



Notice of Meeting and Meeting Agenda Environmental Services Committee

Wednesday, May 18, 2022

1:30 PM

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

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

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

1. Territorial Acknowledgement

2. Approval of Agenda

3. Adoption of Minutes

3.1. [22-333](#) Minutes of the April 20, 2022 Environmental Services Committee Meeting

Recommendation: That the minute of the Environmental Services Committee meeting of April 20, 2022 be adopted as circulated.

Attachments: [Minutes - April 20, 2022](#)

4. Chair's Remarks

5. Presentations/Delegations

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

Delegations will have the option to participate electronically. Please complete the online application for "Addressing the Board" on our website and staff will respond with details.

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

6. Committee Business

6.1. [22-311](#) Curbside Blue Box Recycling - 2024 and Beyond

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

1. That staff be directed to issue a Request for Proposals for a six-year contract for Board approval to provide residential curbside blue box collection, from January 1, 2024 to December 31, 2029;
2. That staff be directed to return to the Environmental Services Committee and the Capital Regional District Board for direction prior to awarding the Request for Proposals; and
3. That staff accept the Recycle BC one-year extension to their current agreement with the CRD to provide service to the end of 2024, and then enter into a new five-year agreement with Recycle BC to provide residential curbside recycling services for the capital region on its behalf for January 1, 2025 to December 31, 2029.

Attachments: [Staff Report: Curbside Blue Box Recycling - 2024 and Beyond](#)
[Appendix A: Correspondence from Recycle BC \(March 8, 2022\)](#)

6.2. [22-312](#) Disposal of International Cruise Ship Waste at Hartland Landfill

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

Attachments: [Staff Report: Disposal of International Cruise Ship Waste at Hartland Landfill](#)
[Appendix A: Tymac Presentation to CRD SWAC - May 6, 2022](#)

**6.3. [22-325](#) Clean BC Communities Fund Grant Application - Clean Energy
Transportation - Public Electric Vehicle Infrastructure Project**

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

1. That staff be authorized to submit the Regional Public Electric Vehicle Charging Network project to the Investing in Canada Infrastructure Program's CleanBC Communities Fund grant program on behalf of the participating local governments and First Nations;
2. That the Capital Regional District participate in the regional charging network by supplying sites found in Appendix A; and
3. That up to \$725,000 be assigned from the previously approved 2022-2026 climate action service financial plan for up to 175 public level 2 EV charging ports across the region, as well as a commitment to any associated ineligible costs and cost overruns.

Attachments: [Staff Report: Grant Application - Public EV Infrastructure Project](#)
[Appendix A: CRD-Owned Properties](#)

6.4. [22-321](#) Goose Management Update

Recommendation: The Environmental Services Committee recommends to the Capital Regional District Board:
That staff bring back a report outlining costs for a Canada Goose Management Service.

Attachments: [Staff Report: Goose Management Update](#)
[Appendix A: Canada Goose Mitigation & Population Monitoring Report](#)
[Appendix B: CRD 2022 Canada Goose Mitigation Draft Action Plan](#)

7. Notice(s) of Motion

8. New Business

9. Adjournment

The next meeting is June 15, 2022.

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

Meeting Minutes

Environmental Services Committee

Wednesday, April 20, 2022

1:30 PM

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

PRESENT

Directors: B. Desjardins (Chair), N. Taylor (Vice Chair), L. Szpak (for D. Blackwell), L. Helps, M. Hicks (EP), G. Holman (EP), G. Orr, J. Ranns, K. Williams (EP), R. Windsor (EP)

Staff: R. Lapham, Chief Administrative Officer; L. Hutcheson, General Manager, Parks and Environmental Services; R. Smith, Senior Manager, Environmental Resource Management; N. Elliott, Manager, Climate Action Programs; M. Lagoa, Deputy Corporate Officer; J. Dorman, Committee Clerk (Recorder)

EP - Electronic Participation

Regrets: Director(s) D. Blackwell, C. Plant (Board Chair, ex-officio)

The meeting was called to order at 1:31 pm.

1. Territorial Acknowledgement

Vice Chair Taylor provided a Territorial Acknowledgement.

2. Approval of Agenda

MOVED by Director Taylor, SECONDED by Director Helps,
That the agenda for the April 20, 2022 Environmental Services Committee
meeting be approved as amended to address Item 6.3. before 6.2.
CARRIED

3. Adoption of Minutes

3.1. [22-148](#)

Minutes of the January 19, 2022 and March 30, 2022 Environmental Committee Meetings

MOVED by Director Taylor, SECONDED by Director Orr,
That the minutes of the Environmental Services Committee meetings of January
19, 2022 and March 30, 2022 be adopted as circulated.
CARRIED

4. Chair's Remarks

Chair Desjardins spoke about how there are two significant reports with some challenging news that adds more to our resolve going forward.

5. Presentations/Delegations

There were no presentations or delegations.

6. Committee Business

6.1. [22-260](#) Capital Regional District Climate Action - 2021 Annual Report

N. Elliott presented Item 6.1. for information.

Discussion ensued on the following:

- grant funding from provincial and federal governments
- greenhouse gas emission pandemic impacts
- fuel use impact reduction
- emissions associated with electricity and community versus corporate transportation

6.3. [22-262](#) Solid Waste - 2021 Annual Report

R. Smith spoke to Item 6.3.

Discussion ensued on the following:

- surface water drainage system contamination at landfill
- organic materials mitigation strategies
- cruise ship waste classification done by the Canadian Food Inspection Agency
- abandoned waste enforcement/alternatives

MOVED by Director Orr, SECONDED by Director Taylor,

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

That the Solid Waste Advisory Committee, in its plan monitoring role, be directed to review the 2021 Plan Monitoring Update (Appendix A - of the Solid Waste 2021 Annual Report).

CARRIED

6.2. [22-236](#)**Meeting the Solid Waste Management Plan Targets through Material Stream Diversion**

R. Smith spoke to Item 6.2.

Discussion ensued on the following:

- challenges on reuse of construction materials
- sorting of construction materials prior to reception at landfill
- renovation versus new build trends
- education outreach strategies
- beneficial use alternatives

**MOVED by Director Holman, SECONDED by Director Taylor,
The Environmental Services Committee recommends to the Capital Regional District Board:**

That staff be directed to initiate a procurement process for further processing of divertible materials, and return to the Environmental Services Committee in January 2023 with financial implications and proposed amendments to the Hartland Tipping Fee and Regulation Bylaw No. 3881 and associated operational implications.

CARRIED

**MOVED by Director Holman, SECONDED by Director Taylor,
The Solid Waste Advisory Committee recommends the Environmental Services Committee recommends to the Capital Regional District Board:**

That further attention be focused towards construction material source separation, and information be brought back to the Solid Waste Advisory Committee on what can be done.

CARRIED

7. Notice(s) of Motion

There were no notice(s) of motion.

8. New Business

There was no new business.

9. Adjournment

**MOVED by Director Taylor, SECONDED by Director Helps,
That the April 20, 2022 Environmental Services Committee meeting be adjourned at 3:02 pm.**

CARRIED

CHAIR

RECORDER

**REPORT TO ENVIRONMENTAL SERVICES COMMITTEE
MEETING OF WEDNESDAY, MAY 18, 2022**

SUBJECT **Curbside Blue Box Recycling – 2024 and Beyond**

ISSUE SUMMARY

To seek direction with respect to the Capital Regional District's (CRD) continued involvement with the provision of residential curbside blue box recycling service after December 31, 2023.

BACKGROUND

Recycle BC (RBC) has been responsible for the management of residential packaging and printed products throughout the province of BC, including providing funding to the CRD for the curbside blue box program since May 2014.

At its meeting of July 9, 2014, the CRD Board passed a motion directing staff to enter into an agreement with RBC to provide residential curbside recycling services on its behalf for the capital region beginning May 1, 2015 and ending April 30, 2019. This agreement was renewed on February 14, 2018 when the CRD Board passed a motion directing staff to enter into an agreement with RBC to again provide residential curbside recycling services on its behalf beginning May 1, 2019 and ending December 31, 2023. With the successful execution of the contract with RBC, staff issued a tender to provide curbside blue box collection, and the contract was awarded to Emterra Environmental, which also ends on December 31, 2023.

With both the RBC agreement and the contract with Emterra expiring in approximately 20 months, a decision needs to be made regarding whether the CRD wishes to continue to be involved with the provision of the residential curbside blue box service. Staff wrote to RBC in January seeking confirmation of its plans for the service beyond 2023 and requested a new long-term agreement for the CRD Board's consideration to continue providing the service. RBC responded with a letter to staff on March 8, 2022 instead confirming its intention to extend the term of the contract with the CRD by one year, to December 31, 2024. RBC's rationale for the one-year extension is to allow them time to conduct a province-wide cost study that will be used to establish curbside collection payment rates for 2025 and beyond. The letter also states that RBC considers the CRD a valued partner and that, following the one-year extension to the current agreement, it intends to provide the CRD with a new five-year agreement to continue to provide residential curbside recycling services for the years 2025 through 2029. A copy the RBC letter is provided in Appendix A.

The CRD's contract with Emterra does not contain an option for an extension, and Emterra management has indicated it is not interested in an extension under the current terms. Therefore, the CRD has four options with respect to residential curbside blue box recycling service beyond December 31, 2023:

- discontinue its involvement with the service and turn over responsibility for provision of the service by RBC directly
- negotiate a one-year extension of the Emterra Environmental contract to December 31, 2024
- issue a Request for Proposals (RFP) for a one-year collection contract for 2024 only
- issue an RFP for a new six-year collection contract

Should the CRD elect to discontinue its involvement with RBC and the provision of residential curbside recycling services, it would need to advise RBC in writing of its intentions no less than six months prior to the expiration of the current agreement with RBC. Under the BC Recycling Regulation (BCRR), RBC would be required to instead directly implement its own residential curbside recycling service for all homes that currently receive such service. RBC has requested that it be notified by July 1, 2022 by local governments wanting to turn over curbside recycling services to it, and that it would then look to implement its own direct service beginning January 1, 2025. RBC has indicated that this two-and-a-half year timeline is needed to allow it sufficient time to establish its own program and ensure there is no break in the provision of service resulting from the transition from a CRD-provided service to an RBC-provided service. RBC staff have indicated a shorter timeline could potentially result in a period of time where there is no service being provided.

