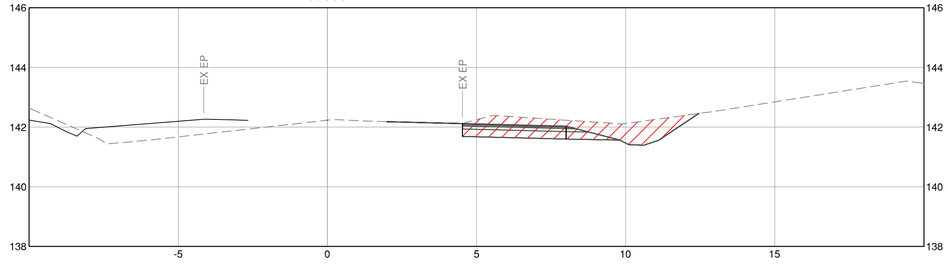
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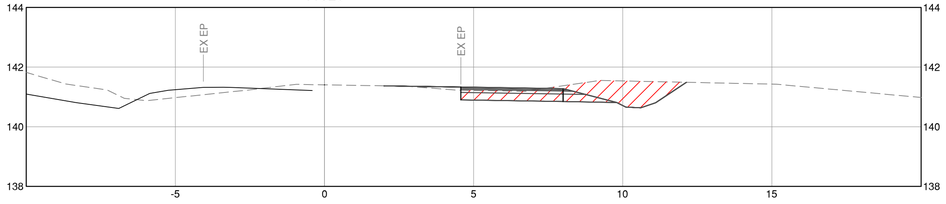
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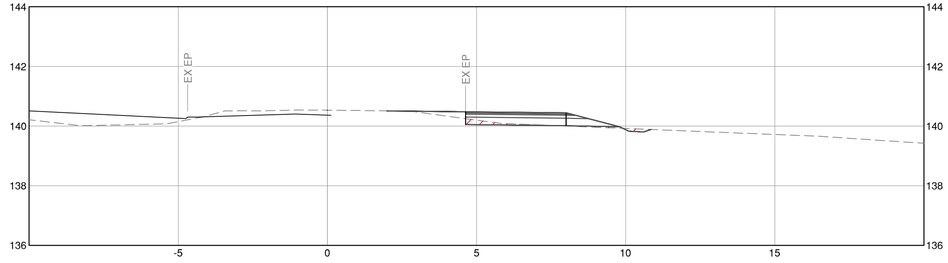
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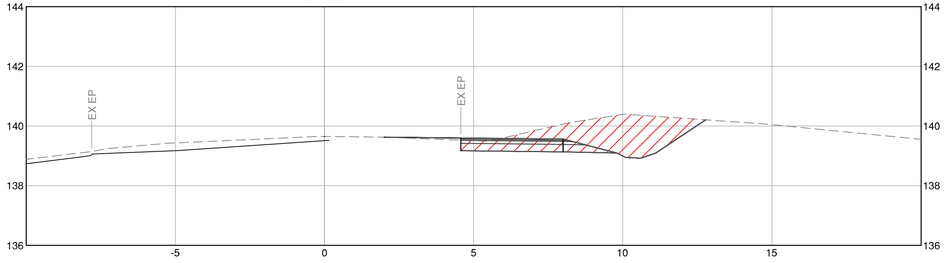
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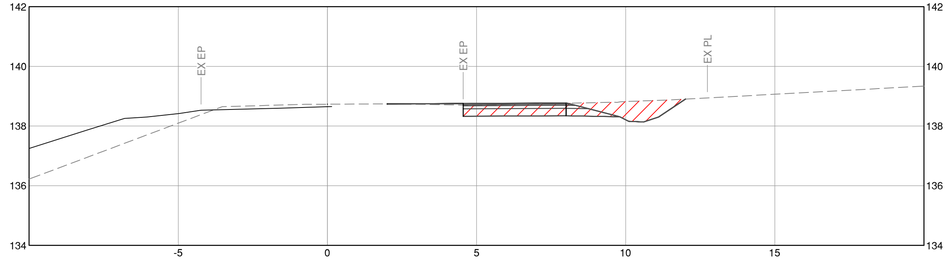
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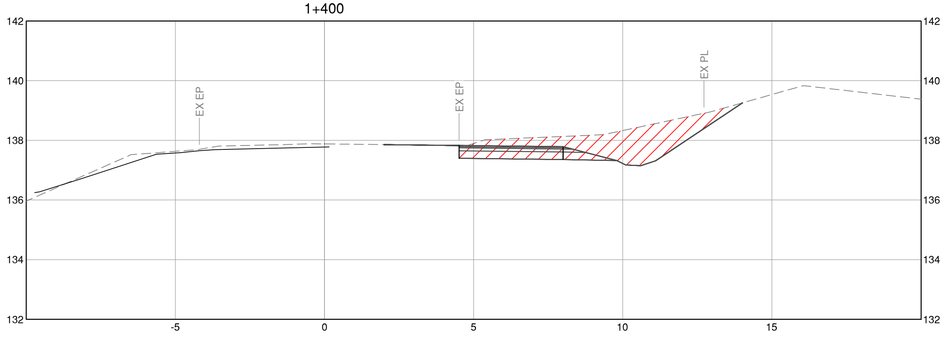
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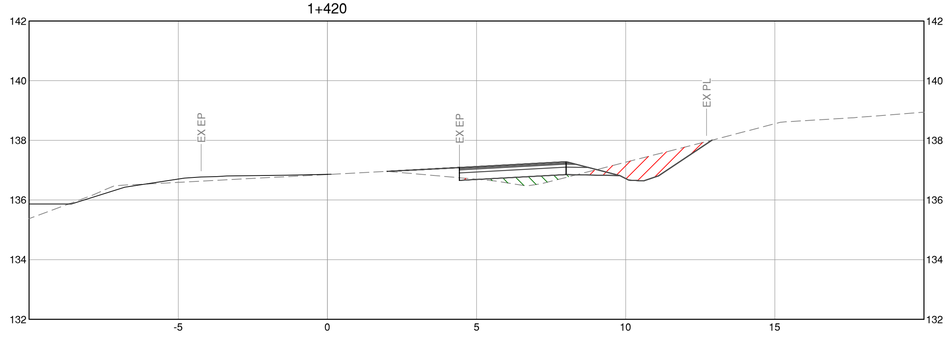
1+380



1+400



1+420



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DRAWN	H.L.	DATE	2019.10.29
SCALE HORIZONTAL	1:100	CHECKED	-
SCALE VERTICAL	1:100	APPROVED	-

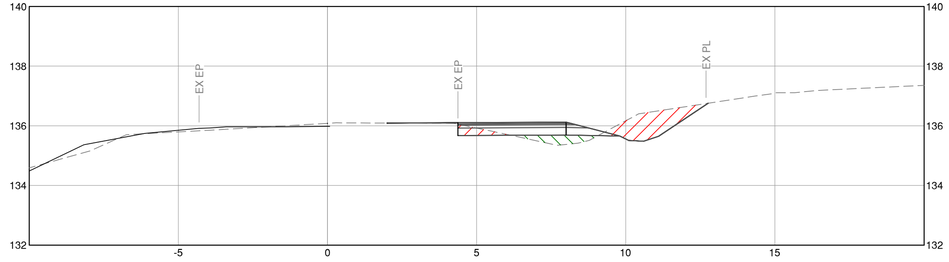
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CROSS SECTIONS

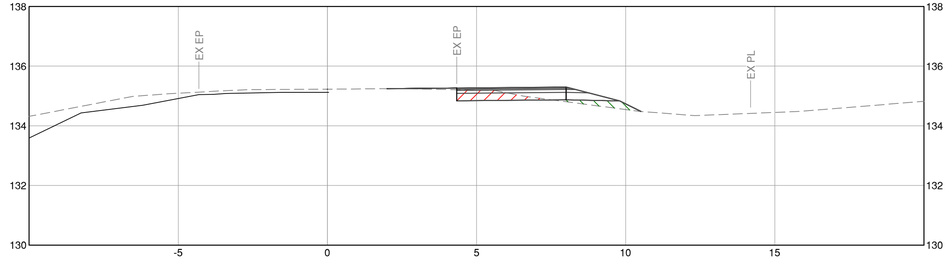
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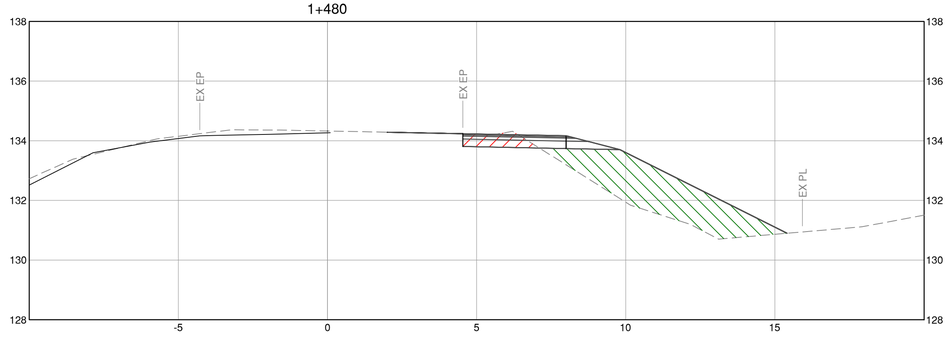
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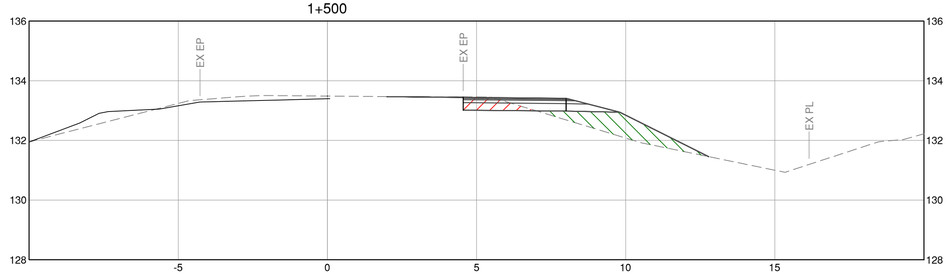
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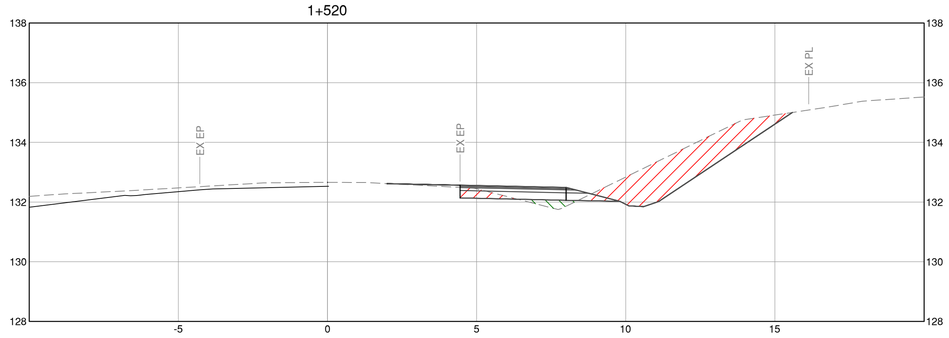
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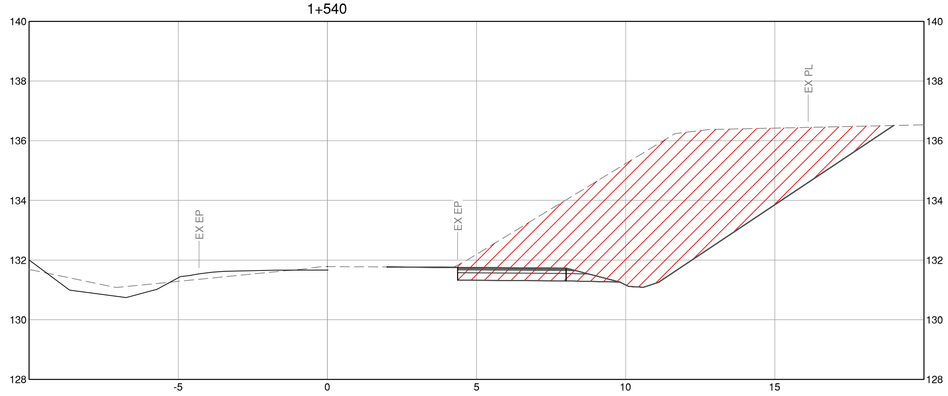
1+500



1+520



1+540



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DRAWN	H.L.	DATE	2019.10.29
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SCALE VERTICAL	1:100	APPROVED	-

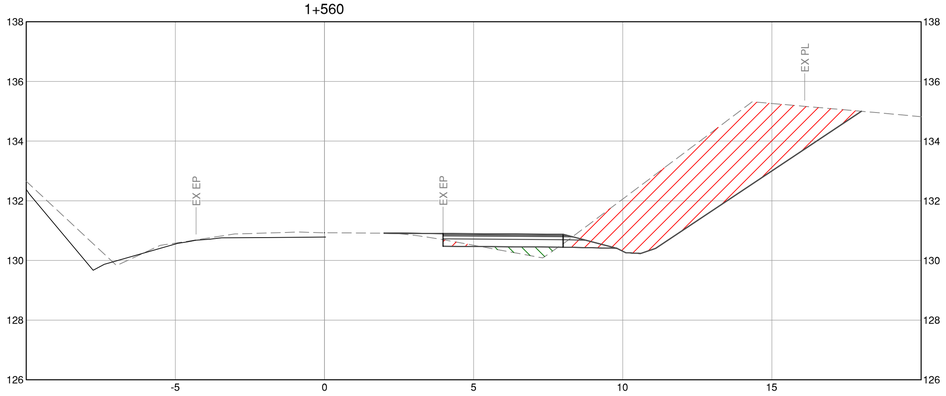
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CROSS SECTIONS

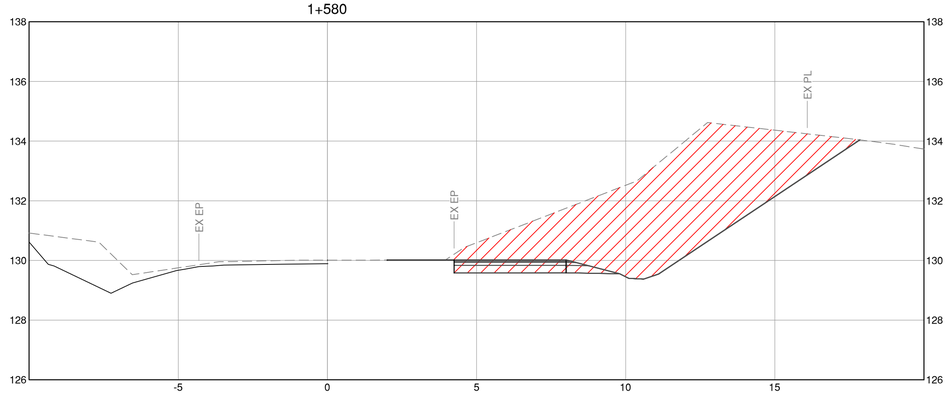
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-	C-303		

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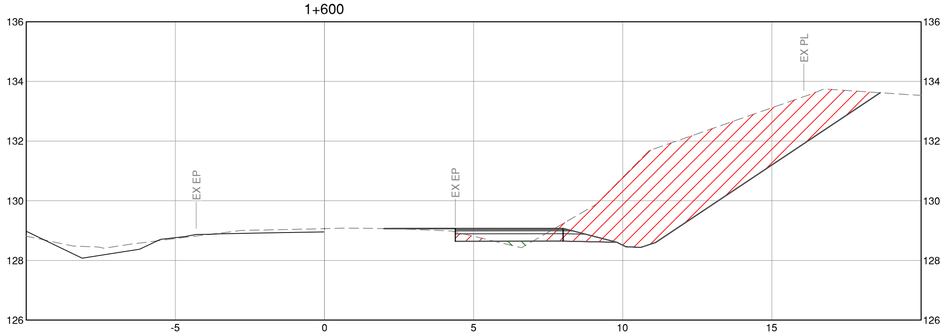
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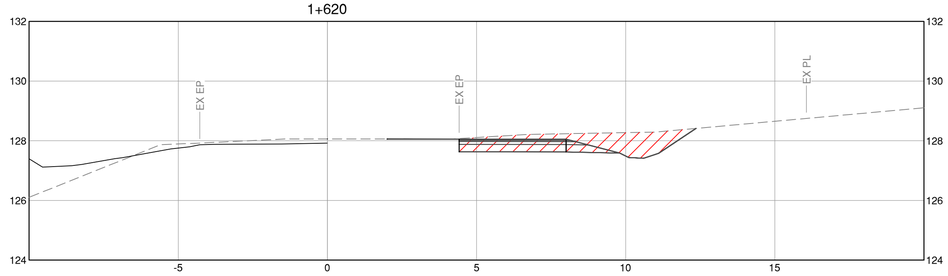
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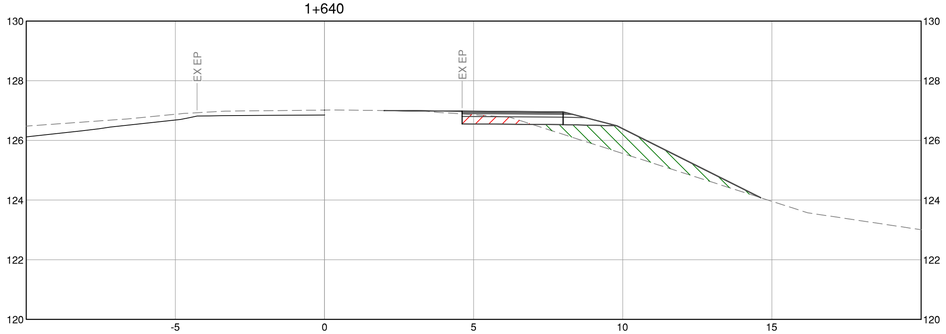
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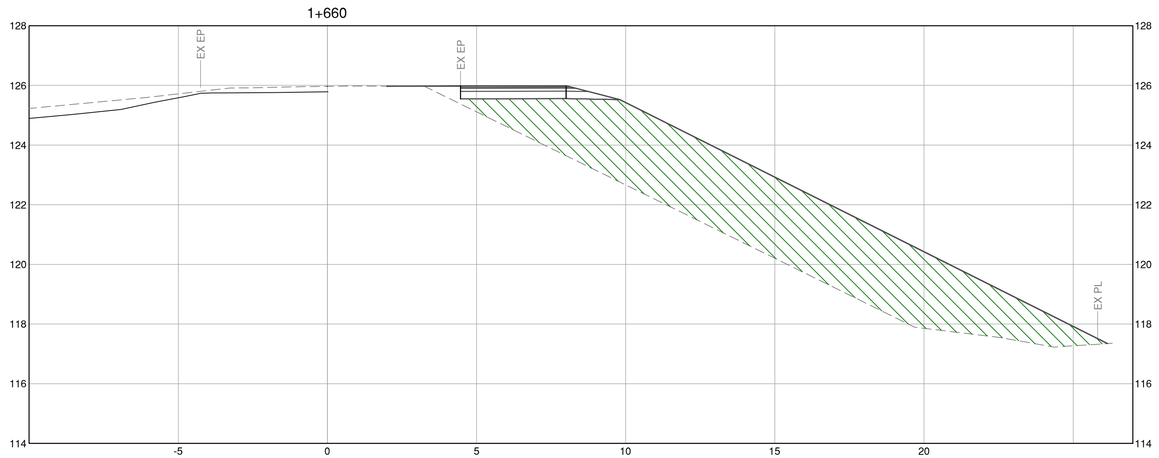
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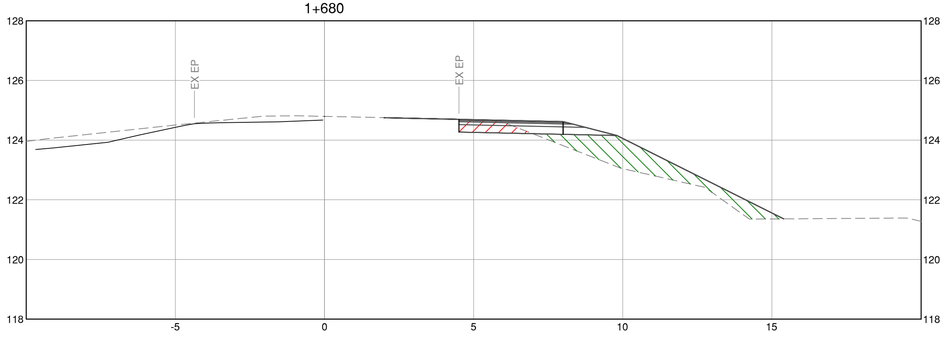
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DESIGNED	H.L.	SURVEYED	
DRAWN	H.L.	DATE	2019.10.29
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WILLIS POINT ROAD WIDENING

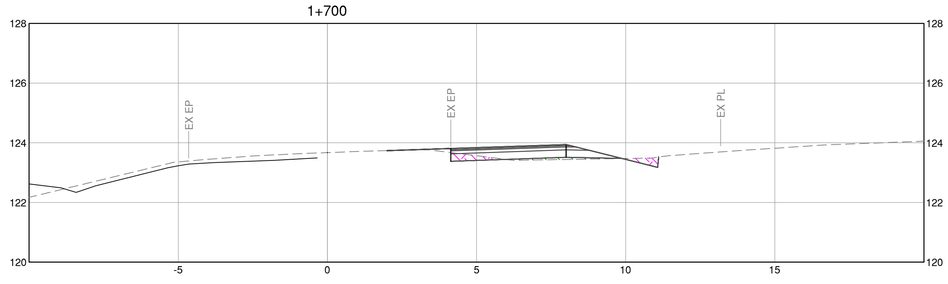
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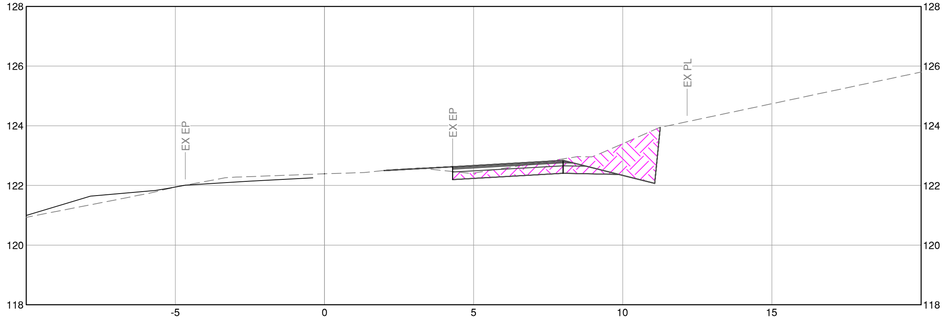
1+680



1+700



1+720



1+740

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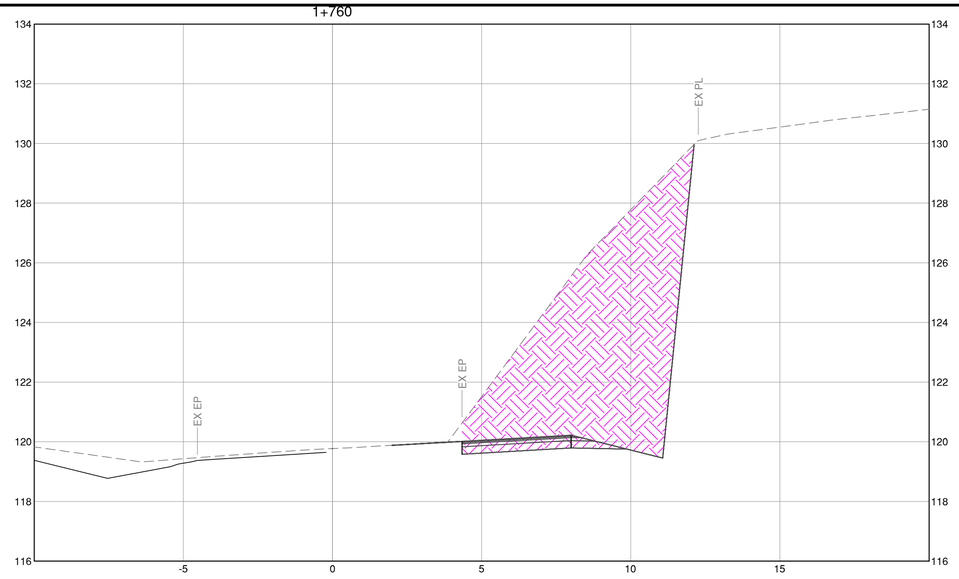
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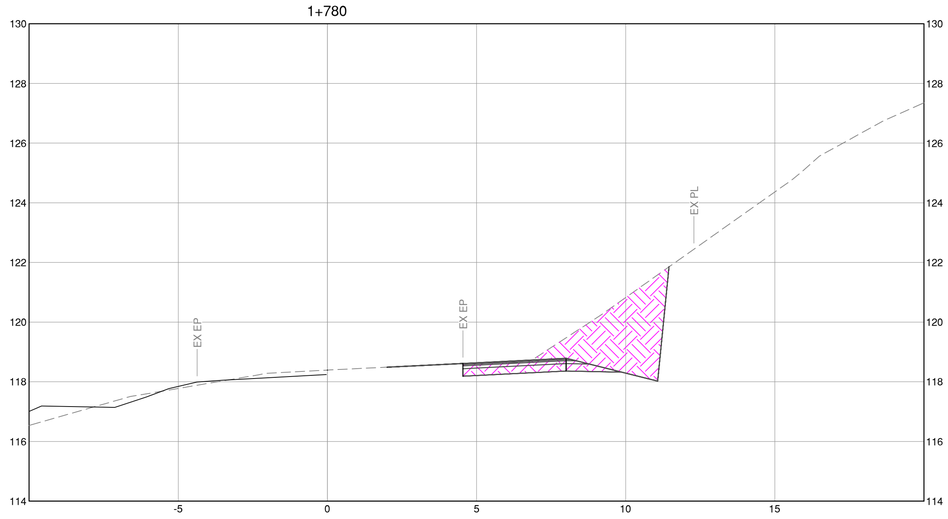
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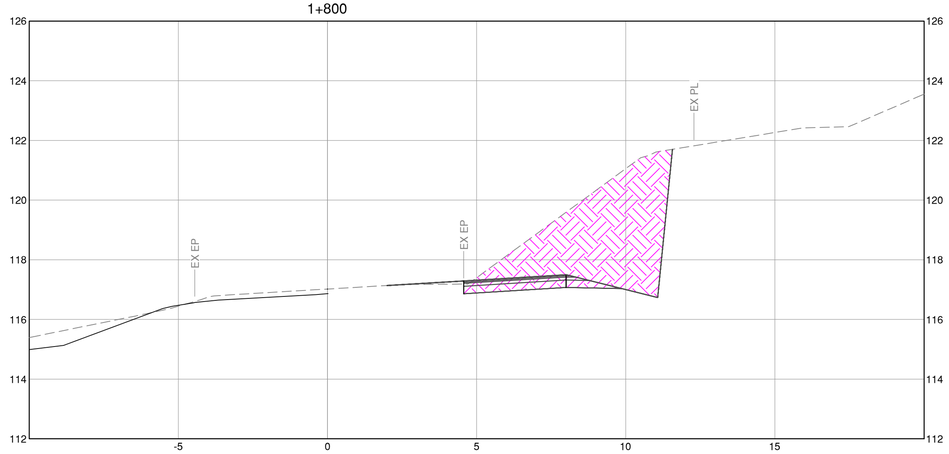
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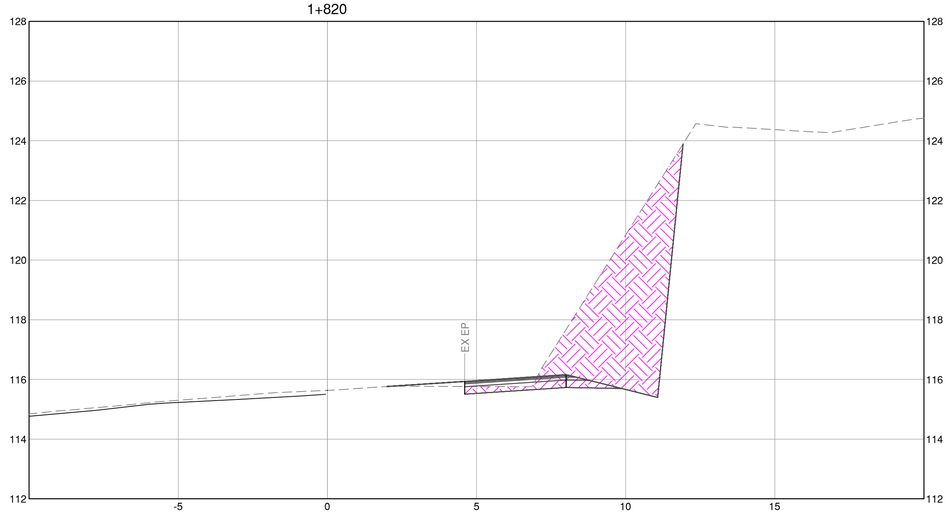
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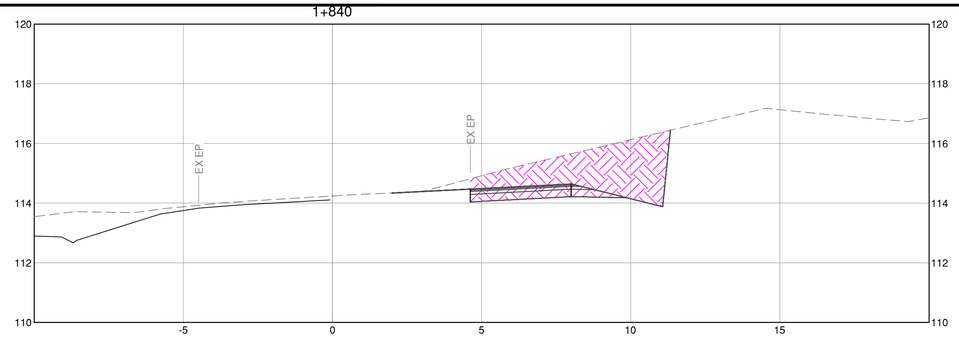
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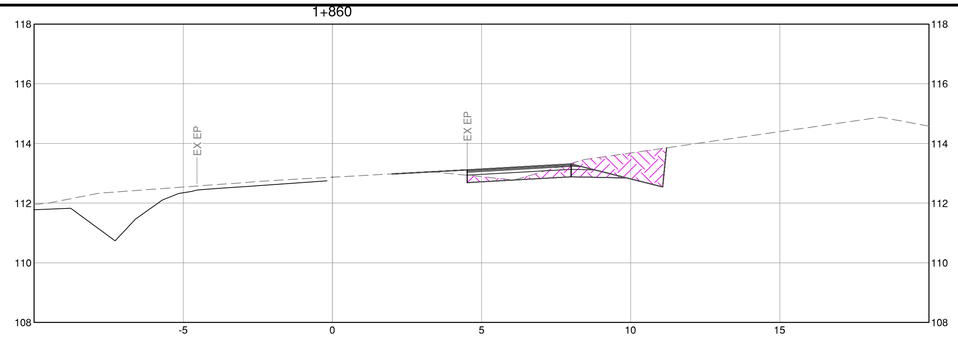
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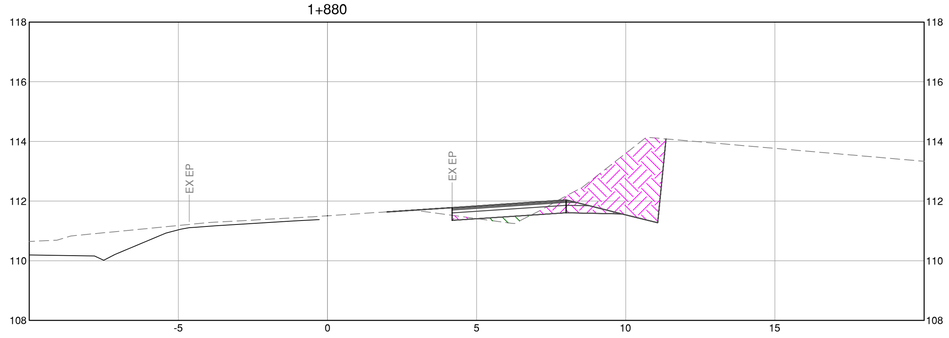
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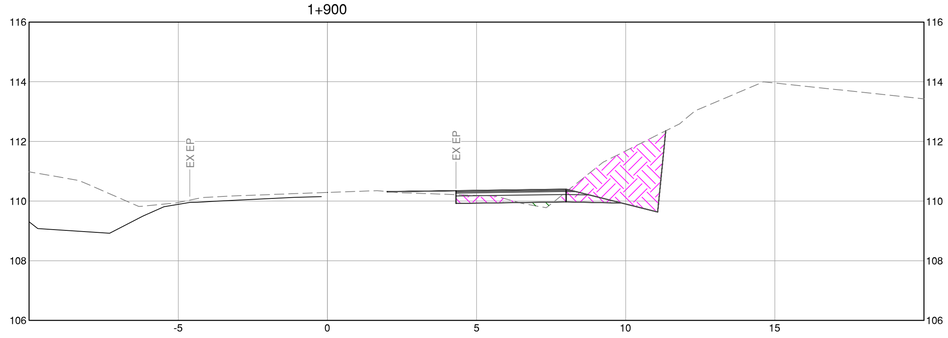
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-	C-306		

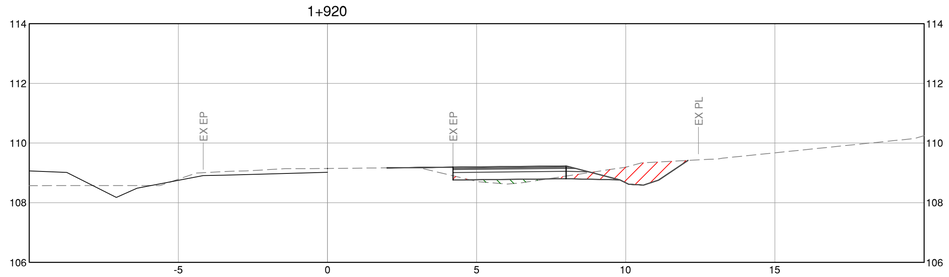
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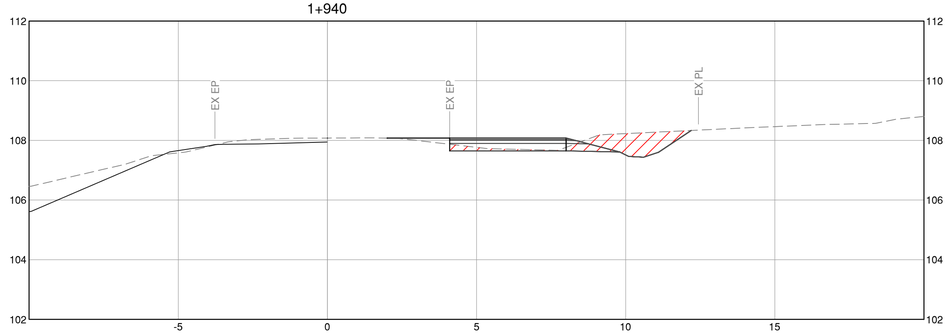


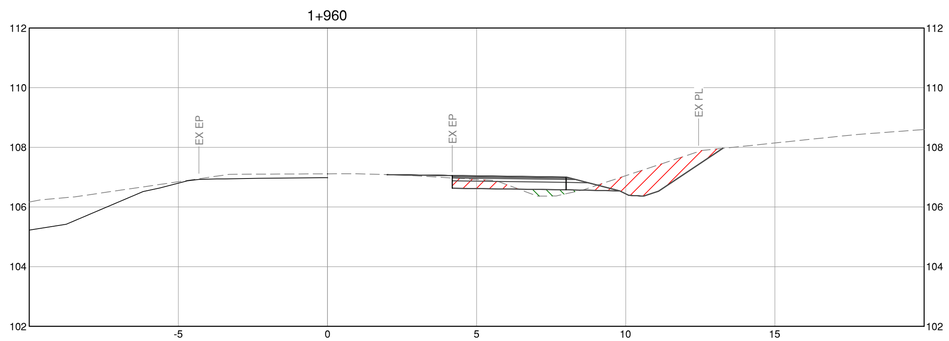


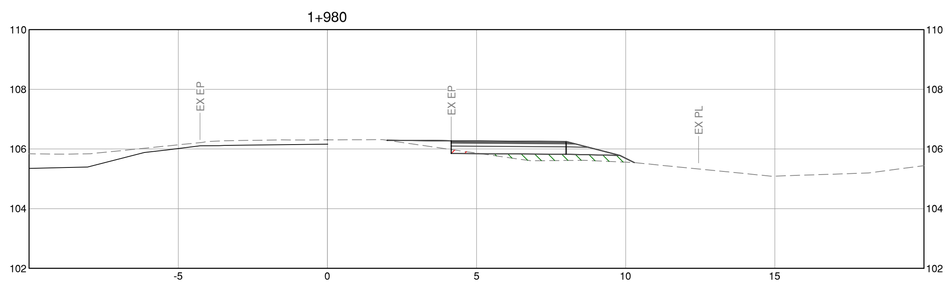












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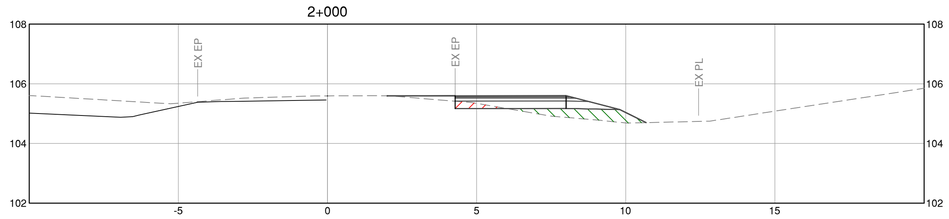
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DRAWN	H.L.	DATE	2019.10.29
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SCALE VERTICAL	1:100	APPROVED	-

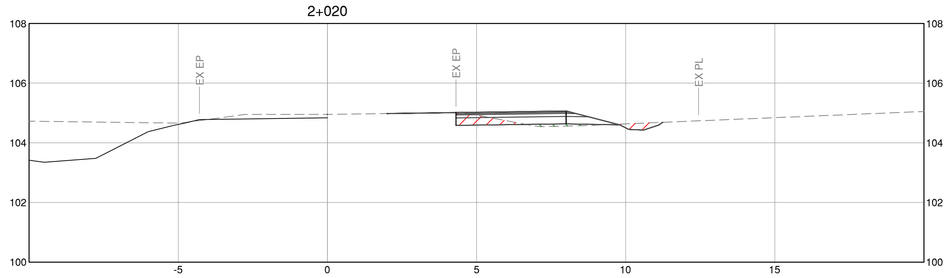
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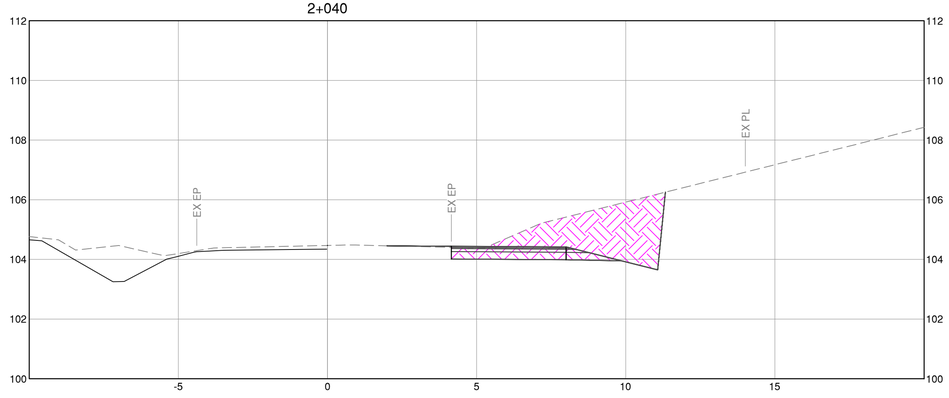
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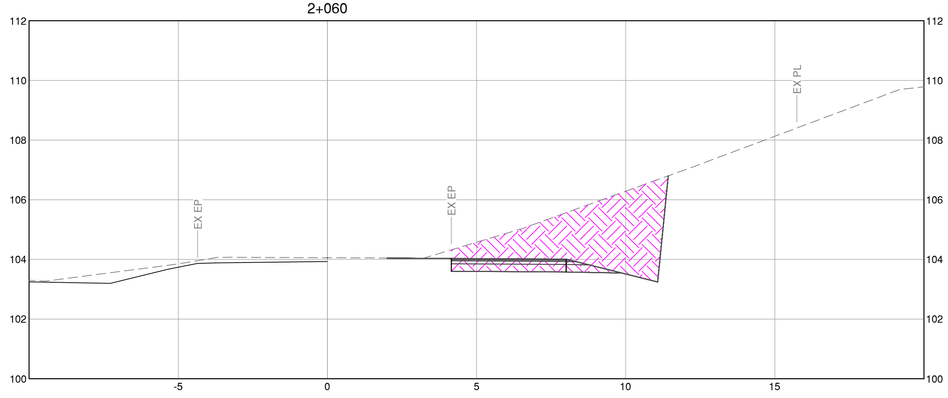
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-	C-307		

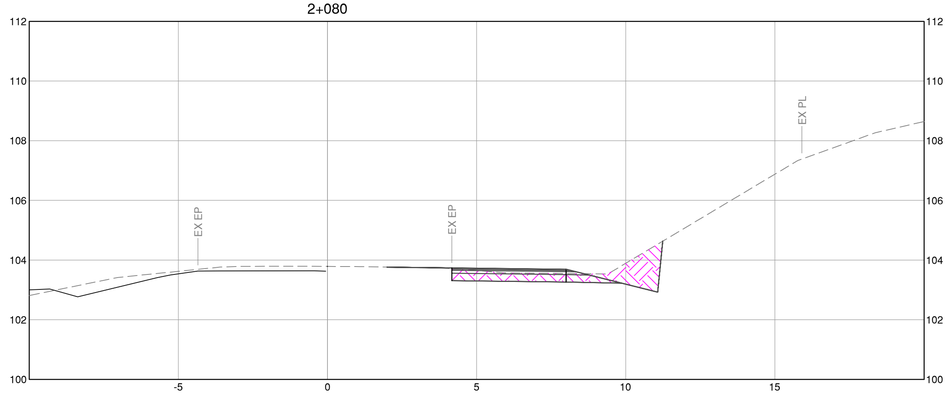
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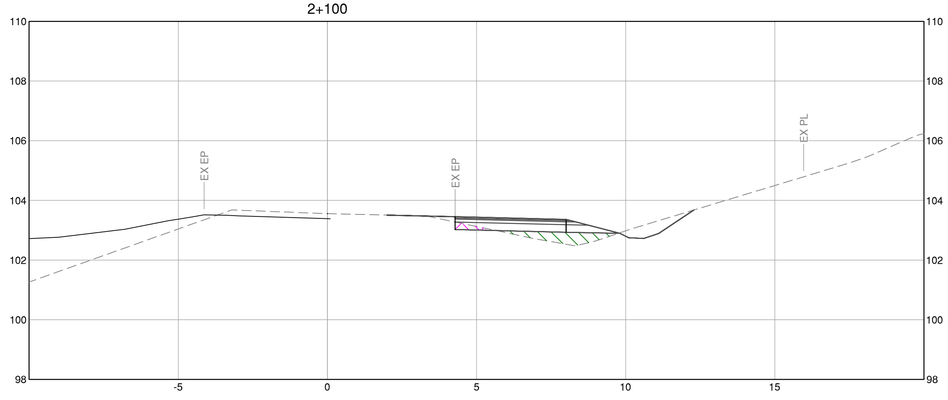












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DESIGNED	H.L.	SURVEYED	
DRAWN	H.L.	DATE	2019.10.29
SCALE HORIZONTAL	1:100	CHECKED	-
SCALE VERTICAL	1:100	APPROVED	-

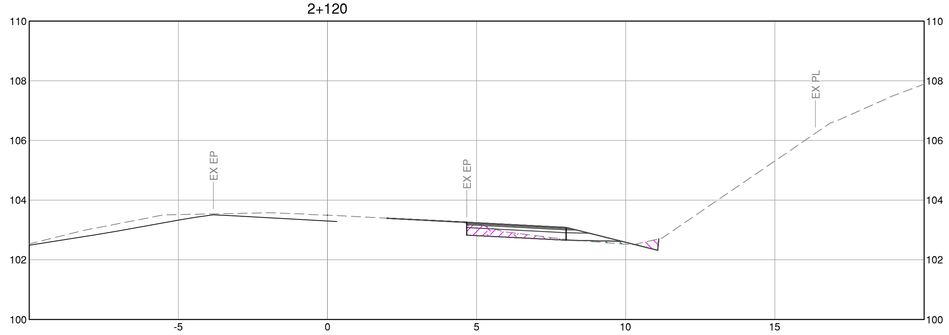
WILLIS POINT ROAD WIDENING

CROSS SECTIONS

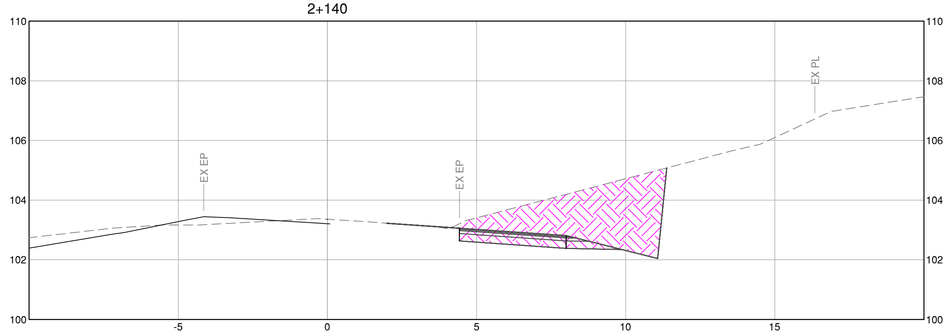
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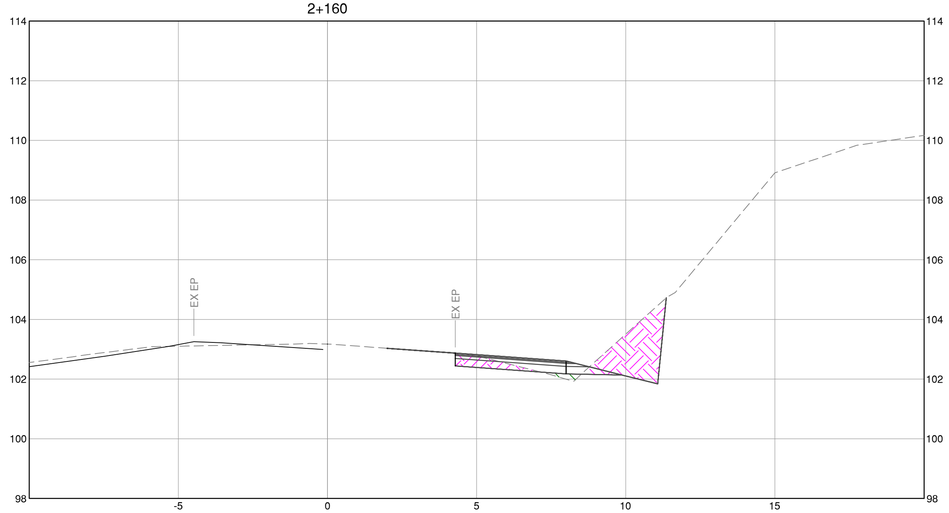
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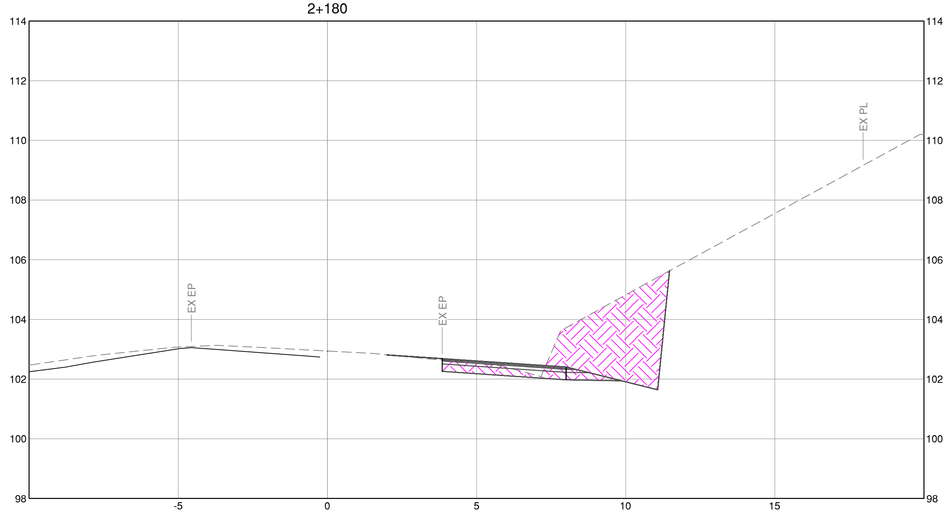
2+140



2+160



2+180



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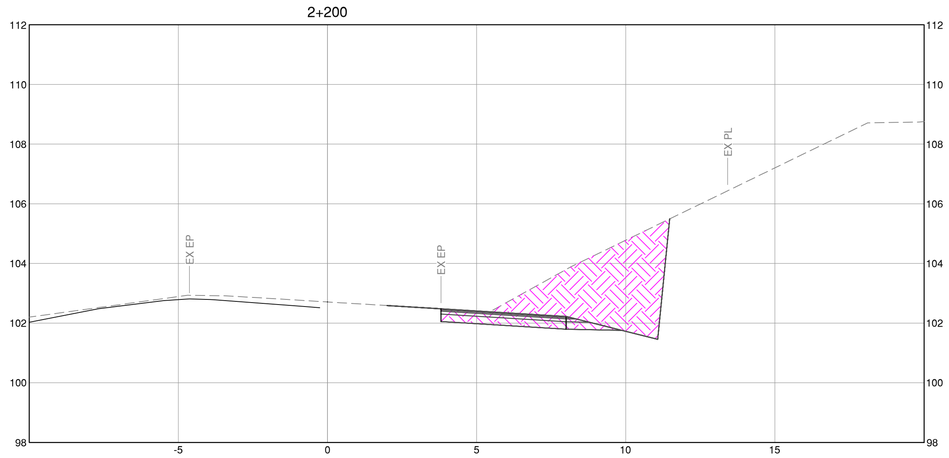
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DESIGNED	H.L.	SURVEYED	
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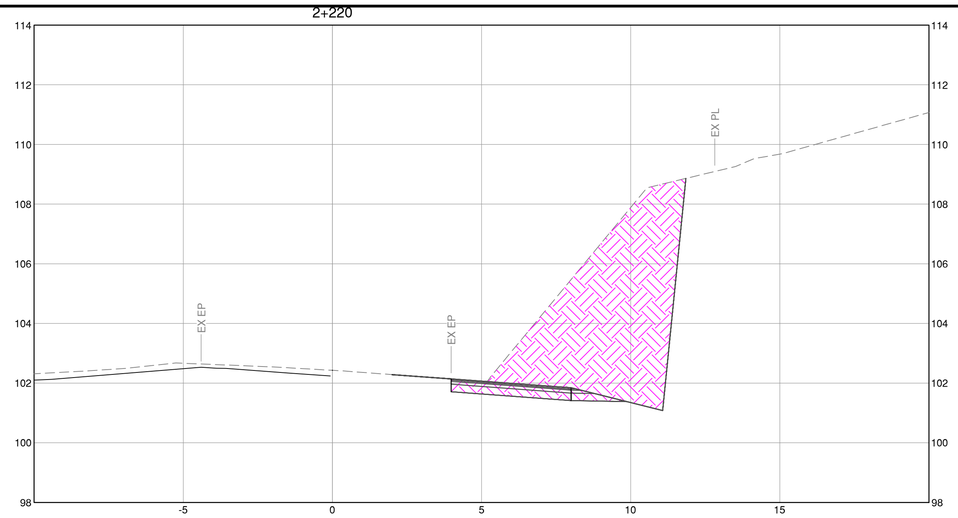
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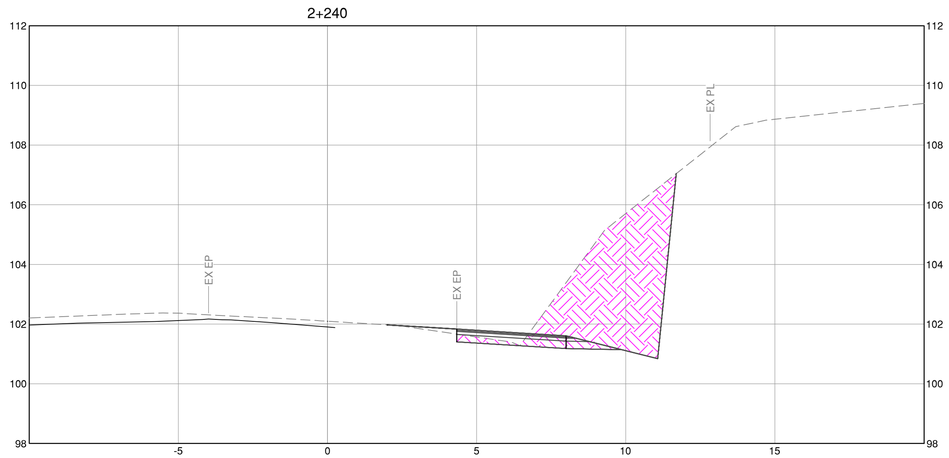
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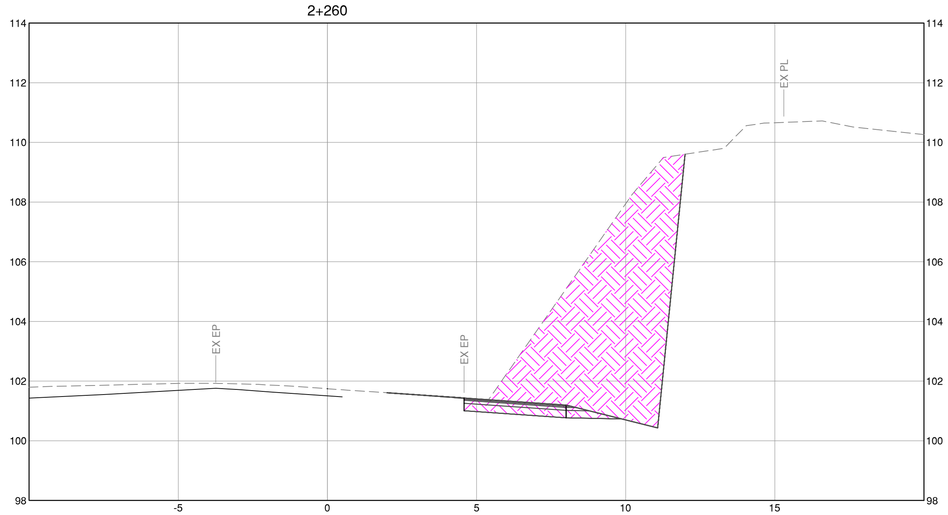
CONTRACT NUMBER	DRAWING NUMBER	ISSUE	SHT. No. OF
-	C-309		

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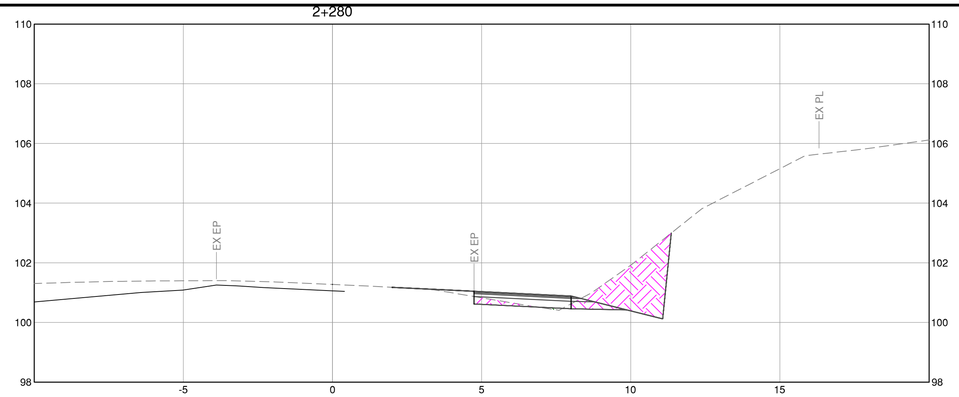
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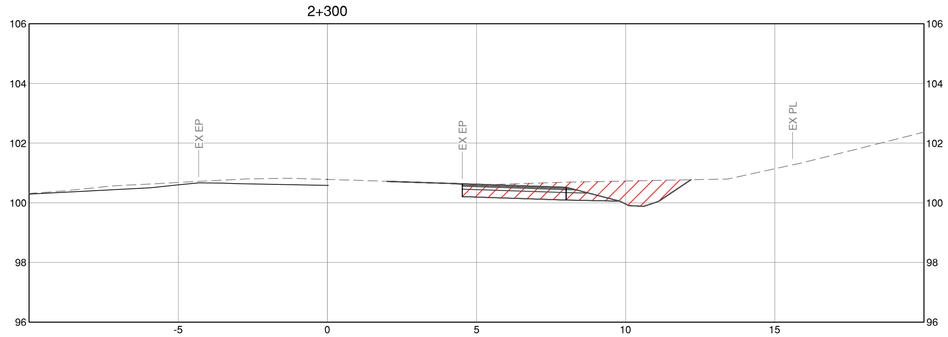
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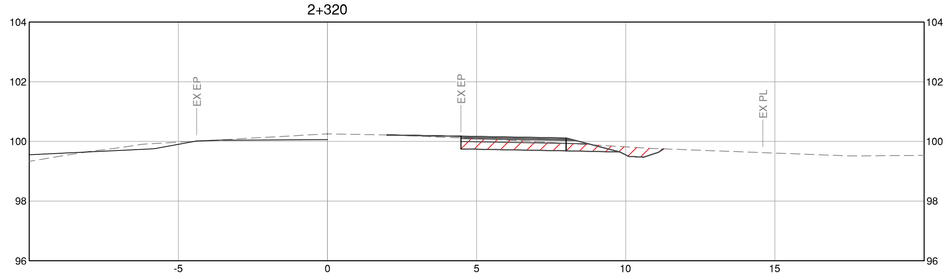
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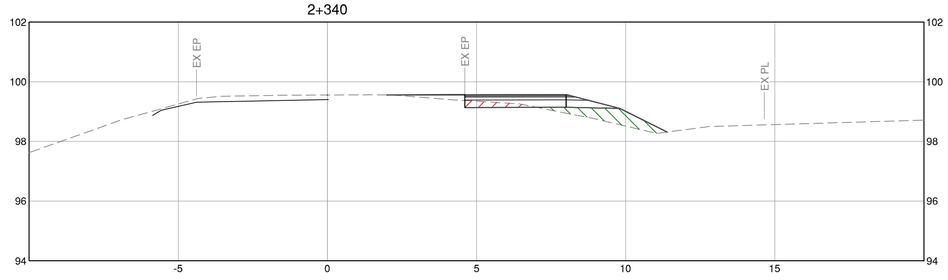
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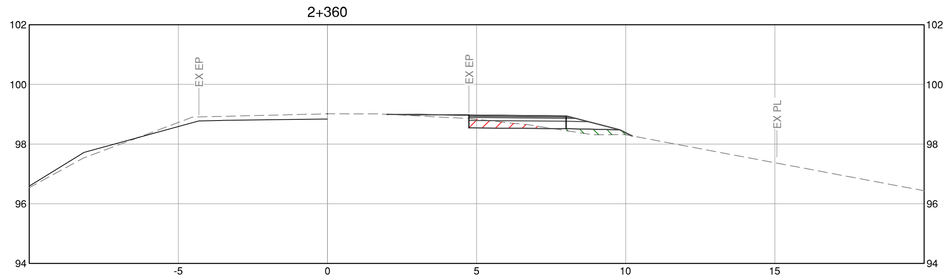
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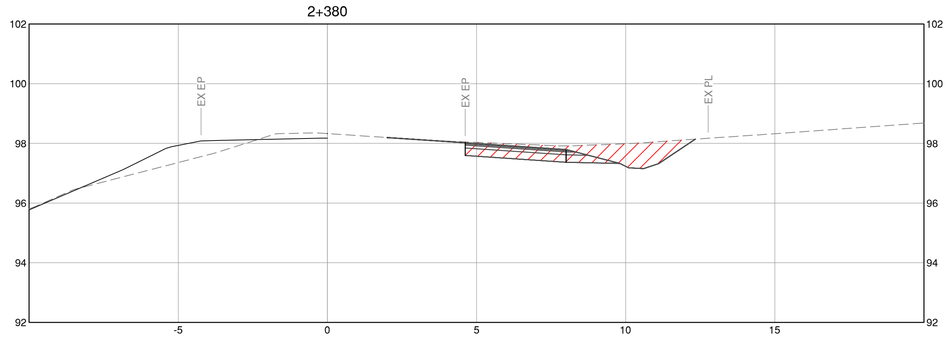












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SCALE HORIZONTAL	1:100	CHECKED	-
SCALE VERTICAL	1:100	APPROVED	-

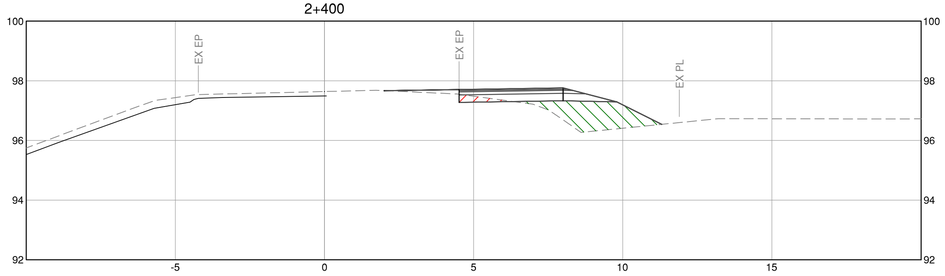
WILLIS POINT ROAD WIDENING

CROSS SECTIONS

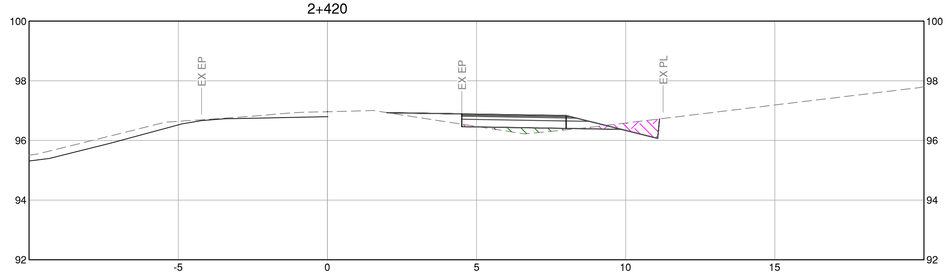
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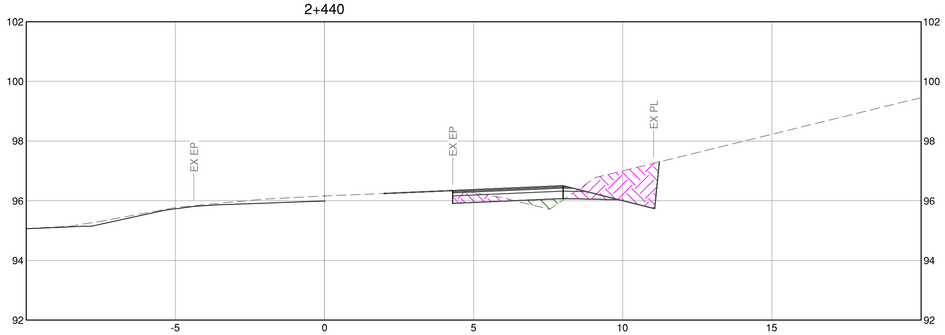
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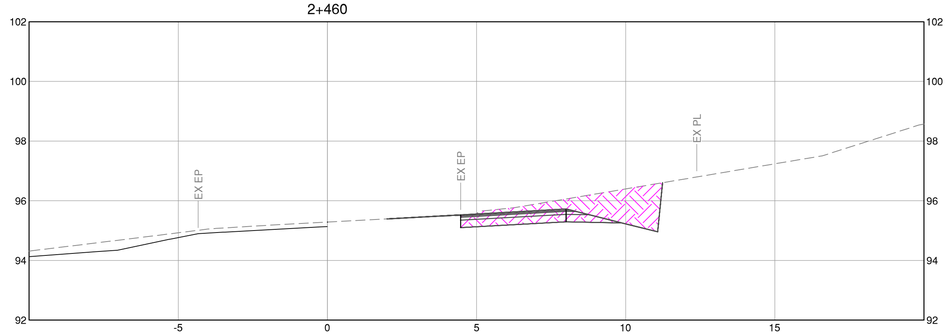
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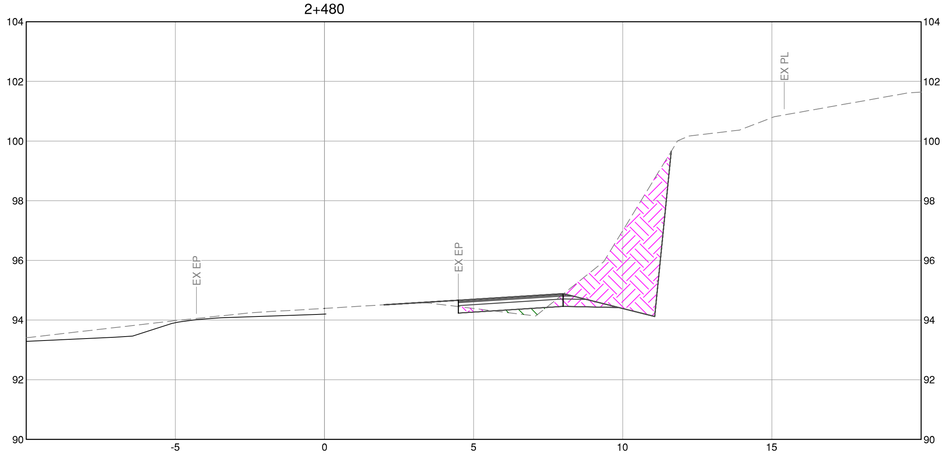
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2+460



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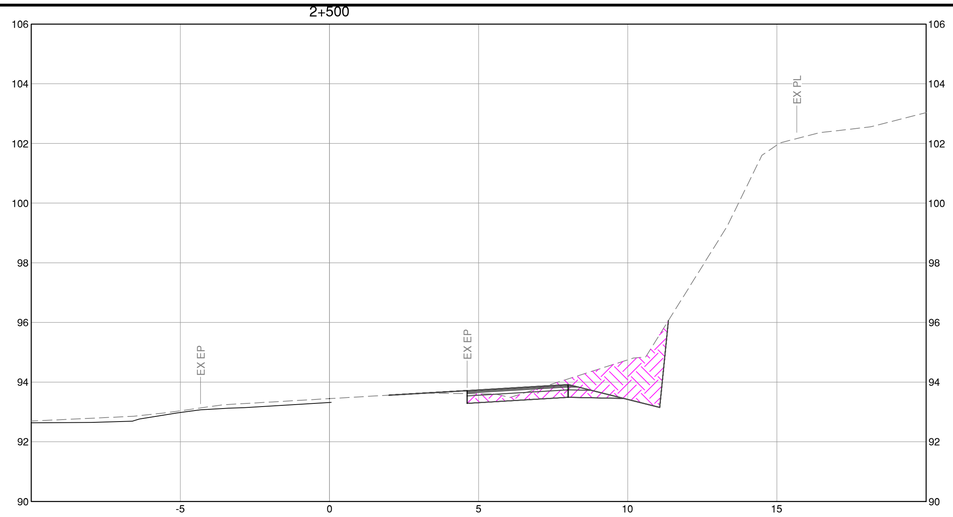
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DESIGNED	H.L.	SURVEYED	
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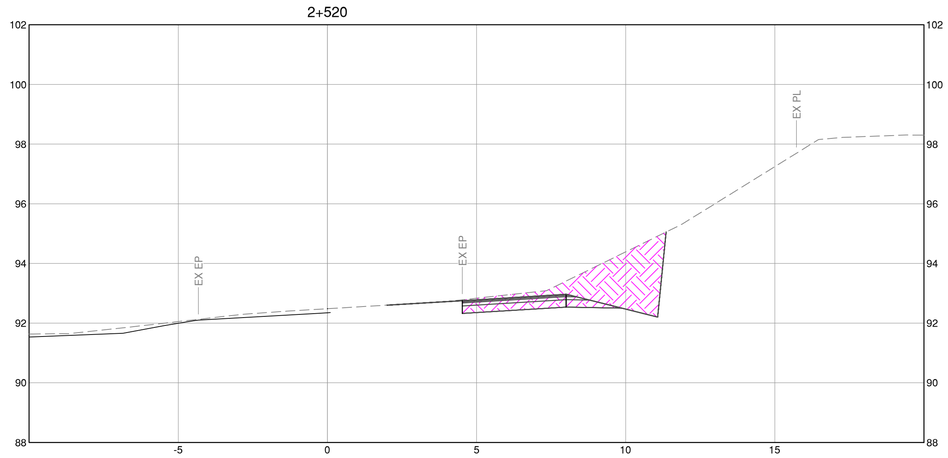
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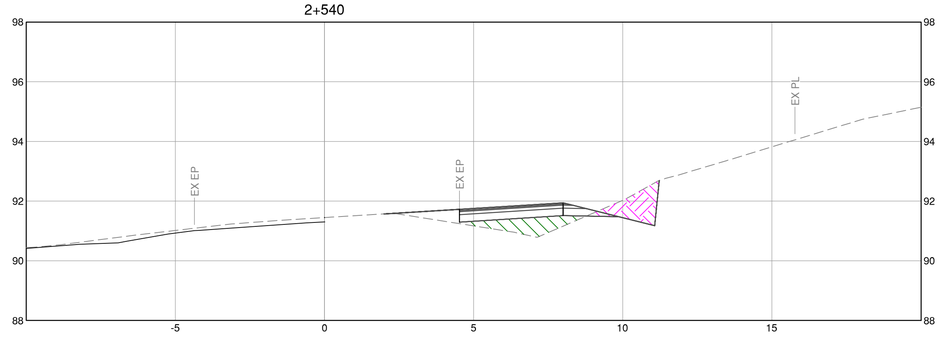
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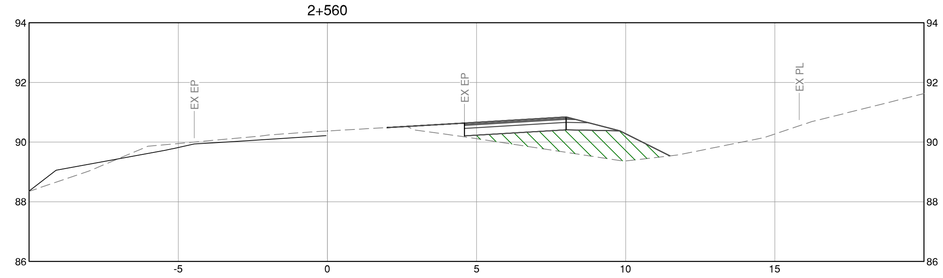
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-	C-312		

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No.	DATE	ISSUE

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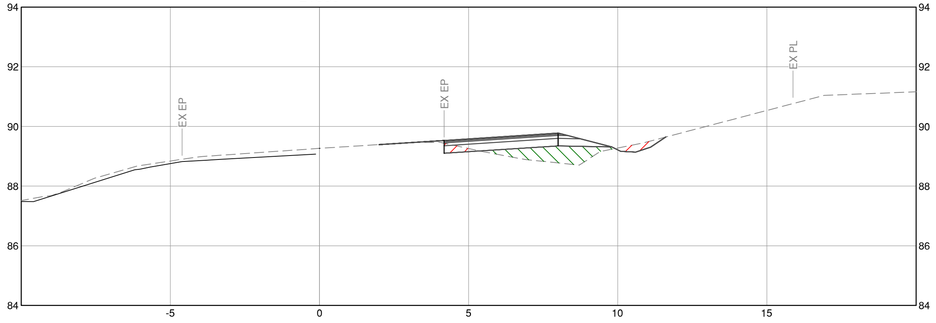
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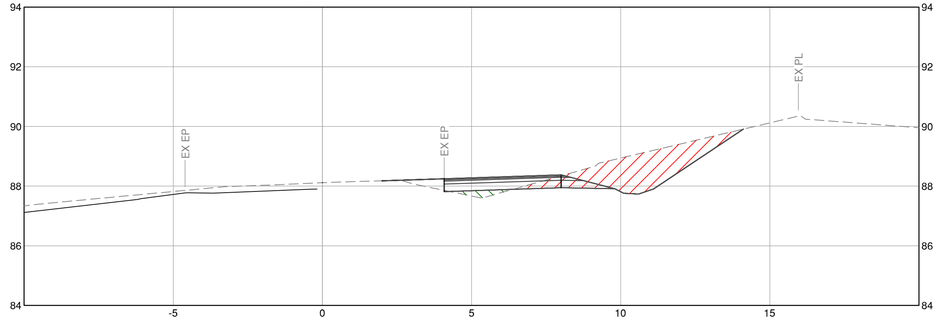
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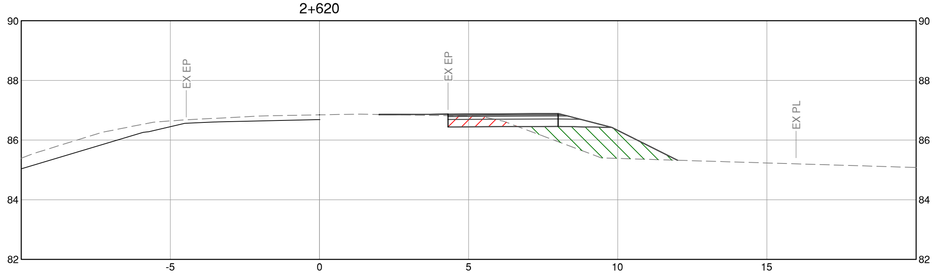
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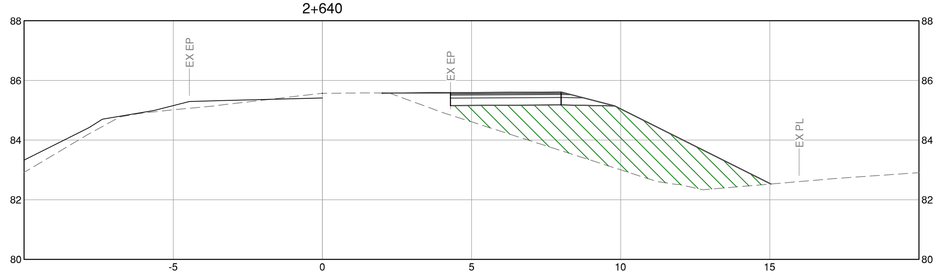
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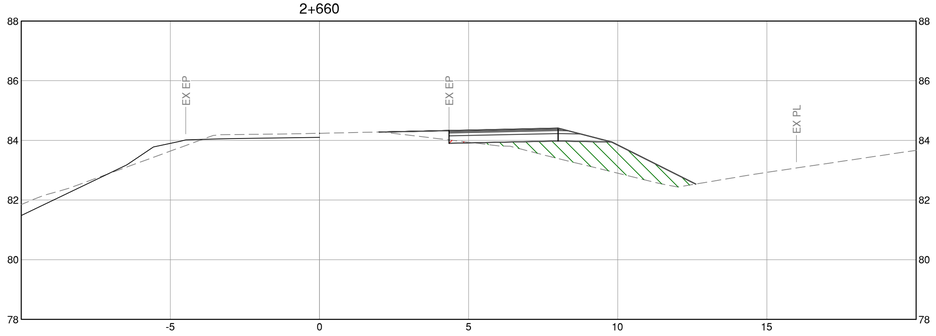
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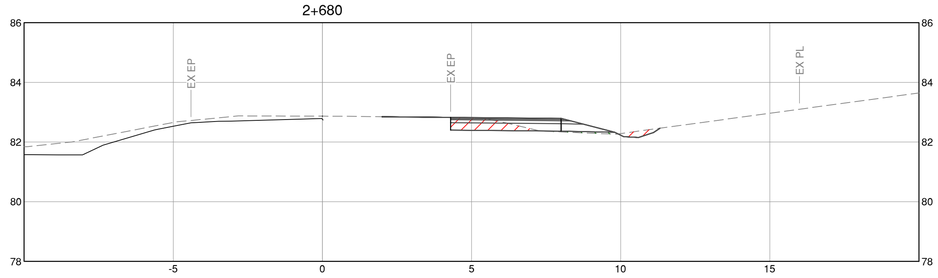


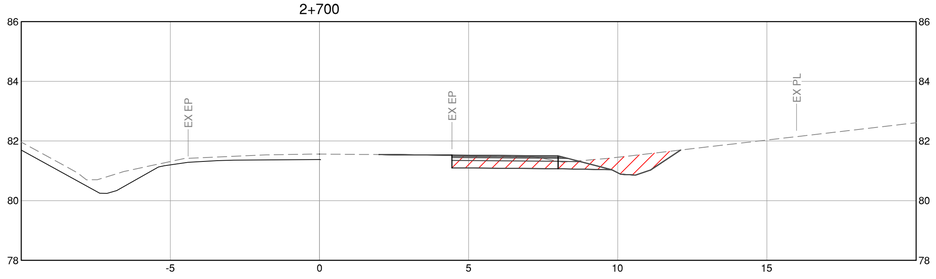


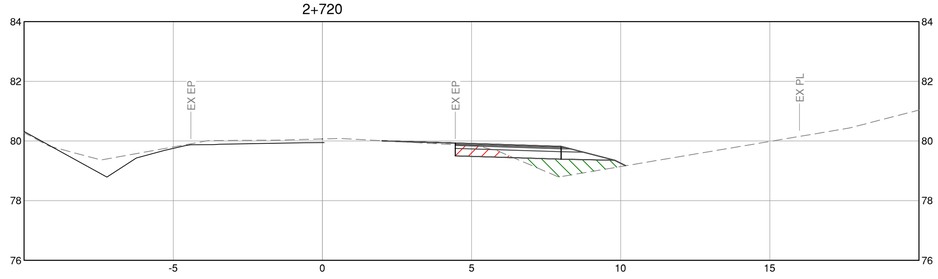












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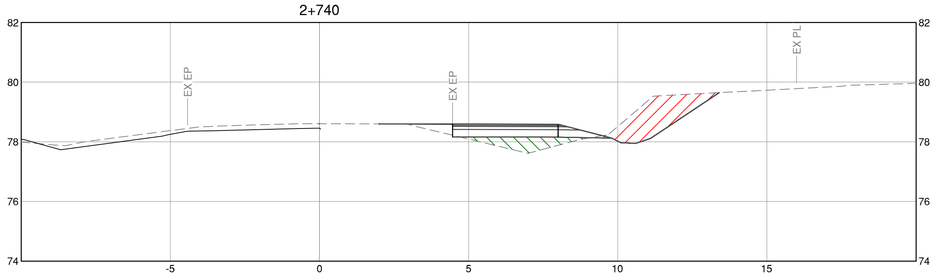
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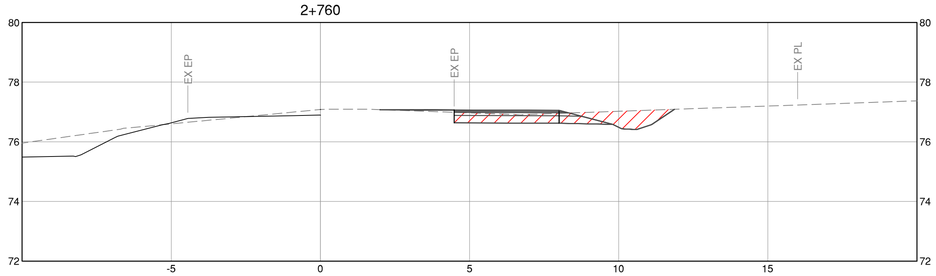
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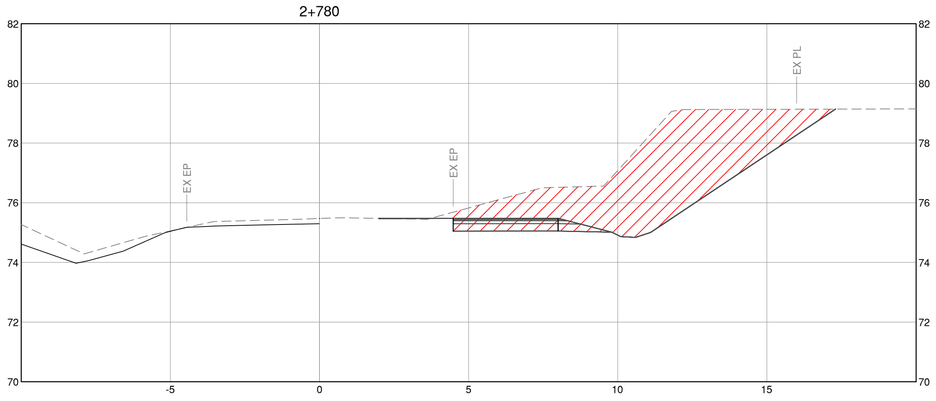
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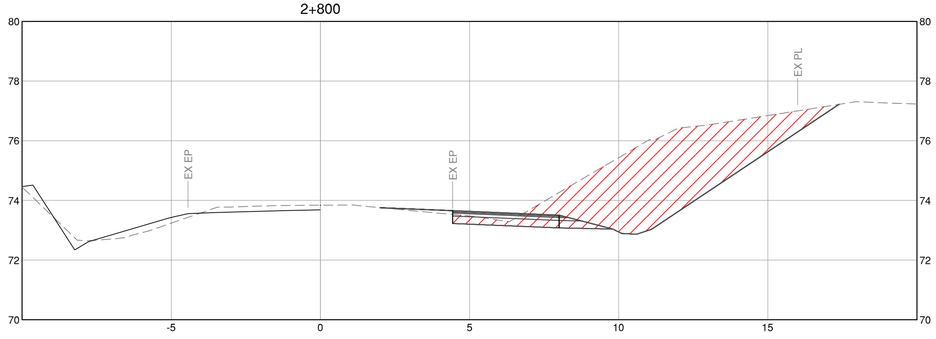
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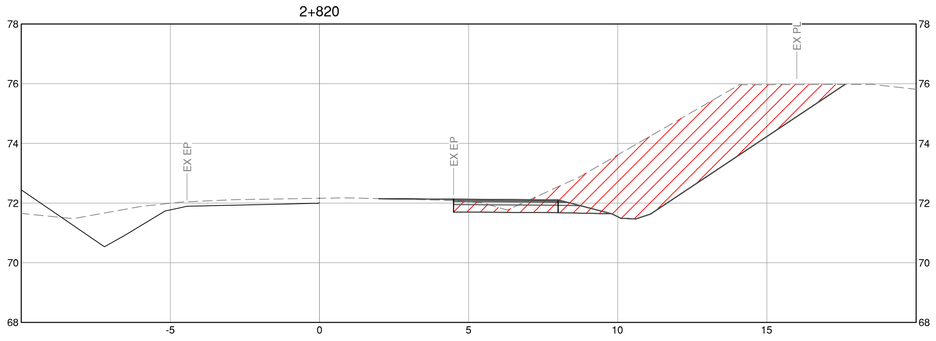
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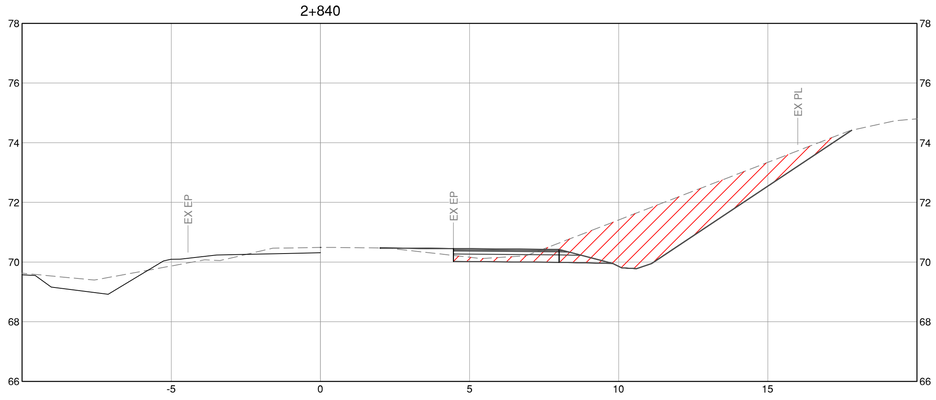












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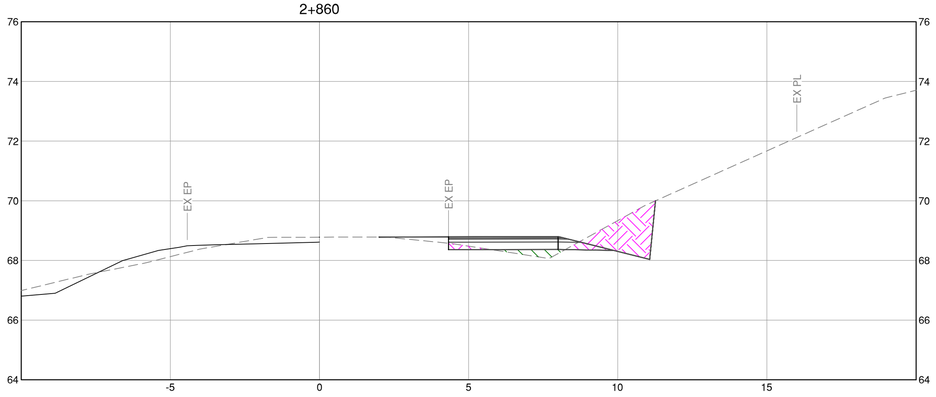
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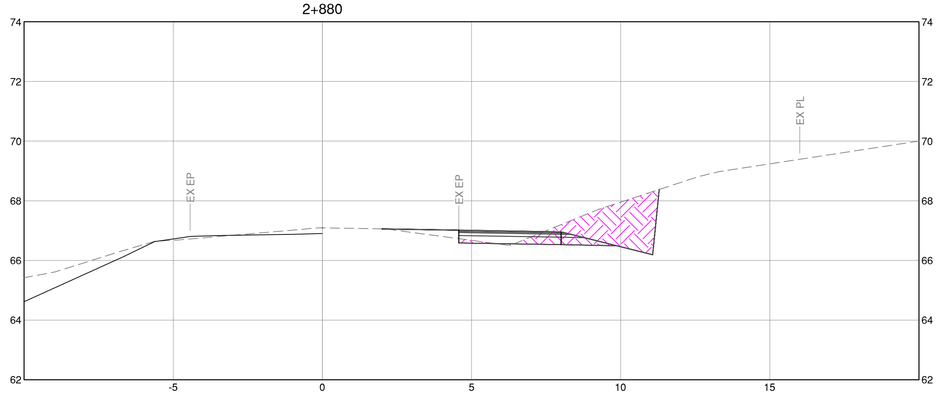
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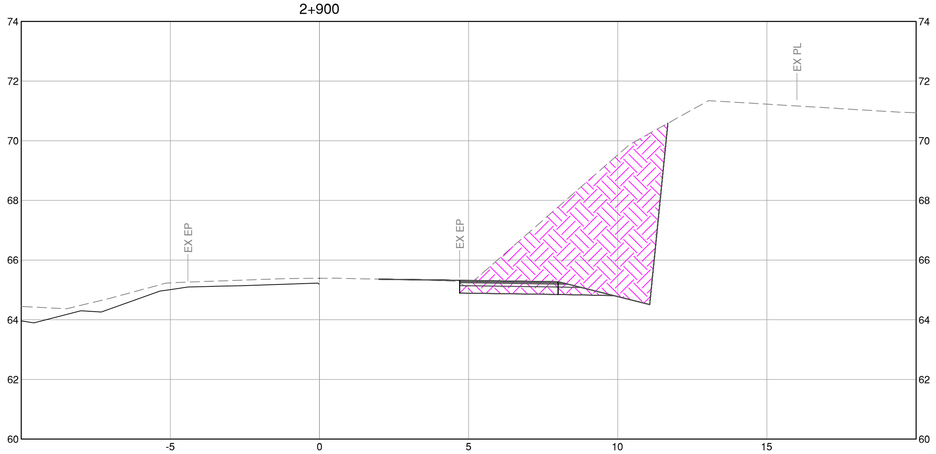
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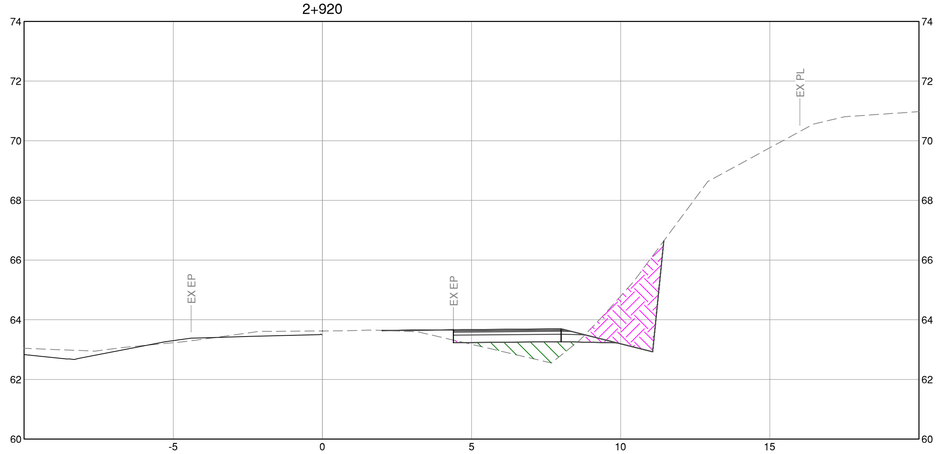
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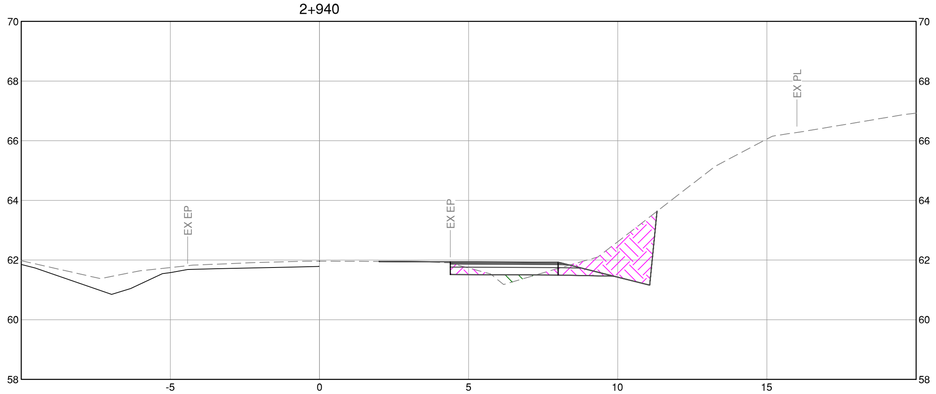
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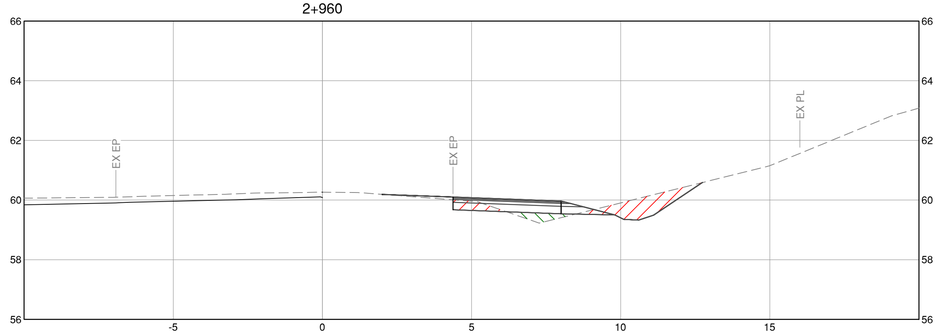
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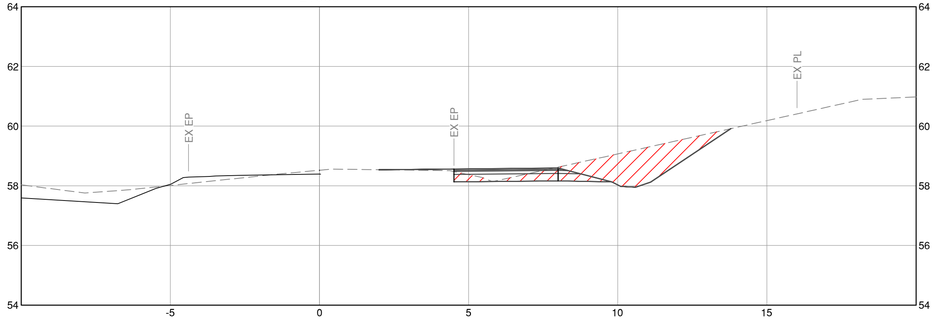
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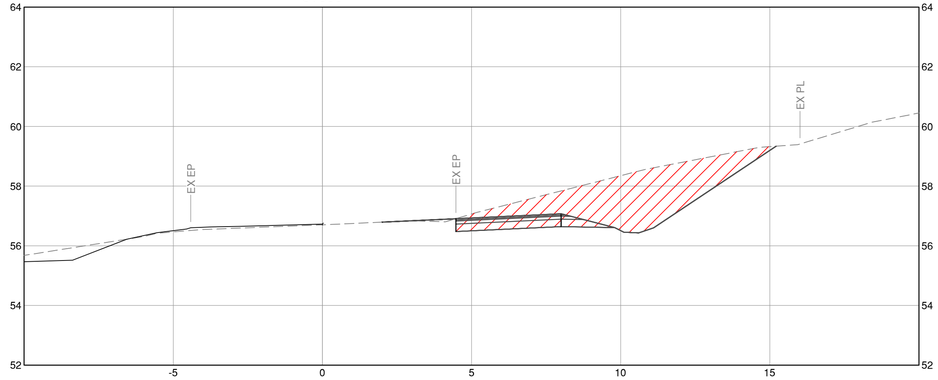
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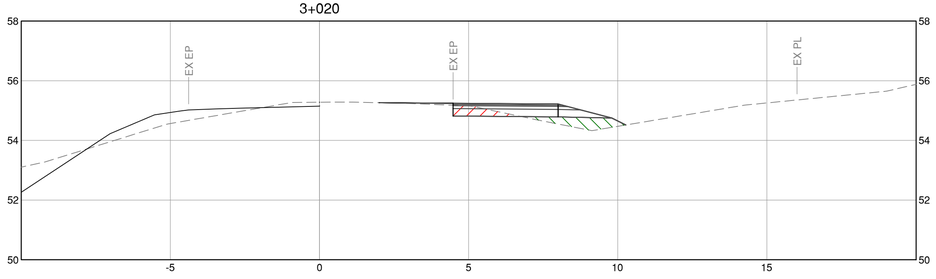
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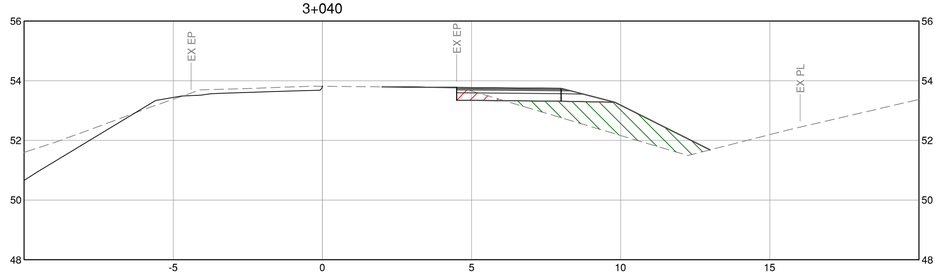
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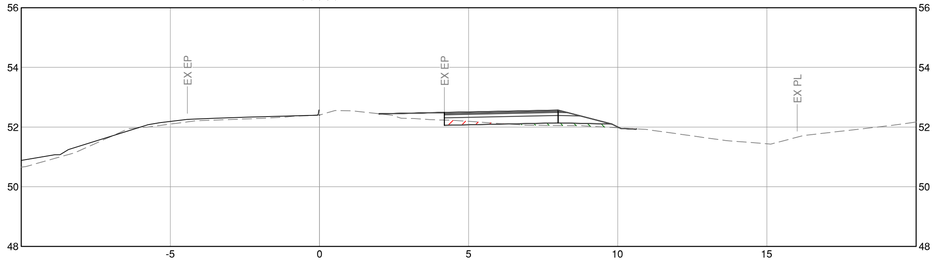
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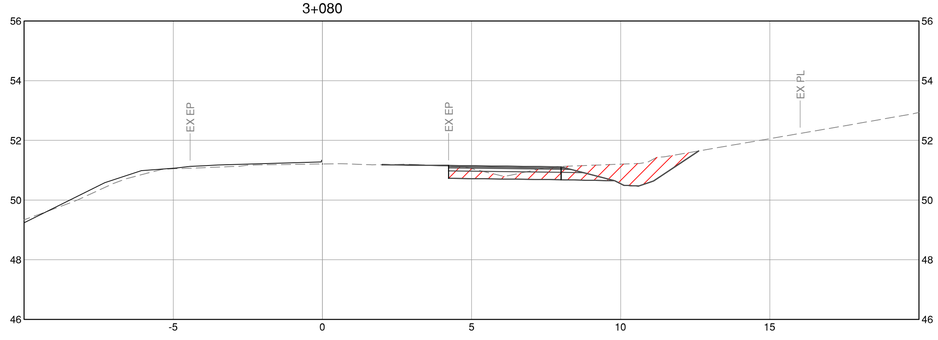
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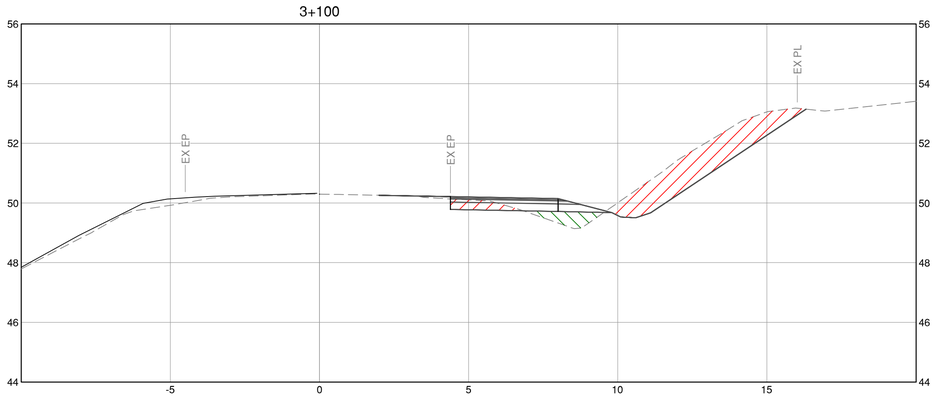
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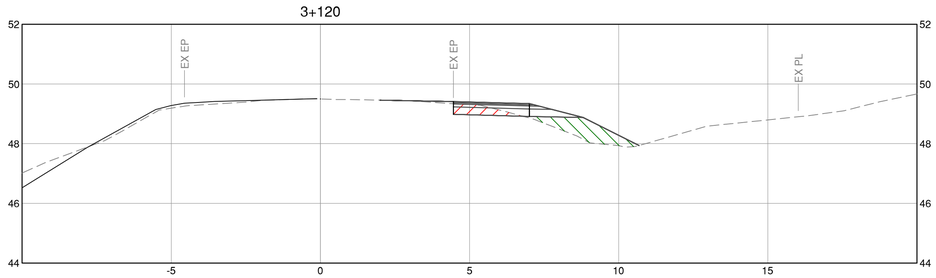
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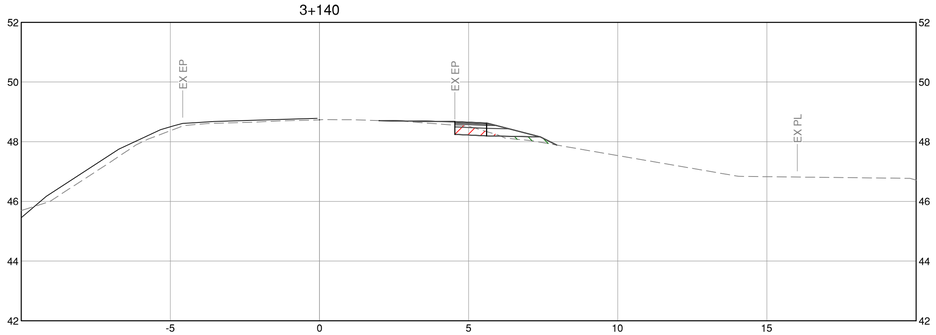
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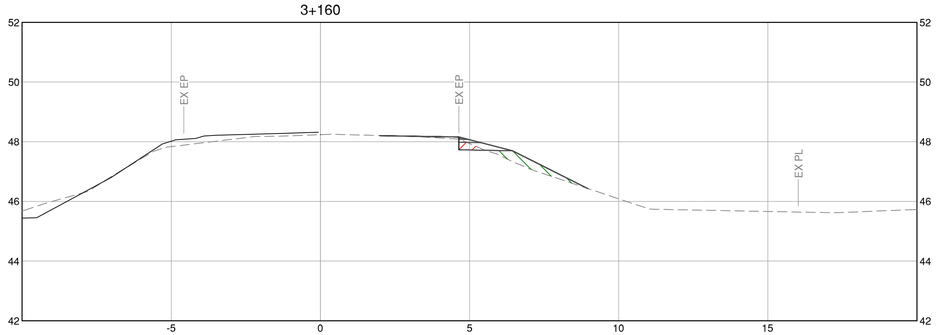
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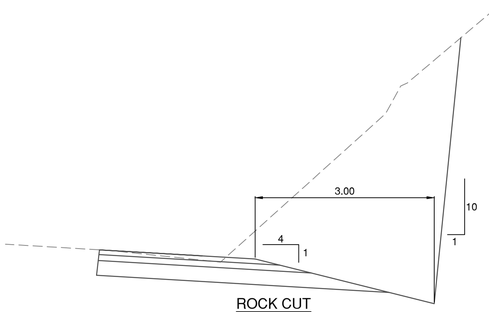
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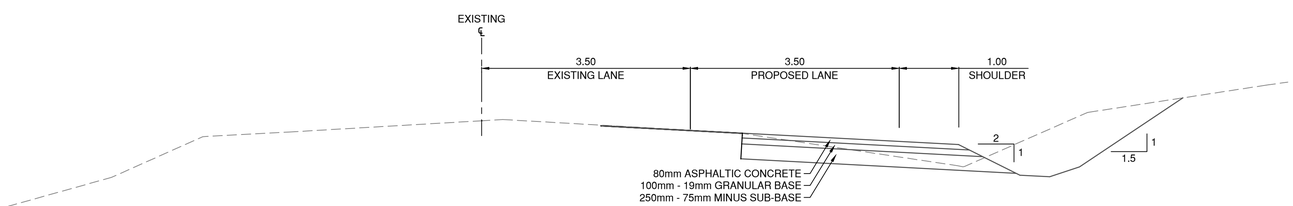








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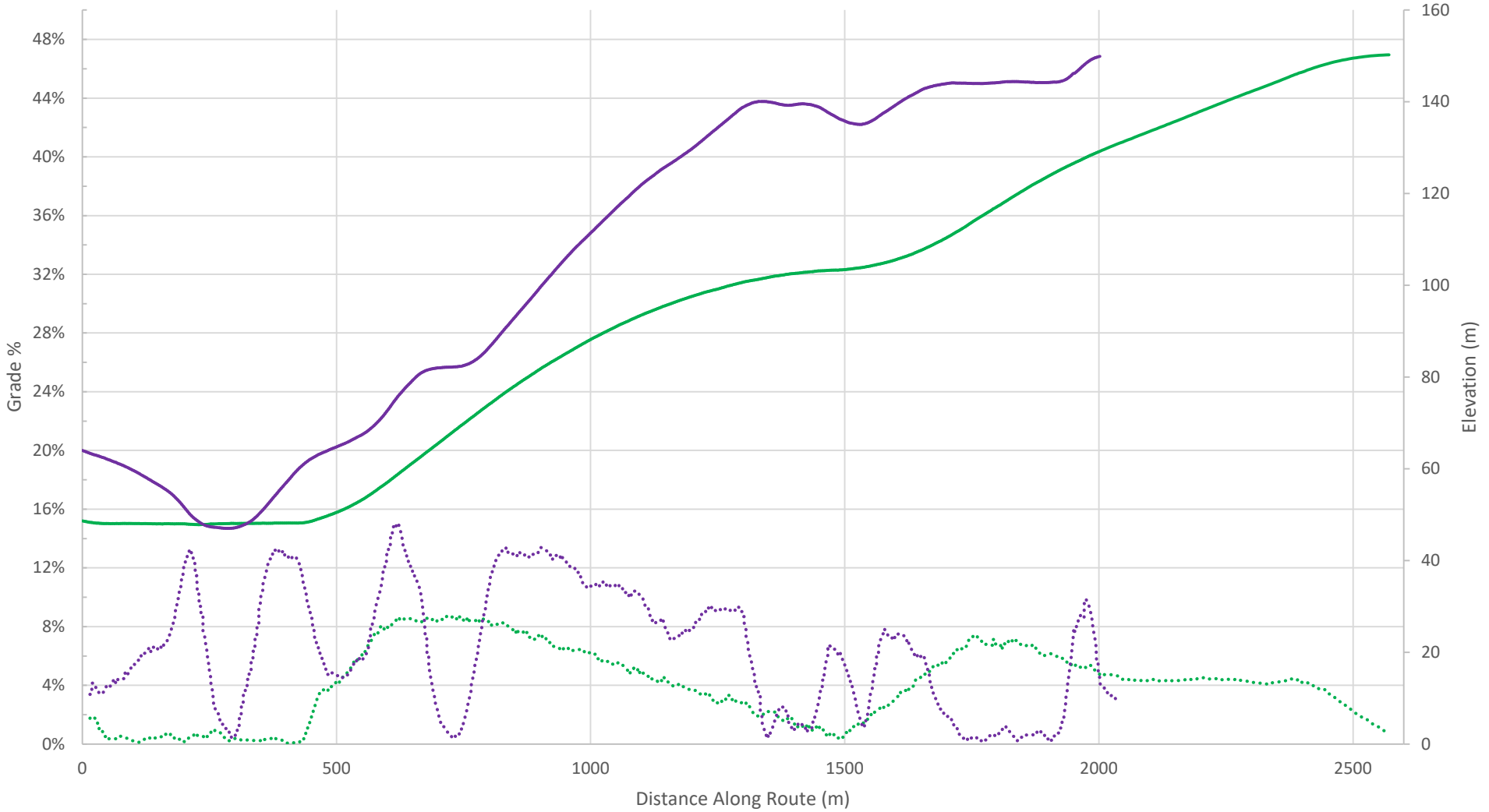
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APPENDIX D

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

SUBJECT **Regional Greenhouse Gas Inventory Study**

ISSUE SUMMARY

To provide the results of the Capital Regional District (CRD) and regional local government community greenhouse gas (GHG) emissions inventories.