The issuance of an RFP for a one-year contract to provide curbside blue box collection for 2024 would almost certainly produce an unacceptably expensive contract, as all of the capital costs for collection trucks would be amortized over just one year. Staff believe that this is not a viable option, and do not recommend seeking a new one-year contract.

The CRD could continue to provide curbside recycling services on behalf of RBC beyond December 31, 2023 and issue an RFP for a new six-year collection contract for curbside recycling services. The CRD would need to award a new collection contract approximately 18 months in advance of the start of the work to allow sufficient time for collection trucks to be ordered, manufactured and delivered for use beginning January 1, 2024. The procurement for collection services will include enhanced contract enforcement language to ensure better curbside recycling services during challenging conditions, such as those encountered in 2020-2021.

ALTERNATIVES

Alternative 1

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

1. That staff be directed to issue a Request for Proposals for a six-year contract for Board approval to provide residential curbside blue box collection, from January 1, 2024 to December 31, 2029;
2. That staff be directed to return to the Environmental Services Committee and the Capital Regional District Board for direction prior to awarding the Request for Proposals; and
3. That staff accept the Recycle BC one-year extension to their current agreement with the CRD to provide service to the end of 2024, and then enter into a new five-year agreement with Recycle BC to provide residential curbside recycling services for the capital region on its behalf for January 1, 2025 to December 31, 2029.

Alternative 2

That staff be directed to negotiate a one-year extension of the Emterra Environmental contract to December 31, 2024.

Alternative 3

That staff be directed to serve written notice to Recycle BC that the CRD does not wish to continue to provide residential curbside recycling services on its behalf for the capital region beyond December 31, 2023 when the current agreement expires.

IMPLICATIONS

Environmental & Climate Implications

Alternatives 1 and 2 would see the current residential curbside recycling services maintained in the region. Returning direct responsibility for curbside recycling to RBC under Alternative 3 has the potential to cause a disruption in service while RBC establishes its own direct service in the region. It may also result in a reduction in service levels, such as the discontinuation of curbside glass collection. This may result in some recyclable materials being landfilled, as some residents may choose to dispose of their materials as they become less convenient to recycle.

Social Implications

Alternatives 1 and 2 would see curbside recycling continue, with the CRD being involved in the delivery of this valued community service. It would also allow for delivery of a service designed for local needs to be maintained, such as door pick-up for elderly and/or disabled residents, and would also allow for continued cross promotion with other waste diversion initiatives and environmental programs. Lastly, it would also allow for continued program promotion and messaging that is developed specifically for the region's demographics and delivered to best meet the needs of the local community.

Under Alternative 3, the provision of curbside recycling services would become the responsibility of RBC. RBC would be obligated under the BCRR to continue providing this service, and it would contract private industry to do so. However, since RBC has indicated it would like a two-and-a-half year timeline to transition to its own direct service program, there is the potential that service in the region could be disrupted if the CRD-delivered collection service were to end on December 31, 2023. Returning responsibility for this service to RBC may also result in a reduction in service levels, including the discontinuation of curbside glass collection. Without CRD involvement, residents will need to rely on RBC generic, province-wide communication and education services, rather than those currently provided by the CRD to serve this community specifically. It is also likely to result in confusion amongst residents while service is transitioned from the CRD to RBC.

Financial Implications

The recommended alternative puts the CRD at risk of being 100% responsible for funding of curbside blue box collection, at an estimated cost in excess of \$5 million per year, for up to five years, if Recycle BC does not enter into a new agreement with the CRD starting January 1, 2025. Although this is a very low probability event, it is recommended that the CRD proceed with caution and continue to seek a firm financial commitment from Recycle BC prior to bringing to the proposed curbside blue box RFP to the CRD Board for approval and award.

With the implementation of a scheduled increase beginning July 1 of this year, the fees paid to the CRD under the current agreement with RBC are sufficient to cover 100% of Emterra's collection contract costs. This includes the provision of curbside glass collection, which RBC had sought to discontinue in 2014 in favour of glass collection at depots (to reduce cross contamination with other recyclables), but which the CRD Board directed that curbside glass collection be maintained as a public convenience at an additional cost paid by the CRD.

A six-year collection contract would align with RBC's timing for a one-year extension for 2024, followed by a new five-year agreement for 2025 to 2029. The competitive RFP process

contemplated under Alternative 1 would be expected to attract highly competitive fee rates from prospective bidders, as a six-year contract represents a long-term stable source of work. Despite this, costs under such a contract can be expected to be significantly higher than what is currently in place due to inflationary pressures and significantly increased costs for fuel, labour and collection trucks. Given that fees paid by RBC will remain static for 2024, any increased costs would have to be borne by the CRD in 2024. The 2024 solid waste budget would need to reflect these costs; the solid waste sustainability reserve has sufficient funds to pay these anticipated cost increases. Between 2025 and 2029, the net cost to the CRD, if any, would be conditional upon the compensation rate provided by RBC for the provision of the service. However, RBC has previously demonstrated good faith in increasing rates and has stated its intention to further adjust rates in accordance with service delivery costs following its 2024 cost study.

Under Alternative 2, negotiating a one-year extension to the Emterra contract would likely incur significant additional costs; the existing fleet of collection trucks would be beyond their end-of-life, and attempting to extend their use would likely result in significant challenges with maintaining their serviceability. Moreover, Emterra ownership has indicated it would only be interested in an extension if the CRD significantly increases the fees it is paid to conduct the work.

Alternative 3 avoids any potential financial costs to the CRD, as the provision of curbside recycling services would become the direct responsibility of RBC. The net costs to the CRD for 2024 under Alternative 1 are believed to be comparable to those anticipated under Alternative 2.

CONCLUSION

Recycle BC and the CRD have worked together successfully to provide residential curbside recycling services in the capital region since May 2014. Recycle BC is proposing to extend this mutually beneficial relationship through a one-year extension of the current agreement, followed by a new service agreement that would be in effect from January 1, 2025 to December 31, 2029 that would see current service and support programs maintained for the region's residents. Collection contract costs would be subject to a competitive Request for Proposals process but would be expected to result in some net cost to the CRD for 2024. Any net costs to the CRD for 2025 through 2029 are subject to the as yet undetermined compensation rates paid by Recycle BC, though Recycle BC has demonstrated good faith in aligning its payments to the CRD with actual service delivery costs.

RECOMMENDATION

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

1. That staff be directed to issue a Request for Proposals for a six-year contract for Board approval to provide residential curbside blue box collection, from January 1, 2024 to December 31, 2029;
2. That staff be directed to return to the Environmental Services Committee and the Capital Regional District Board for direction prior to awarding the Request for Proposals; and
3. That staff accept the Recycle BC one-year extension to their current agreement with the CRD to provide service to the end of 2024, and then enter into a new five-year agreement with Recycle BC to provide residential curbside recycling services for the capital region on its behalf for January 1, 2025 to December 31, 2029.

| | |
|---------------|---|
| 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: Correspondence from Recycle BC – March 8, 2022



March 8, 2022

Attn: Tom Watkins
Manager, Policy & Planning, Environmental Resource Management
Capital Regional District
625 Fisgard Street
Victoria, BC
V8W 2S6
Via: Email

Re: Curbside Collection Services

Tom,

Thank you for your letter dated January 27, 2022, and for the follow up conversation.

As you noted, the Capital Regional District (CRD) and Recycle BC have partnered for the operation of curbside recycling service in the CRD since the Recycle BC program launched in 2014. The current Curbside Statement of Work (SOW) between the CRD and Recycle BC indicates that the current term of that agreement ends on December 31, 2023, and that Recycle BC may extend that term by up to two further periods of one year each. While we will provide formal documentation in the future, on February 8, 2022, we provided advance notice via email that we will be extending the term by one year (one year only) to December 31, 2024.

This change is being made, in part, to better align the timeline of new agreements with Recycle BC collectors and our next cost study. Recycle BC regularly conducts comprehensive financial payment reviews, including cost studies, using an independent financial firm. The findings of those studies are one of the major inputs that are used to establish the incentive rates provided to curbside and multi-family collectors. While the next cost study was scheduled for 2025, we will instead be conducting this cost study one year early in 2024. This will allow us to establish the new incentive rates in time to be built into the new SOWs, which would be signed in 2024 by local governments wishing to continue participating in the Recycle BC program, with an effective date of January 1, 2025. Any new agreement terms would therefore be reflected in the incentive rates outlined in these new SOWs.

The CRD has been a valued partner in the Recycle BC program. It is Recycle BC's intent to provide a new 5-year Curbside SOW to the CRD for signature in 2024 to provide the option to the CRD to continue as a curbside collector in the Recycle BC program for the years 2025 to 2029. The exact terms of that agreement will be determined in the coming years (in addition to the applicable incentive rates, as outlined above), and although the agreement terms are not expected to be substantively different from those in the current agreement between Recycle BC and the CRD, we can't speak to any new Ministry requirements or future Regulation changes



that may impact our program and services agreements. I understand the CRD is planning to engage in a competitive procurement process for curbside collection services, and I hope this provides the necessary certainty to proceed with that process.

If you have any questions or wish to discuss this issue further, please do not hesitate to let me know.

Thank you.

Sincerely,

Jordan Best
Western Canada Director, Collection
Recycle BC
604 314 4084
jbest@recyclebc.ca

Cc:
Brendan McShane – Director, Collection – Recycle BC

**REPORT TO ENVIRONMENTAL SERVICES COMMITTEE
MEETING OF WEDNESDAY, MAY 18, 2022**

SUBJECT **Disposal of International Cruise Ship Waste at Hartland Landfill**

ISSUE SUMMARY

To provide the Environmental Services Committee (ESC) with information regarding the disposal of international cruise ship waste at Hartland Landfill.

BACKGROUND

At its April 20, 2022 meeting, the ESC, while considering the 2021 Solid Waste Annual Report, discussed the matter of the disposal of international cruise ship waste at Hartland Landfill and directed staff to provide information with respect to the quantity of cruise ship waste being received at Hartland.

Due to the COVID-19 pandemic, no cruise ships called into the port of Victoria in 2020 and 2021, so no cruise ship waste was received in those two years. In 2019, Hartland Landfill received approximately 2,100 tonnes of cruise ship waste, representing about 1.3% of all solid waste landfilled for that year. Between 2016 and 2018, cruise ship waste represented less than one half of 1% of all solid waste landfilled annually. In 2022, a total of 10 loads of cruise ship waste, totaling 20 tonnes, have been received at Hartland up to the end of April.

In Canada, solid waste from cruise ships is managed according to the International Waste Directive under the authority of the Canada Border Services Agency and the Canadian Food Inspection Agency. Solid waste is designated as either high risk or low risk, and is managed according to that designation. High-risk waste must be treated as controlled waste and requires immediate deep burial in trenches at Hartland Landfill. Low-risk waste can be managed as general refuse and disposed of along with other regular garbage being received at the landfill. Of the 2,100 tonnes of cruise ship waste received at Hartland in 2019, approximately 1,500 tonnes, or 71%, was classified as low risk and about 600 tonnes, or 29%, was classified as high risk. All ten loads of cruise ship waste received so far in 2022 have been classified as high risk.

The International Waste Directive does not require cruise ships to offload their waste upon docking at the first or any port of call in Canada, and the decision whether to offload is at the discretion of the ship. However, given the limited storage space on cruise ships, regular offloading of waste is a logistical necessity, including in Victoria. This is particularly true when considering that Victoria is often the only Canadian port of call for Alaska cruises.

The company contracted to receive and manage waste from cruise ships docking in Victoria is Tymac Launch Service Limited. Tymac maintains a comprehensive set of waste handling guidelines for cruise ship staff to use to manage waste when they are in the port of Victoria. These guidelines include procedures for diverting recyclable materials, managing hazardous waste and segregating banned items. Tymac prepared a Cruise Ship Waste Overview presentation for the May 6 Solid Waste Advisory Committee meeting (see Appendix A).

IMPLICATIONS

Financial Implications

At Hartland Landfill, international waste is currently charged at the controlled waste fee of \$157 per tonne, not the general refuse fee of \$110 per tonne.

CONCLUSION

At its meeting of April 20, 2022, the Environmental Services Committee directed staff to provide information with respect to the quantity of cruise ship waste being received at Hartland Landfill. Cruise ship waste typically represents less than 1% of all solid waste annually landfilled in the region. The firm managing cruise ship waste reports that approximately 85% of all cruise ship waste being received in Victoria is recycled, with only residuals being sent to the landfill. Offloading of waste is typically a logistical necessity for most cruise ships, particularly when Victoria is the only Canadian port of call for Alaska cruises.

RECOMMENDATION

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

| | |
|---------------|---|
| Submitted by: | Russ Smith, Senior Manager, Environmental Resource Management |
| Concurrence: | Glenn Harris, Ph.D., RP.Bio., Acting GM, Parks & Environmental Services |
| Concurrence: | Robert Lapham, MCIP, RPP, Chief Administrative Officer |

ATTACHMENT

Appendix A: Tymac Presentation to CRD Solid Waste Advisory Committee: Cruise Ship Waste Overview (May 6, 2022)

CRD Solid Waste Advisory Committee

Cruise Ship Waste Overview

Tymac Launch Service Ltd.

May 6, 2022

Acknowledgement of Traditional Lekwungen Territory

Songhees Nation



Esquimalt Nation





1929



1986

ABOUT TYMAC

Established in 1929, Tymac is a privately held **Canadian Company** that has specialized in servicing the BC Cruise Industry since 1986.

Proudly certified with the **International Longshore & Warehouse Union** (ILWU Canada, Local 400), **Council of Marine Carriers**, **BC Trucking Association** and **WorkSafeBC**.

Green Marine Certified, a voluntary environmental certification program whose members commit to continuously reduce their environmental footprint and carry out its operational activities in an environmentally sustainable and responsible manner.

Two-time recipient of the Recycling Council of British Columbia (RCBC) Private Sector Award – Excellence in Leadership & Environmental Stewardship (2014 & 2018). An award that is granted annually to one private company based off nominations across all peers within the Recycling Industry in British Columbia.





WASTE HANDLING GUIDELINES 2022



(Greater Victoria Harbour Authority)

VICTORIA, BC CANADA

Waste Handling Guidelines



Vancouver



Victoria



Cardboard



Paper



Crushed Glass



PET Plastic



Rigid Plastic



Styrofoam



Food



Mattresses



E-Waste



Donations



Donations



Mooring Lines

Skill Testing Question:

What is the Number 1
recycling commodity by weight
that comes off of a cruise
ship?

Glass = 2038 tonnes

RECYCLING PRODUCT EXAMPLES

- Batteries (Alkaline, NiCad, Lead Acid, Lithium)
 - Broken China & Crockery
 - Cardboard, Paper & Other Fiber Products
 - Cigarette Butts
 - Compact Fridges
 - Compressors
 - Cooking Oil
 - E-Waste (Computers, Printers, Monitors, Entertainment Devices, Controls)
 - Food Compost & Grease Trap
 - Glass (all types)
 - Lights (Fluorescent Tubes, Halogens, HID, Incandescent, LED, U-Tubes, Compacts, UV, Germicidal, Mercury Vapor, Mercury Halide)
 - Mattresses & Carpet
 - Metal & Mooring Lines
 - Printer / Toner Cartridges
 - Plastic (PET & Mixed)
 - Styrofoam
 - Used Oil, Filters & Grease
 - Wood & Wooden Pallets
- + Furniture & Other Items for Donation**

Total recycled for 2019 = 5,204 tonnes

2019 CRD Annual Solid Waste Report

TOTAL REFUSE BY TYPE (tonnes)

| TYPE OF WASTE | 2018 | 2019 | % CHANGE |
|------------------------------|----------------|----------------|-----------|
| General refuse | 146,431 | 145,402 | -1% |
| Controlled waste | 10,417 | 11,512 | 11% |
| Asbestos containing material | 3,094 | 3,813 | 23% |
| TOTAL | 159,942 | 160,727 | 0% |

2019 CRD General Refuse + Controlled Waste = 156,914 t¹

CRUISE SHIP WASTE

| YEAR | SHIPS | LOW RISK (tonnes) | HIGH RISK (tonnes) | TOTAL (tonnes) |
|------|-------|-------------------|--------------------|----------------|
| 2016 | 224 | 255 | 22 | 278 |
| 2017 | 239 | 279 | 84 | 763 |
| 2018 | 243 | 295 | 9 | 304 |
| 2019 | 256 | 1,468 | 613 | 2,082 |

¹ https://www.crd.bc.ca/docs/default-source/crd-document-library/plans-reports/landfill-recycling/2019-reports/2019-solid-waste-annual-report.pdf?sfvrsn=107d30cc_4

Conclusion:

| 2019 | Victoria Cruise Ships | CRD |
|--------------------------|------------------------|----------------------|
| Population | 1,003,998 ² | 418,511 ¹ |
| Garbage Sent to Hartland | 2,081 t | 156,914 t |

Annual % of Garbage Received at Hartland from Cruise Ships
= 1.3%, from more than double the population.

² <https://vancouverisland.ctvnews.ca/victoria-saw-more-than-1m-cruise-ship-passengers-and-crew-in-2019-1.4661532>

**REPORT TO ENVIRONMENTAL SERVICES COMMITTEE
MEETING OF WEDNESDAY, MAY 18, 2022**

SUBJECT **Clean BC Communities Fund Grant Application – Clean Energy
Transportation – Public Electric Vehicle Infrastructure Project**

ISSUE SUMMARY

A Capital Regional District (CRD) Board resolution is required for a grant application to the Investing in Canada Infrastructure Program (ICIP) – Green Infrastructure – CleanBC Communities Fund for a regional public electric vehicle charging network project.

BACKGROUND

Electric Vehicle Infrastructure

In October 2021, the CRD approved the Climate Action Strategy. The strategy committed the CRD to implementing the Electric Vehicle (EV) Infrastructure Roadmap (Roadmap), which identifies that approximately \$31 million of investment is needed for public EV infrastructure to enable the region to achieve 25% of EV ownership relative to the total vehicle fleet by 2030. Access to public charging is required to support EV adoption for inter-regional travel, for users who do not have access to at-home charging and for fleet vehicles, such as taxis and car-share services. Both municipal and private chargers will make up the resulting network, with municipalities supporting community charging needs where private investment is not expected in the short term.

The Roadmap identified that most of the investment would go to direct-current fast chargers (Fast Chargers), which typically support “on-the-go” or top-up charging. Being energy and capital intensive, these chargers are currently being installed in corridors by BC Hydro and private sector entities. The City of Victoria intends to extend these to support charging in densely-populated neighborhoods.

A number of public level 2 chargers currently exist in the region (i.e., malls, recreation centres and municipal halls). The Roadmap envisions these to be installed in greater numbers in long-term (i.e., multi-hour) parking areas that are close to homes, community hubs, recreation sites, and workplaces to support charging for employees and local residents who do not have access to home charging.

CleanBC Communities Fund

The CleanBC Communities Fund (CCF) supports infrastructure projects that contribute toward greenhouse gas reductions and climate change mitigation in BC communities and funds projects that increase access to clean energy transportation, among others. The CCF is a component of the ICIP and is supported by both federal and provincial funding. This third and final intake will pay up to 73.33% of project costs for local governments, which provides a higher potential leverage value than other granting streams for public EV charging stations. The initial phase of the grant is due May 25, 2022, and requires Board resolution articulating general grant support, site availability and financial commitments.