BACKGROUND

The CRD's 2018 Regional Growth Strategy (RGS) targets a reduction in community greenhouse gas emissions of 33% (from 2007 levels) by 2020, and 61% by 2038. In February 2019, the CRD Board declared a climate emergency and committed to regional carbon neutrality. At its March 13, 2019 meeting, the CRD Board directed staff to complete a regional GHG inventory and emission reduction pathway analysis.

Utilizing the internationally recognized Global Protocol for Cities (GPC) framework, the CRD retained Stantec Consulting Ltd. to develop four regional GPC BASIC + greenhouse gas (GHG) emission inventories including the years 2007, 2010, 2012 and 2018. The delivered inventories provide the basis for trending GHG emissions in the capital region.

This inventory represents the best available information and improves upon previous Community Energy and Emissions Inventories (CEEI) conducted by the Province of BC. However, there is some uncertainty and limitations with the data and some assumptions were made (specifically around transportation and land use). The CRD's GPC BASIC + inventory aligns with the inventory previously completed by the District of Saanich (2017) and the City of Victoria (2018). Staff will continue to work with partners to identify, understand and source the best available data for future inventorying efforts.

The inventory has been updated from the draft numbers presented in the 2019 CRD Climate Action Annual Report presented to the Board on May 13, 2020. The updated figures represent material changes to the 2007 baseline carbon emission due to an error found post publication.

The 2018 CRD inventory, found in Appendix A, indicates the capital region emits approximately 1.7 million tonnes of C02e annually. This indicates that emissions are approximately the same as compared to 2007 levels with a slight decrease of 1.1%. The inventory reaffirms that transportation related emissions (with on-road transportation accounting for approximately 46% of total emissions alone) and the built environment (residential buildings account for approximately 18% and commercial/institutional buildings for 14%) as the main areas where progress needs to continue in order to meet the targets set by the CRD. It also affirms that the CRD and local governments should continue leadership on waste related emissions, which decreased 26% between 2007 and 2018. Appendix B summarizes changes in emissions between 2007 and 2018 for local governments.

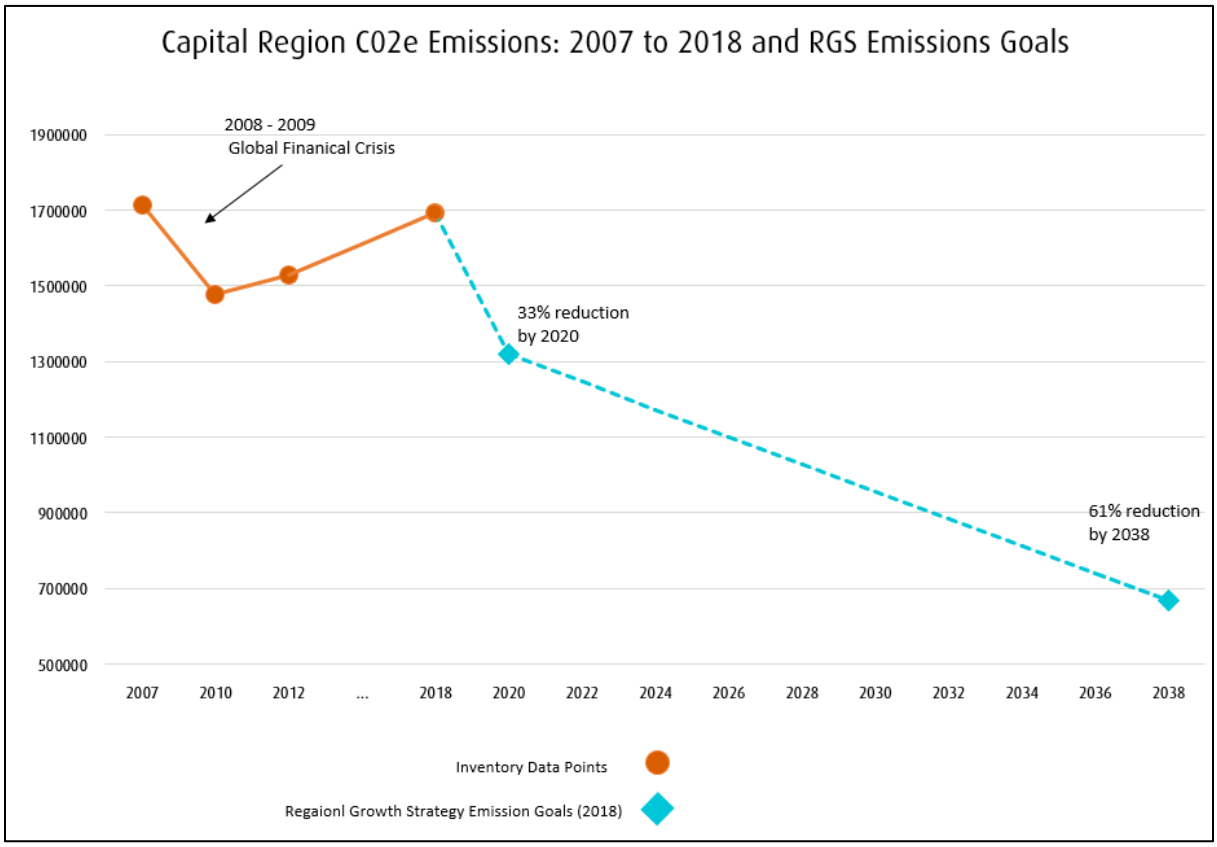


Figure 1: Capital Region GPC Basic + emission and RGS Goals

Figure 1 above indicates that the CRD is not currently on target to meet the 2020 target, with a 1% decrease in emissions observed below the 2007 baseline. The capital region would have to achieve a nearly 32% decrease in 2019 for the 2020 target to be achieved. The CRD Board, at its May 13 meeting, directed staff to report on additional potential expenditures in the 2021 budget to accelerate the priority Climate Action initiatives; this will be presented during the 2021 service planning process.

Staff expect that the COVID-19 crisis will impact emissions in 2020. As shown on the graph, emission reductions in 2008 – 2009 can be attributed to the global financial recession at that time. Results show that once economic recovery was underway, emissions returned to baseline levels, implying that the capital region will not achieve the RGS 2038 emissions goal if the economic recovery post-COVID-19 proceeds in a similar manner.

Staff will distribute local government specific reports and continue with the GHG pathway reduction modeling as part of the development of a new climate action strategy starting in late 2020.

CONCLUSION

The CRD Board provided direction and funding to complete a regional GHG inventory and emission reduction pathway analysis at its March 13, 2019 meeting. Four regional GPC BASIC + greenhouse gas emission inventories and reports for the 2007, 2010, 2012 and 2018 calendar years were completed, and results indicate an approximate 1% decrease in regional emissions

from 2007 to 2018. The analyses also indicated that on-road transportation (accounting for approximately 46% of total emissions alone) and the built environment (residential buildings account for approximately 18% and commercial/institutional buildings for 14%) are the main sources of regional emissions. The CRD will utilize this information for climate action planning activities.

RECOMMENDATION

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

That this report be received for information.

Submitted by:	Glenn Harris, Ph.D., R.P.Bio., Senior Manager, Environmental Protection
Concurrence:	Larisa Hutcheson, P.Eng., General Manager, Parks & Environmental Services
Concurrence:	Robert Lapham, MCIP, RPP, Chief Administrative Officer

ATTACHMENTS

Appendix A: CRD 2018 GPC BASIC + Community GHG Inventory Report
Appendix B: The Capital Region District – Municipalities and Electoral Areas 2007 Base Year and 2018 Reporting Year Energy & GHG Emissions Inventory Report

APPENDIX A

Capital Regional District 2018 GPC BASIC+ Community Greenhouse Gas (GHG) Emissions Inventory Report



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July 24, 2020

Limitation of Liability

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Executive Summary

There is increasing evidence that global climate change resulting from emissions of carbon dioxide (CO_2) and other greenhouse gases (GHGs) is having a significant impact on the ecology of the planet. Delayed actions to respond to the effects of climate change are expected to have serious negative impacts on global economic growth and development.

Beyond the costs associated with delayed climate action, there are cost savings to be realized through efforts to improve energy efficiency, conserve energy, and reduce GHG emissions intensity. To make informed decisions on reducing energy use and GHG emissions at the community scale, community managers must have a good understanding of these sources, the activities that drive them, and their relative contribution to the total. This requires the completion of an energy and GHG emissions inventory. To allow for credible and meaningful reporting locally and internationally, the Global Protocol for Community-Scale Greenhouse Gas Emission Inventories (the GPC Protocol) was developed. The GPC Protocol has been adopted by the Global Covenant of Mayors—an agreement led by community networks to undertake a transparent and supportive approach to measure GHG emissions community-wide. The Global Covenant of Mayors and the Federation of Canadian Municipalities promotes the use of the GPC Protocol as a standardized way for municipalities to collect and report their actions on climate change.

This project set out to compile a detailed GHG inventory for the Capital Regional District (CRD) for the 2007 (base year), 2010, 2012 and 2018 reporting years using the GPC Protocol. The CRD has historically relied on the Provincial 2007, 2010 and 2012 Community Energy and Emissions Inventories (CEEI) to baseline and track community GHG emissions. However, there have been some limitations to the CEEI which has resulted in the CRD preparing a GPC BASIC+ inventory. Following the requirements of the GPC Protocol, the GHG inventories considered emissions from all reporting Sectors, including Stationary Energy, Transportation, Waste, Industrial Process and Product Use (IPPU), and Agriculture, Forestry and Other Land Use (AFOLU). The purpose of this document is to describe the quantification methodologies used to calculate GHG emissions for the 2018 reporting year, and to present the CRD's 2018 community GHG emissions.

In 2018, the CRD's BASIC+ GHG emissions totaled 1,696,703 tCO_2. While this is a small decline of 1.1% from the 2007 base year GHG emissions, on an absolute basis, it is a decline of 14% on a per capita basis. Between 2007 and 2018, the CRD's population has grown 15% and thus this decline speaks to the efforts by the CRD and CRD local governments to reduce energy consumption and GHG emissions.

A summary of the 2018 GHG emissions is presented in Table E-1.

Table E-1 BASIC+ 2007 Base Year And 2018 Reporting Year GHG Emissions

Sector	Sub-Sector	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)
Stationary Energy	Residential Buildings	403,409	338,796
	Commercial & Institutional Buildings	247,467	265,424
	Manufacturing Industries & Construction	0	0
	Energy Industries	418	7,658
	Agriculture, Forestry & Fishing activities	62,060	55,787
	Fugitive Emissions	993	1,510
Transportation	In-Boundary On-road Transportation	903,886	871,571
	Trans-Boundary On-road Transportation	13,858	7,578
	Waterborne Navigation	48,246	51,455
	Aviation	25,635	19,243
	Off-road Transportation	56,291	55,363
	Solid Waste	111,234	71,219
Waste	Biological Treatment of Waste	72	5,307
	Wastewater Treatment & Discharge	18,998	19,859
IPPU	IPPU	77,348	129,884
AFOLU	Land-Use Change	-259,033	-209,262
	Livestock	3,467	4,299
	Non-CO_2 Land Emission Sources	1,464	1,010
Change in GHG Emissions from Base Year		**1,715,814**	**1,696,703**
Total Per Capita GHG Emissions (tCO_2e / Capita)			**-14.4%**
Change GHG Emissions per Capita from Base Year		**4.9**	**4.2**
Change in GHG Emissions from Base Year			**-1.1%**

Data in the table above is depicted in Figure E-1, which includes land-use, and Figure E-2 which excludes land-use.

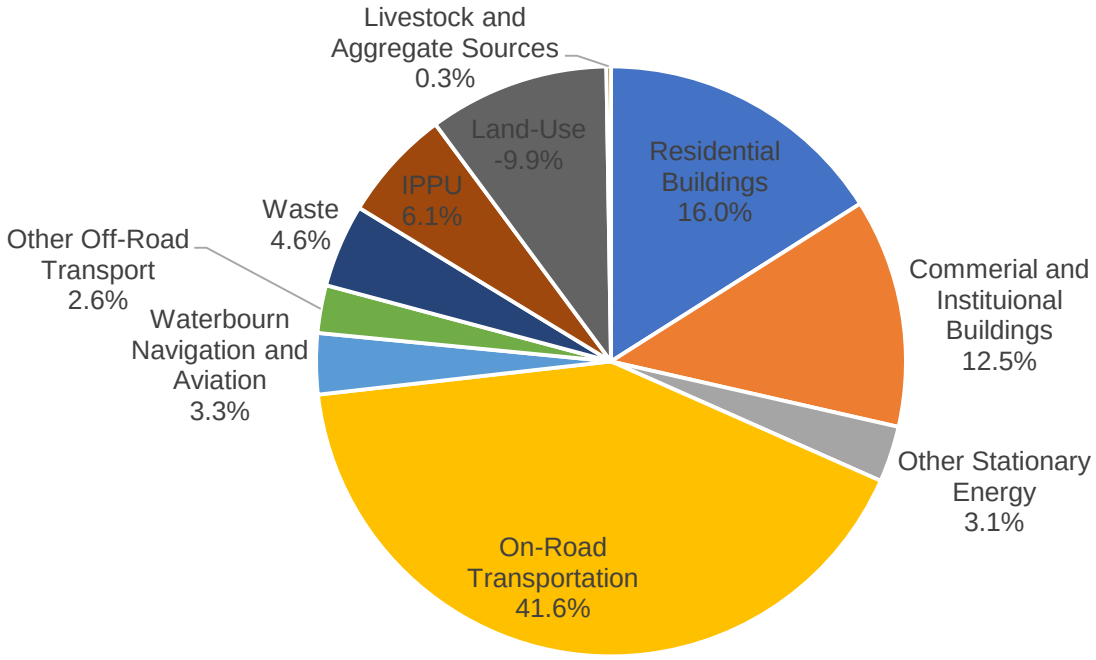


Figure E-1 CRD's 2018 BASIC+ GHG Emissions Profile (Including Land-Use)

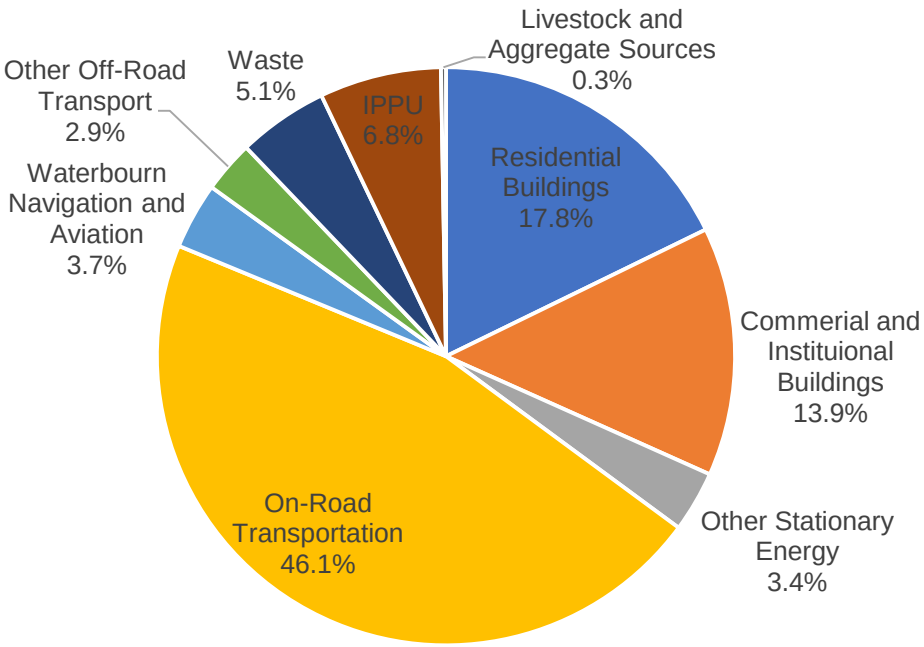


Figure E-2 CRD's 2018 BASIC+ GHG Emissions Profile (Excluding Land-Use)

Abbreviations

ACERT	Airport Carbon Emissions Reporting Tool
AFOLU	Agriculture, Forestry, and Other Land Use
BC	British Columbia
C40	C40 Cities Climate Leadership Group
CH_4	Methane
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalents
CEEI	Community Energy and Emissions Inventories
CRD	Capital Regional District
VIA	Victoria International Airport
eMWh	megawatt hours equivalents
FCM	Federation of Canadian Municipalities
GDP	gross domestic product
GHG	greenhouse gas
GJ	Gigajoules
GPC	Global Protocol for Community-Scale Greenhouse Gas Emission Inventories
GVHA	Greater Victoria Harbour Authority
GWP	global warming potentials
HFC	Hydrofluorocarbons
ICAO	International Civil Aviation Organization
ICBC	Insurance Corporation of BC

ICLEI	International Council for Local Environmental Initiatives
IE	included elsewhere
IPCC	Intergovernmental Panel on Climate Change
IPPU	Industrial Process and Product Use
ISO	International Organization for Standardization
kg	Kilograms
kW	Kilowatt
kWh	kilowatt hours
L	Litres
MWh	megawatt hours
N_2O	nitrous oxides
NE	not estimated
NIR	National Inventory Report
NPRI	National Pollutant Release Inventory
NO	not occurring
PCP	Partnership for Climate Protection
PFC	Perfluorocarbons
SC	Other Scope 3
SF_6	sulfur hexafluoride
VIA	Victoria International Airport
WIP	waste-in-place
WRI	World Resources Institute

Glossary

Air pollution	The presence of toxic chemicals or materials in the air, at levels that pose a human health risk.
Base Year	This is the reference or starting year to which targets and GHG emissions projections are based.
BASIC	An inventory reporting level that includes all Scope 1 sources except from energy generation, imported waste, IPPU, and AFOLU, as well as all Scope 2 sources (GPC, 2014).
BASIC+	An inventory reporting level that covers all GPC BASIC sources, plus Scope 1 AFOLU and IPPU, and Scope 3 in the Stationary Energy and Transportation Sectors (GPC, 2014).
Biogenic emissions	Emissions produced by living organisms or biological processes, but not fossilized or from fossil sources (GPC, 2014).
Carbon dioxide equivalent (CO_2e)	The amount of carbon dioxide (CO_2) emissions that would cause the same integrated radiative forcing, over a given time horizon, as an emitted amount of a greenhouse gas (GHG) or a mixture of GHGs. The CO_2e emission is obtained by multiplying the emission of a GHG by its Global Warming Potential (GWP) for the given time horizon. For a mix of GHGs, it is obtained by summing the CO_2e emissions of each gas (IPCC 2014).
Climate change	Climate change refers to a change in the state of the climate that can be identified by changes in the mean and/or the variability of its properties and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forces such as modulations of the solar cycles, volcanic eruptions, and persistent anthropogenic changes in the composition of the atmosphere or in land use (IPCC, 2014).
Emission	The release of GHGs into the atmosphere (GPC, 2014).
Emission factor(s)	A factor that converts activity data into GHG emissions data (GPC, 2014).
Flaring	The burning of natural gas that cannot be used.
Fossil fuels	A hydrocarbon deposit derived from the accumulated remains of ancient plants and animals which is used as an energy source.
Fugitive emission	Emissions that are released during extraction, transformation, and transportation of primary fossil fuels. These GHG emissions are not combusted for energy.
Geographic boundary	A geographic boundary that identifies the spatial dimensions of the inventory's assessment boundary. This geographic boundary defines the physical perimeter separating in-boundary emissions from out-of-boundary and transboundary emissions (GPC, 2014).
Gigajoule (GJ)	A gigajoule (GJ), one billion joules, is a measure of energy. One GJ is about the same energy as: • Natural gas for 3-4 days of household use • The electricity used by a typical house in 10 days

Global warming	A gradual increase in the Earth's temperature which is attributed to the greenhouse effect caused by the release of greenhouse gas (GHG) emissions into the atmosphere.
Global warming potential (GWP)	An index measuring the radiative forcing following an emission of a unit mass of a given substance, accumulated over a chosen time horizon, relative to that of the reference substance, carbon dioxide (CO_2). The GWP thus represents the combined effect of the differing times these substances remain in the atmosphere and their effectiveness in causing radiative forcing. The Kyoto Protocol is based on global warming potentials over a 100-year period (IPCC 2014).
Greenhouse gas (GHG)	GHGs are the seven gases covered by the UNFCCC: carbon dioxide (CO_2); methane (CH_4); nitrous oxide (N_2O); hydrofluorocarbons (HFCs); perfluorocarbons (PFCs); sulphur hexafluoride (SF_6); and nitrogen trifluoride (NF_3) (GPC, 2014).
GHG intensity	The annual rate to which GHG emissions are released in the atmosphere, relative to a specific intensity.
Gross domestic product (GDP)	An economic measure of all goods and services produced in an economy.
In-boundary	Occurring within the established geographic boundary (GPC, 2014).
Reporting year	The year for which emissions are reported (GPC, 2014).
Scope 1	Emissions that physically occur within a community.
Scope 2	Emissions that occur from the use of electricity, steam, and/or heating/cooling supplied by grids which may or may not cross Community boundaries.
Scope 3	Emissions that occur outside a community but are driven by activities taking place within a community's boundaries.
Tonne of CO_2e	A tonne of greenhouse gases (GHGs) is the amount created when we consume: • 385 litres of gasoline (about 10 fill-ups) • $200 of natural gas (a month of winter heating) • Enough electricity for three homes for a year (38,000 kWh)
Transboundary GHG emissions	Emissions from sources that cross the geographic boundary (GPC, 2014).

1.0 INTRODUCTION

1.1 CLIMATE CHANGE AND GREENHOUSE GAS EMISSIONS

There is increasing evidence that global climate change resulting from emissions of carbon dioxide and other greenhouse gases (GHGs) is having an impact on the global climate system. The Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), states the following consensus of scientific opinion about climate change and its causes and effects (IPCC, 2014):

- Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice and rising global average sea level.
- Anthropogenic GHG emissions have increased since the pre-industrial era, driven largely by economic and population growth, and are now higher than ever. Most of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in human-caused GHG concentrations.
- Continued emission of GHG will cause further warming and long-lasting changes in all components of the climate system, increasing the likelihood of severe, pervasive, and irreversible impacts for people and ecosystems.
- There is high agreement and much evidence that with current climate change mitigation policies and practices, global GHG emissions will increase over the next few decades.

1.2 COMMUNITIES AND GREENHOUSE GAS EMISSIONS

Communities are centers of communication, commerce, and culture. They are, however, also a significant and growing source of energy consumption and GHG emissions. On a global scale, communities are major players in GHG emissions. They are responsible for more than 70% of global energy-related carbon dioxide emissions and thus represent the single greatest opportunity for tackling climate change.

For a community to act on mitigating climate change and monitor its progress, it is crucial to have good quality GHG emissions data to build a GHG inventory. Such an inventory enables cities to understand the breakdown of their emissions and plan for effective climate action. The Global Protocol for Community-Scale Greenhouse Gas Emission Inventories (GPC Protocol) seeks to support exactly that, by giving cities the standards and tools that are needed to measure the emissions, build more effective emissions reduction strategies, set measurable and more ambitious emission reduction goals, and to track their progress more accurately and comprehensively.

Until recently there has been no internationally recognized way to measure community-level emissions. Inventory methods that community managers have used to date around the globe vary significantly. This inconsistency has made comparisons between cities and over the years difficult. The GPC Protocol offers an internationally accepted, credible emissions accounting and reporting practice that will help communities to develop comparable GHG inventories.

1.3 VARIANCE FROM COMMUNITY ENERGY AND EMISSIONS INVENTORIES (CEEI)

The CRD has historically relied on the Provincial 2007, 2010 and 2012 Community Energy and Emissions Inventories (CEEI) to baseline and track community GHG emissions. However, there have been some limitations to the CEEI in that it is an in-boundary inventory, the most recent version published is for 2012, and the CEEI Protocol does not fully meet the requirements of the GPC Protocol BASIC or BASIC+ reporting requirements which is the required reporting standard for local governments that have committed to the Global Covenant of Mayors—an agreement led by community networks to undertake a transparent and supportive approach to measure GHG emissions community-wide. A high-level summary of the differences between the CEEI and GPC Protocol inventories are presented in Table 1.

Table 1. Summary of GHG Inventory Scope Differences

Reporting Sector	CEEI	GPC BASIC	GPC BASIC+
Residential Buildings	✓	✓	✓
Commercial And Institutional Buildings And Facilities	✓	✓	✓
Manufacturing Industries And Construction	✓	✓	✓
Energy Industries		✓	✓
Energy Generation Supplied To The Grid		✓	✓
Agriculture, Forestry And Fishing Activities		✓	✓
Non-Specified Sources		✓	✓
Fugitive Emissions From Mining, Processing, Storage, And Transportation Of Coal		✓	✓
Fugitive Emissions From Oil And Natural Gas Systems		✓	✓
On-Road Transportation	✓	✓	✓
Railways		✓	✓
Waterborne Navigation		✓	✓
Aviation		✓	✓
Off-Road Transportation		✓	✓
Solid Waste	✓	✓	✓
Biological Waste	✓	✓	✓
Incinerated And Burned Waste		✓	✓
Wastewater		✓	✓
Emissions From Industrial Processes			✓

Reporting Sector	CEEI	GPC BASIC	GPC BASIC+
Emissions From Product Use			✓
Emissions From Livestock	✓		✓
Emissions From Land			✓
Emissions From Aggregate Sources And Non-CO_2 Emission Sources On Land	✓		✓

1.4 PURPOSE OF THIS REPORT

The purpose of this document is to describe the quantification methodologies used by the CRD to calculate its BASIC+ GHG emissions for the 2018 reporting year.

2.0 GLOBAL PROTOCOL FOR COMMUNITY (GPC) SCALE EMISSION INVENTORIES PROTOCOL

2.1 OVERVIEW

The GPC Protocol is the result of a collaborative effort between the GHG Protocol at the World Resources Institute (WRI), C40 Cities Climate Leadership Group (C40), and ICLEI—Local Governments for Sustainability (ICLEI). The GPC Protocol is recognized as one of the first set of standardized global rules for cities to measure and publicly report community-wide GHG emissions. It sets out requirements and provides guidance for calculating and reporting community-wide GHG emissions, consistent with the 2006 IPCC guidelines on how to estimate GHG emissions (IPCC, 2006). Specifically, the GPC Protocol seeks to:

- Help cities develop a comprehensive and robust GHG inventory to support climate action planning.
- Help cities establish a base year GHG emissions inventory, set GHG reduction targets, and track performance.
- Ensure consistent and transparent measurement and reporting of GHG emissions between cities, following internationally recognized GHG accounting and reporting principles.
- Enable community-wide GHG inventories to be aggregated at subnational and national levels.
- Demonstrate the important role that cities play in tackling climate change and facilitate insight through benchmarking—and aggregation—of comparable GHG data.

2.2 GPC PROTOCOL STRUCTURE

The GPC Protocol sets several assessment boundaries which identify the restrictions for gases, emission sources, geographic area, and time span covered by a GHG inventory:

- The GHG inventory is required to include all seven Kyoto Protocol GHGs occurring within the geographic boundary of a community. These include:
  - Carbon dioxide (CO_2)
  - Methane (CH_4)
  - Nitrous oxide (N_2O)
  - Hydrofluorocarbons (HFCs)
  - Perfluorocarbons (PFCs)
  - Sulfur hexafluoride (SF_6)
  - Nitrogen trifluoride (NF_3)
- The GHG emissions from community-wide activities must be organized and reporting under the following five Sectors, based on the selected reporting level:
  - Stationary Energy
  - Transportation
  - Waste
  - Industrial Processes and Product Use (IPPU)

- Agriculture, Forestry, and Other Land Use (AFOLU)

The GPC Protocol also requires that a community define an inventory boundary, identifying the geographic area, time span, gases, and emission sources.

Under the GPC Protocol, a community has the option of reporting GHG emissions under three different levels:

- **GPC BASIC—**This level covers emissions Scopes 1 and 2, from stationary energy and transportation, as well as emissions Scopes 1 and 3 from waste. The BASIC level aligns with the Community Energy and Emissions Inventories (CEEI) that have been released in the past for local governments by the Province of BC.
- **GPC BASIC+—**This level covers the same scopes as BASIC and includes more in-depth and data dependent methodologies. Specifically, it expands the reporting scope to include emissions from Industrial Process and Product Use (IPPU), Agriculture, Forestry, and Other Land-Use (AFOLU), and transboundary transportation. The sources covered in BASIC+ also align with sources required for national reporting in IPCC guidelines.
- **GPC BASIC+ Scope 3 (SC)—** This inventory extends beyond the BASIC+ GHG inventory to include Other Scope 3 (SC) emissions such as GHG emissions from goods and services production and transportation.

Activities taking place within a community can generate GHG emissions that occur inside a Community boundary as well as outside a Community boundary. To distinguish between these, the GPC Protocol groups emissions into three categories based on where they occur: Scope 1, Scope 2, or Scope 3 emissions. The GPC Protocol distinguishes between emissions that physically occur within a Community (Scope 1), from those that occur outside a Community but are driven by activities taking place within a Community's boundaries (Scope 3), from those that occur from the use of electricity, steam, and/or heating/cooling supplied by grids which may or may not cross community boundaries (Scope 2). Scope 1 emissions may also be termed "territorial" emissions, because they are produced solely within the territory defined by the geographic boundary (see Figure 1).

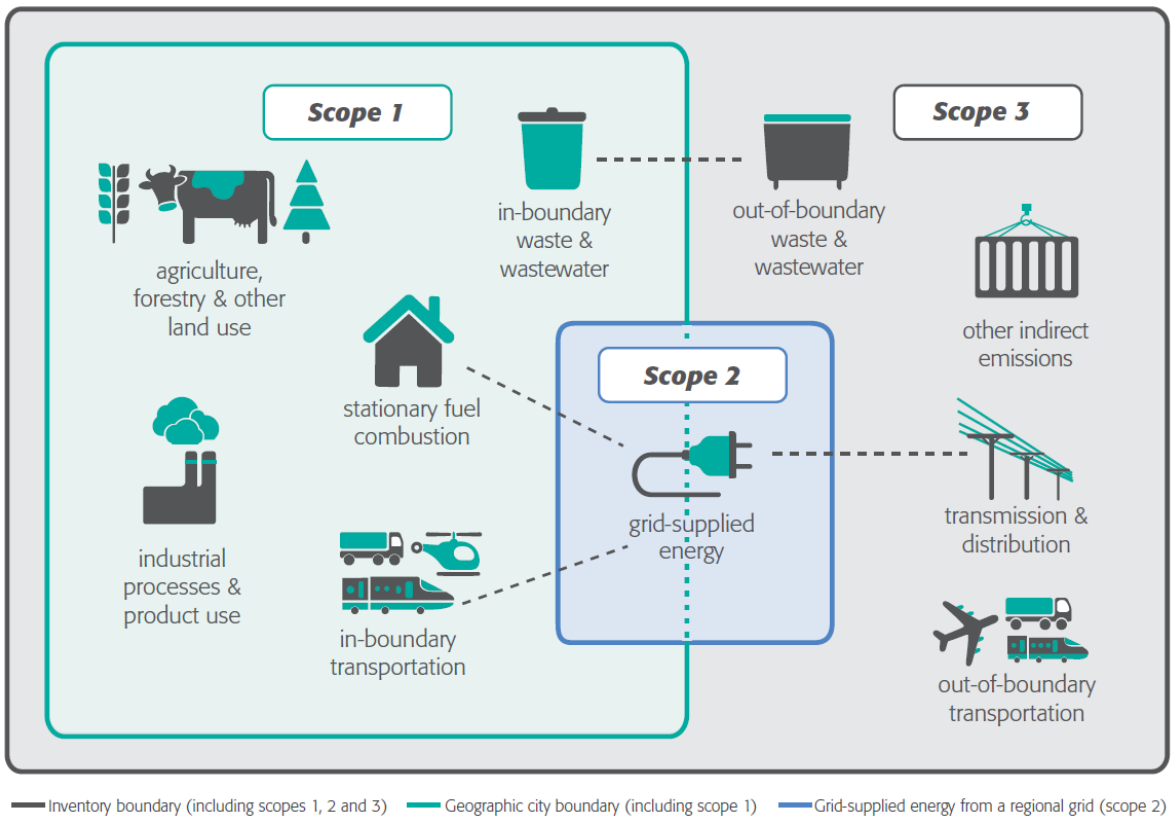


Figure 1 Sources and Boundaries of a Community's GHG Emissions (GPC 2014)

2.3 GHG EMISSION CATEGORIES

As noted previously, the GPC Protocol requires that different emission sources to be categorized into six main reporting Sectors. These high-level categories are described in more detail in Section 2.3.1 to Section 2.3.6. More information on how GHG emissions are captured within the GPC Protocol is available on the Greenhouse Gas Protocol website.

2.3.1 Stationary Energy

Stationery energy sources are typically one of the largest contributors to a community's GHG emissions. In general, these emissions come from fuel combustion and fugitive emissions. They include the emissions from energy to heat and cool residential, commercial, and industrial buildings, as well as the activities that occur within these residences and facilities, such as off-road transportation emissions from construction equipment. Emissions associated with distribution losses from grid-supplied

electricity/steam/heating/cooling are also included, as are some fugitive emissions from sources such as coal piles, and natural gas distribution systems.

The Stationary Energy Sector includes the following Sub-Sectors:

- Residential buildings
- Commercial and institutional buildings and facilities
- Manufacturing industries and construction
- Energy industries
- Energy generation supplied to the grid*
- Agriculture, forestry, and fishing activities
- Non-specific sources
- Fugitive emissions from mining, processing, storage, and transportation of coal
- Fugitive emissions from oil and natural gas systems

*Emissions related with electricity generation activities occurring within a community's boundaries are to be reported; however, the GHG emissions from these sources are not included in the total GHG inventory to prevent double counting (GPC 2014).

Under the GPC Protocol, cities are to report off-road GHG emissions under the Off-road Transportation Sub-Sector if and only if the GHG emissions are occurring at transportation facilities (e.g., airports, harbors, bus terminals, train stations, etc.). Other off-road transportation GHG emissions that occur on industrial premises, construction sites, agriculture farms, forests, aquaculture farms, and military premises, etc., are to be reported under the most relevant Stationary Energy Sub-Sector (GPC, 2014). For example, GHG emissions from commercial building off-road construction equipment would be included in the Commercial And Institutional Buildings And Facilities Sub-Sector, whereas GHG emissions from residential lawn mowers would be reported under the Residential Buildings Sub-Sector.

2.3.2 Transportation

The GHGs released to the atmosphere to be reported in the Transportation Sector are those from combustion of fuels in journeys by on-road, railway, waterborne navigation, aviation, and off-road. GHG emissions are produced directly by the combustion of fuel, and indirectly using grid-supplied electricity. Unlike the Stationary Energy Sector, transit is mobile and can pose challenges in both accurately calculating GHG emissions and allocating them to a specific Sub-Sector. This is particularly true when it comes to transboundary transportation, which includes GHG emissions from trips that either start or finish within a community's boundaries (e.g., departing flight emissions from an airport outside a Community boundaries) (GPC, 2014). Transboundary GHG emissions are only required for GPC BASIC+ GHG reporting.

The Transportation Sector includes the following Sub-Sectors:

- On-road
- Railways

- Waterborne
- Aviation
- Off-road

As noted previously, cities are to report off-road GHG emissions under the Off-road Transportation Sub-Sector if and only if the GHG emissions are occurring at transportation facilities (e.g., airports, harbors, bus terminals, train stations, etc.). For example, off-road railway maintenance support equipment GHG emissions are reported under the Off-Road Transportation Sub-Sector.

2.3.3 Waste

Cities produce GHG emissions that arise from activities related to the disposal and management of solid waste. Waste does not directly consume energy, but releases GHG emissions because of decomposition, burning, incineration, and other management methods.

The Waste Sector includes the following Sub-Sectors:

- Solid waste disposal
- Incineration and open burning
- Biological treatment of waste
- Wastewater treatment and discharge

Under the GPC Protocol, the Waste Sector includes all GHG emissions that result from the treatment or decomposition of waste regardless of the source of the waste (e.g., another community's waste in a Community's landfill). However, the GHG emissions that are associated with waste from outside a Community's boundary that is treated or decomposes within a Community boundary are deemed to be "reporting only" emissions and do not contribute to the GHG inventory (GPC 2014).

Any GHG emissions that result from the combustion of waste or waste related gases to generate energy, such as a methane capture and energy generation system at a landfill, are reported under Stationary Energy Generation Supplied To The Grid Sub-Sector (GPC, 2014). Any waste related GHG emissions that are combusted but not related to energy generation are reported in the appropriate Waste Sub-Sector. Lastly, any waste GHG emissions that are released to the atmosphere are also captured in the appropriate Waste Sub-Sector.

2.3.4 Industrial Processes and Product Use (IPPU)

Emissions from this Sector are only required for BASIC+ GHG reporting under the GPC Protocol. This Sector encompasses GHG emissions produced from industrial processes that chemically or physically transform materials and using products by industry and end-consumers (e.g., refrigerants, foams, aerosol cans) (GPC, 2014).

The IPPU Sector includes the following Sub-Sectors:

- Industrial processes
- Product use

Any GHG emissions associated with energy use for industrial processes are not reported in the IPPU Sector; rather, they are reported under the appropriate Stationary Energy Sub-Sector.

2.3.5 Agriculture, Forestry, and Other Land Use (AFOLU)

Emissions from the AFOLU Sector are only required for BASIC+ GHG reporting. AFOLU GHG emissions are those that are captured or released because of land-management activities. These activities can range from the preservation of forested lands to the development of crop land. Specifically, this Sector includes GHG emissions from land-use change, manure management, livestock, and the direct and indirect release of nitrous oxides (N_2O) from soil management, rice cultivation, biomass burning, urea application, fertilizer, and manure application (GPC, 2014).

The AFOLU Sector is organized into the following Sub-Sectors:

- Livestock
- Land
- Aggregate sources and non-CO_2 emission sources on land

2.3.6 Other Scope 3 Emissions

Cities, by their size and connectivity, inevitably give rise to GHG emissions beyond their boundaries. The GPC Protocol already includes the following Scope 3 emissions in other Sectors:

- On-road, waterborne, and aviation transboundary transportation
- Transmission and distribution losses associated with grid-supplied energy
- Solid waste disposal
- Biological treatment of solid waste
- Wastewater treatment and discharge

Cities may voluntarily report on other Scope 3 emissions as they are estimated. In the case of the CRD, no other Scope 3 GHG emissions, other than those listed above, have been estimated.

2.4 ACCOUNTING AND REPORTING PRINCIPLES

All GHG inventories following the GPC Protocol are required to meet GHG accounting principles. Specifically, these inventories should be relevant, consistent from year to year, accurate and transparent about methodologies, assumptions, and data sources. The transparency of inventories is fundamental to the success of replication and assessment of the inventory by interested parties.

The GHG inventories must also properly account for key energy and GHG emission sinks, sources, and reservoirs (SSR) that are occurring within municipal boundaries. The SSRs are a convenient way to identify and categorize all the GHG emissions to determine if they should be included or excluded from a GHG inventory. A "Source" is something that releases GHG emissions to the atmosphere, such as a diesel generator. A "Sink" is a process or item that removes GHG from the atmosphere, such as photosynthesis and tree growth. Finally, a "Reservoir" is a process or item with the capability to store or accumulate a GHG removed from the atmosphere by a GHG sink, such as a wetland or a peat bog. By assessing and reporting on the applicable SSRs, users of the GHG inventory can have confidence that the inventory is complete and representative of the types and quantities of the GHGs being released within community limits.

2.5 BASE AND REPORTING YEAR RECALCULATIONS

As communities grow and expand, significant changes to the GHG emissions profile can alter materially thus making it difficult to meaningfully assess GHG emission trends and changes over time. The GPC Protocol has requirements on how to treat changes in a community's GHG profile—this is presented in Table 2.

Table 2 GPC Protocol Recalculation Thresholds

Threshold	Example Change	Recalculation Needed	No Recalculation Needed
Changes in the assessment boundary	A local government is annexed in or removed from the administrative boundary	✓	
	Change in protocol reporting method (e.g., from BASIC to BASIC+, addition of GHGs reported, etc.)	✓	
	Shut down of a power plant		✓
	Building a new cement factory		✓
Changes in calculation methodology or improvements in data accuracy	Change in calculation methodology for landfilled municipal solid waste (MSW) that results in a material change in GHG emissions to that sector (i.e., +/-10%).	✓	
	Adoption of more accurate local emission factors, instead of a national average emission factors that results in a material change in GHG emissions (i.e., +/-10%).	✓	
	Change in electricity emission factor due to energy efficiency improvement and growth of renewable energy utilization.		✓
Discovery of significant errors	Discovery of mistake in unit conversion in formula used.	✓	

2.6 DATA QUALITY

Data collection and the assessment of its quality is an integral component of compiling any GHG inventory. Like the IPCC, the GPC Protocol requires users to establish first whether a source exists, and then assess the data availability and quality. To support GHG reporting, the following notation keys are used.

- If the GHG sink, source or reservoir does not exist, a “NO” is used to indicate it is “not occurring”.
- If the GHG sink, source or reservoir does occur, and data is available, then the emissions are estimated. However, if the data is also included in another emissions source category or cannot be disaggregated, the notation key “IE” would be used to indicate “included elsewhere” to avoid double counting.
- When GHG emissions are occurring in the CRD, but data is not available, then the notation key “NE” would be used to indicate “not estimated”.

For GHG data that does exist, in accordance with the GPC Protocol, an assessment of quality is also made on emission factors and GHG estimation methodologies deployed. The GPC Protocol data quality assessment notation keys are summarized in Table 3.

Table 3 GPC Protocol Data Quality Assessment Notation Keys

Data Quality	Activity Data	Emission Factor
High (H)	Detailed activity data	Site-specific emission factors
Medium (M)	Modeled activity data using robust assumptions	More general emission factors
Low (L)	Highly modeled or uncertain activity data	Default emission factors

3.0 GHG ASSESSMENT BOUNDARIES

This section sets out the reporting boundaries of the CRD's GHG inventory.

3.1 SPATIAL BOUNDARIES

This GHG inventory is defined geographically by the CRD's jurisdictional boundaries. As shown in Figure 2, the CRD consists of 13 municipalities and 3 electoral areas. For the purposes of this report, only the CRD GHG emissions are presented. A breakdown of GHG emissions by each CRD municipality and electoral area has been presented in a separate report.

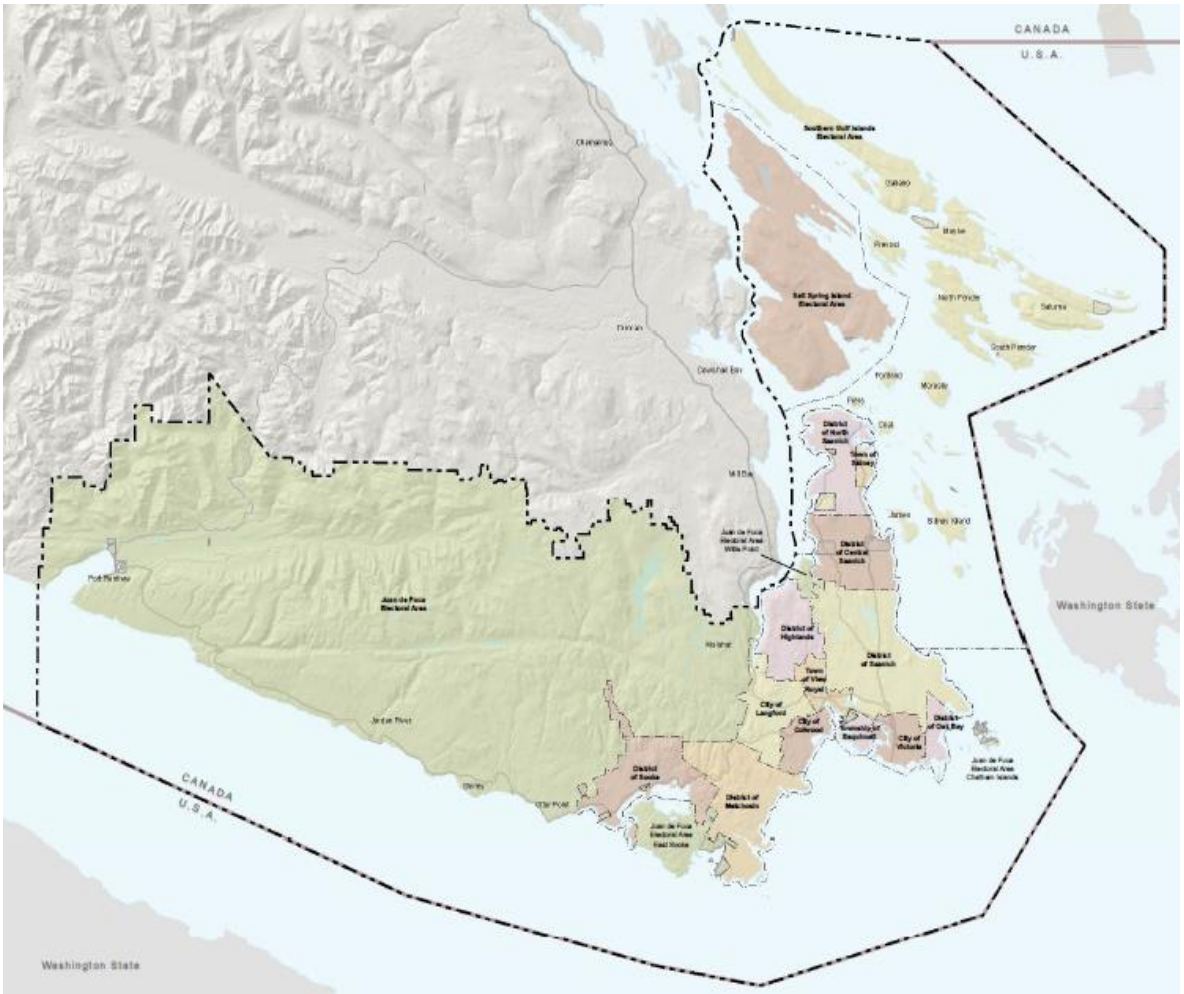


Figure 2 GHG Boundary

Table 4 Inventory Information

Inventory Boundary	Community / District Information
Name of Community / District	Capital Regional District
Municipality / Electoral Area	• District of Central Saanich • City of Colwood • Township of Esquimalt • District of Highlands • Juan de Fuca Electoral Area • City of Langford • District of Metchosin • District of North Saanich • District of Oak Bay • District of Saanich • Salt Spring Island Electoral Area • Town of Sidney • District of Sooke • City of Victoria • Town of View Royal • Southern Gulf Islands Electoral Area
Country	Canada
Inventory Year	2018
Geographic Boundary	See Figure 2
Land Area (km^2)	2,310.18
Resident population	405,983
GDP (US$)	Unknown at time of reporting
Composition of Economy	Government
Climate	Temperate, warm summer

3.2 TEMPORAL BOUNDARIES

3.2.1 2007 Base Year

Federal and provincial initiatives and legislation have been implemented to support local governments in acting to advance energy efficiency, promote energy conservation, and reduce GHG emissions. The CRD and its local governments have already been working to address sustainability and climate change through several initiatives over the past decade. The CRD's Regional Growth Strategy set a regional GHG reduction target) of 61% by 2038 (below 2007 levels).

To maintain consistency with the current reporting year, and as required by the GPC Protocol, the CRD has updated its 2007 GHG base year GHG emissions profile to be consistent with the GPC Protocol BASIC+ reporting level. Between the current reporting year and the 2007 base year, there were no boundary changes (e.g., annexes) and thus no additional modifications were made. All methods and assumptions, adjusted for the 2007 reporting year, are the same.

Table 5 summaries the original 2007 and the updated 2007 base year.

Table 5 Original And Updated BASIC+ Base Year

Aspect	Quantification Protocol	2007 GHG Base Year (tCO_2e)
Original Base Year	CEEI Protocol	1,563,000
Updated Base Year	GPC Protocol BASIC+	1,715,814

3.2.2 GHG Reduction Target

Recognizing the role that the CRD plays in achieving a significant and immediate reduction in global GHG emissions, the CRD has set a regional GHG reduction target of 61% (from 2007 levels) by 2038. With the CRD's 2007 base year GHG emissions being 1,715,814 tCO_2e, a 39% reduction would require a reduction of approximately 669,168 tCO_2e. On a per capita basis, this amounts to reducing emissions from approximately 4.2 tCO_2e per person in 2018 to 2.6 tCO_2e per person by 2038.

In February 2019, the CRD declared a climate emergency and committed to regional carbon neutrality.

3.2.3 2018 GHG Boundary

This inventory covers all GHG emissions for the 2018 reporting year. Where 2018 data was not available, the most recent year's data have been used, and the timescale noted accordingly. These are as follows:

- **Global Warming Potentials (GWP)**. The BC government is currently applying GWPs from the fourth IPCC report in light of the fact that there are updated GWPs in available in the fifth IPCC report. On this basis, the CRD is applying GWPs from the fourth IPCC report.
- **Stationary Energy: Residential, Commercial and Institutional Buildings**. Propane, and wood GHG emissions were estimated using linear regression methods. The data used in the estimates included historical propane and wood energy data published in the 2007, 2010 and 2012 CEEIs, and heating degree days (HDD) published by Environment Canada. This approach was also applied to the estimate of heating oil for all local governments, except the City of Victoria and District of Saanich. For the District of Saanich and the City of Victoria, heating oil GHG emissions were estimated based on the number of known tanks, average heated floor areas and fuel volume intensity.
- **Stationary Energy: Fugitives**. Fortis BC provided total fugitive emissions for the 2018 reporting year at the CRD level. Since no historical numbers were provided, the 2018 value was applied to the 2007 base year as well.

- **Transportation: On-Road**. The Province of BC provided Insurance Corporation of BC (ICBC) vehicle registration data from April 1, 2018 – March 31, 2019. When compared to local government population trends, there appears to be a high degree of uncertainty as to the accuracy of the 2018 vehicle registration data in terms of total registered vehicles. Without having reliable historical (e.g. 2011-2017) and current (2019) data to compare this dataset against, the reasonableness of the data was too uncertain to be applied in the estimation of GHG emissions for the 2018 reporting year. Therefore, to estimate on-road energy and GHG emissions for the 2018 reporting year, 2010 vehicle populations were grown in proportion to the reported changes in local government populations. Each of the local government vehicle profiles were then adjusted to match the proportion of vehicle classes reported in the 2018 ICBC data.
- **Transportation: Aviation.** 2018 aviation GHG emissions were estimated using 2015 aircraft flight profiles (the last available data), and the total number of aircraft movements reported in 2018.
- **Transportation: Waterborne Recreational Watercraft.** GHG emissions from recreational watercraft and US/Canada ferries were estimated based on a publicly available year 2000 study for the Victoria, Vancouver, and Washington harbors.
- **Transportation: Cruise Ships.** The Greater Victoria Harbour Authority (GVHA) reported on cruise ship emissions for the 2010 and 2018 reporting years but did not provide an estimate for 2007. As a result, the 2010 GHG emissions estimate and number of cruise ship visits to Ogden Point was used to create a proxy to estimate 2007 cruise ship emissions. The GVHA reported 163 visits in 2007.
- **Waste: Solid Waste.** To quantify GHG emissions from the Hartland Landfill, the CRD utilized the waste-in-place (WIP) method which is accepted under the GPC Protocol. The WIP assigns landfill emissions based on total waste deposited during that year. It counts GHGs emitted that year, regardless of when the waste was disposed. Except for the City of Victoria, who claims 31% of the CRD's landfill GHG emission, the remaining landfill GHG emissions were allocated to each local government on a per capita basis. Using this allocation method, the CRD members may over, or underestimate associated solid waste GHG emissions as the current year landfill GHG emissions are based upon cumulative waste over time, and each member may have contributed more waste in past years than the current year (and vice versa).
- **AFOLU: Aggregate Sources And Non-CO_2 Emission Sources On Land.** These emissions are based on the 2019 NIR as prepared by ECCC and the total area of farmland BC in 2016 as reported by Statistics Canada. These GHG emissions were assigned to each local government on a per hectare (ha) of cropland basis.

  AFOLU: Land-Use. The land cover change analysis requires a consistent land-use category attribution and spatial resolution for the 2007 base and 2018 reporting years. For the land use change analysis, land cover data was available for the 2007, 2011 and 2017 years for only part of the CRD. There was limited land-use datasets for the Juan de Fuca, Salt Spring Island and Gulf Islands and this data was only available for 2007 and 2011. Unfortunately, no more recent or higher quality data source was available to represent the land cover consistently for all three years. Furthermore, since annual data was not available, the change between land cover data years (2007-2011, 2011-2017) was averaged and may not represent actual changes in each year.

3.3 GHG EMISSION SOURCES AND SCOPES

The following table summarizes the CRD's GHG emissions by source and GHG emission scope.

Table 6 Summary of Emissions Scope and GPC Protocol Reporting Sector

GHG Emissions Scope	GPC Protocol Reporting Sector
Scope 1	The GHG emissions occurring from sources located within the CRD's limits: • Stationary fuel combustion: – Residential buildings – Agriculture, forestry, and fishing activities – Commercial and institutional buildings, and facilities – Energy industries – Fugitive emissions from oil and natural gas systems • Transportation: – On-road: In Boundary – Waterborne Navigation – Off-road • Waste: – Solid waste disposal – Biological treatment of solid waste – Wastewater treatment and discharge • Industrial processes and product use (IPPU): – Product use • Agriculture, Forestry, and Other Land Use (AFOLU): – Land-use – Livestock – Aggregate sources and non-CO_2 emission sources on land
Scope 2	The GHG emissions occurring from using grid-supplied electricity, heating and/or cooling within the CRD's boundary: • Stationary fuel combustion: – Residential buildings – Commercial and institutional buildings and facilities • Transportation: – On-road
Scope 3	Other GHG emissions occurring outside of the CRD's limits as a result of the CRD's activities: • Stationary Energy: – Transmission, Distribution, and Line Losses • Transportation: – Aviation – On-Road: Transboundary – Waterborne Navigation

3.4 GHG REPORTING

Where relevant, the GPC Protocol recommends using methodologies that align with the 2006 IPCC Guidelines for National Greenhouse Gas Inventories. The GHG inventory is required to include all seven Kyoto Protocol GHGs occurring within the geographic boundary of a community. These include:

- Carbon Dioxide (CO_2)
- Methane (CH_4)
- Nitrous oxide (N_2O)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulfur hexafluoride (SF_6)
- Nitrogen trifluoride (NF_3)

Each GHG listed above has a different global warming potential (GWP) due to its ability to absorb and re-emit infrared radiation. This chemical property is recognized by the GWP set out by the IPCC Fourth Assessment Report. A larger GWP value means the substance has a greater affinity to absorb and re-emit infrared radiation. The GWP of these GHGs are CO_2 = 1.0, CH_4 = 25, N_2O = 298 (IPCC, 2006).

Total GHG emissions are normally reported as CO_2e, whereby emissions of each of the GHGs are multiplied by their GWP and are reported as tonnes of CO_2e.

The GHG inventory results following the GPC Protocol reporting table format is presented in Section 5.0. The GPC Protocol reporting format is presented in Table 7 below which also indicates the reporting level (BASIC / BASIC+) for each source.

Table 7 GPC Protocol Summary Table

GPC Protocol Reference Number	Reporting Level	Emissions Scope	GHG Emissions Source
I	**Stationary Energy Sources**		
I.1	**Residential Buildings**		
I.1.1	BASIC	1	Emissions from in-boundary fuel combustion
I.1.2	BASIC	2	Emissions from consumption of grid-supplied energy
I.1.3	BASIC+	3	Transmission and distribution losses from grid-supplied energy
I.2	**Commercial and Institutional Buildings/Facilities**		
I.2.1	BASIC	1	Emissions from in-boundary fuel combustion
I.2.2	BASIC	2	Emissions from consumption of grid-supplied energy
I.2.3	BASIC+	3	Transmission and distribution losses from grid-supplied energy
I.3	**Manufacturing Industry and Construction**		

Table 7 GPC Protocol Summary Table

GPC Protocol Reference Number	Reporting Level	Emissions Scope	GHG Emissions Source
I.3.1	BASIC	1	Emissions from in-boundary fuel combustion
I.3.2	BASIC	2	Emissions from consumption of grid-supplied energy
I.3.3	BASIC+	3	Transmission and distribution losses from grid-supplied energy
I.4	**Energy Industries**		
I.4.1	BASIC	1	Emissions from in-boundary production of energy used in auxiliary operations
I.4.3	BASIC+	3	Transmission and distribution losses from grid-supplied energy
I.5	**Agriculture, Forestry, and Fishing Activities**		
I.5.1	BASIC	1	Emissions from in-boundary fuel combustion
I.5.2	BASIC	2	Emissions from consumption of grid-supplied energy
I.5.3	BASIC+	3	Transmission and distribution losses from grid-supplied energy
I.7	**Fugitive Emissions from Mining, Processing, Storage, And Transportation of Coal**		
I.7.1	BASIC	1	In-boundary fugitive emissions
I.8	**Fugitive Emissions from Oil and Natural Gas Systems**		
I.8.1	BASIC	1	In-boundary fugitive emissions
II	**Transportation**		
II.1	**On-road Transportation**		
II.1.1	BASIC	1	Emissions from in-boundary transport
II.1.2	BASIC	2	Emissions from consumption of grid-supplied energy
II.1.3	BASIC+	3	Emissions from transboundary journeys
II.2	**Railways**		
II.2.1	BASIC	1	Emissions from in-boundary transport
II.2.2	BASIC	2	Emissions from consumption of grid-supplied energy
II.2.3	BASIC+	3	Emissions from transboundary journeys
II.3	**Waterborne Navigation**		
II.3.1	BASIC	1	Emissions from in-boundary transport
II.3.2	BASIC	2	Emissions from consumption of grid-supplied energy
II.3.3	BASIC	3	Emissions from transboundary journeys
II.4	**Aviation**		
II.4.1	BASIC	1	Emissions from in-boundary transport
II.4.2	BASIC	2	Emissions from consumption of grid-supplied energy
II.4.3	BASIC+	3	Emissions from transboundary journeys
II.5	**Off-road**		

Table 7 GPC Protocol Summary Table

GPC Protocol Reference Number	Reporting Level	Emissions Scope	GHG Emissions Source
II.5.1	BASIC	1	Emissions from in-boundary transport
II.5.2	BASIC	2	Emissions from consumption of grid-supplied energy
III	**Waste**		
III.1	**Solid Waste Disposal**		
III.1.1	BASIC	1	Emissions from waste generated and treated within the Community
III.1.2	BASIC	3	Emissions from waste generated within but treated outside of the Community
III.2	**Biological Treatment of Waste**		
III.2.1	BASIC	1	Emissions from waste generated and treated within the Community
III.2.2	BASIC	3	Emissions from waste generated within but treated outside of the Community
III.3	**Incineration and Open Burning**		
III.3.1	BASIC	1	Emissions from waste generated and treated within the Community
III.3.2	BASIC	3	Emissions from waste generated within but treated outside of the Community
III.4	**Wastewater Treatment and Discharge**		
III.4.1	BASIC	1	Emissions from wastewater generated and treated within the Community
III.4.2	BASIC	3	Emissions from wastewater generated within but treated outside of the Community
IV	**Industrial Processes and Product Use (IPPU)**		
IV.1	BASIC+	1	In-boundary emissions from industrial processes
IV.2	BASIC+	1	In-boundary emissions from product use
V	**Agriculture, Forestry, and Other Land Use (AFOLU)**		
V.1	BASIC+	1	In-boundary emissions from livestock
V.1	BASIC+	1	In-boundary emissions from land
V.1	BASIC+	1	In-boundary emissions from other agriculture
VI	**Other Scope 3 Emissions**		
VI.1	BASIC / BASIC+	3	Other indirect emissions

4.0 GHG METHODOLOGIES BY SOURCE CATEGORY

The following sections describe the reporting source category, assumptions, activity data applied, and quantification methodology. The results of the analysis are presented in Section 5.0.

4.1 STATIONARY ENERGY

4.1.1 Overview

Stationery energy sources are one of the largest contributors to the CRD's GHG emissions. For the District, the Stationary Energy Sector encompasses the following GHG emissions scopes and Sub-Sectors:

- Scope 1 Emissions:
  - Residential buildings
  - Agriculture, forestry, and fishing activities
  - Commercial and institutional buildings, and facilities
  - Energy industries
  - Fugitive emissions from oil and natural gas systems
- Scope 2 Emissions:
  - Emissions from the consumption of grid-supplied electricity, steam, heating, and cooling.
- Scope 3 Emissions:
  - Transmission and distribution losses of electricity, steam, heating, and cooling.

There are GHG emissions from construction of buildings and infrastructure as the CRD region grows and changes. However, these GHG emissions have not been quantified due to a lack of available data. Environment Canada does estimate BC GHG emissions for manufacturing industries, mining and construction, but these GHG emission sources are not disaggregated and cannot reasonably be applied to the CRD (there is no mining and limited manufacturing activities). As a result, the notation "Not Estimated (NE)" is reported.

4.1.2 Scope 2: Market Based Method

As per the GPC Protocol, cities can report on Scope 2 GHG emissions using either the market-based, or the location-based method. A market-based method utilizes utility-specific grid emission intensity factor, whereas a location-based method uses a regional or Provincial average grid emission intensity factor. At present, the fuel mix and GHG emissions data relative to the CRD's energy consumption is not available. As such, the CRD is defaulting to the BC Provincial electricity grid consumption intensity factor of 0.01067 tCO_2e/MWh reported by the BC Government in the 2019 B.C. Best Practices Methodology For Quantifying Greenhouse Gas Emissions document.

4.1.3 Activity Data

BC Hydro and Fortis BC provided the Province of BC electricity and natural gas consumption data in MWh and GJ, respectively. Based on the utility provider descriptions of the data, each is categorized as follows:

- Residential Buildings based on the BC Hydro and Fortis BC descriptor: “Residential”
- Commercial and Institutional Buildings/Facilities based on BC Hydro and Fortis BC descriptors: “Commercial”, and “CSMI”

The Province developed 2007, 2010 and 2012 residential fuel oil, propane and wood GHG energy use estimates from the number and type of dwellings and the average dwelling consumption by authority and region from the BC Hydro Conservation Potential Review. This data was used to estimate the reporting year GHG emissions for all CRD members except for the District of Saanich and the City of Victoria who provided fuel oil estimates for residential and commercial buildings.

Fortis BC provided the fugitive emission estimate.

The CRD provided landfill gas energy generation data from the Hartland landfill.

Applicable, off-road GHG emissions included in the Stationary Energy Sector are based on the 2020 NIR as prepared by Environment and Climate Change Canada. These emissions are pro-rated to the CRD on a per capita basis.

4.1.4 Assumptions and Disclosures

The following assumptions were made in the calculation of the 2018 GHG emissions:

- Prior to releasing the electricity and natural gas consumption data, the Province completes a series of quality assurance and control checks which has resulted in the re-allocation of energy between local governments. This data is then published on the Province’s website. When the published 2007-2018 natural gas data was trended, several unexplained data anomalies and trends were identified for several local governments in the CRD. As these data anomalies and trends could not readily be explained, the raw natural gas data sets were acquired from FortisBC, reviewed and compared to the published data. In the 2007 and 2010 reporting years, the published data was under reporting natural gas volumes by upwards of 17% at the CRD level and had several large allocations between the City of Victoria and other local governments in 2012. Based on the issues with the published data, and on the basis the annual raw natural gas consumption trends align with the reported 2018 consumption data and align with historical raw data provided to the City of Victoria and the District of Saanich for their energy and GHG emissions inventories, the raw FortisBC dataset was used to estimate GHG emissions.
- A similar issue was noted for the Juan de Fuca electoral area and electricity data for the 2007, 2010 and 2012 reporting years (i.e., the under reporting of energy consumption) in the published data. As such, the raw electricity data from BC Hydro was used to estimate GHG emissions.

- BC Hydro estimates that the combined energy losses- transmission and distribution- to be approximately 6.28%. This value was used to calculate the Scope 3 emissions for each Stationary Energy Sub-Sector. It is assumed that this is accurate.
- Fortis BC provided total fugitive emissions for the 2018 reporting year at the CRD level. Since no historical numbers were provided, the 2018 value was applied to the 2007 base year as well.
- Propane and wood GHG emissions were estimated using linear regression methods. The data used in the estimate included historical propane and wood energy data published in the 2007, 2010 and 2012 CEEIs, and heating degree days (HDD) published by Environment Canada.
- Fuel oil consumption values for the District of Saanich and the City of Victoria were derived by each local government and provided to the CRD. For the remaining local governments, fuel oi values were estimated using linear regression methods. The data used in the estimate included historical fuel oil data published in the 2007, 2010 and 2012 CEEIs, and heating degree days (HDD) published by Environment Canada.

4.1.5 Calculation Methodology

The Province of BC developed residential fuel oil, propane and wood GHG energy use estimates for the 2007, 2010 and 2012 reporting years, using the number and type of dwellings and the average dwelling consumption by authority and region contained in the BC Hydro Conservation Potential Review. Actual electricity and natural gas consumption values were subtracted from the total energy use, with the remainder assumed to be heating oil, propane, or wood. To estimate the 2018 propane, fuel oil and wood energy use, historical 2007, 2010 and 2012 values and the number of heating degree days (HDD) were linearly regressed to estimate future propane and wood energy use using reporting year HDD values. these values were prorated to each local government based on the 2012 consumption estimates. This resulted in the development of the following equations:

- Propane (L) = 163,133 + 87.38 * HDD
- Wood (GJ) = 557,864 + 191.39 * HDD
- Fuel Oil (GJ) = 1,728,690 + 127.49 * HDD

To calculate GHG emissions from electricity, natural gas, heating oil, propane, and wood, the total net annual energy values (where applicable, less transmission, distribution, and line losses of 7.5%) were multiplied by applicable emissions factors. These values were then multiplied by the pollutant's GWP to give total CO_2e emissions in tonnes.

These quantification methods are captured as follows:

Energy $_{\text{Stationary Energy – Electricity}}$ = *Electricity * (1 – Line Loss (%)*

Energy $_{\text{Stationary Energy – Transmission, Distribution, and line Losses}}$ = *Electricity * Line Loss (%)*

Emissions $_{\text{Stationary Energy – Electricity}}$ = *Fuel (MWh) * EF_{tCO2e}*

$$Emissions_{Stationary\ Energy\ –\ Natural\ Gas} = (Fuel\ (GJ) * EF_{CO2}) + (Fuel\ (GJ) * EF_{CH4} * GWP_{CH4}) + (Fuel\ (GJ) * EF_{N2O} * GWP_{N2O})$$

$$Emissions_{Stationary\ Energy\ –\ Propane} = (Fuel\ (GJ) * EF_{CO2}) + (Fuel\ (GJ) * EF_{CH4} * GWP_{CH4}) + (Fuel\ (GJ) * EF_{N2O} * GWP_{N2O})$$

$$Emissions_{Stationary\ Energy\ –\ Wood} = (Fuel\ (GJ) * EF_{CO2}) + (Fuel\ (GJ) * EF_{CH4} * GWP_{CH4}) + (Fuel\ (GJ) * EF_{N2O} * GWP_{N2O})$$

$$Emissions_{Stationary\ Energy\ –\ Heating\ Oil} = (Fuel\ (GJ) * EF_{CO2}) + (Fuel\ (GJ) * EF_{CH4} * GWP_{CH4}) + (Fuel\ (GJ) * EF_{N2O} * GWP_{N2O})$$

The emission factors used in the 2018 reporting year are from the 2020 NIR. These are summarized in Table 8.

Table 8 Stationary Energy GHG Emission Factors

Emission Factor	Units	CO_2	CH_4	N_2O	tCO_2e
Electricity (BC Hydro)	tCO_2e / MWh				0.0106700
Natural Gas	tonne CO_2e / m^3	0.0019260	0.0000000	0.0000000	0.0019374
Propane	tonne CO_2e / L	0.0015150	0.0000000	0.0000001	0.0015478
Heating Oil	tonne CO_2e / GJ	0.0681200	0.0000007	0.0000008	0.0683759
Wood	tonne CO2e / kg	-	0.0000150	0.0000002	0.0004227

4.2 TRANSPORTATION

4.2.1 Overview

Transportation covers all GHG emissions from combustion of fuels in journeys by on-road, railways, waterborne navigation, aviation, and off-road. GHG emissions are produced directly by the combustion of fuel, and indirectly using grid-supplied electricity. For the CRD, the Transportation Sector encompasses the following GHG emissions scopes and Sub-Sectors:

- Scope 1 Emissions:
  - On-road: In Boundary
  - Waterborne
  - Aviation
  - Off-road
- Scope 2 Emissions:
  - Emissions from the consumption of grid-supplied electricity.
- Scope 3 Emissions:
  - On-road: Transboundary
  - Waterborne
  - Aviation
  - Off-road

4.2.2 Activity Data

The Province of BC provided 2007, 2010 and 2018 ICBC vehicle registration data.

BC Transit provided total diesel and gasoline fuel use. This data was used to estimate GHG emissions from busses serving the CRD.

The 2017 CRD Origin Destination Travel Survey was used to estimate on-road in-boundary and transboundary split for registered vehicles and busses. The CRD Origin Destination Travel Survey is based on travel patterns observed in the Capital Regional District (CRD) level.

Aviation GHG emissions from the Victoria International Airport were estimated using 2015 aircraft flight profiles, and the total number of aircraft movements reported in 2018. These data sets were provided by the Victoria International Airport.

Victoria harbour aviation GHG emissions were estimated using Victoria harbor aircraft movement statistics, estimated taxi times, and estimated fuel use for the DHC-6 Twin Otter type of plane. This data was taken from Statistics Canada.

Marine watercraft GHG emissions were estimated using published BC Ferries fuel statistics. GHG emissions from the Coho Ferry, the Victoria Clipper Ferry, personal and commercial watercraft, were estimated based on a Study entitled “Marine Vessel Air Emissions in BC and Washington State Outside of the GVRD and FVRD for the Year 2000”. The Transport Canada Vessel Registration System provided the total number of registered waterborne vehicles for the reporting year.

The Greater Victoria Harbour Authority provided an estimate of cruise ship emissions.

Other off-road transportation emissions are based on the 2020 NIR as prepared by Environment and Climate Change Canada.

4.2.3 Assumptions and Disclosures

The following assumptions were made in the calculation of the Transportation Sector GHG emissions:

- The Insurance Corporation of BC (ICBC) provided the number of vehicle registrations from April 1, 2006 – March 31, 2010 to the Province of BC. This data was checked and processed by the Province and used in the historical CEEI inventories. This same data set is used to estimate the GHG emissions for 2007, 2010 and 2012 inventories and forms the basis of the 2018 estimate. The 2012 vehicle registration data, although available, was not used due to concerns around data quality. This is the same reason the Province of BC decided to remove the transportation data from the 2012 CEEIs. As the summary of vehicle registrations is not based on the calendar year, the local government vehicle profiles may not accurately reflect the actual vehicle profiles for each reporting year.

- The Insurance Corporation of BC (ICBC) provided the number of registrations from April 1, 2018 – March 31, 2019 to the Province of BC. When compared to local government population trends, there appears to be a high degree of uncertainty as to the accuracy of the 2018 vehicle registration data in terms of total registered vehicles. Without having historical (e.g. 2011-2017) and current (2019) data to compare this dataset against, the reasonableness of the data was too uncertain to be applied in the estimation of GHG emissions for the 2018 reporting year. To estimate on-road energy and GHG emissions for the 2018 reporting year, the 2010 vehicle populations were grown in proportion to the reported changes in local government populations. Each of the local government vehicle profiles were then adjusted to match the proportion of vehicle classes reported in the 2018 ICBC data.
- In cases where vehicle registration counts were 10 or less, the Province assigned a value of "<10" rather than report the actual number. In these cases, the inventory assumes there was 10 vehicles of that particular classification. This is likely to result in an over-estimation of GHG emissions, but it will be immaterial to the overall GHG inventory.
- Vehicle fuel consumption rates and Vehicle Kilometer Travelled (VKT) were taken from the activity data summary for British Columbia on-road transportation from the 2018 National Inventory Report (1990-2018) as prepared by Environment Canada. Based on the clear diesel and clear gasoline consumption values reported by the Province of BC for the Victoria region, the VKT and fuel efficiency values are reasonable and result in a similar estimate of fuel consumption for the Region.
- Gasoline and diesel GHG emissions from BC Transit busses are pro-rated to the CRD based on the proportion of population in the CRD relative to the Province of BC. A more accurate estimation method would be to prorate fuel use based on total bus service kilometers in the CRD. However, this data is not available, and thus the method applied provides the best estimate at the time of reporting.
- It is assumed that the 2015 aircraft flight profiles at the Victoria International Airport are representative of the 2018 reporting year.
- Statistics Canada stopped collecting Victoria Harbor aircraft movement data in 2016. To estimate 2018 marine aviation GHG emissions, the 2016 Victoria data was applied and adjusted using the change in aircraft traffic between the 2016 and 2018 reporting years at the Victoria International Airport. It is assumed that the activity at both airports would be corelated, but not causational.
- The aviation GHG emissions are prorated based on the total Victoria population relative to the CRD population.
- As there is currently no publicly available energy or GHG related information on the operation of the Coho and the Victoria Clipper Ferries, it was assumed that the GHG emissions for these ferries calculated in the Study entitled "Marine Vessel Air Emissions in BC and Washington State Outside of the Greater Victoria Regional District (GVRD) and FVRD for the Year 2000".
- The Greater Victoria Harbour Authority (GVHA) reported on cruise ship emissions for the 2010 and 2018 reporting years but did not provide an estimate for 2007. As a result, the 2010 GHG emissions estimate and number of cruise ship visits to Ogden Point was used to create a proxy to estimate 2007 cruise ship emissions. The GVHA reported 163 visits in 2007. It is assumed these estimations of GHG emissions are reasonable.
- The Transport Canada Vessel Registration System provided the total number of registered waterborne vehicles for the reporting year; however, it does not provide any detail on the type, size, use, and owner of the watercraft. It was therefore assumed that the watercraft would have been similar to those in the referenced study.

- No railway GHG emissions are occurring in the CRD.
- The off-road transportation emissions are based on the 2020 NIR as prepared by Environment and Climate Change Canada. This is deemed to be the best available data.

4.2.4 Calculation Methodology

4.2.4.1 On-Road

The GPC Protocol identifies several methods for determining on-road emissions. The vehicle kilometers travelled (VKT) methodology and fuel sales methods were utilized to estimate the GHG emissions from on-road transportation (Scope 1) and transboundary transportation (Scope 3). The VKT uses the number and type of vehicles registered in a geopolitical boundary, the estimated fuel consumption rate of individual vehicles, and an estimate of the annual vehicle kilometres traveled (VKT) by various vehicle classes. ICBC provided the number of registered vehicles in the CRD by style and by fuel type for 2018. To estimate the split between on-road in-boundary and transboundary traffic, data from the 2017 CRD Origin Destination Survey was applied. The results of the survey as it applies to the CRD is presented in Table 9.

Table 9 CRD On-Road In-Boundary/Transboundary Split

Aspect	By Vehicle
Estimated proportion of on-road in-boundary travel	99.1%
Estimated proportion of on-road transboundary travel	0.9%

The Province of BC screened the 2007, 2010, 2012 and 2018 ICBC datasets to pull out only CRD registered vehicles, and to eliminate duplicates. Any changes to a vehicle's insurance policy in a reporting year can create another occurrence of the vehicle in the same dataset. As such, if a vehicle record included a change of location during a quarter, the vehicle was assigned to the location where it was insured for the greatest portion of the quarter. The objective of this screening is to increase the accuracy of the GHG estimate. Once complete the Province of BC, identified vehicle characteristics using Identification Number (VIN) and other data fields to assign a fuel class and vehicle sector. This data was provided to the CRD to estimate energy and GHG emissions.

To quantify on-road and transboundary GHG emissions, the following steps were taken:

1. Change any vehicle registration counts with the reference of "<10" to 10.
2. Grow the 2010 local government vehicle populations based on population changes at the local government level.
3. Use the 2018 ICBC data to derive vehicle profiles (e.g. 37% LDT, 36% LDT, etc.) for each local government.
4. Apply these values to the grown 2010 data to derive 2018 vehicle populations for each local government.
5. Assign estimated NRCan vehicle fuel consumption rates and estimated VKT to each vehicle class (Table 10).

6. Estimate total fuel use by vehicle classification.
7. Summate and allocate estimated fuel use, by vehicle class using the applicable in-boundary and transboundary split.
8. Pro-rate the gasoline and diesel fuel use from busses.
9. Summate and allocate estimated bus fuel use using the applicable in-boundary and transboundary split.
10. Compare fuel estimated fuel volumes to the regional fuel sales volumes reported by the CRD. Adjust the VKTs as needed to make sure that the fuel estimate is at least above the fuel sales volumes reported in the region.

Table 10 Estimated VKT And Fuel Efficiencies by Vehicle Class For Reporting Year

Vehicle Classification	Estimated VKT / Year	Estimated Fuel Efficiency (L/100 km)
Diesel-HDV	27,972	45.6
Diesel-LDT	14,351	11.8
Diesel-LDV	16,384	9.2
Gasoline-HDV	10,883	54.1
Gasoline-Hybrid-LDT	11,717	12.2
Gasoline-Hybrid-LDV	12,840	9.0
Gasoline-LDT	11,717	12.2
Gasoline-LDV	12,840	9.0
Motorcycle - Non catalyst	1,973	9.9
Propane-LDT	29,237	13.1
Electric-LDV	19,733	20.0
Electric-LDT	19,733	20.0

Table 11 Total Registered Vehicles & Estimated Fuel Use For Reporting Year

Vehicle Classification	Total Estimated Registered Vehicles	Total Estimated Fuel Use	Units
Diesel-HDV	2,621	35,049,591	Liters (L)
Diesel-LDT	8,950	15,183,037	Liters (L)
Diesel-LDV	2,271	3,411,652	Liters (L)
Electric-LDV	1,571	6,201,969	kWh
Electric-LDT	106	420,283	kWh
Gasoline-HDV	2,485	14,640,078	Liters (L)
Gasoline-Hybrid-LDT	1,072	1,527,195	Liters (L)
Gasoline-Hybrid-LDV	3,273	3,790,489	Liters (L)
Gasoline-LDT	121,631	173,279,769	Liters (L)

Vehicle Classification	Total Estimated Registered Vehicles	Total Estimated Fuel Use	Units
Gasoline-LDV	120,615	139,685,291	Liters (L)
Motorcycle - Non catalyst	4,523	885,376	Liters (L)
Propane-LDT	76	291,534	Liters (L)
Total	**269,196**	**N/A**	**N/A**

Once the fuels were allocated amongst the vehicle classes and sectors, the GHG emissions were calculated accordingly. The GHG quantification method is captured, for all fuel types, is as follows:

$$\textbf{Emissions}_{\textbf{On-road}} = \text{In-Boundary Split \%} * ((\text{Vol. Fuel} * EF_{CO2}) + (\text{Vol. Fuel} * EF_{CH4} * GWP_{CH4}) + (\text{Vol. Fuel} * EF_{N2O} * GWP_{N2O}))$$

$$\textbf{Emissions}_{\textbf{Transboundary}} = \text{Transboundary Split \%} * ((\text{Vol. Fuel} * EF_{CO2}) + (\text{Vol. Fuel} * EF_{CH4} * GWP_{CH4}) + (\text{Vol. Fuel} * EF_{N2O} * GWP_{N2O}))$$

The emission factors used in the reporting year GHG inventory are from the 2020 NIR. These are summarized in Table 12.

Table 12 Vehicle GHG Emission Factors

Vehicle Class	Units	CO_2	CH_4	N_2O	tCO_2e
Electricity (BC Hydro)	tonne / MWh	-	-	-	0.0106700
Diesel-LDV	tonne / L	0.0026810	0.0000001	0.0000002	0.0027478
Diesel-LDT	tonne / L	0.0026810	0.0000001	0.0000002	0.0027483
Diesel-HDV	tonne / L	0.0026810	0.0000001	0.0000002	0.0027287
Diesel-ORVE	tonne / L	0.0026810	0.0000001	0.0000000	0.0026894
Gasoline-LDV	tonne / L	0.0023070	0.0000001	0.0000002	0.0023761
Gasoline-LDT	tonne / L	0.0023070	0.0000001	0.0000002	0.0023761
Gasoline-HDV	tonne / L	0.0023070	0.0000001	0.0000002	0.0023683
Gasoline-HYBRID-LDV	tonne / L	0.0027380	0.0000130	0.0000005	0.0032031
Gasoline-HYBRID-LDT	tonne / L	0.0027380	0.0000130	0.0000005	0.0032031
Gasoline-ORVE	tonne / L	0.0027380	0.0000130	0.0000005	0.0032031
Propane-LDV	tonne / L	0.0015150	0.0000006	0.0000000	0.0015393
Propane-LDT	tonne / L	0.0015150	0.0000006	0.0000000	0.0015393
Propane-HDV	tonne / L	0.0015150	0.0000006	0.0000000	0.0015393
Natural Gas-LDV	tonne / kg	0.0000019	0.0090000	0.0000600	0.2428819
Natural Gas-LDT	tonne / kg	0.0000019	0.0090000	0.0000600	0.2428819
Natural Gas-HDV	tonne / kg	0.0000019	0.0090000	0.0000600	0.2428819

Vehicle Class	Units	CO_2	CH_4	N_2O	tCO_2e
Natural Gas-ORVE	tonne / kg	0.0000019	0.0090000	0.0000600	0.2428819
Motorcycle - Non-catalyst	tonne / L	0.0023160	0.0000023	0.0000000	0.0023878

4.2.4.2 Aviation: Victoria International Airport

The Victoria International Airport (VIA) estimated its 2015 airplane GHG emissions following the ACI ACERT standard. This includes GHG emissions from aircraft and GHG emissions from auxiliary power units (APU). APUs provides electricity to the aircraft prior to the engine start up. Within the ACERT model, it is assumed all aircraft have APUs and the duration of the APU operation (of five minutes per aircraft) was generically applied to every landing take-off (LTO) cycles. It should also be noted that the EIA has quantified aircraft GHG emissions from planes up to 3,000 ft. to avoid double counting with other airports and cities. This is consistent with the ACERT standard.

The CRD's 2018 aviation emissions estimate is based on the 2015 aircraft flight profiles, which included the estimated landing and takeoff (LTO) and auxiliary power unit (APU) fuel use, and an estimated percentage allocation of total flights to the following aviation class groupings (Table 13). The total reported flight movements for the reporting year (121,152) provided by the VIA and the aircraft flight profile data was used to estimate aviation GHG emissions for the reporting year at the VIA.

Table 13 Aircraft Type, Estimated Percentage of Total Reported Movements, And Estimated Fuel Use

Aviation Class	Aircraft Type	Estimated Percentage of Annual Movements	Estimated LTO Fuel Use by Aircraft Type (kg)	Estimated APU Fuel Use by Aircraft Type (kg/min)
Jet	Large: 2-aisle, long-haul	0.01%	1,853	4.00
	Medium: 2-aisle, medium-haul	0.01%	1,321	4.00
	Small: 1-aisle, small/medium haul	7.95%	565	1.78
	Regional: 1-aisle, short-haul	0.01%	315	1.78
	Business: 2-eng business jets	0.01%	41	1.78
Turboprop	Turboprop (all engines)	22.29%	46	1.78
Piston	Piston (all engines)	66.30%	41	0.00
Helicopter	Helicopter small (1 engine/turbine)	1.72%	13	0.00
	Helicopter large (2 engine/turbine)	1.72%	8	0.00

Calculating fuel use for each aviation class applied the following equation:

Fuel Use $_{Per\ Aviation\ Class}$ **=** *Number of Aircraft Movements * (LTO Fuel Use + (APU Fuel Use * 15 minutes))*

The GHG quantification method, that was applied to each aviation class, is as follows:

Emissions $_{Per\ Aviation\ Class}$ = *(Vol. Fuel * Aviation Class* EF_{CO2}*) + (Vol. Fuel * Aviation Class* EF_{CH4} * GWP_{CH4}*) + (Vol. Fuel * Aviation Class* EF_{N2O} * GWP_{N2O}*))*

The ACERT GHG calculator used by the VIA utilized emission factors from the 2020 NIR. Actual airplane emission factors are from the International Civil Aviation Organization (ICAO) GHG database. These are summarized in Table 14.