Collaboration and Siting

Staff conducted an EV charging station siting initiative with local governments and electoral areas, and the Malahat Nation. Utilizing a prioritization framework, the initiative resulted in almost 600 priority ports at more than 70 locations across the region, some of which are located on CRD-owned properties (Appendix A). The priority stations are level 2 charging sites, with the exception of the City of Victoria and the Malahat Nation, which are seeking to install Fast Charger stations. The sites are spread across the region based on the needs described in the Roadmap.

As the technical siting evaluation continues, the final number of ports at a specific location, or the location itself, may change; or the location may be removed from the final installation plan.

ALTERNATIVES

Alternative 1

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

1. That staff be authorized to submit the Regional Public Electric Vehicle Charging Network project to the Investing in Canada Infrastructure Program's CleanBC Communities Fund grant program on behalf of the participating local governments and First Nations;
2. That the Capital Regional District participate in the regional charging network by supplying sites found in Appendix A; and
3. That up to \$725,000 be assigned from the previously approved 2022-2026 climate action service financial plan for up to 175 public level 2 EV charging ports across the region, as well as a commitment to any associated ineligible costs and cost overruns.

Alternative 2

That the CleanBC Communities Fund grant application not be endorsed.

IMPLICATIONS

Environmental & Climate Implications

On-road transportation accounts for the largest portion of emissions in our region and the transition to EV is a major component of all regional, federal and provincial emission reduction strategies. Accelerating EV uptake in the region is the largest single contributor to modelled emissions reduction in the CRD Climate Action Strategy. Supporting public charging is integral to EV transition strategies.

Intergovernmental Implications

Staff are working closely with local governments, electoral area staff and First Nations to identify priority locations for inclusion in this grant. The grant administration will require interaction and approvals from all government bodies involved.

Financial Implications

The total final grant application will be for up to \$7 million. The total cost of the project is expected to be up to \$9 million. Up to \$725,000 will be dedicated to this project from the 2022-2026 CRD climate action service financial plan to support the 26.67% contribution for the level 2 stations across the region. Anticipating this grant opportunity, this was included in 2022 service planning approved by the Board on March 16, 2022. CRD funding will be combined with additional

investments committed to by the City of Victoria for both level 2 and fast charger installations. The Malahat Nation will similarly supply its contribution toward its station installations. If successful, the CRD is not expected to receive approval until late 2023.

The District of Central Saanich will no longer be part of the Climate Action Service when the CRD is expected to be notified of the grant outcome. As such, the municipal contribution, including administration of the grant, of any stations identified in that jurisdiction are the sole responsibility of the District of Central Saanich.

Service Delivery Implications

This grant requires recipients to own and operate the stations for at least a five-year period. The CRD Climate Action Service would take on the operations and maintenance responsibilities for the stations in the capital region, including the collection of revenue, but would enable any local authority to take on the ownership and operations, if they elect to do so. For example, the District of Saanich and City of Victoria have indicated their intention to continue managing and operating publicly-owned charging stations within their jurisdictions.

All stations installed through this initiative will be networked and charge a fee for use. Data associated with the station use will be shared with the CRD for analysis, and ongoing costs for operation and maintenance will likely be covered by the revenue from the stations.

Fast chargers will be owned and operated by the local authority sponsoring their installation (i.e., City of Victoria, Malahat Nation).

CONCLUSION

The CRD Climate Action Strategy committed the CRD to implementing the Electric Vehicle Infrastructure Roadmap, including supporting the installation of public EV charging stations. CRD staff are seeking approval to pursue a CleanBC Communities Fund grant to support the installation of almost 600 new charging ports in the region.

RECOMMENDATION

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

1. That staff be authorized to submit the Regional Public Electric Vehicle Charging Network project to the Investing in Canada Infrastructure Program's CleanBC Communities Fund grant program on behalf of the participating local governments and First Nations;
2. That the Capital Regional District participate in the regional charging network by supplying sites found in Appendix A; and
3. That up to \$725,000 be assigned from the previously approved 2022-2026 climate action service financial plan for up to 175 public level 2 EV charging ports across the region, as well as a commitment to any associated ineligible costs and cost overruns.

| | |
|---------------|---|
| Submitted by: | Nikki Elliott, Manager, Climate Action Programs |
| Concurrence: | Glenn Harris, Ph.D., R.P.Bio., Acting General Manager, Parks & Environmental Services |
| Concurrence: | Robert Lapham, MCIP, RPP, Chief Administrative Officer |

ATTACHMENT

Appendix A: Capital Regional District Owned Properties

CAPITAL REGIONAL DISTRICT OWNED PROPERTIES

May 2022

- Mayne Island Community Library – 411 Naylor, Mayne Island
- ArtSpring – 100 Jackson Avenue, Ganges, Salt Spring Island
- Centennial Park – 139 Fulford – Gangies Road, Salt Spring Island
- Mouat Park – 160 Seaview Road, Salt Spring Island
- Rainbow Road Recreation Centre – 262 Rainbow Road, Salt Spring Island
- SEAPARC Recreation Facility – 2168 Phillips Road, Sooke

**REPORT TO ENVIRONMENTAL SERVICES COMMITTEE
MEETING OF WEDNESDAY, MAY 18, 2022**

SUBJECT Goose Management Update

ISSUE SUMMARY

To report back on a Goose Management Service and provide results of recent Canada goose population surveys in the capital region.

BACKGROUND

Ongoing environmental, economic, and health impacts from expanding populations of non-migratory Canada geese continue to affect municipalities, parks, farmers, businesses, health agencies and airport authorities in the capital region and across Vancouver Island.

In August 2020, the Capital Regional District (CRD) Board directed staff to provide a report on a Canada Goose Management Service.

In 2021, CRD staff established a Memorandum of Understanding with the Guardians of the Mid-Island Estuaries Society (GoMIES) to (1) provide a summary report (Appendix A) of Canada goose population estimates and trends using historical and current survey data, as well as known/suspected nesting locations and goose hotspots; and (2) develop a draft action plan that includes longer-term mitigation activities with a proposed budget (Appendix B).

The increasing population of Canada geese will continue to put significant pressure on regional and municipal resources, parks and recreational fields, beaches, estuaries and agricultural crops, if coordinated population control actions are not implemented.

ALTERNATIVES

Alternative 1

The Environmental Services Committee recommends to the Capital Regional District Board:
That staff bring back a report outlining costs for a Canada Goose Management Service.

Alternative 2

The Environmental Services Committee recommends to the Capital Regional District Board:
That staff bring a Canada Goose Management Service forward for the 2024-2028 service planning and budget cycle.

Alternative 3

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

IMPLICATIONS

Environmental & Climate Implications

The current Vancouver Island Canada goose population ranges from 10,000 to 15,000, with an estimated 3,500-7,000 birds over-wintering in the capital region (Appendix A). Data from banded birds confirms that Canada geese are moving between regions on Vancouver Island. In the capital region, the Canada goose population had an annual growth rate of 16% from 1977-1997 (Christmas bird count), while survey data from 2017-2021 indicates the population is roughly doubling every 4.3 years.

Surveys in 2020 and 2021 identified Sooke Basin, Esquimalt Lagoon, Portage Inlet and Gorge Waterway, Victoria/Oak Bay southeast shoreline and near shore islets, and the east coast of Saanich Peninsula from Sidney to Tsartlip Nation Reserve lands as key hotspots where moulting geese congregate. Nest and egg surveys conducted by GoMIES located 168 nests and added 854 eggs in 2020 and found 241 nests and added 1,282 eggs in 2021.

While there are a suite of tools for managing Canada goose populations, recent discussions indicate most local governments, farmers and large land owners rely on hazing techniques (using dogs, noise and lights) to deter Canada geese from their jurisdictions; very few of these groups conduct regular egg addling, while some farmers have obtained hunting permits.

Hazing is proving effective to manage the volume of goose droppings that accumulate where large flocks congregate; however, the 2020-2021 nest surveys indicate that reliance on this method is likely moving goose nesting activities to nearby quarries and off shore islands, many of which are part of the BC Parks Ecological Reserves. Hazing also does nothing to reduce goose populations over the long term.

To see a significant reduction in Canada goose populations, regionally coordinated population control measures, such as egg addling and regular goose harvests, need to be implemented. A humane harvesting program could include efforts to utilize all parts of the bird and ideally would provide a significant food source (i.e., City of Victoria Set the Table program, homeless shelters). Opportunities to support and provide training for First Nations Guardian programs to implement a regional egg addling program and to participate in repairing the goose impacts to important estuary and wetland habitats could also be explored.

The inconsistent and uncoordinated approach across the region has resulted in moving geese and their associated impacts into new areas, continued expansion of nesting and over-wintering Canada goose populations, and more significant ecological, economic, social impacts to agricultural and recreational facilities, estuaries and wetlands, large land owners and local governments.

Stewardship groups report significant and ongoing damage to native ecosystems on nearshore islands and to important estuaries, as a result of increasing goose populations, while the farming community reports significant and ongoing agricultural and economic impacts from geese.

Intergovernmental and First Nations Implications

The Regional Canada Goose Management Strategy, endorsed by the CRD Board in 2012, is being implemented in an ad hoc fashion by some key stakeholders. Coordination of roles and responsibilities between all levels of government, First Nations, Peninsula & Area Agricultural Commission (PAAC), large land holders, and community groups is required. Preliminary conversations also indicate a need for inter-regional conversations and collaborations across Vancouver Island and perhaps the Salish Sea.

In early 2022, CRD and GoMIES staff initiated conversations with local government staff, large property owners (Recreation Centres, Department of National Defence, and School Districts), other governments (some First Nations, the Province) and PAAC to discuss a regional collaborative approach and obtain funding contributions toward an egg addling program. There was general support for a more coordinated regional approach and \$30,000 was obtained to contract GoMIES to conduct egg addling through April and May in key nesting hotspots around the region.

Social Implications

Public education outlining the problems associated with too many geese would be an important component of a goose management service. Under a new service, a coordinated communications strategy with an education and awareness program would be developed and implemented to help residents understand the impacts Canada goose populations are having, the need for more aggressive and coordinated population control tactics to be implemented, and to engage the community in helping to protect and restore ecological habitats that have been negatively impacted by Canada geese.

Financial Implications

The proposed Action Plan developed by GoMIES includes a regional egg addling program, regular summer and winter population surveys, development of outreach materials and establishing additional partners. The action plan does not include goose harvests. The estimated cost for a regional egg addling and population monitoring program is \$120,000 annually.

A Canada Goose Management service would require additional staff resources to: establish collaborative partnerships and build alliances with other agencies, First Nations and key stakeholders within the region (and inter-regionally as necessary); facilitate the development and implementation of a communications strategy; develop educational outreach materials, manage egg addling contracts with non-profits and First Nations partners, contract manage regular population surveys, support and facilitate regional implementation of the Regional Canada Goose Management Strategy and the action plan, including regular goose harvests.

A potential service could be partially funded through municipal requisition and supplemented with direct funding from large property owners (i.e., golf course operators, PAAC, farmers, recreation centres). The estimated cost to implement a service is approximately \$250,000.

Legal Implications

This service can be created by way of an “establishing bylaw”. Before an establishing bylaw can be adopted, it must receive approval of the electors and the Inspector of Municipalities. The *Local Government Act (LGA)* provides three ways to obtain approval: referendum/elector assent (s. 344 LGA); Alternative Approval Process (AAP, s. 345 LGA); and consent by municipal councils on behalf of electors, and by AAP within the Electoral Areas (s. 346 LGA) – while the choice on the method of participating area approval for a regional service is made by the Board, but subject to review of the Inspector of Municipalities at the time of Inspector approval of the bylaw.

For a new regional service where participants are in agreement that it should be created, the most cost-effective form of approval is municipal consent on behalf and alternative-approval process in the electoral areas. Such approval must be unanimous. The typical process prior to drafting a service bylaw is to solicit interest in consenting by writing in advance of drafting a formal bylaw and going forward with a formal consent process. If a potential participant council disagrees with proceeding with service creation, staff can look at alternatives to a regional service, such as a sub-regional service. This process takes three to five months and costs approximately \$15,000, depending on the level of support requested by municipalities and electoral areas.

CONCLUSION

Increasing populations of Canada goose in the capital region are causing significant impacts to estuary habitats, near shore islands in the ecological reserves, recreational beaches and lakes, playing fields and agricultural crops; resulting in increasing pressure on local governments to take more coordinated actions.

Effective management of Canada Geese requires regional collaboration, cooperation and coordination between land use agencies under various jurisdictions, including federal and provincial wildlife agencies, parks and recreation boards, local and regional governments, airport authorities, farmers, and owners of large properties such as golf courses.

RECOMMENDATION

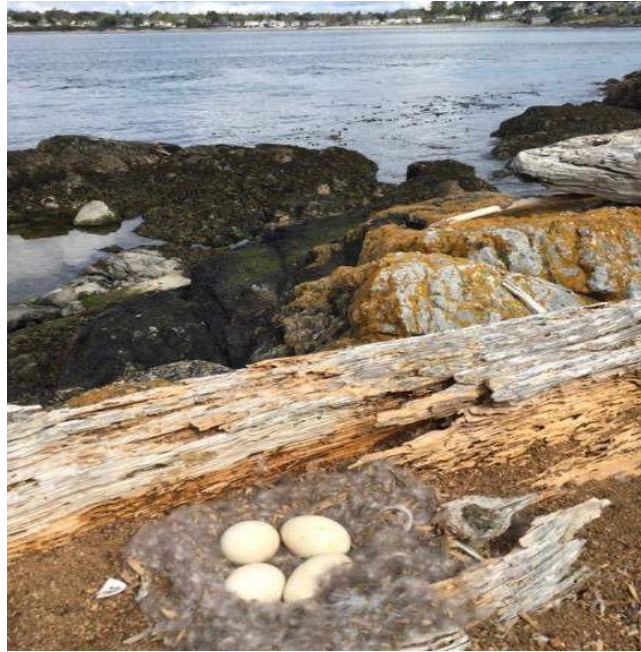
The Environmental Services Committee recommends to the Capital Regional District Board: That staff bring back a report outlining costs for a Canada Goose Management Service.

| | |
|---------------|---|
| Submitted by: | Glenn Harris, Ph.D., R.P.Bio., Senior Manager, Environmental Protection |
| Concurrence: | Robert Lapham, MCIP, RPP, Chief Administrative Officer |

ATTACHMENTS

Appendix A: Canada Goose Mitigation and Population Monitoring (Guardians of Mid-Island Estuaries Society) – January 27, 2022

Appendix B: Capital Regional District 2022 Canada Goose Mitigation Draft Action Plan (Guardians of Mid-Island Estuaries Society) – February 14, 2022



CANADA GOOSE MITIGATION AND POPULATION MONITORING

Guardians of Mid-Island Estuaries Society



JANUARY 27, 2022

SUBMITTED TO GLENN HARRIS, SENIOR MANAGER, ENVIRONMENTAL PROTECTION
Capital Regional District



Table of Contents

| | |
|---|-------|
| Introduction..... | p. 2 |
| Historical Abundance of Canada Geese (<i>Branta canadensis</i>) within the CRD Summary..... | p. 2 |
| Summer CAGO Population Surveys CRD (2017-2021) | p. 4 |
| Winter Counts..... | p. 9 |
| Effects of Resident Canada Goose Herbivory on Local Agricultural Production..... | p. 9 |
| Guardians of Mid-Island Estuaries Society Egg Addling in the CRD..... | p. 10 |
| Conclusions..... | p. 10 |
| Citations..... | p. 19 |
| Appendices..... | p. 20 |

List of Tables and Figures

| | |
|--|------------|
| Table 1: Guardians of Mid-Island Estuaries Society, Canada Goose moult count, Capital Regional District, CAGO distribution by municipality. July 2021..... | p. 7 |
| Table 2: Results of 2019 GoMIES aerial CAGO survey..... | p. 9 |
| Table 3: Total number of nests located, and eggs addled at each location by the GoMIES Field Crew in the Capital Regional District of Vancouver Island, Spring 2020..... | p. 11 |
| Table 4: Results from addling season 2021, CRD islands..... | p. 11 |
| Table 5: 2021 Farm and quarry addling results from the CRD..... | p. 12 |
| Table 6: Location and distribution of CRD CAGO moulting population, July 2021..... | Appendices |
| Figure 1: Historical CRD CAGO data, provided by Ann Nightingale, Rocky Point Bird Observatory..... | p. 3 |
| Figure 2: 2021 CRD CAGO moult count results..... | p. 8 |
| Figures 3-7: CAGO Nest locations 2021 on Flower Island, Great Chain Island, Islet 7, Staines Islet and Jemmy Jones Island..... | p. 14 |
| Figures 8 & 9: CAGO nest locations on Lesser and Greater Trial Island, 2021..... | p. 15 |
| Figures 10 & 11: Extremely dense nesting populations discovered in farmlands in 2021, Saanich Peninsula. | p. 15 |
| Figure 12: Farm/Quarry CAGO nest locations, 2021..... | p. 16 |

Photo Credits: Garreth Ashley and Graeme Fowler



Introduction

In response to requests for help from landowners and some municipalities, the Guardians of Mid-Island Estuaries Society (GoMIES) has recently initiated Canada Goose (CAGO) population mitigation within the Capital Regional District (CRD). Surveys of breeding, summer moult and winter populations have been conducted since 2017. On the ground mitigation work was begun in cooperation with the Tsawout First Nation in the form of harvests of geese in 2018 and 2019. In spring of 2020 and 2021, extensive egg addling services were provided from Sooke to the Saanich Peninsula. In 2021 alone, 241 active nests containing 1,298 eggs were treated by our addling crews in CRD municipalities. Approximately half these nests were located in previously undocumented CAGO breeding “hotspots” on local agricultural properties.

GoMIES programs have yielded valuable insight into how CAGO population mitigation measures can help reduce populations of CAGO in the CRD and elsewhere. These programs have already produced quantifiable decreases in moulting and wintering CAGO populations, which are documented in this report.

Historical Abundance of Canada Geese (*Branta canadensis*) within the CRD

During the first half of the 20th century, the Canada Goose was mainly a migrant and summer visitant in most of British Columbia. One subspecies, the Vancouver Canada Goose (*Branta canadensis fulva*) was then known to breed in small numbers on northern Vancouver Island, but breeding was absent on southern Vancouver Island (Campbell et al. 1990). Beginning in the 1950s and then more intensively through the 1970s and early 1980s, Canada Geese were captured elsewhere and released in south coastal BC, including southern Vancouver Island, by government agencies attempting to establish populations of breeding geese.

On southern Vancouver Island, there is some evidence that private game farms may have released geese on southern Vancouver Island in the 1930s and 1940s and a small population was established at Quamichan Lake in the 1940s (Dawe and Stewart 2010). The first breeding record in the CRD was in 1954 from a few nesting geese at Elk Lake. Canada Geese remained very scarce in the CRD through the early 1960s (Dawe and Stewart 2010). In 1963 a number of winter waterfowl surveys found zero Canada Geese overwintering in the CRD (Hancock 1963). Populations began expanding by the late 1960s from breeding areas in Victoria, Duncan and Nanaimo. By the 1980s Canada Geese were already becoming nuisance birds at some locations (Campbell et al. 1990). By the 1990s, Canada Geese were nesting in most of southeastern Vancouver Island.

Only two species of waterbirds have shown significant increases within the Salish Sea area of BC since 1999, one of which is the Canada Goose. Population growth rates have been remarkable on southern Vancouver Island. Dawe and Stewart (2010) report a 16% annual growth rate (or a doubling of numbers every 4.3 years) in wintering populations from 1977 to 1997, then a levelling off from 1998 to 2010, with an estimated winter population of 15,000 geese. GoMIES has also estimated the wintering population to be from 12,000-15,000 in recent years. That estimate is similar to the 2010 estimate (Dawe and Stewart 2010) and is thought to have been maintained by the addling and harvest efforts of GoMIES



from 2010 to 2021. Overwintering goose populations there are estimated to have increased at an annual rate of 4.9% from 1999-2019 (Ethier et al. 2020). That rate translates to a doubling of the population every 14.3 years. Whether or not that current estimated rate of increase is true for the CRD, it supports the widely held view that Canada Goose populations on southern Vancouver Island have increased substantially in the past. The increasing trend is well shown by winter counts done on the annual Christmas Bird Count (Figure 1).