These GHG emissions were reported in the Scope 3 category as directed by the GPC Protocol.

Table 14 Aviation GHG Emission Factors

Airplane Type	Units	CO_2	CH_4	N_2O	tCO_2e
Jet	tCO_2e/kg fuel	0.0031380	0.0000001	0.0000003	0.0032254
Turbo Propeller	tCO_2e/kg fuel	0.0031380	0.0000001	0.0000003	0.0032254
Piston	tCO_2e/kg fuel	0.0032530	0.0000031	0.0000003	0.0034154
Helicopter	tCO_2e/kg fuel	0.0031380	0.0000001	0.0000003	0.0032254

4.2.4.3 Aviation: Victoria Harbour

Victoria harbor aviation emissions were estimated using 2016 NAV Canada airplane movement statistics, estimated taxi times, and estimated fuel use for the DHC-6 Twin Otter type of plane (Table 15).

Table 15 Aircraft Type, Estimated Percentage of Total Reported Movements, And Estimated Fuel Use

Aviation Class	Aircraft Type	Estimated Percentage of Annual Movements	Estimated LTO Fuel Use by Aircraft Type (kg)	Estimated APU Fuel Use by Aircraft Type (kg/min)
Turboprop	DHC-6 Twin Otter	100%	56	0.00

Statistics Canada stopped collecting Victoria Harbor aircraft movement data in 2016. To estimate 2018 Victoria harbor aviation GHG emissions, the 2016 data was applied and adjusted using the change in aircraft traffic between the 2016 and 2018 reporting years at the Victoria International Airport. This resulted in an estimated 29,979 movements.

Calculating aviation fuel use in the Victoria harbor for applied the following equation:

Fuel Use $_{Per\ Aviation\ Class}$ **=** *Number of Aircraft Movements * (LTO Fuel Use + (APU Fuel Use * 15 minutes))*

The GHG quantification method is as follows:

$$\textbf{Emissions}_{\text{Per Aviation Class}} = \text{CRD Population} * ((\text{Vol. Fuel} * \text{Aviation Class } EF_{CO2}) + (\text{Vol. Fuel} * \text{Aviation Class } EF_{CH4} * GWP_{CH4}) + (\text{Vol. Fuel} * \text{Aviation Class } EF_{N2O} * GWP_{N2O}))$$

The airplane emission factors are from the International Civil Aviation Organization (ICAO) GHG database. These are summarized in Table 16.

Table 16 Marine Aviation GHG Emission Factors

Airplane Type	Units	CO_2	CH_4	N_2O	tCO_2e
Turbo Propeller	tCO_2e/kg fuel	0.0031380	0.0000001	0.0000003	0.0032254

These GHG emissions were reported in the Scope 3 category as directed by the GPC Protocol.

4.2.4.4 Waterborne Transportation

4.2.4.4.1 BC Ferries

Marine waterborne transportation emissions encompass GHG emissions from the use of the BC Ferries. GHG emissions from BC Ferries are estimated using total reported fuel use 120,200,000 liters of diesel for the 2018 reporting year, and a provincially derived GHG emissions factor (Table 17).

Table 17 BC Ferries GHG Emission Factors

Aspect	Units	CO_2	CH_4	N_2O	tCO_2e
Ferry (Diesel)	tonne CO_2e / L	0.0025820	0.0000002	0.0000011	0.0029136

As BC Ferries operate outside of the CRD's boundary, the GHG emissions were allocated to Scope 3 based on the proportion of the CRD population relative to the total Vancouver Island and Mainland / Southwest populations.

4.2.4.4.2 Other Watercraft

The GHG emissions from the Coho Ferry, the Victoria Clipper Ferry, and personal and commercial watercraft were estimated based on a publicly available year 2000 study for the Victoria, Vancouver, and Washington harbors and the Transport Canada Vessel Registration System. As there is currently no publicly available energy or GHG related information on the operation of the Coho and the Victoria Clipper Ferries, it was assumed that the GHG emissions for these ferries calculated in the Study entitled "Marine Vessel Air Emissions in BC and Washington State Outside of the GVRD and FVRD for the Year 2000" is still valid for 2018. The GHG emissions for these ferries are summarized in Table 18.

Table 18 Coho and the Victoria Clipper Ferries Estimated GHG Emissions

Aspect	Units	CO_2	CH_4	N_2O	tCO_2e
Coho Ferries	Tonnes	1,160.00	0.10	0.40	1,281.70
Victoria Clipper	Tonnes	1,895.00	0.10	0.80	2,135.90

Cruise ship GHG emissions were estimated by the Greater Victoria Harbour Authority.[1] The Greater Victoria Harbour Authority (GVHA) reported on cruise ship emissions for the 2010 and 2018 reporting years but did not derive an estimate for 2007. As a result, the 2010 GHG emissions estimate and number of cruise ship visits to Ogden Point was used to create a proxy to estimate 2007 cruise ship emissions. The GVHA reported 163 visits in 2007.

The GHG quantification method to estimate 2007 GHG emissions from the Odgen Point cruise ship terminal was as follows:

$$Emissions_{Waterborne} = (GVHA\ Reported\ Emissions_{2010} / Cruise\ Ship\ Visits_{2010}) * Cruise\ Ship\ Visits_{2007}$$

The Transport Canada Vessel Registration System provided the total number of registered waterborne vehicles which was 2,163 vessels all registered boats in Victoria; however, the registration system does not provide any detail on the type, size, use, and owner of the watercraft. It was therefore assumed that the watercraft would have been similar to those in the referenced study. To estimate the personal / watercraft GHG emissions, the breakdown of vessels and total fuel use by category were used to estimate what the current population and fuel use might be in the reporting year. To do this, the following steps were taken.

1. Calculate the percentage of the population and per unit fuel use of the year 2000 population (Table 19).
1. Take the total number of registered vessels, and the percentage breakdown of the year 2000 population, and apply the per unit fuel use factor to determine the total gasoline and diesel fuel use (Table 20).
2. Using 2020 NIR emission factors estimate the GHG emissions from other watercraft.

Table 19 Year 2000 Other Watercraft Population Breakdown And Estimated Fuel Use

Type of Watercraft from Year 2000 Study	Year 2000 Study Vancouver Island Population	Percentage of Population	Fuel Use (m^3/Year)	Fuel Use Per Unit (m^3/Year)
Inboard: 4 stroke - gasoline	1,689	0.19%	175	0.10
Inboard: Diesel	199	0.02%	62	0.31
Outboard: 2 stroke - gasoline	23,494	2.66%	1,632	0.07
Outboard: 4 stroke - gasoline	622	0.07%	7	0.01
Stemdrive: 2 stroke - gasoline	68	0.01%	8	0.12
Stemdrive: 4 stroke - gasoline	6,576	0.74%	535	0.08

[1] https://gvha.ca/wp-content/uploads/2019/10/EmissionsInventory-2019.pdf

Type of Watercraft from Year 2000 Study	Year 2000 Study Vancouver Island Population	Percentage of Population	Fuel Use (m^3/Year)	Fuel Use Per Unit (m^3/Year)
Stemdrive: Diesel	784	0.09%	216	0.28
Personal Watercraft: 2 stroke - gasoline	848,492	96.00%	342	0.00
Sailboat Auxiliary Inboard: 4 stroke - gasoline	428	0.05%	1	0.00
Sailboat Auxiliary Inboard: Diesel	1,088	0.12%	6	0.01
Sailboat Auxiliary Outboard: 2 stroke - gasoline	396	0.04%	1	0.00
Sailboat Auxiliary Outboard: Diesel	1	0.00%	0	0.01

Table 20 Reporting Year Other Watercraft Population Breakdown and Estimated Fuel Use

Type of Watercraft	Estimated Breakdown of Currently Registered Vessels	Estimated Fuel Use (L/year)
Inboard: 4 stroke - gasoline	4	428.3
Inboard: Diesel	0	151.7
Outboard: 2 stroke - gasoline	57	3,994.0
Outboard: 4 stroke - gasoline	2	17.1
Stemdrive: 2 stroke - gasoline	0	19.6
Stemdrive: 4 stroke - gasoline	16	1,309.3
Stemdrive: Diesel	2	528.6
Personal Watercraft: 2 stroke - gasoline	2,058	837.0
Sailboat Auxiliary Inboard: 4 stroke - gasoline	1	1.2
Sailboat Auxiliary Inboard: Diesel	3	14.7
Sailboat Auxiliary Outboard: 2 stroke - gasoline	1	1.2
Sailboat Auxiliary Outboard: Diesel	0	0.0

To calculate the GHG emissions, for the other watercraft, provincially derived GHG emissions factors were used (Table 21).

Table 21 Watercraft GHG Emission Factors

Aspect	Units	CO_2	CH_4	N_2O	tCO_2e
Marine Gasoline	tonne CO2e / L	0.0022000	0.0000013	0.0000001	0.0022522
Marine Diesel	tonne CO2e / L	0.0025820	0.0000002	0.0000011	0.0029136

The GHG quantification method, that was applied to the BC Ferries and other watercraft was as follows:

Emissions $_{Waterborne}$ **=** *(CRD Population / Vancouver Island; Mainland; Southwest Population) * ((Vol. Fuel * EF_{CO2}) + (Vol. Fuel * EF_{CH4} * GWP_{CH4}) + (Vol. Fuel * EF_{N2O} * GWP_{N2O}))*

4.2.4.5 Off-Road

Currently, there is limited data available to estimate off-road GHG emissions. As such, a GHG emissions per capita estimate for each off-road category was developed using Provincial emissions data from the 2020 NIR, and BC's population from Statistics Canada. To develop each off-road factor, the total BC GHG emissions for each reporting category was divided by the BC population for the NIR reporting year (2018). Each derived per-capita value was applied to the current reporting year CRD population (2018) to estimate off-road GHG emissions.

The NIR currently reports the following off-road emissions:

- Total BC off-road agriculture and forestry GHG emissions
- Total BC off-road commercial and institutional GHG emissions
- Total BC off-road residential GHG emissions
- Total BC other off-road GHG emissions

Total BC off-road manufacturing, mining, and construction GHG emissions were not included on the basis that manufacturing and mining GHG emission could not be split out.

Other than other off-road GHG emissions, which is reported in the Off-Road Transportation Sub-Sector, the remaining off-road GHG emissions are reported in the Stationary Energy Sector as required by the GPC Protocol.

The GHG quantification method is presented below:

Emissions $_{Off\text{-}Road}$ = *(NIR Off-Road GHG Emissions $_{BC}$ / BC Population $_{BC}$) * Current Reporting Year Population $_{CRD}$*

4.3 WASTE

Cities produce GHG emissions because of the disposal and management of solid waste, incineration and open burning of waste, the biological treatment of waste, and through wastewater treatment and discharge. Waste does not directly consume energy, but releases GHG emissions because of decomposition, burning, incineration, and other management methods.

For the CRD, the Waste Sector encompasses the following GHG emissions scopes and Sub-Sectors:

- Scope 3: Emissions:
  - Solid waste disposal

- Biological treatment of waste
- Wastewater treatment and discharge

4.3.1 Activity Data

The CRD provided landfill gas volumes, energy and GHG related data for the Hartland landfill (fugitives and flaring), total CRD wastewater volumes, average biological oxygen demand (BOD) and Total Kjeldal Nitrogen (TKN) annual average values (mg/L) from the wastewater for all relevant outfalls. The wastewater volumes are based on total budgeted sewer costs.

Some GHG emissions from incineration and open burning are likely to be occurring in the CRD but cannot readily be estimated. This the notation key for “Not Estimated” has been used to indicate this.

4.3.2 Assumptions and Disclosures

The following assumptions were made in the calculation of the 2018 GHG emissions:

- To quantify GHG emissions from the Hartland Landfill, the CRD utilized the waste-in-place method which is accepted under the GPC Protocol. The Waste-in-place (WIP) assigns landfill emissions based on total waste deposited during that year. It counts GHGs emitted that year, regardless of when the waste was disposed. GHG emissions from the Hartland Landfill for the reporting year are allocated based upon the percentage of Community waste, relative to total waste received at to the Hartland Landfill. It is assumed that the GHG emissions data provided is reasonably accurate and the method deployed correct.
- It is assumed that the landfill gas has a constant higher heating value (HHV) of 0.01865 (GJ/m^3).
- Composting GHG emissions are estimated based on the total tonnage estimated by the CRD. It is assumed that all compost is treated aerobically.
- Wastewater is not currently treated. As such, IPCC wastewater methane (CH_4) producing capacity and CH_4 correction default factors were used. These factors used are for untreated wastewater being deposited into deep or moving waters. It is likely that ocean sequesters more CH_4 than is estimated.
- It is likely that GHG emissions from incineration and open burning are occurring on an infrequent and controlled (property by property) basis, but without available data the GHG emissions cannot be reasonably quantified.

4.3.3 Calculation Methodology

4.3.3.1 Solid Waste

The Hartland Landfill has a landfill gas (LFG) collection and destruction system at the Hartland Landfill to which the LFG is either combusted in a flare, or in an engine to generate electricity which is exported to the grid. The GHG emissions associated with energy generation are reported as a reporting only GHG emission under Stationary Energy: Energy Industries Reporting Only and are not included in the total GHG emissions estimate. The GHG emissions associated with flaring of the landfill gas are reported under Stationary Energy: Energy Industries Scope 1.

The GHG quantification method for Stationary Energy: Energy Industries is as follows:

$$Emissions_{\text{Stationary Energy: Energy Industries}} = (LFG\ Consumed_{m3} * HHV_{LFG} * EF_{RNG\ CH4} * GWP_{CH4}) + (LFG\ Consumed_{m3} * HHV_{LFG} * EF_{RNG\ N2O} * GWP_{N2O})$$

The fugitive landfill GHG emissions estimates were generated by the CRD using the waste-in-place (WIP) method which is accepted under the GPC Protocol. The WIP assigns landfill emissions based on emissions during that year. It counts GHGs emitted that year, regardless of when the waste was disposed.

4.3.3.2 Biological Treatment of Solid Waste

The CRD provided 2018 composting data which is assumed to be treated aerobically at the Hartland Landfill. The composting emission factor used in the estimation of GHG emissions was derived from the 2006 IPCC Guidelines for National Greenhouse Gas Inventories (Volume 5, Chapter 4: Biological Treatment of Solid Waste) (Table 22).

Table 22 Composting Emission Factor

Emission Factor	Units	CO_2	CH_4	N_2O	tCO_2e
Composting	tCO_2e / kg waste	-	0.0000010	-	0.0000250

To quantify GHG emissions from the biological treatment of solid waste, the following GHG quantification methods was deployed:

$$Emissions_{\text{Anaerobic Waste}} = Compost\ Waste_{Total} * EF_{CH4} * GWP_{CH4}$$

4.3.3.3 Wastewater Treatment And Discharge

Wastewater is not currently treated on Vancouver Island and is sent to ocean-based outfalls. The CRD provided the 2018 wastewater volumes (m^3), the average biological oxygen demand (BOD) and the average Total Kjeldal Nitrogen (TKN) in wastewater. IPCC default wastewater methane (CH_4) producing capacity (0.6 kg CH_4/kg BOD) and methane correction factor (MCF) (0.1 – unit less) were used to estimate CH_4 from the wastewater. To estimate N_2O from the wastewater, the Total Kjeldal Nitrogen (TKN) annual average in conjunction with the total wastewater volumes to calculate the total TKN in the wastewater. The IPCC default conversion value of 0.01 kg N_2O-N/kg sewage-N was used to estimate N_2O from the wastewater. These factors used are for untreated wastewater being deposited into deep or moving waters. It is likely that ocean sequesters more CH_4 than what has been estimated.

To quantify GHG emissions from the wastewater treatment, the following GHG quantification method is deployed:

Emissions $_{Wastewater\ CH4}$ = *((Wastewater* $_{m3}$ * *(BOD*$_{ml/L}$ */ 1000) * (0.06*$_{kg\ CH4/kg\ BOD}$ * *0.01)) / 1000) * GWP*$_{CH4}$

Emissions $_{Wastewater\ N2O}$= *((Wastewater* $_{m3}$ * *(TKN*$_{ml/L}$ */ 1000)* * 0.01$_{kg\ N2O\text{-}N/kg\ sewage\text{-}N}$*) / 1000) * GWP*$_{N2O}$

4.4 INDUSTRIAL PROCESSES AND PRODUCT USE (IPPU)

4.4.1 Overview

Emissions from the IPPU Sector are only required for BASIC+ GHG reporting under the GPC Protocol. This Sector encompasses GHG emissions produced from industrial processes that chemically or physically transform materials and using products by industry and end-consumers (e.g., refrigerants, foams, and aerosol cans) (GPC, 2014).

For the CRD, the IPPU encompasses the following GHG emissions scopes and Sub-Sectors:

- Scope 1 Emissions:
  - Product use

No GHG emissions from Industrial Processes are known to be occurring and thus the notation key for "Not Occurring" has been used to indicate this.

4.4.2 Activity Data

As there is limited data available on Product Use GHG emissions, the GHG Emissions estimate was derived on a per capita basis using the 2020 NIR GHG data for the Province of BC and BC population data for the reporting year.

4.4.3 Assumptions and Disclosures

The following assumptions were made in the calculation of the 2018 GHG emissions:

- The product use emissions are based on the 2020 NIR product use GHG emissions as prepared by Environment and Climate Change Canada.
- The NIR uses the Tier 1 methodology to estimate these emissions and thus uncertainty around their accuracy remains quite high.

4.4.4 Calculation Methodology

4.4.4.1 Product Use Emissions

For the 2018 reporting year, only the emissions estimated were production and consumption of halocarbons, SF_6 and NF_3 were estimated for the Province. To estimate product use GHG emissions for

the CRD, a per capita estimate was developed using the Provincial emissions data from the 2020 NIR, and BC's NIR reporting year population from Statistics Canada. This value was applied to the 2018 reporting year CRD population to estimate the total product use emissions.

The GHG quantification method is presented below:

$$Emissions_{Product\ Use} = (NIR\ Product\ Use\ GHG\ Emissions_{BC} / NIR\ Population_{BC}) * Current\ Reporting\ Year\ Population$$

4.5 AGRICULTURE, FORESTRY, AND OTHER LAND USE (AFOLU)

4.5.1 Overview

The AFOLU Sector includes emissions from livestock, land-use, and all other agricultural activities occurring within a community's boundaries. For the CRD, the AFOLU encompasses the following GHG emissions scopes and Sub-Sectors:

- Scope 1 Emissions:
  - Land
  - Livestock
  - Aggregate Sources And Non-CO_2 Emissions Sources On Land

4.5.2 Activity Data

The CRD provided remotely sensed imagery to estimate land-cover change. This data included:

- Habitat Acquisition Trust (HAT) Land Cover Mapping
- Annual Crop Inventory (ACI), Agriculture Canada
- Satellite Imagery interpretation, CRD
- Vegetation Resources Inventory (VRI), British Columbia Government.
- Earth Observation for Sustainable Development of Forests (EOSD) Land Cover Classification, Service Natural Resources Canada

Livestock and aggregate sources and non-CO_2 emissions sources on land were estimated using GHG emissions data from the 2020 NIR, and land-use data from the 2016 Statistics Canada Census of Agriculture, to create a GHG emissions per hectare value.

4.5.3 Assumptions and Disclosures

The following assumptions were made in the calculation of the 2018 GHG emissions:

- It is conservatively assumed that all cropland is used for livestock and agricultural purposes.

- Infrequent and small source open burning may be occurring, but there is no data to estimate this emissions source.
- The land cover change analysis requires a consistent land-use category attribution and spatial resolution for the 2007 base and 2018 reporting years. For the land use change analysis, land cover data was available for the 2007, 2011 and 2017 years for only part of the CRD. There was limited land-use datasets for the Juan de Fuca, Salt Spring Island and Gulf Islands and this data was only available for 2007 and 2011. Unfortunately, no more recent or higher quality data source was available to represent the land cover consistently for all three years. Furthermore, since annual data was not available, the change between land cover data years (2007-2011, 2011-2017) was averaged and may not represent actual changes in each year.

4.5.4 Calculation Methodology

4.5.4.1 Land Use

Remotely sensed imagery was used to estimate land-cover changes during the 2007-2018 reporting periods. Using the remotely sensed imagery an annual average land-use change between land classes (e.g. cropland forestland, etc.) was determined and applied to BC-based emission factors to estimate GHG emissions resulting from changes between land-uses for the reporting year.

The following table identifies the data sources used for the reporting years for each of the study area's geographies.

Table 23 Spatial Data Sources Representing Land Cover For The CRD Study Area

		CRD Study Area Geography		
		CRD Core	**Gulf Islands**	**Juan de Fuca Region**
Reporting Year	**2007**	2005 HAT Land Cover Mapping	2001 EOSD Land Cover Classification	2011 HAT Land Cover Mapping[2]
	2011	2011 HAT Land Cover Mapping	2001 EOSD Land Cover Classification + 2011 ACI 'Settlement'	2011 HAT Land Cover Mapping[2] + 2011 ACI 'Settlement'
	2017	2011 HAT Land Cover Mapping + 'Settlement' satellite image interpretation[1]	2001 EOSD Land Cover Classification + 2017 ACI 'Settlement'	2011 HAT Land Cover Mapping[2] + 2017 ACI 'Settlement'

Notes:

[1] Settlements land cover category is a combination of i) municipality provided building footprint as acquired mostly from digitizing roofline from satellite and orthoimagery, ii) new roads (ParcelMap BC parcel with parcel start dates > 2011 and parcel class = 'road') and iii) and theoretical building footprints (average building footprint areas as buffered centroids of new ParcelMap BC parcel with start dates > 2011 with a residential parcel class)

[2] The 2011 land cover classification was interpreted mostly from 2005 imagery in the Juan de Fuca region making it more suitable for the 2007 reporting year.

The spatial data sources representing land cover in this analysis include more categories than the 6 IPCC land-use categories. To align with the IPCC land classification definitions (as required by the GPC Protocol), the following data categories were re-assigned to the most appropriate IPCC land class.

Table 24 IPCC Land Use Classification Cross-References

IPCC Land Cover	EOSD Land Cover	HAT Land Cover	Annual Crop Inventory
Cropland	Annual Cropland, Perennial Cropland And Pasture	Agricultural Fields	-
Forest	Broadleaf Dense, Broadleaf Open, Coniferous Dense, Coniferous Open, Coniferous Sparse,	Tree	-
Grassland	Grassland , Herb, Shrub Low	Grass, Herb	-
Settlement	Developed	Pavement/Building	Developed
Wetland	Wetland - Herb , Wetland - Shrub , Wetland - Treed	Riparian Tree, Riparian Herb, Pond	-
Other	Water, Exposed Land	Shadow, Ocean, Lake, River, Sand/Gravel Shoreline, Bedrock Shoreline, Exposed Soil, Exposed Bedrock	-

The analysis resulted an estimate of an annual average change in hectares' value for each land class. Once the land use change values were determined for the reporting year, BC-based and IPCC emission factors were applied to estimate the GHG emissions from land use (Table 25).

Table 25 Land-Use Change Emission Factors

Sector	Emission Factor	Units
Forestland	556.33	tCO_2e / ha
Grasslands	205.70	tCO_2e / ha
Wetlands	471.50	tCO_2e / ha
Cropland	239.80	tCO_2e / ha

Sector	Emission Factor	Units
Settlements	0.00	tCO_2e / ha
Other	0.00	tCO_2e / ha
Forestland	(0.66)	tCO_2e / ha / year
Grasslands	(8.05)	tCO_2e / ha / year
Wetlands	(6.50)	tCO_2e / ha / year
Croplands	(9.79)	tCO_2e / ha / year
Settlements	0.00	tCO_2e / ha / year
Other	0.00	tCO_2e / ha / year

The GHG quantification methods for land use change is presented below:

$$\textbf{Emissions}_{\textbf{Lands Not Converted}} = Land\ Type_{ha} * EF_{Sequester}$$

$$\textbf{Emissions}_{\textbf{Lands Converted}} = Land\ Type_{ha} * (EF_{Release} / (Current\ Land\ Reporting_{Year} - Last\ Land\ Reporting_{Year} + 1))$$

4.5.4.2 Emissions from Aggregate Sources and Non-CO_2 Emission Sources on Land

Emissions from Aggregate Sources and Non-CO_2 Emission Sources on Land includes direct N_2O emissions from agricultural soil management and indirect N_2O emissions from applied nitrogen. To estimate these GHG emissions, the total area of farmland for BC was used in conjunction with 2020 NIR data to develop a tCO_2e / ha value estimate for:

- Livestock
- Aggregate Sources And Non-CO_2 Emissions Sources On Land

To calculate GHG emissions from urea application, the calculated total crop land in hectares for the reporting year was applied against an IPCC GHG emissions factor of 0.20 tCO_2e / ha. This emission factor is also applied in the 2020 NIR.

The GHG quantification method is presented below:

$$\textbf{Emissions}_{\textbf{Direct \& Indirect N2O}} = ((BC_{\ Direct\ N2O\ Emissions} + BC_{\ Indirect\ N2O\ Emissions} + BC_{\ Indirect\ N2O\ Manure\ Management\ Emissions}) / BC_{\ Land\ In\ Crops\ ha})) * CRD\ Cropland_{ha}$$

$$\textbf{Emissions}_{\textbf{Urea Application}} = CRD\ Cropland_{ha} * 0.66\ tCO_2e / ha$$

5.0 2018 GHG REPORTING YEAR RESULTS

5.1 OVERVIEW

This section presents the 2018 reporting year GHG emissions for the CRD. The following table classifies each of the GPC Protocol GHG emission categories by scope and reporting level. Note that these are cumulative.

Table 26 GHG Emissions Reporting Breakdown by GPC Reporting Method

GHG Emissions Scope	BASIC Reporting Level	BASIC+ Reporting Level
Scope 1	• Emissions from in boundary fuel combustion • In boundary fugitive emissions • Emissions from in boundary transport	Everything in the box at left, plus in-boundary emissions from: • Industrial process and product use • Livestock • Land use • Emissions from Aggregate Sources and Non-CO_2 Emission Sources on Land
Scope 2	• Emissions from consumption of grid-supplied energy	• Emissions from consumption of grid-supplied energy
Scope 3	• Emissions from solid waste, and composting generated within but treated outside of the GHG boundaries	Everything in the box at left, plus: • Transmission, distribution, and line losses from grid-supplied energy • Emissions from transboundary journeys
Outside of Reporting Scopes & GPC Protocol	• Upstream fuel emission extraction, processing, and transport • Food and drink imports • Construction materials (imports) • Other supply chain emissions • Vehicle fuel exports	

5.2 SUMMARY

Total BASIC, and BASIC+ emissions for the CRD for the 2018 reporting year are presented in the Figure 3 below.

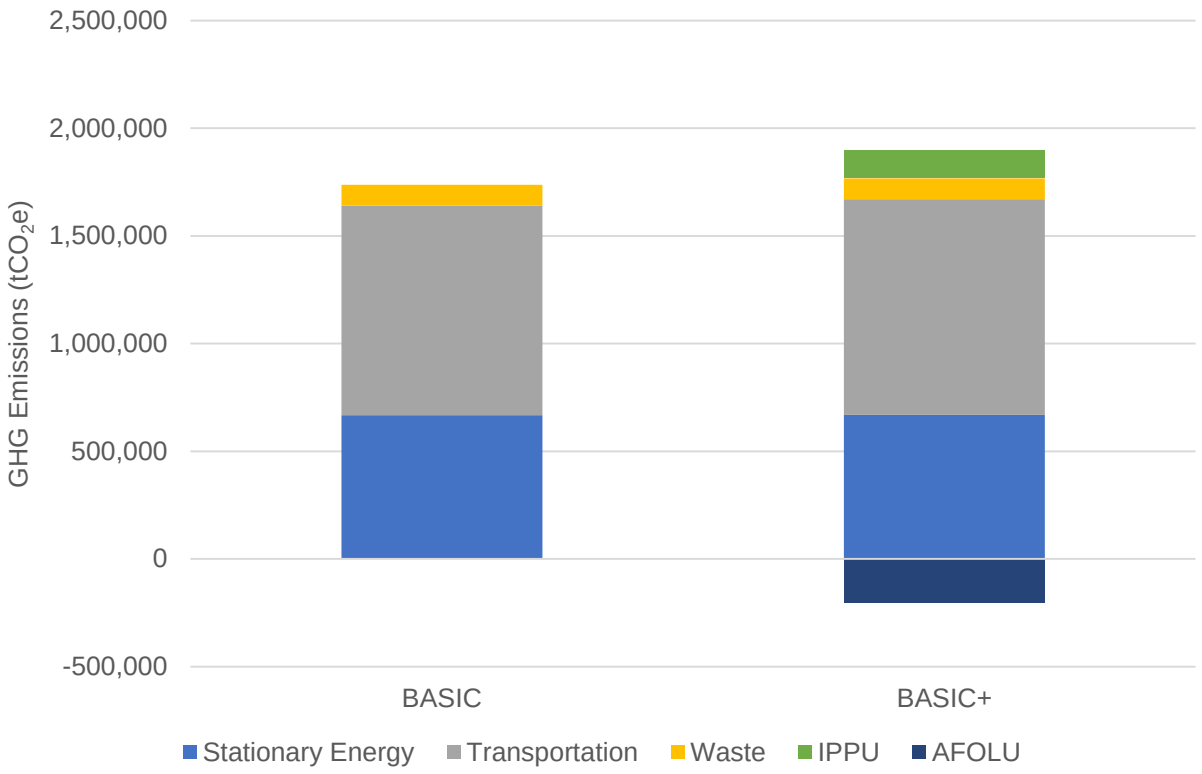


Figure 3 2018 GHG Emissions Summary by GPC Reporting Level

Emission by reporting level are presented in the Table 27 below which shows a difference in emissions under the GPC Protocol's BASIC, and BASIC+ reporting levels. This is due to the inclusion of additional sources in BASIC+ which are very significant for almost any growing community. These additional emissions include transboundary emissions, industrial and product use emissions, and emissions from land-use change. Under the GPC Protocol, emissions included within each higher reporting level are cumulative from lower levels.

Table 27 Breakdown of the CRD's 2018 GHG Emissions in GPC Reporting Format

GHG Emissions Source (by Sector)		Total GHGs (metric tonnes CO_2e)					
		Scope 1	Scope 2	Scope 3	BASIC	BASIC+	BASIC+ S3
Stationary Energy	Energy use (all emissions except I.4.4)	634,906	32,117	2,152	667,023	669,175	669,175
	Energy generation supplied to the grid (I.4.4)	8,147					
Transportation	(all II emissions)	978,309	80	26,821	978,389	1,005,210	1,005,210
Waste	Waste generated in the Community (III.X.1 and III.X.2)	96,386		0	96,386	96,386	96,386
	Waste generated outside community (III.X.3)	NO					
IPPU	(all IV emissions)	129,884				129,884	129,884
AFOLU	(all V emissions)	-203,952				-203,952	-203,952
Other Scope 3 (S3)	(all VI emissions)						0
TOTAL		**1,635,532**	**32,197**	**28,973**	**1,741,798**	**1,696,703**	**1,696,703**

NOTES:
Notation Keys: IE = Included Elsewhere; NE = Not Estimated; NO = Not Occurring.
Cells in green are required for BASIC reporting
Cells in green and blue are required for BASIC+ reporting
Cells in purple are for disclosure purposes only but are not included in the summary totals as required by the GPC Protocol.
Cells in orange are not required for BASIC or BASIC+ reporting

Table 28 presents the breakdown of the CRD's BASIC+ GHG emissions by Sector and Sub-Sector.

Table 28 Breakdown of the CRD's 2018 BASIC+ GHG Emissions in the GPC Protocol Reporting Format

GPC ref No.	GHG Emissions Source (by Sector and Sub-Sector)	Total GHGs (metric tonnes CO_2e)			
		Scope 1	Scope 2	Scope 3	Total
I	**Stationary Energy**				
I.1	Residential buildings	318,300	19,209	1,287	338,796
I.2	Commercial and institutional buildings and facilities	251,651	12,908	865	265,424
I.3	Manufacturing industries and construction	NE	NE	NE	NE
I.4.1/2/3	Energy industries	7,658	NO	NO	7,658
I.4.4	Energy generation supplied to the grid	8,147			
I.5	Agriculture, forestry, and fishing activities	55,787	IE	IE	55,787
I.6	Non-specified sources	IE	IE	IE	IE
I.7	Fugitive emissions from mining, processing, storage, and transportation of coal	1,510			1,510
I.8	Fugitive emissions from oil and natural gas systems	NO			0
Sub-Total	(community induced framework only)	**634,906**	**32,117**	**2,152**	**669,175**
II	**Transportation**				
II.1	On-road transportation	871,491	80	7,578	879,148
II.2	Railways	NO	NO	NO	NO
II.3	Waterborne navigation	51,455	IE	IE	51,455
II.4	Aviation	NO	IE	19,243	19,243
II.5	Off-road transportation	55,363	IE	IE	55,363
Sub-total	(community induced framework only)	**978,309**	**80**	**26,821**	**1,005,210**
III	**Waste**				
III.1.1/2	Solid waste generated in the Community	71,219		NO	71,219
III.2.1/2	Biological waste generated in the Community	5,307		NO	5,307
III.3.1/2	Incinerated and burned waste generated in the Community	NE		NE	NE
III.4.1/2	Wastewater generated in the Community	19,859		IE	19,859
III.1.3	Solid waste generated outside the Community	NO			
III.2.3	Biological waste generated outside the Community	NO			
III.3.3	Incinerated and burned waste generated outside community	NE			

Table 28 Breakdown of the CRD's 2018 BASIC+ GHG Emissions in the GPC Protocol Reporting Format

GPC ref No.	GHG Emissions Source (by Sector and Sub-Sector)	Total GHGs (metric tonnes CO_2e)			
		Scope 1	Scope 2	Scope 3	Total
III.4.3	Wastewater generated outside the Community	NO			
Sub-total	(community induced framework only)	**96,386**		**0**	**96,386**
IV	**Industrial Processes and Product Uses**				
IV.1	Emissions from industrial processes occurring in the Community boundary	NE			NE
IV.2	Emissions from product use occurring within the Community boundary	129,884			129,884
Sub-Total	(community induced framework only)	**129,884**			**129,884**
V	**Agriculture, Forestry, and Other Land Use**				
V.1	Emissions from livestock	4,299			4,299
V.2	Emissions from land	-209,262			-209,262
V.3	Emissions from aggregate sources and non-CO_2 emission sources on land	1,010			1,010
Sub-Total	(community induced framework only)	**-203,952**			**-203,952**
VI	**Other Scope 3**				
VI.1	Other Scope 3			NE	NE
Total	(community induced framework only)	**1,635,532**	**32,197**	**28,973**	**1,696,703**

NOTES:
Cells in green are required for BASIC reporting
Cells in green and blue are required for BASIC+ reporting
Cells in purple are for disclosure purposes only but are not included in the summary totals as required by the GPC Protocol.
Cells in orange are not required for BASIC or BASIC+ reporting

5.3 TOTAL GHG EMISSIONS

Under the BASIC+ method, the CRD's GHG emissions totaled 1,692,593 tCO_2e. On a per capita basis, this works out to 4.2 tCO_2e per person.

Table 29 Total Energy and GHG Emissions Per Person by Sector

Sector	Sub-Sector	Energy (GJ)	GHG Emissions (tCO_2e)	GJ Per Capita	tCO_2e Per Capita
Stationary Energy	Residential Buildings	12,923,082	338,796	32	0.8
	Commercial & Institutional Buildings	9,434,748	265,424	23	0.7
	Manufacturing Industries & Construction	-	-	-	-
	Energy Industries	-	7,658	-	0.0
	Agriculture, Forestry & Fishing Activities	768,936	55,787	2	0.1
	Fugitive Emissions	-	1,510	-	0.0
Transportation	In-Boundary On-road Transportation	13,534,547	871,571	33	2.1
	Trans-Boundary On-road Transportation	117,673	7,578	0	0.0
	Waterborne Navigation	683,147	51,455	2	0.1
	Aviation	258,625	19,243	1	0.0
	Off-road Transportation	763,096	55,363	2	0.1
Waste	Solid Waste	-	71,219	-	0.2
	Biological Treatment of Waste	-	5,307	-	0.0
	Wastewater Treatment & Discharge	-	19,859	-	0.0
IPPU	Product Use	-	129,884	-	0.3
AFOLU	Land-Use Change	-	(209,262)	-	(0.5)
	Livestock	-	4,299	-	0.0
	Non-CO2 Land Emission Sources	-	1,010	-	0.0
Total		**38,483,853**	**1,696,703**	**95**	**4.2**

Total GHG emissions for 2018 are 1,696,703 tCO_2e and have decreased 1.1% from the 2007 base year. Scope 1 and 2 Emissions are 96.4% and 1.9% of the total GHG inventory. Scope 1 emissions are the GHG emissions that result from the combustion of fuel in sources within the CRD's boundaries, primarily from Stationary Energy and Transportation. Scope 1 GHG emissions also include IPPU and AFOLU GHG emissions. Scope 2 emissions result from the use of electricity supplied to the CRD which includes emissions associated with the generation of electricity and other forms of energy (e.g., heat and steam).

Scope 2 emissions are low compared to other geographies, due to the predominance of hydroelectric generation technologies in the BC. Scope 3 emissions are emissions from electricity line losses, transboundary traffic, and emissions associated with the CRD that are occurring outside of the CRD's boundaries. For 2018, Scope 3 GHG emissions make up 1.7% of the GHG inventory. This breakdown by emission scope is depicted in Figure 4.

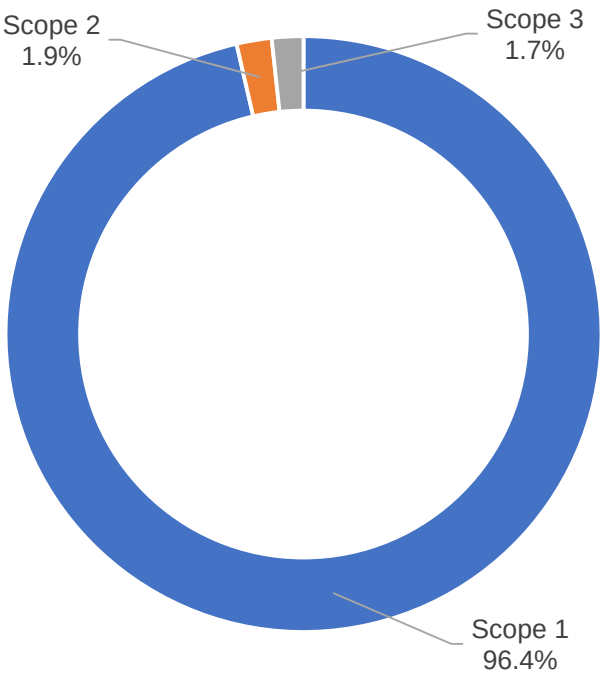


Figure 4 CRD BASIC+ GHG Emissions by Emissions Scope

A breakdown of GHG emissions by reporting scope for the 2007 base and reporting year are presented in Table 30 below.

Table 30 Change in GHG Emissions from Base Year

Emissions Scope	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change
Scope 1	1,589,511	1,635,533	2.9%
Scope 2	81,358	32,197	-60.4%
Scope 3	44,945	28,972	-35.5%
Total	**1,715,814**	**1,696,703**	**-1.1%**

5.4 SECTORAL GHG EMISSIONS ANALYSIS

5.4.1 Stationary Energy

Stationary energy sources are one of the largest contributors to the CRD's GHG emissions. In 2018, it contributed 35.1% of the community's GHG emissions. In general, stationary energy emissions include the energy to heat and cool residential, commercial, and industrial buildings, as well as the activities that occur within these residences and facilities. Fugitive methane emissions from natural gas pipelines and other distribution facilities, and related off-road GHG emissions, are also reported in this Sector. The table below shows the breakdown of energy use in the stationary energy reporting category.

Table 31 summarizes the energy and GHG emissions for the 2018 reporting year.

Table 31 2018 Energy and GHG Emissions by Stationary Energy Sector

Sector	Electricity (tCO_2e)	Natural Gas (tCO_2e)	Heating Oil (tCO_2e)	Propane (tCO_2e)	Wood (tCO_2e)	Other Sources (tCO_2e)	**Total GHG Emissions (tCO_2e)**	**Total Energy (GJ)**
Residential Buildings	20,496	110,632	142,004	24,569	25,843	15,252	**338,796**	**12,923,082**
Commercial & Institutional Buildings	13,773	209,087	9,778			32,786	**265,424**	**9,434,748**
Energy Industries						7,658	**7,658**	
Agriculture, Forestry & Fishing activities						55,787	**55,787**	**768,936**
Fugitive Emissions						1,510	**1,510**	
Total GHG Emissions (tCO_2e)	**34,269**	**319,719**	**151,782**	**24,569**	**25,843**	**112,993**	**669,175**	
Total Energy (GJ)	**11,562,215**	**6,411,356**	**2,219,813**	**401,770**	**1,100,555**	**1,431,057**		**23,126,766**

It can be seen in Figure 5 that heating oil and natural gas use contribute to 70.5% of the CRD's total Stationary Energy GHG emissions.

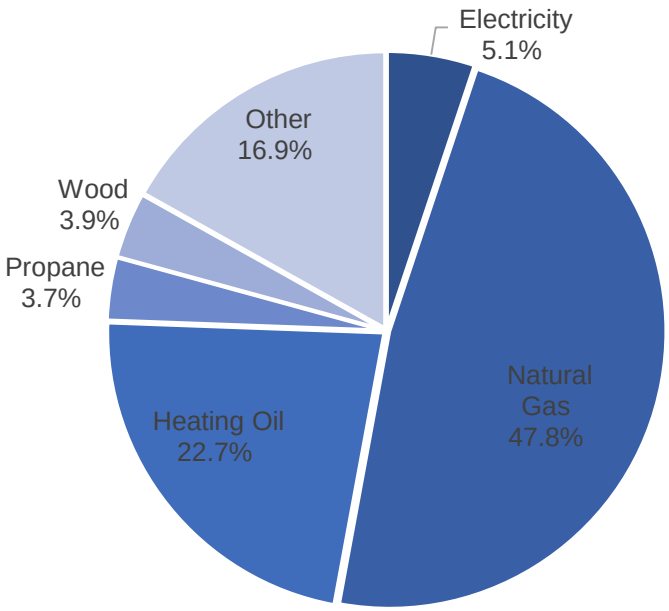


Figure 5 Stationary Energy GHG Emissions Contribution to the GHG Inventory

Figure 6 shows that more than 90.3% of the stationary GHG emissions arise from the operation of buildings.

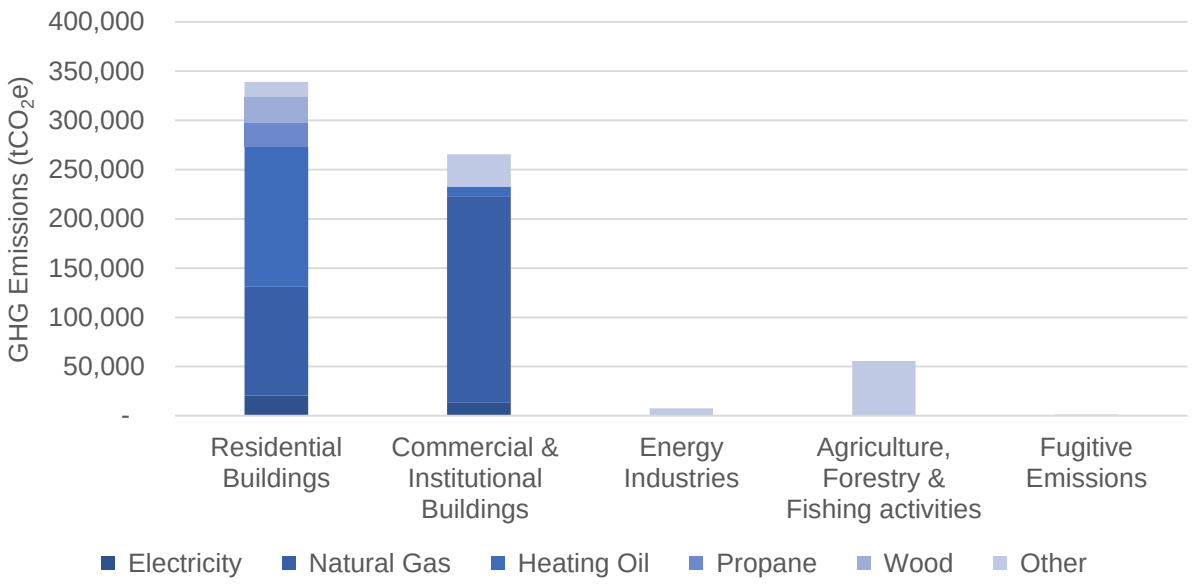


Figure 6 Total Stationary Energy Use By Sub-Sector

Stationary energy GHG emissions have decreased by 6.3% since the base year (Table 32).

Table 32 Stationary Energy—Energy and GHG Emissions Trends

Sector	Change in GJ: 2007 & 2018	Change in tCO_2e: 2007 & 2018
Residential Buildings	-9.0%	-16.0%
Commercial & Institutional Buildings	6.2%	7.3%
Energy Industries		1,731.0%
Agriculture, Forestry & Fishing activities	-4.2%	-10.1%
Fugitives		52.0%
Total	**-3.2%**	**-6.3%**

5.4.2 Transportation

Transportation covers all emissions from combustion of fuels in journeys by road, rail, water, and air, including inter-community and international travel. For the 2018 reporting year, transportation GHG emissions accounted for 52.7% of the CRD GHG inventory with the bulk of transportation GHG emissions resulting from the on-road transportation sub-sector (87.4%). The transportation GHG emissions are produced directly by the combustion of fuel or indirectly because of the use of grid-supplied electricity. Unlike stationary emission sectors, transit is mobile and can pose challenges in both accurately calculating emissions and allocating them to the cities linked to the transit activity. The following sections summarize energy and GHG emissions by on-road transportation, which is then followed by off-road transportation (marine, aviation, and other).

Table 33 summarizes the on-road energy and GHG emissions for the 2018 reporting year.

Table 33 2018 On-Road Transportation Energy And GHG Emissions by Fuel Type

Fuel Type	Number of Registered Vehicles	Total Fuel Use	Fuel Use Units	Energy (GJ)	GHG Emissions (tCO_2e)
Electricity	1,678	6,622,251	kWh	24	80
Gasoline	253,599	333,808,198	Liters (L)	11,569,792	740,974
Diesel	13,843	53,644,281	Liters (L)	2,074,961	137,645
Propane	76	291,534	Liters (L)	7,443	449
Total	**269,196**	**N/A**	**N/A**	**13,652,220**	**879,148**

Overall, GHG emissions from on-road transportation have decreased by 4.2% compared to the 2007 base year. The majority of these GHG emissions (86.5%) are from passenger vehicles, light trucks, and SUVs (Figure 7).

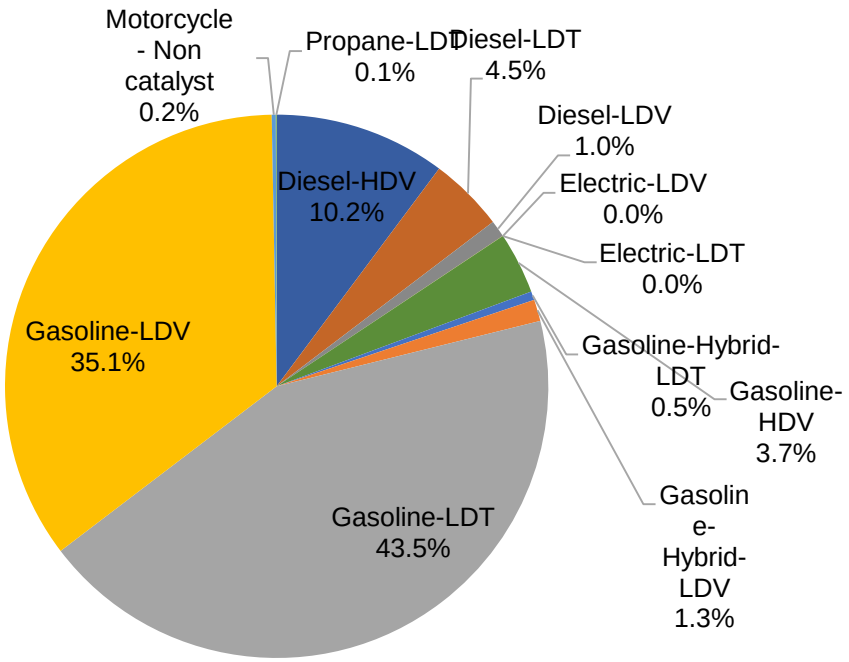


Figure 7 Breakdown of On-Road GHG Emissions by Vehicle Type

Table 34 summarizes the aviation, waterborne, and off-road transportation energy and emissions by fuel type. These GHG emissions contribute to 12.5% of the total transportation GHG emissions and 6.6% to the total inventory (Figure 8).

Table 34 2018 Aviation, Waterborne, and Off-Road Transportation Energy and Emissions by Fuel Type

Fuel Type	Total	Units	Energy (GJ)	GHG Emissions (tCO_2e)
Marine Gasoline	7,303	Liters (L)	253	16
Marine Diesel	17,654,954	Liters (L)	682,894	51,439
Aviation Jet Fuel	7,453,169	Liters (L)	258,625	19,243
Other Off-Road Transportation Diesel	19,728,427	Liters (L)	763,096	55,363
Total	**N/A**	**N/A**	**1,704,868**	**126,061**

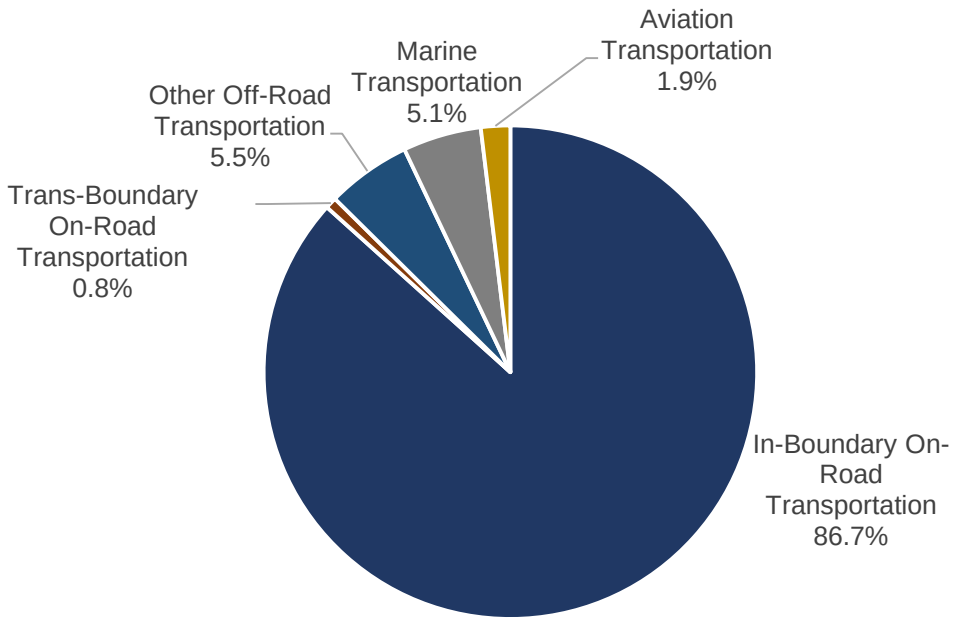


Figure 8 Summary of Transportation GHG Emissions by Sub-Sector

5.4.3 Waste

Communities produce solid waste, compost, and wastewater. Waste does not directly consume energy, but when deposited into landfills, or left exposed to the atmosphere, it decomposes and releases methane (CH_4) gas which is a potent GHG. The GHG emissions from the solid waste, composting, and wastewater facilities for the reporting year is summarized in the following table. For the 2018 reporting year, waste emissions contributed 5.1% to the GHG inventory. A breakdown of the Waste Sub-Sector GHG emissions is presented in Table 35.

Table 35 Summary of Waste Sub-Sector GHG Emissions

Sector	2018 GHG Emissions (tCO_2e)	GHG Emissions Per Capita (tCO_2e / Capita)	Change from Base Year (2007)
Wastewater Treatment And Discharge	19,859	0.05	4.5%
Biological Treatment of Solid Waste	5,307	0.01	7,236%
Solid Waste	71,219	0.18	-36.0%
Total	**96,386**	**0.24**	**-26.0%**

For the 2018 reporting year, in scope GHG emissions from waste have decreased by 26.0% compared to the 2007 base year. Fluctuations in waste will occur over the reporting periods as waste is driven by both

the population, as well as economic prosperity in the region. The Solid Waste Sub-Sector contributes more than 73.9% of total waste GHG emissions (Figure 9). To reduce the amount of waste landfilled, and thus GHG emissions, the CRD and its members are making a significant effort to reduce waste going to landfills through organics diversion and recycling.

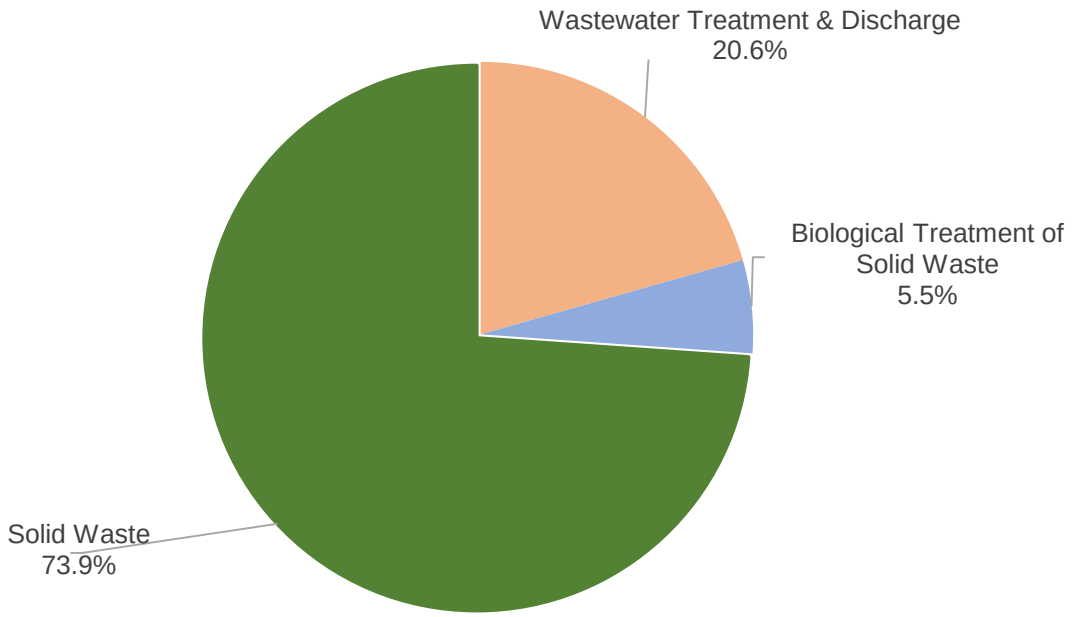


Figure 9 2018 GHG Emissions from Waste (tCO_2e)

5.4.4 Industrial Processes and Product Use (IPPU)

Reporting on IPPU GHG emissions are required for BASIC+ reporting only. Industrial GHG emissions are produced from a wide variety of non-energy related industrial activities which are typically releases from industrial processes that chemically or physically transform materials. During these processes, many different GHGs can be produced. It is not clear if there are industrial GHG emissions occurring within the CRD's boundaries and thus a "Not Estimated" notation is used in the GPC tables.

Also included in the IPPU Sector is Product Use GHG emissions. Certain products used by industry and end-consumers, such as refrigerants, foams or aerosol cans, also contain GHGs which can be released during use and disposal and thus, as with best-practice, must be accounted for. For the reporting year, only the emissions estimated were production and consumption of halocarbons, SF_6 and NF_3 were estimated for the CRD on the basis that other GHG emissions sources identified in the NIR are not likely to be occurring in the CRD. The sources of these GHG emissions are typically fridges, heat pumps, and air conditioners. To estimate Product Use GHG emissions for the CRD, a per capita estimate was developed using the Provincial emissions data from the 2020 NIR, and BC's NIR reporting year

population from Statistics Canada. This value was applied to the 2018 reporting year population to estimate the total Product Use emissions for the CRD.

Between the 2007 and 2018 reporting years, IPPU GHG emissions have increased 67.9%. The reason for the increase is attributed to Environment Canada having better data available to make the estimate, than the actual GHG emissions increasing such an amount.

Table 36 Product Use GHG Emissions for the 2007 and 2018 Reporting Years

Sub-Sector	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change
Product Use Emissions	77,348	129,884	67.9%

5.4.5 Agriculture, Forestry, and Other Land Use

The AFOLU Sector includes GHG emissions from livestock, land use, and all other agricultural activities occurring within the CRD's boundaries. Using remotely sensed imagery, land cover data was used to estimate land use changes between the reporting years. In 2018, the CRD's greenspace is estimated to have sequestered and stored 209,262 tCO_2e (Table 37), a decrease of 19.2% compared to the 2007 base year.

Table 37 Summary of Land-Use Change in 2018

Land-Use Type	Total Hectares (ha)	Sequestered (-) / Released (+) GHG Emissions in tCO_2e
Forest Land	167,091.9	1,335.8
Cropland	4,567.8	(42,773.1)
Grassland	18,906.5	(128,443.5)
Wetlands	6,865.3	(41,261.0)
Settlements	20,654.6	1,879.7
Other Land	12,931.7	-
Total	**231,017.8**	**(209,262.2)**

5.4.5.1 Livestock and Other Agriculture

In addition to land use change, GHG emissions from the AFOLU Sector are produced through a variety of non-land use pathways, including livestock (enteric fermentation and manure management), and aggregate sources and non-CO_2 emission sources on land (e.g., fertilizer application). Under this Sector, the CRD is reporting on GHG emissions from the following sources, and Sub-Sectors:

- Scope 1 GHG Emissions:
  - Livestock:
    - Methane (CH_4) Emissions from Enteric Fermentation

- Methane (CH_4) Emissions from Manure Management
- Direct Nitrous Oxide (N_2O) GHG Emissions

– Aggregate Sources and Non-CO_2 Emissions Sources on Land
- Direct Nitrous Oxide (N_2O) Emissions from Agricultural Soil Management
- Indirect Nitrous Oxide (N_2O) Emissions from Applied Nitrogen

Table 38 summarizes these other land-use GHG emissions for the 2018 reporting year. Compared to the 2007 base year, these GHG emissions have increased 7.7%.

Table 38 Total AFOLU GHG Emissions for 2018

AFOLU Sub-Sector	GHG Emissions (tCO_2e)
Livestock	4,299
Aggregate Sources And Non-CO_2 Emissions Sources On Land	1,010
Total	**5,310**

6.0 QUALITY ASSURANCE AND QUALITY CONTROL

Quality Assurance and Quality Control (QA/QC) procedures are applied to add confidence that all measurements and calculations have been made correctly and to reduce uncertainty in data. Examples include:

- Checking the validity of all data before it is processed, including emission factors
- Performing recalculations to reduce the possibility of mathematical errors
- Recording and explaining any adjustments made to the raw data
- Documenting quantification methods, assumptions, emission factors and data quality

With respect to the GHG inventory, the data was subject to various quality assurance and quality control checks throughout the collection, analysis, and reporting phases. Specifically, the following procedures were followed:

- Upon receipt of data from the CRD, the data was checked for completeness (e.g., all months of data are present), relevancy (e.g., the correct calendar year is presented), and reasonableness (e.g., comparing similar transportation data sets). Incorrect or incomplete datasets were queried directly with the data provider.
- Where estimates were used (e.g., fuel oil consumption), all possible data sources were considered for their accuracy and relevance to the community before a final method and data source was selected.
- All manual data transfers were double-checked for data transfer accuracy.
- The inventory was compared to other third party inventories (e.g. CEEI) to assess for reasonableness of the estimates.
- The inventory underwent internal CRD reviews to confirm assumptions, data and reasonableness of the estimates.

7.0 RECOMMENDATIONS

To remain accurate and reflective of the current community conditions, the CRD should revise and improve its GHG emissions inventory either annually or in line with capital planning cycles (i.e., every 3-4 years), to which there are the following aspects should be focused on:

- Improving activity data collection and management, including Sector and Sub-Sector allocations.
- Performing recalculations, where applicable, and tracking GHG emissions over time.
- Reviewing methodologies and data to assess for opportunities to improve the estimates.
- Assessing changes to boundaries, methodologies, assumptions or data that may be material and require a base year restatement.

The next section provides a summary of specific GHG inventory improvement recommendations.

7.1 INVENTORY ASSUMPTIONS, ASSESSMENT, AND RECOMMENDATIONS

In the preparation of the 2018 GHG emissions inventory, there are several assumptions were made in the analysis that will have some influence on accuracy of the CRD's estimate of GHG emissions. Most emission sources have been calculated with a high level of confidence, due to the presence of utility records, and direct energy and emissions data being provided by stakeholders. Data sources and assumptions with medium to high uncertainty are presented in Table 39 which summarizes the main assumptions, possible impacts on the data, and recommended improvement. It is recommended that the CRD prioritize improvements for that are likely to have a material (>5%) influence on the GHG inventory estimate.

Table 39 Summary of GHG Inventory Assumptions, Estimated Impacts, and Recommended Improvements

Sector	Assumption	Possible Impact on The GHG Inventory	Recommended Improvements
Stationary Energy	The energy utility providers provide energy in lump sum amounts for: residential, commercial, and industrial. As such, other sectors, like agricultural buildings, could not be split out. A related accuracy issue is the assignment of mixed use buildings without separate metering.	No impact on the GHG inventory. The change would only happen between emission sub-sectors.	Work with the utility provider to get a more detailed breakdown of energy use by sub-sector.

Table 39 Summary of GHG Inventory Assumptions, Estimated Impacts, and Recommended Improvements

Sector	Assumption	Possible Impact on The GHG Inventory	Recommended Improvements
Stationary Energy	Propane, fuel oil and wood GHG emissions were estimated based on 2007, 2010, and 2012 CEEI GHG emissions. for the District of Saanich and the City of Victoria, heating oil emissions were estimated based on the number of known tanks and the estimated square footage based on BC Assessment data, and the estimated average annual energy usage.	Immaterial impact on the GHG inventory (<5%)	Consider completing a residential energy labelling program. With such a program, an energy and fuel profile for buildings could be developed so that a reasonable estimate of other fuel use be determined. Work with the Province on developing a methodology to estimate wood fuel use.
Stationary Energy	FortisBC provided a total estimate of fugitive emissions for the CRD region for the 208 reporting year only; however, this did not include upstream fugitive emissions as suggested as best practice by the GPC Protocol.	Immaterial impact on the GHG inventory (<5%)	Work with FortisBC to refine this estimate.
Transportation	ICBC has not been collecting off-road vehicle data so this source could not be estimated.	Immaterial impact on the GHG inventory (<5%)	Work with ICBC to begin collecting this data regionally.
Transportation	ICBC provided the Province of BC with raw vehicle registration data which was then processed and provided to the CRD. It is understood that some vehicle category registrations were withheld or not included in the inventory which results in the under estimation of GHG emissions.	Immaterial impact on the GHG inventory (<5%)	Work with Province to derive an estimate of how vehicles may be excluded so that the GHG emissions may be estimated.
Transportation	Taxable fuel volumes only represent about 67% of taxable fuel sales (a value that fluctuates yearly). Without more detailed information, a fuel allocation amount could not be allocated to the CRD. As such, the	Possibly material (>10%) impact to the GHG inventory. Using the estimated VKT data, it is likely that the CRD is over-estimating the GHG emissions from	If the CRD can get complete fuel sales data for the Region, a more robust estimate of fuel use and GHG emissions, using vehicle registration data, can be determined. If the CRD can incorporate estimated

Table 39 Summary of GHG Inventory Assumptions, Estimated Impacts, and Recommended Improvements

Sector	Assumption	Possible Impact on The GHG Inventory	Recommended Improvements
	CRD had to rely on vehicle registration data from ICBC and estimated vehicle kilometers travelled (VKT). The CRD's 2016 Origin and Destination Study estimates total VKT data was considered but was deemed to likely result in significant underestimate of GHG emissions as the study estimates that light duty vehicles in the CRD travel less than 5,000 km per year. This is less than 1/3 of the national average. On this basis, the VKTs from a 2009 National vehicle travel study for Canada were applied.	transportation. This is the most conservative approach available to the CRD at this point.	travel data, in VKT through its next Origin Destination Survey, this data could be used to replace the 2009 study and be more specific to CRD and its members.
Transportation	The Victoria International Airport does not report on GHG emissions from tenants or aircraft. Keeping in line with the GPC Protocol, only the aircraft GHG emissions were estimated using NAV Canada airplane movement statistics, estimated taxi times, and estimated fuel use. The fuel use only accounts for departing and arriving planes up to 3,000ft to avoid double counting with other cities.	Immaterial impact on the GHG inventory (<5%)	The Victoria International Airport will not be collecting or reporting on GHG emissions from tenants or aircraft. This is the best available data at this point.
Transportation	The GHG emissions from recreational watercraft and US/Can ferries were estimated based on a publicly available year 2000 study for the Victoria, Vancouver, and Washington harbors.	Immaterial impact on the GHG inventory (<5%)	Work with the Victoria Harbor Master as they begin to deploy a database tracking the types and number of boats entering the Victoria harbor.
Transportation	The GHG emissions from marine aviation are estimated based on Victoria Harbor NAV Canada air traffic movements for 2016. Statistics Canada	Immaterial impact on the GHG inventory (<5%)	No recommended improvement currently.

Table 39 Summary of GHG Inventory Assumptions, Estimated Impacts, and Recommended Improvements

Sector	Assumption	Possible Impact on The GHG Inventory	Recommended Improvements
	stopped collecting Victoria Harbor aircraft movement data in 2016. To estimate 2018 marine aviation GHG emissions, the 2016 data was applied and adjusted using the change in aircraft traffic between the 2016 and 2018 reporting years at the Victoria International Airport. It is assumed that the activity at both airports would be corelated, but not causational.		
Waste	There is tracking to the origin of solid waste but is based on reported origin which may or may not be accurate. For example, some haulers will identify that they are hauling waste from Victoria when in fact the waste is originating from Saanich.	There is no impact to the GHG Inventory for the CRD but will have impacts to the CRD member inventories.	Work with waste haulers to devise a better system to track waste origination.
IPPU	Product use emissions were estimated on a per capita basis using the 2020 NIR estimates. The product use emissions were estimated by the NIR using an IPCC Tier 1 approach and thus will have high uncertainty.	Immaterial impact on the GHG inventory (<5%)	No recommendations currently.
AFOLU	GHG estimates for land use change are based on a period of years (2011-2017) and thus were averaged for each period. As there was no current data, land use change for the reporting year was estimated using the average value between the data years.	Immaterial impact on the GHG inventory (<5%)	Work with the planning department to track land-use change annually so that a more refined estimate can be made.
AFOLU	The land-use data available for the CRD was incomplete between and within reporting years (e.g., some land-use data was collected in early	Immaterial impact on the GHG inventory (<5%)	Complete a region wide land-use analysis every 3-5 years to track land use change.

Table 39 Summary of GHG Inventory Assumptions, Estimated Impacts, and Recommended Improvements

Sector	Assumption	Possible Impact on The GHG Inventory	Recommended Improvements
	spring and others collected in summer). As such, other data sets, like building footprint data, had to be used to estimate changes in land use.		
AFOLU	The land-use sequestration and storage GHG emission factors are taken from the literature, for BC ecozones, and may not reflect the productivity, or lack thereof, of land uses in the CRD. The land-change emission factors for changes between land types were derived by the Province. These are average values by ecozone and are based on a 20-year horizon. Since land-use change in the CRD is typically related to development, it was assumed that the loss of emissions is immediate which may overestimate GHG emission losses. In both emission factor applications, the use of non-site emission factors may result in an over or underestimate of GHG emissions.	Possibly a material impact on the GHG inventory (>10%)	Work with the Province and the University to derive refined sequestration emission factors.

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CAPITAL REGIONAL DISTRICT 2018 GPC BASIC+ COMMUNITY GREENHOUSE GAS (GHG) EMISSIONS INVENTORY REPORT

May 1, 2020

Stantec

APPENDIX B

Capital Region District – Municipalities and Electoral Areas
2007 Base Year and 2018 Reporting Year Energy & GHG Emissions Inventory

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Date: July 24, 2020

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SUMMARY

Climate change has emerged as the next unprecedented social, economic, and environmental challenge facing society today. It poses a serious threat to quality of life, jobs, and physical and natural assets. Scientists believe that the human-production of greenhouse gas (GHG) emissions since pre-industrial times have already surpassed the Earth's "carrying capacity" of natural systems and pose significant future risks to human well-being.

Recognizing the role that Capital Regional District (CRD) plays in achieving a significant and immediate reduction in global GHG emissions, the CRD set a regional GHG reduction target of 61% (from 2007 levels) by 2038. In February 2019, the CRD declared a climate emergency and committed to regional carbon neutrality. Local governments across the region have also set similar ambitious GHG reduction targets and commitments.

To meet these climate commitments, the CRD seeks a better understanding of the energy and GHG emissions at the regional level, as well as at the local government level which includes 13 municipalities and 3 electoral areas. The following document presents a summary of energy and GHG emissions at both the CRD and local government level for the 2007 and 2018 reporting years. This document compliments a 2018 inventory report which describes the methodologies and data sources applied to derive the estimate of GHG emissions for the CRD and local governments. A summary of the 2007 and 2018 energy and GHG emissions by local government is presented in **Table 1** and **Table 2**.

Table 1. Summary of GHG Emissions By CRD Local Government

Local Government	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
District of Central Saanich	80,648	73,995	-8.2%
City of Colwood	80,838	78,506	-2.9%
Township of Esquimalt	95,893	85,786	-10.5%
District of Highlands	7,776	9,373	20.5%
Juan de Fuca Electoral Area*	67,459	73,063	8.3%
City of Langford	133,247	169,775	27.4%
District of Metchosin	16,333	9,038	-44.7%
District of North Saanich	54,454	45,201	-17.0%
District of Oak Bay	89,140	77,178	-13.4%
District of Saanich	574,835	496,408	-13.6%
Salt Spring Island Electoral Area*	45,361	43,963	-3.1%
Town of Sidney	62,025	56,194	-9.4%
District of Sooke	46,616	46,574	-0.1%
City of Victoria	481,559	452,567	-6.0%
Town of View Royal	48,163	45,507	-5.5%
Southern Gulf Islands Electoral Area*	28,947	29,220	0.9%

* Land-use GHG emission estimates have been withheld due to limited land-use data.

Table 2. Summary of Energy Use By CRD Local Government

Local Government	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)
District of Central Saanich	1,865,308	1,941,408	4.1%
City of Colwood	1,527,213	1,573,838	3.1%
Township of Esquimalt	1,781,058	1,668,623	-6.3%
District of Highlands	220,027	274,687	24.8%
Juan de Fuca Electoral Area	1,992,655	1,912,583	-4.0%
City of Langford	2,590,548	3,491,537	34.8%
District of Metchosin	514,949	506,440	-1.7%
District of North Saanich	1,318,084	1,325,251	0.5%
District of Oak Bay	1,654,197	1,547,417	-6.5%
District of Saanich	11,004,052	10,308,380	-6.3%
Salt Spring Island Electoral Area	608,477	633,681	4.1%
Town of Sidney	1,229,020	1,188,309	-3.3%
District of Sooke	963,383	1,140,991	18.4%
City of Victoria	9,830,828	9,436,659	-4.0%
Town of View Royal	959,422	998,682	4.1%
Southern Gulf Islands Electoral Area	503,849	535,368	6.3%

1 INTRODUCTION

1.1 GHG Emissions & Climate Change

There is overwhelming evidence that global climate change resulting from emissions of carbon dioxide and other greenhouse gases (GHGs) is having a significant impact on the ecology of the planet. In addition, climate change is expected to have serious negative impacts on global economic growth and development. In 2005, the UK government commissioned an independent economic review called the Stern Review, which states that the *"costs of stabilizing the climate are significant but manageable; delay would be dangerous and much more costly"*.

Beyond the costs associated with delayed action, there are cost savings to be realized through efforts to conserve energy and to use it more efficiently, and economic opportunities available to communities that develop local energy supply and infrastructure. Actions to encourage energy efficiency and conservation and to promote implementation of renewable energy will assist local governments in developing energy resilient communities, in addition to mitigating climate change. Local governments are at the forefront of global action on climate change, setting both ambitious commitments and targets while going about the difficult task of reducing emissions. Per the latest report from the C40 Cities Climate Leadership Group, ICLEI Local Governments for Sustainability, UN Habitat, and others, most GHG reduction commitments are set for 2020 or 2050 and range from a 10% to 100% reduction (**Figure 1**).

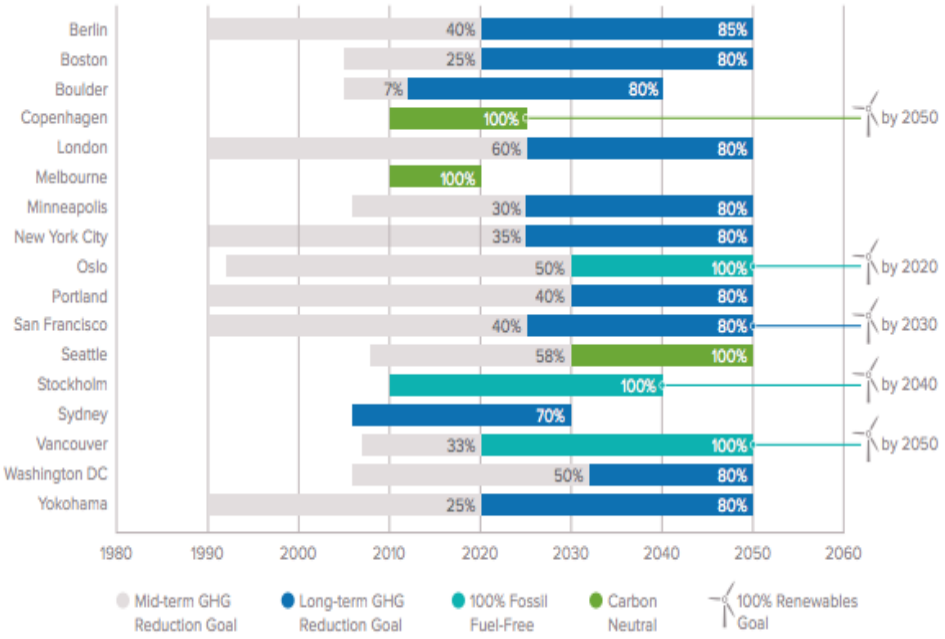


Figure 1. Summary of Long-Term Global GHG Emission Reduction Targets[1]

[1] http://www.c40.org/

1.2 GPC Protocol

To make informed decisions on reducing energy use and GHG emissions at the regional and local government scale, community managers must have a good understanding of these sources, the activities that drive them, and their relative contribution to the total. This requires the completion of an energy and GHG emissions inventory. To allow for credible and meaningful reporting locally and internationally, the Global Protocol for Community-Scale Greenhouse Gas Emission Inventories (the GPC Protocol) was developed as a partnership between ICLEI-Local Governments for Sustainability, The World Resources Institute (WRI) and C40 Cities Climate Leadership Group (C40), with additional collaboration by the World Bank, United Nations Environment Program (UNEP) and UN-Habitat. The GPC Protocol has now become recognized as the standardized way for local governments to collect and report their actions on climate change. Over 9,000 cities have committed to using the GPC Protocol.

The Protocol has two established levels of reporting: BASIC and BASIC+ which are defined as the following:

- The BASIC level covers scope 1 and scope 2 emissions from stationary energy and in-boundary transportation, as well as scope 1 and scope 3 emissions from waste.
- The BASIC+ level covers the same scopes as BASIC and includes more in-depth and data dependent methodologies. Specifically, it expands the reporting scope to include emissions from industrial process and product use (IPPU), agriculture, forestry and other land-use (AFOLU), and transboundary transportation.

1.3 Variance from Community Energy and Emissions Inventories (CEEI)

The CRD has historically relied on the Provincial 2007, 2010 and 2012 Community Energy and Emissions Inventories (CEEI) to baseline and track community GHG emissions. However, there have been some limitations to the CEEI in that it is an in-boundary inventory, the most recent version published is for 2012, and the CEEI Protocol does not fully meet the requirements of the GPC Protocol BASIC or BASIC+ reporting requirements which is the required reporting standard for local governments that have committed to the Global Covenant of Mayors—an agreement led by city networks to undertake a transparent and supportive approach to measure GHG emissions community-wide. A high-level summary of the differences between the CEEI and GPC Protocol inventories are presented in **Table 3**.

Table 3. Summary of GHG Inventory Scope Differences

Reporting Sector	CEEI	GPC BASIC	GPC BASIC+
Residential Buildings	✓	✓	✓
Commercial And Institutional Buildings And Facilities	✓	✓	✓
Manufacturing Industries And Construction	✓	✓	✓
Energy Industries		✓	✓
Energy Generation Supplied To The Grid		✓	✓
Agriculture, Forestry And Fishing Activities		✓	✓
Non-Specified Sources		✓	✓

Reporting Sector	CEEI	GPC BASIC	GPC BASIC+
Fugitive Emissions From Mining, Processing, Storage, And Transportation Of Coal		✓	✓
Fugitive Emissions From Oil And Natural Gas Systems		✓	✓
On-Road Transportation	✓	✓	✓
Railways		✓	✓
Waterborne Navigation		✓	✓
Aviation		✓	✓
Off-Road Transportation		✓	✓
Solid Waste	✓	✓	✓
Biological Waste	✓	✓	✓
Incinerated And Burned Waste		✓	✓
Wastewater		✓	✓
Emissions From Industrial Processes			✓
Emissions From Product Use			✓
Emissions From Livestock	✓		✓
Emissions From Land			✓
Emissions From Aggregate Sources And Non-CO_2 Emission Sources On Land	✓		✓

1.4 Purpose of Document

The purpose of this document is to provide the 2007 and 2018 GPC BASIC+ energy and GHG emissions inventories at the regional and local government level. This document compliments a 2018 inventory report which describes the methodologies and data sources applied to derive the estimate of GHG emissions for the CRD region and local governments.

2 INVENTORY SCOPE

2.1 GPC BASIC+ Inventory Scope

In accordance with the GPC Protocol, the 2007 and 2018 BASIC+ GHG inventories presented herein accounts for GHG emissions from the following Reporting Sectors:

- **Stationary Energy** – These are GHG emissions from fuel combustion, fugitive emissions, and some off-road transportation sources (e.g. construction equipment, residential mowers, etc.). They include the emissions from energy to heat and cool residential, commercial, institutional, and light/heavy industrial buildings, as well as the activities that occur within these residences and facilities.
- **Transportation** – These are GHG emissions from the combustion of fuels as a result of vehicular on-road, off-road, including marine, aviation, and other off-road, and trans-boundary journeys.
- **Waste** – These are GHG emissions from the disposal and management of solid waste, the biological treatment of waste, and wastewater treatment and discharge. Waste does not directly consume energy, but releases GHG emissions because of decomposition, burning, and other management methods.
- **Industrial Process and Product Use (IPPU)** – These are GHG emissions from products such as refrigerants, foams or aerosol cans can release potent GHG emissions, known as product use GHG emissions. There are no known industrial process emissions in the CRD.
- **Agriculture, Forestry and Other Land-Use (AFOLU)** – These are GHG emissions that are captured or released as a result of land-management activities. These activities can range from the preservation of forested lands to the development of crop land. This Sector includes GHG emissions from land-use change, manure management, livestock, and the direct and indirect release of nitrous oxides (N_2O) from soil management, urea application, fertilizer and manure application.

2.2 GHG Emissions Boundary

The GHG inventories are defined geographically by the CRD, which includes 13 municipalities and 3 electoral areas, as shown in Figure 2.

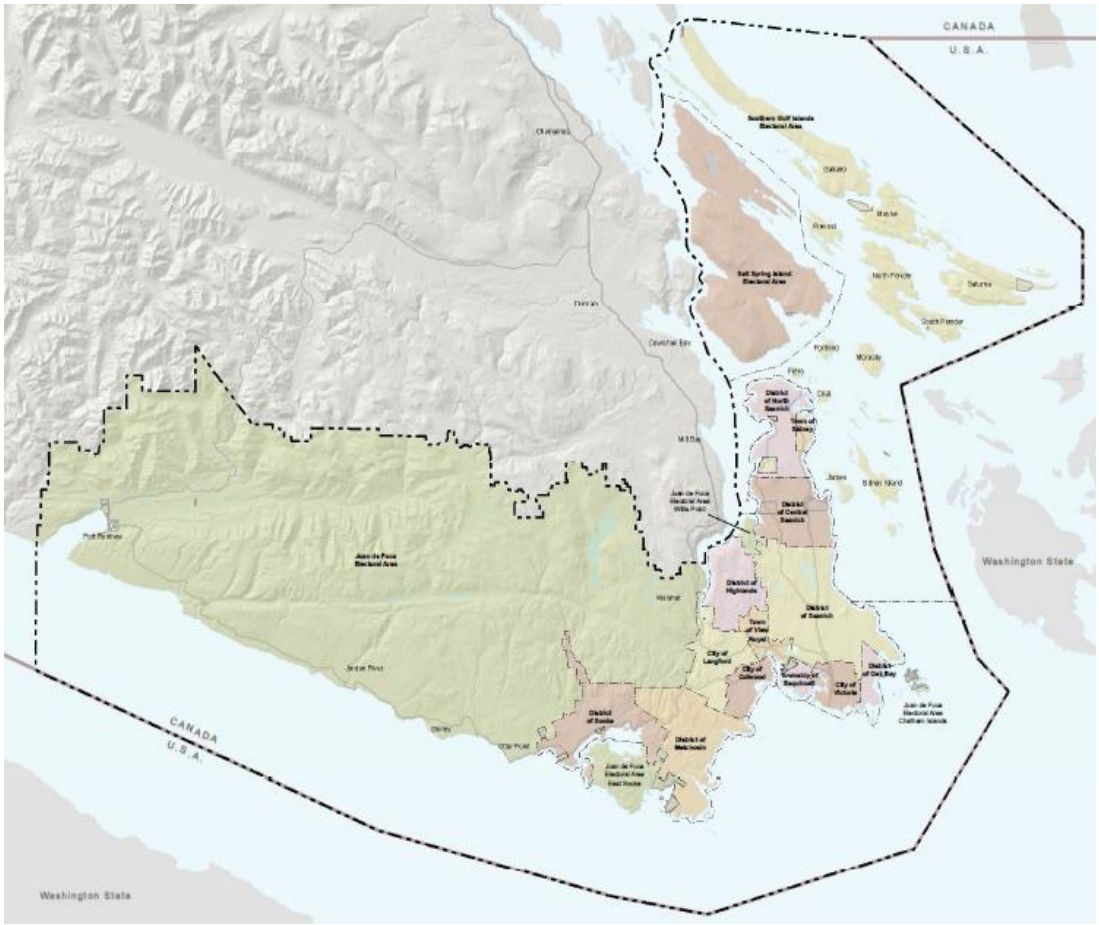


Figure 2 CRD GHG Boundary

2.3 Assumptions & Disclosures

The following inventories covers all GHG emissions for the 2007 and 2018 reporting years. Where data was not available, the most recent year's data have been used, and the timescale noted accordingly. These disclosures are as follows:

- **Global Warming Potentials (GWP)**. The BC government is currently applying GWPs from the fourth IPCC report in light of the fact that there are updated GWPs in available in the fifth IPCC report. On this basis, the following GHG emissions inventories apply GWPs from the fourth IPCC report.
- **Stationary Energy: Propane, Wood and Fuel Oil – Residential Buildings.** Propane, and wood GHG emissions were estimated using linear regression methods. The data used in the estimates included historical propane and wood energy data published in the 2007, 2010 and 2012 CEEIs, and heating degree days (HDD) published by Environment Canada. This approach was also applied to the estimate of heating oil for all local governments, except the City of Victoria and District of Saanich. For the District of

Saanich and the City of Victoria, heating oil GHG emissions were estimated based on the number of known tanks, average heated floor areas and estimated average fuel volumes.

- **Stationary Energy: Electricity and Natural Gas Consumption - All Buildings.** Prior to releasing the electricity and natural gas consumption data, the Province completes a series of quality assurance and control checks which has resulted in the re-allocation of energy between local governments. This data is then published on the Province's website. When the published 2007-2018 natural gas data was trended, several unexplained data anomalies and trends were identified for several local governments in the CRD. As these data anomalies and trends could not readily be explained, the raw natural gas data sets were acquired from FortisBC, reviewed and compared to the published data. In the 2007 and 2010 reporting years, the published data was under reporting natural gas volumes by upwards of 17% at the CRD level and had several large allocations between the City of Victoria and other local governments in 2012. Based on the issues with the published data, and on the basis the annual raw natural gas consumption trends align with the reported 2018 consumption data and align with historical raw data provided to the City of Victoria and the District of Saanich for their energy and GHG emissions inventories, the raw FortisBC dataset was used to estimate GHG emissions. A similar issue was noted for the Juan de Fuca electoral area and electricity data for the 2007, 2010 and 2012 reporting years (i.e., the under reporting of energy consumption) in the published data. As such, the raw electricity data from BC Hydro was used to estimate GHG emissions.
- **Stationary Energy: Fugitives.** FortisBC provided total fugitive emissions for the 2018 reporting year at the regional level. To estimate local government fugitive emissions, the value was prorated based on the number of reported natural gas connections (provided by Fortis BC). Since no historical numbers were provided, the 2018 value was applied to the 2007 base year as well. The estimate of fugitive emissions is an understatement of GHG emissions as FortisBC did not estimate the upstream GHG emissions as recommended by the GPC Protocol.
- **Transportation: On-Road.** The Province of BC provided Insurance Corporation of BC (ICBC) vehicle registration data from April 1, 2018 – March 31, 2019. When compared to local government population trends, there appears to be a high degree of uncertainty as to the accuracy of the 2018 vehicle registration data in terms of total registered vehicles. Without having reliable historical (e.g. 2011-2017) and current (2019) data to compare this dataset against, the reasonableness of the data was too uncertain to be applied in the estimation of GHG emissions for the 2018 reporting year. Therefore, to estimate on-road energy and GHG emissions for the 2018 reporting year, 2010 vehicle populations were grown in proportion to the reported changes in local government populations. Each of the local government vehicle profiles were then adjusted to match the proportion of vehicle classes reported in the 2018 ICBC data.
- **Transportation: On-Road.** In cases where vehicle registration counts were 10 or less, the Province assigned a value of "<10" rather than report the actual number. In these cases, the inventory assumes there was 10 vehicles of that particular classification. This is likely to result in an over-estimation of GHG emissions, but it will be immaterial to the overall GHG inventory.
- **Transportation: On-Road.** Vehicle fuel consumption rates and Vehicle Kilometer Travelled (VKT) were taken from the activity data summary for British Columbia on-road transportation from the 2018 National Inventory Report (1990-2018) as prepared by Environment Canada. Based on the clear diesel and clear gasoline consumption values

reported by the Province of BC for the Victoria region, the VKT and fuel efficiency values are reasonable and result in a similar estimate of fuel consumption for the Region.

- **Transportation: Aviation**. 2018 aviation GHG emissions were estimated using 2015 aircraft flight profiles (the last available data), and the total number of aircraft movements reported in 2018. The emissions were prorated to each local government on a per capita basis.
- **Transportation: Waterborne Recreational Watercraft**. GHG emissions from recreational watercraft and US/Canada ferries were estimated based on a publicly available year 2000 study for the Victoria, Vancouver, and Washington harbors. These GHG emissions were prorated to each local government on a per capita basis.
- **Transportation: Cruise Ships**. The Greater Victoria Harbour Authority reported on cruise ship emissions for the 2018 reporting year but did not provide an estimate for 2007. As a result, no cruise ship emissions are included in the 2007 base year inventory.
- **Waste**: **Solid Waste**. To quantify GHG emissions from the Hartland Landfill, the CRD utilized the waste-in-place (WIP) method which is accepted under the GPC Protocol. The WIP assigns landfill emissions based on total waste deposited during that year. It counts GHGs emitted that year, regardless of when the waste was disposed. Except for the City of Victoria, who claims 31% of the CRD's landfill GHG emission, the remaining landfill GHG emissions were allocated to each local government on a per capita basis. Using this allocation method, the CRD members may over, or underestimate associated solid waste GHG emissions as the current year landfill GHG emissions are based upon cumulative waste over time, and each member may have contributed more waste in past years than the current year (and vice versa).
- **AFOLU**: **Aggregate Sources And Non-CO_2 Emission Sources On Land.** These emissions are based on the 2019 NIR as prepared by ECCC and the total area of farmland BC in 2016 as reported by Statistics Canada. These GHG emissions were assigned to each local government on a per hectare (ha) of cropland basis.
- **AFOLU**: **Land-Use**. The land cover change analysis requires a consistent land-use category attribution and spatial resolution for the 2007 base and 2018 reporting years. For the land use change analysis, land cover data was available for the 2007, 2011 and 2017 years for only part of the CRD. Unfortunately, no more recent or higher quality data source was available to represent the land cover consistently for all three years. Furthermore, since annual data was not available, the change between land cover data years (2007-2011, 2011-2017) was averaged and may not represent actual changes in each year.
- **AFOLU**: Land-Use. There was limited land-use datasets for the Juan de Fuca, Salt Spring Island and Gulf Island Electoral Areas and this data was only available for 2007 and 2011. On this basis, land-use GHG emissions estimates for these electoral areas has been withheld.

Details surrounding all GHG emissions sources quantification methods, assumptions, and assessment of uncertainties are contained in a complimentary GHG emissions methodology document and are not be presented herein.

3 CAPITAL REGIONAL DISTRICT ENERGY & GHG EMISSIONS

3.1 Base Year (2007) Energy & GHG Emissions

In 2007, the CRD's GHG BASIC+ emissions totaled 1,715,814 tCO_2e. Excluding land use GHG emissions, buildings are the CRD's second largest GHG emissions source at 33%, with 42% of those GHG emissions coming from natural gas for heating and cooling, 22% from heating oil for heating, 12% from electricity use, 8% from wood and propane use for heating and the remainder from other-related off-road activities like residential lawn mowing. On-road transportation GHG emission sources contributed 46% to the GHG inventory, almost all of which came from passenger vehicles, light trucks, and SUVs (85%). Off-road transportation, which includes marine, aviation, and other off-road emission sources contributed 7% to the overall GHG inventory. Solid waste, organic waste treatment methods, and wastewater treatment and discharge accounted for 7% of the total community GHG emissions. IPPU emissions accounted for 4% of total GHG emissions while AFOLU GHG emissions resulted in a reduction of 13% of community GHG emissions through the sequestration and storage of carbon.

A summary of the GHG emissions by sector and energy use by source is presented in the following table and figures.

Table 4. Base Year (2007) CRD Regional GHG Energy & GHG Emissions by Source

Source	Type	Consumption	Units	Energy (GJ)	GHG Emissions (tCO_2e)
Stationary Energy					
Residential Buildings	Electricity	2,107,163	MWh	7,585,725	52,679
	Natural Gas	2,639,980	GJ	2,639,980	131,649
	Fuel Oil	83,335	L	2,147,821	146,859
	Propane	10,747	L	424,600	25,882
	Wood	1,144,369	GJ	1,144,369	26,872
	Diesel	6,507,150	L	251,697	19,468
Commercial & Industrial Buildings	Electricity	1,365,217	MWh	4,914,742	34,130
	Natural Gas	3,352,456	GJ	3,352,456	167,179
	Fuel Oil	6,272	L	161,638	11,052
	Diesel	11,734,206	L	453,879	35,106
Energy Industries	LFG Combustion				418
Agriculture, Forestry And Fishing Activities	Diesel	20,743,755	L	802,368	62,060
Natural Gas Fugitive Emissions					993
Total				**23,879,274**	**714,348**
On-Road Transportation					
Electric Vehicles	Electricity	6,622	MWh	23,840	0
Passenger Vehicles	Gasoline + Diesel + Propane	163,062,222	L	5,673,042	403,626
Light Trucks, Vans, SUVs	Gasoline + Diesel + Propane	151,774,389	L	5,237,495	370,284

Source	Type	Consumption	Units	Energy (GJ)	GHG Emissions (tCO_2e)
Heavy Duty Vehicles	Gasoline + Diesel + Propane	53,493,257	L	2,012,033	140,949
Motorcycles	Gasoline + Diesel + Propane	1,208,124	L	41,874	2,885
Total On-Road Transportation				**12,964,443**	**917,744**
Off-Road Transportation					
Marine, Aviation and Other Off-Road Vehicles	Marine Gasoline + Marine Diesel + Jet Fuel	45,492,152	L	1,719,352	130,172
Total Off-Road Transportation				**1,719,352**	**130,172**
Waste					
Wastewater					18,998
Composting					72
Solid Waste					111,234
Total Waste					**130,304**
Agriculture Forestry & Other Land Use (AFOLU)					
Land-Use					-259,033
Livestock, Aggregate Sources and Non-CO_2 Emission Sources on Land					4,930
Total AFOLU					**-254,103**
Industrial Process & Product Use (IPPU)					
Process Use Emissions					77,348
Total IPPU					**77,348**
TOTAL				**38,563,069**	**1,715,814**
TOTAL Per Capita				**109.7**	**4.9**

Energy consumption and GHG emissions by source are shown in **Figure 3**, **Figure 4** and **Figure 5**. On-road and transboundary transportation (82%) account for most of the energy consumption in the region.

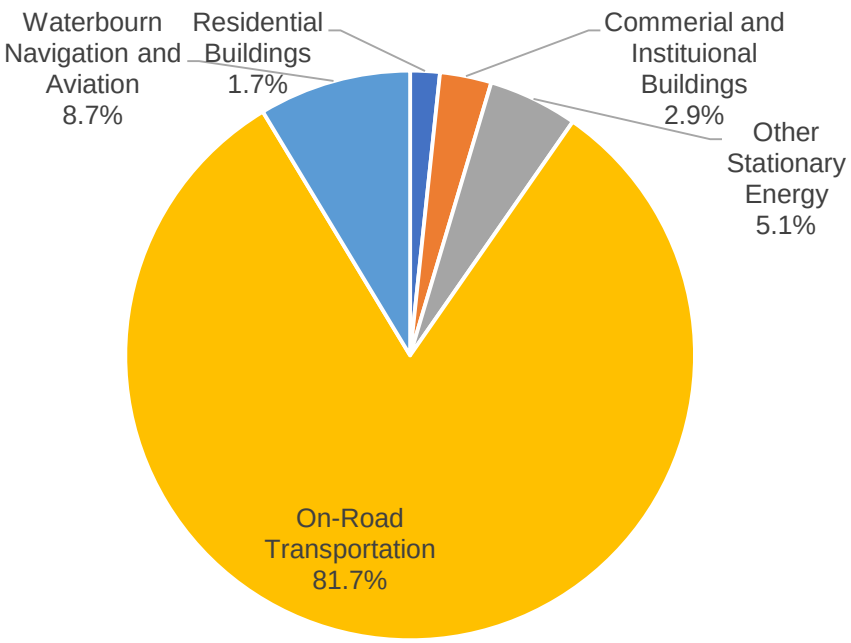


Figure 3. 2007 Regional Energy Consumption By Sector

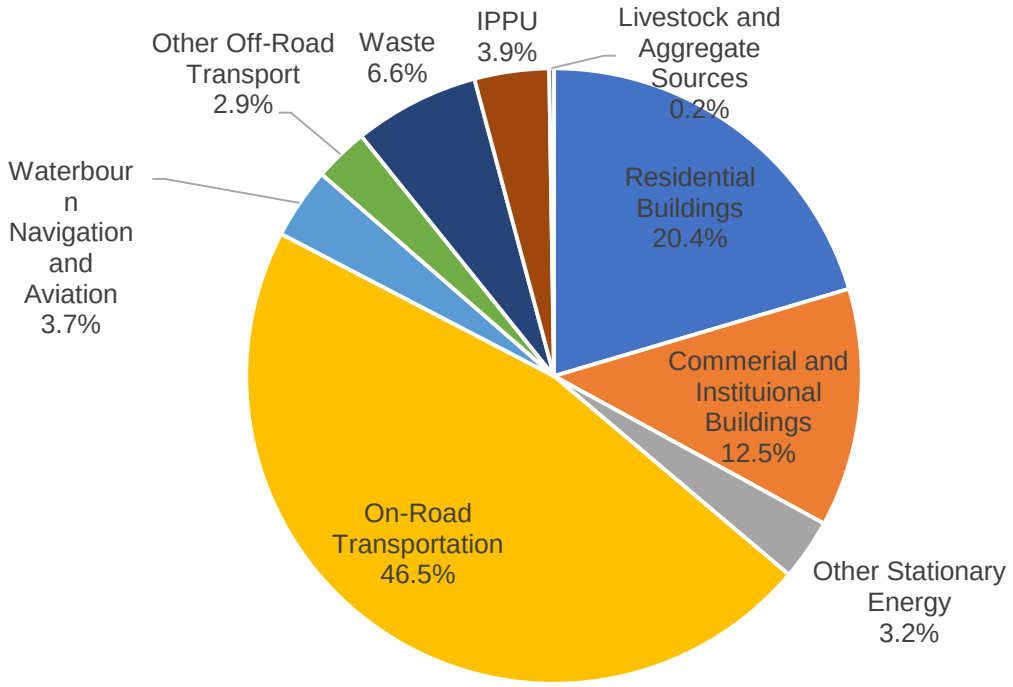


Figure 4. 2007 Regional GHG Emissions By Sector (Excluding Land Use)

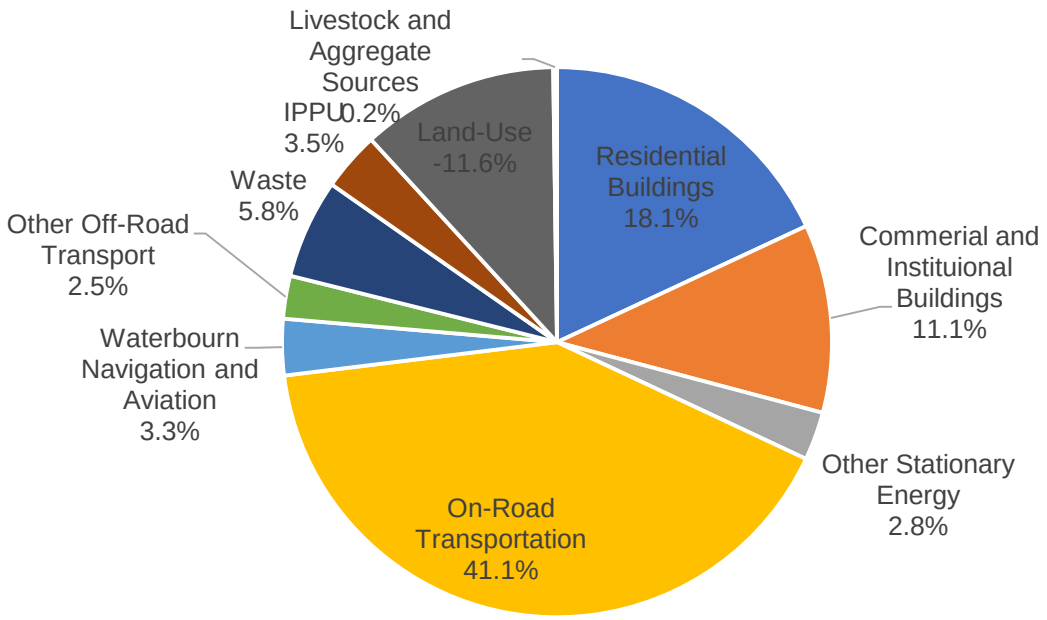


Figure 5. 2007 Regional GHG Emissions By Sector (Including Land Use)

GHG emissions by fuel type is presented in **Figure 6**.

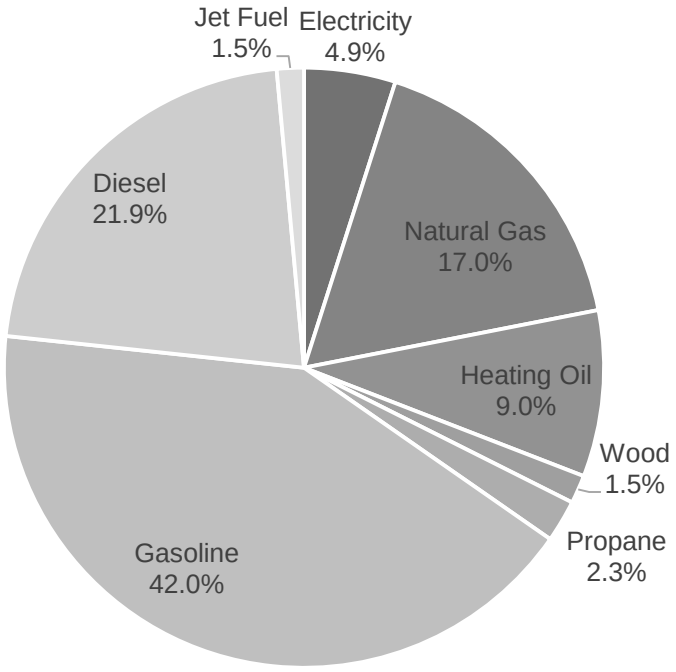


Figure 6. 2007 Regional GHG Emissions By Fuel Type

3.2 CRD GHG Reduction Target

Recognizing the role that the CRD plays in achieving a significant and immediate reduction in global GHG emissions, the CRD has set a regional GHG reduction target of 61% (from 2007 levels) by 2038. With the CRD's 2007 base year GHG emissions being 1,715,814 tCO_2e, a 39% reduction would require a reduction of approximately 669,168 tCO_2e. On a per capita basis, this amounts to reducing emissions from approximately 4.2 tCO_2e per person in 2018 to 2.6 tCO_2e per person by 2038.

In February 2019, the CRD declared a climate emergency and committed to regional carbon neutrality.

3.3 Reporting Year (2018) Energy & GHG Emissions

In 2018, the CRD's BASIC+ GHG emissions totaled 1,696,703 tCO_2. While this is a small decline of 1.1% from the 2007 base year GHG emissions, on an absolute basis, it is a decline of 14% on a per capita basis. Between 2007 and 2018, the CRD's population has grown 15% and thus this decline speaks to the efforts by the CRD and CRD local governments to reduce energy consumption and GHG emissions.

Similar to the 2007 base year, buildings are the second largest GHG emissions source at 32%, with 48% of those GHG emissions coming from natural gas for heating and cooling, 23% from heating oil for heating, 5% from electricity use, 8% from wood and propane use for heating and the remainder from other-related off-road activities like residential lawn mowing. On-road transportation GHG emission sources contributed 46%, almost all of which came from passenger vehicles, light trucks, and SUVs (86%). Off-road transportation, which includes marine, aviation, and other off-road emission sources contributed 7% to the overall GHG inventory. Solid waste, organic waste treatment methods, and wastewater treatment and discharge accounted for 5% of the total community GHG emissions. IPPU emissions accounted for 7% of total GHG emissions while AFOLU GHG emissions resulted in a reduction of 11% of community GHG emissions through the sequestration and storage of carbon.

A summary of the 2018 GHG emissions by sector and energy use by source is presented in the following table and figures.

Table 5. Reporting Year (2018) CRD Regional GHG Energy & GHG Emissions by Sector

Source	Type	Consumption	Units	Energy (GJ)	GHG Emissions (tCO_2e)
Stationary Energy					
Residential Buildings	Electricity	1,920,909	MWh	6,915,217	20,496
	Natural Gas	2,218,511	GJ	2,218,511	110,632
	Fuel Oil	80,580	L	2,076,809	142,004
	Propane	10,169	L	401,770	24,569
	Wood	1,100,555	GJ	1,100,555	25,843
	Diesel	5,434,847	L	210,220	15,252
Commercial & Industrial Buildings	Electricity	1,290,843	MWh	4,646,998	13,773
	Natural Gas	4,192,845	GJ	4,192,845	209,087
	Fuel Oil	5,549	L	143,003	9,778

Source	Type	Consumption	Units	Energy (GJ)	GHG Emissions (tCO_2e)
	Diesel	11,683,072	L	451,901	32,786
Energy Industries	LFG Combustion				7,658
Agriculture, Forestry And Fishing Activities	Diesel	19,879,416	L	768,936	55,787
Natural Gas Fugitive Emissions					1,510
Total				**23,126,766**	**669,175**
On-Road Transportation					
Electric Vehicles	Electricity	6,622	MWh	24	80
Passenger Vehicles	Gasoline + Diesel + Propane	146,887,432	L	5,104,833	328,408
Light Trucks, Vans, SUVs	Gasoline + Diesel + Propane	190,281,535	L	6,653,532	426,624
Heavy Duty Vehicles	Gasoline + Diesel + Propane	49,689,669	L	1,863,143	121,922
Motorcycles	Gasoline	885,376	L	30,687	2,114
Total On-Road Transportation				**13,652,220**	**879,148**
Off-Road Transportation					
Marine, Aviation and Other Off-Road Vehicles	Marine Gasoline + Marine Diesel + Jet Fuel	44,843,853	L	1,704,868	126,061
Total Off-Road Transportation				**1,704,868**	**126,061**
Waste					
Wastewater					19,859
Composting					5,307
Solid Waste					71,219
Total Waste					**96,386**
Agriculture Forestry & Other Land Use (AFOLU)					
Land-Use					-209,262
Livestock, Aggregate Sources and Non-CO_2 Emission Sources on Land					4,930
Total AFOLU					**-203,952**
Industrial Process & Product Use (IPPU)					
Process Use Emissions					129,884
Total IPPU					**129,884**
TOTAL				**38,483,853**	**1,696,703**
TOTAL Per Capita				**94.8**	**4.2**

Energy consumption and GHG emissions by source are shown in **Figure 7**, **Figure 8** and **Figure 9**. On-road and transboundary transportation (82%) account for most of the energy consumption in the region.

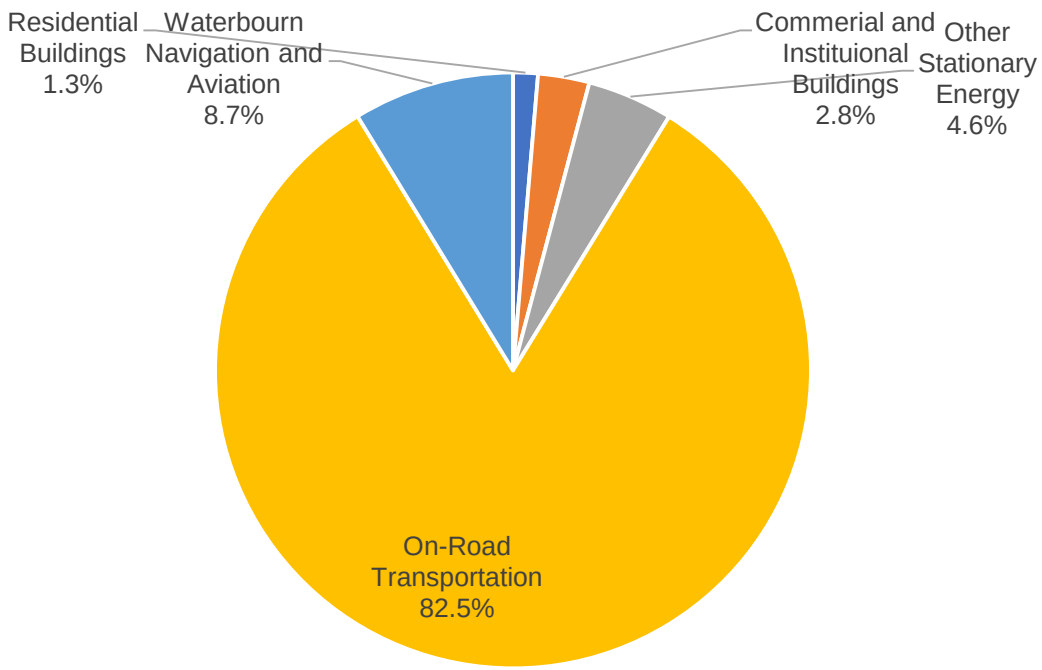


Figure 7. 2018 Regional Energy Consumption By Sector

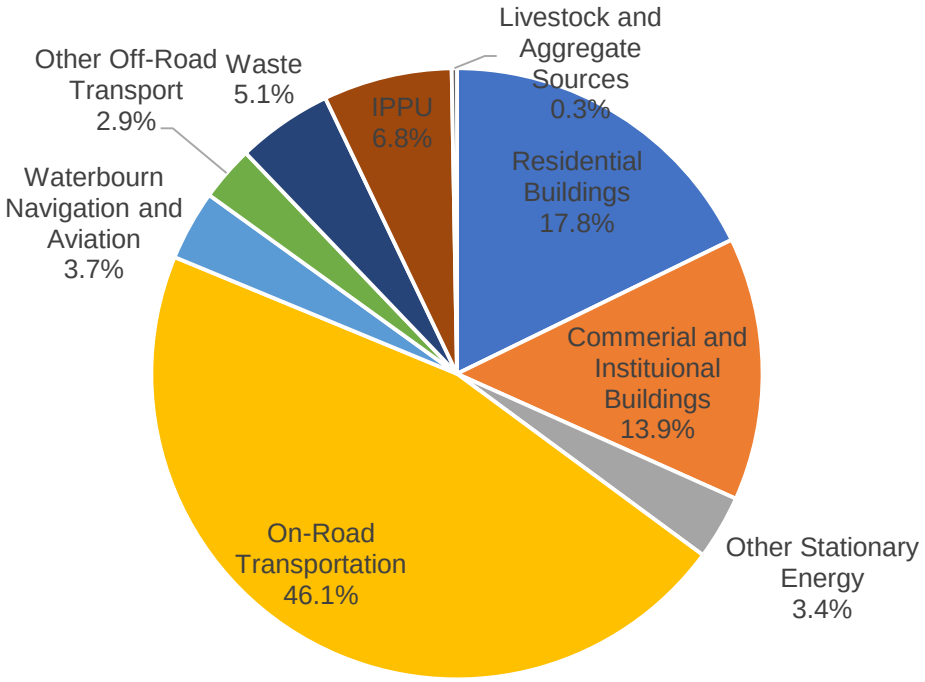


Figure 8. 2018 Regioanal GHG Emissions By Sector (Excluding Land Use)

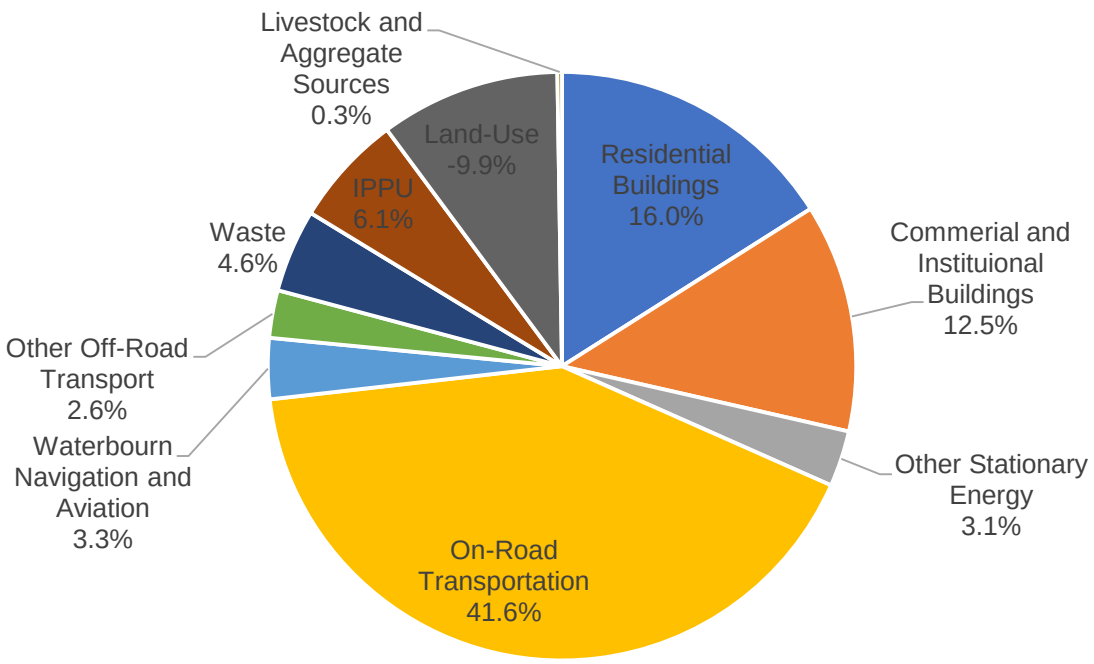


Figure 9. 2018 Regional GHG Emissions By Sector (Including Land Use)

GHG emissions by fuel type is presented in **Figure 10**.

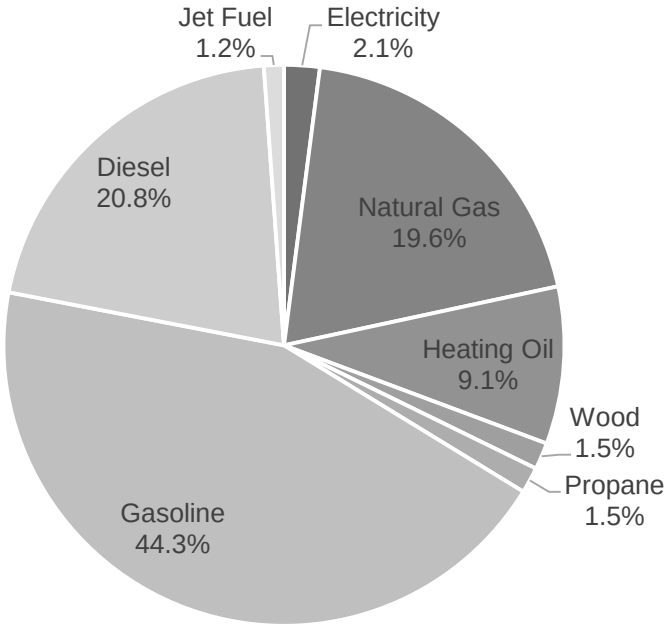


Figure 10. 2018 Regional GHG Emissions By Fuel Type

3.4 Energy & GHG Emissions Trends

Table 6 presents the changes between the 2007 and 2018 reporting years, showing that emissions decreased in most reporting sectors. There was an increase in commercial buildings natural gas consumption and building related natural gas fugitive emissions which is expected as the CRD population has grown. There was also an increase in process use emissions (67%) which is also driven by population. Lastly, there was an increase in composting emissions which is the direct result of waste diversion programs which result in some direct GHG emissions, but overall have a net reduction impact as the process avoids releasing more fugitive emissions from the landfill. Total waste emissions declined 26% from the base year as a result.

GHG emissions resulting from residential buildings have declined by 16% as a result of improved efficiency of appliances and lighting, energy efficiency upgrades, and a transition from heating oil to natural gas or electric heating. In contrast, GHG emissions from commercial and institutional buildings has increased 7% since the base year which is likely to the expanding population and the increased construction of multi-unit residential buildings in the region (which are classified by the utilities as commercial buildings). Overall, stationary energy emissions, which includes buildings, fugitives, and other off-road emission sources have declined by 6% since the base year.

On-road transportation GHG emissions have decreased 4% in light of a 15% increase in the number of registered vehicles and a trend away from light duty vehicles, like sedans, towards SUVs and light duty trucks which have lower fuel efficiencies. This increase has been mitigated by shifting preferences towards electric vehicles, Provincial renewable fuel requirements and people simply driving less. Overall, transportation GHG emissions have declined 4% since the base year.

Land-use GHG emissions increased 20% as a result of more infill and less greenspace development.

Table 6. Change in CRD GHG Energy & GHG Emissions

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
Stationary Energy							
Residential Buildings	Electricity	7,585,725	6,915,217	-8.8%	52,679	20,496	-61.1%
	Natural Gas	2,639,980	2,218,511	-16.0%	131,649	110,632	-16.0%
	Fuel Oil	2,147,821	2,076,809	-3.3%	146,859	142,004	-3.3%
	Propane	424,600	401,770	-5.4%	25,882	24,569	-5.1%
	Wood	1,144,369	1,100,555	-3.8%	26,872	25,843	-3.8%
	Diesel	251,697	210,220	-16.5%	19,468	15,252	-21.7%
Commercial & Industrial Buildings	Electricity	4,914,742	4,646,998	-5.4%	34,130	13,773	-59.6%
	Natural Gas	3,352,456	4,192,845	25.1%	167,179	209,087	25.1%
	Fuel Oil	161,638	143,003	-11.5%	11,052	9,778	-11.5%
	Diesel	453,879	451,901	-0.4%	35,106	32,786	-6.6%
Energy Industries	LFG Combustion			-	418	7,658	1731.0%
Agriculture, Forestry And Fishing Activities	Diesel	802,368	768,936	-4.2%	62,060	55,787	-10.1%
Natural Gas Fugitive Emissions				-	993	1,510	52.0%
Total		**23,879,274**	**23,126,766**	**-3.2%**	**714,348**	**669,175**	**-6.3%**
On-Road Transportation							
Electric Vehicles	Electricity	-	24	-	-	80	-
Passenger Vehicles	Gasoline + Diesel + Propane	5,673,042	5,104,833	-10.0%	403,626	328,408	-18.6%
Light Trucks, Vans, SUVs	Gasoline + Diesel + Propane	5,237,495	6,653,532	27.0%	370,284	426,624	15.2%

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
Heavy Duty Vehicles	Gasoline + Diesel + Propane	2,012,033	1,863,143	-7.4%	140,949	121,922	-13.5%
Motorcycles	Gasoline	41,874	30,687	-26.7%	2,885	2,114	-26.7%
Total On-Road Transportation		**12,964,443**	**13,652,220**	**5.3%**	**917,744**	**879,148**	**-4.2%**
Off-Road Transportation							
Marine, Aviation and Other Off-Road Vehicles	Marine Gasoline + Marine Diesel + Jet Fuel	1,719,352	1,704,868	-0.8%	130,172	126,061	-3.2%
Total Off-Road Transportation		**1,719,352**	**1,704,868**	**-0.8%**	**130,172**	**126,061**	**-3.2%**
Waste							
Wastewater					18,998	19,859	4.5%
Composting					72	5,307	7235.5%
Solid Waste					111,234	71,219	-36.0%
Total Waste					**130,304**	**96,386**	**-26.0%**
Agriculture Forestry & Other Land Use (AFOLU)							
Land-Use					-259,033	-209,262	-19.2%
Livestock, Aggregate Sources and Non-CO_2 Emission Sources on Land						4,930	5,310
Total AFOLU					**-254,103**	**-203,952**	**-19.7%**
Industrial Process & Product Use (IPPU)							
Process Use Emissions					77,348	129,884	67.9%
Total IPPU					**77,348**	**129,884**	**67.9%**
TOTAL		**38,563,069**	**38,483,853**	**-0.2%**	**1,715,814**	**1,696,703**	**-1.1%**

Table 7 presents the changes between the 2007 and 2018 years for each CRD local government.

Table 7. Change in Member GHG Energy & GHG Emissions

Member	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
District of Central Saanich	1,865,308	1,941,408	4.1%	80,648	73,995	-8.2%
City of Colwood	1,527,213	1,573,838	3.1%	80,838	78,506	-2.9%
Township of Esquimalt	1,781,058	1,668,623	-6.3%	95,893	85,786	-10.5%
District of Highlands	220,027	274,687	24.8%	7,776	9,373	20.5%
Juan de Fuca Electoral Area*	1,992,655	1,912,583	-4.0%	67,459	73,063	8.3%
City of Langford	2,590,548	3,491,537	34.8%	133,247	169,775	27.4%
District of Metchosin	514,949	506,440	-1.7%	16,333	9,038	-44.7%
District of North Saanich	1,318,084	1,325,251	0.5%	54,454	45,201	-17.0%
District of Oak Bay	1,654,197	1,547,417	-6.5%	89,140	77,178	-13.4%
District of Saanich	11,004,052	10,308,380	-6.3%	574,835	496,408	-13.6%
Salt Spring Island Electoral Area*	608,477	633,681	4.1%	45,361	43,963	-3.1%
Town of Sidney	1,229,020	1,188,309	-3.3%	62,025	56,194	-9.4%
District of Sooke	963,383	1,140,991	18.4%	46,616	46,574	-0.1%
City of Victoria	9,830,828	9,436,659	-4.0%	481,559	452,567	-6.0%
Town of View Royal	959,422	998,682	4.1%	48,163	45,507	-5.5%
Southern Gulf Islands Electoral Area*	503,849	535,368	6.3%	28,947	29,220	0.9%

* Land-use GHG emission estimates have been withheld due to limited land-use data.

4 DISTRICT OF CENTRAL SAANICH

4.1 2018 Profile

Profile	
Population	18,011
Dwellings	7,541
Registered Vehicles	14,552
Energy (Thousands of GJ)	1,941
GHG Emissions (tCO_2e)	73,995

4.2 Energy & GHG Emissions

Table 8 presents a summary comparison of the District of Central Saanich's 2007 and 2018 energy and GHG emissions.

Table 8. Estimated Energy and GHG Emissions By Reporting Source

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
Stationary Energy							
Residential Buildings	Electricity	400,966	355,752	-11.3%	2,785	1,054	-62.1%
	Natural Gas	101,999	119,958	17.6%	5,086	5,982	17.6%
	Fuel Oil	18,644	22,717	21.8%	1,275	1,553	21.8%
	Propane	3,220	3,039	-5.6%	196	186	-5.3%
	Wood	7,150	6,825	-4.6%	168	160	-4.6%
	Diesel	11,564	9,326	-19.3%	894	677	-24.3%
Commercial & Industrial Buildings	Electricity	230,235	235,660	2.4%	1,599	698	-56.3%
	Natural Gas	152,986	141,268	-7.7%	7,629	7,045	-7.7%

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
	Fuel Oil	0	0	-	0	0	-
	Diesel	20,852	20,048	-3.9%	1,613	1,455	-9.8%
Energy Industries	LFG Combustion			-	0	0	-
Agriculture, Forestry And Fishing Activities	Diesel	55,164	50,184	-9.0%	4,267	3,641	-14.7%
Natural Gas Fugitive Emissions				-	57	81	43.4%
Total		**1,002,781**	**964,777**	**-3.8%**	**25,568**	**22,532**	**-11.9%**
On-Road Transportation							
Electric Vehicles	Electricity	-	1	-	-	3	-
Passenger Vehicles	Gasoline + Diesel + Propane	278,538	227,595	-18.3%	19,814	14,620	-26.2%
Light Trucks, Vans, SUVs	Gasoline + Diesel + Propane	340,633	395,683	16.2%	24,071	25,379	5.4%
Heavy Duty Vehicles	Gasoline + Diesel + Propane	168,528	285,314	69.3%	11,841	18,590	57.0%
Motorcycles	Gasoline	2,245	1,298	-42.2%	155	89	-42.2%
Total On-Road Transportation		**789,944**	**909,891**	**15.2%**	**55,881**	**58,681**	**5.0%**
Off-Road Transportation							
Marine, Aviation and Other Off-Road Vehicles	Marine Gasoline + Marine Diesel + Jet Fuel	72,584	66,739	-8.1%	5,498	4,923	-10.5%
Total Off-Road Transportation		**72,584**	**66,739**	**-8.1%**	**5,498**	**4,923**	**-10.5%**
Waste							
Wastewater					668	787	17.9%
Composting					0	0	-

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
Solid Waste					5,110	2,825	-44.7%
Total Waste					**5,778**	**3,612**	**-37.5%**
Agriculture Forestry & Other Land Use (AFOLU)							
Land-Use					-17,568	-23,720	35.0%
Livestock, Aggregate Sources and Non-CO_2 Emission Sources on Land					1,937	2,205	13.8%
Total AFOLU					**-15,631**	**-21,515**	**37.6%**
Industrial Process & Product Use (IPPU)							
Process Use Emissions					3,554	5,762	62.2%
Total IPPU					**3,554**	**5,762**	**62.2%**
TOTAL		**1,865,308**	**1,941,408**	**4.1%**	**80,648**	**73,995**	**-8.2%**

5 CITY OF COLWOOD

5.1 2018 Profile

Profile	
Population	18,321
Dwellings	7,182
Registered Vehicles	12,397
Energy (Thousands of GJ)	1,574
GHG Emissions (tCO_2e)	78,506

5.2 Energy & GHG Emissions

Table 9 presents a summary comparison of the City of Colwood's 2007 and 2018 energy and GHG emissions.

Table 9. Estimated Energy and GHG Emissions By Reporting Source

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
Stationary Energy							
Residential Buildings	Electricity	304,580	296,374	-2.7%	2,115	878	-58.5%
	Natural Gas	100,740	131,733	30.8%	5,024	6,569	30.8%
	Fuel Oil	65,936	80,342	21.8%	4,508	5,493	21.8%
	Propane	11,388	10,749	-5.6%	694	657	-5.3%
	Wood	25,284	24,133	-4.6%	594	567	-4.6%
	Diesel	11,059	9,487	-14.2%	855	688	-19.5%
Commercial & Industrial Buildings	Electricity	159,740	135,650	-15.1%	1,109	402	-63.8%
	Natural Gas	94,097	94,637	0.6%	4,692	4,719	0.6%

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
	Fuel Oil	0	0	-	0	0	-
	Diesel	19,942	20,393	2.3%	1,542	1,480	-4.1%
Energy Industries	LFG Combustion			-	0	0	-
Agriculture, Forestry And Fishing Activities	Diesel	52,757	51,047	-3.2%	4,081	3,704	-9.2%
Natural Gas Fugitive Emissions				-	61	91	49.7%
Total		**845,524**	**854,547**	**1.1%**	**25,276**	**25,249**	**-0.1%**
On-Road Transportation							
Electric Vehicles	Electricity	-	1	-	-	3	-
Passenger Vehicles	Gasoline + Diesel + Propane	233,329	206,853	-11.3%	16,594	13,280	-20.0%
Light Trucks, Vans, SUVs	Gasoline + Diesel + Propane	275,284	340,405	23.7%	19,487	21,821	12.0%
Heavy Duty Vehicles	Gasoline + Diesel + Propane	101,516	102,552	1.0%	7,121	6,743	-5.3%
Motorcycles	Gasoline	2,145	1,593	-25.8%	148	110	-25.8%
Total On-Road Transportation		**612,274**	**651,403**	**6.4%**	**43,349**	**41,956**	**-3.2%**
Off-Road Transportation							
Marine, Aviation and Other Off-Road Vehicles	Marine Gasoline + Marine Diesel + Jet Fuel	69,416	67,888	-2.2%	5,258	5,007	-4.8%
Total Off-Road Transportation		**69,416**	**67,888**	**-2.2%**	**5,258**	**5,007**	**-4.8%**
Waste							
Wastewater					397	627	57.8%
Composting					0	0	-

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
Solid Waste					4,887	2,874	-41.2%
Total Waste					**5,285**	**3,501**	**-33.8%**
Agriculture Forestry & Other Land Use (AFOLU)							
Land-Use					-1,732	-3,072	77.3%
Livestock, Aggregate Sources and Non-CO_2 Emission Sources on Land					4	4	7.0%
Total AFOLU					**-1,728**	**-3,068**	**77.5%**
Industrial Process & Product Use (IPPU)							
Process Use Emissions					3,399	5,861	72.5%
Total IPPU					**3,399**	**5,861**	**72.5%**
TOTAL		**1,527,213**	**1,573,838**	**3.1%**	**80,838**	**78,506**	**-2.9%**

6 TOWNSHIP OF ESQUIMALT

6.1 2018 Profile

Profile	
Population	18,758
Dwellings	9,183
Registered Vehicles	11,720
Energy (Thousands of GJ)	1,669
GHG Emissions (tCO_2e)	85,786

6.2 Energy & GHG Emissions

Table 10 presents a summary comparison of the Township of Esquimalt's 2007 and 2018 energy and GHG emissions.

Table 10. Estimated Energy and GHG Emissions By Reporting Source

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
Stationary Energy							
Residential Buildings	Electricity	283,988	251,073	-11.6%	1,972	744	-62.3%
	Natural Gas	133,315	78,594	-41.0%	6,648	3,919	-41.0%
	Fuel Oil	116,338	141,755	21.8%	7,955	9,693	21.8%
	Propane	20,190	19,058	-5.6%	1,231	1,165	-5.3%
	Wood	44,358	42,338	-4.6%	1,042	994	-4.6%
	Diesel	12,428	9,713	-21.8%	961	705	-26.7%
Commercial & Industrial Buildings	Electricity	166,547	148,757	-10.7%	1,157	441	-61.9%
	Natural Gas	323,843	332,138	2.6%	16,149	16,563	2.6%

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
	Fuel Oil	0	0	-	0	0	-
	Diesel	22,412	20,880	-6.8%	1,733	1,515	-12.6%
Energy Industries	LFG Combustion			-	0	0	-
Agriculture, Forestry And Fishing Activities	Diesel	0	0	-	0	0	-
Natural Gas Fugitive Emissions				-	44	67	51.2%
Total		**1,123,418**	**1,044,306**	**-7.0%**	**38,892**	**35,806**	**-7.9%**
On-Road Transportation							
Electric Vehicles	Electricity	-	1	-	-	2	-
Passenger Vehicles	Gasoline + Diesel + Propane	263,197	229,014	-13.0%	18,717	14,702	-21.5%
Light Trucks, Vans, SUVs	Gasoline + Diesel + Propane	228,974	278,401	21.6%	16,158	17,808	10.2%
Heavy Duty Vehicles	Gasoline + Diesel + Propane	85,144	45,334	-46.8%	5,953	2,941	-50.6%
Motorcycles	Gasoline	2,312	2,061	-10.9%	159	142	-10.9%
Total On-Road Transportation		**579,628**	**554,810**	**-4.3%**	**40,987**	**35,595**	**-13.2%**
Off-Road Transportation							
Marine, Aviation and Other Off-Road Vehicles	Marine Gasoline + Marine Diesel + Jet Fuel	78,012	69,507	-10.9%	5,909	5,127	-13.2%
Total Off-Road Transportation		**78,012**	**69,507**	**-10.9%**	**5,909**	**5,127**	**-13.2%**
Waste							
Wastewater					1,388	1,470	5.9%
Composting					0	95	-

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
Solid Waste					5,493	2,942	-46.4%
Total Waste					**6,880**	**4,507**	**-34.5%**
Agriculture Forestry & Other Land Use (AFOLU)							
Land-Use					-595	-1,250	110.0%
Livestock, Aggregate Sources and Non-CO_2 Emission Sources on Land					0	0	-
Total AFOLU					**-595**	**-1,250**	**110.0%**
Industrial Process & Product Use (IPPU)							
Process Use Emissions					3,819	6,001	57.1%
Total IPPU					**3,819**	**6,001**	**57.1%**
TOTAL		**1,781,058**	**1,668,623**	**-6.3%**	**95,893**	**85,786**	**-10.5%**

7 DISTRICT OF HIGHLANDS

7.1 2018 Profile

Profile	
Population	2,437
Dwellings	901
Registered Vehicles	1,948
Energy (Thousands of GJ)	275
GHG Emissions (tCO_2e)	9,373

7.2 Energy & GHG Emissions

Table 11 presents a summary comparison of the District of Highland's 2007 and 2018 energy and GHG emissions.

Table 11. Estimated Energy and GHG Emissions By Reporting Source

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
Stationary Energy							
Residential Buildings	Electricity	63,637	67,596	6.2%	442	200	-54.7%
	Natural Gas	69	4,110	5817.7%	3	205	5817.7%
	Fuel Oil	9,468	11,536	21.8%	647	789	21.8%
	Propane	1,633	1,541	-5.6%	100	94	-5.3%
	Wood	3,637	3,471	-4.6%	85	82	-4.6%
	Diesel	1,406	1,262	-10.2%	109	92	-15.8%
Commercial & Industrial Buildings	Electricity	6,447	14,442	124.0%	45	43	-4.4%
	Natural Gas	20,440	18,766	-8.2%	1,019	936	-8.2%

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
	Fuel Oil	0	0	-	0	0	-
	Diesel	2,535	2,713	7.0%	196	197	0.4%
Energy Industries	LFG Combustion			-	0	0	-
Agriculture, Forestry And Fishing Activities	Diesel	6,707	6,790	1.2%	519	493	-5.0%
Natural Gas Fugitive Emissions				-	0	2	925.8%
Total		**115,979**	**132,227**	**14.0%**	**3,166**	**3,131**	**-1.1%**
On-Road Transportation							
Electric Vehicles	Electricity	-	-	-	-	-	-
Passenger Vehicles	Gasoline + Diesel + Propane	25,510	24,270	-4.9%	1,822	1,547	-15.1%
Light Trucks, Vans, SUVs	Gasoline + Diesel + Propane	49,104	62,911	28.1%	3,435	4,042	17.7%
Heavy Duty Vehicles	Gasoline + Diesel + Propane	20,280	46,022	126.9%	1,422	3,038	113.6%
Motorcycles	Gasoline	327	228	-30.4%	23	16	-30.4%
Total On-Road Transportation		**95,222**	**133,430**	**40.1%**	**6,702**	**8,643**	**29.0%**
Off-Road Transportation							
Marine, Aviation and Other Off-Road Vehicles	Marine Gasoline + Marine Diesel + Jet Fuel	8,825	9,030	2.3%	668	666	-0.4%
Total Off-Road Transportation		**8,825**	**9,030**	**2.3%**	**668**	**666**	**-0.4%**
Waste							
Wastewater					0	0	-
Composting					0	0	-

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
Solid Waste					621	382	-38.5%
Total Waste					**621**	**382**	**-38.5%**
Agriculture Forestry & Other Land Use (AFOLU)							
Land-Use					-3,817	-4,233	10.9%
Livestock, Aggregate Sources and Non-CO_2 Emission Sources on Land					3	4	18.1%
Total AFOLU					**-3,814**	**-4,229**	**10.9%**
Industrial Process & Product Use (IPPU)							
Process Use Emissions					432	780	80.4%
Total IPPU					**432**	**780**	**80.4%**
TOTAL		**220,027**	**274,687**	**24.8%**	**7,776**	**9,373**	**20.5%**

8 JUAN DE FUCA ELECTORAL AREA

8.1 2018 Profile

Profile	
Population	5,048
Dwellings	2,210
Registered Vehicles	5,773
Energy (Thousands of GJ)	1,913
GHG Emissions (tCO_2e)	73,063

8.2 Energy & GHG Emissions

Table 12 presents a summary comparison of Juan de Fuca Electoral Area's 2007 and 2018 energy and GHG emissions.

Table 12. Estimated Energy and GHG Emissions By Reporting Source

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
Stationary Energy							
Residential Buildings	Electricity	841,926	617,741	-26.6%	5,847	1,831	-68.7%
	Natural Gas	0	0	-	0	0	-
	Fuel Oil	442,152	537,349	21.5%	30,233	36,742	21.5%
	Propane	82,743	78,102	-5.6%	5,044	4,776	-5.3%
	Wood	184,018	175,638	-4.6%	4,321	4,124	-4.6%
	Diesel	3,107	2,614	-15.9%	240	190	-21.1%
Commercial & Industrial Buildings	Electricity	185,345	157,020	-15.3%	1,287	465	-63.8%
	Natural Gas	0	0	-	0	0	-

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
	Fuel Oil	0	0	-	0	0	-
	Diesel	5,603	5,619	0.3%	433	408	-5.9%
Energy Industries	LFG Combustion			-	0	0	-
Agriculture, Forestry And Fishing Activities	Diesel	14,822	14,065	-5.1%	1,146	1,020	-11.0%
Natural Gas Fugitive Emissions				-	0	0	-
Total		**1,759,714**	**1,588,148**	**-9.7%**	**48,551**	**49,556**	**2.1%**
On-Road Transportation							
Electric Vehicles	Electricity	-	0	-	-	1	-
Passenger Vehicles	Gasoline + Diesel + Propane	7,521	87,329	1061.1%	587	5,632	860.0%
Light Trucks, Vans, SUVs	Gasoline + Diesel + Propane	132,576	175,037	32.0%	9,308	11,232	20.7%
Heavy Duty Vehicles	Gasoline + Diesel + Propane	73,094	42,741	-41.5%	5,174	2,808	-45.7%
Motorcycles	Gasoline	247	622	151.5%	17	43	151.5%
Total On-Road Transportation		**213,439**	**305,730**	**43.2%**	**15,086**	**19,716**	**30.7%**
Off-Road Transportation							
Marine, Aviation and Other Off-Road Vehicles	Marine Gasoline + Marine Diesel + Jet Fuel	19,502	18,705	-4.1%	1,477	1,380	-6.6%
Total Off-Road Transportation		**19,502**	**18,705**	**-4.1%**	**1,477**	**1,380**	**-6.6%**
Waste							
Wastewater					0	1	378.0%
Composting					0	0	-

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
Solid Waste					1,373	792	-42.3%
Total Waste					**1,373**	**792**	**-42.3%**
Agriculture Forestry & Other Land Use (AFOLU)							
Land-Use					Withheld	Withheld	Withheld
Livestock, Aggregate Sources and Non-CO_2 Emission Sources on Land					18	4	-80.0%
Total AFOLU					**18**	**4**	**-80.0%**
Industrial Process & Product Use (IPPU)							
Process Use Emissions					955	1,615	69.1%
Total IPPU					**955**	**1,615**	**69.1%**
TOTAL		**1,992,655**	**1,912,583**	**-4.0%**	**67,459**	**73,063**	**8.3%**

9 CITY OF LANGFORD

9.1 2018 Profile

Profile	
Population	40,557
Dwellings	15,778
Registered Vehicles	28,121
Energy (Thousands of GJ)	3,492
GHG Emissions (tCO_2e)	169,775

9.2 Energy & GHG Emissions

Table 13 presents a summary comparison of the City of Langford's 2007 and 2018 energy and GHG emissions.

Table 13. Estimated Energy and GHG Emissions By Reporting Source

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
Stationary Energy							
Residential Buildings	Electricity	514,845	649,121	26.1%	3,575	1,924	-46.2%
	Natural Gas	122,432	198,172	61.9%	6,105	9,882	61.9%
	Fuel Oil	103,002	125,506	21.8%	7,043	8,582	21.8%
	Propane	17,793	16,795	-5.6%	1,085	1,027	-5.3%
	Wood	39,489	37,690	-4.6%	927	885	-4.6%
	Diesel	17,629	21,001	19.1%	1,364	1,524	11.7%
Commercial & Industrial Buildings	Electricity	343,895	419,190	21.9%	2,388	1,242	-48.0%
	Natural Gas	186,387	261,641	40.4%	9,295	13,047	40.4%

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
	Fuel Oil	0	0	-	0	0	-
	Diesel	31,789	45,144	42.0%	2,459	3,275	33.2%
Energy Industries	LFG Combustion			-	0	0	-
Agriculture, Forestry And Fishing Activities	Diesel	84,097	113,003	34.4%	6,505	8,198	26.0%
Natural Gas Fugitive Emissions				-	81	160	98.7%
Total		**1,461,358**	**1,887,265**	**29.1%**	**40,826**	**49,747**	**21.9%**
On-Road Transportation							
Electric Vehicles	Electricity	-	1	-	-	5	-
Passenger Vehicles	Gasoline + Diesel + Propane	364,717	482,675	32.3%	25,932	31,008	19.6%
Light Trucks, Vans, SUVs	Gasoline + Diesel + Propane	455,816	763,799	67.6%	32,189	48,965	52.1%
Heavy Duty Vehicles	Gasoline + Diesel + Propane	194,516	204,369	5.1%	13,673	13,422	-1.8%
Motorcycles	Gasoline	3,488	3,146	-9.8%	240	217	-9.8%
Total On-Road Transportation		**1,018,538**	**1,453,990**	**42.8%**	**72,034**	**93,616**	**30.0%**
Off-Road Transportation							
Marine, Aviation and Other Off-Road Vehicles	Marine Gasoline + Marine Diesel + Jet Fuel	110,653	150,282	35.8%	8,381	11,084	32.3%
Total Off-Road Transportation		**110,653**	**150,282**	**35.8%**	**8,381**	**11,084**	**32.3%**
Waste							
Wastewater					621	1,298	109.0%
Composting					0	0	-

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
Solid Waste					7,791	6,361	-18.3%
Total Waste					**8,412**	**7,659**	**-8.9%**
Agriculture Forestry & Other Land Use (AFOLU)							
Land-Use					-1,878	-5,373	186.0%
Livestock, Aggregate Sources and Non-CO_2 Emission Sources on Land					56	65	17.5%
Total AFOLU					**-1,823**	**-5,308**	**191.2%**
Industrial Process & Product Use (IPPU)							
Process Use Emissions					5,417	12,975	139.5%
Total IPPU					**5,417**	**12,975**	**139.5%**
TOTAL		**2,590,548**	**3,491,537**	**34.8%**	**133,247**	**169,775**	**27.4%**

10 DISTRICT OF METCHOSIN

10.1 2018 Profile

Profile	
Population	5,117
Dwellings	1,985
Registered Vehicles	4,387
Energy (Thousands of GJ)	506
GHG Emissions (tCO_2e)	9,038

10.2 Energy & GHG Emissions

Table 14 presents a summary comparison of the District of Metchosin's 2007 and 2018 energy and GHG emissions.

Table 14. Estimated Energy and GHG Emissions By Reporting Source

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
Stationary Energy							
Residential Buildings	Electricity	136,761	130,722	-4.4%	950	387	-59.2%
	Natural Gas	8,173	8,378	2.5%	408	418	2.5%
	Fuel Oil	9,003	10,970	21.8%	616	750	21.8%
	Propane	1,553	1,466	-5.6%	95	90	-5.3%
	Wood	3,457	3,299	-4.6%	81	77	-4.6%
	Diesel	3,471	2,650	-23.7%	268	192	-28.4%
Commercial & Industrial Buildings	Electricity	38,169	43,165	13.1%	265	128	-51.7%
	Natural Gas	33,858	27,903	-17.6%	1,688	1,391	-17.6%

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
	Fuel Oil	0	0	-	0	0	-
	Diesel	6,260	5,696	-9.0%	484	413	-14.7%
Energy Industries	LFG Combustion			-	0	0	-
Agriculture, Forestry And Fishing Activities	Diesel	16,560	14,257	-13.9%	1,281	1,034	-19.2%
Natural Gas Fugitive Emissions				-	4	5	25.7%
Total		**257,264**	**248,506**	**-3.4%**	**6,140**	**4,887**	**-20.4%**
On-Road Transportation							
Electric Vehicles	Electricity	-	1	-	-	2	-
Passenger Vehicles	Gasoline + Diesel + Propane	80,035	65,936	-17.6%	5,705	4,251	-25.5%
Light Trucks, Vans, SUVs	Gasoline + Diesel + Propane	118,246	132,722	12.2%	8,346	8,551	2.5%
Heavy Duty Vehicles	Gasoline + Diesel + Propane	36,947	39,882	7.9%	2,590	2,619	1.1%
Motorcycles	Gasoline	668	433	-35.2%	46	30	-35.2%
Total On-Road Transportation		**235,896**	**238,973**	**1.3%**	**16,688**	**15,453**	**-7.4%**
Off-Road Transportation							
Marine, Aviation and Other Off-Road Vehicles	Marine Gasoline + Marine Diesel + Jet Fuel	21,789	18,961	-13.0%	1,650	1,399	-15.3%
Total Off-Road Transportation		**21,789**	**18,961**	**-13.0%**	**1,650**	**1,399**	**-15.3%**
Waste							
Wastewater					0	0	-
Composting					0	0	-

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
Solid Waste					1,534	803	-47.7%
Total Waste					**1,534**	**803**	**-47.7%**
Agriculture Forestry & Other Land Use (AFOLU)							
Land-Use					-11,114	-15,562	40.0%
Livestock, Aggregate Sources and Non-CO_2 Emission Sources on Land					369	422	14.6%
Total AFOLU					**-10,746**	**-15,140**	**40.9%**
Industrial Process & Product Use (IPPU)							
Process Use Emissions					1,067	1,637	53.5%
Total IPPU					**1,067**	**1,637**	**53.5%**
TOTAL		**514,949**	**506,440**	**-1.7%**	**16,333**	**9,038**	**-44.7%**

11 DISTRICT OF NORTH SAANICH

11.1 2018 Profile

Profile	
Population	11,745
Dwellings	5,047
Registered Vehicles	10,009
Energy (Thousands of GJ)	1,325
GHG Emissions (tCO_2e)	45,201

11.2 Energy & GHG Emissions

Table 15 presents a summary comparison of the District of North Saanich's 2007 and 2018 energy and GHG emissions.

Table 15. Estimated Energy and GHG Emissions By Reporting Source

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
Stationary Energy							
Residential Buildings	Electricity	375,159	336,973	-10.2%	2,605	999	-61.7%
	Natural Gas	41,591	63,071	51.6%	2,074	3,145	51.6%
	Fuel Oil	5,953	7,254	21.8%	407	496	21.8%
	Propane	1,027	969	-5.6%	63	59	-5.3%
	Wood	2,286	2,182	-4.6%	54	51	-4.6%
	Diesel	7,844	6,082	-22.5%	607	441	-27.3%
Commercial & Industrial Buildings	Electricity	156,437	182,658	16.8%	1,086	541	-50.2%
	Natural Gas	99,927	106,311	6.4%	4,983	5,301	6.4%

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
	Fuel Oil	0	0	-	0	0	-
	Diesel	14,145	13,073	-7.6%	1,094	948	-13.3%
Energy Industries	LFG Combustion			-	0	0	-
Agriculture, Forestry And Fishing Activities	Diesel	37,419	32,725	-12.5%	2,894	2,374	-18.0%
Natural Gas Fugitive Emissions				-	21	30	43.2%
Total		**741,787**	**751,297**	**1.3%**	**15,888**	**14,387**	**-9.4%**
On-Road Transportation							
Electric Vehicles	Electricity	-	1	-	-	5	-
Passenger Vehicles	Gasoline + Diesel + Propane	208,096	173,125	-16.8%	14,821	11,151	-24.8%
Light Trucks, Vans, SUVs	Gasoline + Diesel + Propane	234,970	267,260	13.7%	16,653	17,186	3.2%
Heavy Duty Vehicles	Gasoline + Diesel + Propane	82,311	88,897	8.0%	5,736	5,821	1.5%
Motorcycles	Gasoline	1,684	1,150	-31.7%	116	79	-31.7%
Total On-Road Transportation		**527,061**	**530,433**	**0.6%**	**37,326**	**34,242**	**-8.3%**
Off-Road Transportation							
Marine, Aviation and Other Off-Road Vehicles	Marine Gasoline + Marine Diesel + Jet Fuel	49,235	43,521	-11.6%	3,729	3,210	-13.9%
Total Off-Road Transportation		**49,235**	**43,521**	**-11.6%**	**3,729**	**3,210**	**-13.9%**
Waste							
Wastewater					196	302	53.8%
Composting					0	0	-

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
Solid Waste					3,467	1,842	-46.9%
Total Waste					**3,663**	**2,144**	**-41.5%**
Agriculture Forestry & Other Land Use (AFOLU)							
Land-Use					-9,360	-13,428	43.5%
Livestock, Aggregate Sources and Non-CO_2 Emission Sources on Land					797	888	11.5%
Total AFOLU					**-8,564**	**-12,540**	**46.4%**
Industrial Process & Product Use (IPPU)							
Process Use Emissions					2,410	3,758	55.9%
Total IPPU					**2,410**	**3,758**	**55.9%**
TOTAL		**1,318,084**	**1,325,251**	**0.5%**	**54,454**	**45,201**	**-17.0%**

12 DISTRICT OF OAK BAY

12.1 2018 Profile

Profile	
Population	18,564
Dwellings	8,168
Registered Vehicles	11,502
Energy (Thousands of GJ)	1,547
GHG Emissions (tCO_2e)	77,178

12.2 Energy & GHG Emissions

Table 16 presents a summary comparison of the District of Oak Bay's 2007 and 2018 energy and GHG emissions.

Table 16. Estimated Energy and GHG Emissions By Reporting Source

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
Stationary Energy							
Residential Buildings	Electricity	370,817	312,380	-15.8%	2,575	926	-64.0%
	Natural Gas	276,642	267,844	-3.2%	13,795	13,357	-3.2%
	Fuel Oil	66,466	80,987	21.8%	4,545	5,538	21.8%
	Propane	11,487	10,843	-5.6%	700	663	-5.3%
	Wood	25,469	24,309	-4.6%	598	571	-4.6%
	Diesel	13,158	9,613	-26.9%	1,018	697	-31.5%
Commercial & Industrial Buildings	Electricity	106,275	102,012	-4.0%	738	302	-59.0%
	Natural Gas	83,140	127,799	53.7%	4,146	6,373	53.7%

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
	Fuel Oil	0	0	-	0	0	-
	Diesel	23,727	20,664	-12.9%	1,835	1,499	-18.3%
Energy Industries	LFG Combustion			-	0	0	-
Agriculture, Forestry And Fishing Activities	Diesel	0	0	-	0	0	-
Natural Gas Fugitive Emissions				-	83	115	38.6%
Total		**977,180**	**956,449**	**-2.1%**	**30,033**	**30,041**	**0.0%**
On-Road Transportation							
Electric Vehicles	Electricity	-	2	-	-	5	-
Passenger Vehicles	Gasoline + Diesel + Propane	322,115	248,704	-22.8%	22,936	16,042	-30.1%
Light Trucks, Vans, SUVs	Gasoline + Diesel + Propane	205,060	248,590	21.2%	14,538	15,975	9.9%
Heavy Duty Vehicles	Gasoline + Diesel + Propane	65,480	23,549	-64.0%	4,572	1,519	-66.8%
Motorcycles	Gasoline	1,771	1,334	-24.7%	122	92	-24.7%
Total On-Road Transportation		**594,426**	**522,180**	**-12.2%**	**42,169**	**33,633**	**-20.2%**
Off-Road Transportation							
Marine, Aviation and Other Off-Road Vehicles	Marine Gasoline + Marine Diesel + Jet Fuel	82,591	68,788	-16.7%	6,256	5,074	-18.9%
Total Off-Road Transportation		**82,591**	**68,788**	**-16.7%**	**6,256**	**5,074**	**-18.9%**
Waste							
Wastewater					1,968	1,698	-13.7%
Composting					0	95	-

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
Solid Waste					5,815	2,912	-49.9%
Total Waste					**7,783**	**4,704**	**-39.6%**
Agriculture Forestry & Other Land Use (AFOLU)							
Land-Use					-1,145	-2,213	93.3%
Livestock, Aggregate Sources and Non-CO_2 Emission Sources on Land					0	0	-100.0%
Total AFOLU					**-1,145**	**-2,213**	**93.3%**
Industrial Process & Product Use (IPPU)							
Process Use Emissions					4,044	5,939	46.9%
Total IPPU					**4,044**	**5,939**	**46.9%**
TOTAL		**1,654,197**	**1,547,417**	**-6.5%**	**89,140**	**77,178**	**-13.4%**

13 THE DISTRICT OF SAANICH

13.1 2018 Profile

Profile	
Population	121,055
Dwellings	49,986
Registered Vehicles	80,052
Energy (Thousands of GJ)	10,308
GHG Emissions (tCO_2e)	496,408

13.2 Energy & GHG Emissions

Table 17 presents a summary comparison of the District of Saanich's 2007 and 2018 energy and GHG emissions.

Table 17. Estimated Energy and GHG Emissions By Reporting Source

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
Stationary Energy							
Residential Buildings	Electricity	2,368,284	2,080,838	-12.1%	16,447	6,167	-62.5%
	Natural Gas	743,960	731,870	-1.6%	37,099	36,497	-1.6%
	Fuel Oil	518,953	400,458	-22.8%	35,484	27,382	-22.8%
	Propane	97,519	92,049	-5.6%	5,944	5,629	-5.3%
	Wood	216,161	206,317	-4.6%	5,076	4,845	-4.6%
	Diesel	79,524	62,683	-21.2%	6,151	4,548	-26.1%
Commercial & Industrial Buildings	Electricity	1,173,713	1,076,395	-8.3%	8,151	3,190	-60.9%
	Natural Gas	759,454	825,369	8.7%	37,872	41,159	8.7%

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
	Fuel Oil	38,936	20,302	-47.9%	2,662	1,388	-47.9%
	Diesel	143,403	134,747	-6.0%	11,092	9,776	-11.9%
Energy Industries	LFG Combustion			-	418	7,658	1731.0%
Agriculture, Forestry And Fishing Activities	Diesel	379,367	337,293	-11.1%	29,343	24,471	-16.6%
Natural Gas Fugitive Emissions				-	314	432	37.5%
Total		**6,519,275**	**5,968,321**	**-8.5%**	**196,053**	**173,142**	**-11.7%**
On-Road Transportation							
Electric Vehicles	Electricity	-	8	-	-	26	-
Passenger Vehicles	Gasoline + Diesel + Propane	1,877,530	1,569,407	-16.4%	133,584	101,091	-24.3%
Light Trucks, Vans, SUVs	Gasoline + Diesel + Propane	1,608,977	1,937,746	20.4%	113,867	124,245	9.1%
Heavy Duty Vehicles	Gasoline + Diesel + Propane	487,735	376,512	-22.8%	34,114	24,631	-27.8%
Motorcycles	Gasoline	11,374	7,822	-31.2%	784	539	-31.2%
Total On-Road Transportation		**3,985,616**	**3,891,494**	**-2.4%**	**282,348**	**250,532**	**-11.3%**
Off-Road Transportation							
Marine, Aviation and Other Off-Road Vehicles	Marine Gasoline + Marine Diesel + Jet Fuel	499,161	448,564	-10.1%	37,808	33,085	-12.5%
Total Off-Road Transportation		**499,161**	**448,564**	**-10.1%**	**37,808**	**33,085**	**-12.5%**
Waste							
Wastewater					4,989	5,340	7.0%
Composting					0	3,923	-

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
Solid Waste					35,144	18,988	-46.0%
Total Waste					**40,134**	**28,252**	**-29.6%**
Agriculture Forestry & Other Land Use (AFOLU)							
Land-Use					-6,820	-28,395	316.3%
Livestock, Aggregate Sources and Non-CO_2 Emission Sources on Land					874	1,063	21.7%
Total AFOLU					**-5,947**	**-27,332**	**359.6%**
Industrial Process & Product Use (IPPU)							
Process Use Emissions					24,438	38,729	58.5%
Total IPPU					**24,438**	**38,729**	**58.5%**
TOTAL		**11,004,052**	**10,308,380**	**-6.3%**	**574,835**	**496,408**	**-13.6%**

The District of Saanich has previously completed 2007 base and 2017 reporting year GHG emissions inventories to which there are several differences between the District of Saanich's reported GHG emissions and those presented herein. These differences between the two inventories are presented in Appendix A.

14 SALT SPRING ELECTORAL AREA

14.1 2018 Profile

Profile	
Population	11,115
Dwellings	5,102
Registered Vehicles	8,722
Energy (Thousands of GJ)	634
GHG Emissions (tCO_2e)	43,963

14.2 Energy & GHG Emissions

Table 18 presents a summary comparison of Salt Spring Island Electoral Area's 2007 and 2018 energy and GHG emissions.

Table 18. Estimated Energy and GHG Emissions By Reporting Source

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
Stationary Energy							
Residential Buildings	Electricity	4,990	3,989	-20.0%	35	12	-65.9%
	Natural Gas	0	0	-	0	0	-
	Fuel Oil	9,967	12,520	25.6%	682	856	25.6%
	Propane	9,006	8,764	-2.7%	549	536	-2.4%
	Wood	75,133	73,930	-1.6%	1,764	1,736	-1.6%
	Diesel	7,079	5,755	-18.7%	548	418	-23.7%
Commercial & Industrial Buildings	Electricity	85	75	-11.9%	1	0	-62.4%
	Natural Gas	0	0	-	0	0	-

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
	Fuel Oil	0	0	-	0	0	-
	Diesel	12,765	12,372	-3.1%	987	898	-9.1%
Energy Industries	LFG Combustion			-	0	0	-
Agriculture, Forestry And Fishing Activities	Diesel	33,769	30,970	-8.3%	2,612	2,247	-14.0%
Natural Gas Fugitive Emissions				-	0	0	-
Total		**152,793**	**148,375**	**-2.9%**	**7,177**	**6,702**	**-6.6%**
On-Road Transportation							
Electric Vehicles	Electricity	-	2	-	-	7	-
Passenger Vehicles	Gasoline + Diesel + Propane	166,502	140,264	-15.8%	11,828	9,050	-23.5%
Light Trucks, Vans, SUVs	Gasoline + Diesel + Propane	197,189	244,847	24.2%	13,963	15,719	12.6%
Heavy Duty Vehicles	Gasoline + Diesel + Propane	45,823	58,212	27.0%	3,148	3,794	20.5%
Motorcycles	Gasoline	1,737	795	-54.2%	120	55	-54.2%
Total On-Road Transportation		**411,252**	**444,119**	**8.0%**	**29,059**	**28,625**	**-1.5%**
Off-Road Transportation							
Marine, Aviation and Other Off-Road Vehicles	Marine Gasoline + Marine Diesel + Jet Fuel	44,432	41,186	-7.3%	3,365	3,038	-9.7%
Total Off-Road Transportation		**44,432**	**41,186**	**-7.3%**	**3,365**	**3,038**	**-9.7%**
Waste							
Wastewater					49	10	-79.8%
Composting					0	0	-

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
Solid Waste					3,128	1,743	-44.3%
Total Waste					**3,177**	**1,753**	**-44.8%**
Agriculture Forestry & Other Land Use (AFOLU)							
Land-Use					Withheld	Withheld	Withheld
Livestock, Aggregate Sources and Non-CO_2 Emission Sources on Land					407	288	-29.2%
Total AFOLU					**407**	**288**	**-29.2%**
Industrial Process & Product Use (IPPU)							
Process Use Emissions					2,175	3,556	63.5%
Total IPPU					**2,175**	**3,556**	**63.5%**
TOTAL		**608,477**	**633,681**	**4.1%**	**45,361**	**43,963**	**-3.1%**

15 TOWN OF SIDNEY

15.1 2018 Profile

Profile	
Population	12,172
Dwellings	6,099
Registered Vehicles	8,435
Energy (Thousands of GJ)	1,188
GHG Emissions (tCO_2e)	56,194

15.2 Energy & GHG Emissions

Table 19 presents a summary comparison of the Town Sidney's 2007 and 2018 energy and GHG emissions.

Table 19. Estimated Energy and GHG Emissions By Reporting Source

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
Stationary Energy							
Residential Buildings	Electricity	243,260	215,028	-11.6%	1,689	637	-62.3%
	Natural Gas	70,155	78,015	11.2%	3,498	3,890	11.2%
	Fuel Oil	58,189	70,903	21.8%	3,979	4,848	21.8%
	Propane	10,069	9,505	-5.6%	614	581	-5.3%
	Wood	22,263	21,249	-4.6%	523	499	-4.6%
	Diesel	8,167	6,303	-22.8%	632	457	-27.6%
Commercial & Industrial Buildings	Electricity	186,594	177,767	-4.7%	1,296	527	-59.3%
	Natural Gas	80,240	82,300	2.6%	4,001	4,104	2.6%

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
	Fuel Oil	0	0	-	0	0	-
	Diesel	14,728	13,549	-8.0%	1,139	983	-13.7%
Energy Industries	LFG Combustion			-	0	0	-
Agriculture, Forestry And Fishing Activities	Diesel	38,963	33,915	-13.0%	3,014	2,461	-18.4%
Natural Gas Fugitive Emissions				-	47	66	38.7%
Total		**732,630**	**708,533**	**-3.3%**	**20,432**	**19,054**	**-6.7%**
On-Road Transportation							
Electric Vehicles	Electricity	-	0	-	-	1	-
Passenger Vehicles	Gasoline + Diesel + Propane	199,863	162,372	-18.8%	14,217	10,424	-26.7%
Light Trucks, Vans, SUVs	Gasoline + Diesel + Propane	169,345	207,065	22.3%	11,986	13,268	10.7%
Heavy Duty Vehicles	Gasoline + Diesel + Propane	74,639	64,524	-13.6%	5,221	4,215	-19.3%
Motorcycles	Gasoline	1,276	711	-44.3%	88	49	-44.3%
Total On-Road Transportation		**445,124**	**434,672**	**-2.3%**	**31,511**	**27,957**	**-11.3%**
Off-Road Transportation							
Marine, Aviation and Other Off-Road Vehicles	Marine Gasoline + Marine Diesel + Jet Fuel	51,266	45,103	-12.0%	3,883	3,327	-14.3%
Total Off-Road Transportation		**51,266**	**45,103**	**-12.0%**	**3,883**	**3,327**	**-14.3%**
Waste							
Wastewater					612	820	33.9%
Composting					0	170	-

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
Solid Waste					3,610	1,909	-47.1%
Total Waste					**4,222**	**2,900**	**-31.3%**
Agriculture Forestry & Other Land Use (AFOLU)							
Land-Use					-536	-939	75.1%
Livestock, Aggregate Sources and Non-CO_2 Emission Sources on Land					3	2	-33.2%
Total AFOLU					**-534**	**-937**	**75.6%**
Industrial Process & Product Use (IPPU)							
Process Use Emissions					2,510	3,894	55.1%
Total IPPU					**2,510**	**3,894**	**55.1%**
TOTAL		**1,229,020**	**1,188,309**	**-3.3%**	**62,025**	**56,194**	**-9.4%**

16 DISTRICT OF SOOKE

16.1 2018 Profile

Profile	
Population	14,300
Dwellings	5,715
Registered Vehicles	9,498
Energy (Thousands of GJ)	1,141
GHG Emissions (tCO_2e)	46,574

16.2 Energy & GHG Emissions

Table 20 presents a summary comparison of the District of Sooke's 2007 and 2018 energy and GHG emissions.

Table 20. Estimated Energy and GHG Emissions By Reporting Source

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
Stationary Energy							
Residential Buildings	Electricity	257,386	290,702	12.9%	1,787	862	-51.8%
	Natural Gas	13,108	43,147	229.2%	654	2,152	229.2%
	Fuel Oil	56,455	68,789	21.8%	3,860	4,704	21.8%
	Propane	9,744	9,197	-5.6%	594	562	-5.3%
	Wood	21,667	20,680	-4.6%	509	486	-4.6%
	Diesel	7,358	7,405	0.6%	569	537	-5.6%
Commercial & Industrial Buildings	Electricity	68,790	82,948	20.6%	478	246	-48.5%
	Natural Gas	16,506	33,344	102.0%	823	1,663	102.0%

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
	Fuel Oil	0	0	-	0	0	-
	Diesel	13,268	15,917	20.0%	1,026	1,155	12.5%
Energy Industries	LFG Combustion			-	0	0	-
Agriculture, Forestry And Fishing Activities	Diesel	35,100	39,844	13.5%	2,715	2,891	6.5%
Natural Gas Fugitive Emissions				-	13	31	142.3%
Total		**499,382**	**611,972**	**22.5%**	**13,028**	**15,287**	**17.3%**
On-Road Transportation							
Electric Vehicles	Electricity	-	1	-	-	3	-
Passenger Vehicles	Gasoline + Diesel + Propane	141,887	157,500	11.0%	10,099	10,113	0.1%
Light Trucks, Vans, SUVs	Gasoline + Diesel + Propane	201,042	267,290	33.0%	14,166	17,140	21.0%
Heavy Duty Vehicles	Gasoline + Diesel + Propane	73,397	50,131	-31.7%	5,152	3,272	-36.5%
Motorcycles	Gasoline	1,490	1,109	-25.6%	103	76	-25.6%
Total On-Road Transportation		**417,817**	**476,031**	**13.9%**	**29,520**	**30,605**	**3.7%**
Off-Road Transportation							
Marine, Aviation and Other Off-Road Vehicles	Marine Gasoline + Marine Diesel + Jet Fuel	46,184	52,988	14.7%	3,498	3,908	11.7%
Total Off-Road Transportation		**46,184**	**52,988**	**14.7%**	**3,498**	**3,908**	**11.7%**
Waste							
Wastewater					0	0	-
Composting					0	0	-

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
Solid Waste					3,252	2,243	-31.0%
Total Waste					**3,252**	**2,243**	**-31.0%**
Agriculture Forestry & Other Land Use (AFOLU)							
Land-Use					-5,018	-10,105	101.4%
Livestock, Aggregate Sources and Non-CO_2 Emission Sources on Land					75	60	-19.9%
Total AFOLU					**-4,943**	**-10,044**	**103.2%**
Industrial Process & Product Use (IPPU)							
Process Use Emissions					2,261	4,575	102.3%
Total IPPU					**2,261**	**4,575**	**102.3%**
TOTAL		**963,383**	**1,140,991**	**18.4%**	**46,616**	**46,574**	**-0.1%**

17 CITY OF VICTORIA

17.1 2018 Profile

Profile	
Population	92,689
Dwellings	49,115
Registered Vehicles	50,789
Energy (Thousands of GJ)	9,437
GHG Emissions (tCO_2e)	452,567

17.2 Energy & GHG Emissions

Table 21 presents a summary comparison of the City of Victoria's 2007 and 2018 energy and GHG emissions.

Table 21. Estimated Energy and GHG Emissions By Reporting Source

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
Stationary Energy							
Residential Buildings	Electricity	1,233,158	1,126,962	-8.6%	8,564	3,340	-61.0%
	Natural Gas	952,641	417,084	-56.2%	47,506	20,799	-56.2%
	Fuel Oil	617,245	443,708	-28.1%	42,205	30,339	-28.1%
	Propane	118,617	111,964	-5.6%	7,230	6,847	-5.3%
	Wood	259,255	247,448	-4.6%	6,088	5,811	-4.6%
	Diesel	57,916	47,995	-17.1%	4,480	3,482	-22.3%
Commercial & Industrial Buildings	Electricity	1,978,652	1,741,286	-12.0%	13,741	5,161	-62.4%
	Natural Gas	1,377,709	1,994,378	44.8%	68,703	99,455	44.8%

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
	Fuel Oil	122,702	122,702	0.0%	8,390	8,390	0.0%
	Diesel	104,439	103,172	-1.2%	8,078	7,485	-7.3%
Energy Industries	LFG Combustion			-	0	0	-
Agriculture, Forestry And Fishing Activities	Diesel	0	0	-	0	0	-
Natural Gas Fugitive Emissions				-	231	370	60.6%
Total		**6,822,334**	**6,356,700**	**-6.8%**	**215,214**	**191,479**	**-11.0%**
On-Road Transportation							
Electric Vehicles	Electricity	-	4	-	-	13	-
Passenger Vehicles	Gasoline + Diesel + Propane	1,250,314	1,133,396	-9.4%	88,915	72,852	-18.1%
Light Trucks, Vans, SUVs	Gasoline + Diesel + Propane	815,264	1,028,566	26.2%	57,587	65,860	14.4%
Heavy Duty Vehicles	Gasoline + Diesel + Propane	430,934	366,973	-14.8%	30,235	24,054	-20.4%
Motorcycles	Gasoline	8,968	7,051	-21.4%	618	486	-21.4%
Total On-Road Transportation		**2,505,480**	**2,535,989**	**1.2%**	**177,355**	**163,265**	**-7.9%**
Off-Road Transportation							
Marine, Aviation and Other Off-Road Vehicles	Marine Gasoline + Marine Diesel + Jet Fuel	503,013	543,969	8.1%	38,042	40,436	6.3%
Total Off-Road Transportation		**503,013**	**543,969**	**8.1%**	**38,042**	**40,436**	**6.3%**
Waste							
Wastewater					7,699	7,026	-8.7%
Composting					72	854	1080.1%

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
Solid Waste					25,595	22,078	-13.7%
Total Waste					**33,367**	**29,957**	**-10.2%**
Agriculture Forestry & Other Land Use (AFOLU)							
Land-Use					-217	-2,224	927.0%
Livestock, Aggregate Sources and Non-CO_2 Emission Sources on Land					0	0	-
Total AFOLU					**-217**	**-2,224**	**927.0%**
Industrial Process & Product Use (IPPU)							
Process Use Emissions					17,798	29,654	66.6%
Total IPPU					**17,798**	**29,654**	**66.6%**
TOTAL		**9,830,828**	**9,436,659**	**-4.0%**	**481,559**	**452,567**	**-6.0%**

The City of Victoria has previously completed 2007 base and 2018 reporting year GHG emissions inventories to which there are several differences between the City of Victoria's reported GHG emissions and those presented herein. These differences between the two inventories are presented in Appendix B.

18 TOWN OF VIEW ROYAL

18.1 2018 Profile

Profile	
Population	11,283
Dwellings	4,637
Registered Vehicles	7,268
Energy (Thousands of GJ)	999
GHG Emissions (tCO_2e)	45,507

18.2 Energy & GHG Emissions

Table 22 presents a summary comparison of the Town of View Royal's 2007 and 2018 energy and GHG emissions.

Table 22. Estimated Energy and GHG Emissions By Reporting Source

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
Stationary Energy							
Residential Buildings	Electricity	185,764	179,782	-3.2%	1,290	533	-58.7%
	Natural Gas	75,155	76,534	1.8%	3,748	3,817	1.8%
	Fuel Oil	22,724	27,689	21.8%	1,554	1,893	21.8%
	Propane	3,926	3,706	-5.6%	239	227	-5.3%
	Wood	8,710	8,314	-4.6%	205	195	-4.6%
	Diesel	6,462	5,842	-9.6%	500	424	-15.2%
Commercial & Industrial Buildings	Electricity	113,772	129,927	14.2%	790	385	-51.3%
	Natural Gas	123,868	146,990	18.7%	6,177	7,330	18.7%

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
	Fuel Oil	0	0	-	0	0	-
	Diesel	11,652	12,559	7.8%	901	911	1.1%
Energy Industries	LFG Combustion			-	0	0	-
Agriculture, Forestry And Fishing Activities	Diesel	30,825	31,438	2.0%	2,384	2,281	-4.3%
Natural Gas Fugitive Emissions				-	38	60	58.1%
Total		**582,858**	**622,780**	**6.8%**	**17,826**	**18,055**	**1.3%**
On-Road Transportation							
Electric Vehicles	Electricity	-	1	-	-	2	-
Passenger Vehicles	Gasoline + Diesel + Propane	138,335	138,673	0.2%	9,846	8,929	-9.3%
Light Trucks, Vans, SUVs	Gasoline + Diesel + Propane	141,783	182,230	28.5%	10,031	11,666	16.3%
Heavy Duty Vehicles	Gasoline + Diesel + Propane	54,665	12,295	-77.5%	3,828	785	-79.5%
Motorcycles	Gasoline	1,223	895	-26.8%	84	62	-26.8%
Total On-Road Transportation		**336,005**	**334,094**	**-0.6%**	**23,789**	**21,443**	**-9.9%**
Off-Road Transportation							
Marine, Aviation and Other Off-Road Vehicles	Marine Gasoline + Marine Diesel + Jet Fuel	40,558	41,809	3.1%	3,072	3,084	0.4%
Total Off-Road Transportation		**40,558**	**41,809**	**3.1%**	**3,072**	**3,084**	**0.4%**
Waste							
Wastewater					386	475	23.1%
Composting					0	170	-

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
Solid Waste					2,856	1,770	-38.0%
Total Waste					**3,242**	**2,416**	**-25.5%**
Agriculture Forestry & Other Land Use (AFOLU)							
Land-Use					-1,753	-3,102	76.9%
Livestock, Aggregate Sources and Non-CO_2 Emission Sources on Land					2	2	-11.0%
Total AFOLU					**-1,751**	**-3,100**	**77.0%**
Industrial Process & Product Use (IPPU)							
Process Use Emissions					1,986	3,610	81.8%
Total IPPU					**1,986**	**3,610**	**81.8%**
TOTAL		**959,422**	**998,682**	**4.1%**	**48,163**	**45,507**	**-5.5%**

19 SOUTHERN GULF ISLANDS ELECTORAL AREA

19.1 2018 Profile

The Southern Gulf Islands Electoral Area consists of: Galiano, Mayne, North Pender, Saturna and South Pender.

Profile	
Population	4,811
Dwellings	2,487
Registered Vehicles	4,023
Energy (Thousands of GJ)	535
GHG Emissions (tCO_2e)	29,220

19.2 Energy & GHG Emissions

Table 23 presents a summary comparison of the Southern Gulf Islands Electoral Area 2007 and 2018 energy and GHG emissions.

Table 23. Estimated Energy and GHG Emissions By Reporting Source

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
Stationary Energy							
Residential Buildings	Electricity	205	183	-10.7%	1	1	-61.9%
	Natural Gas	0	0	-	0	0	-
	Fuel Oil	27,326	34,326	25.6%	1,868	2,347	25.6%
	Propane	24,684	24,021	-2.7%	1,505	1,469	-2.4%
	Wood	206,032	202,732	-1.6%	4,838	4,761	-1.6%
	Diesel	3,526	2,491	-29.3%	273	181	-33.7%

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
Commercial & Industrial Buildings	Electricity	45	47	4.1%	0	0	-55.6%
	Natural Gas	0	0	-	0	0	-
	Fuel Oil	0	0	-	0	0	-
	Diesel	6,358	5,355	-15.8%	492	389	-21.0%
Energy Industries	LFG Combustion			-	0	0	-
Agriculture, Forestry And Fishing Activities	Diesel	16,819	13,405	-20.3%	1,301	973	-25.2%
Natural Gas Fugitive Emissions				-	0	0	-
Total		**284,996**	**282,561**	**-0.9%**	**10,278**	**10,119**	**-1.5%**
On-Road Transportation							
Electric Vehicles	Electricity	-	0	-	-	1	-
Passenger Vehicles	Gasoline + Diesel + Propane	115,551	57,721	-50.0%	8,207	3,716	-54.7%
Light Trucks, Vans, SUVs	Gasoline + Diesel + Propane	63,232	120,980	91.3%	4,498	7,768	72.7%
Heavy Duty Vehicles	Gasoline + Diesel + Propane	17,024	55,838	228.0%	1,170	3,669	213.5%
Motorcycles	Gasoline	916	439	-52.1%	63	30	-52.1%
Total On-Road Transportation		**196,723**	**234,979**	**19.4%**	**13,939**	**15,184**	**8.9%**
Off-Road Transportation							
Marine, Aviation and Other Off-Road Vehicles	Marine Gasoline + Marine Diesel + Jet Fuel	22,131	17,827	-19.4%	1,676	1,315	-21.6%
Total Off-Road Transportation		**22,131**	**17,827**	**-19.4%**	**1,676**	**1,315**	**-21.6%**
Waste							

Source	Type	2007 Energy (GJ)	2018 Energy (GJ)	Change (%)	2007 GHG Emissions (tCO_2e)	2018 GHG Emissions (tCO_2e)	Change (%)
Wastewater					24	6	-76.1%
Composting					0	0	-
Solid Waste					1,558	755	-51.6%
Total Waste					**1,582**	**760**	**-51.9%**
Agriculture Forestry & Other Land Use (AFOLU)							
Land-Use					Withheld	Withheld	Withheld
Livestock, Aggregate Sources and Non-CO_2 Emission Sources on Land					387	302	-21.8%
Total AFOLU					**387**	**302**	**-21.8%**
Industrial Process & Product Use (IPPU)							
Process Use Emissions					1,083	1,539	42.1%
Total IPPU					**1,083**	**1,539**	**42.1%**
TOTAL		**503,849**	**535,368**	**6.3%**	**28,947**	**29,220**	**0.9%**

APPENDIX A

Comparison of the District of Saanich's and the CRD's GHG calculation of the 2007 and 2017/2018 GHG emissions is presented in Table A1 and Table A2 below. It should be noted that the District of Saanich has not prepared a 2018 GHG emissions inventory and as such, the reported 2017 GHG emissions inventory is used as a proxy for comparison.

Table A1. Comparision of 2007 GHG Emissions Inventories

Sector	Sub-Sector	2007 SAANICH GHG (tCO_2e)	2007 CRD GHG (tCO_2e)	Difference (tCO_2e)	Explanation for Difference
Stationary Energy	Residential Buildings	93,458	106,201	12,743	• *Due to concerns around the published energy data (see Section 2.3), the raw energy values for electricity and natural gas were used in the CRD inventory. Results in a ~7,500 tCO_2e increase.* • *ECCC NIR updated 2007 (Original 33,000 tCO_2e; Updated 183,000 tCO_2e) numbers for other off-road residential emissions. This is a common occurrence for ECCC. They will typically update historical numbers based on new data and methodological changes. Results in an ~5,200 tCO_2e increase.*
	Agriculture, Forestry, And Fishing Activities	13,550	29,343	15,793	• *ECCC NIR updated 2007 numbers for this source of GHG emissions (Original 500,000 tCO_2e; Updated 873,000 tCO_2e). Results in the increase in GHG emissions.*
	Commercial / Institutional Buildings	52,835	59,777	6,942	• *Due to concerns around the published energy data (see Section 2.3), the raw energy values for electricity and natural gas were used in the CRD inventory. Results in an ~1,000 tCO_2e increase.* • *ECCC NIR updated 2007 numbers for other off-road commercial and manufacturing emissions. (Original 210,000 tCO_2e; Updated 330,000 tCO_2e). Results in an ~6,000 tCO_2e increase.*
	Energy Industries		418	418	• *2007 flaring data was not available to Saanich at the time of reporting.*
	Fugitive Emissions: Oil and Natural Gas Systems	1,800	314	(1,486)	• *For the CRD project, FORTISBC provided 2018 fugitive numbers for the CRD which did not include upstream GHG emissions. This value was then prorated to each CRD member based on the number of natural gas connections. The original value in the reported inventory*

Sector	Sub-Sector	2007 SAANICH GHG (tCO_2e)	2007 CRD GHG (tCO_2e)	Difference (tCO_2e)	Explanation for Difference
					was estimated by FORTISBC for the District and includes upstream emissions. To be consistent in terms of methodology across the CRD, the new value was applied.
Transportation	On-Road Transportation	88,486	105,898	17,413	• *The CRD calculator uses the original 2007 and 2010 vehicle registration data, whereas the original inventory used the published 2012 data (which contained the 2007 and 2010 data which was modified based on changes to the 2012 methodology). During the preparation of the CRD calculator, it was brought to light there are concerns with the 2012 data which impacted the 2007 and 2010 values. As such, the original CEEI 2007 and 2010 data was used in the CRD calculator The original inventory used the estimated Vehicle Kilometer Travelled (VKT) data and fuel efficiency factors that were used in the BC CEEIs which were derived from AirCare data. As the AirCare data program ended in 2014, the CRD inventory uses VKT data and fuel efficiency factors that are generated and used by Environment Canada (EC) in their calculation of Provincial and Federal GHG emissions. The fuel consumption values, on average, in the EC dataset are higher than the CEEI estimates. Some of the original vehicle registrations were also reclassed to align with the EC dataset. Results in a ~46,000 tCO_2e increase.* • *BC Transit GHG emissions were allocated based on total service population, rather than the CRD population as was done in the original inventory. Results in an ~6,000 tCO_2e decline.*
	Transboundary Transportation	151,977	176,450	24,473	• *See above note.*
	Off-Road Transportation: Aviation, Waterborne, and Other Off-Road	14,562	37,808	23,246	• *Land and marine based aviation GHG emissions were assigned on a per capita basis. There were some changes to the Provinces population counts between inventories resulting in a decline of aviation emissions by ~1,700 tCO_2e* • *In the original inventory, the BC Ferries GHG emissions was allocated based on a per capita basis based on total*

Sector	Sub-Sector	2007 SAANICH GHG (tCO_2e)	2007 CRD GHG (tCO_2e)	Difference (tCO_2e)	Explanation for Difference
					passengers. Since BC Ferries also serves the Vancouver coast population, the methodology was changed and the BC ferries value was prorated based on the Vancouver Island and Vancouver South Coast population in the CRD inventory. Results in an increase of ~10,000 tCO_2e. • *ECCC NIR updated 2007 numbers for other off-road emissions. (Original 110,000 tCO_2e; Updated 687,000 tCO_2e). Results in an ~15,000 tCO_2e increase.*
Waste	Waste: Solid Waste Disposal, Biological Treatment of Waste, Wastewater Treatment and Discharge	34,121	40,134	6,013	• *In the original inventory, wastewater volumes were allocated based on a 2015 study whereas the CRD values are based on Total annual volume of wastewater by municipality. Results in an ~500 tCO_2e increase.* • *The original inventory pro-rated Hartland Landfill GHG emissions based on total volume of waste (estimated by the District) sent to landfill. The CRD inventory assigns 31% of waste emissions to the City of Victoria (which was a lower claim than what was estimated in the original inventory) and assigns the rest of the landfill emissions on a per capita basis. Results in an increase of ~6,500 tCO_2e.*
AFOLU	AFOLU: Livestock, Land, and Other Agriculture	20,071	(5,947)	(26,018)	• *For the CRD inventory, the BC MOE provided BC based land-use emissions factors and there was a change in the calculation methodologies based on land-use data at the CRD level. Results in a decrease of GHG emissions by ~15,000 tCO_2e.* • *The Saanich inventory was also using livestock GHG estimates from the Agriculture and Agri-Food Canada (AAFC) Holos GHG emissions model (V3.1) using 2016 Statistics Canada Agriculture Census Data which conservatively over estimated livestock emissions, but this approach was not used in the CRD estimates as the livestock census data is from 2006 and not complete for all CRD members. As such, in the CRD calculator all livestock and direct/indirect manure and soil GHG estimates are based on the ECCC NIR and prorated based on hectares of agricultural land. Results in a decline of GHG emissions by 11,000 tCO_2e.*
IPPU	IPPU: Industrial Processes, and Product Use	24,524	24,438	(86)	• *ECCC NIR updated 2007 numbers for IPPU GHG emissions. Results in a decline of ~100 tCO_2e.*

Sector	Sub-Sector	2007 SAANICH GHG (tCO_2e)	2007 CRD GHG (tCO_2e)	Difference (tCO_2e)	Explanation for Difference
Total GHG Emissions		**495,384**	**574,835**	**79,451**	

Table A2. Comparision of 2017 and 2018 GHG Emissions Inventories

Sector	Sub-Sector	2017 SAANICH GHG (tCO_2e)	2018 CRD GHG (tCO_2e)	Difference (tCO_2e)	Explanation for Difference
Stationary Energy	Residential Buildings	89,308	85,067	(4,241)	• *The CRD inventory is using 2018 energy data whereas the Saancih calculator is based on 2017.* • *To estimate wood and propane use, the linear regression equation was based on the CRD total consumption and HDD days (instead of the reporter's consumption) which resulted in immaterial changes to the values.* • *ECCC NIR updated 2018 (Original 140,000 tCO_2e; Updated 147,000 tCO_2e) numbers for other off-road residential emissions. The difference is also due to different reporting years being reported in this table (values are assigned on a per capita basis).*
	Agriculture, Forestry, And Fishing Activities	13,314	24,471	11,157	• *ECCC NIR updated 2018 numbers for this source of GHG emissions (Original 540,000 tCO_2e; Updated 791,000 tCO_2e). The difference is also due to different reporting years being reported in this table (values are assigned on a per capita basis).*
	Commercial / Institutional Buildings	56,819	55,514	(1,305)	• *ECCC NIR updated 2018 numbers for other off-road commercial and manufacturing emissions. (Original 290,000 tCO_2e; Updated 316,000 tCO_2e). The difference is also due to different reporting years being reported in this table (values are assigned on a per capita basis).*
	Energy Industries		7,658	7,658	• *Flaring data was not available to Saanich at the time of reporting.*
	Fugitive Emissions: Oil and Natural Gas Systems	1,206	432	(774)	• *For the CRD project, FORTISBC provided 2018 fugitive numbers for the CRD which did not include upstream GHG emissions. This value was then prorated to each CRD member based on the number of natural gas connections. The original value in the reported inventory was estimated by FORTISBC for the District and included upstream emissions. To be consistent in terms*

Sector	Sub-Sector	2017 SAANICH GHG (tCO_2e)	2018 CRD GHG (tCO_2e)	Difference (tCO_2e)	Explanation for Difference
					of methodology across the CRD, the new value was applied.
Transportation	On-Road Transportation	102,580	98,176	(4,404)	• *The CRD calculator uses the original 2007 and 2010 vehicle registration data, whereas the original inventory used the published 2012 data (which contained the 2007 and 2010 data which was modified based on changes to the 2012 methodology). During the preparation of the CRD calculator, it was brought to light there are concerns with the 2012 data which impacted the 2007 and 2010 values. As such, the original CEEI 2007 and 2010 data was used in the CRD calculator. In the original inventory, transportation GHG emissions were estimated based on population growth and the number of registered vehicles in 2012 whereas the CRD inventory uses 2010 vehicle registration data. The original inventory used the estimated Vehicle Kilometer Travelled (VKT) data and fuel efficiency factors that were used in the BC CEEIs which were derived from AirCare data. As the AirCare data program ended in 2014, the CRD inventory uses VKT data and fuel efficiency factors that are generated and used by Environment Canada (EC) in their calculation of Provincial and Federal GHG emissions. The fuel consumption and VKT values, on average, in the EC dataset are lower than those used in the GHG calculator. Results in a ~15,300 tCO_2e decline in GHG emissions.* • *BC Transit GHG emissions were allocated based on total service population, rather than the CRD population as was done in the original inventory. Results in an ~6,700 tCO_2e decline.*
	Transboundary Transportation	169,961	152,356	(17,605)	• *See above comment.*
	Off-Road Transportation:	26,273	33,085	6,812	• *Airport GHG emissions were assigned on a per capita basis. There were some changes to the Provinces*

Sector	Sub-Sector	2017 SAANICH GHG (tCO_2e)	2018 CRD GHG (tCO_2e)	Difference (tCO_2e)	Explanation for Difference
	Aviation, Waterborne, and Other Off-Road				*population counts between inventories resulting in a decline of aviation emissions by ~200 tCO_2e* • *In the original inventory, the BC Ferries GHG emissions was allocated based on a per capita basis based on total passengers. Since BC Ferries also serves the Vancouver coast population, the methodology was changed and the BC ferries value was prorated based on the Vancouver Island and Vancouver South Coast population in the CRD inventory. Results in an increase of ~8,000 tCO_2e.* • *ECCC NIR updated 2018 numbers for other off-road emissions. (Original 750,000 tCO_2e; Updated 682,000 tCO_2e). Results in an ~2,000 tCO_2e decline. The difference is also due to different reporting years being reported in this table (values are assigned on a per capita basis).*
Waste	Waste: Solid Waste Disposal, Biological Treatment of Waste, Wastewater Treatment and Discharge	23,819	28,252	4,433	• *In the original inventory, wastewater volumes were allocated based on a 2015 study whereas the CRD values are based on Total annual volume of wastewater by municipality. Results in an ~100 tCO_2e decline.* • *The original inventory pro-rated Hartland Landfill GHG emissions based on total volume of waste (estimated by the District) sent to landfill. The CRD inventory assigns 31% of waste emissions to the City of Victoria (which was a lower claim than what was estimated in the original inventory) and assigns the rest of the landfill emissions on a per capita basis. Results in an increase of ~4,400 tCO_2e.*
AFOLU	AFOLU: Livestock, Land, and Other Agriculture	(10,257)	(27,332)	(17,075)	• *For the CRD inventory, the BC MOE provided BC based land-use emissions factors and there was a change in the calculation methodologies based on land-use data at the CRD level. Results in a decrease of GHG emissions by ~7,000 tCO_2e.* • *The Saanich inventory was also using livestock GHG estimates from the Agriculture and Agri-Food Canada (AAFC) Holos GHG emissions model (V3.1) using 2016 Statistics Canada Agriculture Census Data which conservatively over estimated livestock emissions, but this approach was not used in the CRD estimates as the*

Sector	Sub-Sector	2017 SAANICH GHG (tCO_2e)	2018 CRD GHG (tCO_2e)	Difference (tCO_2e)	Explanation for Difference
					livestock census data is from 2006 and not complete for all CRD members. As such, in the CRD calculator all livestock and direct/indirect manure and soil GHG estimates are based on the ECCC NIR and prorated based on hectares of agricultural land. Results in a decline of GHG emissions by 10,000 tCO_2e
IPPU	IPPU: Industrial Processes, and Product Use	39,883	38,729	(1,155)	• *IPPU is allocated on a per capita basis. The difference is due to different reporting years being reported in this table.*
Total GHG Emissions		**512,906**	**496,408**	**-16,498**	

APPENDIX B

Comparison of the City of Victoria's and the CRD's GHG calculation of the 2007 and /2018 GHG emissions is presented in Table B1 and Table B2 below.