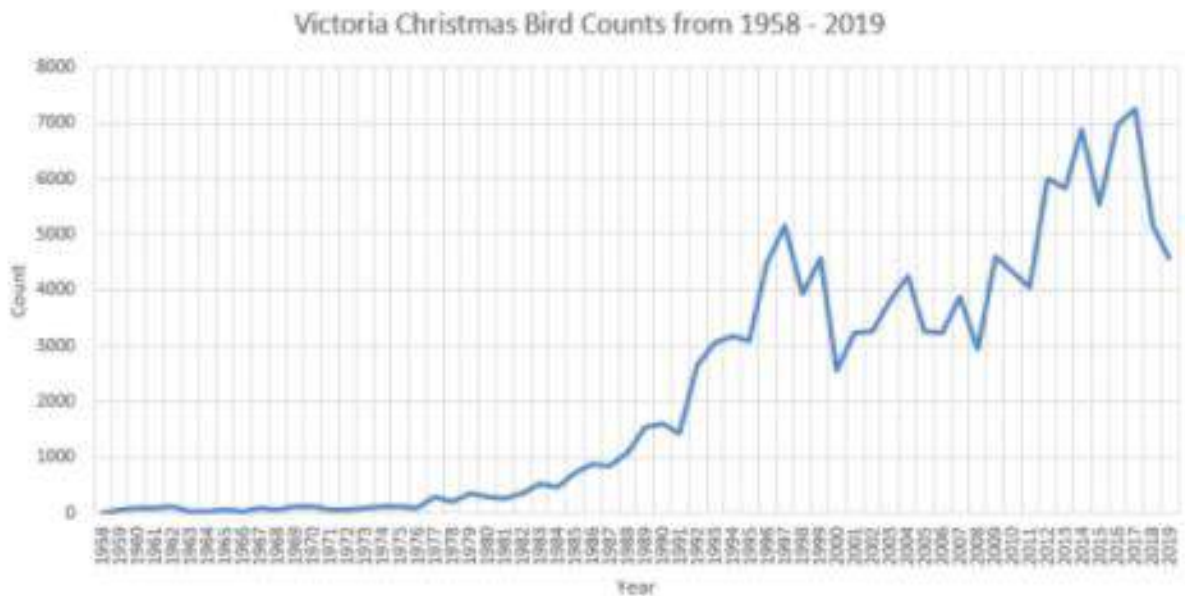


Figure 1: Historical CRD CAGO data, provided by Ann Nightingale, Rocky Point Bird Observatory.

A large percentage of the Canada Goose population on Vancouver Island remains year-round, although considerable movements of geese within the region occur. GoMIES (2015) documented the phenomena of moult migration whereby some geese that breed elsewhere on the island and the northwest USA fly to the east coast of Vancouver Island to moult in late June and early July. From their study sites at the Englishman, Little Qualicum and Campbell rivers, other seasonal movements within the region were documented. Pearce and Demers (2019) documented similar movements with birds that were captured and banded in summer in Nanaimo.

In summary Canada Goose breeding, moulting and wintering populations in the CRD have increased from zero in the 1940s to hundreds of nesting pairs and several thousands of moult and wintering geese. In 2012 the CRD commissioned a Regional Canada Goose Management Strategy which provided guiding principles for managing Canada Goose populations to reduce impacts on farmlands, parks and recreational areas. Suggested initiatives in that document remain to be implemented by the CRD.



Summer CAGO Population Surveys CRD (2017-2021)

On the 7th of July 2017, an aerial moult count survey of Canada Geese (*Branta canadensis*) was conducted along the south-eastern Vancouver Island coast and included the larger nearby lakes. During the survey 4,002 CAGO were observed from Sooke to Sidney. The highest concentrations were found in the Sooke Basin, Esquimalt Lagoon and the eastern coastline of the Saanich Peninsula (Sidney, south to Tsawout FN Reserve).

A Jet Ranger Helicopter (West Coast Helicopters) was used to perform the aerial survey. Altitude for observation was held at 100ft (30.48m) when conditions allowed and 300-500ft (90-150m) over urbanized areas. Restricted urban areas were excluded by our pilot, therefore sections such as the Gorge were bypassed. GoMIES estimates an additional 500 CAGO may have been present in these zones.

A drone survey of the CRD (Sooke to Sidney) was carried out by contractors hired by GoMIES during June of 2019. Videos taken by the drone showed 3,498 CAGO present. It is estimated that 35-40% of these were young of the year. This observation highlighted the need for an intensified adding effort within the CRD.

In late June 2020 a moult count was carried out by GoMIES staff via kayak, over three days, from Sooke, moving east to the Victoria area, and north to the Saanich Peninsula. 2,774 CAGO were counted during the survey.

In July 2021 GoMIES conducted a Canada Goose moult survey within the CRD. The purpose of this survey was to identify local “hotspots” of non-migratory populations within the CRD during the annual moulting season, which lasts approximately from mid-June to mid-July. The surveyed area included Sooke Basin and progressed east, then north-east up into the Saanich Peninsula. The count was conducted over a three-day period (see Figure 2, page 7 and table 6 in the appendix I).

GoMIES’ surveyors accessed more remote areas, that were not accessible by public road, via sea kayaks. This method was primarily deployed to survey the Sooke Basin. In areas that had public road access to shorelines, optical equipment was utilized in CAGO observation.



Photo 1: Canada Geese congregate on the shores of Sooke Basin, 2021.



Photo 2: Disrupting traffic in Victoria, 2021.



Photo 3: Graeme Fowler, GoMIES' wildlife mitigation specialist, scans for CAGO in Sooke Basin.



Photo 4: A small gaggle of Canada Geese gather on a sandy shore, Sooke Basin.



Photo 5: Garreth Ashley is approached by extremely habituated Canada Geese, Esquimalt Lagoon.



Table 1: Guardians of Mid-Island Estuaries Society, Canada Goose moult count, Capital Regional District, CAGO distribution by municipality. July 2021.

| Municipality | #CAGO | Notes |
|-----------------|--------------|--|
| Sooke | 540 | Primarily observed within the basin and estuary |
| Metchosin | 27 | |
| Colwood | 615 | Large groups sheltering on northern shore of the lagoon |
| Langford | | |
| View Royal | 25 | |
| Esquimalt | | |
| Victoria | 127 | |
| Oak Bay | 369 | These individuals likely using ecological reserves as nesting grounds. |
| Saanich | 29 | |
| Central Saanich | 46 | |
| Sidney | 71 | |
| North Saanich | 53 | |
| Total | 1,902 | |

Survey results showed the largest concentrations of moulting CAGO located in the Esquimalt Lagoon and the Sooke Basin. The moulting group of 104 CAGO found on McNeil Bay would be those individuals who use the Trial Islands as their nesting grounds. Whereas Willows Park and Oak Bay Marina groups would most likely be nesting on Great Chain Island. The 49 individuals recorded on Victoria Golf Course would also be utilizing Great Chain Island as a breeding territory.



8



Winter Counts

On 9 February 2019 an aerial survey via helicopter of the CRD was conducted by GoMIES; 2,977 individual CAGO were tallied. On 8 February 2020, 3,431 CAGO were observed by surveyors from the Rocky Point Bird Observatory. As is the case with GoMIES' CRD CAGO surveys, the counts were conducted from Sooke to Sidney (Nightingale, Ann. 2020). Before mitigation was initiated by GoMIES in 2018, we see that CAGO winter populations peaked at approximately 7,000 individuals around 2017. This is illustrated by Anne Nightingale's historical CBC graph below (Figure 2). The decline in winter numbers can possibly be attributed to harvests done in cooperation with Tsawout First Nations (2018-2019) and an increased addling effort within the CRD by GoMIES.

Table 2: Results of 2019 GoMIES aerial CAGO survey.

| Location | CAGO | Comments |
|--|--------------|-------------------------------------|
| North Saanich | 1897 | Feb. 10, ground count, snowing |
| Central Saanich | 473 | Feb. 10, ground count, snowing |
| Esquimalt Lagoon Royal Roads | 127 | Feb. 19th, aerial count |
| Sooke | 101 | Feb. 19th, aerial count |
| Victoria Golf Club | 245 | Feb. 19th, aerial count |
| Victoria Gorge waterway | 66 | Feb 21, ground count |
| Victoria Islands (James, Piers, Coal, unnamed) | 68 | Feb 19 th , aerial count |
| CRD Total | 2,977 | |

Effects of Resident Canada Goose Herbivory on Local Agricultural Production

Within the CRD, the overabundant resident Canada Goose population has significant impacts on thousands of acres of vegetables, berries, grain, grass and corn crops. Impacts to the local farm crops include cash crop consumption, fouling, and plant damage and removal. Farmers have been complaining for many years and their complaints and estimated financial losses are well documented through the Peninsula & Area Agricultural Commission as well as numerous media releases. Many of the on-farm mitigation tools and strategies are unpalatable to the general public. The use of propane cannons, lasers, pyrotechnics, and animal distress calls are a cause of concern for neighbouring residents. Provincial and Federal wildlife mitigation permits have been utilized by individual farms where farm characteristics are deemed appropriate, and the lethal activities can be carried out in a safe manner. For many of the farms within the CRD these permits are not appropriate due to farm size and proximity of other residences.

Nest searches and egg addling through an organized addling program provides an immediate benefit to farmers, and others, when recruitment of young birds can be dramatically reduced. Addling programs are a widely acceptable form of population control, approved by the BCSPCA. Egg addling by trained personnel can be done quietly, with limited disturbance to the public even in densely populated areas where other mitigation measures such as hunting are not allowed.



Photo 6: A Central Saanich farm field being used as a CAGO breeding ground.