Table B1. Comparision of 2007 GHG Emissions Inventories

Sector	Sub-Sector	2007 VICTORIA GHG (tCO_2e)	2007 CRD GHG (tCO_2e)	Difference	Explanation for Difference
Stationary Energy	Residential Buildings	84,187	116,072	31,885	• *Due to concerns around the published energy data (see Section 2.3), the raw energy values for electricity and natural gas were used in the CRD inventory. Results in a ~28,000 tCO_2e increase. This effect is nearly netted out with the decrease in commercial building natural gas consumption (see below).* • *ECCC NIR updated 2007 (Original 33,000 tCO_2e; Updated 183,000 tCO_2e) numbers for other off-road residential emissions. This is a common occurrence for ECCC. They will typically update historical numbers based on new data and methodological changes. Results in a ~3,800 tCO_2e increase.*
	Commercial / Institutional Buildings	120,528	98,912	-21,616	• *Due to concerns around the published energy data (see Section 2.3), the raw energy values for electricity and natural gas were used in the CRD inventory. Results in a ~25,000 tCO_2e decline. This effect is nearly netted out with the increase in residential building natural gas consumption (see above).* • *ECCC NIR updated 2007 numbers for other off-road commercial and manufacturing emissions. (Original 210,000 tCO_2e; Updated 330,000 tCO_2e). Results in an ~4,000 tCO_2e increase.*
	Fugitive Emissions: Oil and Natural Gas Systems	1,370	231	-1,139	• *For the CRD project, FORTISBC provided 2018 fugitive numbers for the CRD which did not include upstream GHG emissions. This value was then prorated to each CRD member based on the number of natural gas connections. The original value in the reported inventory was estimated by FORTISBC for the City and includes upstream emissions. To be consistent in terms of*

Sector	Sub-Sector	2007 VICTORIA GHG (tCO_2e)	2007 CRD GHG (tCO_2e)	Difference	Explanation for Difference
					methodology across the CRD, the new value was applied.
Transportation	On-Road Transportation	40,274	50,420	10,146	• *The CRD calculator uses the original 2007 and 2010 vehicle registration data, whereas the original inventory used the published 2012 data (which contained the 2007 and 2010 data which was modified based on changes to the 2012 methodology). During the preparation of the CRD calculator, it was brought to light there are concerns with the 2012 data which impacted the 2007 and 2010 values. As such, the original CEEI 2007 and 2010 data was used in the CRD calculator. In the original inventory, transportation GHG emissions were estimated based on population growth and the number of registered vehicles in 2012. The original inventory used the estimated Vehicle Kilometer Travelled (VKT) data and fuel efficiency factors that were used in the BC CEEIs which were derived from AirCare data. As the AirCare data program ended in 2014, the CRD inventory uses VKT data and fuel efficiency factors that are generated and used by Environment Canada (EC) in their calculation of Provincial and Federal GHG emissions. The fuel consumption values, on average, in the EC dataset are higher than those used in the original inventory calculator. Results in a ~41,500 tCO_2e increase in GHG emissions.* • *BC Transit GHG emissions were allocated based on total service population, rather than the CRD population as was done in the original inventory. Results in an ~4,700 tCO_2e decline.*
	Transboundary Transportation	100,290	126,935	26,645	• *See above note.*
	Off-Road Transportation: Aviation,	56,959	38,042	-18,917	• *Land and marine based aviation GHG emissions were assigned on a per capita basis. There were some changes to the Provinces population counts between inventories resulting in a decline of aviation emissions.*

Sector	Sub-Sector	2007 VICTORIA GHG (tCO_2e)	2007 CRD GHG (tCO_2e)	Difference	Explanation for Difference
	Waterborne, and Other Off-Road				*There was also a methodology change in the assignment in marine aviation GHG emissions. The GPC Protocol provided updated guidance on the assignment of aviation emissions allowing these to be assigned as Scope 3 GHG emissions regardless of the location of the airport(s). On this basis, all marine aviation emissions were assigned on a per capita basis to all municipalities. This resulted in a decline of ~8,000 tCO_2e.* • *In the original inventory, the BC Ferries GHG emissions were allocated based on a per capita basis for Vancouver Island. Since BC Ferries also serves the Vancouver coast population, the methodology was changed and the BC ferries value was prorated based on the Vancouver Island and Vancouver South Coast population in the CRD inventory. Results in a decline of ~23,000 tCO_2e* • *The CRD inventory includes an estimate of ~7,000 tCO_2e of cruise ship emissions not included in the original inventory.* • *ECCC NIR updated 2007 numbers for other off-road emissions. (Original 110,000 tCO_2e; Updated 687,000 tCO_2e). Results in an ~10,000 tCO_2e increase.*
Waste	Waste: Solid Waste Disposal, Biological Treatment of Waste, Wastewater Treatment and Discharge	58,072	33,367	-24,705	• *In the original inventory, wastewater volumes were allocated based on a 2015 study whereas the CRD values are based on Total annual volume of wastewater by municipality. Results in an ~600 tCO_2e increase.* • *The original inventory pro-rated Hartland Landfill GHG emissions based on total volume of waste (estimated by the City) sent to landfill. The CRD inventory assigns 31% of waste emissions to the City of Victoria. Results in a decrease of ~23,000 tCO_2e.* • *The CRD inventory does not include Tervia Landfill GHG emissions (2,800 tCO_2e not accounted for).*
AFOLU	AFOLU: Livestock, Land, and Other Agriculture	822	-217	-1,039	• *For the CRD inventory, the BC MOE provided BC based land-use emissions factors and there was a change in the calculation methodologies based on land-use data at the CRD level. Results in a decrease of GHG emissions by ~1,000 tCO_2e.*

Sector	Sub-Sector	2007 VICTORIA GHG (tCO_2e)	2007 CRD GHG (tCO_2e)	Difference	Explanation for Difference
IPPU	IPPU: Industrial Processes, and Product Use	17,859	17,798	-61	• *IPPU is allocated on a per capita basis. The difference is due to different reporting years being reported in this table.*
Total GHG Emissions		**480,361**	**481,559**	**1,198**	

Table B2. Comparision of 2018 GHG Emissions Inventories

Sector	Sub-Sector	2018 VICTORIA GHG (tCO_2e)	2018 CRD GHG (tCO_2e)	Difference (tCO_2e)	Explanation for Difference
Stationary Energy	Residential Buildings	66,576	70,618	4,042	• *ECCC NIR updated 2018 (Original 140,000 tCO_2e; Updated 147,000 tCO_2e) numbers for other off-road residential emissions. Results in the increase in GHG emissions.*
	Commercial / Institutional Buildings	118,206	120,491	2,285	• *ECCC NIR updated 2018 numbers for this source of GHG emissions (Original 540,000 tCO_2e; Updated 791,000 tCO_2e). Results in the increase in GHG emissions.*
	Fugitive Emissions: Oil and Natural Gas Systems	1,200	370	-830	• *For the CRD project, FORTISBC provided 2018 fugitive numbers for the CRD which did not include upstream GHG emissions. This value was then prorated to each CRD member based on the number of natural gas connections. The original value in the reported inventory was estimated by FORTISBC for the City and includes upstream emissions. To be consistent in terms of methodology across the CRD, the new value was applied.*
Transportation	On-Road Transportation	42,580	47,383	4,803	• *The CRD calculator uses the original 2007 and 2010 vehicle registration data, whereas the original inventory used the published 2012 data (which contained the 2007 and 2010 data which was modified based on changes to the 2012 methodology). During the preparation of the CRD calculator, it was brought to light there are concerns with the 2012 data which impacted the 2007 and 2010 values. As such, the original CEEI 2007 and 2010 data was used in the CRD calculator. In the original inventory, transportation GHG emissions were estimated based on population growth and the number of registered vehicles in 2012 whereas the CRD inventory uses 2010 vehicle*

Sector	Sub-Sector	2018 VICTORIA GHG (tCO_2e)	2018 CRD GHG (tCO_2e)	Difference (tCO_2e)	Explanation for Difference
					registration data. The original inventory used the estimated Vehicle Kilometer Travelled (VKT) data and fuel efficiency factors that were used in the BC CEEIs which were derived from AirCare data. As the AirCare data program ended in 2014, the CRD inventory uses VKT data and fuel efficiency factors that are generated and used by Environment Canada (EC) in their calculation of Provincial and Federal GHG emissions. Results in a ~8,500 tCO_2e increase in GHG emissions. • *BC Transit GHG emissions were allocated based on total service population, rather than the CRD population as was done in the original inventory. Results in an ~5,000 tCO_2e decline.*
	Transboundary Transportation	106,745	115,881	9,136	• *See above note.*
	Off-Road Transportation: Aviation, Waterborne, and Other Off-Road	57,732	40,436	-17,296	• *Land and marine based aviation GHG emissions were assigned on a per capita basis. There were some changes to the Provinces population counts between inventories resulting in a decline of aviation emissions. There was also a methodology change in the assignment in marine aviation GHG emissions. The GPC Protocol provided updated guidance on the assignment of aviation emissions allowing these to be assigned as Scope 3 GHG emissions regardless of the location of the airport(s). On this basis, all marine aviation emissions were assigned on a per capita basis to all municipalities. This resulted in a decline of ~2,500 tCO_2e.* • *In the original inventory, the BC Ferries GHG emissions were allocated based on a per capita basis for Vancouver Island. Since BC Ferries also serves the Vancouver coast population, the methodology was changed and the BC ferries value was prorated based on the Vancouver Island and Vancouver South Coast population in the CRD inventory. Results in a decline of ~27,500 tCO_2e.*

Sector	Sub-Sector	2018 VICTORIA GHG (tCO_2e)	2018 CRD GHG (tCO_2e)	Difference (tCO_2e)	Explanation for Difference
					• *The GVHA reported on cruise ship emissions which increased the City's GHG emissions by ~11,600 tCO_2e.* • *ECCC NIR updated 2018 numbers for other off-road emissions. (Original 750,000 tCO_2e; Updated 682,000 tCO_2e). A slightly higher population value (produced by the Province was used which results in an ~1,200 tCO_2e increase.*
Waste	Waste: Solid Waste Disposal, Biological Treatment of Waste, Wastewater Treatment and Discharge	31,078	29,957	-1,121	• *In the original inventory, wastewater volumes were allocated based on a 2015 study whereas the CRD values are based on Total annual volume of wastewater by municipality. Results in an ~600 tCO_2e increase.* • *The original inventory pro-rated Hartland Landfill GHG emissions based on total volume of waste (estimated by the City) sent to landfill. The CRD inventory assigns 31% of waste emissions to the City of Victoria. Results in a decrease of ~1,700 tCO_2e.*
AFOLU	AFOLU: Livestock, Land, and Other Agriculture	-548	-2,224	-1,676	• *For the CRD inventory, the BC MOE provided BC based land-use emissions factors and there was a change in the calculation methodologies based on land-use data at the CRD level. Results in a decrease of GHG emissions by ~1,700 tCO_2e.*
IPPU	IPPU: Industrial Processes, and Product Use	29,919	29,654	-265	• *ECCC NIR updated 2018 numbers for IPPU GHG emissions. Results in a decline of ~300 tCO_2e.*
Total GHG Emissions		**453,488**	**452,567**	**-921**	

APPENDIX C

2018 PER CAPITA AND PER HECTARE GREENHOUSE GAS EMISSIONS MUNICIPALITIES AND ELECTORAL AREAS

August 2020

The following tables were developed by the CRD using the *Capital Region District – Municipalities and Electoral Areas 2007 Base Year and 2018 Reporting Year Energy & GHG Emissions Inventory* report (Stantec, July 24, 2020).

Capital Region tC02e Emissions Per Capita*

	2007	2018
Capital Region	4.9	4.2
Central Saanich	5.0	4.1
Colwood	5.2	4.3
Esquimalt	5.5	4.6
Highlands	4.0	3.8
Juan De Fuca EA**	15.5	14.5
Langford	5.4	4.2
Metchosin	3.4	1.8
North Saanich	5.0	3.8
Oak Bay	4.8	4.2
Saanich	5.2	4.1
Salt Spring Island EA	4.6	4.0
Sidney	5.4	4.6
Sooke	4.5	3.3
Victoria	6.0	4.9
View Royal	5.3	4.0
Southern Gulf Islands EA	5.9	6.1

**Population numbers are derived from BC Stats.*

*** The Juan De Fuca EA emission per person are driven by higher estimated heating oil consumption using historical energy data published in the 2007, 2010 and 2012 Community Energy and Emissions Inventories conducted by the BC Ministry of Environment, and heating degree days (HDD) published by Environment Canada.*

Capital Region tC02e Emissions Per Hectare*

	2007	2018
Capital Region	7.0	6.9
Central Saanich	16.1	14.8
Colwood	39.1	38.0
Esquimalt	95.4	85.4
Highlands	1.9	2.3
Juan De Fuca EA	0.4	0.5
Langford	31.9	40.6
Metchosin	2.0	1.1
North Saanich	11.6	9.6
Oak Bay	54.5	47.1
Saanich	51.4	44.4
Salt Spring Island EA	2.3	2.3
Sidney	86.9	78.7
Sooke	6.8	6.8
Victoria	206.2	193.8
View Royal	27.8	26.3
Southern Gulf Islands EA	1.3	1.4

** Higher values reflect higher density local governments.*

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REPORT TO THE JUAN DE FUCA LAND USE COMMITTEE
MEETING OF TUESDAY, JULY 21, 2020

SUBJECT **Provision of Park Land for Subdivision of Lot A, District Lot 17, Renfrew District, Plan EPP10506 – 6505 Powder Main Road**

ISSUE SUMMARY

To consider provision of 5% park land or cash-in-lieu equivalent pursuant to Section 510 of the *Local Government Act (LGA)* for the proposed 13-lot bare land strata subdivision of Lot A, District Lot 17, Renfrew District, Plan EPP10506.

BACKGROUND

The 1.85 hectare (ha) parcel is located at 6505 Powder Main Road and is zoned Tourism Commercial - One (TC-1) in the Comprehensive Community Development Plan for Port Renfrew, Bylaw No. 3109 (Appendices A and B). The subject property has several existing single-family dwellings and accessory structures that are used as tourist accommodation facilities. The buildings are accessed by an existing driveway that winds through the parcel from Powder Main Road. The parcel is intersected by a watercourse that runs roughly south to north.

The applicant has applied to subdivide the property into 13 bare land strata lots with an internal common property access road (Appendix C). The requirement for provision of park land or payment for parks purposes pursuant to Section 510 of the *LGA* applies to the subdivision.

At their meeting of May 26, 2020, the Juan de Fuca Electoral Area (EA) Parks and Recreation Advisory Commission (the Commission) recommended that cash in-lieu of park land be received (Appendix D).

ALTERNATIVES

Alternative 1
That the Land Use Committee recommend to the CRD Board:
That cash in lieu of park land dedication in the amount of 5% of the value of the land being subdivided be requested pursuant to Section 510 of the *Local Government Act* for the proposed subdivision of Lot A, District Lot 17, Renfrew District, Plan EPP10506.

Alternative 2:
Refer the application back to staff for more information.

IMPLICATIONS

Legislative Implications
Section 510 of the *LGA* requires the provision of park land at the time of subdivision where three or more additional lots are created and the smallest lot being created is 2 ha or less. Where a regional district provides a community park service and an official community plan contains policies and designations respecting the location and types of future parks, the owner may be required to provide either land or cash-in-lieu at the discretion of the local government. The amount of land to be provided may not exceed 5% of the land being subdivided.

If an owner is to provide cash-in-lieu, the value of the land is based on the average market value of all land in the proposed subdivision calculated as that value would be on the date of preliminary layout

approval of the subdivision before any works or services are installed, or a value agreed upon by the parties. Any money received for park land must be deposited in a reserve for the purpose of acquiring park lands.

Public Consultation Implications
There are no public consultation requirements in Bylaw No. 3885 for subdivision applications. An internal review of subdivision requirements is conducted by staff and conditions are forwarded to the Provincial Approving Officer. As the proposed subdivision requires provision of park land under Section 510 of the *LGA*, the application was referred to the JdF EA Parks and Recreation Advisory Commission. Meetings are open to the public, advertised in the local newspaper and on the CRD website.

Land Use Implications
The Comprehensive Community Development Plan for Port Renfrew, Bylaw No. 3109, includes policies and objectives related to parks and trails. A proposed network of trails within the community is identified; however, the area around the subject property is not specifically included.

The JdF EA Community Parks Strategic Plan, 2010, identifies broad acquisition objectives for community parks and establishes that although park dedications are preferred to cash-in-lieu, it may be more appropriate to seek cash-in-lieu in marginal locations. Park acquisition policies and selection criteria are also outlined in the Strategic Plan.

Should the application to subdivide the parcel be approved, provision of park is required under Section 510 of the *LGA*. Five percent of the parcel would be equal 0.09 ha. A monetary equivalent would need to be determined by an appraisal; however, based on the 2020 assessed land value of $240,000, approximately $12,000 would be received as cash in-lieu.

The Commission considered subdivision application SU000720 at its meeting of May 26, 2020, (Appendix C) and passed the following motion:

> **MOVED** by Commissioner Sloan, **SECONDED** by Commissioner Braunschweig that the Juan de Fuca Electoral Area Parks and Recreation Advisory Commission recommend to the Juan de Fuca Land Use Committee that the requirement for park land dedication in accordance with Section 510 of the *Local Government Act*, for proposed subdivision of Lot A, District Lot 17, Renfrew District, Plan EPP10506 (SU000720), be received in the form of cash-in-lieu.
>
> **CARRIED**

Staff support acceptance of cash in-lieu of park land dedication as recommended by the Commission.

CONCLUSION

The applicant proposes to subdivide the 1.85 ha property at 6505 Powder Main Road into 13 bare land strata lots. The JdF EA Parks and Recreation Advisory Commission reconsidered the application on May 26, 2020, and recommends accepting 5% cash in-lieu of park land pursuant to Section 510 of the *LGA*. If the Land Use Committee and Regional Board agree to accept cash-in-lieu, the requirement would be fulfilled prior to final approval of the subdivision.

RECOMMENDATION

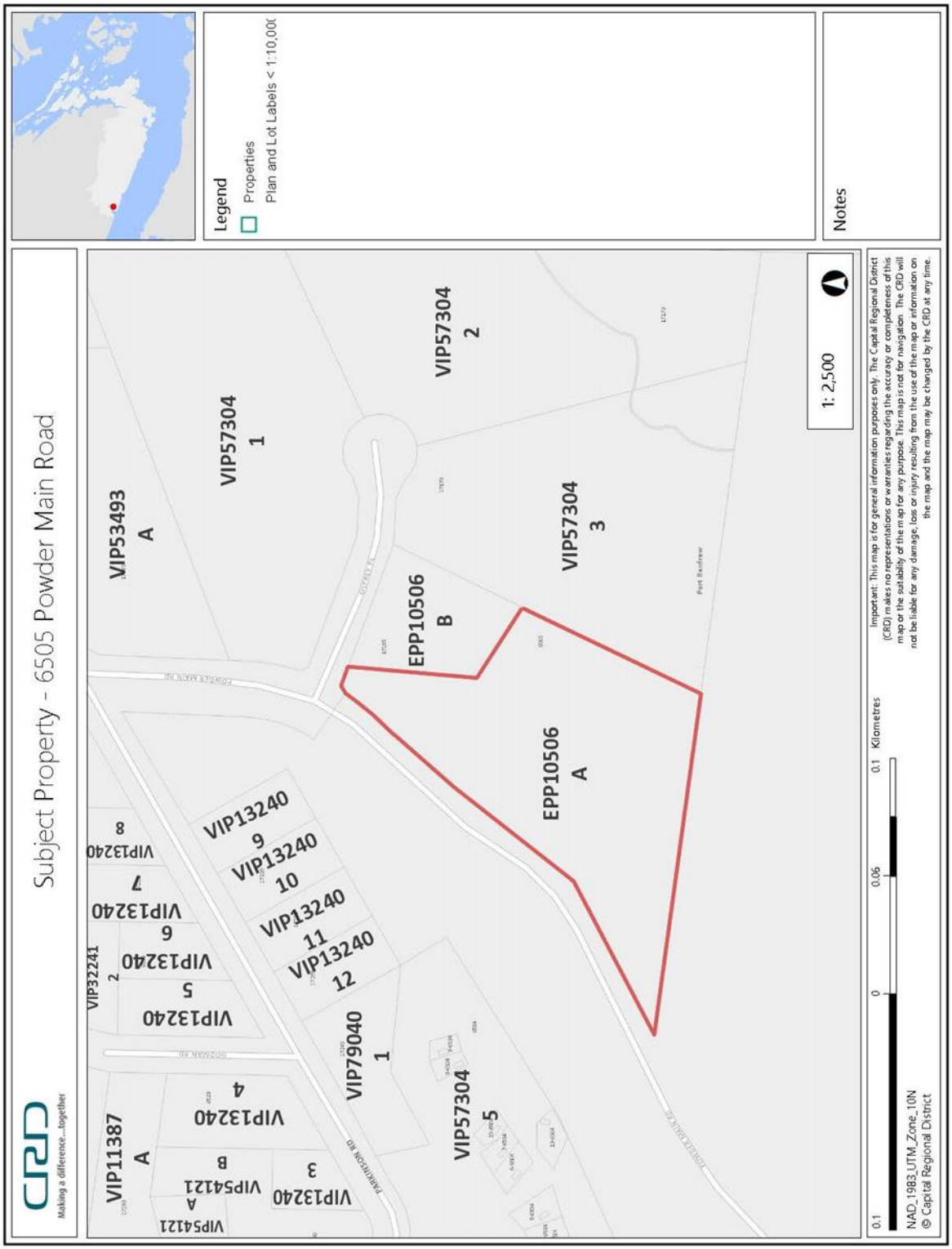
That the Land Use Committee recommend to the CRD Board:
That cash in lieu of park land dedication in the amount of 5% of the value of the land being subdivided be requested pursuant to Section 510 of the *Local Government Act* for the proposed subdivision of Lot A, District Lot 17, Renfrew District, Plan EPP10506.

Submitted by:	Iain Lawrence, MCIP, RPP, Manager, Juan de Fuca Community Planning
Submitted by:	Don Closson, Manager, Juan de Fuca Community Parks and Recreation
Concurrence:	Kevin Lorette, P.Eng., MBA, General Manager, Planning & Protective Services
Concurrence:	Larisa Hutcheson, P.Eng., General Manager, Parks & Environmental Services
Concurrence:	Robert Lapham, MCIP, RPP, Chief Administrative Officer

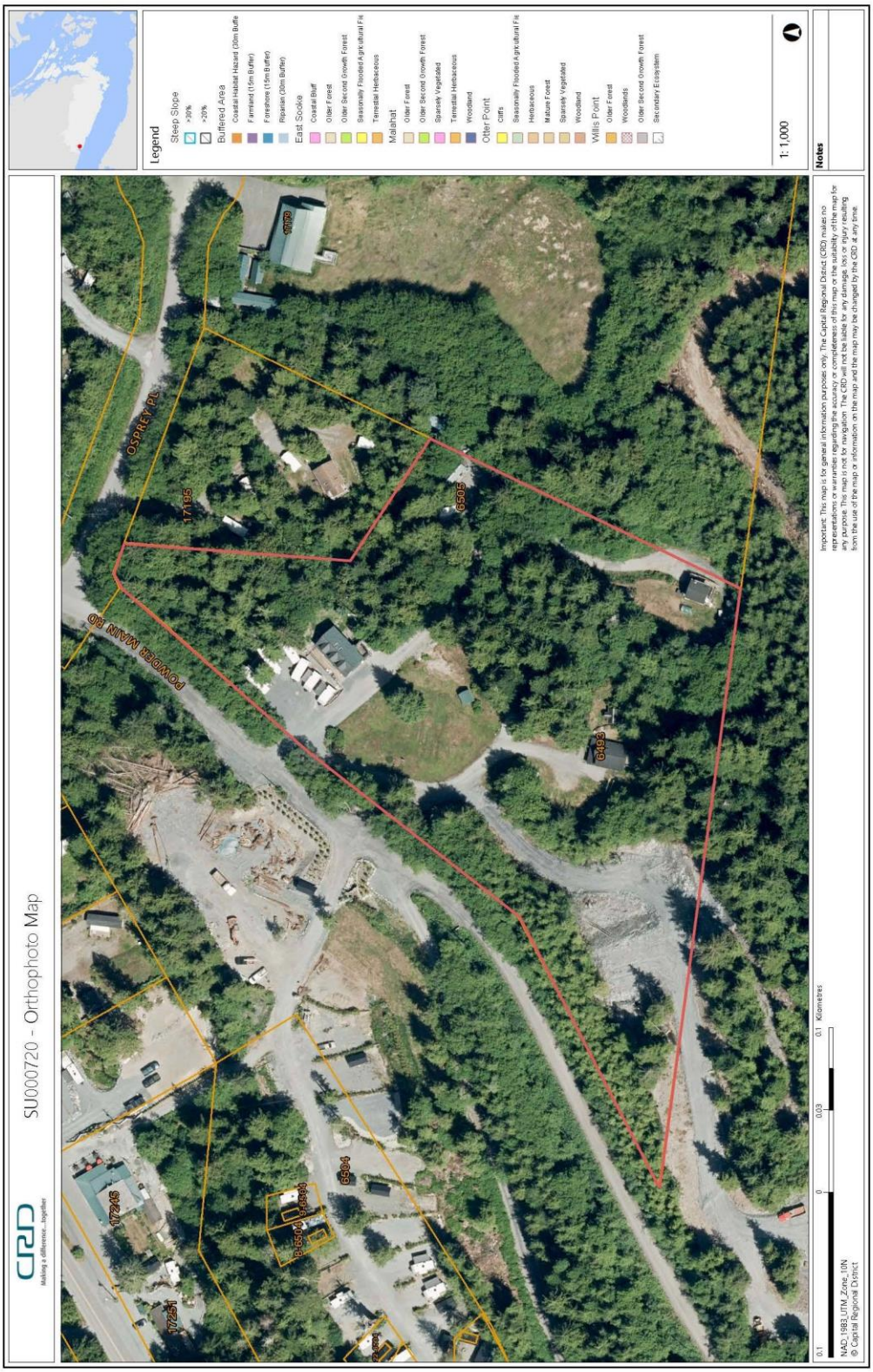
ATTACHMENTS

Appendix A: Subject Property Map
Appendix B: Orthophoto Map
Appendix C: Plan of Subdivision
Appendix D: Commission Minutes May 26, 2020

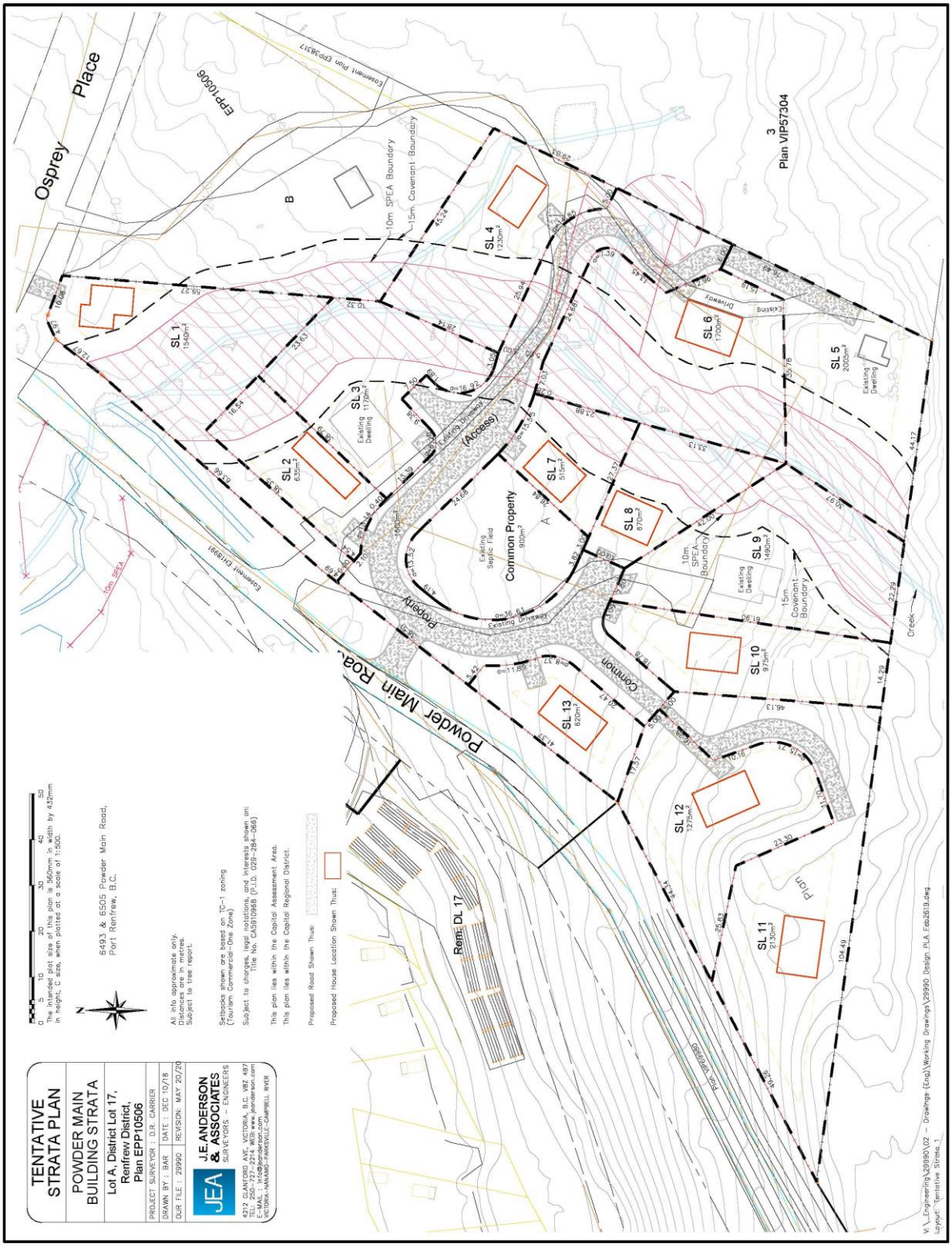
Appendix A: Subject Property Map



Appendix B: Orthophoto Map



Appendix C: Plan of Subdivision



Appendix D: Commission Minutes May 26, 2020

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Minutes of a Meeting of the
Juan de Fuca Electoral Area Parks and Recreation Advisory Commission
Held Tuesday, May 26, 2020 at the Juan de Fuca Local Area Services Building,
3 – 7450 Butler Road, Otter Point, BC

PRESENT:	S. Jorna (Chair) (EP), V. Braunschweig (EP), B. Croteau, J. Gaston (EP), Director M. Hicks (EP), P. Sloan (EP) **Staff:** D. Closson, Manager, Juan de Fuca Community Parks and Recreation; I. Lawrence, Manager, Juan de Fuca Community Planning (EP); R. Robinson, Planning Assistant; W. Miller, Recorder (EP)
ABSENT:	A. Marchand
PUBLIC:	0

The meeting was called to order at 3:02 pm.

1. **Approval of the Agenda**

   MOVED by Commissioner Gaston, **SECONDED** by Commissioner Braunschweig that the agenda be approved. **CARRIED**

2. **Adoption of the Minutes of February 25, 2020**

   MOVED by Commissioner Sloan, **SECONDED** by Commissioner Gaston that the minutes from the meeting of February 25, 2020 be adopted. **CARRIED**

3. **Chair's Report**
   The Chair welcomed everyone to the Commission's first electronic meeting.

4. **Director's Report**
   No report.

5. **Delegation – Juan de Fuca Community Planning**
   a) **Subdivision Application SU000720 - Lot A, District Lot 17, Renfrew District, Plan EPP10506 (6505 Powder Main Road)**
   Regina Robinson spoke to the staff memo to the Commission regarding the referral received from the Ministry of Transportation and Infrastructure (MoTI) for a proposed 13-lot bare land subdivision.

   Regina Robinson reported that:
   - the Commission initially considered the application at its February 25, 2020 meeting
   - at that meeting, the Commission requested a site visit prior to providing comment on the provision of park land
   - members of the Commission attended the site on May 12, 2020
   - through dialogue with the MoTI, it is anticipated that the site plan will be redesigned
   - early input from the Commission regarding its interest in land is requested for the redesign

Commission comments included:
- regardless of redesign, interest in land is limited due to the density proposed
- property does not provide connectivity to the trail network proposed for Port Renfrew
- the riparian area is a protected area

MOVED by Commissioner Sloan, **SECONDED** by Commissioner Braunschweig that the Juan de Fuca Electoral Area Parks and Recreation Advisory Commission recommend to the Juan de Fuca Land Use Committee that the requirement for park land dedication in accordance with Section 510 of the *Local Government Act*, for proposed subdivision of Lot A, District Lot 17, Renfrew District, Plan EPP10506 (SU000720), be received in the form of cash-in-lieu. **CARRIED**

MOVED by Stan Jensen, **SECONDED** by Vern McConnell that the Land Use Committee recommends to the Capital Regional District (CRD) Board:

That Development Permit with Variance DV000071 for Lot 2, District Lot 39, Malahat District, Plan 23012 to authorize a 2-lot subdivision in a Sensitive Ecosystems Development Permit Area, and to vary Juan de Fuca Land Use Bylaw No. 2040, Part 2, Section 3.10(4) by reducing the minimum road frontage requirement from 10% (79.9 m) to 9.5% (76.4 m) for the purpose of authorizing a 2-lot subdivision, be approved.

CARRIED

b) DV000072 – Lot A, Section 89, Sooke District, Plan VIP54145 (7004 East Sooke Road)

Iain Lawrence spoke to the staff report and the request for a development permit with variance to address the Steep Slopes and Shoreline Protection Development Permit (DP) guidelines, and to vary the rear yard setback and the allowable projection of a deck into the rear yard setback for an addition to an existing single-family dwelling in the Rural Residential 6 (RR-6) zone.

Iain Lawrence highlighted the site plan with variance requests. It was advised that the applicant submitted a geotechnical report that included recommendations for the proposed development and a calculated flood construction level based on the most recent Provincial guidelines.

One comment was received in response to the notice of intent mailed to adjacent property owners within 500 m of the subject property. The comment from CRD Regional Parks was included in the supplementary agenda and stated no concerns regarding the application.

The Chair confirmed that the applicant was not present.

MOVED by Stan Jensen, **SECONDED** by Sandy Sinclair that the Land Use Committee recommends to the Capital Regional District (CRD) Board:

That Development Permit with Variance DV000072 for Lot A, Section 89, Sooke District, Plan VIP54145 to permit alterations to a single-family dwelling and deck located within in a Steep Slopes and a Shoreline Protection Development Permit Area; and to vary Part 2, Section 10.09(d) by decreasing the minimum rear yard setback from 10 m to 7.5 m, and to vary Juan de Fuca Land Use Bylaw No. 2040, Part 1, Section 4.10(1)(a) by increasing the maximum deck projection allowance into the rear yard setback from 1 m to 1.6 m, be approved.

CARRIED

7. Provision of Park Land for Subdivisions

a) SU000720 – Lot A, District Lot 17, Renfrew District, Plan EPP10506 (6505 Powder Main Road)

Iain Lawrence spoke to the staff report addressing the provision of 5% park land or cash-in-lieu pursuant to Section 510 of the *Local Government Act* for the proposed 13-lot bare land strata subdivision.

Iain Lawrence highlighted the proposed strata plan, identifying the watercourse on the property.

Iain Lawrence responded to questions from the LUC advising that:
- the Juan de Fuca Electoral Area Parks and Recreation Advisory Commission considered the application and recommends that park dedication be received in the form of cash in lieu
- the proposal does not require the subject property to be rezoned
- the proposal meets the minimum lot size permitted by the Tourism Commercial – One zone, if the parcel is connected to community water and community sewer
- the proposal intends to connect to the Port Renfrew Water System and a community sewer system in the form of a strata septic system approved by Island Heath
- the Port Renfrew Comprehensive Community Development Plan (CCDP) does not speak to strata developments
- the Port Renfrew CCDP does not regulate form a tenure
- public input regarding the subdivision can be directed to the Approving Officer, Ministry of Transportation and Instructure
- the development permit required as part of the subdivision process will address the *Riparian Areas Protection Regulation*, and will need to demonstrate that there are building envelopes outside the Streamside Protection and Enhancement Areas

LUC comments included:
- the current lot layout crowds the riparian area
- support for reviewing the Official Community Plan relative to strata developments

The Chair advised that the LUC is being asked to consider provision of park land options this evening. The Chair advised that he and staff are available to receive public comment regarding the proposal. Public comments regarding the proposal will be considered as part of the broader application.

MOVED by Stan Jensen, **SECONDED** by Vern McConnell that the Land Use Committee recommends to the Capital Regional District (CRD) Board:

That cash in lieu of park land dedication in the amount of 5% of the value of the land being subdivided be requested pursuant to Section 510 of the *Local Government Act* for the proposed subdivision of Lot A, District Lot 17, Renfrew District, Plan EPP10506.

CARRIED

b) SU000721 – Parcel A (DD 143426I) of Section 97, Renfrew District, Except that part in Plans 15462, VIP77871 and EPP24972 (17151 Parkinson Road)

Iain Lawrence spoke to the staff report addressing the provision of 5% park land or cash-in-lieu pursuant to Section 510 of the *Local Government Act* for the four-lot bare land strata subdivision.

Iain Lawrence highlighted the proposed plan and trail network proposed by the Juan de Fuca Electoral Area Parks and Recreation Advisory Commission.

Iain Lawrence responded to questions from the LUC advising that:
- the parent parcel is being divided into 2-lots
- one lot is being divided into 4-lots which triggers the requirement for park dedication
- members of the Commission visited the subject property
- the Commission has identified the subject property as an area of interest to establish a trail network

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REPORT TO THE JUAN DE FUCA LAND USE COMMITTEE
MEETING OF TUESDAY, JULY 21, 2020

SUBJECT **Provision of Park Land for Subdivision of Parcel A (DD 143426I) of Section 97, Renfrew District, Except that part in Plans 15462, VIP77871 and EPP24972 – 17151 Parkinson Road**

ISSUE SUMMARY

To consider options regarding the provision of park land pursuant to Section 510 of the *Local Government Act (LGA)* for the proposed four-lot bare land strata subdivision of Parcel A (DD 143426I) of Section 97, Renfrew District, Except that part in Plans 15462, VIP77871 and EPP24972.

BACKGROUND

The 30.9 hectare (ha) parcel is located on 17151 Parkinson Road and is zoned Tourism Commercial - One (TC-1) in the Comprehensive Community Development Plan for Port Renfrew, Bylaw No. 3109 (Appendices A and B). The subject parcel is currently accessed by existing logging roads and one single family dwelling is located in the northwest corner, which is accessed by a driveway from Parkinson Road. A watercourse flows through the parcel, but is located outside the area affected by the proposed subdivision.

The applicant has applied to subdivide the property into 2 lots with a concurrent application to further subdivide one of the newly created parcels into 4 bare land strata lots (Appendix C). The requirement for provision of park land or payment for parks purposes pursuant to Section 510 of the *LGA* applies to the subdivision.

At their meeting of May 26, 2020, the Juan de Fuca Electoral Area (JdF EA) Parks and Recreation Advisory Commission (the Commission) considered options for park land requirements (Appendix D).

ALTERNATIVES

Alternative 1
That the Land Use Committee recommend to the CRD Board:
That 5% park land dedication be requested pursuant to Section 510 of the *Local Government Act* for the proposed subdivision of Parcel A (DD 143426I) of Section 97, Renfrew District, Except that part in Plans 15462, VIP77871 and EPP24972, except that a lesser amount may be acceptable where the owner agrees to dedicate that portion of the subject property required to locate a trail along Parkinson Road to JdF Community Parks and Recreation standards, and that the owner agrees to construct the trail prior to subdivision approval.

Alternative 2:
Refer the application back to staff for more information.

IMPLICATIONS

Legislative Implications
Section 510 of the *LGA* requires the provision of park land at the time of subdivision where three or more additional lots are created and the smallest lot being created is 2 ha or less. Where a regional district provides a community park service and an official community plan contains

policies and designations respecting the location and types of future parks, the owner may be required to provide either land or cash-in-lieu at the discretion of the local government. The amount of land to be provided may not exceed 5% of the land being subdivided.

If an owner is to provide cash-in-lieu, the value of the land is based on the average market value of all land in the proposed subdivision calculated as that value would be on the date of preliminary layout approval of the subdivision before any works or services are installed, or a value agreed upon by the parties. Any money received for park land must be deposited in a reserve for the purpose of acquiring park lands.

Public Consultation Implications
There are no public consultation requirements in Bylaw No. 3885 for subdivision applications. An internal review of subdivision requirements is conducted by staff and conditions are forwarded to the Provincial Approving Officer. As the proposed subdivision requires provision of park land under Section 510 of the *LGA*, the application was referred to the JdF EA Parks and Recreation Advisory Commission. Meetings are open to the public, advertised in the local newspaper and on the CRD website.

Land Use Implications
The JdF EA Community Parks Strategic Plan, 2010, identifies broad acquisition objectives for community parks and establishes that although park dedications are preferred to cash-in-lieu, cash-in-lieu can be appropriate in marginal locations. Park acquisition policies and selection criteria are also outlined in the Strategic Plan.

The Comprehensive Community Development Plan for Port Renfrew, Bylaw No. 3109, includes policies and objectives related to parks and trails. Should the application to subdivide the parcel be approved, provision of park is required under Section 510 of the *LGA*. Five percent of the larger parcel would equal 1.5 ha; but the area of land under consideration at this time is 6.7 ha, of which five percent would be equal to 0.335 ha. A monetary equivalent would need to be determined by an appraisal; however, based on the 2020 assessed land value of $1,395,000, approximately $15,100 would be received as cash in-lieu.

The Commission drafted a plan identifying a network of potential trails within the community as a result of earlier development proposals (Appendix E). The subject property is identified as an area of interest as part of this plan.

In light of the goal of developing a trail network around the community, the Commission considered subdivision application SU000721 at its meeting of May 26, 2020, and passed the following motion:

> **MOVED** by Commissioner Braunschweig, **SECONDED** by Commissioner Sloan that the Juan de Fuca Electoral Area Parks and Recreation Advisory Commission recommend to the Juan de Fuca Land Use Committee that, in accordance with Section 510 of the L*ocal Government Act*, park dedication in the amount of 5% be required for proposed subdivision of Parcel A (DD 143426I) of Section 97, Renfrew District, Except that part in Plans 15462, VIP77871 and EPP24972 (SU000721), except where the owner agrees to dedicate that portion of land required to construct a trail along Parkinson Road to JdF Community Parks and Recreation standards and that the owner agrees to construct the trail prior to subdivision approval.
>
> **CARRIED**

A similar agreement was reached with the owner as part of a proposed 13-lot subdivision of land to the east of the subject property. Such a voluntary agreement reduces the amount of land required to be dedicated by the owner and provides the community with a constructed asset. Therefore, staff support the JdF EA Parks and Recreation Advisory Commission's recommendation for this subdivision application.

CONCLUSION

The applicant proposes to subdivide 6.7 ha of the 30.9 ha property at 17151 Parkinson Road into 4 bare land strata lots. The JdF EA Parks and Recreation Advisory Commission considered the application on May 26, 2020, and recommended accepting 5% cash in-lieu of park land pursuant to Section 510 of the *LGA,* except where the owner agrees to dedicate that portion of land required to construct a trail along Parkinson Road to JdF Community Parks and Recreation standards and that the owner agrees to construct the trail prior to final subdivision approval.

If the Land Use Committee and CRD Board agree to the motion, the applicant would be responsible for satisfying Section 510 of the *LGA* by voluntarily constructing and dedicating an approved trail. Satisfactory completion of the works would be a condition of Juan de Fuca Community Planning's sign-off to the Ministry of Transportation and Infrastructure required for final approval of the subdivision.

RECOMMENDATION

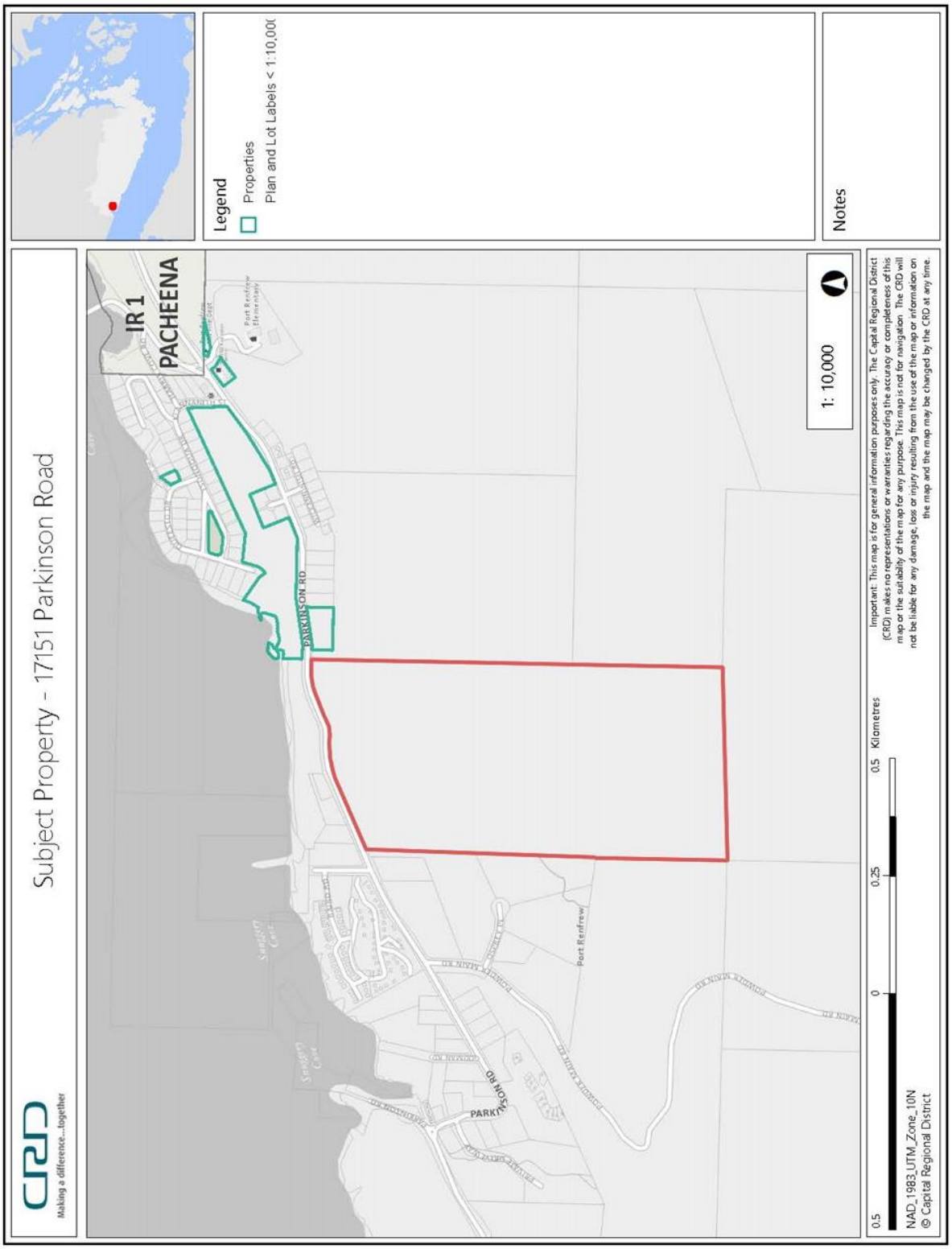
That the Land Use Committee recommend to the CRD Board:
That 5% park land dedication be requested pursuant to Section 510 of the *Local Government Act* for the proposed subdivision of Parcel A (DD 143426I) of Section 97, Renfrew District, Except that part in Plans 15462, VIP77871 and EPP24972, except that a lesser amount may be acceptable where the owner agrees to dedicate that portion of the subject property required to locate a trail along Parkinson Road to JdF Community Parks and Recreation standards, and that the owner agrees to construct the trail prior to subdivision approval.

Submitted by:	Iain Lawrence, MCIP, RPP, Manager, Juan de Fuca Community Planning
Submitted by:	Don Closson, Manager, Juan de Fuca Community Parks and Recreation
Concurrence:	Kevin Lorette, P.Eng., MBA, General Manager, Planning & Protective Services
Concurrence:	Larisa Hutcheson, P.Eng., General Manager, Parks & Environmental Services
Concurrence:	Robert Lapham, MCIP, RPP, Chief Administrative Officer

ATTACHMENTS

Appendix A: Subject Property Map
Appendix B: Orthophoto Map
Appendix C: Plan of Subdivision
Appendix D: Commission Minutes May 26, 2020
Appendix E: Draft Port Renfrew Trails Plan

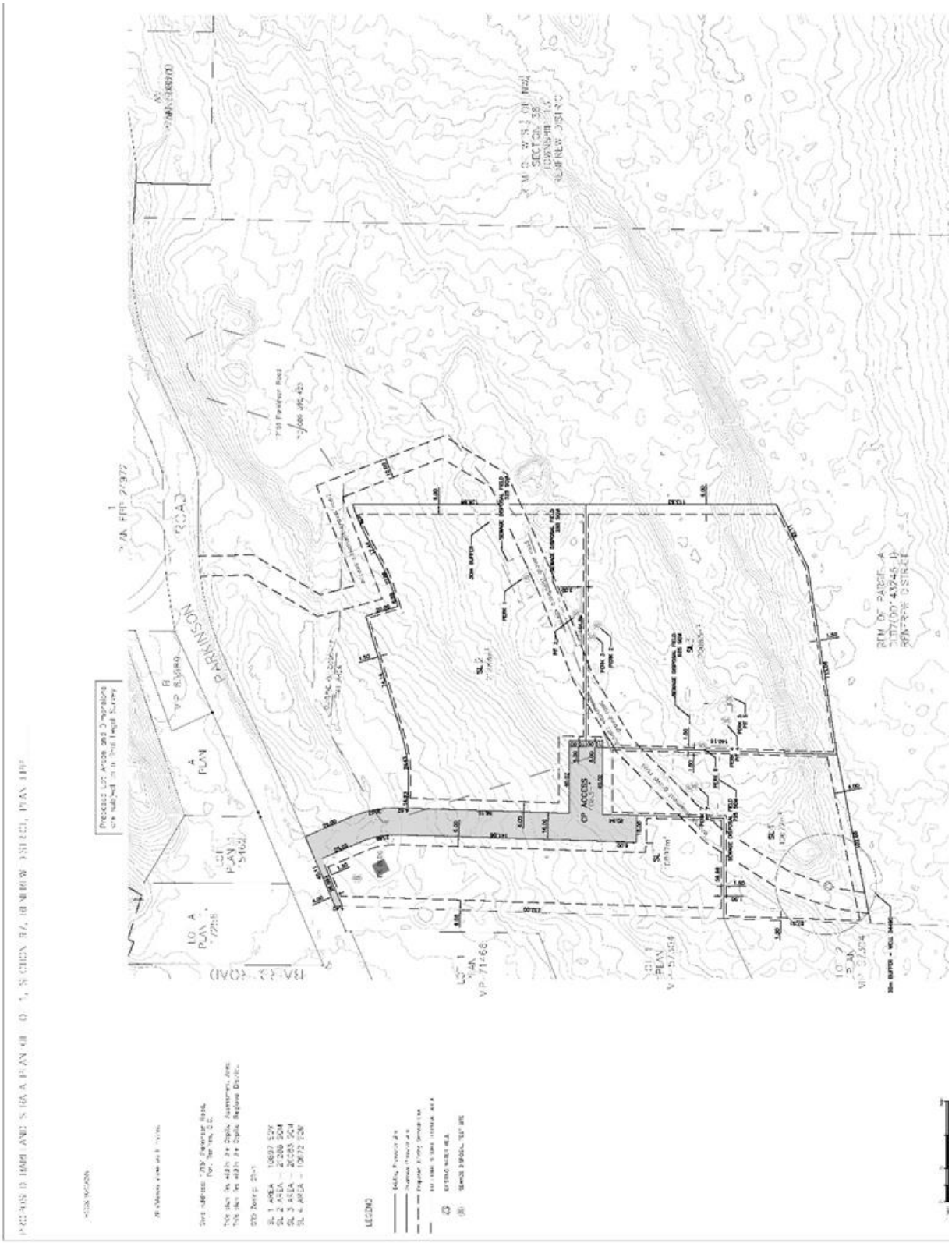
Appendix A: Subject Property Map



Appendix B: Orthophoto Map



Appendix C: Plan of Subdivision



Appendix D: Commission Minutes May 26, 2020

Commission comments included:
- regardless of redesign, interest in land is limited due to the density proposed
- property does not provide connectivity to the trail network proposed for Port Renfrew
- the riparian area is a protected area

MOVED by Commissioner Sloan, **SECONDED** by Commissioner Braunschweig that the Juan de Fuca Electoral Area Parks and Recreation Advisory Commission recommend to the Juan de Fuca Land Use Committee that the requirement for park land dedication in accordance with Section 510 of the *Local Government Act*, for proposed subdivision of Lot A, District Lot 17, Renfrew District, Plan EPP10506 (SU000720), be received in the form of cash-in-lieu. **CARRIED**

b) Subdivision Application SU000721 - Parcel A (DD 143426I) of Section 97, Renfrew District, Except that part in Plans 15462, VIP77871 and EPP24972 (17151 Parkinson Road)

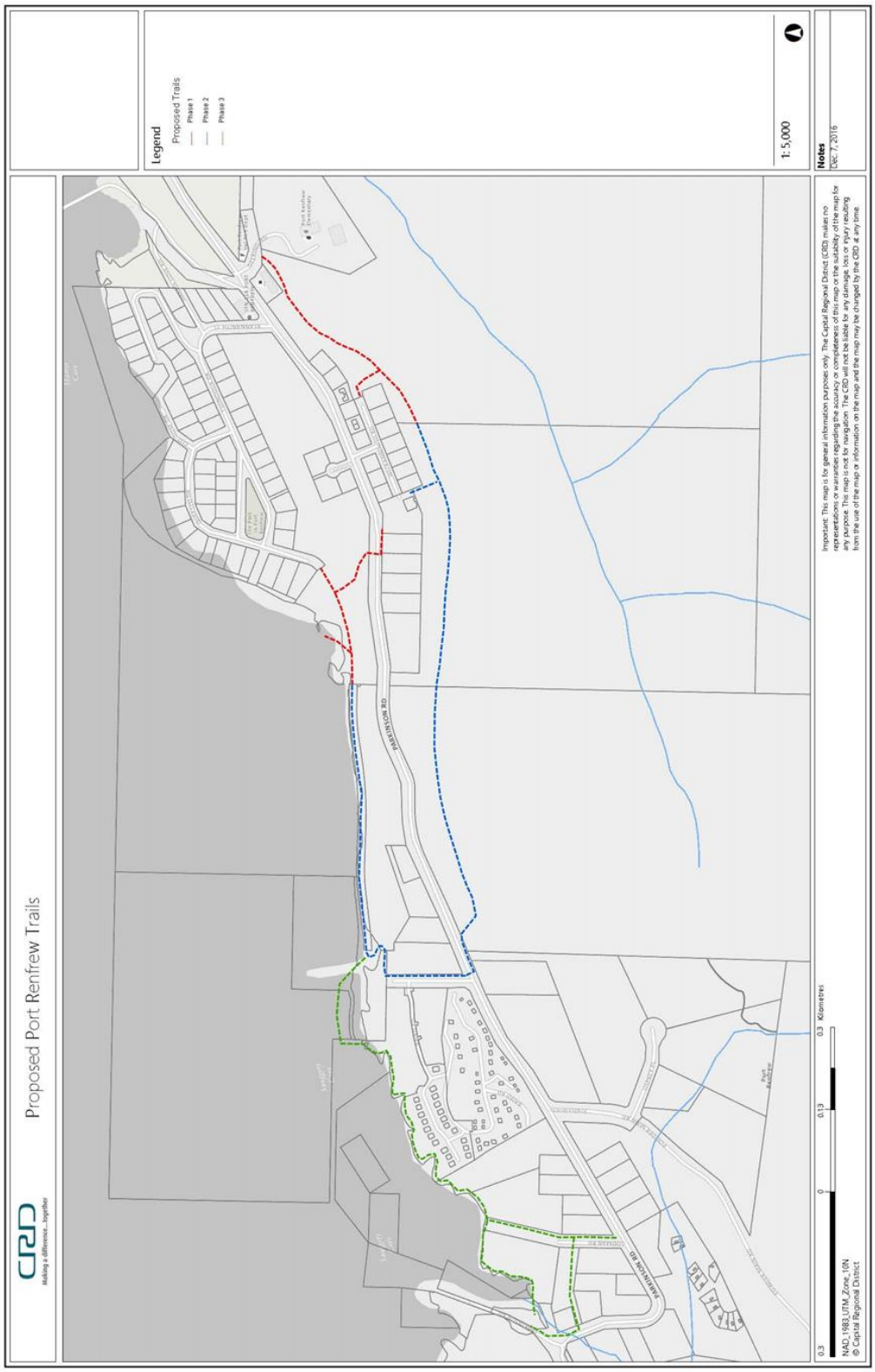
Regina Robinson spoke to the staff memo to the Commission regarding the referral received from the Ministry of Transportation and Infrastructure (MoTI) for a proposed 4-lot bare land subdivision.

Regina Robinson reported that:
- the Commission initially considered the application at its February 25, 2020 meeting
- at that meeting, the Commission requested a site visit prior to providing comment on the provision of park land
- members of the Commission attended the site on May 12, 2020
- the Commission considered earlier subdivision application proposals that included this property (S-22-07 and S-11-08)
- these application proposals did not proceed but several trail network versions were drafted and considered by the Commission
- to support development of a trail network in Port Renfrew, the Commission resolved to accept the voluntary commitment by the applicant for subdivision SU000679 to construct a 1.5 m wide trail within the public road right-of-way on a parcel located to the west of the subject property

Iain Lawrence responded to questions from the Commission advising that:
- the parent parcel is being divided into 2-lots
- one lot is being divided into 4-lots which triggers the requirement for park dedication
- 5% of the area of land being subdivided is .335 ha
- the Commission would consider the remainder lot at such time that a subdivision application is received
- the Commission resolved to support establishment of a trail on the lot located to the west of the subject property (SU000679)
- it is within the Commission's purview to state interest in environmentally sensitive areas and ecosystems which may include trees
- funds received as cash-in-lieu of park land must be deposited into the reserve established for acquiring park lands
- funds received as cash-in-lieu of park land cannot be used to develop parks

MOVED by Commissioner Braunschweig, **SECONDED** by Commissioner Sloan that the Juan de Fuca Electoral Area Parks and Recreation Advisory Commission recommend to the Juan de Fuca Land Use Committee that, in accordance with Section 510 of the L*ocal Government Act*, park dedication in the amount of 5% be required for proposed subdivision of Parcel A (DD 143426I) of Section 97, Renfrew District, Except that part in Plans 15462, VIP77871 and EPP24972 (SU000721), except where the owner agrees to dedicate that portion of land required to construct a trail along Parkinson Road to JdF Community Parks and Recreation standards and that the owner agree to construct the trail prior to subdivision approval. **CARRIED**

Appendix E: Draft Port Renfrew Trails Plan



Iain Lawrence responded to questions from the LUC advising that:
- the Juan de Fuca Electoral Area Parks and Recreation Advisory Commission considered the application and recommends that park dedication be received in the form of cash in lieu
- the proposal does not require the subject property to be rezoned
- the proposal meets the minimum lot size permitted by the Tourism Commercial – One zone, if the parcel is connected to community water and community sewer
- the proposal intends to connect to the Port Renfrew Water System and a community sewer system in the form of a strata septic system approved by Island Heath
- the Port Renfrew Comprehensive Community Development Plan (CCDP) does not speak to strata developments
- the Port Renfrew CCDP does not regulate form a tenure
- public input regarding the subdivision can be directed to the Approving Officer, Ministry of Transportation and Instructure
- the development permit required as part of the subdivision process will address the *Riparian Areas Protection Regulation*, and will need to demonstrate that there are building envelopes outside the Streamside Protection and Enhancement Areas

LUC comments included:
- the current lot layout crowds the riparian area
- support for reviewing the Official Community Plan relative to strata developments

The Chair advised that the LUC is being asked to consider provision of park land options this evening. The Chair advised that he and staff are available to receive public comment regarding the proposal. Public comments regarding the proposal will be considered as part of the broader application.

MOVED by Stan Jensen, **SECONDED** by Vern McConnell that the Land Use Committee recommends to the Capital Regional District (CRD) Board:

That cash in lieu of park land dedication in the amount of 5% of the value of the land being subdivided be requested pursuant to Section 510 of the *Local Government Act* for the proposed subdivision of Lot A, District Lot 17, Renfrew District, Plan EPP10506.

CARRIED

b) SU000721 – Parcel A (DD 143426I) of Section 97, Renfrew District, Except that part in Plans 15462, VIP77871 and EPP24972 (17151 Parkinson Road)

Iain Lawrence spoke to the staff report addressing the provision of 5% park land or cash-in-lieu pursuant to Section 510 of the *Local Government Act* for the four-lot bare land strata subdivision.

Iain Lawrence highlighted the proposed plan and trail network proposed by the Juan de Fuca Electoral Area Parks and Recreation Advisory Commission.

Iain Lawrence responded to questions from the LUC advising that:
- the parent parcel is being divided into 2-lots
- one lot is being divided into 4-lots which triggers the requirement for park dedication
- members of the Commission visited the subject property
- the Commission has identified the subject property as an area of interest to establish a trail network

MOVED by Sandy Sinclair, **SECONDED** by Stan Jensen that the Land Use Committee recommends to the Capital Regional District (CRD) Board:

That 5% park land dedication be requested pursuant to Section 510 of the Local Government Act for the proposed subdivision of Parcel A (DD 143426I) of Section 97, Renfrew District, Except that part in Plans 15462, VIP77871 and EPP24972, except that a lesser amount may be acceptable where the owner agrees to dedicate that portion of the subject property required to locate a trail along Parkinson Road to JdF Community Parks and Recreation standards, and that the owner agrees to construct the trail prior to subdivision approval.

CARRIED

8. Zoning and Official Community Plan Amendment Application

a) RZ000267 - That Part of Section 17, Otter District, Lying East of Otter Point Road, Except Parcel C (DD43782I) And Except Parts in Plans 3054 And 17721(3542 & 1-3542 Otter Point Road)

Iain Lawrence advised that the LUC first considered the proposal at its meeting of July 19, 2020. At that meeting the LUC recommended referral of the proposal to agencies. Since the time that referrals were circulated, the applicant has revised the application to rezone the front part of the property to permit six rural residential parcels along Otter Point Road and to rezone the rear portion to permit an industrial sawmill operation. An amendment to the Otter Point Official Community Plan (OCP) is also proposed to designate portions of the property as Watercourses & Wetland Areas and Commercial & Industrial development permit areas.

Iain Lawrence spoke to proposed Bylaw No. 4316, which would rezone the parcel for the requested uses, and to proposed Bylaw No. 4317, which would amend the OCP. It was advised that Bylaw No. 4316 restricts the sawmill parcel from being further subdivided. It was further advised that Bylaw No. 4316 provides the requirement for vegetative screening along the entire length of the sawmill parcel boundaries.

Iain Lawrence summarized the referral comments received, as well as the professional environmental report submitted as part of the application process, as included in the staff report.

Iain Lawrence reported that:

- should the rezoning be supported, the residential parcels will require proof of potable water as part of the subdivision process in the amount of 1,400 litres per day per lot
- the sawmill operation will require a provincial water licence
- discharge associated with the sawmill operation will require provincial authorization under the *Environmental Management Act*
- the Ministry of Transportation and Infrastructure has requested dedication of Weiland Road along the southern portion of the property, which would support establishment of a trail as recommended by the Juan de Fuca Electoral Area Parks and Recreation Advisory Commission
- the Otter Point Volunteer Fire Department has proposed that the applicant install water supply in the form of tanks (60,000 ga) to aid fire protection for the industrial sawmill use and the community
- in response, a covenant is recommended for fire protection works related to the sawmill operation prior to subdivision or further building construction

Making a difference...together

REPORT TO THE JUAN DE FUCA LAND USE COMMITTEE
MEETING OF TUESDAY, JULY 21, 2020

SUBJECT **Development Permit with Variance for Lot 2, District Lot 39, Malahat District, Plan 23012**

ISSUE SUMMARY

A request has been made for a development permit with variance to address the Sensitive Ecosystem Development Permit (DP) guidelines and to reduce the requirement that 10% of the parcel perimeter fronts onto a highway, for the purpose of creating a 2-lot subdivision in the Forestry (AF) zone.

BACKGROUND

The 4.25 ha property is located at 2727 Anderson Road in Otter Point and is zoned Forestry (AF) under Juan de Fuca Land Use Bylaw, 1992, Bylaw No. 2040 (Appendix A). The parcel is split by Anderson Road, the dedicated portion of which ends at the mid-point of the western parcel. An undedicated, graded road continues north to Rural Resource Lands areas beyond. The portion on the west side of the road has an area of 1.3 ha and is bounded by AF zoned properties to the east and west. The portion on the east side of the road has an area of 2.62 ha and is bounded by a Rural A parcel to the south and AF zoned properties to the north and east.

A building on the western portion of the parcel, used as a mechanic shop for the logging industry, was removed in 2008 via demolition permit (JD08-013), although the concrete foundation remains. There are currently no structures on this section of the parcel. The eastern portion of the parcel has a recently constructed single-family dwelling and detached garage accessed via driveway from Anderson Road.

The applicant has submitted an application for a 2-lot subdivision to create two parcels smaller than the 4 ha minimum required by the zone in accordance with Bylaw No. 2040, Section 3.10 (6b), which authorizes the Approving Officer to approve a subdivision split into parts by a road (Appendix B). The property is designated as a Sensitive Ecosystem development permit area; therefore, a development permit is required. The plans propose a reduction of the minimum road frontage requirement for proposed Lot A from 10% to 9.5% of the perimeter, therefore, the owner is requesting a variance.

The BC Ministry of Environment and Climate Change Strategy (BC ENV) has reporting and investigation requirements for sites that may have had previous industrial activities and are the subject of current applications for development. Upon receipt of information regarding historical uses on the parcel from JdF Community Planning, the applicant engaged in the site profile process as required by the *Environmental Management Act.* Based on the location of the proposed development in relation to the potentially contaminated site, the Province approved a release request on May 6, 2020, and confirmed that the CRD may consider the Development Permit with Variance to authorize subdivision for the purpose of constructing a single family dwelling and related services.

ALTERNATIVES

Alternative 1
That the Land Use Committee recommends to the Capital Regional District Board:
That Development Permit with Variance DV000071 for Lot 2, District Lot 39, Malahat District, Plan 23012 to authorize a 2-lot subdivision in a Sensitive Ecosystems Development Permit Area, and to vary Juan de Fuca Land Use Bylaw No. 2040, Part 2, Section 3.10(4) by reducing the minimum road frontage requirement from 10% (79.9 m) to 9.5% (76.4 m) for the purpose of authorizing a 2-lot subdivision, be approved.

Alternative 2
That Development Permit with Variance DV000071 be denied.

Alternative 3
That the application be referred back to staff for additional information.

IMPLICATIONS

Legislative Implications
Section 40 of the *Environmental Management Act* requires that a person must provide a site profile in accordance with the *Contaminated Sites Regulation* to local government when that person applies for a development permit or a development variance permit for land that the person knows was used for industrial activity. Further review of the site may be required by the Province based on the information provided in the site profile. Where further review by the Province is required, local government may not approve an application until the conditions under Section 557 of the *Act* have been satisfied or a release has been granted from the Province. A release was issued by the Province in relation to this development permit with variance request on May 6, 2020.

The Otter Point Official Community Plan, Bylaw No. 3819, designates development permit areas (DPAs) and outlines development permit guidelines (Appendix C). The property is located within the Sensitive Ecosystem DPA; therefore, a development permit is required for subdivision. CRD Delegation of Development Permit Approval Authority Bylaw, 2009, Bylaw No. 3462, gives the General Manager, Planning and Protective Services, the power to issue a development permit; however, the delegated authority does not include development permits that require a variance, as stated in Section 5(a) of the bylaw.

The Juan de Fuca Land Use Bylaw No. 2040, Part 2, Section 3.10(4), specifies that road frontage shall be a minimum of 10% of the perimeter of a parcel. Since proposed Lot A does not meet this requirement, a variance is required in order to permit the subdivision.

Public Consultation Implications
Pursuant to Section 499 of the *Local Government Act*, if a local government is proposing to pass a resolution to issue a development variance permit it must give notice to each resident/tenant within a given distance as specified by bylaw. Juan de Fuca Development Fees and Procedures Bylaw No. 3885, states that the Board at any time may refer an application to an agency or organization for their comment. In addition, it states that a notice of intent must be mailed to the owners of property located within a distance of 500 metres of the subject property. Any responses received from the public will be presented at the July 21, 2020, Land Use Committee meeting. There is no legislative requirement for public consultation if a local government is considering the issuance of a development permit.

Land Use Implications
Development Permit:
The owner has submitted an environmental assessment report prepared by Julie Budgen, RP.Bio., of Corvidae Environmental Consulting Inc., dated May, 2018, to address the Sensitive Ecosystem DP guidelines for the proposed development (Appendix D). The report provided an assessment of the environmental conditions found at the site, described potential impacts of the proposed development and provided recommendations on the suitability of the site for the proposed development.

The report confirms that the western portion of the property contains a stand of mature forest, but the location of the previously demolished structure has now overgrown with invasive species. The Biologist recommended removal of invasive species and siting any proposed buildings in these locations; protecting the mature forest and flagging the area prior to construction, sediment and control measures to be in place during development, and replanting the cleared areas with native species. The Biologist anticipates short term environmental impacts as a result of the development.

Variance:
The Juan de Fuca Land Use Bylaw requires that where a lot being created by a subdivision fronts on a highway, the minimum frontage on the highway shall be one-tenth of the perimeter of the lot. Proposed Lot B meets this requirement; however, proposed Lot A requires 79.9 m of frontage, but is proposed to only have 76.4 m (9.5%).

In evaluating whether a frontage exemption is justified, the following technical criteria are normally considered:

- How does it relate to the topography of the area?
- Does it create any environmental impacts?
- Will reducing the frontage produce an awkward lot configuration?
- Will reducing the frontage eliminate future subdivision potential of the lot and of lots beyond?
- Will the exemption reduce road network and access options?
- Does the proposed reduction disturb existing residences?

The proposed subdivision layout is not expected to affect the environment, road network, or neighboring properties and will improve access options; the Ministry of Transportation and Infrastructure requires that a portion of proposed Lot B be dedicated to expand Anderson Road to the north.

Development Permit with Variance DV000071 has been prepared for consideration to grant a variance to reduce the minimum frontage requirement from 10% to 9.5%, and to authorize a 2-lot subdivision (Appendix E). Any residents that may be affected by the proposal will have an opportunity to come forward with their comments through the public notification process. Staff recommend approval of the development permit with variance subject to public notification.

CONCLUSION

The applicant has requested a development permit with variance for the purpose of authorizing a 2-lot subdivision for a parcel split by a road. The proposed variance is to reduce the minimum frontage requirement for proposed Lot A from 10% to 9.5%. Since there will be minimal impact to the sensitive ecosystem development permit area, staff recommend approval of the development permit with variance subject to public notification. If the Permit is approved by the Board, the Corporate Officer will proceed to issue the Permit and register a Notice of Permit on Title.

RECOMMENDATION

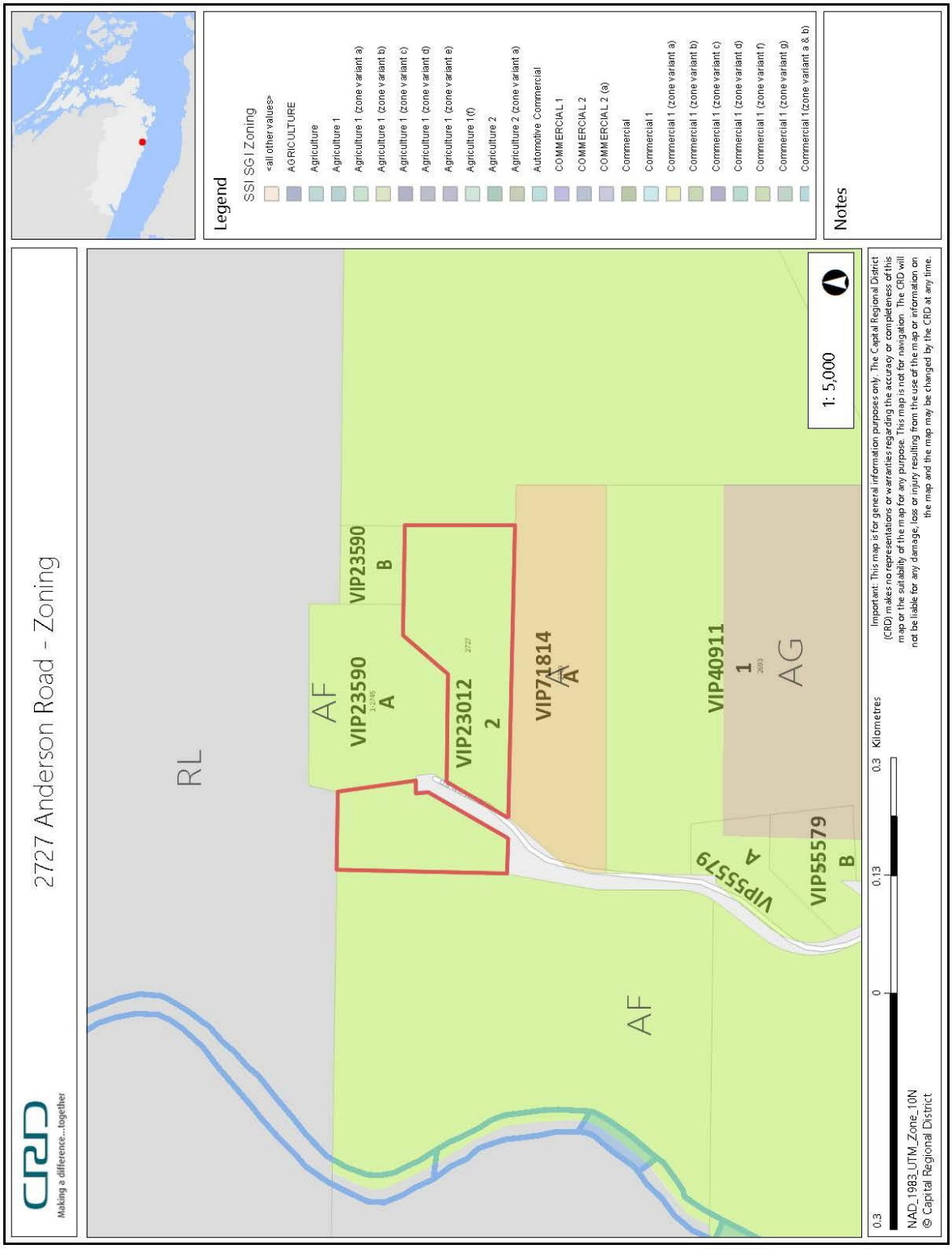
That the Land Use Committee recommends to the Capital Regional District Board:
That Development Permit with Variance DV000071 for Lot 2, District Lot 39, Malahat District, Plan 23012 to authorize a 2-lot subdivision in a Sensitive Ecosystems Development Permit Area, and to vary Juan de Fuca Land Use Bylaw No. 2040, Part 2, Section 3.10(4) by reducing the minimum road frontage requirement from 10% (79.9 m) to 9.5% (76.4 m) for the purpose of authorizing a 2-lot subdivision, be approved.

Submitted by:	Iain Lawrence, MCIP, RPP, Manager, Juan de Fuca Community Planning
Concurrence:	Kevin Lorette, P.Eng., MBA, General Manager, Planning & Protective Services
Concurrence:	Robert Lapham, MCIP, RPP, Chief Administrative Officer

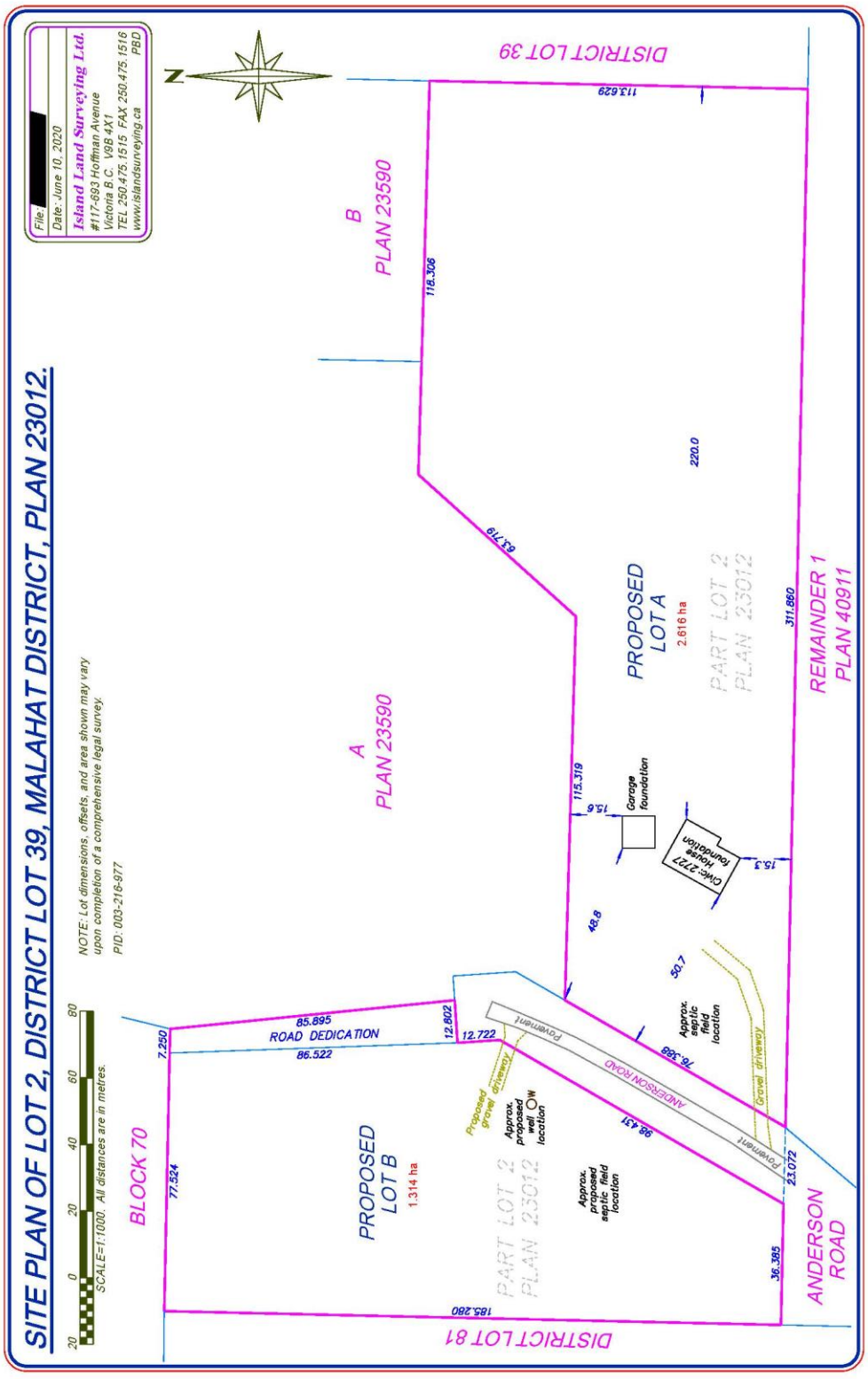
ATTACHMENTS

Appendix A: Subject Property Map
Appendix B: Proposed Subdivision Plan
Appendix C: Development Permit Guidelines
Appendix D: Environmental Assessment
Appendix E: Permit DV000071

Appendix A: Subject Property Map



Appendix B: Subdivision Plan



Appendix C: Development Permit Guidelines

Section 540 – Sensitive Ecosystem

A. Development or alteration of land will be planned to avoid intrusion into and minimize the impact on the Sensitive Ecosystem DPA.
B. The removal of gravel and soil from watercourses is prohibited unless otherwise approved by the provincial or federal government.
C. Proposed plans of subdivision will avoid watercourse crossings where possible.
D. Watercourse crossings will be avoided, but where this is not possible, bridges are preferred rather than culverts, and any works will be sited to minimize disturbance to banks, channels, shores and vegetative cover, and must be approved by the provincial government.
E. Changes in the land surface, which could affect the health of vegetation or the biodiversity of any plant communities and disturbance of mature vegetation and understorey, will be minimized.
F. Disturbance to existing vegetation not directly affected by the footprint of buildings, ancillary uses and driveways will be minimized.
G. Planting of non-native vegetation or invasive species in designated sensitive ecosystem development permit areas is not supported.
H. The CRD may consider variances to siting or size regulations where the variance could result in the enhanced protection of an environmentally sensitive area.
I. As a condition of the issuance of a development permit, compliance with any or all conditions recommended in a report by a QP will be considered by the CRD and may be included in the development permit.
J. Those areas where existing vegetation is disturbed will be rehabilitated with appropriate landscaping and habitat compensation measures in a manner recommended in a report by a QP.
K. Development and associated drainage will be designed and constructed so that there is no increase or decrease in the amount of surface water or groundwater available to the sensitive ecosystem.
L. Culverts may be designed to encourage storage of water within the watercourse.
M. Where necessary, provision will be made and works undertaken to maintain the quality of water reaching the sensitive ecosystem.
N. All new developments or modifications to existing developments including site works, gardening, landscaping and other related residential activities should be designed and implemented to maintain the quantity and quality of water and to avoid the entry of pollutants or nutrient rich water flowing into watercourses, lakes, ponds and wetlands.
O. Development will be designed to avoid any increase in the volume and peak flow of runoff and a drainage plan may be required in support of this guideline.
P. Plantings of native vegetation may be required to reduce the risk of erosion, restore the natural state of the site, improve water quality, or stabilize slopes and banks.
Q. The planting of non-native vegetation or alien invasive species, as defined in the provincial Spheres of Concurrent Jurisdiction – Environment and Wildlife Regulation 144/2004, is not supported.
R. Construction at a certain time of year and using methods that minimize the impacts on rare and sensitive species may be required.
S. Where possible, large tracts of wildlife habitat or continuous habitat corridors will be preserved, in order to facilitate movement of wildlife.
T. A buffer zone may be specified where land alteration or structures will be limited to those compatible with the characteristics of the sensitive ecosystem or those that can be mitigated in a manner recommended by a QP.
U. In order to ensure unnecessary encroachment does not occur into the sensitive ecosystem at the time of construction, permanent or temporary fencing measures may be required.
V. Development may be restricted during sensitive life-cycle times

Appendix D: Environmental Assessment

Environmental Assessment and Protection Plan for the Lot Subdivision of Lot 2 Anderson Road





Prepared for:

Emma Taylor, Planner
Planning and Protective Services Department,
JDF Electoral Area, Capital Regional District
3-7450 Butler Road, Sooke BC V9Z 1N1

Prepared by:

Corvidae Environmental Consulting Inc.
6526 Water Street
Sooke, BC

CORVIDAE
ENVIRONMENTAL CONSULTING INC.

May 2018

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1 INTRODUCTION

Landowners, [redacted] have applied for the subdivision of Lot 2 Anderson Road (the property) into two separate lots. The property, Plan VIP23012, currently consists of one lot. The division would be to have one on either side of Anderson Road, with zoning for a single family dwelling on each. There are currently no buildings on the property.

On the left (west) side of the property, a portion is designated as a Sensitive Ecosystem Development Permit Area (DPA) in the Otter Point Official Community Plan, Bylaw No. 3819. More specifically, the mapped DPA on the property is Mature Forest (coniferous dominated). A condition of subdivision will be issuance of a development permit. As part of the application, a site plan and a report by a Qualified Environmental Professional (QEP) that addresses the guidelines outlined in Section 6.6.4 of Bylaw No. 3819 is required. To that end, the [redacted] have contracted the services of Corvidae Environmental Consulting Inc. (Corvidae) to compete an environmental assessment of the property. This document addresses the requirements in Section 6.6.4 of Bylaw No. 3819, provides an assessment on the environmental conditions on the property, potential impacts of subdividing and developing, and recommendations on the suitability of the site for the proposed development.

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The section of the lot on the right side (east) of Anderson Road has been recently logged (Appendix A – Photos).

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The project is located within the Coastal Western Hemlock (CWH) biogeoclimatic zone, and specifically in the western variant of the Very Dry Maritime subzone (classified as CWHxm2). Drier subzones of the CWH are typically dominated by components of western hemlock (*Tsuga heterophylla*), Douglas-fir (*Pseudotsuga menziesii*) and western red cedar (*Thuja plicata*) (Pojar et al. 1991). Salal (*Gaultheria shallon*), dull Oregon-grape (*Mahonia nervosa*), and red huckleberry (*Vaccinium parvifolium*) typify the poorly to moderately developed shrub layer. Oregon beaked moss (*Kindbergia oregana*), step moss (*Hylocomium splenden*), lanky moss (*Rhytidiadelphus loreus*), and flat moss (*Plagiothecium undulatum*) dominate the well-developed moss layer (Pojar et al. 1991).

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During the site assessment the species in Table 1 and 2 were found on the site. Figure 1 identifies the areas where the majority of the invasive species are located.



Table 1. Invasive Species on Lot 2, Anderson Road

Common Name	Scientific Name
Spurge-laurel	*Daphne laureola*
English Ivy	*Hedera helix*
Himalayan blackberry	*Rubus armeniacus*
Holly	*Ilex aquifolium*
Scotch broom	*Cytisus scoparius*

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Common Name	Scientific Name
red cedar	*Thuja plicata*
Douglas-fir	*Pseudotsuga menziesii*
western hemlock	*Tsuga heterophylla*
salal	*Gaultheria shallon*
dull Oregon-grape	*Mahonia nervosa*
red huckleberry	*Vaccinium parvifolium*
Sword fern	*Polystichum munitum*
Salmon berry	*Rubus spectabilis*
Red alder	*Alnus rubra*
Willow	*Salix*

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The forested habitat is found in the Coastal Western Hemlock biogeoclimatic zone is home to many wildlife species. Black-tailed deer, black bear, marten and gray wolf are the most common large mammals in this zone on Vancouver Island. For bird species in this zone, the following typically occur: great horned owl, barred owl, ruffed grouse, band-tailed pigeon, northern flicker, hairy woodpecker, common raven, Steller's jay, chestnut-backed chickadee, red-breasted nuthatch, varied thrush, red-tailed hawk, Townsend's warbler. For amphibians, the following can occur: western toad, Pacific treefrog, western redbacked salamander. (Pojar et al. 1991) A query of the B.C. Conservation Data Centre (CDC) IMap tool yielded no occurrences of sensitive species (red or blue listed or species at risk).

The habitat found in the project comprised of the native Mature Forest stand, a salmon berry stand, a red alder stand and invasive species infestations. No wildlife species of concern were observed in the project area during the site visit and in the CDC search. No dens, nests or burrows were found. There were deer pellets observed. There were several birds heard, including the varied thrush, chestnut-backed chickadee, Townsend's warbler and the northern flicker. No bird nests were found during the assessment, however it would be hard to see the nests in the tall trees of the Mature Forest area. The wildlife habitat value of the property was deemed moderate due to the Mature Forest with native plants (good habitat); newly upgraded

road (poor habitat); recently cleared lot (poor habitat) and invasive species infestation (poor to moderate habitat).

2.3 Landscape and Soils

Soils in the Biogeoclimatic zone are typically moderately deep Orthic Humo-Ferric Podzols with Hemimor humus forms (Pojar et al. 1991). The soils on the site were a sandy clay loam. They were light-brown in colour. The clay properties are evident in the standing water in the ponded area. From the vegetation types it was evident that the standing water is seasonal and the site is typically dry in the summer/fall (depending on rainfall). There were other low areas with some water pooling on site. Due to the east side of the lot being completely logged and cleared of understory vegetation, it was difficult to tell what the surface landscape used to be there. On the west side there were signs of an altered landscape including the long berm (see photos in Appendix A) and signs of ditch and pond excavations; as well as the personal communication regarding the previous building on site where the blackberries are currently. The area of the building location was not accessible due to the blackberries.

The natural landscape is a gently sloping terrain, with small undulations but mostly flat in this area. It is the upper slope adjacent to Muir Creek, with fluvial soil processes from the dendritic drainage patterns in the area. The location of the lot is on an upper slope, approximately 74 m above Muir Creek (in elevation).

3 POTENTIAL ENVIRONMENTAL IMPACTS

The potential impacts from the project on the environment will be loss of existing vegetation and disturbance of soils, with sediment movement in the project area. There will be heavy equipment and loud noise for the duration of project construction. This has already been occurring on the east area of the property. If there is a dwelling constructed on the west area there will be the same disturbances.

On the west side, Corvidae recommends removing the invasive species, specifically the blackberry bramble and English ivy; and removing the trees that are a hazard from the ivy damage.

The environmental disturbance in this urban community will be short-term and is considered a moderate impact because of the removal of the vegetation (invasive and otherwise).



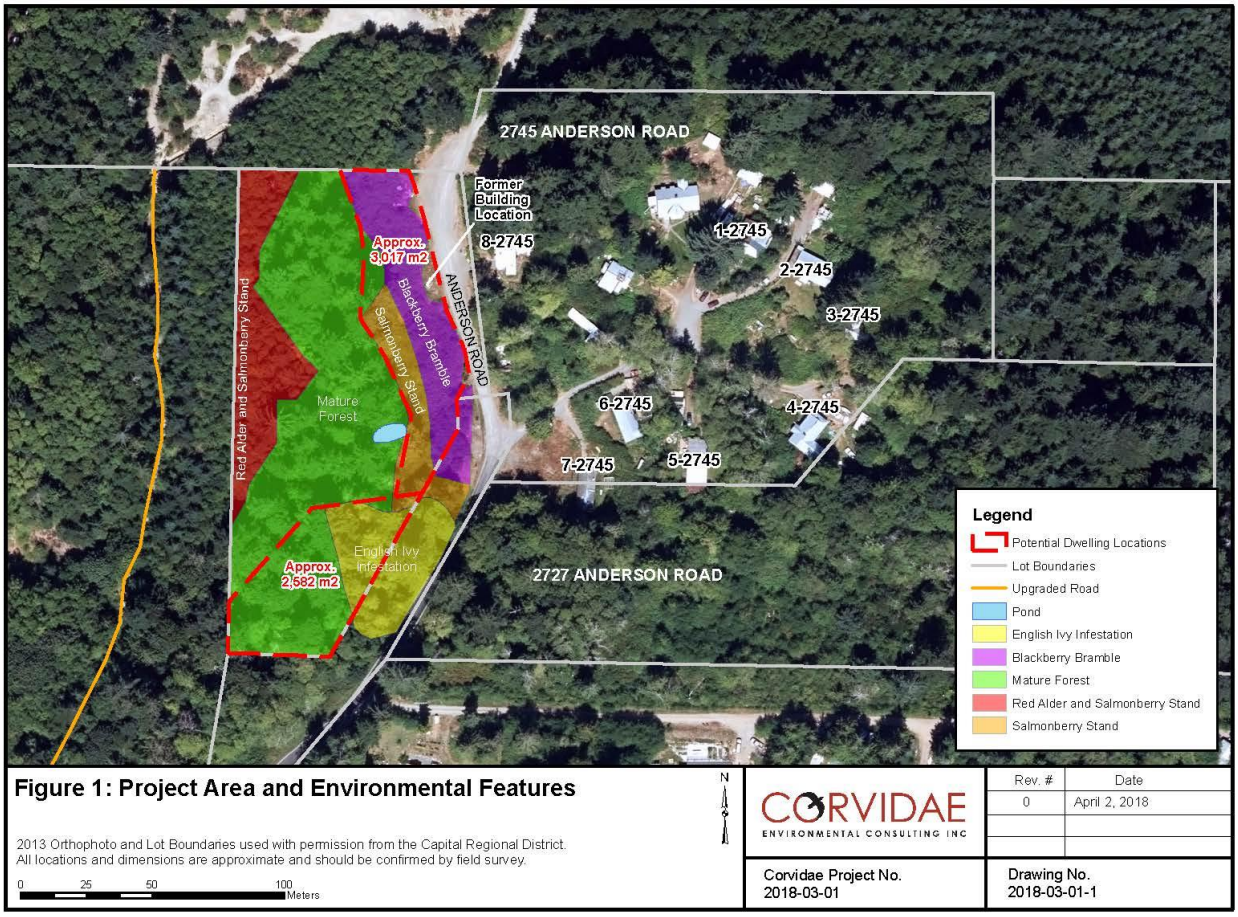


Figure 1: Project Area and Environmental Features

2013 Orthophoto and Lot Boundaries used with permission from the Capital Regional District.
All locations and dimensions are approximate and should be confirmed by field survey.

4 RECOMMENDED ENVIRONMENTAL PROTECTION MEASURES

Corvidae recommends protecting the Mature Forest area that has been ground truthed and identified in Figure 1, with the exception of the 2,582 m^2 area. This area (southern end of the forest) and also has ivy on the trees.

It is recommended that the blackberry bramble be removed and planted with native species. If there are to be any dwellings built, in the location of the blackberry bramble would be the best suited due to it being the former building site and the building of the structure would facilitate blackberry removal. And/or located in the ivy infested area, and other area identified on Figure 1. Corvidae recommends ringing the ivy on the trees that are infested and completely removing the trees that are dead/dying from the ivy. Ringing the ivy from the trees consists of cutting the ivy away 6 feet (2 m) up on the tree and all the way to the ground. With the gap in the ivy, the ivy up in the tree will die. The ivy on the ground should also be removed to minimize spreading and further infestation.

Activities that have the potential to impact the environment are removal of vegetation, disturbance activities that release deleterious substances into the soil and ditches, and construction debris being improperly disposed of or left in vegetated areas. The following sections provide environmental protection measures for any building in the area.

4.1 Site Access

Access to the construction sites will be via Anderson Road. The road bisects the property and makes both sides of the property easily accessible. There has been an access area added on the east side, at the south end of the lot, for equipment access and to remove the felled trees.

4.2 Protection of the Mature Forest

It is recommended that as much of the Mature Forest remain protected as feasible. This area should be clearly marked prior to any construction, to ensure no extra clearing within this sensitive ecosystem. The large trees on site that are in good health and not a safety hazard, should be left in place. The trees in the Mature Forest range from 60 cm to 130 cm diameter at breast height (DBH). See Figure 1 for the recommended area to be protected.

4.3 Pollution Control, Fueling and Spill Response

All equipment accessing the property should be in good working order. Any leaks should be repaired prior to commencing work. Any fueling of equipment will be done with drip-trays underneath on site, on the road or set staging area.

All fuel containers and other potentially deleterious substance containers will be secured so that they may not be emptied or upset by vandals when left overnight in the area.

A large, labeled mobile spill kit capable of mitigating spills of 100 litres of fuel is recommended to be kept on site adjacent. The kit should contain the following materials or equivalent:

- absorbent pads (hydrocarbons and antifreeze)

- absorbent socks (oil, gas & diesel)
- a jar of plug n dike (leak stop compound)
- 1 spill instruction sheet

4.4 Revegetation

Damage or degradation of soil surfaces during construction can include loss of soil structure, increased erosion, and soil compaction, which can negatively affect post-construction reclamation efforts. Measures taken to minimize such effects will include:

- Maintaining soil structure by excavating the soil layers separately and storing covered with tarps.
- Re-applying the separated topsoil as the surface layer prior to commencing with reclamation and landscaping efforts.
- Revegetating exposed soil as soon as possible following construction.
- Implementing weed management measures as required under the *Weed Control Act*. This includes:
    - Removing all noxious invasive species. In addition, Corvidae recommends removing all species listed in Table 1.
    - Disposing of invasive species at the landfill or burning on site.
    - Cleaning all equipment prior to leaving the site to avoid spreading of invasive species.

Corvidae recommends landscaping all areas with native vegetation to compete with invasive species, reduce irrigation requirements and provide wildlife habitat.

4.5 Erosion and Sediment Control Measures

The primary focus of erosion and sediment control planning is erosion control; if there is no erosion then there is no sediment. Erosion control is far more cost effective to implement and manage than sediment control.

Site specific controls have been developed based on a site visit and experience from past projects. Erosion controls, listed in Table 3, are recommended to be maintained for the duration of building any dwellings and removed completely following landscaping.



Table 3. Erosion and Sediment Control Measures

Construction Activity	Potential Impacts	Mitigations
Clearing of existing vegetation	Exposure of underlying soils to erosion during heavy rainfall events.	Minimize amount of time soils are exposed, plant native vegetation and landscaping materials within the growing season following removal of non-native vegetation and landscaping.
General construction	Sediment laden runoff.	Store soils away from ditches and in dry areas.
Native Vegetation	Plant deep rooting natives	Planting of native species of grasses, shrubs and trees in the green space areas, which naturally have deep roots to aid in soil stabilization, compete against weeds and do not require irrigation.

Report Prepared By:



Julie Budgen, R.P.Biol., B.Sc.,
Environmental Planner
Corvidae Environmental Consulting Inc.

5 REFERENCES

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APPENDIX A – PHOTOS

Photo 1. East side of property, vegetated ditch and logged area



Photo 2. East side of property.



Photo 1. North edge of property, with blackberry infestation



Photo 4. West side of property, salmon berry and alder stand



Photo 6. Ponded area from previous excavation.



Photo 5. Red alder and salmon berry stand.



Photo 7. Steep berm at western edge of west side of property, directly beside the new road (Lot 81).



Photo 8. Newly upgraded road (Lot 81).



Photo 9. Trees being strangled by English ivy.



Photo 10. English ivy infestation.



Appendix E: Permit DV000071

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CAPITAL REGIONAL DISTRICT

DEVELOPMENT PERMIT WITH VARIANCE NO. DV000071

1. This Development Permit with Variance is issued under the authority of Sections 490 and 498 of the *Local Government Act* and subject to compliance with all of the bylaws of the Regional District applicable thereto, except as specifically varied or supplemented by this Permit.
2. This Development Permit with Variance applies to and only to those lands within the Regional District described below (legal description), and any and all buildings, structures, and other development thereon:

   PID: 003-216-977;
   Legal Description: Lot 2, District Lot 39, Malahat District, Plan 23012 (the "Land")
3. This development permit authorizes a 2 lot subdivision and installation of services (the "development") on the Land, located within the development permit areas established under the Otter Point Official Community Plan, Bylaw No. 3819, 2014, Part 6.6 (Sensitive Ecosystems), in accordance with the plans submitted to the CRD and subject to the conditions set out in this Permit.
4. The conditions under which the development referred to in section 3 may be carried out are as follows:
   a. That the components of the development occur as identified on the Site Plan, prepared by Island Land Surveying;
   b. That the development comply with the recommendations outlined in the report prepared by Jessica Harvey, RP.Bio., of Corvidae Environmental Consulting Inc., dated May 2018 (the "Environmental Assessment Report");
5. The Capital Regional District's Bylaw No. 2040, Part 2, Section 3.10(4), is varied under section 498 of the *Local Government Act* as follows:
   a. That the the minimum frontage requirement of proposed Lot A be reduced from 10% to 9.5%.
6. Notice of this Permit shall be filed in the Land Title Office at Victoria as required by Section 503 of the *Local Government Act*, and the terms of this Permit (DV000071) or any amendment hereto shall be binding upon all persons who acquire an interest in the land affected by this Permit.
7. If the holder of a permit does not substantially start any construction permitted by this Permit within 2 years of the date it is issued, the permit lapses.
8. The land described herein shall be developed strictly in accordance with the terms and conditions and provisions of this Permit, and any plans and specifications attached to this Permit which shall form a part hereof.
9. The following plans and specifications are attached to and form part of this Permit:
   i. Site Plan;
   ii. Environmental Assessment Report.
10. This Permit is NOT a Building Permit.
11. In issuing this Development Permit, the CRD does not represent or warrant that the land can be safely developed and used for the use intended and is acting in reliance upon the conclusions of the Geotechnical Report regarding the conditions to be followed for the safe development of the land.

RESOLUTION PASSED BY THE BOARD, THE _____ day of _____, 2020.

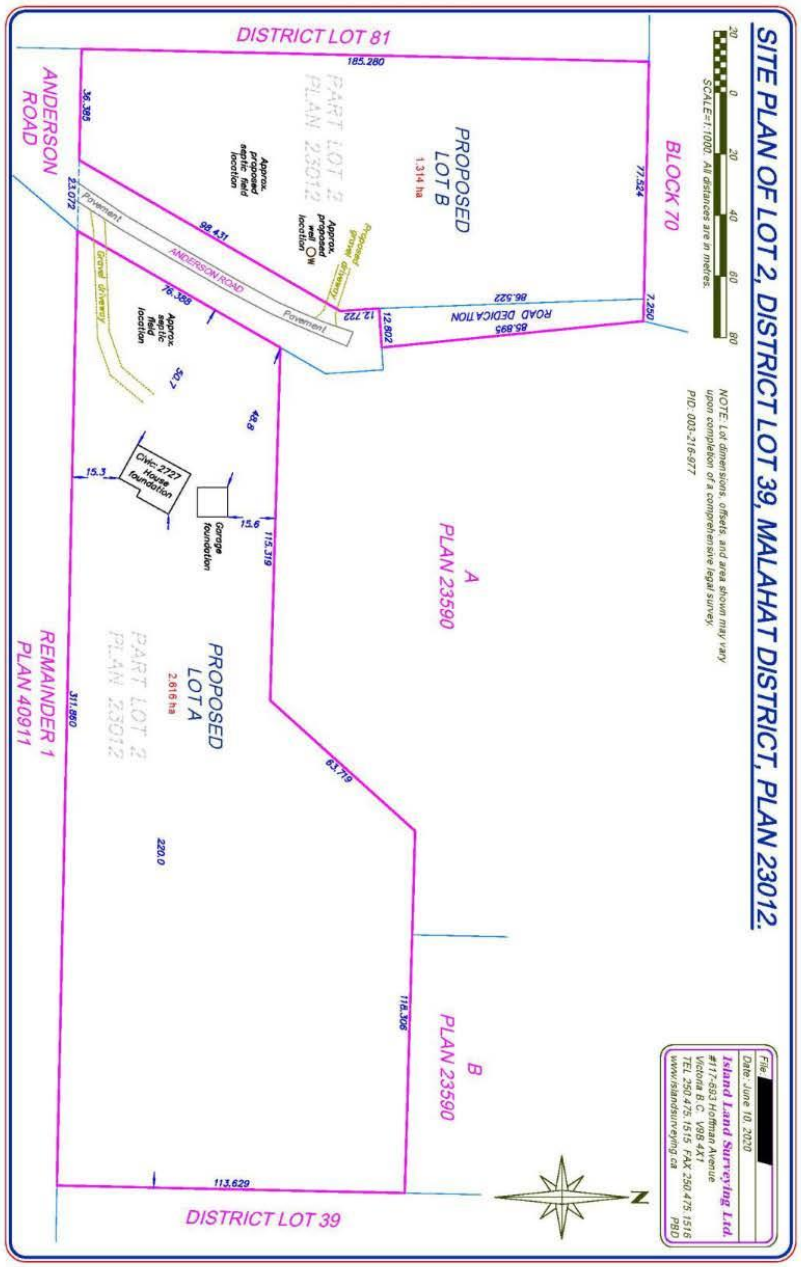
ISSUED this _____ day of _____, 2020

_____
Kristen Morley
Corporate Officer

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Attachment 1: Site Plan



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Attachment 2: Environmental Assessment Report

Environmental Assessment and Protection Plan for the Lot Subdivision of Lot 2 Anderson Road





Prepared for:

Emma Taylor, Planner
Planning and Protective Services Department,
JDF Electoral Area, Capital Regional District
3-7450 Butler Road, Sooke BC V9Z 1N1

Prepared by:

Corvidae Environmental Consulting Inc.
6526 Water Street
Sooke, BC

CORVIDAE
ENVIRONMENTAL CONSULTING INC.

May 2018

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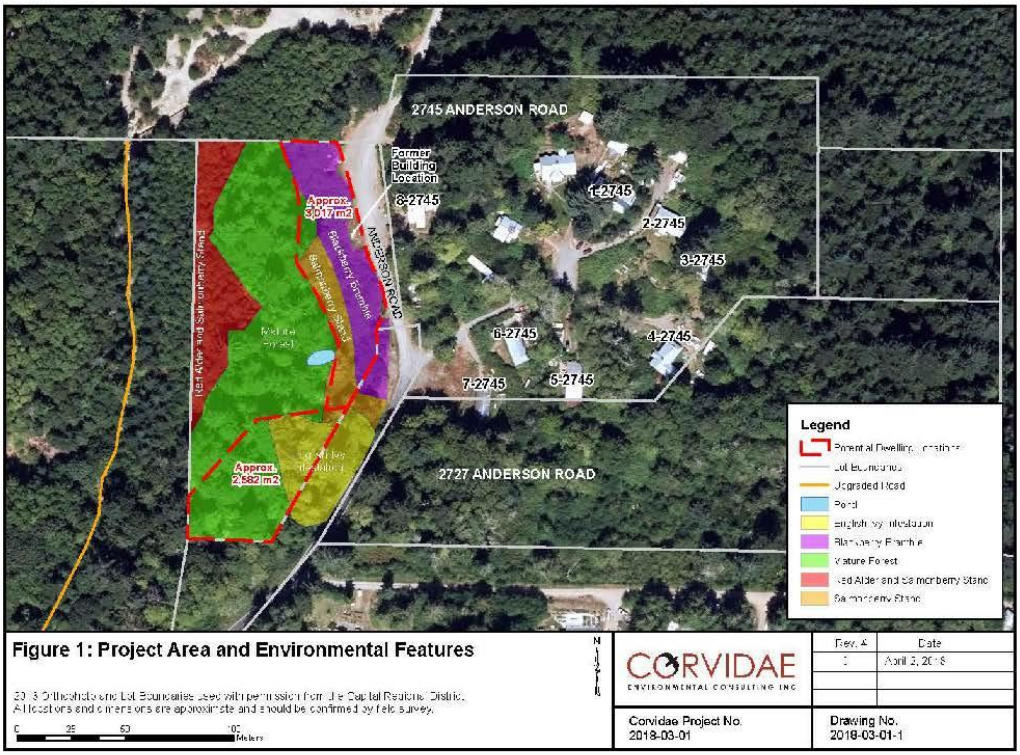


Figure 1: Project Area and Environmental Features

2018 Orthophoto and Lot Boundaries used with permission from the Capital Regional District.
All locations and dimensions are approximate and should be confirmed by field survey.

0 25 50 100 Meters

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CORVIDAE ENVIRONMENTAL CONSULTING INC

Rev. #	Date
1	April 3, 2018

Corvidae Project No.
2018-03-01

Drawing No.
2018-03-01-1

4 RECOMMENDED ENVIRONMENTAL PROTECTION MEASURES

Corvidae recommends protecting the Mature Forest area that has been ground truthed and identified in Figure 1, with the exception of the 2,582 m^2 area. This area (southern end of the forest) and also has ivy on the trees.

It is recommended that the blackberry bramble be removed and planted with native species. If there are to be any dwellings built, in the location of the blackberry bramble would be the best suited due to it being the former building site and the building of the structure would facilitate blackberry removal. And/or located in the ivy infested area, and other area identified on Figure 1. Corvidae recommends ringing the ivy on the trees that are infested and completely removing the trees that are dead/dying from the ivy. Ringing the ivy from the trees consists of cutting the ivy away 6 feet (2 m) up on the tree and all the way to the ground. With the gap in the ivy, the ivy up in the tree will die. The ivy on the ground should also be removed to minimize spreading and further infestation.

Activities that have the potential to impact the environment are removal of vegetation, disturbance activities that release deleterious substances into the soil and ditches, and construction debris being improperly disposed of or left in vegetated areas. The following sections provide environmental protection measures for any building in the area.

4.1 Site Access

Access to the construction sites will be via Anderson Road. The road bisects the property and makes both sides of the property easily accessible. There has been an access area added on the east side, at the south end of the lot, for equipment access and to remove the felled trees.

4.2 Protection of the Mature Forest

It is recommended that as much of the Mature Forest remain protected as feasible. This area should be clearly marked prior to any construction, to ensure no extra clearing within this sensitive ecosystem. The large trees on site that are in good health and not a safety hazard, should be left in place. The trees in the Mature Forest range from 60 cm to 130 cm diameter at breast height (DBH). See Figure 1 for the recommended area to be protected.

4.3 Pollution Control, Fueling and Spill Response

All equipment accessing the property should be in good working order. Any leaks should be repaired prior to commencing work. Any fueling of equipment will be done with drip-trays underneath on site, on the road or set staging area.

All fuel containers and other potentially deleterious substance containers will be secured so that they may not be emptied or upset by vandals when left overnight in the area.

A large, labeled mobile spill kit capable of mitigating spills of 100 litres of fuel is recommended to be kept on site adjacent. The kit should contain the following materials or equivalent:

- absorbent pads (hydrocarbons and antifreeze)

- absorbent socks (oil, gas & diesel)
- a jar of plug n dike (leak stop compound)
- 1 spill instruction sheet

4.4 Revegetation

Damage or degradation of soil surfaces during construction can include loss of soil structure, increased erosion, and soil compaction, which can negatively affect post-construction reclamation efforts. Measures taken to minimize such effects will include:

- Maintaining soil structure by excavating the soil layers separately and storing covered with tarps.
- Re-applying the separated topsoil as the surface layer prior to commencing with reclamation and landscaping efforts.
- Revegetating exposed soil as soon as possible following construction.
- Implementing weed management measures as required under the *Weed Control Act*. This includes:
    - Removing all noxious invasive species. In addition, Corvidae recommends removing all species listed in Table 1.
    - Disposing of invasive species at the landfill or burning on site.
    - Cleaning all equipment prior to leaving the site to avoid spreading of invasive species.

Corvidae recommends landscaping all areas with native vegetation to compete with invasive species, reduce irrigation requirements and provide wildlife habitat.

4.5 Erosion and Sediment Control Measures

The primary focus of erosion and sediment control planning is erosion control; if there is no erosion then there is no sediment. Erosion control is far more cost effective to implement and manage than sediment control.

Site specific controls have been developed based on a site visit and experience from past projects. Erosion controls, listed in Table 3, are recommended to be maintained for the duration of building any dwellings and removed completely following landscaping.

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Table 3. Erosion and Sediment Control Measures

Construction Activity	Potential Impacts	Mitigations
Clearing of existing vegetation	Exposure of underlying soils to erosion during heavy rainfall events.	Minimize amount of time soils are exposed, plant native vegetation and landscaping materials within the growing season following removal of non-native vegetation and landscaping.
General construction	Sediment laden runoff.	Store soils away from ditches and in dry areas.
Native Vegetation	Plant deep rooting natives	Planting of native species of grasses, shrubs and trees in the green space areas, which naturally have deep roots to aid in soil stabilization, compete against weeds and do not require irrigation.

Report Prepared By:

Julie Budgen, R.P.Biol., B.Sc.,
Environmental Planner
Corvidae Environmental Consulting Inc.

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5 REFERENCES

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APPENDIX A – PHOTOS

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Photo 1. East side of property, vegetated ditch and logged area



Photo 2. East side of property.



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Photo 1. North edge of property, with blackberry infestation



Photo 4. West side of property, salmon berry and alder stand



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Photo 6. Ponded area from previous excavation.



Photo 5. Red alder and salmon berry stand.



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Photo 7. Steep berm at western edge of west side of property, directly beside the new road (Lot 81).



Photo 8. Newly upgraded road (Lot 81).



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Photo 9. Trees being strangled by English ivy.



Photo 10. English ivy infestation.



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Minutes of a Meeting of the Juan de Fuca Land Use Committee
Held Tuesday, July 21, 2020, at the Juan de Fuca Local Area Services Building
3 – 7450 Butler Road, Otter Point, BC

PRESENT: Director Mike Hicks (Chair), Stan Jensen (EP), Vern McConnell (EP), Roy McIntyre, Ron Ramsay (EP), Dale Risvold (EP), Sandy Sinclair
Staff: Iain Lawrence, Manager, Community Planning (EP); Wendy Miller; Recorder (EP)
PUBLIC: 8 In-person; 5 EP

The meeting was called to order at 7:00 pm.

1. Approval of the Agenda

MOVED by Vern McConnell, **SECONDED** by Dale Risvold that the agenda be approved.
CARRIED

2. Approval of the Supplementary Agenda

MOVED by Dale Risvold, **SECONDED** by Roy McIntyre that the supplementary agenda be approved.

CARRIED

3. Adoption of Minutes from the Meeting of June 16, 2020

MOVED by Sandy Sinclair, **SECONDED** by Roy McIntyre that the minutes from the meeting of June 16, 2020, be adopted. **CARRIED**

4. Chair's Report
The Chair welcomed everyone to the meeting, extending a thank you to staff for their efforts to keep business proceeding as usual.

5. Planner's Report
a) At its meeting of June 24, 2020, the CRD Board supported the LUC's June 16, 2020, recommendation that Development Variance Permit for 615 Seacape Place be approved.

6. Development Permit with Variance Applications
a) DV000071 - Lot 2, District Lot 39, Malahat District, Plan 23012 (2727 Anderson Road)
Iain Lawrence spoke to the staff report and the request for a development permit with variance to address the Sensitive Ecosystem Development Permit (DP) guidelines and to reduce the requirement that 10% of the parcel perimeter front onto a highway, for the purpose of creating a 2-lot subdivision in the Forestry (AF) zone.

Iain Lawrence highlighted the proposed subdivision plan with frontage reduction request.

Iain Lawrence confirmed that no comments were received in response to the notice of intent mailed to adjacent property owners within 500 m of the subject property.

The Chair confirmed that the applicants were present.

MOVED by Stan Jensen, **SECONDED** by Vern McConnell that the Land Use Committee recommends to the Capital Regional District (CRD) Board:

That Development Permit with Variance DV000071 for Lot 2, District Lot 39, Malahat District, Plan 23012 to authorize a 2-lot subdivision in a Sensitive Ecosystems Development Permit Area, and to vary Juan de Fuca Land Use Bylaw No. 2040, Part 2, Section 3.10(4) by reducing the minimum road frontage requirement from 10% (79.9 m) to 9.5% (76.4 m) for the purpose of authorizing a 2-lot subdivision, be approved.

CARRIED

b) DV000072 – Lot A, Section 89, Sooke District, Plan VIP54145 (7004 East Sooke Road)

Iain Lawrence spoke to the staff report and the request for a development permit with variance to address the Steep Slopes and Shoreline Protection Development Permit (DP) guidelines, and to vary the rear yard setback and the allowable projection of a deck into the rear yard setback for an addition to an existing single-family dwelling in the Rural Residential 6 (RR-6) zone.

Iain Lawrence highlighted the site plan with variance requests. It was advised that the applicant submitted a geotechnical report that included recommendations for the proposed development and a calculated flood construction level based on the most recent Provincial guidelines.

One comment was received in response to the notice of intent mailed to adjacent property owners within 500 m of the subject property. The comment from CRD Regional Parks was included in the supplementary agenda and stated no concerns regarding the application.

The Chair confirmed that the applicant was not present.

MOVED by Stan Jensen, **SECONDED** by Sandy Sinclair that the Land Use Committee recommends to the Capital Regional District (CRD) Board:

That Development Permit with Variance DV000072 for Lot A, Section 89, Sooke District, Plan VIP54145 to permit alterations to a single-family dwelling and deck located within in a Steep Slopes and a Shoreline Protection Development Permit Area; and to vary Part 2, Section 10.09(d) by decreasing the minimum rear yard setback from 10 m to 7.5 m, and to vary Juan de Fuca Land Use Bylaw No. 2040, Part 1, Section 4.10(1)(a) by increasing the maximum deck projection allowance into the rear yard setback from 1 m to 1.6 m, be approved.

CARRIED

7. Provision of Park Land for Subdivisions

a) SU000720 – Lot A, District Lot 17, Renfrew District, Plan EPP10506 (6505 Powder Main Road)

Iain Lawrence spoke to the staff report addressing the provision of 5% park land or cash-in-lieu pursuant to Section 510 of the *Local Government Act* for the proposed 13-lot bare land strata subdivision.

Iain Lawrence highlighted the proposed strata plan, identifying the watercourse on the property.

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REPORT TO THE JUAN DE FUCA LAND USE COMMITTEE
MEETING OF TUESDAY, JULY 21, 2020

SUBJECT **Zoning and Official Community Plan Amendment Application for That Part of Section 17, Otter District, Lying East of Otter Point Road, Except Parcel C (DD43782I) And Except Parts in Plans 3054 And 17721 – 3542 & 1-3542 Otter Point Road**

ISSUE SUMMARY

The owner has applied to rezone the subject property to permit six rural residential parcels and an industrial sawmill operation.

BACKGROUND

The 15 hectare (ha) subject property is located at 3542 Otter Point Road and is zoned Rural A in the Juan de Fuca Land Use Bylaw No. 2040 (Appendix A). The property is designated as Settlement Area 2 and is partly designated as a Watercourses and Wetland Areas development permit area (DPA) by the Otter Point Official Community Plan (OCP), Bylaw No. 3819. The parcel is within the Otter Point Fire Protection Local Service Area and serviced by on-site wells and septic. There is currently a dwelling and a sawmill operation on the property.

The owner originally submitted a rezoning and subdivision (SU000711) application to create five 1 ha, Rural Residential 2 (RR-2) zoned parcels, a 6 ha parcel for a sawmill operation, and a 4 ha parcel for an aquaponics facility. Staff prepared Bylaw No. 4316 to rezone the parcel for the requested uses, and Bylaw No. 4317 to amend the Otter Point OCP by designating portions of the property as Watercourses & Wetland Areas and Commercial & Industrial DPAs.

At their meeting of July 16, 2019, the Juan de Fuca Land Use Committee recommended referral of the proposed bylaws to agencies. Comments are summarized in Appendix B and included as received in Appendix C. Since the time that referrals were circulated, the applicant has revised the application to remove the aquaponics facility and to include an additional RR-2 zoned parcel on Otter Point Road. The updated site plan is included in Appendix D. Staff have amended Bylaw Nos. 4316 and 4317 accordingly.

ALTERNATIVES

Alternative 1
That the Land Use Committee recommends to the Capital Regional District (CRD) Board:

a) That the referral of proposed Bylaw No. 4316, "Juan de Fuca Land Use Bylaw, 1992, Amendment Bylaw No. 147, 2019" and Bylaw No. 4317, "Otter Point Official Community Plan Bylaw, 2014, Amendment Bylaw No. 2, 2019" to the Otter Point Advisory Planning Commission; the Juan de Fuca Electoral Area Parks and Recreation Advisory Commission; CRD departments; BC Hydro; Department of Fisheries and Oceans; District of Sooke; Ministry of Agriculture; Ministry of Environment and Climate Change Strategy; Ministry of Forests, Lands and Natural Resource Operations; Ministry of Transportation and Infrastructure; RCMP; Sooke School District #62; and T'Sou-ke First Nation be approved and the comments received;
b) That proposed Bylaw No. 4316, "Juan de Fuca Land Use Bylaw, 1992, Amendment Bylaw No. 147, 2019" be introduced and read a first time and read a second time;
c) That proposed Bylaw No. 4317, "Otter Point Official Community Plan Bylaw, 2014, Amendment Bylaw No. 2, 2019" be introduced and read a first time and read a second time;
d) That in accordance with the provisions of Section 469 of the *Local Government Act*, the Director for the Juan de Fuca Electoral Area, or Alternate Director, be delegated authority to hold a public hearing with respect to Bylaw No. 4316 and Bylaw 4317; and
e) That prior to adoption of the bylaws, the applicant:
    i. Provide confirmation from a Qualified Environmental Professional that the vegetative screening requirements in the M-3 zone and the recommendations for restoration of the riparian area outlined in the Conditions and Impacts report prepared by Corvidae Environmental Consulting Inc., dated February 2020, have been implemented;

ii. Secure a covenant on title pursuant to Section 219 of the *Land Title Act* in favour of the CRD requiring that the fire protection works related to the sawmill operation, described in the letter from the Otter Point Volunteer Fire Department dated January 30, 2020, be installed and conveyed to CRD prior to subdivision or further building construction.

Alternative 2
That the CRD Board not proceed with proposed Bylaw No. 4316 and Bylaw No. 4317.

Alternative 3
That more information be provided.

IMPLICATIONS

Legislative and Public Consultation Implications
A site profile has been submitted to the Ministry of Environment & Climate Change Strategy (ENV) in accordance with the *Environmental Management Act* and *Contaminated Sites Regulation*. A regional district must not approve a development application with respect to a site where a site profile is required until such time a release is granted pursuant to Section 557 of the *Local Government Act (LGA)*. A release has been granted by the Ministry of Environment for rezoning, but further site investigation is required as part of subdivision approval.

The sawmill operation requires a Waste Discharge Authorization pursuant to the *Environmental Management Act* and a groundwater licence pursuant to the *Water Sustainability Act*. These approvals are issued by the Province and are not a precondition for rezoning.

Should the proposal proceed, public hearings pursuant to Part 14, Division 3 of the *LGA* will be required subsequent to the amendments passing second reading by the CRD Board. Property owners within 500 m of the subject property will be sent notice of the proposed bylaw amendments and public hearings will be advertised in the local paper and on the website.

Regional Growth Strategy Implications
Section 445 of the *LGA* requires that all bylaws adopted by a regional district board after the board has adopted a Regional Growth Strategy (RGS) be consistent with the RGS. Since the proposal includes an amendment to the Otter Point OCP, the bylaws will be considered by the Planning and Protective Services Committee and the CRD Board for a determination of consistency with the RGS prior to the bylaws being adopted.

The proposed amendments update development permit area maps to designate additional parts of the subject property for protection of the natural environment and to establish objectives for the form and character of industrial development.

Referral Process Implications
Referrals were sent to external agencies, the Otter Point Advisory Planning Commission (APC), the Juan de Fuca Electoral Area Parks and Recreation Advisory Commission (JdF EA PRAC), and CRD departments in July 2019. Comments are summarized in Appendix B and included as received in Appendix C. As changes to the bylaws after the referral was first circulated do not add new uses or increase overall parcel density, staff are of the opinion that a second referral to agencies is not necessary.

Land Use Implications
Since the Land Use Committee first considered this application, referral comments have been received from agencies and the development proposal has been amended to remove the aquaponics use. In response, proposed Bylaw No. 4316 has been revised to delete the proposed aquaponics zone, and to include approximately 7 ha under the Rural Residential 2 zone and 8 ha under the new Industrial Sawmill zone. The bylaw also deletes the light, heavy and marine industrial zone categories that no longer apply to any land within the JdF EA (Appendix E). Proposed Bylaw No. 4317 amends the Otter Point OCP by adding to the Watercourses and Wetland Areas DPA for protection of an unmapped watercourse, and adding to the Commercial and Industrial Areas DPA in order to establish objectives for the form and character of the proposed industrial development (Appendix F).

In consideration of an application for rezoning, Section 4.1.1(4) of the Otter Point OCP states that proposals should demonstrate that community values and features can be protected subject to an assessment of the suitability of the land for the proposed use, no depletion or contamination of groundwater, appropriate scale and rural character, demonstrated protection of sensitive features and land significant to the region or community, use of 'green' building techniques, and measures to mitigate impact of development. Further, Section 4.1.1(11) outlines considerations for mixed use development, including: form and character compatibility; adequate parking and traffic flow; protection and separation of residential areas.

Environmental constraints: As part of this application, an Environmental Assessment report was submitted by Corvidae Environmental Consulting (Appendix G). The report identifies the location of a watercourse on the property and recommends environmental protection measures. In response to recent unauthorized clearing within the riparian area, a Conditions and Impacts report was provided that proposed replanting native species in the riparian area (Appendix H). Staff recommend that a Qualified Environmental Professional (QEP) verify that this work is completed prior to adoption of the bylaws.

Water supply and sewage disposal*:* Section 5.6 of the Otter Point OCP states that the OCP designates 51% of the Plan area as Rural Lands to allow for low density development, that all subdivision applications must include proof of sufficient potable water from individual drilled wells as determined by a Qualified Professional, and that all development should protect groundwater sources and not deplete or contaminate existing wells. The proposed rezoning includes rural residential parcels that are located within the Settlement Area 2 land use designation. Should the rezoning be supported, the parcels will require proof of potable water as part of the subdivision process in the amount of 1,400 litres per day per lot in accordance with Part 6, Section 6.02 of Bylaw No. 2040. Members of the public expressed concern that groundwater supplies are scarce in the area and that many wells run dry. Measures to conserve groundwater include incorporating rainwater capture systems in new buildings or installing storage tanks at the time of construction. The applicant has indicated a willingness to install such a system; however, it is beyond the scope of the subdivision bylaw. It is noted that the proposed rezoning does not increase the density of residential development permitted by the existing Rural A zone.

The *Water Sustainability Act* requires non-domestic users of groundwater to obtain a licence; therefore, the sawmill operation will require a provincial water licence.

Island Health provided comment to state that subdivisions must comply with the *Drinking Water Protection Act*/*Regulation* and *Sewerage System Regulation*. These regulations pertain to domestic water supply systems and domestic sewage, and not to the industrial component of the proposed development. Discharge associated with the sawmill operation may require provincial authorization under the *Environmental Management Act*. The applicant has initiated the authorization process with the Province.

Scale of development: The subject property is designated as Settlement Area 2, which supports a desired average parcel area for residential development of one ha with a minimum parcel area of 0.8 ha. Proposed Bylaw No. 4316 rezones a portion of the property to the RR-2 zone, which allows an average lot size of one ha and permits residential, agricultural and home based business uses, with a density of one dwelling unit plus either a secondary suite or a detached accessory suite. This is in keeping with the OCP policies.

An economic development objective of the Otter Point OCP supports accommodating limited industrial and commercial development with a focus on the Sooke Business Park. The subject property is in the vicinity of the Sooke Business Park (Appendix I).

Protection of natural features: Proposed Bylaw No. 4317 will add the unmapped watercourse to the Riparian development permit area and require that any future encroachment within this area be authorized by permit. The reports prepared by Corvidae Environmental Consulting Inc. outline recommendations to protect or restore natural features on the site. Due to the historical industrial use, there is a contaminated sites review underway and subdivision approval will be withheld until a determination is made.

Access to the proposed sawmill operation is across the watercourse at the eastern edge of the property on the existing Tenbury Road allowance. Industrial access and road dedication will be determined by TRAN and secured at time of subdivision. Works in and about a stream require provincial notification under Section 11 of the *Water Sustainability Act*. A development permit will be required as part of subdivision.

Adequate setbacks and vegetated buffers: Proposed Bylaw No. 4316 includes requirements to implement natural vegetative buffers to screen the proposed industrial use from adjacent roads and properties. Staff recommend that a Qualified Professional confirm these buffers are implemented prior to adoption of the proposed bylaws.

Protection of land considered regionally or locally significant: Section 5.1(15) of the Otter Point OCP identifies high potential park and trail opportunities including a desire to establish an inter-connected network of trails through the Plan area. The JdF Community Parks division currently holds a Licence of Occupation over the Weiland Road right-of-way for future construction of a multi-use trail extending from William Simmons Memorial Park to Kemp Lake Road, but the right of way terminates at the subject property. The JdF EA PRAC recommended establishment of a trail for continuation of Wieland Road. TRAN has requested dedication of Weiland Road along the southern portion of the property, which would allow the network to be completed.

Subdivisions that create three or more lots, where the smallest lot is less than 2 ha in size, are required to provide park dedication pursuant to Section 510 of the *LGA*. Future consideration of statutory park dedication would occur as part of the subdivision process should the rezoning be supported.

Use of 'green' building techniques: Bylaw No. 4317 designates part of the property as a Commercial and Industrial DPA to regulate form and character in accordance with the DP guidelines. A development permit will be required for construction of any sawmill buildings or structures. The CRD Building Inspection Division advises that a Registered Professional will be required to be involved in certain aspects of the construction and that the applicant is advised to work with the CRD to resolve any outstanding building permits.

Works, services or community benefits to mitigate the impact of development: The need for fire protection measures was raised during the referral process. The Otter Point Volunteer Fire Department has proposed that the applicant install water supply in the form of tanks (60,000 ga) to aid fire protection for the industrial sawmill use and the community. Staff recommend a covenant be registered on the title of the property that requires the installation of the works by the applicant and access to the system by the fire department prior to subdivision or further building construction.

Concerns were raised at the APC meeting regarding noise and nuisances from the existing sawmill operation and increased intensity of the proposed uses. Concerns with increased traffic were also raised at the APC resulting from the number of employees and commercial trucks. CRD Bylaw Enforcement notes that nuisance-related complaints are likely to increase with an expansion of the sawmill operation in close proximity to residences. However, the applicant's planned upgrades include moving the sawmill indoors and switching from combustion engine saws to electric saws. These measures are anticipated to reduce the disturbance generated by noise.

Staff recommend receipt of the referral comments, first and second reading of Bylaw Nos. 4316 and 4317, proceeding to public hearing, and requiring that conditions be met prior to adoption of the bylaws.

CONCLUSION

The purpose of this OCP and zoning bylaw amendment application is to rezone the subject property to allow a six lot rural residential subdivision and an eight hectare industrial sawmill operation. Referral comments have been received and issues identified. Staff recommend proceeding with the bylaws subject to conditions being met prior to adoption.

RECOMMENDATION

That the Land Use Committee recommends to the Capital Regional District (CRD) Board:

a) That the referral of proposed Bylaw No. 4316, "Juan de Fuca Land Use Bylaw, 1992, Amendment Bylaw No. 147, 2019" and Bylaw No. 4317, "Otter Point Official Community Plan Bylaw, 2014, Amendment Bylaw No. 2, 2019" to the Otter Point Advisory Planning Commission; the Juan de Fuca Electoral Area Parks and Recreation Advisory Commission; CRD departments; BC Hydro; Department of Fisheries and Oceans; District of Sooke; Ministry of Agriculture; Ministry of Environment and Climate Change Strategy; Ministry of Forests, Lands and Natural Resource Operations; Ministry of Transportation and Infrastructure; RCMP; Sooke School District #62; and T'Sou-ke First Nation be approved and the comments received;

b) That proposed Bylaw No. 4316, "Juan de Fuca Land Use Bylaw, 1992, Amendment Bylaw No. 147, 2019" be introduced and read a first time and read a second time;

c) That proposed Bylaw No. 4317, "Otter Point Official Community Plan Bylaw, 2014, Amendment Bylaw No. 2, 2019" be introduced and read a first time and read a second time;

d) That in accordance with the provisions of Section 469 of the *Local Government Act*, the Director for the Juan de Fuca Electoral Area, or Alternate Director, be delegated authority to hold a public hearing with respect to Bylaw No. 4316 and Bylaw 4317; and

e) That prior to adoption of the bylaws, the applicant:

   i. Provide confirmation from a Qualified Environmental Professional that the vegetative screening requirements in the M-3 zone and the recommendations for restoration of the riparian area outlined in the Conditions and Impacts report prepared by Corvidae Environmental Consulting Inc., dated February 2020, have been implemented;

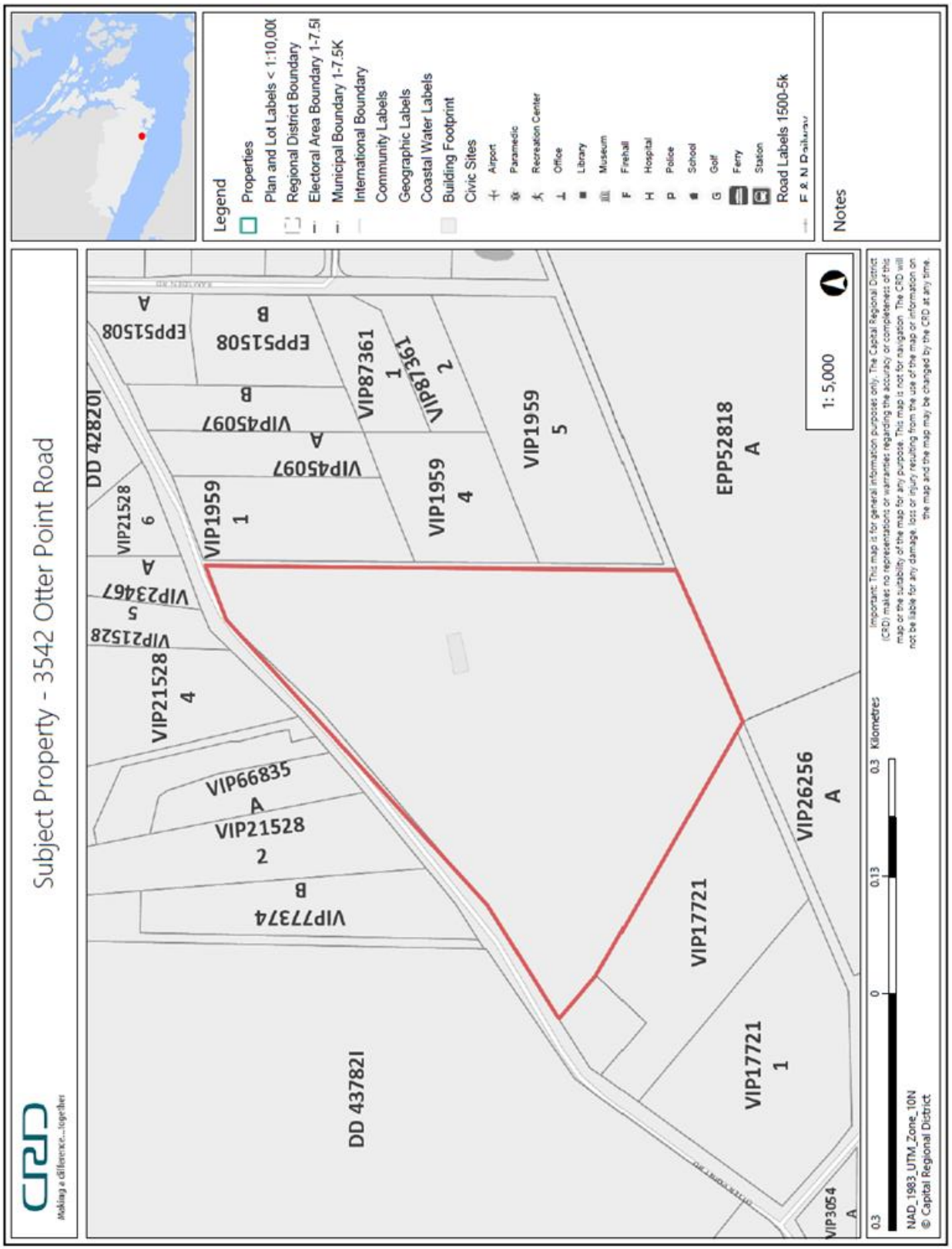
   ii. Secure a covenant on title pursuant to Section 219 of the *Land Title Act* in favour of the CRD requiring that the fire protection works related to the sawmill operation, described in the letter from the Otter Point Volunteer Fire Department dated January 30, 2020, be installed and conveyed to CRD prior to subdivision or further building construction.

Submitted by:	Iain Lawrence, RPP,MCIP, Manager, Juan de Fuca Community Planning
Concurrence:	Kevin Lorette, P.Eng., MBA, General Manager, Planning & Protective Services
Concurrence:	Robert Lapham, RPP, MCIP, Chief Administrative Officer

ATTACHMENTS

Appendix A: Subject Property Map
Appendix B: Summary of Referral Comments
Appendix C: Referral Comments
Appendix D: Development Proposal
Appendix E: Proposed Bylaw No. 4316
Appendix F: Proposed Bylaw No. 4317
Appendix G: Environmental Report
Appendix H: Conditions and Impacts Report
Appendix I: Industrial Zoning Map

Appendix A: Subject Property Map



Appendix B: Summary of Referral Comments

AGRI confirmed there are no impacts related to the Ministry's interests with respect to the aquaponics facility; however, depending on the design and type of operation, several federal and provincial licences/permits will be required. Their comments do not apply to the current application as the proposed aquaponics development has been removed.

BC Hydro suggested that a servicing review be conducted for the proposed load requirements.

CRD Building Inspection stated that there are outstanding building permit requirements on the property and that certain aspects of the construction will involve oversight of a Registered Professional.

CRD Bylaw Services commented on the potential for increased reporting of nuisance-related complaints as a result of increased residential density in closer proximity to industrial uses.

CRD Protective Services commented that the applicant must ensure that proposed developments can be served by the local fire department and comply with the Building Regulation Bylaw regarding access to property and adequate water supply for firefighting.

CRD Solid Waste provided comment to indicate that the composting component of the proposed aquaponics operation may be subject to CRD Bylaw No. 2736, the CRD Composting Facilities Bylaw, as well as the BC Organic Matter Recycling Regulation.

DFO stated that the Regional Aquaculture Management Office oversees federal aquaculture regulations. The Aquaculture Management Division stated that the proposed facility would require a commercial aquaculture licence. Their comments do not apply to the current application as the proposed aquaponics development has been removed.

District of Sooke stated support for the screening requirements for the proposed aquaculture use. Their comments do not apply to the current application as the proposed aquaponics development has been removed.

ENV provided comment indicating that, under the *Environmental Management Act*, a waste discharge authorization is required for sawmilling and secondary wood processing operations; the discharge of finfish waste may require a permit under the Land-Based Finfish Waste Control Regulation; the composting portion of the operation will be required to register under the Organic Matter Recycling Regulation; and agricultural discharge may be governed by the Agricultural Environmental Management Code of Practice. Their comments related to the aquaponics facility are no longer relevant to this application as that component has been removed.

FLNR – Archaeology Branch stated there are no known archaeological sites recorded on the subject property; however, if archaeological material is encountered during development, all activity must stop and the Archaeology Branch be contacted for direction.

FLNR – Ecosystems Biologist provided comment with respect to ensuring the development complies with the *Water Sustainability Act*, the *Riparian Areas Protection Regulation* and the environmental protection measures recommended in the Qualified Professional's (QP) report.

Island Health requires that subdivisions comply with the *Drinking Water Protection Act* and regulations.

Otter Point Volunteer Fire Department recommended an adequate water supply for firefighting purposes be provided for the sawmill operation in order to reduce the risk of wildfire within the community.

RCMP stated no comment on the application.

Sooke School District #62 stated no concerns.

TRAN requires the applicant to apply for an industrial access permit.

JdF EA PRAC met on July 30, 2019. There was one member of the public in attendance and no written submissions were received. The Commission considered the application and passed the following motion:

> **MOVED** by Director Hicks, **SECONDED** by Commissioner Sloan that the Commission supports the rezoning application with establishment of a trail for continuation of Wieland Road at the time of subdivision.
>
> **CARRIED**

A meeting of the Otter Point APC was held on September 10, 2019. There were 26 members of the public in attendance and no written submissions received. The Commission considered the application and passed the following motion:

> **MOVED** by Anne Miller, **SECONDED** by Al Wickheim that the Otter Point Advisory Planning Commission recommend that the Juan de Fuca Land Use Committee allow for further review of primary community concerns including water supply, firefighting servicing, noise, hours of work, traffic, rodents, future land use considerations, pollution including lighting, fencing/buffering and protection of the riparian area.
>
> Opposed: Bud Gibbons
> **CARRIED**

Appendix C: Referral Comments

AGRI – Ministry of Agriculture

BRITISH COLUMBIA

File: Lawrence-190911
Ref: RZ000267

Emma Taylor
Planner
Juan de Fuca Community Planning
Capital Regional District
3-7450 Butler Road, Sooke BC V9Z 1N1
Email: etaylor@crd.bc.ca

Re: Rezoning and OCP Amendment Application RZ000267 (3542 & 1-3542 Otter Point Road)/Proposal for an indoor aquaponics facility.

Dear Ms. Taylor,

Based on the information received from you email dated September 4, 2019, I can confirm that there are no impacts related to the Ministry's interests with respect to the development of the proposed aquaponics facility. I would note; however, that depending on the design and type of operation of the facility, source and disposition of the fish, several federal and provincial licences/permits will be required, which are detailed as follows:

- Aquaculture Licence (Fisheries & Oceans Canada)
- Water Licence (BC Ministry of Environment and Climate Change Strategy)
- Waste Water Discharge Permit (BC Ministry of Environment and Climate Change Strategy)
- Import Permit (for aquatic animals if imported) (Canadian Fish Inspection Agency)
- Introduction and Transfer Permit (Fisheries & Oceans Canada/BC Ministry of Forests, Lands, Natural Resource Operations and Rural Development)
- Fish Processing Licence (Ministry of Agriculture or Canadian Food Inspection Agency)
- Seafood Vendor Licence (Ministry of Agriculture)

Note that the above list is not exhaustive as other permits/authorizations/licences may be required depending on the specific activities undertaken.

I would also note that some storage, processing and greenhouse crops are regulated in BC by the BC Vegetable Marketing Commission (BCVMC) under the authority of the *Natural Products Marketing (BC) Act* and its *Regulations*. Greenhouse crops include tomatoes, cucumbers, peppers and lettuce, which require a production allocation from the BCVMC. The Commission

.../2

may exempt small operations from this requirement and only require a licence fee. More information about the BCVMC can be found here:
http://www.bcveg.com/

Generally, the regulations exempt the direct sale of small volumes of produce sold direct to consumers but regulate the sale of product to retail outlets. Specifically, a license is required to sell regulated vegetables in any of the following situations:

1. A farmer sells more than one tonne (2,200 lb) of a regulated vegetable per year;
2. A farmer has more than 5,000 m^2 greenhouse space devoted to growing regulated vegetables;
3. A farmer has an established relationship with a customer who is purchasing more than 300 lb of regulated vegetables per transaction;
4. A farmer sells more than $1,000 of regulated produce to an agency per year.

Further, where growers market regulated vegetables through agencies, the agencies will require that the growers are licensed through the BCVMC

The above notes are taken directly from "*Growing Connections, a handbook for purchasers + farmers in the Cowichan Region*" (Page 91) which is a good reference/resource that can help connect producers with buyers: http://cowichangreencommunity.org/wp-content/uploads/2014/05/Growing-Connection-Handbook.pdf.

Lastly, regarding composting fish wastes/offal on site, I would refer you to the Organic Matter Recycling Regulation of B.C. (OMRR), which is currently under review. More information can be found here:
https://www2.gov.bc.ca/gov/content/environment/waste-management/food-and-organic-waste/regulations-guidelines

Please do not hesitate to contact me should you require further details or wish to discuss further.

Sincerely,



Myron Roth, Ph.D., P.Ag.
Team Lead, Aquaculture & Marine Fisheries
Sector Development Branch

cc. Georgina Hodson, SDB, Ministry of Agriculture
Reed Bailey, IASB, Ministry of Agriculture
Jake Turek, ISAB, Ministry of Agriculture

BC Hydro

From:	McFarlane, Penny <Penny.Mcfarlane@bchydro.com>
Sent:	Wednesday, August 07, 2019 4:36 PM
To:	Wendy Miller
Cc:	Design, SVI; Mann, Elaine
Subject:	FW: Rezoning and OCP Amendment Application RZ000267 (3542 & 1-3542 Otter Point Road) - CRD Referral
Attachments:	STAFFRPT-LUC-REFERRAL-RZ000267.pdf; REFFERAL-FORM-AGENCIES-RZ000267.pdf

Hello Wendy,

BC Hydro has no objections to the rezoning, however; the proponent must contact the ESCC/Victoria Design to see what servicing is available at this location as it appears from the information below that the load requirements will be quite heavy. Thank you

Penny

CRD Building Inspection

Wendy Miller

From:	Mike Taylor
Sent:	Tuesday, June 09, 2020 3:59 PM
To:	Iain Lawrence; Wendy Miller
Cc:	Kevin Lorette
Subject:	Rezoning and OCP Amendment Application RZ000267, 3542 and 1-3542 Otter Point Rd

Hello, Iain. With respect to the rezoning application RZ000267 I attended the property at 3542 Otter Point Rd. with you and the owner and reviewed the two existing buildings currently in use as a saw mill. I have also reviewed a report assessing these buildings prepared by BICC Professional Inc., dated March 30, 2020.

In accordance with the BC Building Code the use or occupancy of each of the buildings would be classified as Medium Hazard Industrial, F2. According to the BICC report the larger of the buildings is approximately 6880 sq ft. Due to its size it must be considered to be a Part 3 building with respect to the Code. Part 3 buildings are required to be designed and constructed with the oversight of Registered Professionals (registered Architects and Engineers) for all aspects of the project. Although there is some limited permit information in the property file for this site the sawmill buildings do not appear to be complete, nor in compliance with all aspects of the BC Building Code.

With the goal of completing these buildings in a manner that is in reasonable compliance with the BC Building Code I recommend that the applicant submit a Building Permit application for completion of the building and Code compliance review. This permit application should be accompanied with sealed drawings and Letters of Assurance from Registered Professionals for all aspects of the building demonstrating and detailing work needed to verify Building Code compliance. The areas of approval would include, but may not be limited to, Architectural, Structural, Mechanical/Plumbing, and Electrical. Through the site inspection I attended I have become aware of many aspects of the Building that I would assume to be non-compliant with respect to the Code including access to exit, fire separations and fire protection, stair design, lack of finishing both interior and exterior, etc.

The second smaller building, also being used as a sawmill, may be considered to be a Part 9 building as opposed to a Part 3 building, however, I believe it would also require Registered Professionals to be involved with a building permit application to demonstrate compliance with the BC Building Code.

Also evident on file is a small number of outstanding and expired building permits. The applicant is advised to work with the Building Inspection Dept. to review and resolve any outstanding matters so the approvals may be submitted.

I would be happy to review this matter with you further, or to discuss with the property owner our building permit application process and Building Code requirements. Thank you.
Mike

Michael Taylor
Manager and Chief Building Inspector
Capital Regional District | 625 Fisgard Street, PO Box 1000, Victoria, BC V8W 2S6
T: 250.360.3230 | F: 250.360.3232 | Email: mtaylor@crd.bc.ca
Office Hours: Monday - Friday 8:30 am - 4:30 pm

CRD Bylaw Services

From:	Wilf Marquis
Sent:	Tuesday, August 13, 2019 3:33 PM
To:	Wendy Miller
Subject:	RE: Rezoning and OCP Amendment Application RZ000267 (3542 & 1-3542 Otter Point Road)

CRD Bylaw Services has reviewed the rezoning and subdivision (SU000711) application and the purpose of this zoning bylaw amendment application is to rezone a 5 ha portion of the subject property from Rural A to Rural Residential 2 (RR-2) to allow a five lot rural residential subdivision, to rezone a 6 ha area to a new Industrial Sawmill (M-3) zone, and to rezone a 4 ha portion to a new Industrial Aquaculture (M-4) zone.

This proposal is multi-faceted with increased density (RR-2), recognition of an Industrial sawmill (M-3) zone and inclusion of an Industrial Aquaculture (M-4) zone. The sawmill already exists and this step would bring the use that is already occurring into compliance. CRD Bylaw Services has not had a complaint regarding this sawmill activity at the property in the past which may be partially as a result of the current lack of density and proximity to residential uses. CRD Bylaw Services has concerns with this proposal in so far as potential increased reporting of nuisance type complaints (noise, odour, etc.) as a result of the increased residential density and proximity to the proposed adjacent Industrial uses.

Wilf MARQUIS
Senior Bylaw Officer

Bylaw and Animal Care Services
212-2780 Veterans Memorial Parkway, Victoria, BC, Canada V9B 3S6
Ph. 250.474.3351 ext. 22 \ Fax: 250.391.9727 \ TF: 800.665.7899
email: wmarquis@crd.bc.ca

CRD Protective Services

From:	Jonathan Reimer
Sent:	Tuesday, September 17, 2019 4:21 PM
To:	Wendy Miller
Cc:	Iain Lawrence
Subject:	RE: Rezoning and OCP Amendment Application RZ000267 and Rezoning Application RZ000268

Hi Wendy,
Apologies for the late response. I've conferred with the local Fire Chiefs and Building Inspection staff and would like to add this comment to both applications:

The applicant must ensure that proposed developments can be served by the local fire department and comply with the Building Regulation Bylaw regarding access to property and adequate water supply for fire fighting (Bylaw No. 3741 section 2.1.7).

Yours,

Jonathan Reimer MSc
Manager, Electoral Area Fire and Emergency Programs
Protective Services | Capital Regional District
625 Fisgard St, Victoria BC V8W 2S6
T: 250-360-3137 | C: 250-415-1695

For emergencies, contact the CRD Duty Officer at 250-360-3223 or eocreports@crd.bc.ca

CRD Solid Waste

From: Tom Watkins
Sent: Wednesday, July 31, 2019 4:06 PM
To: Wendy Miller
Cc: Emma Taylor; Russ Smith
Subject: RE: Rezoning and OCP Amendment Application RZ000267 (3542 & 1-3542 Otter Point Road)

Hi Wendy,

Thanks for the email, from what I can see, the proposed aquaculture operation may be subject to the CRD composting facilities bylaw which is explained at:

https://www.crd.bc.ca/service/waste-recycling/kitchen-scraps/composting-facilities-bylaw

The actual bylaw may be found at:

https://www.crd.bc.ca/docs/default-source/crd-document-library/bylaws/solidwastehartlandlandfillssitransferstationscompostingfacilities/2736---capital-regional-district-composting-facilities-regulation-bylaw-no-1-2004B.pdf?sfvrsn=457e4250_0

The bylaw contains a number of requirements to which the proponent would need to comply including leachate and odour management plans.

It may also be subject to the BC Organic Matter Recycling Regulation:

http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/18_2002

Hope this helps.

Regards, Tom

DFO

From: Gravelle, Kristin <Kristin.Gravelle@dfo-mpo.gc.ca>
Sent: Wednesday, July 17, 2019 4:29 PM
To: Wendy Miller
Subject: RE: Rezoning and OCP Amendment Application RZ000267 (3542 & 1-3542 Otter Point Road) - CRD Referral

Hello,

The role of the DFO's Fish and Fish Habitat Protection Program (FFHPP) is to protect and conserve fish and fish habitat in support of Canada's coastal and inland fisheries resources, and to make regulatory decisions under the fisheries protection provisions of the Fisheries Act. The FFHPP is specifically responsible for reviewing projects for which a s.35(2) Fisheries Act Authorization is required.

DFO does not have a regulatory role related to the CRD Referral - Rezoning and OCP Amendment Application RZ000267 (3542 & 1-3542 Otter Point Road) because it does not directly propose works, undertakings or activities that may result in serious harm to fish.

DFO's Projects Near Water website (http://www.dfo-mpo.gc.ca/pnw-ppe/index-eng.html) includes information for proponents on how to comply with the *Fisheries Act*, request a DFO review of a project, and request a *Fisheries Act* authorization.

If you would like to report a habitat violation, please call the Observe Record Report (ORR) hotline. Anonymous reports of suspicious activity and concerns about impacts to fish or fish habitat may be made directly to the toll-free 24-hour hotline at 1-800-465-4336 or 604-607-4186 in Greater Vancouver. Further information can be found online: http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/ORR-ONS-eng.html.

If you have any further questions about DFO's regulatory process or need general information, contact DFO's Fish and Fish Habitat Protection Program toll free: 1-866-845-6776 or email: EnquiriesPacific@dfo-mpo.gc.ca.

Thank you,

Kristin Gravelle
Biologist, Fish and Fish Habitat Protection Program
Ecosystem Management Branch
Fisheries and Oceans Canada/Government of Canada
Pacific Biological Station
3190 Hammond Bay Road, Nanaimo, B.C. V9T 6N2
Kristin.Gravelle@dfo-mpo.gc.ca/Tel: 250-756-7292 Cell: 250-739-0673

Biologiste, Programme de protection du poisson et de son habitat
Direction des écosystèmes
Pêches et Océans Canada | Gouvernement du Canada
Station biologique du Pacifique
3190, chemin Hammond Bay Nanaimo (Colombie-Britannique) B.C. V9T 6N2
Kristin.Gravelle@dfo-mpo.gc.ca/Tel: 250-756-7292 Cell: 250-739-0673

*National **W**ebsite: "**P**rojects Near **W**ater": http://wwwdev.ncr.dfo-mpo.ca/pnw-ppe/index-eng.html*
*FFHPP Enqu**i**ries: EnquiresPacific@dfo-mpo.gc.ca; **R**eferral submission: ReferralsPacific@dfo-mpo.gc.ca*
*Fisheries **vio**lations - **Obs**erve Record Report Line:1-800- 465-4336 or http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/points/ORR-ONS-eng.htm*

Wendy Miller

From: Emma Taylor
Sent: Thursday, December 12, 2019 3:07 PM
To: Wendy Miller
Subject: FW: Rezoning and OCP Amendment Application RZ000267 (3542 & 1-3542 Otter Point Road) - CRD referral

Please save referral comment and contact info for future.
Thanks

From: AQFW / AQFW (DFO/MPO) [mailto:FreshwaterAquaculture.XPAC@dfo-mpo.gc.ca]
Sent: Thursday, December 12, 2019 2:48 PM
To: PAC.AAR / RAA.PAC (DFO/MPO) <DFO.PACAAR-RAAPAC.MPO@dfo-mpo.gc.ca>; Emma Taylor <etaylor@crd.bc.ca>
Subject: RE: Rezoning and OCP Amendment Application RZ000267 (3542 & 1-3542 Otter Point Road) - CRD referral

Thank you Krista,

I had not received the referral.

Emma, I work on land-based aquaculture applications, for facilities licensed under PAR. This proposed facility would require a commercial aquaculture licence. Please contact me for more details.

Thank you,

Vanessa Metcalf

Aquaculture Management Coordinator | Coordonnatrice de la gestion de l'aquaculture
Aquaculture Management Division | Division de la gestion de l'aquaculture
Fisheries and Oceans Canada | Peche et Oceans Canada
250-754-0405

District of Sooke

Wendy Miller

From: Tara Johnson <tjohnson@sooke.ca>
Sent: Monday, September 09, 2019 4:36 PM
To: Wendy Miller
Subject: RE: Rezoning and OCP Amendment Application RZ000267 (3542 & 1-3542 Otter Point Road) - CRD Referral

I apologize for the delay Wendy,

The District of Sooke has no objections to Bylaw No. 4316 to rezone the parcel for the requested uses and Bylaw 4317 to amend the Otter Point OCP to designate portions of the property as Watercourses & Wetland Areas and Commercial & Industrial development permit areas
Being a neighboring property, thank you for providing a section on specific Screening requirements within the draft Industrial Aquaculture Zone.

Kind Regards,

Tara Johnson, MCIP, RPP
Planner II- District of Sooke
2205 Otter Point Road, Sooke BC V9Z 1J2
Email: tjohnson@sooke.ca
Phone (250) 642-1634
Direct (250) 642-1627
Fax (250) 642-0541 web: http://www.sooke.ca

Rethink Reduce Reuse Repair Recycle
Please consider the environment before printing this e-mail

ENV

From: "Tam, Jordan ENV:EX" <Jordan.Tam@gov.bc.ca>
Date: August 6, 2019 at 3:22:06 PM PDT
To: Emma Taylor <etaylor@crd.bc.ca>
Cc: "Barlas, Sajid A ENV:EX" <Sajid.Barlas@gov.bc.ca>
Subject: RE: composting facility inquiry

Hi Emma,

Thanks for your inquiry, if you could forward me a copy of the referral package I can hopefully better answer your questions. From the information provided I have put down some of my initial thoughts regarding the Ministry's regulatory requirements. These may be subject to change based on the facility's operations and how it will be oriented.

1. The composting portion of the operation will be required to register under the Organic Matter Recycling Regulation. Should the facility be producing greater than 5,000 dry tonnes of compost annually a permit may also be required for the facility.

2. The discharge associated with the land based finfish portion of the facility may require registration under the Land-Based Finfish Waste Control Regulation, however depending on the type of fish, discharge location and fish being reared, a permit may be required.

3. Discharge from the agricultural operations (such as greenhouses) will likely be covered by the Agricultural Environmental Management Code of Practice.

Please let me know if you have any questions,

Cheers,

Jordan Tam, *P.Ag.*
Environmental Protection Officer – South Authorizations
Regional Operations Branch | Environmental Protection Division

BRITISH COLUMBIA
Ministry of Environment and Climate Change Strategy
#200-10470 152nd St.
Surrey, BC, V3R 0Y3
Direct: 604.930.7106 | Jordan.Tam@gov.bc.ca

Emma Taylor

From: Wheating, Graham ENV:EX <Graham.Wheating@gov.bc.ca>
Sent: Thursday, September 12, 2019 12:01 PM
To: Emma Taylor
Subject: RE: wood processing facility inquiry

Hello Emma,

Thank you for you inquiry regarding a logging and sawmill operation on Otter Point Road. I am with the Hazardous Waste and Forestry Section of South Authorizations and Jordan Tam forwarded your questions regarding logging and sawmill operation on to my. Please see my responses to your questions below in blue.

- What regulations apply to timber harvesting, log sales and sawmill operations?
- The Environmental Management Act (EMA) does not pertain to timber harvesting or log sales, these operations are managed by the Ministry of Forest Lands Natural Resource Operations and Rural Development (FLRNRORD). However, I'm not sure if FLNRORD manages these operations on private land. I recommend they getting in touch with Front Counter BC who should be able to get you in touch with folks in FLNRORD that can help answer this.
- However, Section 6(2) of EMA would apply to the sawmilling and production of secondary value-added products and a waste discharge authorization is required for sawmilling and secondary wood processing operations. There is no regulation or Code of Practice that applies to these operations, so they would need to apply for a site specific waste discharge permit.
- As such, this application would be processed thorough the Routine Application Stream of the our Structured Application Process. More information on the routine application process can be found at: https://www2.gov.bc.ca/gov/content/environment/waste-management/waste-discharge-authorization/routine-application-process

- Does the Waste Discharge Regulation and Code of Practice for industrial non-hazardous waste landfills incidental to the waste processing industry apply? Are there permit or licencing requirements associated?
- If they operate or propose to operate a landfill solely for the purpose of disposing of this type of waste then they are required to register under and comply with the requirements of the COP. Please see the Ministry's Guidance, Forms & Fees for Waste Authorizations website (under the tab for this COP) for more information. The Ministry has also produced a Wood Waste Landfill Guideline that is available here: https://www2.gov.bc.ca/assets/gov/environment/waste-management/industrial-waste/industrial-waste/pulp-paper-wood/woodwastelandfillguideline.pdf
- Registrations under this COP are processed through the Express Transaction Steam of our Structured Application Process. More information on the express transaction process can be found at: https://www2.gov.bc.ca/gov/content/environment/waste-management/waste-discharge-authorization/express-transaction-process

- A site profile has been submitted for review under the Contaminated Sites Regulation.
- Thank you for this update, however my section is not involved with the administration of the Contaminated Sites Regulation so I can't speak to the status of this review.

I hope answered most of your questions, please don't hesitate to contact me if you have any additional questions.

Cheers,

Graham Wheating

Environmental Protection Technician
Hazardous Waste and Forestry – Authorizations South
Ministry of Environment and Climate Change Strategy
2080 Labieux Rd. Nanaimo BC, V9T 6J9
250 751-7245

FLNR – Archaeology Branch

From: Cooper, Diana FLNR:EX <Diana.Cooper@gov.bc.ca>
Sent: Tuesday, August 06, 2019 9:43 AM
To: Wendy Miller
Subject: RE: Rezoning and OCP Amendment Application RZ000267 (3542 & 1-3542 Otter Point Road) - CRD Referral

Hello Wendy,

Thank you for your referral regarding rezoning and an OCP amendment for proposed development at 3542 and 1-3542 Otter Point Road, Sooke, PID 009499369, THAT PART OF SECTION 17, OTTER DISTRICT, LYING EAST OF OTTER POINT ROAD, EXCEPT PARCEL C (DD 43782I) AND EXCEPT PARTS IN PLANS 3054 AND 17721. Please review the screenshot of the property below (outlined in yellow) and notify me immediately if it does not represent the property listed in your referral.

Results of Provincial Archaeological Inventory Search

According to Provincial records, there are no known archaeological sites recorded on the subject property.

Archaeological potential modelling for the area does not indicate a high potential for previously unidentified archaeological sites to be found on the subject property.

Archaeology Branch Advice

The Archaeology Branch does not identify a need for archaeological study or Provincial heritage permit(s) at the time of this information request.

Please notify all individuals (e.g., owners, developers, equipment operators) involved in land-altering activities (e.g., home renovations, property redevelopment, landscaping, service installation) that if archaeological material is encountered during development, they **must stop all activities immediately** and contact the Archaeology Branch for direction at 250-953-3334.

Rationale and Supplemental Information

- Archaeological study and Provincial heritage permit(s) are not required in the absence of an archaeological site.
- There is always a possibility for previously unidentified archaeological sites to exist on the property.
- Archaeological sites are protected under the *Heritage Conservation Act* and must not be damaged or altered without a Provincial heritage permit issued by the Archaeology Branch. This protection applies even when archaeological sites are previously unidentified or disturbed.

Questions?

For questions about the archaeological permitting and assessment process, please contact the Archaeology Branch at 250-953-3334 or archaeology@gov.bc.ca.

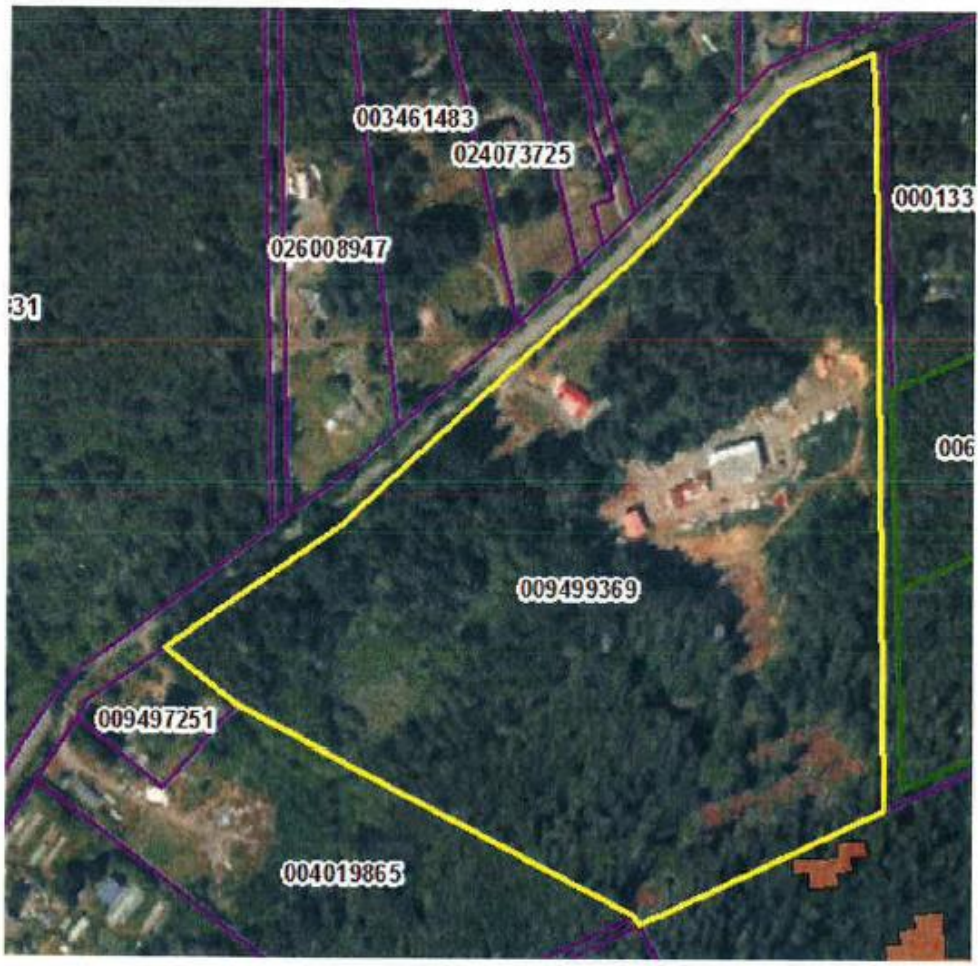
For more general information, visit the Archaeology Branch website at www.gov.bc.ca/archaeology.

Please let me know if you have any questions regarding this information.

1

Kind regards,

Diana



Please note that subject lot boundaries (yellow) and areas of archaeological potential (brown) indicated on the enclosed screenshot are based on information obtained by the Archaeology Branch on the date of this communication and may be subject to error or change. Archaeological site boundaries may not be identical to actual site extent.

Diana Cooper | Archaeologist/Archaeological Site Inventory Information and Data Administrator

Archaeology Branch | Ministry of Forests, Lands, Natural Resource Operations and Rural Development
Unit 3 – 1250 Quadra Street, Victoria, BC V8W2K7| PO Box 9816 Stn Prov Govt, Victoria BC V8W9W3
Phone: 250-953-3343 | Fax: 250-953-3340 |
Website: www.gov.bc.ca/archaeology

FLNR – Ecosystem Biologist

RESPONSE SUMMARY – REZONING AND OFFICIAL COMMUNITY PLAN AMENDMENT APPLICATION RZ000267

___ Interest Affected by Proposal for Reasons Outlined Below

X Interest Unaffected by Proposal PROVIDING THE CONDITIONS BELOW ARE FOLLOWED DURING SUBSEQUENT DEVELOPMENT.

Comments:

- ALL CONDITIONS OF THE WATER SUSTAINABILITY ACT ARE MET.
- ALL CONDITIONS OF THE RIPARIAN AREAS REGULATION ARE MET
- THE ENVIRONMENTAL PROTECTION MEASURES RECOMMENDED ON PAGES 10 TO 18 OF "ENVIRONMENTAL ASSESSMENT FOR 3542 OTTER POINT ROAD" (CORVIDAE ENV. CONSULTING APRIL 209) ARE FOLLOWED.

Dr. [signature] P.Ag. — Signed
ECOSYSTEMS BIOLOGIST — Title

JULY 19, 2019 — Date
BC MIN. OF FLNRORD — Agency

Island Health

RESPONSE SUMMARY – REZONING AND OFFICIAL COMMUNITY PLAN AMENDMENT APPLICATION RZ000267

✓ Interest Affected by Proposal for Reasons Outlined Below

___ Interest Unaffected by Proposal

Comments:

1. For the creation of any new lots, we are a referred to entity from Ministry of Transportation and Infrastructure, and aim to ensure the developer meets with the minimum requirements outlined in our Subdivision Standards.

2. Ensure compliance with the Drinking Water Protection Act/Regulation and Sewerage System Regulation.

Kazuhiro Takeuchi	Environmental Health Officer
Signed	Title
July 19, 2019	Island Health
Date	Agency

Otter Point Volunteer Fire Department

OTTER POINT VOLUNTEER FIRE DEPARTMENT

Thursday, 7-9 p.m.
Office Phone 642-6211
Office Fax 642-2673

3727 Otter Point Road
Sooke, B. C. V9Z OK1
www.otterpointfire.bc.ca

RECEIVED
JAN 3 1 2020
JdF Electoral Area Planning

January 30, 2020

CRD: JDF Community Planning
Attn. Iain Lawrence
#3 – 7450 Butler Road.
Sooke, BC V9Z 1N1

Re: Referral for Warburton Subdivision Proposal
Property at 3542 Otter Point Road.
Known as; Warburton's Mill
PID 009499369, Section 17
Folio: 762.16114.000

I have carefully considered the requirements for a water supply for fire protection at Warburton's Mill. There is much more to consider than just the protection of the mill and stored lumber. There is very significant risk to the community, both in the risk of wildfire and interface fires should a fire break out and not be immediately controlled at the Warburton Mill. The fuel load that is on site in the form of buildings, stored lumber, sawdust, milling debris and raw logs is very significant. Should a fire at this location grow uncontrolled for any length of time the fire would quickly become beyond the capacity of the local and mutual aid fire departments to control. On a warm summer day with a breeze, or a stronger wind, embers would be carried great distances potentially igniting spot fires, structure fires and forest fires which could result in a disastrous wildfire event causing great harm to our whole community.

I understand that Mr. Warburton has a portable pump set up in the stream for his own use should a fire break out. I commend Mr. Warburton for being proactive and having some form of initial firefighting capability on hand.
The reality is that a portable pump in the creek is not enough to supply water for firefighting at this mill. The creek itself has limited potential and a portable pump is probably capable of flowing 100-200gpm. (not enough water for fire flow at a small residential structure fire.) While this may be effective for a small incipient fire, it certainly is not even close to the requirements should a fire at this location grow to any size.

The very minimum that I would recommend is a system capable of supplying 1000gpm or more for up to one hour. Big water is the only hope of putting out a fire at this location before it grows to a size which is beyond the capacity of our combined fire departments to control.

The system that I would recommend would consist of 6- 10,000 gallon water tanks (for a total of 60,000 gallons of water) linked together with 6" plumbing and connected to a fire hydrant for quick and easy connection as well as providing freeze protection in the winter. The location of the system must be determined to allow for quick and safe access and connection in all fire scenarios.

This system would allow for quick access to a water supply that would allow the fire department to flow 1000gpm for up to an hour. A similar system is being installed in the Sooke Business Park for a commercial development.

I believe that this system provides a fair solution to Mr. Warburton while at the same time providing a reasonable measure of fire protection to the community.

If you have any further questions please contact me at the above number or by email at jmccrea@otterpointfire.bc.ca

Yours truly,

John McCrea, Fire Chief
Otter Point Fire Department

CC:

RCMP

From: Clayton WIEBE <clayton.wiebe@rcmp-grc.gc.ca>
Sent: Wednesday, August 14, 2019 1:45 PM
To: Wendy Miller
Subject: RE: Rezoning and OCP Amendment Application RZ000267 (3542 & 1-3542 Otter Point Road) - CRD Referral

The Sooke RCMP has no comment relating to this Application

Sooke School District #62

From: Pete Godau <pgodau@sd62.bc.ca>
Sent: Tuesday, July 23, 2019 1:54 PM
To: Wendy Miller
Cc: Scott Stinson; Harold Cull; Farzaan Nusserwanji
Subject: FW: Rezoning and OCP Amendment Application RZ000267 (3542 & 1-3542 Otter Point Road) - CRD Referral
Attachments: STAFFRPT-LUC-REFERRAL-RZ000267.pdf; REFFERAL-FORM-AGENCIES-RZ000267.pdf

Good Afternoon Wendy,

At this time the school district does not have any concerns with this referral.

Thank you,

Pete

Peter Godau
Director of Facilities| School District # 62
P (250)474-9840 Ext 203 | C (250)361-7330 | pgodau@sd62.bc.ca
Shaping Tomorrow Today

TRAN

From:	Breysen, Tara TRAN:EX <Tara.Breysen@gov.bc.ca>
Sent:	Wednesday, August 07, 2019 11:52 AM
To:	jdf info
Subject:	Rezoning Referral - File RZ000267 - Amendment to Bylaw 2040 - Ministry File 2019-04362
Attachments:	H0020 Permit application - fillable.pdf

Good morning

Please accept this as official response from the Ministry of Transportation and Infrastructure in regards to the proposed rezoning of 3542 Otter Point Road for the purpose of a 5 lot rural residential subdivision, a new Industrial Sawmill and a new industrial aquaculture zone.

As a condition of this approval, the Ministry requires the applicant to apply for an Industrial access permit for access to the non-conforming sawmill that is existing on the property. I have attached an application form that would be required to apply for the access.

Please have the applicant contact Owen Page, Development Office (owen.page@gov.bc.ca, 236-478-1552) if they have any questions or concerns.

Tara Breysen
District Clerk
Saanich Area Office
Ph: 778-974-2630
Fx: 250-952-4508

JdF EA Parks and Recreation Advisory Commission

Making a difference...together

Minutes of a Meeting of the
Juan de Fuca Electoral Area Parks and Recreation Advisory Commission
Held Tuesday, July 30, 2019 at the Juan de Fuca Local Area Services Building,
3 – 7450 Butler Road, Otter Point, BC

PRESENT: S. Jorna (Chair), V. Braunschweig, B. Croteau, J. Gaston, Director M. Hicks, A. Marchand, A. Sielopp, P. Sloan
Staff: D. Closson, Manager, Juan de Fuca Parks and Recreation; E. Taylor, Planner; W. Miller, Recorder
PUBLIC: 1

The meeting was called to order at 3:00 pm

1. **Approval of the Agenda**

   MOVED by Commissioner Croteau, **SECONDED** by Commissioner Sielopp that the agenda be approved, as amended, to add a presentation from the Friends of Coppermine Park Society under New Business.

   CARRIED

2. **Adoption of the Minutes of May 28, 2019**

   MOVED by Commissioner Croteau, **SECONDED** by Commissioner Sielopp that the minutes from the meeting of May 28, 2019, be adopted.

   CARRIED

3. **Chair's Report**
   None.

4. **Director's Report**
   Director Hicks reported that Wally Vowles has stepped down as Alternate Director and that Dan Quigley now fills the position. Director Hicks relayed that he anticipates attending future meetings of the Commission.

5. **Delegation – Juan de Fuca Community Planning**
   a) **Zoning and Official Community Plan Amendment Application RZ000267 - That Part of Section 17, Otter District, Lying East of Otter Point Road, Except Parcel C (DD43782I) And Except Parts in Plans 3054 And 17721 (3542 & 1-3542 Otter Point Road)**
   Emma Taylor spoke to the staff report to the Juan de Fuca Land Use Committee and the request to rezone a 5 ha portion of the subject property from Rural A to Rural Residential 2 (RR-2) to allow a five lot rural residential subdivision, to rezone a 6 ha area to a new Industrial Sawmill (M-3) zone, and to rezone a 4 ha portion to a new Industrial Aquaculture (M-4) zone. An amendment to the Otter Point Official Community Plan (OCP) is also proposed to designate portions of the property as Watercourses & Wetland Areas and Commercial & Industrial development permit areas.

   Emma Taylor confirmed that the agent for the application was present and directed attention to the policies in the Otter Point OCP for parks and natural areas for the Commission's consideration.

The Chair reported that staff and members of the Commission attended the two subject properties being considered for rezoning on July 29.

Commission comments included:
- the Commission holds a licence of occupation over Wieland Road for trail use
- the subject property interrupts the trail
- extension of the gazetted road or establishment of a statutory right-of-way over the subject property would provide an alternative transportation route from William Simmons Memorial Park to Kemp Lake Road to Crown lands to the west

Emma Taylor responded to questions from the Commission advising that
- the obligation for formal park land dedication in accordance with Section 510 of the *Local Government Act (LGA)* would be at the time of subdivision, should the rezoning application proceed
- the applicant has submitted a subdivision application
- the applicant is aware of the licence of occupation
- the rezoning application has been referred to agencies for comment
- agency comments will be shared with the applicant and considered by the Land Use Committee

Director Hicks stated that, should a route be secured over the subject property, gas tax funds could be utilized to support construction of a trail.

Staff presented photos from the July 29 site visit.

Commission comments included:
- it is understood that the property owner wants to be able to access the adjacent private property to the south as part of the sawmill operation
- measures would need to be in place in ensure the safety of all users
- proposed route would be screened by trees
- the proposed route would benefit the community of Otter Point

Emma Taylor responded to a question from the Commission advising that a combination of land and cash can be considered at the time of subdivision to meet the requirements of Section 510 of the *LGA*.

MOVED by Director Hicks, **SECONDED** by Commissioner Sloan that the Commission supports the rezoning application with establishment of a trail for continuation of Wieland Road at the time of subdivision.

Staff responded to a question from the Commission advising that the application will also be considered by the Otter Point Advisory Planning Commission.

The Chair called the question.

CARRIED

Otter Point APC

Making a difference...together

Minutes of a Meeting of the Otter Point Advisory Planning Commission
Held September 10, 2019 at Juan de Fuca Local Area Services Building, 3-7450 Butler Road, Otter Point, BC

PRESENT: Al Wickheim (Chair), Bud Gibbons, Sid Jorna, Anne Miller, Stephen Smith
Staff: Emma Taylor, Planner; Wendy Miller, Recorder
PUBLIC: 26

The meeting was called to order at 7:00 pm.

1. **Approval of the Agenda**

   MOVED by Anne Miller, **SECONDED** by Sid Jorna that the agenda be approved.
   CARRIED

2. **Approval of the Supplementary Agenda**
   No supplementary items.

3. **Adoption of the Minutes of April 9, 2019**

   MOVED by Bud Gibbons, **SECONDED** by Anne Miller that the minutes of the meeting of April 9, 2019, be adopted. **CARRIED**

4. **Planner's Report**
   a) At its meeting of August 14, 2019, the CRD Board adopted Bylaw No. 4290, rezoning the remaining lots in the Sooke Business Park to the Sooke Business Park Industrial (M-SBP) zone and specifying that the maximum floor area for a caretaker suite in the M-SBP zone is 90 m^2.

   b) CRD Corporate Services is hosting a committee/commission orientation on Monday, September 16, 2019 at 3 pm at the Juan de Fuca Local Area Services Building.

   c) It was confirmed that at its meeting of April 10, 2019, the CRD Board approved the temporary use permit for 7861 Tugwell Road (TP000009) allowing the proposed expansion of a home based microbrewery.

5. **Zoning and Official Community Plan Amendment Application**
   a) **RZ000267 - That Part of Section 17, Otter District, Lying East of Otter Point Road, Except Parcel C (DD43782I) And Except Parts in Plans 3054 And 17721 (3542 & 1-3542 Otter Point Road)**
   The Chair directed attention to the staff report considered by the Juan de Fuca Land Use Committee at its meeting of July 16, 2019.

   Emma Taylor advised the property owner is requesting to rezone the property to permit a seven-lot subdivision, as well as an industrial sawmill operation and an aquaponics facility (Bylaw No. 4316). An Official Community Plan (OCP) amendment is also proposed to update the Watercourses and Wetland Areas and Commercial Industrial development areas (Bylaw No. 4317). It was advised that the Land Use Committee has directed referral of the proposal to external agencies, CRD departments, the Juan de Fuca Electoral Area

PPSS-35010459-2130

Parks and Recreation Advisory Commission and to the Otter Point Advisory Planning Commission (APC).

Emma Taylor spoke to the proposed subdivision plan identifying the areas proposed for residential, aquaponics and sawmill use. It was confirmed that the proposed OCP amendment would designate the areas identified for aquaponics and sawmill use as a development permit area to address the form and character of commercial and industrial buildings. Attention was directed to the OCP policies as included in the staff report for community consideration of rezoning applications.

Emma Taylor reported that the owner has submitted an environmental assessment report prepared by Corvidae Environmental Consulting Inc. which identifies a watercourse on the property and outlines considerations for future development. It was advised that the Biologist who prepared the report is acting as the application agent.

Emma Taylor identified the subject property on the web map, identifying industrial zoned properties in the vicinity of the subject property and the undeveloped roads adjacent to the subject property. It was advised that the Juan de Fuca Community Parks division currently holds a Licence of Occupation over Weiland Road right-of-way for future construction of a multi-use trail extending from William Simmons Memorial Park to Kemp Lake Road, but that the right of way terminates at the subject property.

Emma Taylor directed attention to Bylaw No. 4316 as included in the meeting agenda package to reflect changes related to building size and lot coverage for the proposed aquaponics use as requested by the applicant.

The Chair confirmed that the application representatives were present.

The Chair requested that the representatives speak to the proposed residential area.

Residential Area

The representatives stated that:
- the five proposed residential lots are for the owner's children and will be developed as required
- individual wells have been drilled on the five proposed residential lots
- although not required, cisterns will be installed on each lot
- percolation test holes have been dug
- surface water will be protected through the update to the Watercourse and Wetland Areas development permit area (DPA)
- the watercourse identified on the subject property flows west to east, draining into King Creek

Emma Taylor identified lands on the web map that are in the vicinity of the subject property that are designated a Watercourse and Wetland Areas DPA. It was confirmed that the Watercourse and Wetland Areas DPA includes land within 30 metres (100 feet) of the natural boundary of a watercourse.

The agent responded to a question from the APC regarding viability of a trail in the vicinity of Weiland Road advising that there is methodology available for creek crossings.

The representatives confirmed that well reports can be made available.

The Chair requested that the representatives speak to the proposed aquaponics area.

Aquaponics Area

The representatives stated that:
- the facility requires 0.4 gallons per minute (GPM) of water
- a well has been drilled and a percolation test hole dug
- a cistern will be installed
- the aquaponics building is sited at the back of the property to limit views of the facility from Otter Point Road
- views of the facility will be buffered by the proposed residential use
- the proposed height of the building (12.6 m) would reduce the footprint of the facility
- a separate access to the facility is required
- access to be determined by the Ministry of Transportation and Infrastructure (MoTI)
- access will not be by easement over the other proposed lots
- the facility is anticipated to operate 35 hours a week and employ 20 workers
- operation will produce salad greens, micro greens, herbs and trout
- fish species may change depending on market demand
- reinforced, lined cement tanks will be above ground
- no water will be discharged to the surface
- the facility will be built to meet a life expectancy of 25 years
- building materials will be food grade to meet organic status
- the facility will produce vermicompost (worm compost)
- HVAC will scrub any odour but vermicompost is generally odourless
- a HACCP (Hazard Analysis and Critical Control Points) plan is being designed for the facility
- monitors will be installed to detect any water breaks
- in the event of a break, the system would shut down and overflow directed to a filtration system
- sawdust from the sawmill operation may be utilized as the aquaponics facility requires a grain chaff

Emma Taylor responded to a question from the APC confirming that, should the applicant's proposed changes to the M-4 zone not be supported, the applicant could submit a variance application to vary the building's building size and height,

The Chair requested that the representatives speak to the proposed sawmill area.

Sawmill Area

The representatives stated that:
- sawdust is currently stored outdoors
- a new structure for sawdust storage is proposed
- sawdust will be bagged for sale
- current sawmill operation employs 8-10 full-time workers

Doug Brubaker, Otter Point, stated that:
- he owns a lumber manufacturing company
- his establishment offers sawdust free of charge
- sawdust is not easy to get rid of
- water supply is a concern in the community and on his property even with rainwater capture and greywater reuse
- he has concern regarding property development, in general, as all watercourses have not been mapped

The Chair opened the floor to questions.

A member of the public stated that she lives on an adjacent property and has concern regarding hours of operation and air quality as the property owner currently burns wood debris outdoors. It was questioned if Tenbury Road, the undeveloped road to the east, will be utilized.

A representative stated that the owner will be moving to an electric sawmill and that the new mill will be enclosed.

Emma Taylor advised that the MoTI is the authority for roads and that the MoTI has relayed that an industrial access permit is required for the sawmill operation.

Ron Watson, Otter Point, stated that he:
- has concern regarding water supply as water is limited 3-5 months of the year
- has concern regarding spontaneous combustion of sawdust
- lives downhill from the subject property and can hear the sawmill operation at its present size
- has concern that noise impact will increase, should the operation expand
- had hoped to see more written material regarding the proposal

A representative stated that current noise levels are high as the site is being readied for development.

A member of the public questioned if the aquaponics facility will have backup generators.

The aquaponics representative stated that, in addition to having a diesel generator, the facility will have solar panels on the roof with storage and grid connection.

Doug Dunnett, Otter Point, stated that:
- he lives on an adjacent property
- he has concern regarding water supply
- he has concern regarding the access to the aquaponics area and provisions for buffering

Emma Taylor confirmed that the proposed Industrial Aquaculture (M-4) zone provides regulations for screening and that the Juan de Fuca Land Use Bylaw, Bylaw No. 2040, provides regulations for fencing.

A member of the public stated that:
- he lives across from the subject property
- the subject property sits in a valley
- noise from the sawmill operation echoes across the valley
- the property has been cleared with the exception of the lands within the riparian assessment area
- no buffer has been left
- he has concern regarding hydrocarbon storage
- King Creek is salmon bearing

A representative stated that there is a replanting plan.

Arnie Campbell, Otter Point, stated that:
- he has no issue with the background noise associated with the operation's current outside work
- he has issue with noise produced by the ventilation system for the current enclosed structure
- the ventilation system noise is a high pitched whine
- he has concern that noise impact will increase, should enclosed operations increase

A member of the public stated that:
- she lives across from the subject property
- noise levels over the past year have been too much
- she has concern regarding the compost facility increasing the rodent population
- she has concern for the existing wildlife/bear corridor the subject property provides
- she has concern regarding water supply
- she has concern regarding increased traffic on Otter Point Road
- Otter Point Road was not built for large volumes
- there is already an issue with speeding on Otter Point Road

A member of the public stated that:
- he has concern regarding noise
- he has concern regarding the aquaponics facility, should the business plan fail
- it is not known what kind of operation could happen in future
- the community should question what it is getting back by supporting the rezoning proposal

Emma Taylor responded to questions from the APC confirming that the OCP is the guiding document for community consideration of rezoning applications and directed attention to policy 4.1.1 (4) which outlines that support for rezoning is more likely where it can be demonstrated that community values and features can be protected subject to the listed criteria. Clarification was provided regarding the potential requirement for 5% park dedication at the time of subdivision pursuant to Section 510 of the *Local Government Act.*

A member of the public stated that:
- she has concern regarding water supply
- noise levels over the past year have been awful
- work has started at 6:00 am and stopped at dark
- work has been lifestyle changing
- she no longer enjoys being outdoors on her property

- the community should question if the proposal is wanted by the community
- the community should question if it wants to support a rural operation developing into an industrial operation
- to date, it has not been clear as to what the property owner is proposing
- she is having a hard time believing that what is proposed will happen

Emma Taylor responded to the question from the public advising that the applicant can request that additional uses be added to the proposed M-4 zone and that, in future, a property owner could submit an application to rezone the property or submit an application for a temporary use permit.

Dane Bugoy, Otter Point, stated that:
- he has concern regarding water supply
- he has concern regarding fire protection as the volunteer fire department has limited resources
- residents regularly need to resort to trucked water
- hauling water increases traffic, impacting carbon levels
- he supports extension of CRD water and hydrant installation

A member of the public stated support for noise mitigation measures as there will also be noise associated with the property's long term buildout.

The agent for the application responded to questions from the public confirming that:
- some trees have been removed from the Streamside Protection and Enhancement Area
- replanting recommendations have been made
- no buildings are currently sited or planned to be sited in the SPEA
- the aquaponics facility will require a stream crossing
- the stream crossing would be in accordance with provincial regulations

Arnie Campbell requested that the proposed subdivision plan be updated to reflect that the property is in Otter Point.

Emma Taylor confirmed that the plan notes the property mailing address and that the property borders the District of Sooke.

The representatives responded to a question from the APC advising that there is no lot large enough in the Sooke Business Park to accommodate the aquaponics proposal which requires at least 1.5 acres of lot coverage.

John McCrae, Fire Chief, Otter Point Volunteer Fire Department, stated that:
- the proposal was referred to the Otter Point Volunteer Fire Department
- the Otter Point Volunteer Fire Department has concern regarding water supply for firefighting services
- the Otter Point Volunteer Fire Department will work with the applicant and the CRD to address concerns

The APC stated:
- concern regarding dust levels
- support for a noise abatement agreement
- concern regarding increased traffic and property access/egress
- support for setting limitations to the aquaponics use proposed by the M-4 zone
- that the OCP supports green initiatives
- trucking water is not a green initiative

The APC acknowledged the concerns identified by the members of the public and advised that residents can forward their concerns directly to staff and to the Land Use Committee.

MOVED by Anne Miller, **SECONDED** by Al Wickheim that the Otter Point Advisory Planning Commission recommend that the Juan de Fuca Land Use Committee allow for further review of primary community concerns including water supply, firefighting servicing, noise, hours of work, traffic, rodents, future land use considerations, pollution including lighting, fencing/buffering and protection of the riparian area.

Opposed: Bud Gibbons
CARRIED

An APC member stated that the proposal should not be given further consideration until the owner addresses current noise issues.

The APC asked the representatives to relay the community's concerns to the owner. The APC stated that it would have appreciated hearing directly from the property owner.

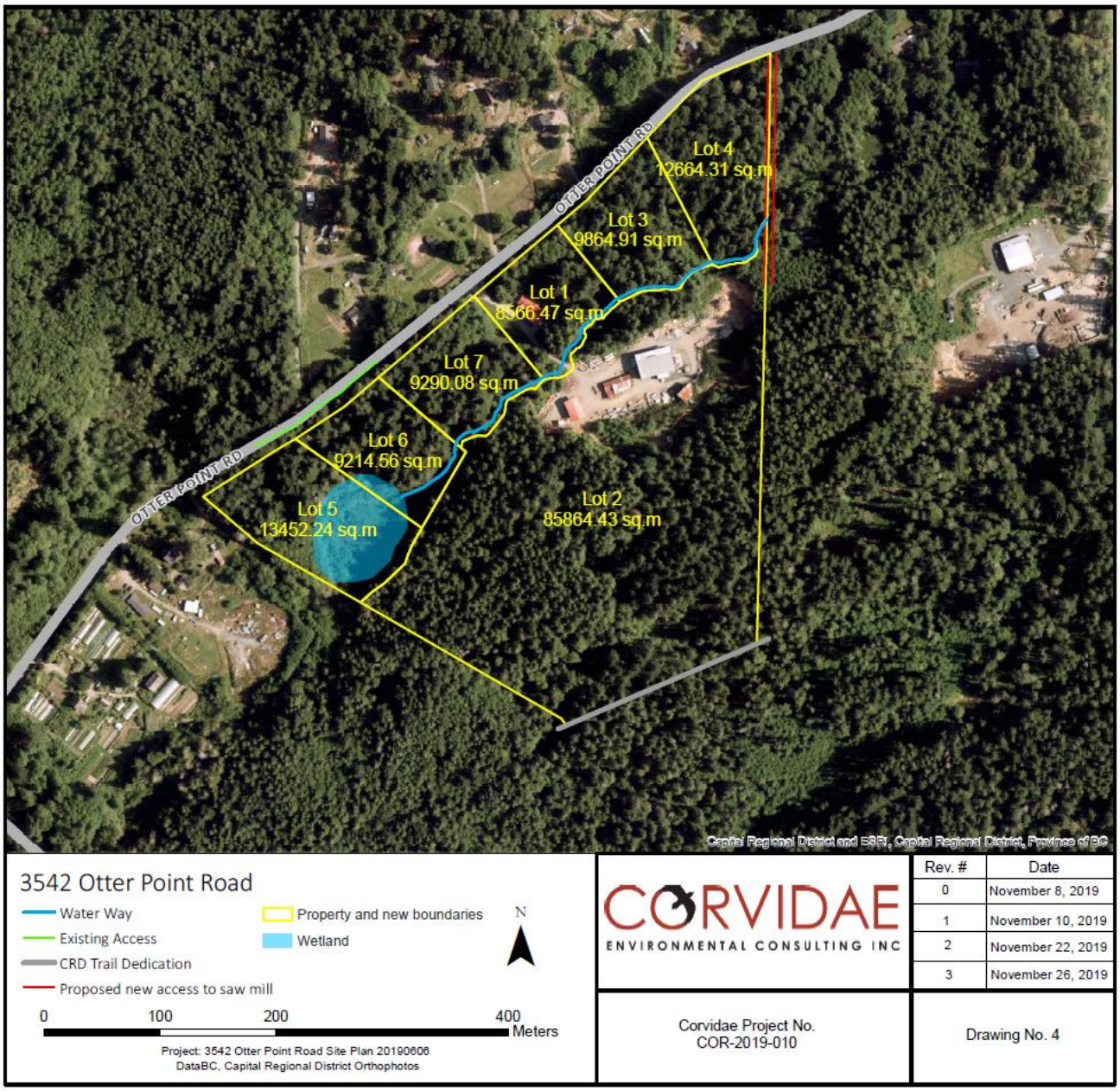
6. Adjournment

The meeting adjourned at 9:10 pm.

Chair

PPSS-35010459-2130

Appendix D: Development Proposal



3542 Otter Point Road

Water Way
Existing Access
CRD Trail Dedication
Proposed new access to saw mill
Property and new boundaries
Wetland

N

0 100 200 400 Meters

Project: 3542 Otter Point Road Site Plan 20190606
DataBC, Capital Regional District Orthophotos

CORVIDAE ENVIRONMENTAL CONSULTING INC

Rev. #	Date
0	November 8, 2019
1	November 10, 2019
2	November 22, 2019
3	November 26, 2019

Corvidae Project No.
COR-2019-010

Drawing No. 4

Appendix E: Proposed Bylaw No. 4316

CAPITAL REGIONAL DISTRICT
BYLAW NO. 4316

****

A BYLAW TO AMEND BYLAW NO. 2040, THE "JUAN DE FUCA LAND USE BYLAW, 1992"

****

The Capital Regional District Board, in open meeting assembled, enacts as follows:

1. Bylaw No. 2040 being the "Juan de Fuca Land Use Bylaw, 1992" is hereby amended:

A. SCHEDULE A, PART 1 DEFINITIONS

(a) By adding a new definition of "INDUSTRIAL SAWMILL" after the definition of "INDUSTRIAL USE, LIGHT", to be read as follows:

"INDUSTRIAL SAWMILL means a building, structure, or area where timber is cut, sawn, or planed, either to finished lumber or as an intermediary step, and may include facilities for the kiln drying of lumber, and may include the distribution of such products on a wholesale or retail basis, subject to the *Environmental Management Act*;"

(b) By deleting the definition of INDUSTRIAL ZONE and replacing it with a new definition, to be read as follows:

"INDUSTRIAL ZONE means the M-SBP, M-2 and M-3 zoning districts;"

B. SCHEDULE A, PART 1, GENERAL REGULATIONS

(a) By amending section 3.07 ZONES by adding the words "M-3 Industrial Sawmill" and deleting the words "M-1 Light Industrial" "M-2-MM General Industrial – Medical Marihuana", "M-3 Heavy Industrial" and "M-4 Marine Industrial"

C. SCHEDULE A, PART 2, ZONING DISTRICTS

(a) By deleting section 26.0 Light Industrial Zone – M-1, section 28.0 Heavy Industrial Zone – M-3, and section 29.0 Marine Industrial Zone – M-4 in their entirety;

(b) By renumbering section 27B.0 Sooke Business Park Industrial Zone – M-SBP as section 26.0.

(c) By creating a new zone, "Industrial Sawmill Zone – M-3", to be inserted after section 27.0, and to be read as follows:

"**28.0 Industrial Sawmill Zone – M-3**

28.01 Permitted Uses

In addition to the uses permitted by Section 4.15 of Part 1 of this Bylaw, the following uses and buildings are permitted in the Industrial Sawmill M-3 zone:

(a) Sawmills on a permanent foundation and enclosed in a building;

(b) Lumber milling, processing and storage;

(c) Processing and manufacturing of wood products, including the making of cabinets, furniture, plywood, lath and particle board, and the manufacturing of modular or pre-fabricated homes and structures, excluding pulp and paper mills;

(d) Log storage and sorting;

Accessory Uses:

(a) Accessory retail and wholesale sale of lumber processed on site;

(b) Accessory retail and wholesale sale of wood products manufactured on site;

(c) Offices accessory to a principal use;

(d) Accessory buildings and structures pursuant to Part 1, Section 4.01.