Guardians of Mid-Island Estuaries Society Egg Addling in the CRD

During the past two years, GoMIES has addled Canada Goose eggs and conducted breeding population surveys in the CRD. Results from 2020 and 2021 were astounding including hundreds of nests at many locations within the CRD (Table 3, 4). Canada Geese have expanded from traditional nesting habitats in wetlands and farmlands to offshore islets and quarries. There were 126 (2020) and 123 (2021) goose nests found on offshore islets in Oak Bay; many of which are Ecological Reserves (GoMIES 2021). No geese nested on these islands in the early 1980s. The high number of geese nesting on these islands are threatening the ecological integrity of the rare Garry Oak ecosystems there as native vegetation and rare plants are being consumed or destroyed and replaced by weedy plant species.

171 Canada Goose nests were found in quarries and farmlands in the CRD in 2021. One farm near Elk Lake held 45 nests alone (GoMIES 2021). Data from the Royal Bay development in Colwood showed 88 Canada Goose nests in 2020; we believe no addling occurred on these private lands in 2021.

Conclusions

Canada Geese continue to breed, summer and overwinter in large numbers in the CRD. These populations foul beaches, parks, playgrounds and school yards, cause extensive damage to estuary and island ecosystems, and reduce productivity of farmlands. Management actions taken by GoMIES since 2018 appear to have stabilized or reduced Canada Goose numbers in the CRD. Although some progress has been made with management of goose populations, mitigation measures will need to be continued in order to maintain populations at current levels or to reduce them.



Table 3: Total number of nests located, and eggs added at each location by the GoMIES Field Crew in the Capital Regional District of Vancouver Island, Spring 2020.

| Location | Land Management | Nests located | Total eggs added |
|-----------------------|-----------------------------------|---------------|------------------|
| Farmland | Private | 13 | 60 |
| Jemmy Jones Island | Oak Bay Ecological Reserve | 19 | 92 |
| Flower Island | Oak Bay Ecological Reserve | 7 | 25 |
| Great Chain Island | Oak Bay Ecological Reserve | 46 | 240 |
| Mary Tod Island | Oak Bay Ecological Reserve | 1 | 8 |
| Staines Island | Oak Bay Ecological Reserve | 3 | 13 |
| Uplands Islets | Oak Bay Ecological Reserve | 2 | 8 |
| <i>Trial Islands</i> | <i>Oak Bay Ecological Reserve</i> | <i>46</i> | <i>280</i> |
| <i>Griffin Island</i> | <i>Oak Bay Ecological Reserve</i> | <i>1</i> | <i>4</i> |
| <i>Alpha Island</i> | <i>Oak Bay Ecological Reserve</i> | <i>1</i> | <i>1</i> |
| Quarries | Private | 8 | 32 |
| Total | | 147 | 763 |

Table 4: results from addling season 2021, CRD islands.

| Location | 2021 nests | 2021 eggs |
|----------------|------------|------------|
| Jemmy Jones | 13 | 66 |
| Flower Island | 8 | 42 |
| Great Chain | 37 | 216 |
| Mary Tod | 0 | 0 |
| Staines Island | 3 | 20 |
| Uplands Islets | 3 | 15 |
| Lesser Trail | 38 | 222 |
| Greater Trial | 19 | 96 |
| Alpha | 1 | 6 |
| Oak Institute | 1 | 5 |
| Total | 123 | 688 |



Table 5: 2021 Farm and Quarry addling results from the CRD.

| General Location (private lands) | 2021 Nests | 2021 eggs |
|----------------------------------|------------|------------|
| Saanich | 7 | 35 |
| Saanich | 13 | 64 |
| Central Saanich | 2 | 9 |
| Central Saanich | 14 | 81 |
| Central Saanich | 45 | 239 |
| Sooke | 4 | 25 |
| Sooke | 7 | 43 |
| Sooke | 3 | 15 |
| Sooke | 1 | 4 |
| Metchosin | 1 | 6 |
| Central Saanich | 21 | 89 |
| Total | 118 | 610 |



Photo 7: GoMIES addling crew is escorted out to Great Chain Island by Matt Fairbarns, spring 2021.



Photo 8: The rare Bear's-foot Sanicle (*Sanicula arctopoides*) on Greater Trial Island.



Photos 9 & 10: Invasive Canada Goose nests on the ecologically sensitive Greater Trial Island.

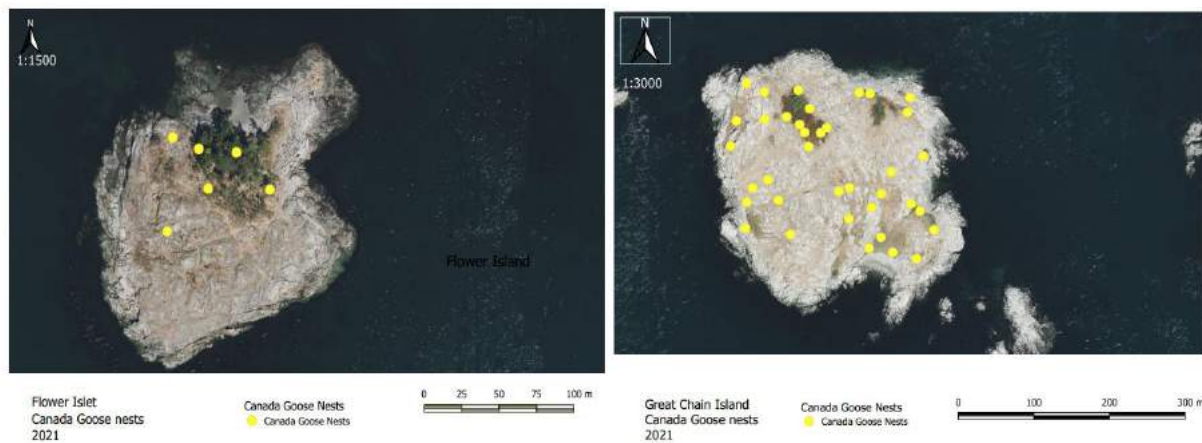


Figure 3 & 4: CAGO Nest locations on Flower Island and Great Chain Island 2021.

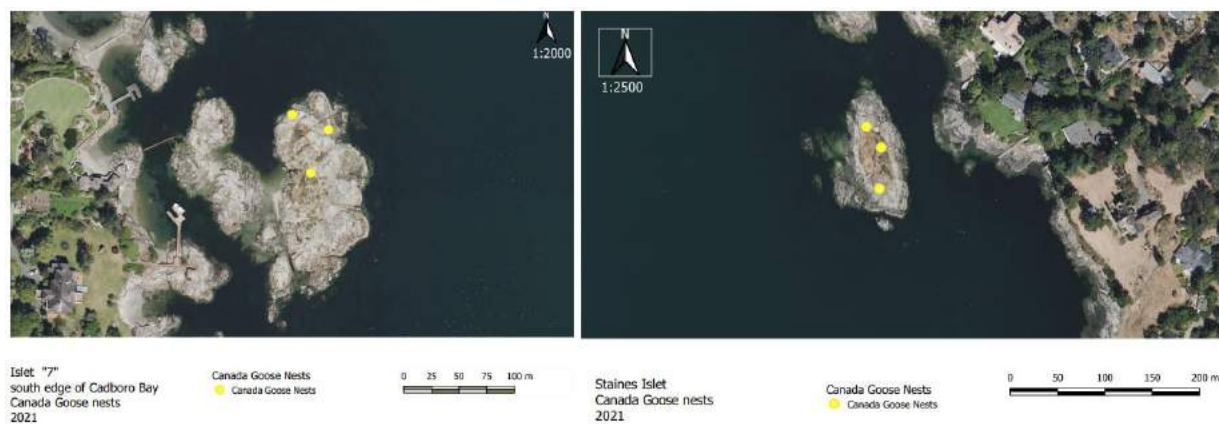


Figure 5 & 6: CAGO nest locations for "Islet 7" and Staines Islet, 2021

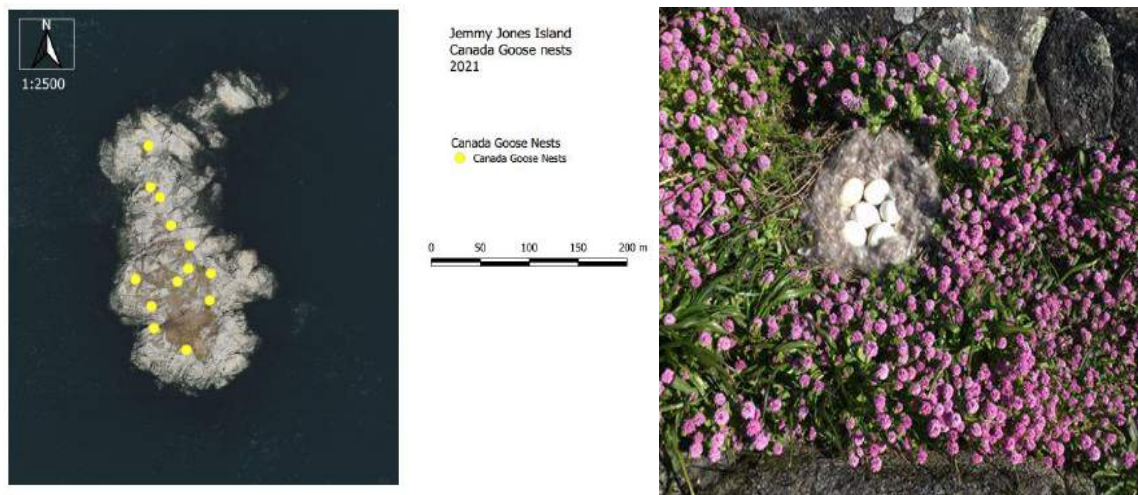


Figure 7: Jemmy Jones Island, CAGO nesting locations. Right: typical nest on Jemmy Jones Is.