28.02 Minimum Lot Size for Subdivision Purposes

The minimum lot size for subdivision purposes shall be 8 ha.

28.03 Maximum Floor Area

The maximum total floor area of all buildings shall be 5000 m².

28.04 Height

The maximum height shall be 11 m for all principal buildings and structures.

28.05 Required Yards

(a) Buildings shall be set back at least 30 m from parcel boundaries.

(b) Storage of any material shall not be permitted within 30 m from the parcel boundaries.

28.06 Storage

Storage shall not be permitted in required yards.

28.07 Lot Coverage

(a) The maximum lot coverage (buildings and structures) shall be 10%.

(b) The maximum area to be used for an industrial sawmill operation including storage of materials) is 15% of the parcel.

28.08 Screening

(a) A vegetative screen shall be located and maintained along the entire length of parcel boundaries.

(b) This vegetative screen shall consist of coniferous vegetation native to the region that is not less than 2 m high, not less than 15 m deep, and spaced not more than 2 m apart."

D. SCHEDULE A, PART 3, PARKING AND LOADING REQUIREMENTS

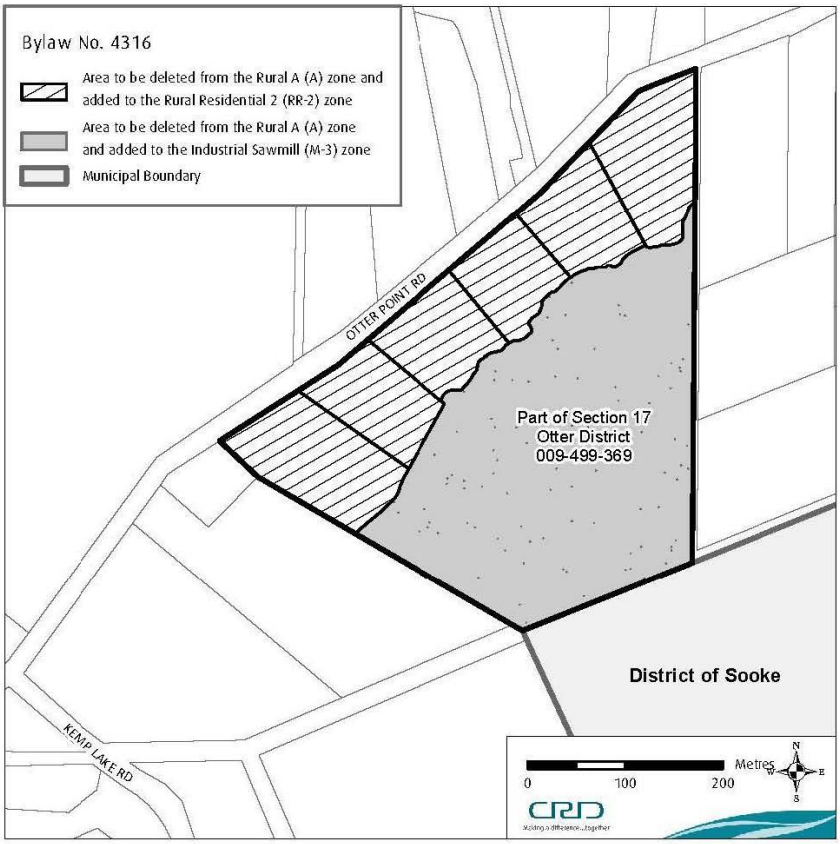
(a) By amending section 5.0 by adding the words "Industrial Sawmill 1 per 2 employees but not less than 5 per tenant or establishment;"

E. SCHEDULE B, MAP NO. 2 – OTTER POINT ZONING MAP

(a) By deleting That Part of Section 17, Otter District, Lying East of Otter Point Road, Except Parcel C (DD43782I) And Except Parts in Plans 3054 And 17721 from the Rural A (A) Zone, and adding to the Rural Residential 2 (RR-2) Zone, as shown on Plan No.1.

(b) By deleting That Part of Section 17, Otter District, Lying East of Otter Point Road, Except Parcel C (DD43782I) And Except Parts in Plans 3054 And 17721 from the Rural A (A) Zone, and adding to the Industrial Sawmill (M-3) Zone, as shown on Plan No.1.

Plan No. 1 of Bylaw 4316, an amendment to Bylaw No. 2040



2. This bylaw may be cited as "Juan de Fuca Land Use Bylaw, 1992, Amendment Bylaw No. 147, 2019".

READ A FIRST TIME THIS	day of	, 2020.
READ A SECOND TIME THIS	day of	, 2020.
READ A THIRD TIME THIS	day of	, 2020.
ADOPTED THIS	day of	, 2020.

CHAIR CORPORATE OFFICER

Appendix F: Proposed Bylaw No. 4317

CAPITAL REGIONAL DISTRICT
BYLAW NO. 4317

A BYLAW TO AMEND BYLAW NO. 3819, THE "OTTER POINT OFFICIAL COMMUNITY PLAN, 2014"

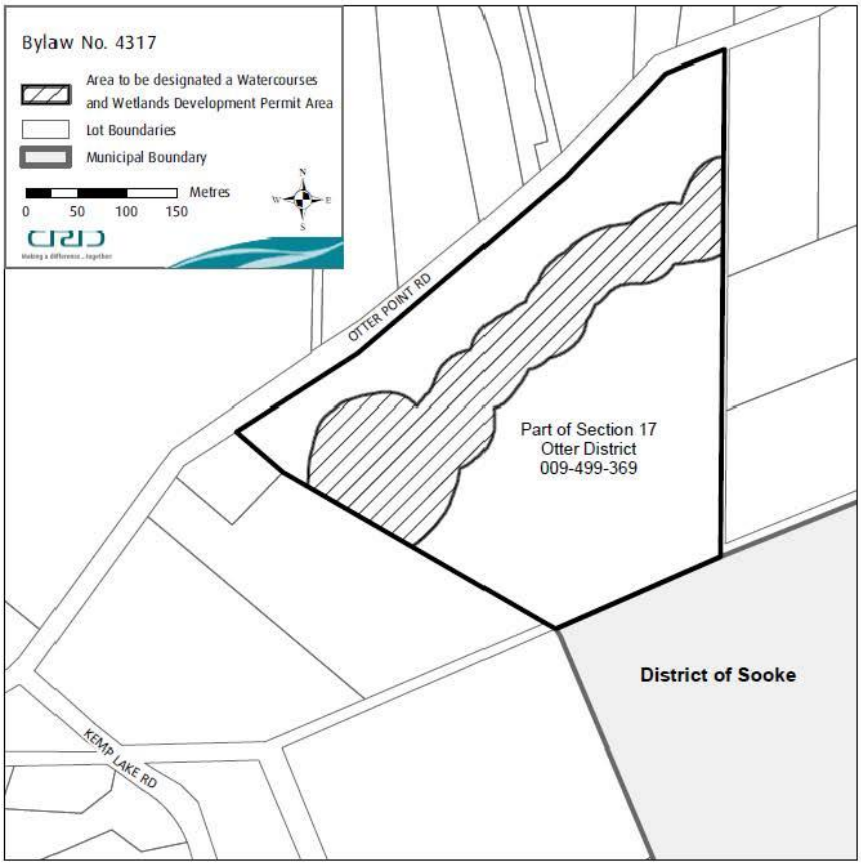
The Capital Regional District Board, in open meeting assembled, enacts as follows:

1. Bylaw No. 3819 being the "Otter Point Official Community Plan, 2014" is hereby amended:

A. SCHEDULE A, MAP NO. 5c – WATERCOURSES & WETLANDS DEVELOPMENT PERMIT AREA

(a) By adding that part of That Part of Section 17, Otter District, Lying East of Otter Point Road, Except Parcel C (DD43782I) And Except Parts in Plan 3054 And 17721 to the Watercourses and Wetlands Development Permit Area, as shown on Plan No. 1.

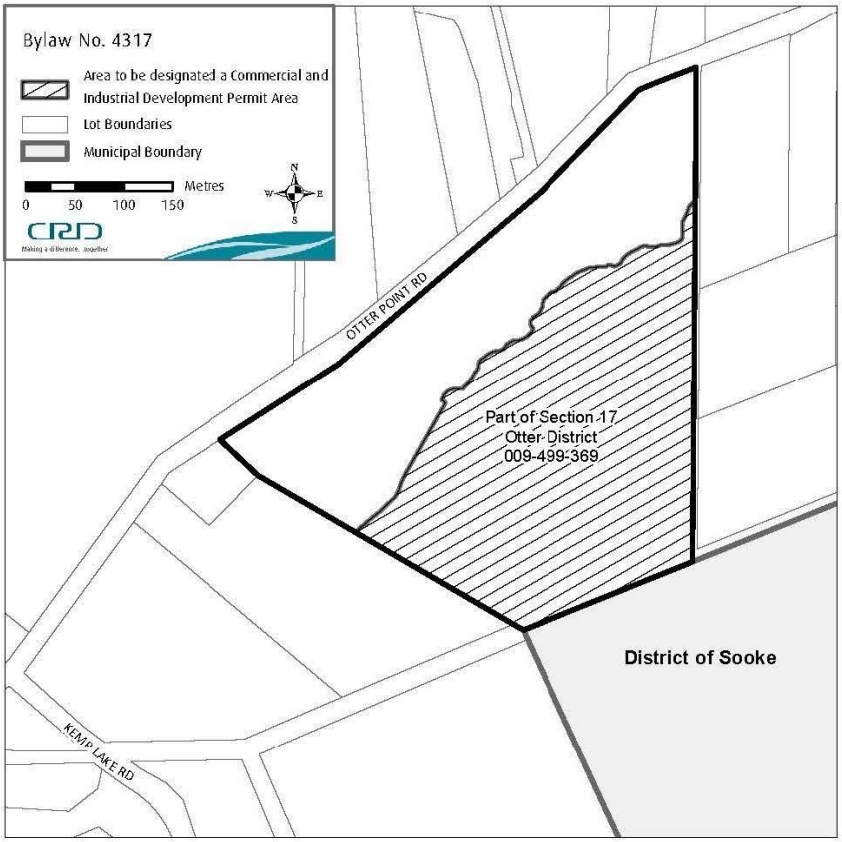
Plan No. 1 of Bylaw 4317, an amendment to Bylaw No. 3819



B. SCHEDULE A, MAP NO. 5e – COMMERCIAL & INDUSTRIAL DEVELOPMENT PERMIT AREA

(a) By adding that part of That Part of Section 17, Otter District, Lying East of Otter Point Road, Except Parcel C (DD43782I) And Except Parts in Plan 3054 And 17721 to the Commercial & Industrial Development Permit Area, as shown on Plan No.2.

Plan No. 2 of Bylaw 4317, an amendment to Bylaw No. 3819



2. This bylaw may be cited as "Otter Point Official Community Plan, 2014, Amendment Bylaw No. 2, 2019".

READ A FIRST TIME THIS day of , 2020.

READ A SECOND TIME THIS day of , 2020.

READ A THIRD TIME THIS day of , 2020.

ADOPTED THIS day of , 2020.

CHAIR CORPORATE OFFICER

Appendix G: Environmental Report



ENVIRONMENTAL ASSESSMENT
FOR 3542 OTTER POINT ROAD

PREPARED FOR:

EMMA TAYLOR, PLANNER
PLANNING AND PROTECTIVE SERVICES DEPARTMENT,
JDF ELECTORAL AREA, CAPITAL REGIONAL DISTRICT
3-7450 BUTLER ROAD, SOOKE BC V9Z 1N1

CORVIDAE PROJECT #2019-010
APRIL 2019

CORVIDAE
ENVIRONMENTAL CONSULTING INC
6526 WATER STREET, SOOKE, BC

SOLUTION ORIENTED. PROTECTION OF THE ENVIRONMENT. ABSOLUTE INTEGRITY. OPEN COMMUNICATION. RESPECT.

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1 INTRODUCTION

Corvidae Environmental Consulting Inc. (Corvidae) has been contracted to provide this Environmental Assessment (EA) for the proposed subdivision and development to 3542 Otter Point Road (the property), property ID 009499369, zoning Rural A.

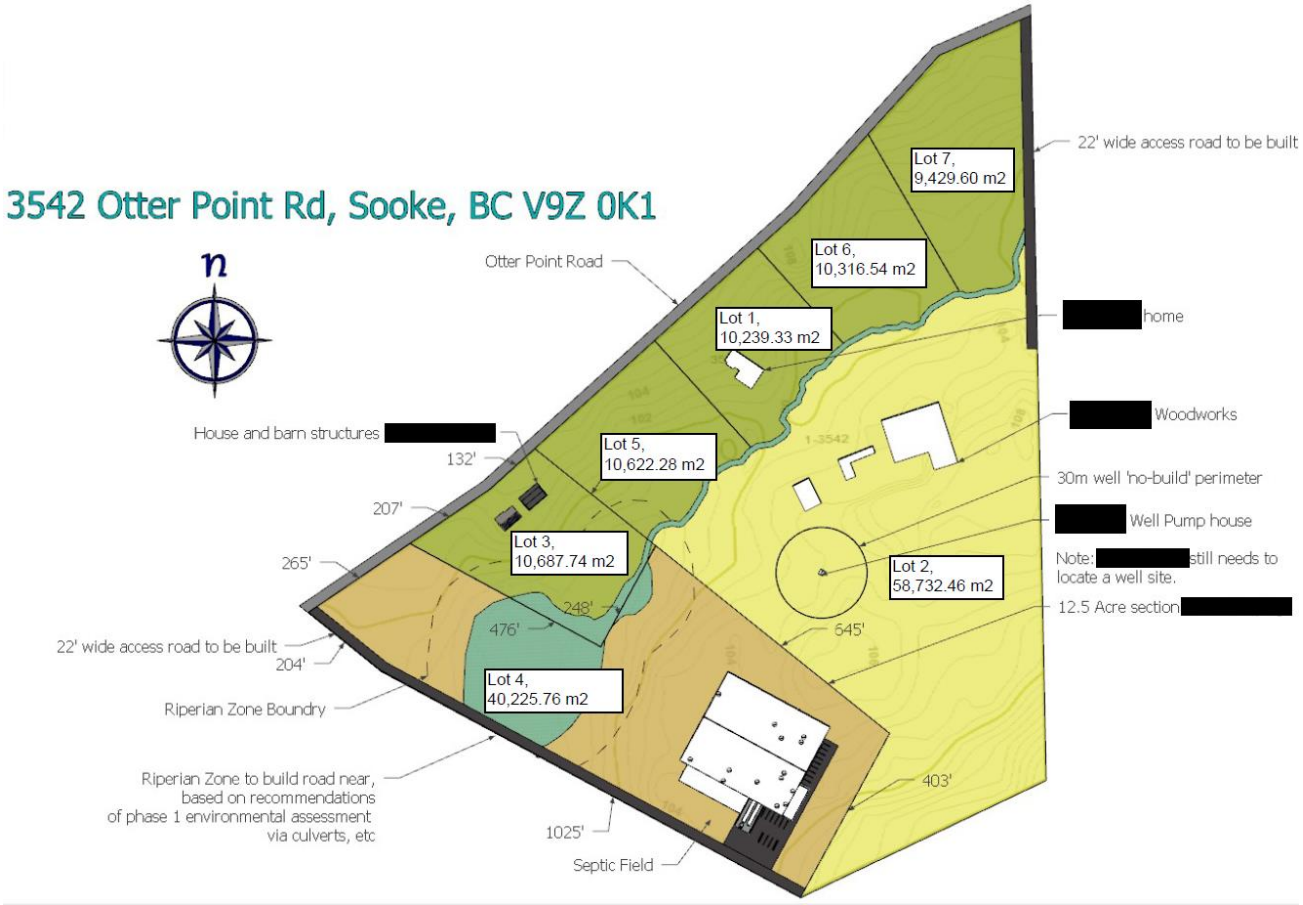
This document addresses the requirements in Section 5.3.1 of Capital Regional District (CRD) Bylaw No. 3819 and provides an assessment on the environmental conditions on the property, potential impacts of the proposed development of access and clearing for building construction, and recommendations on protection of environmentally sensitive features and methods to minimize impacts of the proposed development.

1.1 PROJECT BACKGROUND

The landowner [redacted] are subdividing the property at 3542 Otter Point Road, which is approximately 37 acres (15 ha). Currently, an access road and a residence are located near the mid-point of the northwestern property line (see Figure 1). Further along the access road, the property owner operates a sawmill and logging operation (Photo 1). With the exception of the trees immediately adjacent to the watercourse and wetland, the southern two thirds of the property have been logged recently (Photo 2). Due to the recent timing for logging, the removal of trees in this area is not reflected on the available aerial imagery.

The property owner intends to subdivide the property into five residential lots and two 4 hectare lots for a sawmill and aquaponics facility. The current owner will retain ownership of the eastern portion of the property where the existing residence and sawmill are located (Lots 1a-d and 2). The western portion will be divided into to two lots, approximately 1 hectare (2.47 acres) for the road side (northern) Lot 3 and 3.5 hectare (8.64 acres) for the southern Lot 4 (Figure 1). The plan for the property is subdivision, and re-zoning of Lots 1a-d and 3 to residential and Lots 2 and 4 to light industrial (or zoning designated by CRD with review of planned land use.

Figure 1 – 3542 Otter Point Road – Proposed Subdivision



1.2 REGULATORY FRAMEWORK

This environmental assessment is designed to comply with the provisions set out in the Otter Point Official Community Plan (OCP) for development permit areas and for compliance with the provisions for environmental protection contained in the following relevant legislation:

Municipal

- Capital Regional District Otter Point OCP, Bylaw No. 3819

  Development Permit Area No. 3: Watercourses and Wetland Areas. Defined as the area within 30 metres (100 feet) of the natural boundary of watercourses, wetlands and lakes as outlined on Map 5c. Designated as a Development Permit Area, the "Watercourses DPA", under Section 919.1(1)(a) of the Local Government Act, for protection of the natural environment, its ecosystems and biological diversity.

- The property is zoned as Rural A. Bylaw No. 3819 states:

  Building strata development on Rural A zoned lands is not supported. However, for Rural A parcels created prior to adoption of this Plan, a rezoning could be considered to permit a subdivision which would permit a density of 1 parcel per ha up to 4 ha and 1 parcel per 2 ha for each additional 2 ha portion of the property; (page 21, Section 3.1.1.d.).

  The plan for the property is subdivision, and re-zoning of the 1 hectare and 4 hectare lots only, Lots 1a-d are planned to remain the same: no change in land-use, averaging 1 ha each, R2 zoning.

Provincial

British Columbia Wildlife Act (1996)

Invasive Species Council of British Columbia

BC Weed Control Act (1996, current as of October 2016)

Federal

Migratory Birds Act (1994)

2 ENVIRONMENTAL SITE ASSESSMENT

Corvidae completed a site visit on February 19, 2019 as part of the subdivision application and subsequent re-zoning application for Lots 2 and 3. A qualified professional biologist (QEP) walked the the property subject to the proposed subdivision and examined any Environmentally Sensitive Areas, specifically the wetland and watercourses on the property. Appendix A shows photos of the property taken during the field visit.

2.1 LANDSCAPE AND SOILS

Soils in the Biogeoclimatic zone are typically moderately deep Orthic Humo-Ferric Podzols with Hemimor humus forms (Pojar et al. 1991). The soils on the site were a sandy clay loam.

The topography of the property is varied. The property generally slopes from the back (southern side) north towards the watercourse and wetland area, and from Otter Point Road south to the wet areas. Throughout the upland areas on the property there are small undulations, both natural and those created by logging access and equipment.

2.2 VEGETATION

The project is located within the Coastal Western Hemlock (CWH) biogeoclimatic zone, and specifically in the western variant of the Very Dry Maritime subzone (classified as CWHxm2). Drier subzones of the CWH are typically dominated by components of western hemlock (*Tsuga heterophylla*), Douglas-fir (*Pseudotsuga menziesii*) and western red cedar (*Thuja plicata*) (Pojar et al. 1991). Salal (*Gaultheria shallon*), dull Oregon- grape (*Mahonia nervosa*), and red huckleberry (*Vaccinium parvifolium*) typify the poorly to moderately developed shrub layer. Oregon beaked moss (*Kindbergia oregana*), step moss (*Hylocomium splenden*), lanky moss (*Rhytidiadelphus loreus*), and flat moss (*Plagiothecium undulatum*) dominate the well-developed moss layer (Pojar et al. 1991).

The property was once entirely forested, but currently only the portion closest to the road and surrounding the wetland contain mature coniferous forest. In addition to the clear cut on the rear two-thirds of the property, a small area in the western portion of the property near the road has been cleared (Photo 3). The wetland is dominated with shrubs and sedges (Photos 4 and 5), and mature alder trees (Photo 6) along the western property line. During the site assessment the species in Table 1 were found on the site.

Table 1. Plant Species observed on site during field visit on February 19, 2019.

Common Name	Scientific Name	BC Provincial Status[1]	*SARA* Schedule 1 Status[2]
Western redcedar	*Thuja plicata*	Yellow	--
Western hemlock	*Tsuga heterophylla*	Yellow	--
Douglas-fir	*Pseudotsuga menziesii*	Yellow	--
Big leaf maple	*Acer macrophyllum*	Yellow	--
Red alder	*Alnus rubra*	Yellow	--
Salal	*Gaultheria shallon*	Yellow	--
Sword fern	*Polystichum munitum*	Yellow	--
Deer fern	*Blechnum spicant*	Yellow	--
Evergreen huckleberry	*Vaccinium ovatum*	Yellow	--
Common rush	*Juncus laccatus*	Yellow	--

Common Name	Scientific Name	BC Provincial Status[1]	*SARA* Schedule 1 Status[2]
Grass sp.	--	--	--
Sedge sp.	--	--	--
Salmonberry	*Rubus spectabilis*	Yellow	--
Hardhack	*Spiraea douglasii*	Yellow	--
Himalayan blackberry	*Rubus armeniacus*	Invasive	--
English holly	*Ilex aquifolium*	Invasive	--

[1] BC Conservation Data Centre (CDC) 2019
[2] Government of Canada 2019

2.3 WILDLIFE

The forested habitat is found in the Coastal Western Hemlock biogeoclimatic zone is home to many wildlife species. Black-tailed deer, black bear, marten and gray wolf are the most common large mammals in this zone on Vancouver Island. For bird species in this zone, the following typically occur: great horned owl, barred owl, ruffed grouse, band-tailed pigeon, northern flicker, hairy woodpecker, common raven, Steller's jay, chestnut-backed chickadee, red-breasted nuthatch, varied thrush, red-tailed hawk, Townsend's warbler. For amphibians, the following can occur: western toad, Pacific treefrog, western redbacked salamander. (Pojar et al. 1991)

Wildlife habitat present on the property includes mature forest, riparian habitat and wetland habitat. No wildlife species of concern were observed in the project area during the site visit. No dens, nests or burrows were found. No bird nests or amphibians were observed during the assessment, however, the timing of the field visit, and the weather conditions were not suitable for breeding bird or amphibian surveys.

During the site assessment the species in Table 2 were found on the site.

Table 2. Wildlife Species observed on site during field visit on February 19, 2019.

Common Name	Scientific Name	BC Provincial Status[1]	*SARA* Schedule 1 Status[2]
Pacific wren	*Troglodytes pacificus*	Yellow	--
Oregon junco	*Junco hyemalis*	Yellow	--
Chestnut-backed chickadee	*Poecile rufescens*	Yellow	--
American robin	*Turdus migratorius*	Yellow	--
Douglas's squirrel (tracks)	*Tamiasciurus douglasii*	Yellow	--
Black-tailed deer (tracks and scat)	*Odocoileus hemionus columbianus*	Yellow	--

[1] BC CDC 2019
[2] Government of Canada 2019

2.4 SPECIES AT RISK

A query of the BC CDC iMap tool yielded occurrences of the following 2 species at risk within a two-kilometer radius of the property (BC CDC 2019). Species are listed in Table 3 and the location of occurrences in relation to the property is provided in Figure 2.

Table 3. Species at Risk that may occur in the vicinity of 3542 Otter Point Road

Common Name	Scientific Name	BC Provincial Status[1]	*SARA* Schedule 1 Status[2]
Ermine, anguinae subspecies	*Mustela erminea anguinae*	Blue-listed	--
Painted Turtle - Pacific Coast Population	*Chrysemys picta pop. 1*	Red-listed	Endangered

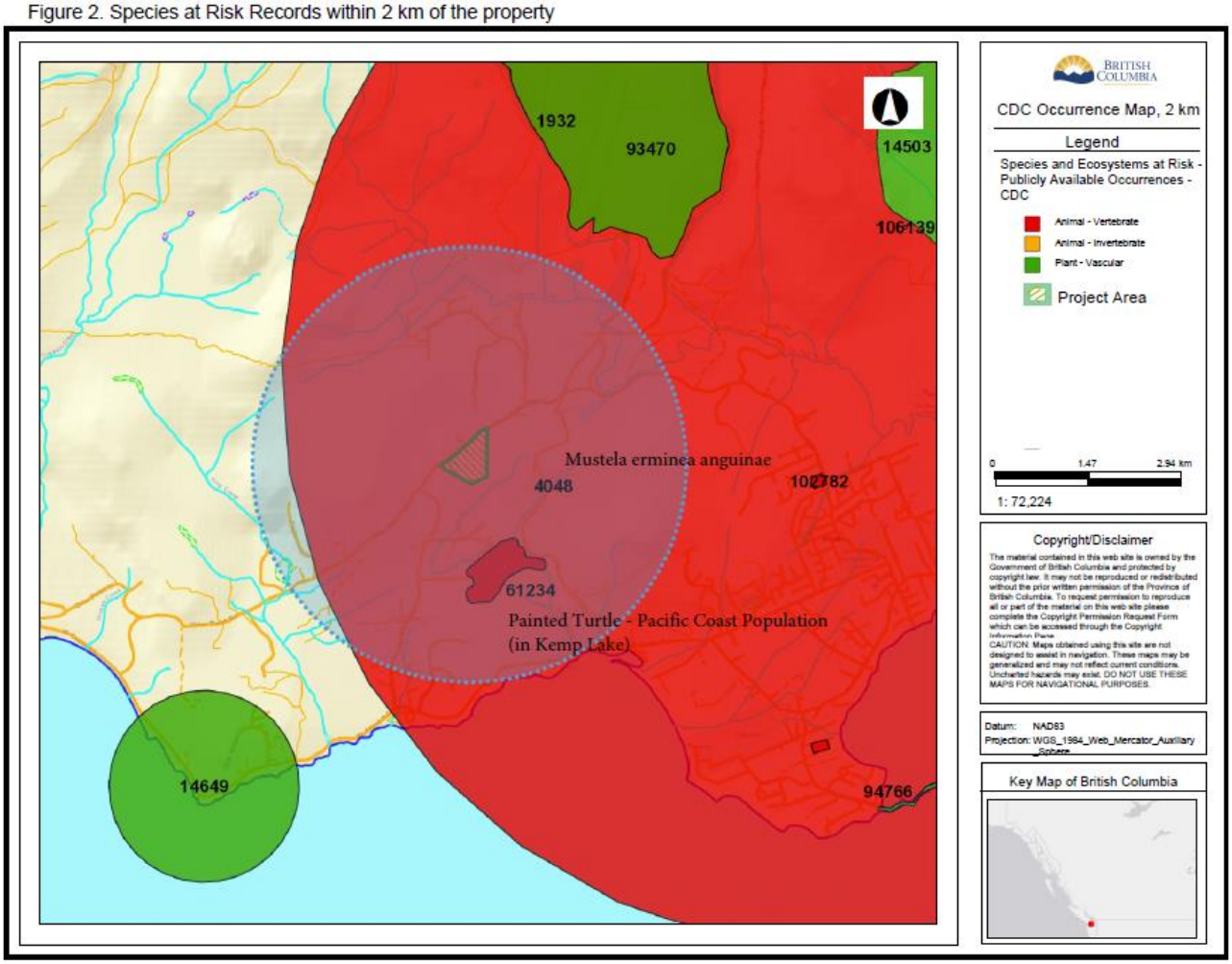
[1] BC CDC 2019
[2] Government of Canada 2019

The ermine (Mustela erminea anguinae) is widespread throughout BC in a variety of habitats (e.g. forests, meadows, wetlands, agricultural and cultivated fields) and over a wide elevation range. Foraging habitat for this species is present on the forested portions of the property.

The Keen's Myotis (*Myotis keenii*), a cave-roosting bat species, occurs at elevations of 0 to 1100 m above sea level. Foraging occurs over a wide variety of habitat including intertidal areas, estuaries, upland forests, wetlands, and riparian areas. Suitable rock crevices or caves do not occur on the property, however, suitable foraging habitat is present.



Figure 2. Species at Risk Records within 2 km of the property



2.5 RIPARIAN AREAS AND AQUATIC ECOSYSTEMS

A large wetland is present on the property in the southwest portion, included in the area mapped as a Riparian/Wetland Sensitive Ecosystem by CRD. During the site visit on February 19, 2019, the boundaries of the wetland were mapped (Figure 1).

The wetland is fed by an unmapped watercourse (drainage/creek) running from the northeastern most corner of the property, between the existing residential and sawmill areas. The watercourse passes under the sawmill access road through a culvert. On the downstream side of the culvert, the watercourse opens into a marshy wetland area. This continues through the riparian forest (Photo 7) to the large wetland in the property's southwest. A small portion of the watercourse is channelized (Photo 8), however, the majority is wide and marshy (Photo 5).

The site visit was done in late winter, during the wettest season, and therefore likely measured the wetland at its most saturated. In the summer, the wetland area will be much drier than during the field visit, as evident by the type of vegetation.

Along the property's southwestern boundary, the wetland and riparian areas are constrained by historical addition of fill to the neighbouring property (Photo 9). Approximately 500 m downstream, the drainage is dammed and used as a water supply for agriculture (ALM Farm).

There are no fish occurrence records on the property, and the watercourse and wetland do not provide suitable fish habitat due to the shallow, seasonal nature of the wetland and creek flow, and because the dam downstream would serve as a barrier to fish passage.

Adjacent to the watercourse and wetland is riparian habitat. The wet areas are in a depression on the property, and the terrain slopes upwards on both sides. Therefore, the vegetation transitions from riparian vegetation to upland forest within 5 to 20 m of the watercourse and wetland periphery. A preliminary 30 m SPEA has been applied to the mapped wetland boundary in Figure 1. This 30 m setback is in accordance with the CRD Bylaw No. 3819, as stated in Section 1.2 of this report.

3 POTENTIAL ENVIRONMENTAL EFFECTS

The potential impacts from the project on the environment will be:

- loss of existing vegetation and disturbance of soils,
- introduction and spread of invasive plant species,
- change in wildlife habitat availability and wildlife mortality risk,
- sediment movement in the project area, and
- modification of the wetland and riparian habitat.

These impacts have already occurred on the eastern and southeastern areas of the property where logging activities and lumber operations are ongoing. Historically there has been disturbance to the northwest area (Lot 2) as evident by clearing, an old access road and stumps. This appears to have happened several years, perhaps decades, ago.

If a dwelling is constructed on Lots 3 and 4 there will be similar disturbances – clearing for construction, building foundations and construction of the home, access creation, and surrounding landscaping.

The proposed aquaponic facility on Lot 4 is proposed in the previously cleared area. The facility construction will involve noise and ground disturbance during grading and facility construction. Clearing of vegetation and wetland modification will occur during the creation of the access road to the rear portion of the property.



VEGETATION

Where cleared areas are constructed for facilities, residences and access roads, there will be a permanent loss of vegetation. The potential effects of these changes include loss of biodiversity of plant species and increased susceptibility to invasive plants not only in the cleared area but also in adjacent plant communities. Cleared areas have increased wind strength and increased light and moisture penetration. This may result in changes to the canopy structure and understory plant species in the adjacent forest.

Invasive plants are particularly adept at colonizing degraded plant communities and disturbed soils in high traffic areas, such as the margins of roads and parking areas. Invasive plants establish readily in disturbed areas as they have a wide ecological tolerance and grow and propagate quickly. The effects of invasive plant establishment may be the reduction or displacement native species by capturing resources and occupying habitats.

WILDLIFE AND WILDLIFE HABITAT

Clearing and construction of the project will alter habitat structure and result in direct habitat loss or alteration. This will directly impact the forested, riparian and wetland habitats. Habitat loss and alteration can cause displacement of wildlife, use of less suitable habitat, reduced foraging ability (Bird et al. 2004), increased energy expenditure (Jalkotzy et al. 1997) and lower reproductive success (Habib et al. 2007).

Reduced habitat effectiveness can occur as a result from the creation of habitat edges, habitat fragmentation, or sensory disturbance (e.g., noise, artificial light, proximity to facilities and infrastructure, human activity and traffic). The effectiveness of wildlife habitat may be affected by sensory disturbance such as noise associated with construction and long-term activities at the aquaponics facility. Noise effects on wildlife can potentially include habitat loss through avoidance, increased energy expenditure, changes in normal behaviours (e.g., feeding) and impaired communication between individuals, such as songbirds. In addition, reduction in habitat connectivity may create barriers to wildlife movement. Many wildlife species avoid crossing openings or move more slowly in open areas (Jalkotzy et al. 1997), effectively resulting in habitat fragmentation.

During clearing and construction of the Project, there will be an increase wildlife mortality risk. Wildlife mortality may occur due to wildlife collisions with vehicles or equipment, loss or disruption of habitat (e.g., clearing and soil handling has potential to destroy nests, dens, overwintering sites), sensory disturbance (i.e., nest abandonment) and human conflict.

WETLAND MODIFICATION AND SEDIMENT CONTROL

Installation of the access road through the wetland and riparian habitat will alter the hydrological patterns of the drainage. The unmapped watercourse has been modified historically for the installation of the sawmill access road and culvert. Existing extensive modification and addition of fill has also occurred on the adjacent property to the west. Implementation of mitigation measures will serve to restore and maintain the drainage of water to the southwest.

Removal of vegetation and ground disturbance may expose soils to erosion and can result in the movement of sediment on the property. Damage or degradation of soil surfaces during construction can include loss of soil structure, increased erosion, and soil compaction, which can negatively affect post-construction reclamation efforts.

RESIDUAL ENVIRONMENTAL EFFECTS

The rezoning and subdivision of the property will not have any environmental impacts.



The residual environmental impacts of the activities on the property will be reduced by the implementation of the mitigation measures recommended in Section 4 of this report. The environmental disturbance in this rural community will be long-term due to the permanence of the road and buildings; and is considered a moderate impact because of the removal of the vegetation (invasive and otherwise). The moderate impact is due to the logging having already occurred on most of the property prior to the site assessment.

4 RECOMMENDED ENVIRONMENTAL PROTECTION MEASURES

The mitigation measures provided in this report are to meet regulatory requirements and protect habitat. The regulatory requirements include the Section 11 with the provincial government and CRD Bylaw No. 3819. Section 11 is the Apply for a Change Approval or Submit Notification of Instream Work, where a change approval is requested for written authorization to cross a waterbody.

Vegetation clearing should be outside of the migratory bird window (prior to March 15th or after August 15th). Whenever possible, all grading and construction work for the access road and buildings should be done during dry conditions. Construction of the access road should occur when the water levels in the wetland are at their lowest (summer).

PROTECTION OF THE RIPARIAN AREA AND WETLAND

No clearing should occur within the SPEA, with the exception of the access road installation. The SPEA should be clearly marked prior to any clearing or construction, to ensure no disturbance occurs within this sensitive riparian and wetland ecosystem.

ACCESS ROAD INSTALLATION

All construction for the access road to the rear of the property and proposed aquaponic facility site should occur in the dry season, when the water levels in the watercourse and wetland are lowest (or completely dry). Only the area required for the access road (4 m) should be cleared: the boundaries for vegetation clearing should be clearly marked before construction commences.

As part of the Section 11 application, Corvidae will provide the culvert size, length and quantity for the drainage to reach under the access road. The culverts will be directed to the same area where the water is diverted to now, the diversion caused by the fill put in the neighbouring property. The specifications for the culverts, road base, timing and area will all be provided as part of the Section 11 and a Construction Environmental Management Plan to the CRD and the proponent.

POLLUTION CONTROL, FUELING AND SPILL RESPONSE

All equipment accessing the property should be in good working order. Any leaks should be repaired prior to commencing work. Any fueling of equipment will be done with drip-trays underneath on site, on the road or set staging area. There will be no fueling of equipment within 30 m of the watercourse and wetland.

All fuel containers and other potentially deleterious substance containers will be secured so that they may not be emptied or upset by vandals when left overnight in the area.

A large, labeled mobile spill kit capable of mitigating spills of 100 litres of fuel is recommended to be kept on site adjacent. The kit should contain the following materials or equivalent:

- absorbent pads (hydrocarbons and antifreeze)

- absorbent socks (oil, gas & diesel)
- a jar of plug n dike (leak stop compound)
- 1 spill instruction sheet

REVEGETATION

Measures taken to minimize soil degradation and compaction include:

- Maintaining soil structure by excavating the soil layers separately and storing covered with tarps.
- Re-applying the separated topsoil as the surface layer prior to commencing with reclamation and landscaping efforts.
- Revegetating exposed soil as soon as possible following construction.
- Implementing weed management measures as required under the Weed Control Act. This includes:
    - Assessing the source for the gravel and ensuring it is weed free and clean (not full of silt).
    - Cleaning all equipment prior to entering the site to avoid spreading of invasive species.

Corvidae recommends landscaping all disturbed areas with native vegetation to compete with invasive species, reduce irrigation requirements and provide wildlife habitat.

INVASIVE SPECIES

Two invasive species were observed on site: Himalayan blackberry and English holly.

Invasive weed control is difficult for established populations. Immediate eradication of new and small infestations should be a high priority. Hand-pulling and cutting are effective on young plants. All plant material must be disposed of by burning or landfill. Invasive species removal should occur in spring, before the plants flower and seed.

WILDLIFE AND WILDLIFE HABITAT

Measures taken to minimize impacts on wildlife and wildlife habitat include:

- Follow the best management guidelines outlined in:
    - "Guidelines for Amphibian and Reptile Conservation during Urban and Rural Development in British Columbia – 2014" (Ministry of Environment 2014a).
    - "Develop with Care 2014: Environmental Guidelines for Urban and Rural Land Development in British Columbia" (Ministry of Environment 2014b).
- Where suitable, retain habitat that provides shelter for wildlife, such downed logs and standing dead trees.
- Avoid removal of established trees or shrubs, where possible.
- Undertake all vegetation clearing and access road construction outside the amphibian breeding season (March 15 to August 15; Environment Canada 2017). If this is not possible, a QEP must conduct pre-construction surveys to identify any breeding activity within the footprint and recommend appropriate mitigation.



- Undertake all vegetation clearing outside the bird migratory season and breeding bird window (March 15 to August 15; Environment Canada 2017). This will include the breeding window for raptors particularly for eagles and osprey which extends from January to August (Ministry of Environment 2014). If this is not possible, a QEP must conduct pre-construction surveys to identify any nesting activity within the footprint and recommend appropriate mitigation.

EROSION AND SEDIMENT CONTROL MEASURES

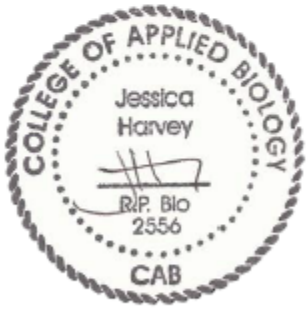
The primary focus of erosion and sediment control planning is erosion control; if there is no erosion then there is no sediment. Erosion control is far more cost effective to implement and manage than sediment control.

Site specific controls have been developed based on a site visit and experience from past projects. Erosion controls, listed in Table 4, are recommended to be maintained for the duration of building any dwellings and removed completely following landscaping.

Table 4. Erosion and Sediment Control Mitigation Measures

Activity	Potential Impacts	Mitigation Measures
Clearing of existing vegetation	Exposure of underlying soils to erosion	Install silt fencing to prevent sediment laden runoff from entering the watercourse or wetland. Minimize amount of time soils are exposed, plant native vegetation and landscaping materials within the growing season following removal of non-native vegetation and landscaping.
General construction	Sediment laden runoff	Store soils in dry, flat areas, outside of the SPEA.
Restoration and native vegetation	--	Planting of native species of grasses, shrubs and trees in the green space areas, which naturally have deep roots to aid in soil stabilization, compete against weeds and do not require irrigation.

Report Prepared By:





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APPENDIX A – SITE PHOTOGRAPHS

Photo 1. Clearcut area and existing sawmill. February 19, 2019.



Photo 2. Recently clearcut area (proposed Lot 3 and proposed location of aquaponics facility). February 19, 2019.



Photo 3. Cleared area in western portion of the property (proposed Lot 2) near Otter Point Road. February 19, 2019.



Photo 4. Open wetland area at 3542 Otter Point Road. February 19, 2019.



Photo 5. Sedge dominated wetland area with mature forest adjacent. February 19, 2019.



Photo 6. Mature alder with shrubby understory at the westernmost margin of the wetland. February 19, 2019.



Photo 7. Mature forest habitat adjacent to the watercourse and wetland. February 19, 2019.



Photo 8. Channelized portion of the unmapped watercourse on the property. February 19, 2019.



Photo 9. Filled area on adjacent property to the west of 3542 Otter Point Road (view north). February 19, 2019.





CONDITIONS AND IMPACT REPORT
FOR 3542 OTTER POINT ROAD

PREPARED FOR:

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PLANNING AND PROTECTIVE SERVICES DEPARTMENT,
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CORVIDAE PROJECT #2019-010
FEBRUARY 2020

CORVIDAE
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6526 WATER STREET, SOOKE, BC

SOLUTION ORIENTED. PROTECTION OF THE ENVIRONMENT. ABSOLUTE INTEGRITY. OPEN COMMUNICATION. RESPECT.

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Photo 6. Mature alder with shrubby understory at the westernmost margin of the wetland. Uncleared. 16

CAVEAT

This Conditions and Impacts (C&I) Report has been prepared with the best information available at the time of writing, including the Otter Point Official Community Plan, communications with the client and regulators, site visits, review of historical imagery, site plans and design drawings and other documentation relevant to the project. This C&I has been developed to assist the project in remaining in compliance with relevant environmental regulations, acts and laws pertaining to the project and to identify and mitigate the expected impacts of the project and reclamation activities directly related to the project.

1 INTRODUCTION

Corvidae Environmental Consulting Inc. (Corvidae) is pleased to provide this Conditions and Impacts (C&I) Report for the proposed rezoning and subdivision of 3542 Otter Point Road (the property), property ID 009499369, zoning Rural A.

This document addresses the requirements in Section 5.3.1 of Capital Regional District (CRD) Bylaw No. 3819 and provides an assessment on the current environmental conditions on the property, recent environmental impacts, potential impacts of the rezoning and subdivision, and replanting plans for areas that have been disturbed within the 30 m riparian area.

1.1 PROJECT BACKGROUND

The landowner ([redacted]) are subdividing the property at 3542 Otter Point Road, which is approximately 37 acres (15 ha). Currently, an access road and a residence are located near the mid-point of the northwestern property line (see Figure 1). Further along the access road, the property owner operates a sawmill and logging operation (Photo 1). With the exception of the trees immediately adjacent to the watercourse and wetland, the property has been logged (Photo 2).

The property owner intends to subdivide the property into seven lots – 6 residential and one Light Industrial – Sawmill (see Figure 1). The size and dimensions of the property are provided in Figure 1.

1.2 CURRENT CONDITIONS AND EXISTING DISTURBANCE

The property was purchased in 2007 by the current owners. A detailed Stage I Preliminary Site Investigation has been completed, with a historical review of the property. A sawmill is located on the eastern side of the property and has been there since the 1970's. Operations continue under the current owners as a custom woodworking sawmill.

In 2019 the entire property was logged, with the exception of the area around the wetland and along the water drainage.

1.3 CURRENT AND FUTURE DISTURBANCE

The owner is currently operating the sawmill and continuing business a previously done. For all residential planning and future development, if any disturbance is proposed within the 30 m Riparian Area a Riparian Area Report and provincial application will be required.

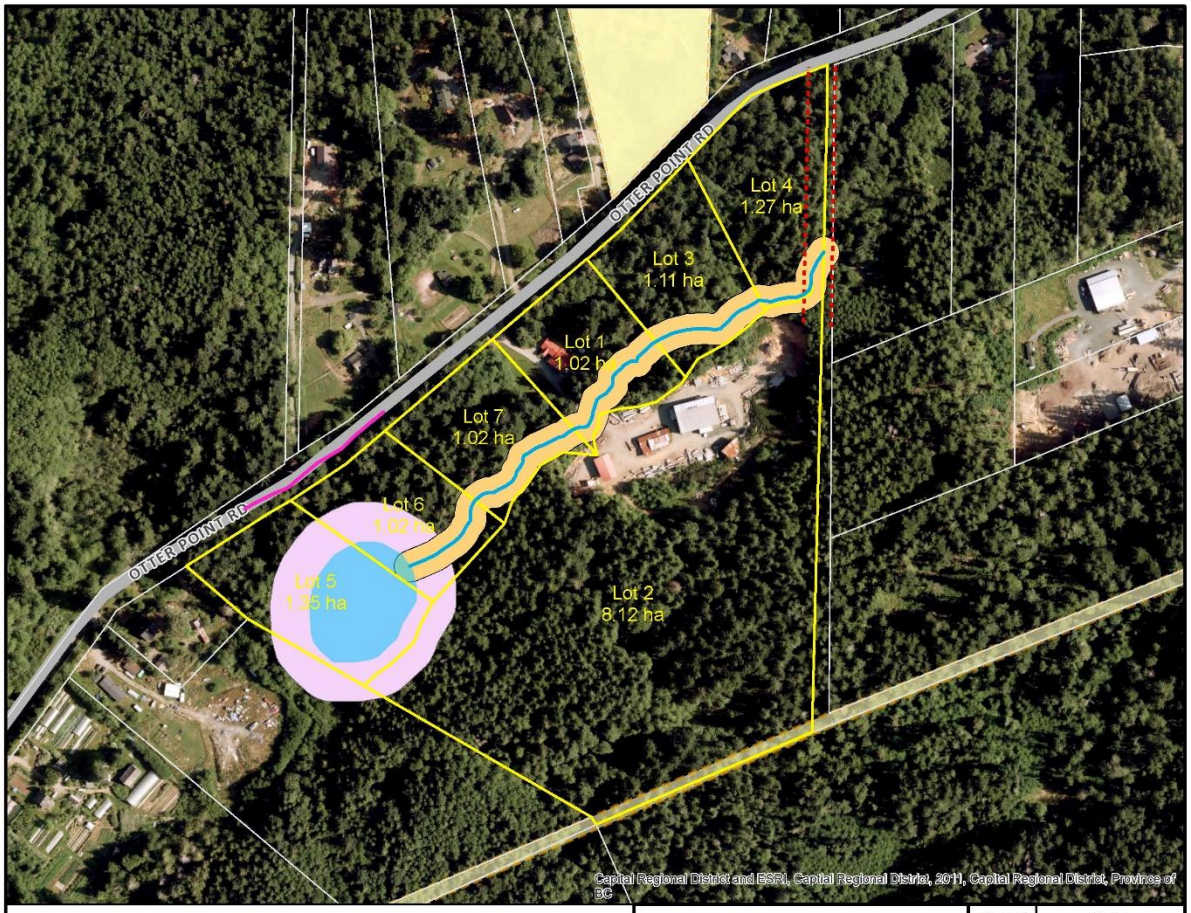


Figure 1: Project Area and Environmental Features

Water Way
Existing Access
Proposed new access to saw mill
CRD Right of Way
Study Site
Wetland
Waterway Buffer
Wetland Buffer
N
0 100 200 400 Meters

Project: 3542 Otter Point Road Site Plan 20190606
DataBC, Capital Regional District Orthophotos

CORVIDAE ENVIRONMENTAL CONSULTING INC

Rev. #	Date
0	November 8, 2019
1	November 10, 2019
2	November 22, 2019
3	November 26, 2019
4	January 21, 2020

Corvidae Project No.
COR-2019-010

Drawing No. 4

1.4 REGULATORY FRAMEWORK

This environmental assessment is designed to comply with the provisions set out in the Otter Point Official Community Plan (OCP) for development permit areas and for compliance with the provisions for environmental protection contained in the following relevant legislation:

Municipal

- Capital Regional District Otter Point OCP, Bylaw No. 3819

  Development Permit Area No. 3: Watercourses and Wetland Areas. Defined as the area within 30 metres (100 feet) of the natural boundary of watercourses, wetlands and lakes as outlined on Map 5c. Designated as a Development Permit Area, the "Watercourses DPA", under Section 919.1(1)(a) of the Local Government Act, for protection of the natural environment, its ecosystems and biological diversity.

  The "Watercourses DPA" applies to all streams subject to the provincial Riparian Areas Regulation as well as mapped lakes, wetlands, ponds and other watercourses which are not subject to the Riparian Areas Regulation. For a stream subject to the Riparian Areas Regulation the assessment area is defined by the Regulation.

The guiding principle for the use of Development Permits is found within the Local Government Act. Development Permit Areas can be designated for purposes such as, but not limited to the following:

  - Protects, enhances and restores the biodiversity and ecological values and functions of environmentally sensitive areas.
  - Fosters compatibility between development, existing land uses and environmentally sensitive areas.
  - Maintains connectivity between sensitive ecosystems; and
  - Protects water quality and quantity.

- The property is zoned as Rural A. Bylaw No. 3819 states:

  Building strata development on Rural A zoned lands is not supported. However, for Rural A parcels created prior to adoption of this Plan, a rezoning could be considered to permit a subdivision which would permit a density of 1 parcel per ha up to 4 ha and 1 parcel per 2 ha for each additional 2 ha portion of the property; (page 21, Section 3.1.1.d.).

  The plan for the property is subdivision, and re-zoning of the 1 hectare and 3.5 hectare lots only, Lot 1 is planned to remain the same (no change in land-use, >4 ha) with no re-zoning.

Provincial

British Columbia Wildlife Act (1996)

Invasive Species Council of British Columbia

BC Weed Control Act (1996, current as of October 2016)

Federal

Migratory Birds Act (1994)

2 CONDITIONS AND IMPACT ASSESSMENT

Corvidae completed a site visit in February, March, June and July of 2019, and again in January 2020, as part of the subdivision application and subsequent re-zoning application for the property. A qualified professional biologist (QEP) assessed the property subject and examined any Environmentally Sensitive Areas, specifically the wetland and watercourses on the property, and recent logging. Appendix A shows photos of the property taken during the field visit.

2.1 LANDSCAPE AND SOILS

Soils in the Biogeoclimatic zone are typically moderately deep Orthic Humo-Ferric Podzols with Hemimor humus forms (Pojar et al. 1991). The soils on the site were a sandy clay loam.

The topography of the property is varied. The property generally slopes from the back (southern side) north towards the watercourse and wetland area, and from Otter Point Road south to the wet areas. Throughout the upland areas on the property there are small undulations, both natural and those created by logging access and equipment.

2.2 VEGETATION

The project is located within the Coastal Western Hemlock (CWH) biogeoclimatic zone, and specifically in the western variant of the Very Dry Maritime subzone (classified as CWHxm2). Drier subzones of the CWH are typically dominated by components of western hemlock (*Tsuga heterophylla*), Douglas-fir (*Pseudotsuga menziesii*) and western red cedar (*Thuja plicata*) (Pojar et al. 1991). Salal (*Gaultheria shallon*), dull Oregon- grape (*Mahonia nervosa*), and red huckleberry (*Vaccinium parvifolium*) typify the poorly to moderately developed shrub layer. Oregon beaked moss (*Kindbergia oregana*), step moss (*Hylocomium splenden*), lanky moss (*Rhytidiadelphus loreus*), and flat moss (*Plagiothecium undulatum*) dominate the well-developed moss layer (Pojar et al. 1991).

The property was once entirely forested, but currently only the portion closest to the road and surrounding the wetland contain mature coniferous forest. In addition to the clear cut on the rear two-thirds of the property, a small area in the western portion of the property near the road has been cleared (Photo 3). The wetland is dominated with shrubs and sedges (Photos 4 and 5), and mature alder trees (Photo 6) along the western property line. During the site assessment the species in Table 1 were found on the site.

Table 1. Plant Species observed on site during field visit.

Common Name	Scientific Name	BC Provincial Status[1]	*SARA* Schedule 1 Status[2]
Western redcedar	*Thuja plicata*	Yellow	--
Western hemlock	*Tsuga heterophylla*	Yellow	--
Douglas-fir	*Pseudotsuga menziesii*	Yellow	--
Big leaf maple	*Acer macrophyllum*	Yellow	--
Red alder	*Alnus rubra*	Yellow	--
Salal	*Gaultheria shallon*	Yellow	--
Sword fern	*Polystichum munitum*	Yellow	--
Deer fern	*Blechnum spicant*	Yellow	--
Evergreen huckleberry	*Vaccinium ovatum*	Yellow	--
Common rush	*Juncus laccatus*	Yellow	--

Common Name	Scientific Name	BC Provincial Status[1]	*SARA* Schedule 1 Status[2]
Grass sp.	--	--	--
Sedge sp.	--	--	--
Salmonberry	*Rubus spectabilis*	Yellow	--
Hardhack	*Spiraea douglasii*	Yellow	--
Himalayan blackberry	*Rubus armeniacus*	Invasive	--
English holly	*Ilex aquifolium*	Invasive	--

[1] BC Conservation Data Centre (CDC) 2019
[2] Government of Canada 2019

2.3 WILDLIFE

The forested habitat is found in the Coastal Western Hemlock biogeoclimatic zone is home to many wildlife species. Black-tailed deer, black bear, marten and gray wolf are the most common large mammals in this zone on Vancouver Island. For bird species in this zone, the following typically occur: great horned owl, barred owl, ruffed grouse, band-tailed pigeon, northern flicker, hairy woodpecker, common raven, Steller's jay, chestnut-backed chickadee, red-breasted nuthatch, varied thrush, red-tailed hawk, Townsend's warbler. For amphibians, the following can occur: western toad, Pacific treefrog, western redbacked salamander. (Pojar et al. 1991)

Wildlife habitat present on the property includes mature forest, riparian habitat and wetland habitat. No wildlife species of concern were observed in the project area during the site visit. No dens, nests or burrows were found. No bird nests or amphibians were observed during the assessment, however, the timing of the field visit, and the weather conditions were not suitable for breeding bird or amphibian surveys.

During the site assessments the species in Table 2 were found on the site.

Table 2. Wildlife Species observed on site during field visit on February 19 and March 19, 2019.

Common Name	Scientific Name	BC Provincial Status[1]	*SARA* Schedule 1 Status[2]
Pacific wren	*Troglodytes pacificus*	Yellow	--
Oregon junco	*Junco hyemalis*	Yellow	--
Chestnut-backed chickadee	*Poecile rufescens*	Yellow	--
American robin	*Turdus migratorius*	Yellow	--
Douglas's squirrel (tracks)	*Tamiasciurus douglasii*	Yellow	--
Black-tailed deer (tracks and scat)	*Odocoileus hemionus columbianus*	Yellow	--

[1] BC CDC 2019
[2] Government of Canada 2019

2.4 SPECIES AT RISK

A query of the BC CDC iMap tool yielded occurrences of the following 2 species at risk within a two-kilometer radius of the property (BC CDC 2019). Species are listed in Table 3 and the location of occurrences in relation to the property is provided in Figure 2.



Table 3. Species at Risk that may occur in the vicinity of 3542 Otter Point Road

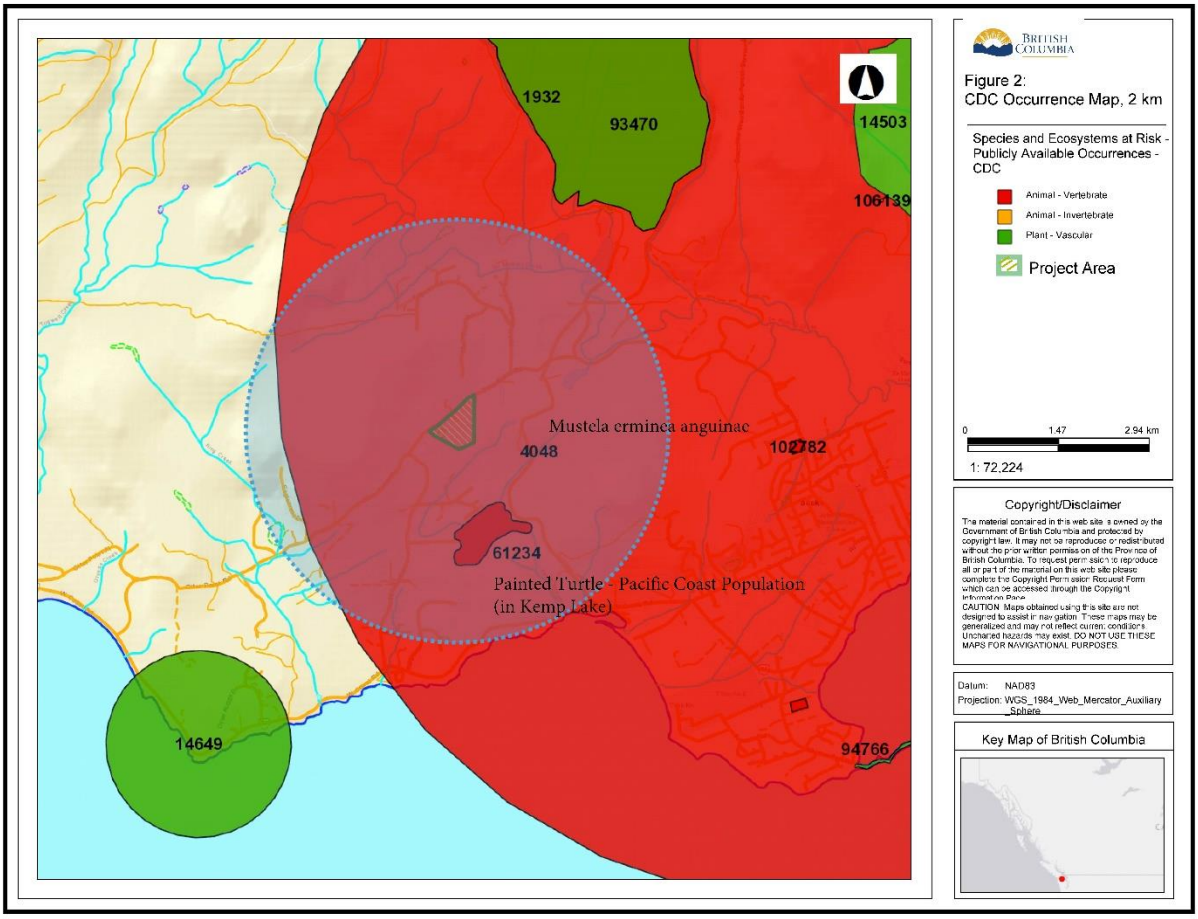
Common Name	Scientific Name	BC Provincial Status[1]	*SARA* Schedule 1 Status[2]
Ermine, anguinae subspecies	*Mustela erminea anguinae*	Blue-listed	--
Painted Turtle - Pacific Coast Population	*Chrysemys picta pop. 1*	Red-listed	Endangered

[1] BC CDC 2019
[2] Government of Canada 2019

The ermine (Mustela erminea anguinae) is widespread throughout BC in a variety of habitats (e.g. forests, meadows, wetlands, agricultural and cultivated fields) and over a wide elevation range. Foraging habitat for this species is present on the forested portions of the property.

The Keen's Myotis (*Myotis keenii*), a cave-roosting bat species, occurs at elevations of 0 to 1100 m above sea level. Foraging occurs over a wide variety of habitat including intertidal areas, estuaries, upland forests, wetlands, and riparian areas. Suitable rock crevices or caves do not occur on the property, however, suitable foraging habitat is present.




1932
93470
14503
106139
Mustela erminea anguinae
4048
102782
61234
Painted Turtle - Pacific Coast Population
(in Kemp Lake)
14649
94766
BRITISH COLUMBIA
Figure 2:
CDC Occurrence Map, 2 km
Species and Ecosystems at Risk - Publicly Available Occurrences - CDC
Animal - Vertebrate
Animal - Invertebrate
Plant - Vascular
Project Area
0
1.47
2.94 km
1: 72,224
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Datum: NAD83
Projection: WGS_1984_Web_Mercator_Auxiliary_Sphere
Key Map of British Columbia

2.5 RIPARIAN AREAS AND AQUATIC ECOSYSTEMS

A watercourse running east to west and a wetland is present on the property in the southwest portion, included in the area mapped as a Riparian/Wetland Sensitive Ecosystem by CRD. During the site visit on February 19, 2019, the boundaries of the wetland were mapped (Figure 1).

The wetland is fed by an unmapped watercourse (drainage/creek) running from the northeastern most corner of the property, between the existing residential and sawmill areas. The watercourse passes under the sawmill access road through a culvert. On the downstream side of the culvert, the watercourse opens into a marshy wetland area. This continues through the riparian forest (Photo 7) to the large wetland in the property's southwest. A small portion of the watercourse is channelized (Photo 8), however, the majority is wide and marshy (Photo 5).

The site visit was done in late winter, during the wettest season, and therefore likely measured the wetland at its most saturated. In the summer, the wetland area will be much drier than during the field visit, as evident by the type of vegetation.

Along the property's southwestern boundary, the wetland and riparian areas are constrained by historical addition of fill to the neighbouring property (Photo 9). Approximately 500 m downstream, the drainage is dammed and used as a water supply for agriculture (ALM Farm).

There are no fish occurrence records on the property, and the watercourse and wetland do not provide suitable fish habitat due to the shallow, seasonal nature of the wetland and creek flow, and because the dam downstream would serve as a barrier to fish passage.

Adjacent to the watercourse and wetland is riparian habitat. The wet areas are in a depression on the property, and the terrain slopes upwards on both sides. Therefore, the vegetation transitions from riparian vegetation to upland forest within 5 to 20 m of the watercourse and wetland periphery. A preliminary 30 m SPEA has been applied to the mapped wetland boundary in Figure 1. This 30 m setback is in accordance with the CRD Bylaw No. 3819, as stated in Section 1.2 of this report.

For the watercourse that drains into the wetland, the SPEA calculation is 12 m on both sides. This is following the Riparian Area Regulations and calculating from the high-water mark, the depth and the vegetation characteristics every 5 m for the waterway. Prior to any future development, a detailed Riparian Area Report will be completed, showing methodology, and submitted to the provincial and local government. This report is for the current conditions only, and prescriptions for revegetating disturbed areas within the SPEA.



3 CURRENT ENVIRONMENTAL EFFECTS

The current impacts on the environment from recent activities on the property are:

- Infringement on sensitive ecosystem areas, such as riparian habitat,
- Loss of existing vegetation,
- Potential spread of invasive plant species,
- Change in wildlife habitat availability and wildlife mortality risk.

RIPARIAN HABITAT

The removal of trees in the riparian area results in the loss of features, functions and conditions that are vital for maintaining watercourse health and productivity, including sources of large organic debris, such as fallen trees and tree roots; vegetative cover and shade to help moderate water temperature; provision of food, nutrients and organic matter to the stream; stream bank stabilization; and buffers for streams from excessive silt and surface run-off pollution.

VEGETATION

The effects of tree removal may include loss of biodiversity of plant species and increased susceptibility to invasive plants not only in the cleared area but also in adjacent plant communities. Vegetation in the riparian area immediately adjacent to cleared areas may experience in changes to the canopy structure and understory plant species due windthrow and increased light and moisture penetration.

Invasive plants are particularly adept at colonizing degraded plant communities and disturbed soils in high traffic areas, such as the margins of roads and parking areas. Invasive plants establish readily in disturbed areas as they have a wide ecological tolerance and grow and propagate quickly. The effects of invasive plant establishment may be the reduction or displacement native species by capturing resources and occupying habitats.

WILDLIFE AND WILDLIFE HABITAT

Habitat loss and alteration from tree clearing can cause displacement of wildlife, use of less suitable habitat, reduced foraging ability, increased energy expenditure and lower reproductive success. Reduced habitat effectiveness can occur as a result from the creation of habitat edges, habitat fragmentation, or reduction in habitat connectivity that may create barriers to wildlife movement. Many wildlife species avoid crossing openings or move more slowly in open areas. Removal of riparian habitat will result in the direct loss of habitat for wildlife species that specifically require riparian vegetation and proximity to water.

EROSION AND SEDIMENT MOBILIZATION

Removal of trees has exposed slopes and soils to erosion and can result in the movement of sediment on the property. Damage or degradation of soil surfaces during tree removal can include loss of soil structure, increased erosion, and soil compaction, which can negatively affect post-construction reclamation efforts.

WETLAND MODIFICATION AND SEDIMENT CONTROL

The unmapped watercourse has been modified historically for the installation of the sawmill access road and culvert. Existing extensive modification and addition of fill has also occurred on the adjacent property to the west. Implementation of mitigation measures will serve to restore and maintain the drainage of water to the southwest.

RESIDUAL ENVIRONMENTAL EFFECTS

The rezoning and subdivision of the property will not have any environmental impacts.

The residual environmental impacts of the activities on the property will be reduced by the implementation of the mitigation measures recommended in Section 4 of this report. The environmental disturbance in this rural community will be long-term due to the permanence of the road and buildings; and is considered a moderate impact because of the removal of the vegetation (invasive and otherwise). The moderate impact is due to the logging having already occurred on most of the property prior to the site assessment.

4 RECOMMENDED ENVIRONMENTAL PROTECTION MEASURES

The mitigation measures provided in this report are designed to protect sensitive ecosystems and were developed in accordance with:

- CRD Bylaw No. 3819,
- Procedures for Mitigating Impacts on Environmental Values (Environmental Mitigation Procedures) (BC Ministry of Environment [MOE] 2014a),
- Develop with Care 2014: Environmental Guidelines for Urban and Rural Land Development in British Columbia (BC MOE 2014), and
- Environmental Best Management Practices for Urban and Rural Land Development in British Columbia (BC Ministry of Water, Land and Air Protection 2004).

PROTECTION OF THE RIPARIAN AREA

No further clearing or modification should occur within the SPEA (Figure 1). The SPEA should be clearly marked to ensure no disturbance occurs within this sensitive riparian and wetland ecosystem.

REVEGETATION

Revegetation of disturbed area within the SPEA (12 m on both sides of the waterway and 30 m around the wetland) should be undertaken in the spring. As any trees planted will take a long time to mature, Corvidae suggests planting a mixture of shrubs and tree species in order to prevent invasive species, increase erosion control and slope stability, and provide wildlife habitat. Table 4 provides the species that Corvidae recommends be planted.

In addition to the planting of the SPEA, a treed buffer is required around the perimeter of the sawmill lot. Planting this with cedar and fur trees is recommended, at the same time as the planting of the riparian areas (spring 2020). Spacing should be 5 m apart in a buffer around the entire lot, following tree planting standards with local tree species.

There has also been a lot of natural revegetation in the area, which off-sets the need for planting. This includes sword ferns, alder, salmon berry, Nootka Rose, willow and cedar saplings. During tree planting, the trees will be spaced off existing native vegetation and spaced to allow sunlight through as they grow; i.e. approximately 5 m spacing between trees, and 2 m spacing off of shrubs, 1 m spacing off of small plants such as ferns. A total of 200 trees are recommended for the riparian areas and approximately 300 for the buffer of the sawmill lot.



Table 4. Recommended native vegetation to plant in disturbed riparian area that is currently not vegetated

Common Name	Species
Western redcedar	*Thuja plicata*
Douglas-fir	*Pseudotsuga menziesii*

WILDLIFE AND WILDLIFE HABITAT

The following measures should be taken to minimize impacts on wildlife and wildlife habitat:

- Further disturbance should be completed outside of the migratory bird window (prior to March 15th or after August 15th; Government of Canada 2019).
- Where suitable, retain habitat that provides shelter for wildlife, such downed logs and standing dead trees.
- Avoid additional removal of established trees or shrubs, where possible.

ACCESS ROAD INSTALLATION

All construction for the access road to the sawmill along the eastern boundary of the site should occur in the dry season, when the water levels in the watercourse and wetland are lowest (or completely dry). Only the area required for the access road (20 m) should be cleared: the boundaries for vegetation clearing should be clearly marked before construction commences.

POLLUTION CONTROL, FUELING AND SPILL RESPONSE

All equipment accessing the property should be in good working order. Any leaks should be repaired prior to commencing work. Any fueling of equipment will be done with drip-trays underneath on site, on the road or set staging area. There will be no fueling of equipment within 30 m of the watercourse and wetland.

All fuel containers and other potentially deleterious substance containers will be secured so that they may not be emptied or upset by vandals when left overnight in the area.

A large, labeled mobile spill kit capable of mitigating spills of 100 litres of fuel is recommended to be kept on site adjacent. The kit should contain the following materials or equivalent:

- absorbent pads (hydrocarbons and antifreeze)
- absorbent socks (oil, gas & diesel)
- a jar of plug n dike (leak stop compound)
- 1 spill instruction sheet

INVASIVE SPECIES

Two invasive species were observed on site: Himalayan blackberry and English holly.

Invasive weed control is difficult for established populations. Immediate eradication of new and small infestations should be a high priority. Hand-pulling and cutting are effective on young plants. All plant material must be disposed of by burning or landfill. Invasive species removal should occur in spring, before the plants flower and seed.



EROSION AND SEDIMENT CONTROL MEASURES

The primary focus of erosion and sediment control planning is erosion control; if there is no erosion then there is no sediment. Erosion control is far more cost effective to implement and manage than sediment control.

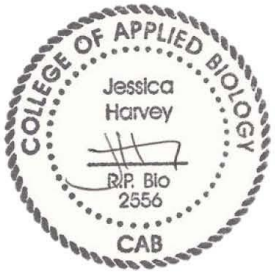
Natural regeneration and planting of native species, which naturally have deep roots, will aid in soil stabilization and erosion prevention.

Site specific controls have been developed based on a site visit and experience from past projects. Erosion controls, listed in Table 4, are recommended to be maintained for the duration of building any dwellings and removed completely following landscaping.

Table 5. Erosion and Sediment Control Mitigation Measures

Activity	Potential Impacts	Mitigation Measures
Clearing of existing vegetation	Exposure of underlying soils to erosion	Install silt fencing to prevent sediment laden runoff from entering the watercourse or wetland. Minimize amount of time soils are exposed, plant native vegetation and landscaping materials within the growing season following removal of non-native vegetation and landscaping.
General construction	Sediment laden runoff	Store soils in dry, flat areas, outside of the SPEA.
Restoration and native vegetation	--	Planting of native species of grasses, shrubs and trees in the green space areas, which naturally have deep roots to aid in soil stabilization, compete against weeds and do not require irrigation.

Report Prepared By:





Jessica Harvey, R.P.Biol., M.Sc.,
Environmental Biologist

Julie Budgen, R.P.Bio., B.Sc.,
Environmental Planner

Corvidae Environmental Consulting Inc.

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APPENDIX A – SITE PHOTOGRAPHS

Photo 1. Clearcut area and existing sawmill.



Photo 2. Lot 2 area



Photo 3. Cleared area in western portion of the property near Otter Point Road.



Photo 4. Open wetland area at 3542 Otter Point Road. Uncleared, with treed buffer area.



Photo 5. Sedge dominated wetland area with mature forest adjacent. Uncleared.



Photo 6. Mature alder with shrubby understory at the westernmost margin of the wetland. Uncleared.



Photo 7. Mature forest habitat adjacent to the watercourse and wetland. Protected riparian area.



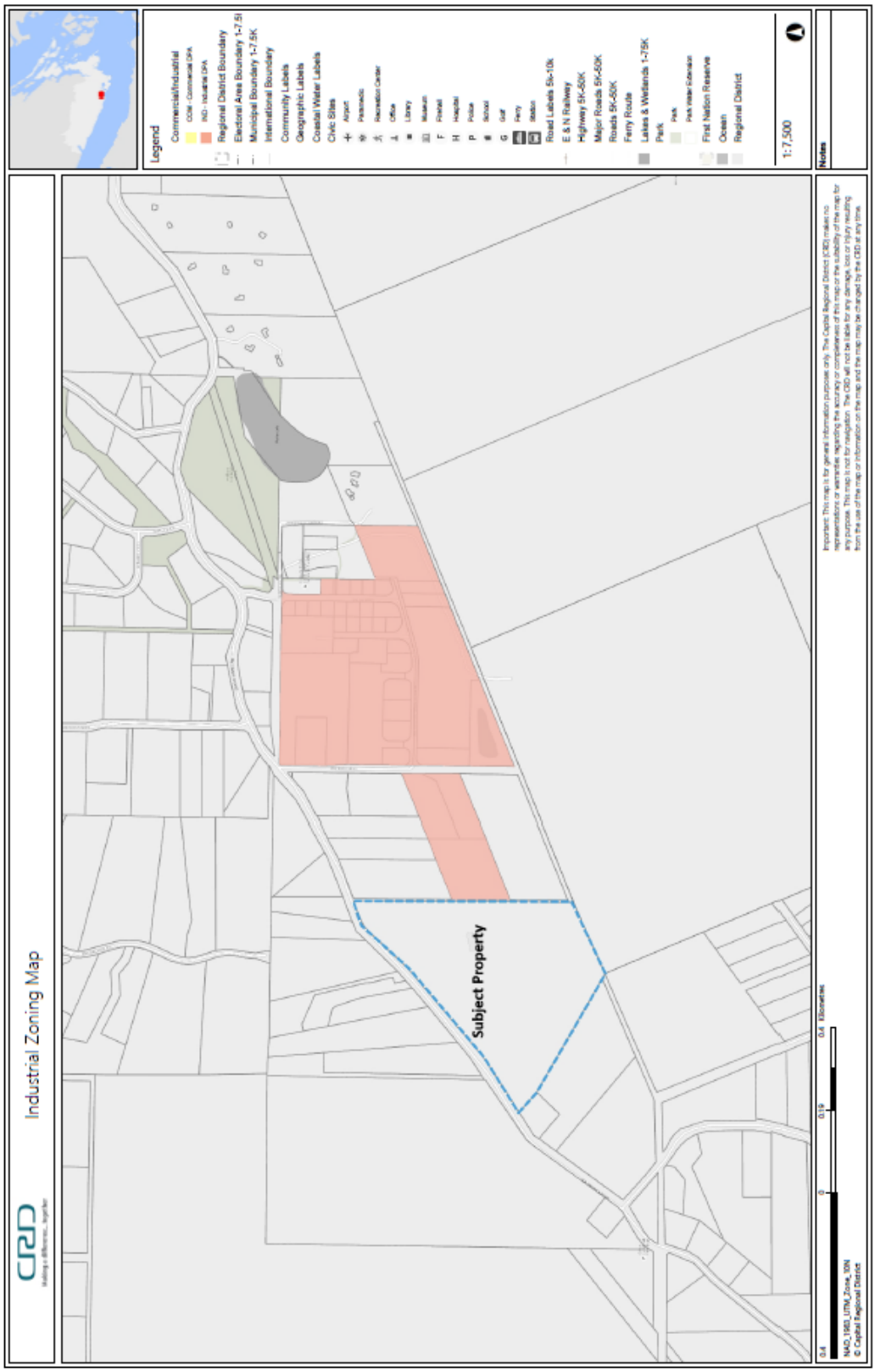
Photo 8. Channelized portion of the unmapped watercourse on the property. Uncleared, protected riparian area.



Photo 9. Filled area on adjacent property to the west of 3542 Otter Point Road (view north).



Appendix I: Industrial Zoning Map



MOVED by Sandy Sinclair, **SECONDED** by Stan Jensen that the Land Use Committee recommends to the Capital Regional District (CRD) Board:

That 5% park land dedication be requested pursuant to Section 510 of the Local Government Act for the proposed subdivision of Parcel A (DD 143426I) of Section 97, Renfrew District, Except that part in Plans 15462, VIP77871 and EPP24972, except that a lesser amount may be acceptable where the owner agrees to dedicate that portion of the subject property required to locate a trail along Parkinson Road to JdF Community Parks and Recreation standards, and that the owner agrees to construct the trail prior to subdivision approval.

CARRIED

8. Zoning and Official Community Plan Amendment Application

a) RZ000267 - That Part of Section 17, Otter District, Lying East of Otter Point Road, Except Parcel C (DD43782I) And Except Parts in Plans 3054 And 17721(3542 & 1-3542 Otter Point Road)

Iain Lawrence advised that the LUC first considered the proposal at its meeting of July 19, 2020. At that meeting the LUC recommended referral of the proposal to agencies. Since the time that referrals were circulated, the applicant has revised the application to rezone the front part of the property to permit six rural residential parcels along Otter Point Road and to rezone the rear portion to permit an industrial sawmill operation. An amendment to the Otter Point Official Community Plan (OCP) is also proposed to designate portions of the property as Watercourses & Wetland Areas and Commercial & Industrial development permit areas.

Iain Lawrence spoke to proposed Bylaw No. 4316, which would rezone the parcel for the requested uses, and to proposed Bylaw No. 4317, which would amend the OCP. It was advised that Bylaw No. 4316 restricts the sawmill parcel from being further subdivided. It was further advised that Bylaw No. 4316 provides the requirement for vegetative screening along the entire length of the sawmill parcel boundaries.

Iain Lawrence summarized the referral comments received, as well as the professional environmental report submitted as part of the application process, as included in the staff report.

Iain Lawrence reported that:

- should the rezoning be supported, the residential parcels will require proof of potable water as part of the subdivision process in the amount of 1,400 litres per day per lot
- the sawmill operation will require a provincial water licence
- discharge associated with the sawmill operation will require provincial authorization under the *Environmental Management Act*
- the Ministry of Transportation and Infrastructure has requested dedication of Weiland Road along the southern portion of the property, which would support establishment of a trail as recommended by the Juan de Fuca Electoral Area Parks and Recreation Advisory Commission
- the Otter Point Volunteer Fire Department has proposed that the applicant install water supply in the form of tanks (60,000 ga) to aid fire protection for the industrial sawmill use and the community
- in response, a covenant is recommended for fire protection works related to the sawmill operation prior to subdivision or further building construction

Iain Lawrence reported that 21 submissions were received as of the close of the working day on July 20, 2020, in response to the notice of intent mailed to adjacent property owners within 500 m of the subject property. A further submission was received before the start of the meeting.

Iain Lawrence advised that a supplementary submission in the form of a PowerPoint presentation was received from the agent. Iain Lawrence summarized the supplementary comments received from the broader public advising that the submissions reflect:

- concern regarding impact on ground water quality and quantity
- concern regarding impact on food security, including a direct impact on ALM farm and water usage
- concern regarding the impact on the watercourse and wetland resulting from recent logging activity within the riparian area and support for restoration of that area
- support for the current scale of the sawmill operation, rather than expansion, due to noise and fire concerns

Iain Lawrence confirmed that the applicant and his agent were present.

The agent stated that the riparian area is being protected and that 1,000 trees have been planted.

Iain Lawrence responded to a question from the LUC regarding the recommendation for a covenant for fire protection works. Iain Lawrence advised that the recommended covenant is the most secure method to ensure the works are completed. The covenant can be requested prior to subdivision or as a condition of rezoning.

The Chair responded to a question from the LUC advising that the LUC is being asked to consider if the proposal should proceed to public hearing. Approval of the subdivision falls to the Ministry of Transportation and Infrastructure.

The applicant responded to questions from the Chair advising that:

- hours for the sawmill operation will be Monday – Friday from 8:00 am to 4:30 pm
- Saturdays will be open to customers
- over the last three years, $600,000 to $700,000 has been spent to reduce operational noise
- the sawmill has been in operation for 20 years
- the operation employs seven workers

Mary-Alice Johnson, Otter Point:

- concerned about ground water and surface water impacts on ALM farm and neighbouring properties
- ALM farm has a ground water licence for agricultural use, as well as a surface licence on King Creek
- in speaking with the provincial Regional Hydrologist, Water Projection, Sylvia Barroso, water in the area is a concern for everyone as the aquafer is limited
- all new wells affect other existing wells and overall surface water
- there are no more water licences available for King Creek
- concerned about the recovery of wetlands on the subject property
- the photos of the subject property as presented do not reflect that current state of the property
- it is understood that the wetlands continue to be traversed by equipment requiring access to the sawmill operation

Doug Brubaker, Otter Point:
- property has been clear cut by the applicant with no guidance from the CRD
- felling has taken place in the riparian area
- degree of damage is not known
- applicant has demonstrated poor water stewardship
- takes issue with residents asking for forgiveness after works have been completed
- noise will not be limited to the sawmill
- there will be noise associated with the industrial log sort
- 8 ha is a lot of industrial land for a sawmill

Christa Brenan:
- concerns initially raised by the community have not been addressed
- there has been no input from the Ministry of Agriculture
- concerned for food security
- in April 2019 the CRD Board supported input from municipalities on food lands and land contributions
- Premier John Horgan has recently stated concern for food security and lack of sustainable growing areas
- the proposal will need to adhere to the provincial *Water Sustainability Act* and the *Drinking Water Protection Act*
- support for protecting and assisting lands already in agriculture production

LUC comments included:
- development proposal is supported by the Official Community Plan
- water concerns cannot be scientifically substantiated
- everyone is short of water in August
- bulk water is available at a new station on Otter Point Road
- noise should not get worse and should be reduced
- cannot restrict subdivision of the land
- proof of water is required as part of the subdivision process
- the wells on the residential lots do not require licences
- concerns can be addressed by the provincial Water Management Branch
- cannot arbitrarily restrict someone from having a home

Iain Lawrence confirmed that a water licence is required for the industrial use.

The Chair stated that he has been endeavoring to see establishment of the trail supported by the community since he was first elected.

MOVED by Sandy Sinclair, **SECONDED** by Roy McIntyre that the Land Use Committee recommends to the Capital Regional District (CRD) Board:

a) That the referral of proposed Bylaw No. 4316, "Juan de Fuca Land Use Bylaw, 1992, Amendment Bylaw No. 147, 2019" and Bylaw No. 4317, "Otter Point Official Community Plan Bylaw, 2014, Amendment Bylaw No. 2, 2019" to the Otter Point Advisory Planning Commission; the Juan de Fuca Electoral Area Parks and Recreation Advisory Commission; CRD departments; BC Hydro; Department of Fisheries and Oceans; District of Sooke; Ministry of Agriculture; Ministry of Environment and Climate Change Strategy; Ministry of Forests, Lands and Natural Resource Operations; Ministry of Transportation and Infrastructure; RCMP; Sooke School District #62; and T'Sou-ke First Nation be approved and the comments received;
b) That proposed Bylaw No. 4316, "Juan de Fuca Land Use Bylaw, 1992, Amendment Bylaw No. 147, 2019" be introduced and read a first time and read a second time;
c) That proposed Bylaw No. 4317, "Otter Point Official Community Plan Bylaw, 2014, Amendment Bylaw No. 2, 2019" be introduced and read a first time and read a second time;
d) That in accordance with the provisions of Section 469 of the *Local Government Act*, the Director for the Juan de Fuca Electoral Area, or Alternate Director, be delegated authority to hold a public hearing with respect to Bylaw No. 4316 and Bylaw 4317; and
e) That prior to adoption of the bylaws, the applicant:
    i. Provide confirmation from a Qualified Environmental Professional that the vegetative screening requirements in the M-3 zone and the recommendations for restoration of the riparian area outlined in the Conditions and Impacts report prepared by Corvidae Environmental Consulting Inc., dated February 2020, have been implemented;
    ii. Secure a covenant on title pursuant to Section 219 of the *Land Title Act* in favour of the CRD requiring that the fire protection works related to the sawmill operation, described in the letter from the Otter Point Volunteer Fire Department dated January 30, 2020, be installed and conveyed to CRD prior to subdivision or further building construction.

9. Adjournment

The meeting adjourned at 8:11 pm.

_____

Chair

Rainy Dav Enterprises Ltd.

Sooke BC

Juan de Fuca Community Planning
3-7450 Butler Road,
Sooke, BC V9Z 1N1

July 24, 2020

Re: application for rezoning and subdivision of Part of Section 17, Otter Point District, Lying East of Otterpoint Road.

Dear Land Use Committee and CRD Board

My biggest concern with this application is the affect this subdivision would have on the ground water Recently I found out that did not get an approval from CRD before commencing logging on his property. As a result CRD had no input on how to mitigate damage that could be a detriment to the stream and wetlands on his property. The riparian set backs did not get the attention that is required. The Applicant removed merchantable trees from this sensitive area.

It sounds like will have to restore the riparian and wetland zones. But how can you restore these areas to their original condition when 70 year old trees have been removed. With the clear cut logging of his property and the damage to the wetlands, the people's down stream water supply most likely will suffer. These are people that have existing permits for domestic and agricultural use.

Due to all of the proceeding events, if the CRD is in favor of the rezoning I recommend the following conditions before the rezoning is signed.

- The riparian zones are remediated with native species and monitored to determine the success of the plantings.
- A bond is posted equal to the cost of the remediation and not released until the good health and success of the planting is determined by an independent third party experienced in wet land restoration.
- A government hydrologist determines the effect the recent logging has had on the stream, the ground water and aquifer and what will be the outcome for people down stream.
- Each of the 6 lots will **not** be permitted to have a dug well that is directly or indirectly drawing from the stream or wetland. The hydrologist would also determine what effect 6 **drilled wells** that produce a minimum of 1400 liters per day in the **summer** would have on the aquifer. The Ministry of Lands and Forests will determine if there is enough water to support an industrial water license in consideration of proposed sawmill expansion on 8.59 hectares of M3 zoning. It is my opinion that this is a very large piece of land for expanding.
- Judging from letters submitted to the CRD, there has been a large increase in noise complaints. The zoning allows for the sorting and storage of logs. This will give the right to run a scale site sorting and storing logs from other properties. This type of operation would generate an exponential increase in noise over the present operation. My suggestion is to allow the sorting and storage of logs purchased for his mill only.
- The proposed 8.59 hectare M3 Industrial Lot has a covenant attached to the title not permitting future subdivision **or land leasing.**
- The industrial lot will also require a water license that would be adequate for a 8.59 hectare operation

Please consider my suggestions and thank you for listening to my concerns.

Sincerely, Doug Brubaker

Making a difference...together

REPORT TO THE JUAN DE FUCA LAND USE COMMITTEE
MEETING OF TUESDAY, JULY 21, 2020

SUBJECT **Development Permit with Variance for Lot A, Section 89, Sooke District, Plan VIP54145**

ISSUE SUMMARY

A request has been made for a development permit with variance to address the Steep Slopes and Shoreline Protection Development Permit (DP) guidelines and to vary the rear yard setback and the allowable projection of a deck into the rear yard setback for an addition to an existing single family dwelling in the Rural Residential 6 (RR-6) zone.

BACKGROUND

The 0.8 ha property is located at 7004 East Sooke Road and is within the Steep Slopes and Shoreline Protection development permit areas as designated by the East Sooke Official Community Plan, 2018, Bylaw No. 4000. The property is bounded by RR-6 zoned properties to the east and west, East Sooke Road to the south, and Sooke Harbour to the north (Appendix A).

There is an existing residence on the property along with an accessory building. Building Permit approval was granted in 1976 for construction of the single family dwelling; however, the building permit was never completed and lapsed in 1994 according to CRD dormant files policy.

An extensive renovation to the dwelling, including an expansion of the deck, was recently initiated prior to permit approvals; this resulted in a complaint to Bylaw Enforcement, a stop work order and violation file (VF000495). The applicant has applied for a building permit and development permit to complete alterations to the structure (Appendix B).

The applicant is requesting a variance to decrease the minimum rear yard setback required for the deck post and to increase the allowable projection of the deck beyond the post into the setback (Appendix C). A report has been provided by Richard T. Moser, P.Eng., of Ryzuk Geotechnical to address the Steep Slope and Shoreline Protection development permit areas and to satisfy requirements for registration of a Section 219 covenant associated with the building permit (Appendix E). Development Permit with variance DV000072 is included for consideration (Appendix F).

ALTERNATIVES

Alternative 1
That the Land Use Committee recommends to the Capital Regional District Board:
That Development Permit with Variance DV000072 for Lot A, Section 89, Sooke District, Plan VIP54145 to permit alterations to a single-family dwelling in a Steep Slopes, and a Shoreline Protection Development Permit Area; and to vary Part 2, Section 10.09(d) by decreasing the minimum rear yard setback from 10 m to 7.5 m, and to vary Juan de Fuca Land Use Bylaw No. 2040, Part 1, Section 4.10 (1)(a) by increasing the maximum deck projection allowance into the rear yard setback from 1 m to 1.6 m, be approved.

Alternative 2
That Development Permit with Variance DV000072 be denied.

Alternative 3
That the application be referred back to staff for additional information.

IMPLICATIONS

Legislative Implications
The East Sooke Official Community Plan, Bylaw No. 4000, designates development permit areas (DPAs) and outlines development permit guidelines (Appendix D). The property is located within the Steep Slope and Shoreline Protection DPAs; therefore, a development permit is required. CRD Delegation of Development Permit Approval Authority Bylaw, 2009, Bylaw No. 3462, gives the General Manager, Planning and Protective Services, the power to issue a development permit; however, the delegated authority does not include development permits that require a variance, as stated in Section 5(a) of the bylaw.

The Juan de Fuca Land Use Bylaw No. 2040, Part 2, Section 10.09(d) specifies that the minimum rear yard setback in the RR-6 zone is 10 m. Since the northwest corner deck post is sited 7.5 m from the rear property boundary, a variance is required.

The Juan de Fuca Land Use Bylaw No. 2040, Part 1, Section 4.10 (1)(a) specifies that features on storeys above ground level may project up to 1 m into the required yard of the zone. Since the projection of the deck into the rear yard setback is greater than 1 m, a variance is required.

Public Consultation Implications
Pursuant to Section 499 of the *Local Government Act* (*LGA)*, if a local government is proposing to pass a resolution to issue a development variance permit it must give notice to each resident/tenant within a given distance as specified by bylaw. Juan de Fuca Development Fees and Procedures Bylaw No. 3885, states that the Board at any time may refer an application to an agency or organization for their comment. In addition, it states that a notice of intent must be mailed to the owners of property within a distance of 500 metres of the subject property. Any responses received from the public will be presented at the July 21, 2020, Land Use Committee meeting. There is no legislative requirement for public consultation if a local government is considering the issuance of a development permit.

Land Use Implications
Development Permit:
The owner has submitted a geotechnical report prepared by Richard T. Moser, P.Eng., of Ryzuk Geotechnical, dated April 15, 2020, and amended May 20, 2020, to address the Steep Slope and Shoreline Protection DP guidelines for the proposed development (Appendix E). The report provided an assessment of the conditions found at the site, described potential impacts of the alterations, and provided recommendations for the proposed development. The report identifies that the proposed alterations will not significantly increase the footprint of the house; as such, effects will be minimal within the development permit areas.

The Report included a minimum flood construction level (FCL) calculation in keeping with the Provincial guidelines for coastal development and sea level rise. The dwelling and deck are setback from the top of a rocky bluff, which the Engineer confirmed is not susceptible to erosion. The Report will be secured via a Section 219 covenant as part of the building permit process in accordance with Section 56 of the *Community Charter*.

Variance:
The Rural Residential 6 (RR-6) zone regulations specify that the rear yard setback shall be a minimum of 10 m, and the general regulations in the land use bylaw specify that any projections into required setbacks be a maximum of 1 m. The northwest corner deck post is located 7.5 m from the rear property boundary and the deck projects a further 1.6 m beyond the post. The proposal otherwise meets requirements for the zone.

Development Permit with Variance DV000072 has been prepared for consideration to authorize the construction of an addition to a single-family dwelling partially located within a Steep Slopes and Shoreline Protection Development Permit Area, and to vary the siting of the deck by reducing the rear yard setback and increasing the maximum allowable projection (Appendix F). Any residents that may be affected by the proposal will have an opportunity to come forward with their comments through the public notification process. Staff recommend approval of the development permit with variance subject to public notification.

CONCLUSION

The applicant has requested a development permit with variance to authorize construction of an addition to a single family dwelling and increase the maximum allowable projection of a deck into the required rear yard setback. Since there will be minimal impact to the Steep Slope and Shoreline Protection development permit areas, staff recommend approval of the development permit with variance subject to public notification. If the Permit is approved by the Board, the Corporate Officer will proceed to issue the Permit and register a Notice of Permit on Title.

RECOMMENDATION

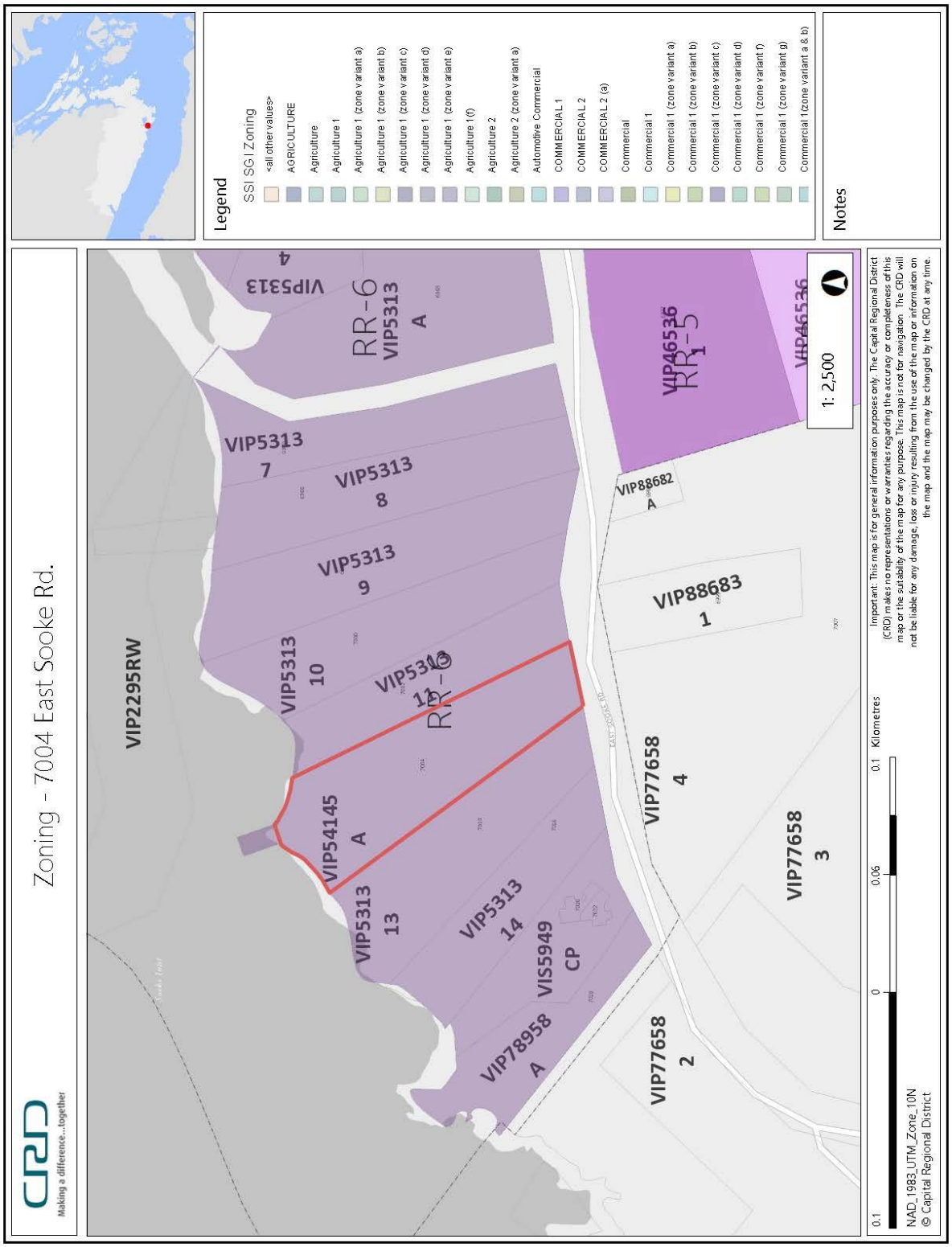
That the Land Use Committee recommends to the Capital Regional District Board:
That Development Permit with Variance DV000072 for Lot A, Section 89, Sooke District, Plan VIP54145 to permit alterations to a single-family dwelling and deck located within in a Steep Slopes and a Shoreline Protection Development Permit Area; and to vary Part 2, Section 10.09(d) by decreasing the minimum rear yard setback from 10 m to 7.5 m, and to vary Juan de Fuca Land Use Bylaw No. 2040, Part 1, Section 4.10 (1)(a) by increasing the maximum deck projection allowance into the rear yard setback from 1 m to 1.6 m, be approved.

Submitted by:	Iain Lawrence, MCIP, RPP, Manager, Juan de Fuca Community Planning
Concurrence:	Kevin Lorette, P.Eng., MBA, Acting Chief Administrative Officer

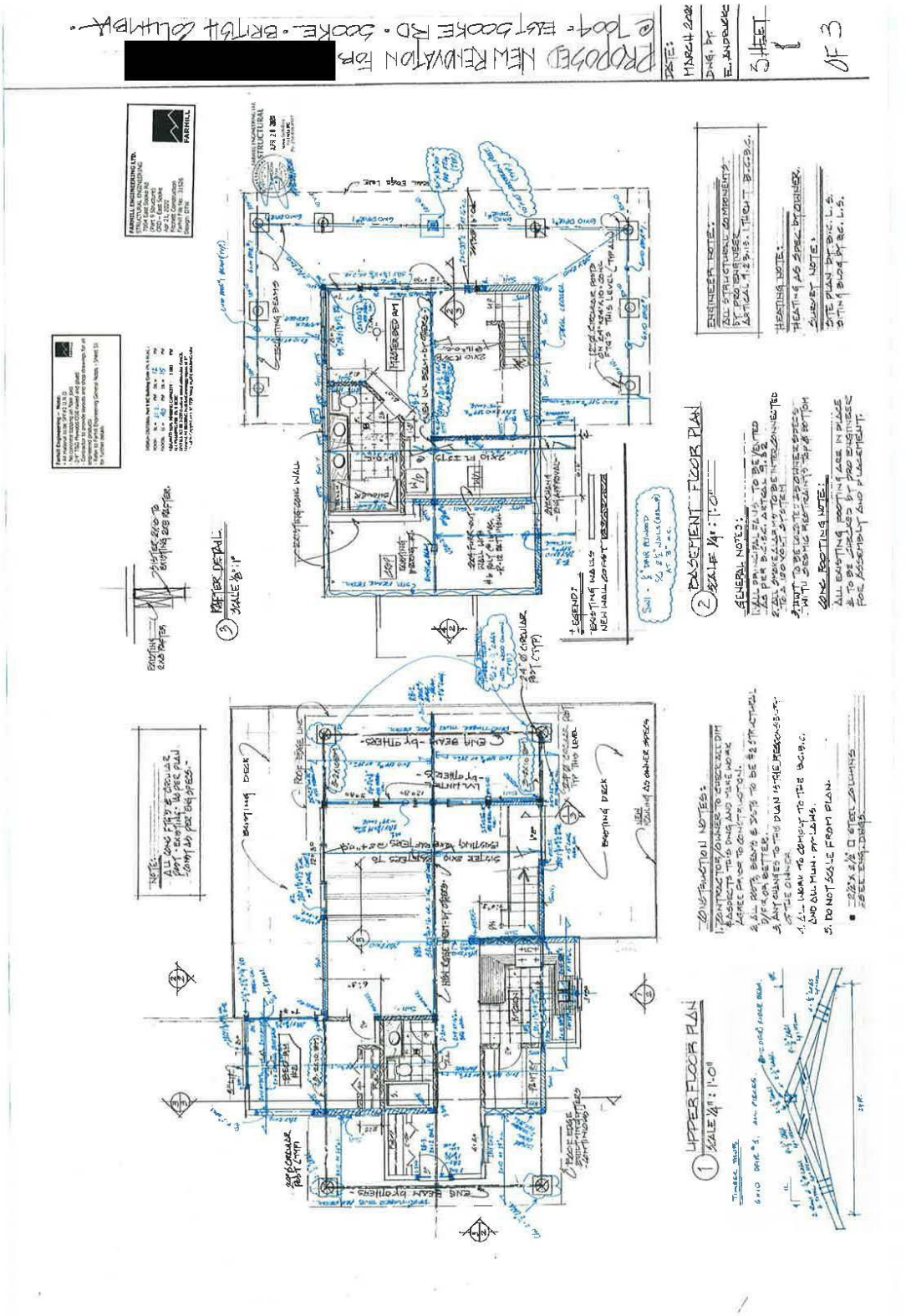
ATTACHMENTS

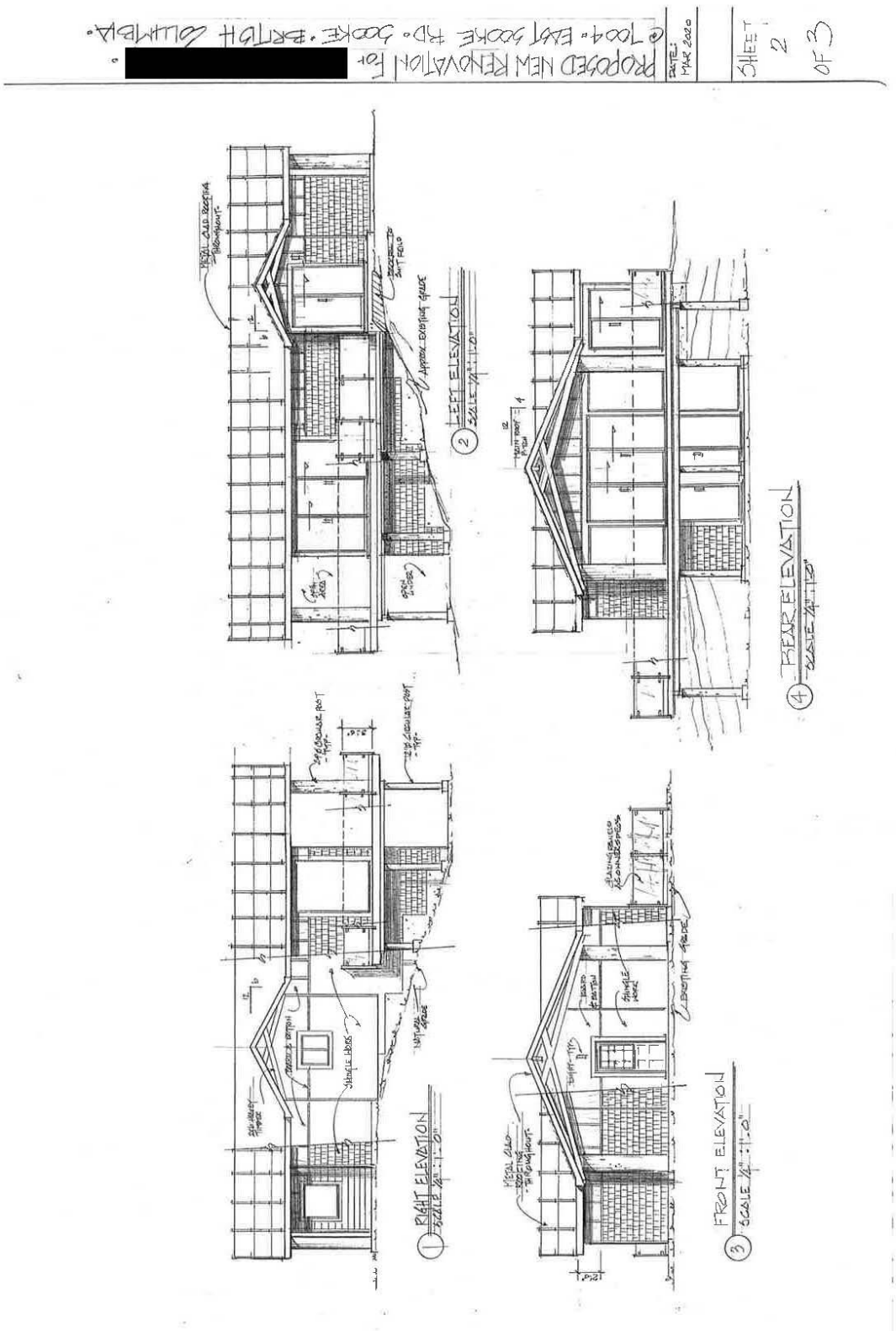
Appendix A: Subject Property Map
Appendix B: Building Plans
Appendix C: Site Plan with Variance
Appendix D: Development Permit Guidelines
Appendix E: Geotechnical Report
Appendix F: Permit DV000072

Appendix A: Subject Property Map



Appendix B: Building Plans



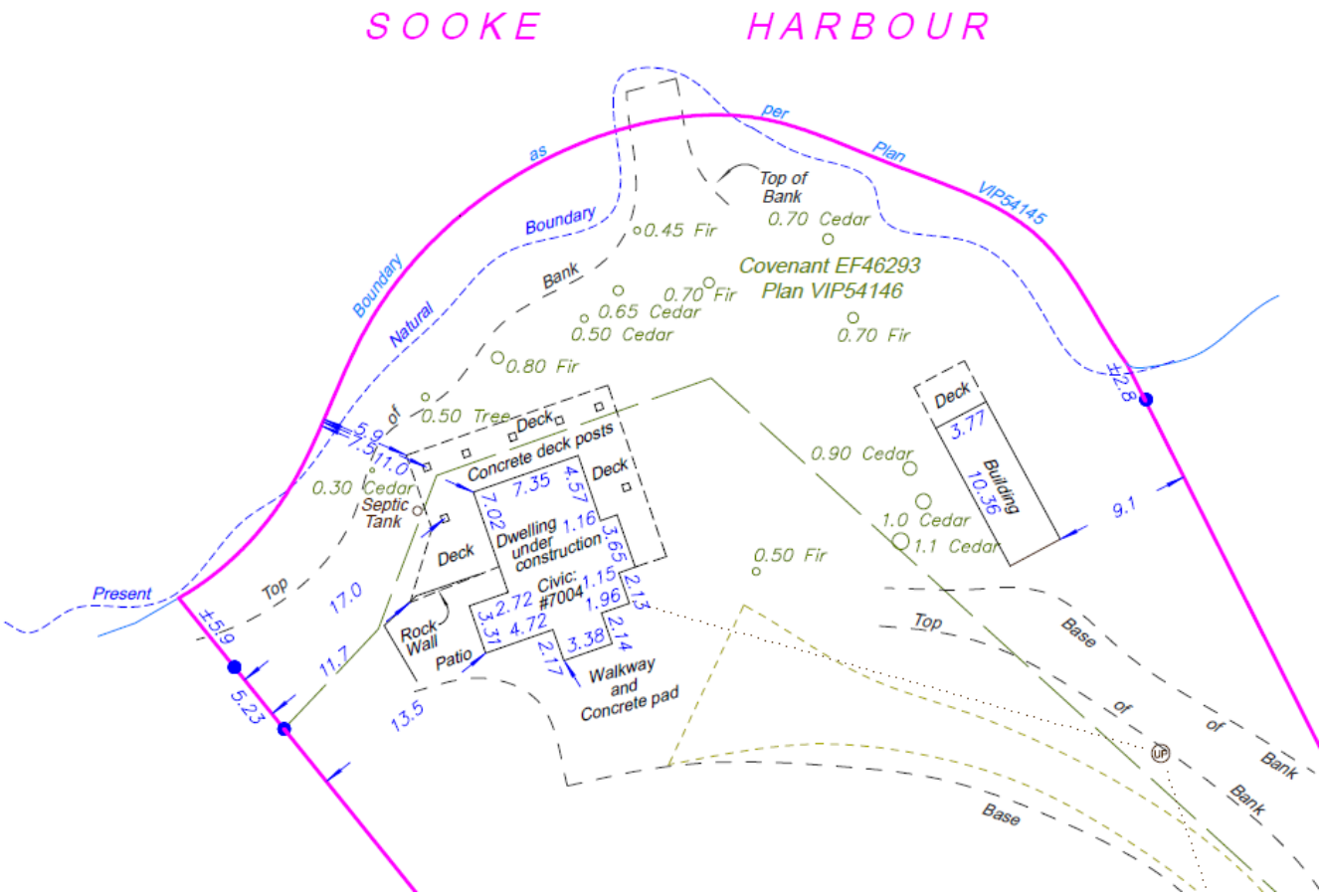

PROPOSED NEW RENOVATION for [redacted]
@ 7004 - EAST SOOKE RD. SOOKE, BRITISH COLUMBIA.
DATE: MAR 2020
SHEET 2 OF 3
1 RIGHT ELEVATION
2 LEFT ELEVATION
3 FRONT ELEVATION
4 REAR ELEVATION

Appendix C: Site Plan with Variance

SITE PLAN OF PART OF LOT A, SECTION 89, SOOKE DISTRICT, PLAN VIP54145.

8 0 8 16 24 32

SCALE=1:400. All distances are in metres.



Appendix D: Development Permit Guidelines

Section 515 – Guidelines for the Steep Slope Development Permit Area

A. Development and alteration of land will be planned to avoid intrusion into and minimize the impact on the Steep Slope DPA.
B. The removal of vegetation and impact to tree root zones will be minimized.
C. The placement of fill, disturbance to the soil, undercutting and blasting will be minimized.
D. Development should minimize alterations to steep slopes and the development should be designed to reflect the site rather than altering the site to reflect the development.
E. Changes in hydrology will be minimized.
F. Runoff from the development will not destabilize or cause damage to the subject property or neighbouring properties.
G. Development will be designed to avoid erosion and sedimentation.
H. Erosion control measures and temporary fencing may be required during and after construction.
I. The planting of native vegetation in both disturbed and undisturbed areas may be required to reduce the risk of erosion and improve slope stability.
J. Heavy machinery cannot be used in circumstances where or when it might cause erosion or destabilize the slope.
K. The clustering of buildings and structures on less steep areas is encouraged and setbacks may be varied to accommodate this.
L. Variances to allow the siting of buildings and structures outside the Steep Slope DPA will be considered.
M. Over-steep driveways and sharp switchbacks are discouraged and will be minimized.
N. Shared driveways may be required where they will minimize the disturbance to steep slopes.
O. Large, single-plane retaining walls are discouraged and landscaping should follow the natural contours of the land.
P. As a condition of the issuance of a development permit, compliance with any or all conditions recommended in a report by a QP will be considered by the CRD and may be included in development permit.

Section 525 – Guidelines for the Steep Slope Development Permit Area

A. Development or alteration of land will be planned to avoid intrusion into and minimize the impact on the Shoreline Protection DPA.
B. Alteration of natural shorelines will be avoided.
C. Erosion and sedimentation will be avoided.
D. The removal of vegetation and impact to tree root zones will be minimized.
E. Changes in natural shoreline processes will be minimized.
F. The use of fill, disturbance to the soil and blasting will be minimized.
G. Non-structural and soft armouring are the preferred type of works for shore protection and where this approach is not possible, riprap and stone revetment is preferred over single-plane seawalls.
H. A Qualified Professional (QP) must design any shore protection devices or works.
I. Proposed development that may have the potential to adversely affect fish habitat will require the review and approval by appropriate federal and provincial agencies prior to the issuance of a development permit.
J. Setbacks for buildings and structures will consider the current risk from storms and flooding as well as minimum elevation guidelines established by the CRD or other public authority with respect to the potential risk from erosion and coastal flooding associated with climate change and sea level rise.
K. Variances to allow the siting of buildings and structures outside the Shoreline Protection DPA will be considered.
L. Compliance with the conditions or recommendations in a report by a QP will be considered by the CRD and may be included in a development permit.
M. The planting of native vegetation may be required to reduce the risk of erosion, restore the natural ecology, revegetate disturbed areas, improve water quality and ensure the stability of slopes and banks.
N. Erosion control measures and fencing may be required during and after construction.
O. Machinery working in this environmentally sensitive area may be required to use biofuels instead of fossil fuels.
P. To avoid disturbance of the upland and foreshore areas for a purpose referred to in Section 491(1)(e) of the *LGA*, heavy machinery may be required to be barged to the site.
Q. Construction may be restricted to certain times of the year to avoid storm seasons, unusually high or low tides and sensitive life-cycle times for wildlife such as nesting or migrating.
R. Where possible, vegetation and natural resources such as anchored logs and riparian plantings on protected shorelines, should be incorporated into shore protection works.

Appendix E: Geotechnical Report

RYZUK GEOTECHNICAL
Engineering & Materials Testing
28 Crease Avenue, Victoria, BC, V8Z 1S3 Tel: 250-475-3131 Fax: 250-475-3611 www.ryzuk.com

April 15, 2020
Revised May 20, 2020
File No: 6935-3

[redacted]
Sooke, BC
V8Z 0J5

Attn: [redacted]

Dear [redacted]

Re: Geotechnical Site Assessment – 1st Revision
7004 East Sooke Road – Sooke, BC

As requested, we attended the above referenced site on August 20, 2019, to complete an assessment of the existing inland steep slopes and foreshore conditions to establish the rockfall and flooding hazards, respectively. We understand the proposed development consists of renovation of the existing residence including reconstruction of the wooden deck and a new wood-framed vestibule at the south entrance door. The existing single-family residence is partially located in Development Permit Areas (DPA). As such, the Capital Regional District (CRD) requires an assessment to support a development permit application for projects within DPAs associated with steep slopes and the Present Natural Boundary (PNB) of the ocean (further defined below). Our observations, comments, and recommendations are included herein. Our work has been undertaken in accordance with, and is subject to, the previously provided Terms of Engagement.

The site is generally rectangular in shape with an approximate area of 8500 m^2. It is bounded by the shore of Sooke Inlet to the north, East Sooke Road to the south, and similar residential properties to the east and west. Topography throughout the site generally slopes down from south to north with a level area within the central portion of the site and a localized topographic high point within the central-west portion of the site. A small creek within the southwest corner of the site discharges water into two ponds, present within the above noted level area which then drains into the subsurface. Additionally, a steep foreshore slope is present along the north property boundary. The site layout and topography are shown on the attached Location Plan, drawing 6935-3-1.

The existing single-family residence, built at-grade, is located within the northwest portion of the site. The residence is situated between the northern extent of the noted topographic high point, which consists of a 5 m high steep rock face at that location, and the local shorefront. The grades surrounding the residence follow the general topography and continue to slope down towards the ocean, varying in pitch from 5 to 15% but steepen to near vertical along the shorefront. While on site, we observed that the minimum offset from the existing residence to the steep inland rock slope was approximately 12 m. Additionally, we observed that the offset from existing residence to the PNB of the ocean ranged from approximately 10 m to 25 m. We have taken the PNB of the ocean to be the crest of the steep rock slope lining the shorefront, given the exposed rock was free of vegetation and mineral soils. We noted the exposed shoreline rock face to consist of strong massive bedrock, typical in the Sooke area and known to have low-erodibility.

Section 510 of the East Sooke Official Community Plan (Bylaw No. 4000) stipulates a development permit is required for any proposed development sited on a steep slope. The bylaw defines a steep slope as any slope with a pitch greater than 30% (16.7 degrees) over a horizontal distance (run) greater than 10 m. As such, the siting of future developments would be permissible without a development permit for much of the site surrounding the existing residence. However, we recommend an offset of approximately 5 m from steep inland rock slopes to account for the expected rare occurrence of rockfall associated with the natural weathering of the rock mass.

Section 513 of Bylaw No. 4000 requires that any proposed development within a steep slope DPA must be designed to avoid alterations to the existing steep slope geometry, soil cover thickness, hydrology, and/or site vegetation. Given that the proposed addition will be not significantly increase the existing building footprint, we consider any alterations to the existing slope geometry, hydrology, soil cover thickness, and/or vegetation at the site will be negligible. However, we recommend that temporary sedimentation and erosion control measures, such as hay bails or silt fencing/booms, be implemented during construction if any required earthworks create a preferential drainage pathway(s) and that following construction the original conditions are reinstated. Furthermore, as the proposed addition is to extend from the south side of the existing residence, within the existing level parking area, we expect that the additional foundation loads placed in this area would not impact the global slope stability in the area.

Similarly, Section 520 of Bylaw No. 4000 stipulates a development permit is required for any proposed development sited within 15 m of the PNB of the ocean. Section 523 of Bylaw No. 4000 requires that erosion and sedimentation must be avoided during and after construction to maintain foreshore stability. Given that the proposed addition will extend from the south side of the existing residence, the offset from the PNB will be approximately 18 to 20 m which places the proposed addition outside of the DPA and in accordance with Section 524.

Section 525 of Bylaw No. 4000 further indicates that a Flood Construction Level (FCL) assessment, completed by a qualified professional, can be used to support an offset variance. As such, we have assessed the flooding hazard at the site due to severe storm events and ocean level rise associated with climate change.

Based on contour information provided by the online CRD Regional Map, the main floor elevation of the existing residence is between 7 and 10 m geodetic and a local shoreline elevation of roughly 1.5 m geodetic.

The CRD Coastal Sea Level Rise Risk Assessment indicates that the predicted extreme high water level for a large tide (HHWLT + storm surge) for the year 2100 would be 3.69 m geodetic. However, this value was calculated using the previous methodology for estimating the projected FCL, defined as the minimum required elevation of the underside of a wooden floor system or the top of a concrete slab floor for habitable buildings.

As such, we have calculated an updated FCL using the currently accepted/legislated methodology, prescribed by the Provincial "Guidelines for Management of Coastal Flood Hazard Land Use," published in January 2011 and the Provincial Guidelines for "Coastal Floodplain Mapping" published in June 2011. Furthermore, the "Flood Hazard Area Land Use Management Guidelines" with amendments of January 1, 2018, specifically related to coastal flood construction levels was also reviewed.

The FCL was calculated following the "Combined Method" provided in the FHALUM Guidelines. Additional information required to establish the FCL was obtained from the Canadian Hydrographic Service (CHS). The FCL methodology utilizes the highest predicted tide (HHWLT) which was provided by the CHS as a base, upon which the predicted Sea Level Rise (SLR), storm surge, wave effect, local uplift, as well as an additional free board factor were considered.

The Provincial Guidelines outline a 1.0 m sea level rise, and accordingly, a factor of 1.0 m was applied to account for the predicted 100-year sea level rise (Ausenco Sandwell). In addition, a correction factor has been added to account for regional uplift and isostatic rebound. A regional uplift rate of 3.1 mm/year was selected for the Sooke area based on "Coastal Sea Level Risk Assessment" by AECOM (2015); therefore, the FCL has been decreased by 0.31 m over the 100-year sea level rise period. An estimated wave effect of 0.65 m, and a nominal freeboard amount of 0.3 m have also been included in the analysis. Table 1 summarizes the values used to establish the site-specific FCL.

Table 1: Summary of FCL Calculations

Item:	(m geodetic)	Notes:
Higher High Water Large Tide (HHWLT)	1.9	As per CHS[1] – based on Sooke Tidal Gauges
Total Storm Surge during "designated storm"	1.3	As per Guidelines for Victoria – 1:500 annual probability of exceedance storm event
Estimated wave effect	0.65	Limited, due to protection of surrounding topography and adjacent buildings[2]
Regional Uplift	(0.31)	3.1 mm/year decrease for Sooke, BC
Sea Level Rise (SLR)	1.0	As per Guidelines
Free Board Factor	0.3	As per Guidelines[2]
FLOOD CONSTRUCTION LEVEL (m geodetic)	**+4.84**	

[1] Canadian Hydrographic Service
[2] Following Amendment Section 3.5 and 3.6 of "Flood Hazard Area Land Use Management Guidelines" (2018)

The storm surge and estimated wave effect components of the FCL were estimated based on recommendations for the area in the Guidelines. However, the storm surge and wave effect will vary based on the local conditions of a given site. No site-specific analyses were completed to quantify the effect of local conditions at the site on the storm surge and wave effect.

We have not undertaken detailed wave run-up analyses or associated magnitude return period frequency analyses of tsunami events to quantify the hazard at the referenced site. A review of the tsunami modelling completed for the Capital Regional District by AECOM (2013) indicates a maximum water level of 2.5 m for entrance of Sooke Harbour (inclusive of the mean tidal elevation) for a design 1:500 annual probability of exceedance earthquake. As per Amendment Section 3.5 of "Flood Hazard Area Land Use Management Guidelines" (2018) the greater of the tsunami maximum water level and FCL shall apply. The FCL is the greater of the two for the subject site, and as such the FCL of 4.84 m is recommended. However, we do recommend that residents review and understand the Provincial Tsunami Advanced Warning System.

Based on the above, and in accordance with the Guidelines, an FCL (or minimum elevation for habitable spaces) of **4.84 m** has been determined for this site.

Given that the main floor elevation is well above the calculated FCL elevation and that the grading around the inhabited portion of the site descends towards the ocean we do not consider the site to be subject to a flooding hazard caused by the ingress of ocean water into the site. Similarly, we do not consider the wave action during strong storm events to cause a flooding hazard either given the noted residence elevation, site grading, and the relatively short wave run-up/fetch length of less than 1.4 km.

Based on the above, we consider a reduction in the PNB offset from 15 m to 10 m to be appropriate for the site as it would not negatively impact any future development at the site. The CRD Approving Officer and Building Inspectors may rely on the above information when reviewing the permit applications for the proposed project. Note that we have based our recommendations on a probably of exceedance of 10% in 50 year for marine events and 2% in 50 year for seismic events.

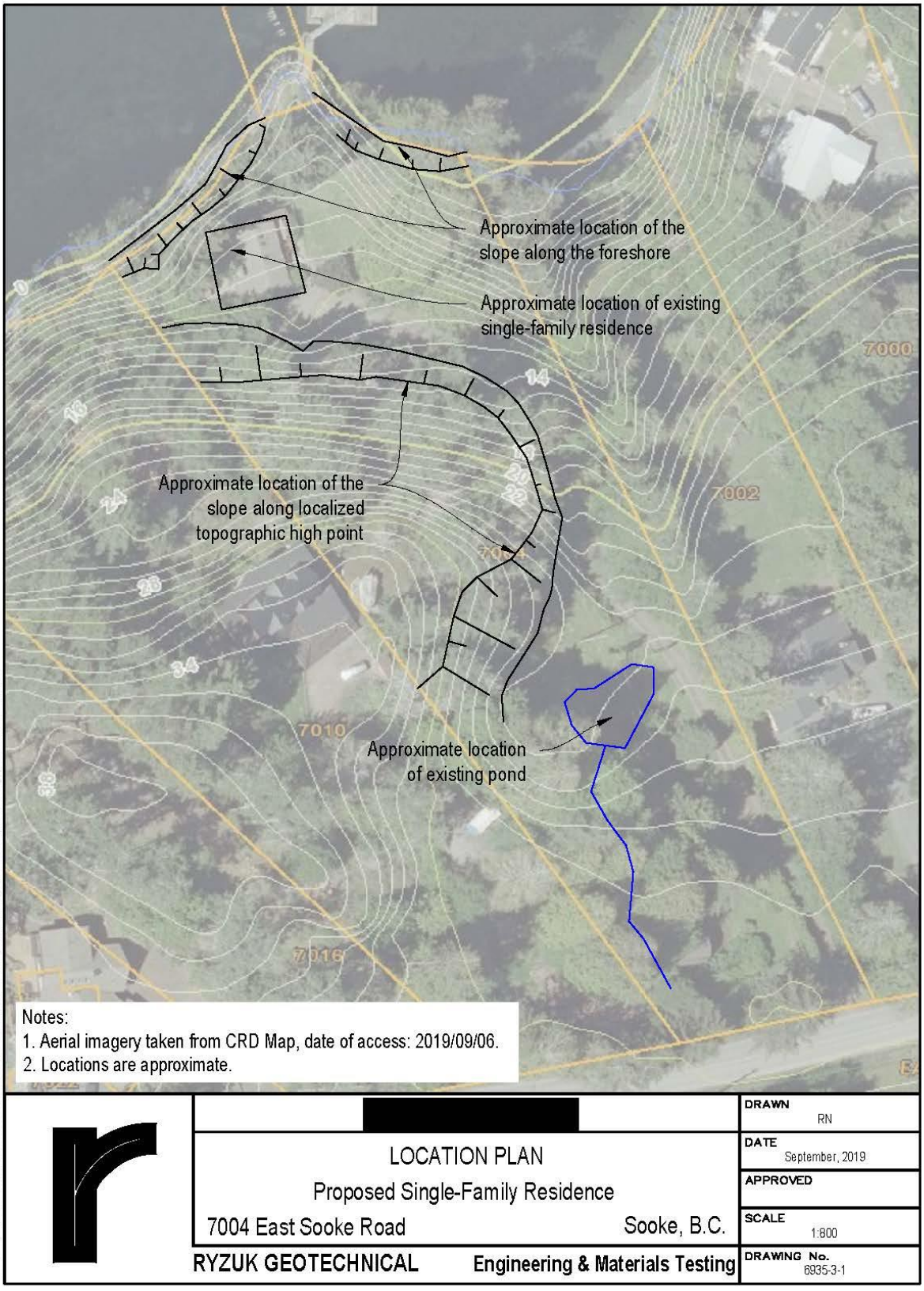
Furthermore, we consider the proposed development, as noted, feasible from a geotechnical perspective and consider the land may be used safely for the use intended, pursuant to Section 56 of the Community Charter.

We trust that the preceding is suitable for your purposes at present, however if you have any questions with respect to the above, please contact us.

Best regards,
Ryzuk Geotechnical



Richard T. Moser, P.Eng.
Project Engineer


Approximate location of the slope along the foreshore
Approximate location of existing single-family residence
Approximate location of the slope along localized topographic high point
Approximate location of existing pond
7000
7002
7010
7016
Notes:
1. Aerial imagery taken from CRD Map, date of access: 2019/09/06.
2. Locations are approximate.
[redacted]
LOCATION PLAN
Proposed Single-Family Residence
7004 East Sooke Road Sooke, B.C.
RYZUK GEOTECHNICAL Engineering & Materials Testing
DRAWN RN
DATE September, 2019
APPROVED
SCALE 1:800
DRAWING No. 6935-3-1

Appendix F: Permit DV000072

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CAPITAL REGIONAL DISTRICT

DEVELOPMENT PERMIT WITH VARIANCE DV000072

1. This Development Permit with Variance is issued under the authority of Sections 490, and 498 of the *Local Government Act* and subject to compliance with all of the bylaws of the Regional District applicable thereto, except as specifically varied or supplemented by this Permit.

2. This Development Permit with Variance applies to and only to those lands within the Regional District described below (legal description), and any and all buildings, structures, and other development thereon:

   PID: 017-767-679;
   Legal Description: Lot A. Section 89, Sooke District, Plan VIP54145

3. This development permit authorizes construction of an addition to a single family dwelling (the "development") on the Land, located within the development permit areas established under the East Sooke Official Community Plan, Bylaw No. 4000, 2018, Section 510 (Steep Slopes), and Section 520 (Shoreline Protection), in accordance with the plans submitted to the CRD and subject to the conditions set out in this Permit.

4. The conditions under which the development referred to in section 3 may be carried out are as follows:

   a. That the proposed development of the property comply with the Site Plan prepared by Island Land Surveying Ltd., dated June 4, 2020;

   b. That the proposed development comply with the proposed Building Plans;

   c. That the proposed development comply with the recommendations outlined in the report prepared by Ryzuk Geotechnical, dated April 15, 2020 (revised May 20, 2020), attached.

5. The Capital Regional District's **Bylaw No. 2040** is varied under Section 498 of the *Local Government Act* as follows:

   a. That Part 2, Section 10.09(d) be varied by decreasing the minimum rear yard setback from 10 m to 7.5 m.

   b. That Part 1, Section 4.10 (1)(a) be varied by increasing the maximum deck projection allowance into the rear yard setback from 1 m to 1.6 m.

6. Notice of this Permit shall be filed in the Land Title Office at Victoria as required by Section 503 of the *Local Government Act*, and the terms of this Permit (DV000072) or any amendment hereto shall be binding upon all persons who acquire an interest in the land affected by this Permit.

7. If the holder of a permit does not substantially start any construction permitted by this Permit within 2 years of the date it is issued, the permit lapses.

8. The land described herein shall be developed strictly in accordance with the terms and conditions and provisions of this Permit, and any plans and specifications attached to this Permit which shall form a part hereof.

9. The following plans and specifications are attached to and form part of this Permit:

   i. Site Plan;
   ii. Building Plans;
   iii. Geotechnical Assessment Report.

10. This Permit is NOT a Building Permit.

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DV000072

11. In issuing this Development Permit, the CRD does not represent or warrant that the land can be safely developed and used for the use intended and is acting in reliance upon the conclusions of the Geotechnical Report regarding the conditions to be followed for the safe development of the land.

RESOLUTION PASSED BY THE BOARD, THE _____ day of _____, 2020.

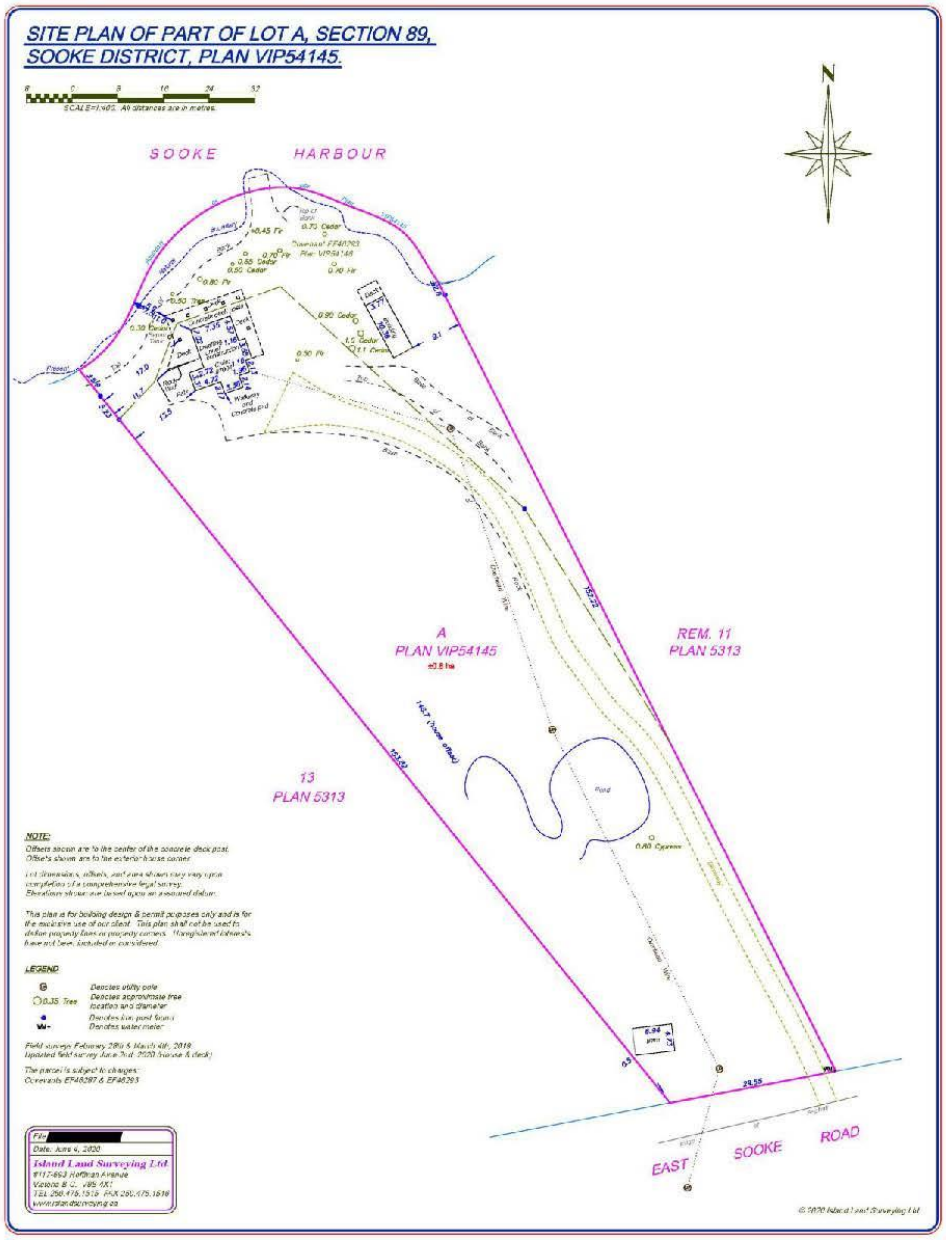
ISSUED this ___ day of _____, 2020

_____
Kristen Morley
Corporate Officer

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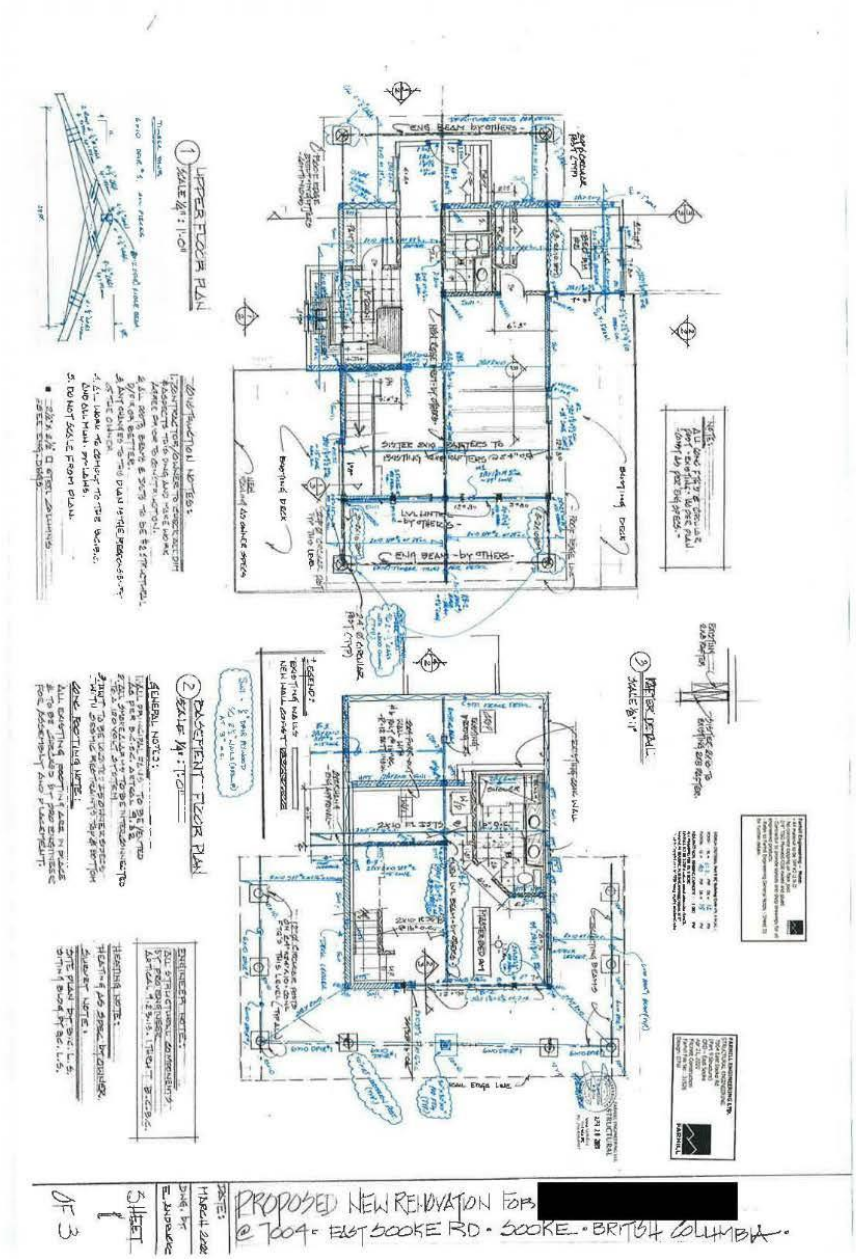
Attachment 1: Site Plan



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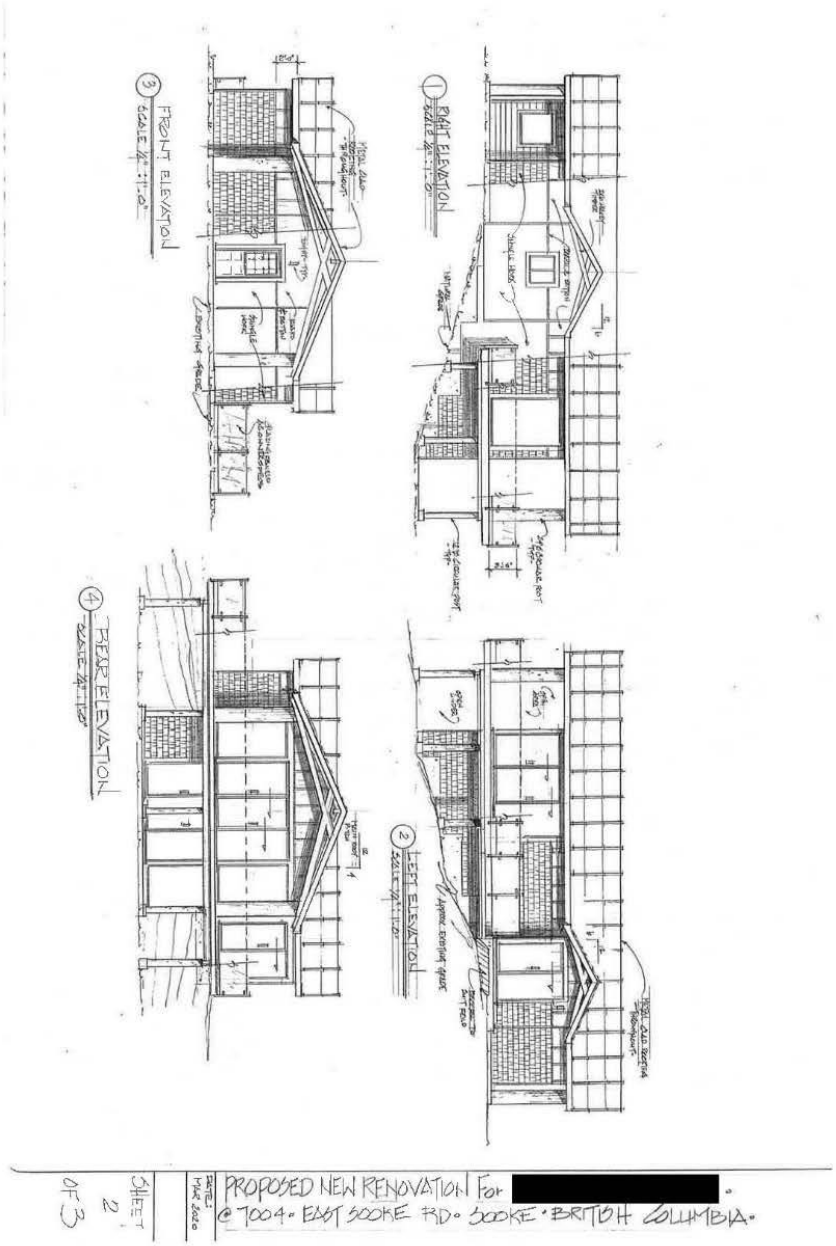
DV000072

Attachment 2: Proposed Building Plans



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Attachment 3: Geotechnical Report

RYZUK GEOTECHNICAL
Engineering & Materials Testing
28 Crease Avenue, Victoria, BC, V8Z 1S3 Tel: 250-475-3131 Fax: 250-475-3611 www.ryzuk.com

April 15, 2020
Revised May 20, 2020
File No: 6935-3

[redacted]
Sooke, BC
V8Z 0J5

Attn: [redacted]

Dear [redacted]

Re: Geotechnical Site Assessment – 1st Revision
7004 East Sooke Road Sooke, BC

As requested, we attended the above referenced site on August 20, 2019, to complete an assessment of the existing inland steep slopes and foreshore conditions to establish the rockfall and flooding hazards, respectively. We understand the proposed development consists of renovation of the existing residence including reconstruction of the wooden deck and a new wood-framed vestibule at the south entrance door. The existing single-family residence is partially located in Development Permit Areas (DPA). As such, the Capital Regional District (CRD) requires an assessment to support a development permit application for projects within DPAs associated with steep slopes and the Present Natural Boundary (PNB) of the ocean (further defined below). Our observations, comments, and recommendations are included herein. Our work has been undertaken in accordance with, and is subject to, the previously provided Terms of Engagement.

The site is generally rectangular in shape with an approximate area of 8500 m^2. It is bounded by the shore of Sooke Inlet to the north, East Sooke Road to the south, and similar residential properties to the east and west. Topography throughout the site generally slopes down from south to north with a level area within the central portion of the site and a localized topographic high point within the central-west portion of the site. A small creek within the southwest corner of the site discharges water into two ponds, present within the above noted level area which then drains into the subsurface. Additionally, a steep foreshore slope is present along the north property boundary. The site layout and topography are shown on the attached Location Plan, drawing 6935-3-1.

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The existing single-family residence, built at-grade, is located within the northwest portion of the site. The residence is situated between the northern extent of the noted topographic high point, which consists of a 5 m high steep rock face at that location, and the local shorefront. The grades surrounding the residence follow the general topography and continue to slope down towards the ocean, varying in pitch from 5 to 15% but steepen to near vertical along the shorefront. While on site, we observed that the minimum offset from the existing residence to the steep inland rock slope was approximately 12 m. Additionally, we observed that the offset from existing residence to the PNB of the ocean ranged from approximately 10 m to 25 m. We have taken the PNB of the ocean to be the crest of the steep rock slope lining the shorefront, given the exposed rock was free of vegetation and mineral soils. We noted the exposed shoreline rock face to consist of strong massive bedrock, typical in the Sooke area and known to have low-erodibility.

Section 510 of the East Sooke Official Community Plan (Bylaw No. 4000) stipulates a development permit is required for any proposed development sited on a steep slope. The bylaw defines a steep slope as any slope with a pitch greater than 30% (16.7 degrees) over a horizontal distance (run) greater than 10 m. As such, the siting of future developments would be permissible without a development permit for much of the site surrounding the existing residence. However, we recommend an offset of approximately 5 m from steep inland rock slopes to account for the expected rare occurrence of rockfall associated with the natural weathering of the rock mass.

Section 513 of Bylaw No. 4000 requires that any proposed development within a steep slope DPA must be designed to avoid alterations to the existing steep slope geometry, soil cover thickness, hydrology, and/or site vegetation. Given that the proposed addition will be not significantly increase the existing building footprint, we consider any alterations to the existing slope geometry, hydrology, soil cover thickness, and/or vegetation at the site will be negligible. However, we recommend that temporary sedimentation and erosion control measures, such as hay bails or silt fencing/booms, be implemented during construction if any required earthworks create a preferential drainage pathway(s) and that following construction the original conditions are reinstated. Furthermore, as the proposed addition is to extend from the south side of the existing residence, within the existing level parking area, we expect that the additional foundation loads placed in this area would not impact the global slope stability in the area.

Similarly, Section 520 of Bylaw No. 4000 stipulates a development permit is required for any proposed development sited within 15 m of the PNB of the ocean. Section 523 of Bylaw No. 4000 requires that erosion and sedimentation must be avoided during and after construction to maintain foreshore stability. Given that the proposed addition will extend from the south side of the existing residence, the offset from the PNB will be approximately 18 to 20 m which places the proposed addition outside of the DPA and in accordance with Section 524.

Section 525 of Bylaw No. 4000 further indicates that a Flood Construction Level (FCL) assessment, completed by a qualified professional, can be used to support an offset variance. As such, we have assessed the flooding hazard at the site due to severe storm events and ocean level rise associated with climate change.

Based on contour information provided by the online CRD Regional Map, the main floor elevation of the existing residence is between 7 and 10 m geodetic and a local shoreline elevation of roughly 1.5 m geodetic.

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The CRD Coastal Sea Level Rise Risk Assessment indicates that the predicted extreme high water level for a large tide (HHWLT + storm surge) for the year 2100 would be 3.69 m geodetic. However, this value was calculated using the previous methodology for estimating the projected FCL, defined as the minimum required elevation of the underside of a wooden floor system or the top of a concrete slab floor for habitable buildings.

As such, we have calculated an updated FCL using the currently accepted/legislated methodology, prescribed by the Provincial "Guidelines for Management of Coastal Flood Hazard Land Use," published in January 2011 and the Provincial Guidelines for "Coastal Floodplain Mapping" published in June 2011. Furthermore, the "Flood Hazard Area Land Use Management Guidelines" with amendments of January 1, 2018, specifically related to coastal flood construction levels was also reviewed.

The FCL was calculated following the "Combined Method" provided in the FHALUM Guidelines. Additional information required to establish the FCL was obtained from the Canadian Hydrographic Service (CHS). The FCL methodology utilizes the highest predicted tide (HHWLT) which was provided by the CHS as a base, upon which the predicted Sea Level Rise (SLR), storm surge, wave effect, local uplift, as well as an additional free board factor were considered.

The Provincial Guidelines outline a 1.0 m sea level rise, and accordingly, a factor of 1.0 m was applied to account for the predicted 100-year sea level rise (Ausenco Sandwell). In addition, a correction factor has been added to account for regional uplift and isostatic rebound. A regional uplift rate of 3.1 mm/year was selected for the Sooke area based on "Coastal Sea Level Risk Assessment" by AECOM (2015); therefore, the FCL has been decreased by 0.31 m over the 100-year sea level rise period. An estimated wave effect of 0.65 m, and a nominal freeboard amount of 0.3 m have also been included in the analysis. Table 1 summarizes the values used to establish the site-specific FCL.

Table 1: Summary of FCL Calculations

Item:	(m geodetic)	Notes:
Higher High Water Large Tide (HHWLT)	1.9	As per CHS[1] – based on Sooke Tidal Gauges
Total Storm Surge during "designated storm"	1.3	As per Guidelines for Victoria – 1:500 annual probability of exceedance storm event
Estimated wave effect	0.65	Limited, due to protection of surrounding topography and adjacent buildings[2]
Regional Uplift	(0.31)	3.1 mm/year decrease for Sooke, BC
Sea Level Rise (SLR)	1.0	As per Guidelines
Free Board Factor	0.3	As per Guidelines[2]
FLOOD CONSTRUCTION LEVEL (m geodetic)	**+4.84**	

[1] Canadian Hydrographic Service
[2] Following Amendment Section 3.5 and 3.6 of "Flood Hazard Area Land Use Management Guidelines" (2018)

The storm surge and estimated wave effect components of the FCL were estimated based on recommendations for the area in the Guidelines. However, the storm surge and wave effect will vary based on the local conditions of a given site. No site-specific analyses were completed to quantify the effect of local conditions at the site on the storm surge and wave effect.

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We have not undertaken detailed wave run-up analyses or associated magnitude return period frequency analyses of tsunami events to quantify the hazard at the referenced site. A review of the tsunami modelling completed for the Capital Regional District by AECOM (2013) indicates a maximum water level of 2.5 m for entrance of Sooke Harbour (inclusive of the mean tidal elevation) for a design 1:500 annual probability of exceedance earthquake. As per Amendment Section 3.5 of "Flood Hazard Area Land Use Management Guidelines" (2018) the greater of the tsunami maximum water level and FCL shall apply. The FCL is the greater of the two for the subject site, and as such the FCL of 4.84 m is recommended. However, we do recommend that residents review and understand the Provincial Tsunami Advanced Warning System.

Based on the above, and in accordance with the Guidelines, an FCL (or minimum elevation for habitable spaces) of **4.84 m** has been determined for this site.

Given that the main floor elevation is well above the calculated FCL elevation and that the grading around the inhabited portion of the site descends towards the ocean we do not consider the site to be subject to a flooding hazard caused by the ingress of ocean water into the site. Similarly, we do not consider the wave action during strong storm events to cause a flooding hazard either given the noted residence elevation, site grading, and the relatively short wave run-up/fetch length of less than 1.4 km.

Based on the above, we consider a reduction in the PNB offset from 15 m to 10 m to be appropriate for the site as it would not negatively impact any future development at the site. The CRD Approving Officer and Building Inspectors may rely on the above information when reviewing the permit applications for the proposed project. Note that we have based our recommendations on a probably of exceedance of 10% in 50 year for marine events and 2% in 50 year for seismic events.

Furthermore, we consider the proposed development, as noted, feasible from a geotechnical perspective and consider the land may be used safely for the use intended, pursuant to Section 56 of the Community Charter.

We trust that the preceding is suitable for your purposes at present, however if you have any questions with respect to the above, please contact us.

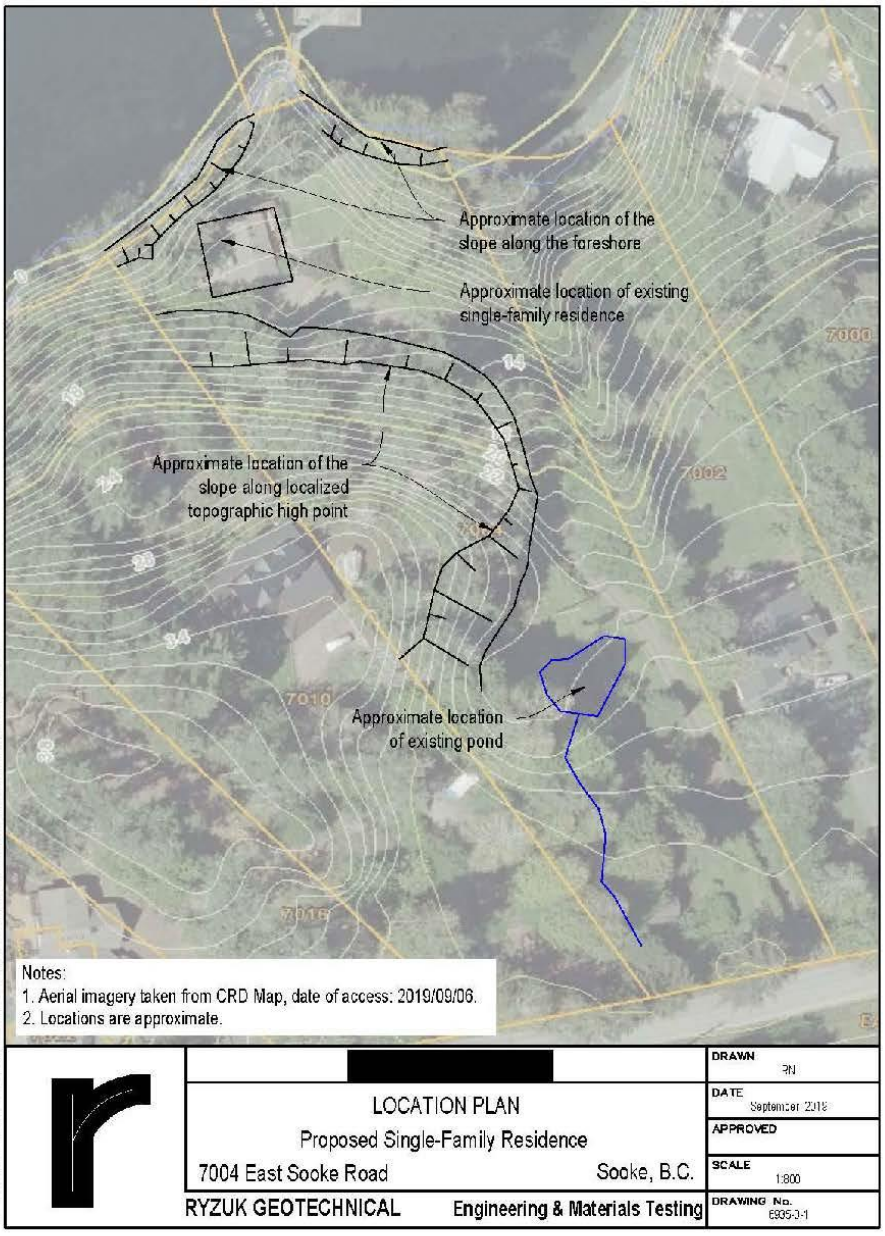
Best regards,
Ryzuk Geotechnical

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
R. T. MOSER
45362

Richard T. Moser, P.Eng.
Project Engineer

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DV000072



MOVED by Stan Jensen, **SECONDED** by Vern McConnell that the Land Use Committee recommends to the Capital Regional District (CRD) Board:

That Development Permit with Variance DV000071 for Lot 2, District Lot 39, Malahat District, Plan 23012 to authorize a 2-lot subdivision in a Sensitive Ecosystems Development Permit Area, and to vary Juan de Fuca Land Use Bylaw No. 2040, Part 2, Section 3.10(4) by reducing the minimum road frontage requirement from 10% (79.9 m) to 9.5% (76.4 m) for the purpose of authorizing a 2-lot subdivision, be approved.

CARRIED

b) DV000072 – Lot A, Section 89, Sooke District, Plan VIP54145 (7004 East Sooke Road)

Iain Lawrence spoke to the staff report and the request for a development permit with variance to address the Steep Slopes and Shoreline Protection Development Permit (DP) guidelines, and to vary the rear yard setback and the allowable projection of a deck into the rear yard setback for an addition to an existing single-family dwelling in the Rural Residential 6 (RR-6) zone.

Iain Lawrence highlighted the site plan with variance requests. It was advised that the applicant submitted a geotechnical report that included recommendations for the proposed development and a calculated flood construction level based on the most recent Provincial guidelines.

One comment was received in response to the notice of intent mailed to adjacent property owners within 500 m of the subject property. The comment from CRD Regional Parks was included in the supplementary agenda and stated no concerns regarding the application.

The Chair confirmed that the applicant was not present.

MOVED by Stan Jensen, **SECONDED** by Sandy Sinclair that the Land Use Committee recommends to the Capital Regional District (CRD) Board:

That Development Permit with Variance DV000072 for Lot A, Section 89, Sooke District, Plan VIP54145 to permit alterations to a single-family dwelling and deck located within in a Steep Slopes and a Shoreline Protection Development Permit Area; and to vary Part 2, Section 10.09(d) by decreasing the minimum rear yard setback from 10 m to 7.5 m, and to vary Juan de Fuca Land Use Bylaw No. 2040, Part 1, Section 4.10(1)(a) by increasing the maximum deck projection allowance into the rear yard setback from 1 m to 1.6 m, be approved.

CARRIED

7. Provision of Park Land for Subdivisions

a) SU000720 – Lot A, District Lot 17, Renfrew District, Plan EPP10506 (6505 Powder Main Road)

Iain Lawrence spoke to the staff report addressing the provision of 5% park land or cash-in-lieu pursuant to Section 510 of the *Local Government Act* for the proposed 13-lot bare land strata subdivision.

Iain Lawrence highlighted the proposed strata plan, identifying the watercourse on the property.

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REPORT TO REGIONAL PARKS COMMITTEE
MEETING OF WEDNESDAY, JULY 22, 2020

SUBJECT **Non-Migratory Canada Goose Management**

ISSUE SUMMARY

To provide information on the efficacy of advocacy or enhanced service levels for non-migratory Canada Goose Management in the Capital Regional District (CRD).

BACKGROUND

Non-migratory Canada geese were introduced from Eastern Canada in the 1960s and 1970s for wildlife viewing and hunting. They have been an ongoing concern in the capital region since approximately 1985. Large populations of non-migratory geese contribute to health, economic, and environmental issues affecting municipalities, parks, farmers, businesses, health agencies and airport authorities, to name a few.

In 2010, the CRD, provincial agencies, participating municipalities and stakeholders partnered to fund a project to collect extensive data on the goose population abundance and distribution, seasonal habitat use by geese and agriculture impacts in the capital region. The resulting Regional Canada Goose Management Strategy outlined a long-term, multi-faceted approach for the management of non-migratory Canada geese in the capital region and included a technical report completed by EBB Environmental Consulting that examined population data and historical impacts in the CRD. The strategy's goals were to: (1) reduce impacts on agricultural crops from Canada goose populations in the capital region to a level that prevents conflict between geese and human activities; (2) develop a knowledge base for the CRD, First Nations, farmers and local governments; and (3) reduce goose impacts on parks and recreational areas.

The CRD Board endorsed the strategy in December 2012, which was supported by local governments, provincial wildlife authorities, Canadian Wildlife Service farmers, and other stakeholders. The Board directed staff to continue to partner with interested municipalities and stakeholders to ensure effective implementation and coordination.

The CRD coordinated the Regional Goose Management Working Group through 2015, culminating in a pilot population reduction program in June of the same year. Since 2015, the working group has continued to meet without the CRD providing a coordinating role. The group participates on the Vancouver Island Regional Canada Goose Working Group, a group of Vancouver Island local governments affected by Canada goose conflicts. CRD staff continue to attend the Regional Canada Goose Working Group in support of the Regional Food and Agriculture Strategy initiatives.

In July 2019, staff provided an update on the Regional Canada Goose Management Strategy to the CRD Board. In response to the update the Board approved:

> *That the Board advocate to senior levels of government for resources (e.g., policy, programs, research and grant funding) to maintain and enhance the scope and scale of non-migratory Canada goose management in the region and report back in one year on the efficacy of the advocacy or enhanced service levels.*

In August of 2019, Chair Plant, on behalf of the CRD, sent a letter to Minister McKenna requesting the federal government increase the resources to maintain and enhance the scope and scale of non-migratory Canada goose management in the region. A response has not been received; however, federal and provincial representatives are participating on the Vancouver Island Regional Canada Goose Working Group and staff continue to represent the CRD interests and direction from the Board at this table.

Correspondence from the Town of View Royal (Appendix A) and the District of Central Saanich (Appendix B) earlier this year requests that the CRD play a more active role in coordinating a goose management strategy and goose egg addling across the Region.

CONCLUSION

The CRD coordinated the Regional Goose Management Working Group through 2015, culminating in a pilot population reduction program in June of the same year. Since 2015, the working group has continued to meet and participate on the Vancouver Island Regional Canada Goose Working Group. CRD staff continue to participate on the Regional Canada Goose Working Group and the Vancouver Island Regional Canada Goose Working Group.

RECOMMENDATION

That the Regional Parks Committee receive this report for information.

Submitted by:	Jeff Leahy, RPF, Senior Manager, Regional Parks
Concurrence:	Larisa Hutcheson, P. Eng., General Manager, Parks & Environmental Services
Concurrence:	Robert Lapham, MCIP, RPP, Chief Administrative Officer

ATTACHMENTS

Appendix A: Town of View Royal Correspondence (February 10, 2020)
Appendix B: District of Central Saanich Correspondence (April 23, 2020)

APPENDIX A

TOWN OF VIEW ROYAL

45 View Royal Avenue, Victoria, BC, Canada V9B 1A6
Ph. 250-479-6800 · Fx. 250-727-9551 · E. info@viewroyal.ca · www.viewroyal.ca

CRD EXECUTIVE OFFICE
Received
FEB 18 2020

February 10, 2020

Capital Regional District Board
625 Fisgard Street
PO Box 1000
Victoria, BC V8W 2S6

Dear Chair Plant and Directors:

RE: Regional Canada Goose Management Strategy

At its February 4, 2020 meeting, View Royal Council discussed correspondence provided by a resident describing the proliferation of non-migratory Canadian Geese in the Portage Inlet and the impacts they are causing. The dialogue covered topics such as the damage to sensitive ecosystems caused by foraging, trampling and feces as well as the potential impacts to native species of waterfowl in the migratory bird sanctuary that blankets much of our region.

View Royal Council is aware that the Capital Regional District undertook a Regional Canada Goose Management Strategy in 2012. Given the seemingly large and growing number of non-migratory Canadian geese, View Royal Council is asking if the management program developed through this CRD Strategy can be revisited and subsequently implemented by the Capital Regional District to reduce and mitigate the impacts at this time.

Thank you for consideration of this request.

Sincerely,

David Screech

David Screech
Mayor

Recycled Paper

APPENDIX B

Central Saanich

1903 Mt. Newton Cross Road | Saanichton, BC Canada | V8M 2A9 | 250.652.4444

April 23, 2020

File No. 0400-60/20

Capital Regional District
625 Fisgard Street, PO Box 1000
Victoria, BC V8W 2S6

Attention: Kristen Morley, Corporate Officer

Dear Ms. Morley,

Re: Egg Addling for Goose Management

At their April 20, 2020 Regular Meeting, the Municipal Council of the District of Central Saanich passed the motion that the Capital Regional District (CRD) Board consider the following resolution:

That staff prepare a request for proposals to provide a sustained region-wide coordinated goose egg addling service within the Capital Regional District.

Goose egg-addling is part of a multi pronged approach to goose management; and other regional districts have shown success with such an approach to goose management. Some organizations (ie, individual local government, DND and Water District) within the CRD have already been conducting egg adding programs on lands within their control.

Thank you for considering Council's request.

Sincerely,

L. Cornwell

Liz Cornwell,
Corporate Officer

CAPITAL REGIONAL DISTRICT
BYLAW NO. 4304

****

A BYLAW TO AMEND THE ESTABLISHING BYLAW FOR THE CORE AREA AND WESTERN COMMUNITIES LIQUID WASTE MANAGEMENT SERVICE (BYLAW NO. 2312)

****

WHEREAS:

A. Under Bylaw No. 2312, Liquid Waste Management Core Area and Western Communities Service Establishment Bylaw No. 1, 1995, the Regional Board converted a service established by Supplementary Letters Patent, Division VII dated December 28, 1967, as amended by further Supplementary Letters Patent, for the function of acquisition, design, construction, operation, maintenance, renewal, and administration of trunk sewers and sewage disposal facilities within all member municipalities of the Regional District except the District of Sooke and the Southern Gulf Islands, and converted such service to the authority of a bylaw under the *Local Government Act*;

B. The construction of a wastewater treatment plant on January 1, 2021 is Provincially mandated to be completed by the Capital Regional District, and such construction forms part of its liquid waste management plan pursuant to the *Environmental Management Act*;

C. The service expansion has always contemplated the participation of the Esquimalt Nation and the Songhees Nation as partners of the service participants and has allocated treatment capacity requested by each First Nation;

D. A surcharge will apply when a participant exceeds its allocated treatment capacity, as an incentive to reduce flows or purchase additional treatment capacity, and in transferring treatment capacity, a participant will be compensated for the costs paid and interest foregone; and

E. The Board wishes to amend Bylaw No. 2312 to establish the agreed-upon cost sharing provisions, recognize the Capital Regional District's partnership with the Esquimalt First Nation and Songhees First Nation, formalize the cost-sharing formula applied for design capacity benefit for capital, land and operating costs, and make other amendments to modernize the establishing bylaw;

NOW THEREFORE, the Capital Regional District Board in open meeting assembled hereby enacts as follows:

1. Bylaw No. 2312, "Liquid Waste Management Core Area and Western Communities Service Establishment Bylaw No. 1, 1995" is hereby amended as follows:

Minor Amendments

(a) In the preamble, replace the references to the *Local Government Act* as follows: 774.2 with 341; 796 with 332; and 801.4 with 346;

(b) In section 4(1)(a), replacing the reference to Division 4.3 of Part 24 with Division 2 of Part 11;

(c) In section 4(1)(b), replacing the reference to 797.2 of the *Local Government Act* with 397 of the *Local Government Act*;

(d) In section 6, replacing the reference to 800.1(1) of the *Local Government Act* with 339(1) of the *Local Government Act;*

(e) In section 6(b), replacing the reference to 803(1)(a) and (b) of the *Local Government Act* with 378(1)(a) and (b) of the *Local Government Act*;

Cost Sharing and Apportionment

(f) Changing the heading of section 5 to “Cost Sharing and Apportionment” from “Apportionment”;

(g) Replacing section 5(1) with the following:

5. (1) In this Bylaw:

(a) “allocated treatment capacity” or “treatment capacity” means the portion of the maximum treatment capacity in ML/D of a wastewater treatment plant that is allocated to a participating area under this Bylaw as set out in Schedule “B” and Schedule “C” and as adjusted from time-to-time in accordance with this bylaw;

(b) "annual debt and capital cost" means the principal and interest payable in each calendar year for the amortization of debenture and other debt;

(c) "annual operating cost" includes all costs of operating, maintaining, replacing, refreshing, and administering all participating area facilities, works, and programs, excluding annual debt and capital costs;

(d) “average annual flow” or “AAF” means the calculation obtained from measuring the total flow from October 1 of one year and September 30 of the following year;

(e) “average dry weather flow” means the calculation obtained from measuring the total flow from June 1 to August 31 in one year and dividing that amount by the number of days in that same period.

(f) “cost per unit of capacity” means the number derived by dividing the total annual debt and capital costs for a wastewater treatment plant in its first year of repayment by the wastewater treatment plant’s design capacity, in ML/D, as follows:

$$\frac{total\ annual\ debt\ and\ capital\ costs}{treatment\ capacity\ (ML/D)}$$

(g) “cost per unit of operating expense” means the number derived by dividing the total annual operating cost in one year by the actual measured sewage flows, in ML/D, in the same year, as follows:

$$\frac{total\ annual\ operating\ cost}{total\ actual\ measured\ sewage\ flows\ (ML/D)}$$

(h) "design capacity benefit" means a benefit to one or more participants that results from any new construction of, or capital additions or improvements to sewage conveyance facilities or their ancillary facilities, after December 21, 2002. To the extent that the benefit was the provision of, or the creation of conditions to allow, additional conveyance capacity, then the design capacity shall be calculated only on the extent to which each participant gained an increase in maximum allocated capacity. Where the benefit was not an increase in capacity, then the design capacity benefit shall be calculated on the existing maximum allocated capacity of each participant in the facility that was altered, added to or affected by the change;

(i) "East Coast Interceptor Trunk" means the sewer facilities and functions located in the municipalities of Saanich, Oak Bay and Victoria, comprising all Regionally operated facilities from the Finnerty Outfall diversion works to the Ross Bay trunk sewer at Dallas Road and Cemetery Road, as particularly set out in the East Coast Interceptor Operating Agreement, dated December 1993, and shown on Drawing No. 8-S184-2, including but not limited to:

(i) that portion of the original Northeast Trunk Sewer from Currie Pump Station to McMicking Outfall;
(ii) the McMicking Outfall;
(iii) the Finnerty Cove diversion works and Outfall;
(iv) the Humber Pump Station;
(v) the Rutland Pump Station; and
(vi) the Penrhyn and Currie Lift Station and Currie and Hood Pump stations;

(j) “Manager” means CRD’s General Manager, Integrated Water Services department, or such other individual designated by the CRD;

(k) "maximum allocated conveyance capacity" means that part of the maximum operating capacity of regional sewer allocated to a participating area to accommodate peak sewage flows from that participating area. When used in reference to spills, it is calculated as the peak wet weather flow in litres per second as shown in Schedule “B”, as adjusted from time-to-time on transfer of capacity under this bylaw, and when used in reference to design capacity benefit calculations or the transitory clauses in section 5(2)(a) and (b) for regional sewer built before December 31, 2020, it is as shown on Drawings No. 8-S184-1 and 8-S184-2 on file in the Integrated Water Services department and forming a part of this bylaw by reference;

(l) “ML/D” means megalitres per day;

(m) "participating area facilities" means all regional sewer facilities that serve the participating areas, as set out in Schedule “A”, but does not include those works owned or operated by a participant or a client of the service for a local sewer or wastewater system;

(n) “peak wet weather flow” means the maximum flow measured over a 24-hour period on any given day within the calendar year;

(o) "program" means investigations to assess the marine environment and shoreline discharges and contaminant sources and the coordination of these programs among all levels of government to enhance marine environmental quality;

(p) “regional sewer” means a trunk sewer, pump station, outfall, treatment plant, interceptor, sewer, sewage disposal, or other wastewater system owned or operated as part of the regional sewer system for the conveyance, measurement, treatment, control, handling and disposal of wastewater (liquids and solids).

(q) "Spill Regulation" includes the *Fisheries Act (Canada)* and regulations, the *Environmental Management Act (British Columbia)* and regulations, and any other enactment of a Federal or Provincial government governing the discharge of or report of a discharge of wastewater into the environment.

(r) “wastewater treatment plant” means, as applicable, a single treatment plant or one or more plants as then operating.

(h) By replacing sections 5(2)(a), (b), and (c) with the following:

(a) The annual debt and capital costs of participating area facilities constructed prior to December 31, 2002 shall be apportioned on the basis of the proportion of the maximum allocated conveyance capacity of that part of the respective facilities within a participating area and downstream from the participating area allotted to the participating area.

(b) The annual debt and capital costs of participating area facilities constructed after December 31, 2002 shall continue to be apportioned on the basis of the design capacity benefit that each participating area derives from each particular facility constructed during that time period.

(c) After December 31, 2020, the annual debt and capital costs of acquiring land and constructing participating area facilities shall be apportioned on the basis of design capacity based on projected flows to full wastewater treatment plant capacity using the following proportions of 70% ADWF and 30% AAF, as set out in Schedule "C" and as deemed adjusted from time-to-time by transfer of treatment capacity under this bylaw.

(i) By inserting as section 5(2)(d), (e), and (f) the following:

(d) Where the total flow of sewage from a participating area in a calendar year exceeds that participating area's allocated treatment capacity, and the total flow of sewage from all participating areas during that year is less than or equal to 95% of the design capacity of the wastewater treatment plant, the costs apportioned to that participating area under section 5(2)(c) shall be increased by an amount that is equal to:

$$3\,x\,(cost\ per\ unit\ of\ capacity + cost\ per\ unit\ of\ operating\ expense) \\ x\ number\ of ML/D\ over\ allocated\ treatment\ capacity$$

(e) Where the total flow of sewage from a participating area in a calendar year exceeds that participating area's allocated treatment capacity, and the total flow of sewage from all participating areas during that year is greater than 95% of the design capacity of the wastewater treatment plant, the costs apportioned to that participating area under section 5(2)(c) shall be increased by an amount that is equal to:

$$5\,x\,(cost\ per\ unit\ of\ capacity\ + cost\ per\ unit\ of\ operating\ expense) \\ x\ number\ of\ ML/D\ over\ allocated\ treatment\ capacity$$

(f) Where either subsection 5(2)(d) or 5(2)(e) applies, the costs apportioned to the remaining participating areas under subsection 5(2)(c) shall be reduced by an amount equivalent to that derived under the applicable formula.

(j) By replacing section 5(3)(a)(ii) with the following:

(a)(ii) the spill resulted from the capacity of regional sewer being exceeded, and by measurement it could be determined that flows from one or more participating areas exceeded the participating area's maximum allocated capacity or allocated treatment capacity; and

(k) By replacing section 5(3)(b) with the following:

(b) If more than one participating area jointly caused the spill, then the amount of the fine, damages or liability and legal costs shall be apportioned among those participating areas

determined to have caused the spill in proportion to their AAF, or where flow records indicate the percentage of overflow contribution, based on the amount of overflow contributed by each participating area.

(l) By replacing section 5(5) with the following:

The annual operating cost for participating area facilities shall be apportioned among the participating areas, in proportion to the AAF of each participating area, as it relates to the Total AAF of all participating areas, as follows:

$$Total\ operating\ costs\ x\ \frac{AAF\ of\ Participating\ Area}{Total\ AAF}$$

Powers

(m) By replacing section 7(a) in its entirety with:

7(a) Acquire, design, construct, operate, maintain, renew, decommission, demolish, clean-up, restore, and administer regional sewer facilities, buildings, and works;

(n) By amending section 7(f)(i) to read “minimizing the entry of surface, rainwater, and groundwater;”;

(o) By inserting the following as sections 7(i), (j), and (k) as applicable:

7(i) accept, collect, convey, and treat leachate generated at Hartland Landfill;

7(j) accept, collect, convey, and treat wastewater treatment plant residuals from one or more local governments, public authorities, or persons by agreement or by way of fee and charge;

7(k) enter into an agreement with one or more First Nations, including Songhees Nation and Esquimalt Nation, on such terms as are mutually agreed, for the provision of sewage conveyance, treatment, and disposal services, where such agreements follow the cost and treatment capacity apportionment procedures as set out in this bylaw.

Negotiation, Mediation and Arbitration

(p) By replacing section 8 in its entirety with the following:

(1) The participating areas shall make all reasonable efforts to resolve by negotiation a dispute regarding the allocation or reallocation of treatment capacity under section 9, or regarding the apportionment of capital and operating costs for the participating area facilities under subsections 5(2) or 5(5).

(2) In the event that negotiations under subsection (1) fail to resolve a matter in dispute, a Director representing a participating area affected or likely to be affected by the matter in dispute shall declare at a meeting of the Board at which it is intended to deal with any such question that he or she unwilling to accept the Board’s determination with respect to the matter, and the Board shall not decide the question, but shall appoint a mediator under subsection (5) and refer the question to a mediator within 30 days.

(3) In the event that a question has not been resolved by the mediator within 90 days of the appointment of a mediator under subsection (5), the mediator shall terminate the negotiations by giving notice in writing to all affected participating areas.

(4) Following termination of the mediation under subsection (3), the matter in dispute shall be referred to an arbitrator appointed under subsection (6) by the Board as soon as reasonably practicable following the expiry of the time period referred to in subsection (3).

(5) A mediator appointed under subsection (2) shall be appointed by two-thirds vote of all the Directors of the Board present at the meeting of the Board at which the selection is made. Failing such vote, the Board shall request the assistance of a dispute resolution officer under Division 3 of Part 9 of the *Community Charter* in appointing a mediator.

(6) An arbitrator appointed under subsection (4) shall be appointed by two-thirds vote of all the Directors of the Board present at the meeting of the Board at which the selection is made. Failing such vote, the Board shall request the assistance of a dispute resolution officer under Division 3 of Part 9 of the *Community Charter* in appointing the arbitrator, from the list of persons qualified to act as arbitrators under Division 3 of Part 9 of the *Community Charter*.

(7) The arbitration shall be conducted as either a final proposal arbitration, or as a full arbitration, in accordance with Division 3 of Part 9 of the *Community Charter*. The choice of arbitration process shall be made by unanimous vote of all the Directors of the Board present at the meeting of the Board at which the choice of process is made. Failing such vote, a dispute resolution officer under Division 3 of Part 9 of the *Community Charter* may direct which process is to be used.

(8) The arbitrator's decision shall be final and binding on the Board and on all participating areas affected, unless within 60 days of the date of decision the parties come to an alternative settlement in accordance with section 290 of the *Community Charter*.

Transfer of Treatment Capacity

(q) By replacing the heading of section 9 with "Transfer of Treatment Capacity" from "Participating Area Facilities";

(r) By replacing section 9 in its entirety with the following:

9. (1) Where a participating area:

(a) uses 90% or more of its allocated treatment capacity under this Bylaw, based on either:

(i) measured flows; or

(ii) where such flows are not available, as determined by the Manager based on the best available information and sound engineering practice;

and;

(b) desires additional capacity, or in the opinion of the Manager, requires additional capacity;

then such participating area shall commence negotiations with the Regional District, who will engage with the other participating areas for the reallocation of capacity.

(2) Allocated treatment capacity is reallocated under this section 9 on a permanent basis as the Regional District and the participating areas agree.

(3) Allocated treatment capacity shall not be reallocated under this section 9 if the requested increase in capacity is inconsistent with the projected population growth of the sub-region of the Regional District containing the requesting participating area, as set out in the Regional District's Regional Growth Strategy.

(4) In the event that the participating areas cannot agree on a reapportionment of the annual debt and capital costs or on arrangements for reallocation of design capacity within six months of the date of notice to the Manager or the Manager's determination under subsection (1), then a Director on the Board of the Regional District representing a participating area may, at a meeting of the Board, require that the matter be settled by mediation or arbitration in accordance with Section 8 of this Bylaw, subject to subsections (5) and (6).

(5) The decision of the arbitrator appointed under subsection (4) may require one or more participating areas to transfer treatment capacity to another participating area, provided the transferring participating area is not expected to use more than 95% of its respective allocated treatment capacity within 10 years from the requested date of the transfer.

(6) A participating area that permanently transfers allocated treatment capacity (the "Transferor") must be compensated by the recipient for the cumulative debt servicing and capital costs paid by the Transferor to the date of the transfer, including interest costs and interest foregone, in relation to the transferred capacity, as calculated by the Regional District.

(7) Where additional design capacity in a wastewater treatment facility becomes available, whether through the construction of a new wastewater treatment facility or otherwise, the added design capacity shall be allocated by the Regional Board among the participating areas as follows:

(a) a participating area that requires additional design capacity shall submit a request in writing to the Regional District;

(b) all requests for additional design capacity that are received before January 1 in a calendar year shall be considered by the Regional Board at the same time for the following budget year, and additional design capacity shall be allocated based on:

(i) availability of additional design capacity;

(ii) the demonstrated need of each requesting participating area;

(iii) consistency of the request with the Regional District's Regional Growth Strategy;

(iv) the adequacy of existing or planned conveyance infrastructure; and

(v) the Regional District's plans for future expansion of participating area facilities, and whether the participating area's request should be deferred until new capital projects are completed.

Replace Schedules

(s) By replacing Schedule “A” in its entirety with the Schedule “A” attached to this bylaw; and

(t) By replacing Schedule “B” in its entirety with the Schedule “B” attached to this bylaw.

(u) By adding Schedule “C” attached to the bylaw.

2. This bylaw may be cited for all purposes as “Liquid Waste Management Core Area and Western Communities Service Establishment Bylaw No. 1, 1995, Amendment Bylaw No. 3, 2020”.

READ A FIRST TIME THIS	13th	day of May	2020
READ A SECOND TIME THIS	13th	day of May	2020
READ A THIRD TIME THIS	13th	day of May	2020
APPROVED BY PARTICIPANTS THIS	30th	day of June	2020
APPROVED BY THE INSPECTOR OF MUNICIPALITIES THIS	17th	day of July	2020
ADOPTED THIS		day of	2020

CHAIR

CORPORATE OFFICER

CRD Core Area Wastewater Service Area Identification of Participating Facilities

Schedule A to Bylaw 2312 as Amended by Bylaw 4304

May 2020

Making a difference...together

1:25,000 NAD 1983 UTM Zone 10N

May 2020 | CoreAreaTrunkSewersParticipatingFacilities_ScheduleA.mxd | gis@crd.bc.ca

- Municipal Boundary
- CRD Growth Boundary
- CRD Core Area Sewer Service Boundary
- DND Areas
- Existing Sewer Main
- Overflow/Outfall
- Future Sewer Main
- Participating Facility Identification
- TP Treatment Plant
- RT Residuals Treatment Facility
- PS Pump Station

Key CRD Facilities

1. McLoughlin Wastewater Treatment Plant and Outfall
2. Clover Pump Station and Emergency Outfall
3. Harling Pump Station
4. Currie Lift station
5. Currie Pump Station and McMicking Outfall
6. Rutland Pump Station
7. Humber Pump Station
8. Penrhyn Lift Station
9. Penrhyn Booster Station
10. Arbutus Storage Tank and Finnerty Outfall
11. Trent Pump Station
12. Macaulay Pump Station and Emergency Outfall
13. Lancove Pump Station
14. Craigflower Pump Station
15. Marigold Pump Station and Storage Tank
16. Residual Solids Conveyance Line Pump Station #2
17. Residual Solids Conveyance Line Pump Station #3
18. Residual Solids Conveyance Line Pump Station #4
19. Residual Solids Treatment Facility

Continuation in inset

Service area in Saanich encompasses the whole municipality.

CRD Sewer Service Boundary follows coastline to City of Colwood

Service area in View Royal encompasses the whole municipality.

Service area in Langford encompasses the whole municipality.

Residual Solids Conveyance Line

Leachate/Centrate Return Line

Northwest Trunk

Western Trunk

Northeast Trunk

Eastern Trunk

District of Saanich

Town of View Royal

City of Langford

City of Colwood

District of Metchosin

Township of Esquimalt

Esquimalt Nation

Songhees Nation

City of Victoria

District of Oak Bay

CRD Core Area Wastewater Service Area Allocated Flow Capacities to Participants

Schedule B to Bylaw 2312 as Amended by Bylaw 4304

May 2020

Making a difference...together

1:25,000 NAD 1983 UTM Zone 10N

October 2019 | CoreAreaTrunkSewersAllocatedFlowCapacities_ScheduleB.mxd | gis@crd.bc.ca

N W E S

- Municipal Boundary
- CRD Growth Boundary
- CRD Core Area Sewer Service Boundary
- DND Areas
- Existing Sewer Main
- Overflow/Outfall
- Future Sewer Main
- Wastewater Inflow Allotment at Indicated Location (Inflow ID)
- TP Treatment Plant
- RT Residuals Treatment Facility
- PS Pump Station

CRD Sewer Service Boundary follows coastline to City of Colwood

Service area in Saanich encompasses the whole municipality.

Residual Solids Conveyance Line

Leachate/Centrate Return Line

Service area in Langford encompasses the whole municipality.

PWWF allocation of 4xADWF only avalilable when capacity upgrades are completed (shown as red dashed line). See Note 3.

Northwest Trunk

Western Trunk

Northeast Trunk

Eastern Trunk

McLoughlin WWTP

District of Highlands

District of Saanich

Town of View Royal

City of Langford

City of Colwood

District of Metchosin

Songhees Nation

Esquimalt Nation

Township of Esquimalt

City of Victoria

District of Oak Bay

Notes:

1. ADWF = Average Dry Weather Flow (June 1 to August 31).
PWWF = Peak Wet Weather Flow (max flow over a 24-hour period).
L/s = Litres per second. MLD = Mega Litres per day.

2. The ADWF Allocations are based the Core Area Wastewater Treatment Program where the total ADWF plant capacity of 108 MLD was allocated out to each participant based on their requested capacity.

3. PWWF is based on 4xADWF which the maximum flow allowed at McLoughlin WWTP as approved by the Ministry of Environment. These allocations will be available when the upgrades identified on the map are completed. Capacity upgrade at the Craigflower Pump Station can be achieved by forcemain twinning. Pump upgrades are not required to meet the PWWF allocation.

4. Total peak flows may not add cumulatively at downstream locations due to system attenuation (population-based on Harmon peaking factor).

5. Inflow allocations may not add cumulatively to participant totals due to inter-municipal cross boundary connections. Inter-municipal flows are not measured; they are estimated as shown in blue text in the tables.

6. Location and extent of future CRD sewers and facilities as depicted are preliminary and may change in accordance with the final system design.

7. Allocations are available up until the capacity at McLoughlin WWTP has been reached. New infrastructure and reallocation of flows will then be required. Allocations can be transferred amongst participants pursuant to the terms of the bylaw.

8. Note some infrastructure is currently being constructed as part of the Core Area Wastewater Treatment Project but is shown as existing on this map.

Allocated Treatment Capacity and Anticipated Average Annual Flow

Participant	Allocated Average Dry Weather Flow (ADWF) Treatment Capacity at McLoughlin WWTP (ML/day) ("allocated treatment capacity")	Anticipated Average Annual Flow (AAF) at McLoughlin WWTP (ML/day)	Percent of Allocation of Capital and Debt Servicing Costs (using 70% of proportional ADWF and 30% of proportional AAF)
Colwood	4.70	4.92	4.24%
Esquimalt	7.10	8.24	6.60%
Esquimalt Nation	0.07	0.09	0.07%
Langford	14.12	14.30	12.63%
Oak Bay	6.62	8.63	6.39%
Saanich	32.89	37.17	30.34%
Songhees Nation	0.66	0.70	0.60%
Victoria	38.30	45.85	35.95%
View Royal	3.54	3.64	3.18%
Total	**108.00**	**123.54**	**100.00%**

Subject to change pursuant to the terms of the bylaw.

****See Note 3**

City of Langford

Inflow ID	Inflow Name	ADWF Allocation (L/s)	PWWF Allocation** (L/s)
1	Meaford	163.5	654.0
	Meaford (Colwood)	0.4	1.4
2	Parsons	163.5	654.0
3	Craigflower PS	163.5	654.0
28	Macaulay Point PS	163.5	654.0
	Total	**163.5**	**654.0**
		(14.12 MLD)	

Town of View Royal

Inflow ID	Inflow Name	ADWF Allocation (L/s)	PWWF Allocation (L/s)
3	Craigflower PS	41.0	164.0
4	Shoreline Trunk**	1.6	6.4
28	Macaulay Point PS	41.0	164.0
	Total	**41.0**	**164.0**
		(3.54 MLD)	

City of Colwood

Inflow ID	Inflow Name	ADWF Allocation (L/s)	PWWF Allocation** (L/s)
2	Parsons	54.4	217.5
3	Craigflower PS	54.4	217.5
28	Macaulay Point PS	54.4	217.5
	Total	**54.4**	**217.5**
		(4.70 MLD)	

Songhees Nation

Inflow ID	Inflow Name	ADWF Allocation (L/s)	PWWF Allocation (L/s)
6	Songhees Nation	6.8	27.1
4	Shoreline Trunk**	6.8	27.1
3	Craigflower PS	6.8	27.1
8	Maplebank	0.1	0.5
28	Macaulay Point PS	7.3	29.3
	Total	**7.3**	**29.3**
		(0.66 MLD)	

14 Centrate Line

ADWF Allocation (L/s)	PWWF Allocation (L/s)
45.0	45.0

15 Leachate Line

ADWF Allocation (L/s)	PWWF Allocation (L/s)
39.2	39.2

Note: the maximum daily allocations for the Centrate and Leachate Lines are capped at the values noted.

Esquimalt Nation

Inflow ID	Inflow Name	ADWF Allocation (L/s)	PWWF Allocation (L/s)
7	Esquimalt Nation	1.2	4.7
4	Shoreline Trunk**	1.2	4.7
3	Craigflower PS	1.2	4.7
28	Macaulay Point PS	1.2	4.7
	Total	**1.2**	**4.7**
		(0.07 MLD)	

Township of Esquimalt

Inflow ID	Inflow Name	ADWF Allocation (L/s)	PWWF Allocation (L/s)
3	Craigflower PS	1.4	5.7
4	Shoreline Trunk	1.4	5.7
5	Esquimalt Panhandle	1.4	5.7
9a	Lang Cove PS (DND)	5.8	23.1
9b	Lang Cove PS (Esquimalt)	9.0	35.9
10	Dockyard (DND)	6.8	27.2
	Dockyard (Esquimalt)	4.9	19.6
11	Kinver	5.1	20.4
12	Pooley Place	0.7	2.8
21	Devonshire (Esquimalt)	21.0	83.9
	Devonshire (Songhees Nation)	0.4	1.5
24	Wilson (Esquimalt)	4.2	16.6
	Wilson (Victoria)	0.1	0.4
26	Head (DND)	2.9	11.4
	Head (Esquimalt)	16.5	66.1
27	Anson (DND)	2.8	11.2
28	Macaulay Point PS	82.1	328.5
	Total	**82.1**	**328.5**
		(7.10 MLD)	

District of Saanich

Inflow ID	Inflow Name	ADWF Allocation (L/s)	PWWF Allocation (L/s)
13	Marigold PS	152.7	610.9
16	City Boundary	73.2	292.7
19	Harriet	37.8	151.1
28	Macaulay Point PS	266.7	1066.8
29	Townley	2.0	8.2
30	Haultain	6.6	26.3
33	Arbutus	81.9	327.7
34	Haro - Uvic	9.2	36.7
35	Penrhyn LS (Saanich)	10.7	42.9
	Penrhyn LS (Oak Bay)	0.1	0.2
44	Clover Point PS	113.9	455.7
	Total	**380.6**	**1522.5**
		(32.89 MLD)	

City of Victoria

Inflow ID	Inflow Name	ADWF Allocation (L/s)	PWWF Allocation (L/s)
17	Cecelia (Victoria)	33.5	133.9
	Cecelia (Saanich)	2.8	11.0
18	Chapman and Gorge (Victoria)	3.9	15.6
	Chapman and Gorge (Saanich)	0.2	1.0
20	Selkirk (Victoria)	2.6	10.5
	Selkirk (Esquimalt)	0.6	2.3
22	Langford -Vic West (Victoria)	1.9	7.5
	Langford -Vic West (Esquimalt)	0.3	1.3
23	Hereward	22.1	88.2
25	Sea Terrace (Victoria)	3.6	14.5
	Sea Terrace (Esquimalt)	0.2	0.8
28	Macaulay Point PS	67.7	270.6
31	Trent Net (Victoria)	81.5	325.9
	Trent Net (Saanich)	2.9	11.5
41	Hollywood (Victoria)	4.0	15.9
	Hollywood (Oak Bay)	2.3	9.3
42	Olive	266.0	1064.1
43	Clover Net	22.2	88.9
44	Clover Point PS	375.6	1502.4
	Total	**443.3**	**1773.0**
		(38.30 MLD)	

District of Oak Bay

Inflow ID	Inflow Name	ADWF Allocation (L/s)	PWWF Allocation (L/s)
32	Windsor	5.0	19.9
36	Humber	7.1	28.4
37	Rutland	4.4	17.8
38	Currie Net (Oak Bay)	38.5	154.2
	Currie Net (Victoria)	1.9	7.4
	Currie Net (Saanich)	0.6	2.4
39	Currie Lift Station (Oak Bay)	19.2	76.7
	Currie Lift Station (Victoria)	0.03	0.13
40	Harling Point PS	2.3	9.3
44	Clover Point PS	76.6	306.5
	Total	**76.6**	**306.5**
		(6.62 MLD)	

SCHEDULE "C"

ALLOCATION OF WASTEWATER FLOW AND COST APPORTIONMENT

ALLOCATION OF DESIGN CAPACITY

The treatment capacity of the wastewater treatment plant is 108 ML/day measured on the basis of Average Dry Weather Flows (ADWF). Design capacity is allocated to participants as shown in Table One, subject to adjustment for transfer of capacity in accordance with this bylaw.

TABLE ONE: ALLOCATION OF DESIGN CAPACITY AS MEASURED BY ADWF

	Allocated Treatment Capacity in ADWF (ML/day)	% of Total
Colwood	4.70	4.35%
Esquimalt	7.10	6.57%
Esquimalt Nation	0.07	0.07%
Langford	14.12	13.08%
Oak Bay	6.62	6.13%
Saanich	32.89	30.45%
Songhees Nation	0.66	0.61%
Victoria	38.30	35.46%
View Royal	3.54	3.28%
Total	108.00	100.00%

Anticipated flow in terms of AAF are derived in the manner shown in Table Two. Table Three shows the percentage allocation of capital and debt servicing costs calculated from the % allocation of design capacity defined in terms of ADWF and AAF.

TABLE TWO: CONVERSION OF ADWF DESIGN CAPACITY INTO AAF

	ADWF (ML/day)	Conversion Factor *	AAF (ML/day)	% of Total
Colwood	4.70	1.046	4.92	3.98%
Esquimalt	7.10	1.161	8.24	6.67%
Esquimalt Nation	0.07	1.286	0.09	0.08%
Langford	14.12	1.013	14.30	11.58%
Oak Bay	6.62	1.304	8.63	6.98%
Saanich	32.89	1.130	37.17	30.09%
Songhees Nation	0.66	1.061	0.70	0.56%
Victoria	38.30	1.197	45.85	37.11%
View Royal	3.54	1.028	3.64	2.95%
Total	108.00		123.54	100.00%

***** The conversion factor was calculated using measured ADWF and AAF in year 2012.

SCHEDULE "C"

APPORTIONMENT OF CAPITAL AND DEBT SERVICING COSTS

TABLE THREE: PERCENTAGE ALLOCATION OF CAPITAL AND DEBT SERVICING COSTS

	% Distribution of ADWF	% Distribution of AAF	% Allocation of Debt Servicing Costs
Weighting factor	*0.7*	*0.3*	
Colwood	4.35%	3.98%	4.24%
Esquimalt	6.57%	6.67%	6.60%
Esquimalt Nation	0.07%	0.08%	0.07%
Langford	13.08%	11.58%	12.63%
Oak Bay	6.13%	6.98%	6.39%
Saanich	30.45%	30.09%	30.34%
Songhees Nation	0.61%	0.56%	0.60%
Victoria	35.46%	37.11%	35.96%
View Royal	3.28%	2.95%	3.18%
Total	100.00%	100.00%	100.00%

All calculations subject to change based on transfer of treatment capacity pursuant to the terms of this bylaw.