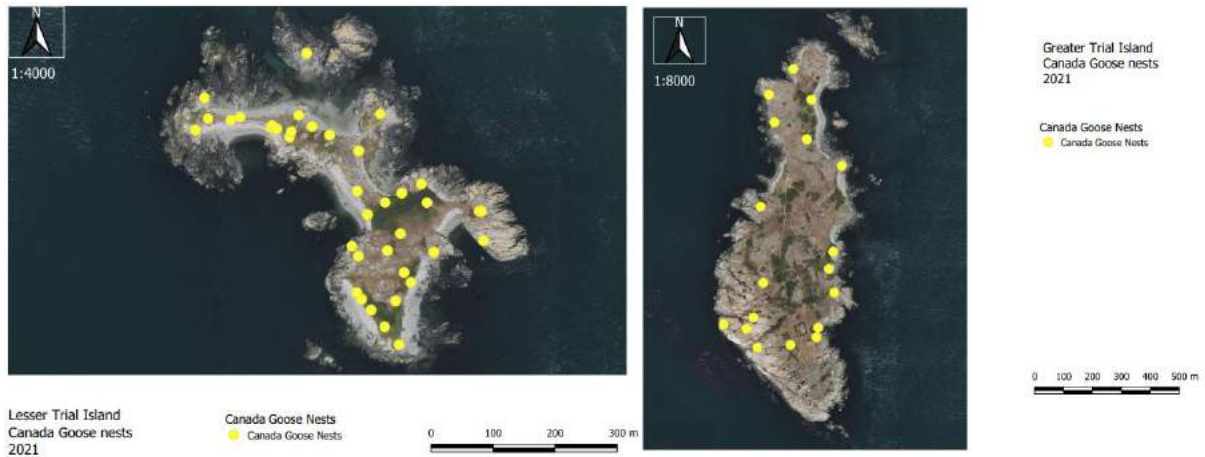




Figure 12: Both agricultural properties and quarries are used as nesting habitat by CAGO in the CRD.



Photos 11 & 12: Left: Approximately 450 CAGO swim along the east coast of the Saanich Peninsula. Right: Hatched-out CAGO nest in a farm field, Central Saanich.



Photo 13: Hundreds of Canada Geese loafing on a Saanich Peninsula agricultural field.



Photos 14 & 15: CAGO at Royal Roads and Esquimalt Lagoon



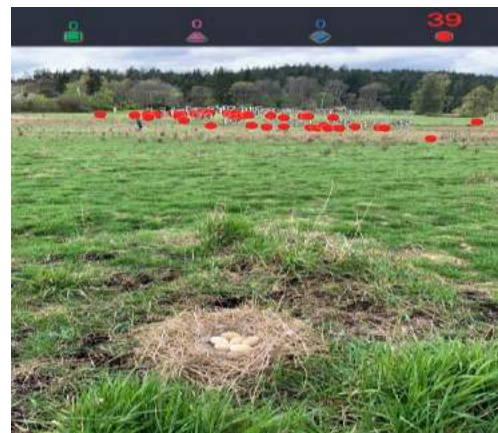
Photos 16 & 17: Large numbers of CAGO disrupting play at Victoria Golf Club.



Photo 18 & 19: Even active quarries and construction sites are being utilized as nesting habitat by invasive CAGO in the CRD.



Photos 20 & 21: small ponds on farmlands within the CRD are favoured nesting sites.



Photos 22 & 23: Abandoned farm property near Elk Lake with high density of CAGO nesting. Forty-six nests were located and added on this single property. Right: red dots represent adult CAGO nesting and grazing in field.



Citations:

Campbell, R.W., N.K. Dawe, I. McTaggart-Cowan, J.M Cooper, G.W. Kaiser and M.C.E McNall. 1990. The Volume birds of British Columbia 1. Royal British Columbia Museum, Victoria, BC.

Dawe, N.K. and A.C. Stewart. 2010. The Canada Goose (*Branta canadensis*) on Vancouver Island, British Columbia. BC Birds 20:24-40.

Ethier, D., P. Davidson, G.H. Sorenson, K.L. Barry, K. Devitt, C.B. Jardine, D. Lepage and D.W. Bradley. 2020. Twenty years of coastal waterbird trends suggest regional patterns of environmental pressure in British Columbia, Canada. Avian Conservation and Ecology 15(2):20.

GoMIES (Guardians of Mid-Island Estuaries Society). 2015. Canada Goose (*Branta canadensis*) Management Strategy for Mount Arrowsmith Biosphere Region: Towards the Restoration of Goose-Damaged Estuaries. Prepared for the Guardians of Mid- Island Estuary Society
www.estuaryguardians.org.

GoMIES (Guardians of Mid-Island Estuaries Society). 2017. Moults count surveys of Canada Geese (*Branta canadensis*), July 2017. www.estuaryguardians.org.

GoMIES (Guardians of Mid-Island Estuaries Society). 2021. 2020/2021 Canada goose addling report. 24 pp.

Hancock, D. 1963. The abundance of wintering waterfowl in the Victoria area, BC. Victoria College, Victoria, BC.

Nightingale, Ann. 2020. Goose Survey from Sooke to Sidney February 8, 2020, Coordinated by Ann Nightingale, Rocky Point Bird Observatory.



Appendix I

Please visit:

[Aerial Moulting Count Survey of Canada Geese \(parksville.ca\)](http://parksville.ca)

www.estuaryguardians.org

Table 6: Location and distribution of CRD CAGO moulting population, July 2021.

| Location of Observation | #CAGO | Latitude° | Longitude° | Notes |
|--|-------------|------------|--------------|-----------------------------------|
| Sooke Basin West | 156 | 48.36312 | °-123.72606° | Accessed via kayak, 6 YOY sighted |
| Sooke Basin East | 213 | 48.38863° | -123.66302° | Kayaked, 2 YOY sighted |
| Sooke River Estuary | 171 | 48.38439° | -123.69970° | |
| Witty's Lagoon | 0 | 48.38498° | -123.51226° | |
| Albert Lagoon | 27 | 48.39545° | -123.49049° | |
| Royal Bay Construction | 9 | 48.40827° | -123.48274° | |
| Royal Beach Park | 96 | 48.41113° | -123.47727° | |
| Esquimalt Lagoon | 510 | 48.42718° | -123.47003° | |
| Six Mile Bridge | 6 | 48.45616° | -123.45839° | |
| The Gorge | 19 | 48.44767° | -123.40511° | |
| City of Victoria (Delta Waterfront) | 67 | 48.42605° | -123.37521° | |
| Gonzales Bay | 60 | 48.41105° | -123.32650° | |
| McNeil Bay | 104 | 48.41294° | -123.30939° | |
| Victoria Golf Course | 49 | 48.41341° | -123.29590° | |
| Oak Bay Marina | 33 | 48.42654° | -123.30547° | |
| Oak Bay | 41 | | | |
| Willows Park Beach | 142 | 48.43759° | -123.29970° | |
| Cadboro Bay | 14 | 48.45850° | -123.29319° | 2 YOY |
| Telegraph Beach | 15 | 48.46383° | -123.27980° | |
| Island View Beach | 0 | | | |
| Tsawout Spit | 0 | 48.592553° | -123.375336° | |
| Tsawout Estuary | 4 | 48.594169° | -123.391983° | |
| Cascade Ave. | 38 | 48.605737° | -123.394746° | |
| Amity Drive | 48 | 48.615531° | -123.400751° | |
| Sidney Waterfront/Pier | 0 | | | |
| Sidney Marina | 30 | | | |
| 3 rd St, Sydney | 16 | 48.660159° | -123.397552° | |
| Resthaven | 25 | 48.666521° | -123.410354° | |
| Patricia Bay | 5 | 48.65862° | -123.45129° | |
| Brentwood Bay | 4 | 48.57668° | -123.46768° | |
| Beaver Lake | 0 | | | |
| Elk Lake | 0 | | | |
| Total | 1902 | | | |



Appendix II:

History of the Guardians of Mid-Island Estuaries Society's CAGO Mitigation

The Guardians of Mid-Island Estuaries Society (GoMIES) started adding programs on Vancouver Island in the Cowichan Valley in 1999 in response to farmer complaints of excessive Canada Goose (CAGO) damage to local crops. These efforts expanded to the Parksville-Qualicum Beach area in 2002 when the City of Parksville and conservation organizations began to fund egg adding at three local estuaries. Their concerns were two-fold as rising breeding and summer moult CAGO populations were discovered to be destroying sedge marsh habitat critical to juvenile salmon and wildlife at an alarming rate, and tourists' complaints to local governments were constant. In 2010, GoMIES formed as a registered Society with a mandate to protect estuaries and bring more awareness to the many negative effects of locally over-abundant CAGO through science-based actions. Our 2015 "Canada Goose Management Strategy for the Mount Arrowsmith Biosphere Region" was a catalyst towards more active management throughout the Regional District of Nanaimo and remains as the most comprehensive document regarding Canada Goose management in North America. <http://www.parksville.ca/cms.asp?wpID=507>

Capital Regional District 2022 Canada Goose Mitigation Draft Action Plan



Prepared by:

Guardians of Mid-Island Estuaries Society

Prepared for:

Glenn Harris, Senior Manager, Environmental Protection

Capital Regional District

MOU No. EPRO2021-027

February 14, 2022

1. Purpose:

The Capital Regional District (CRD) and the Guardians of Mid Island Estuaries Society (GoMIES) are working together through a Memorandum of Understanding (MOU) to develop an action plan to address and mitigate regional Canada Goose (CAGO) population growth. GoMIES deliverables through the MOU were to conduct a Canada Goose moult survey in July 2021 to identify high population density “hot spots” for moulting geese. In addition, GoMIES were to analyze their previous population surveys from 2017 to 2021, the Victoria volunteer-based Christmas bird counts, and their 2020 and 2021 addling work in the CRD to identify known and likely nesting locations. This information was synthesized into a summary report titled “Canada Goose Mitigation and Population Monitoring within the Capital Regional District” and has been previously submitted to the CRD separately from this action plan (Appendix 1.). The data from the report was used to inform a draft CRD Canada Goose Action Plan that would identify near-term and long-term mitigation activities, key partners, and stakeholders, and include a detailed budget.

2. Issue:

Regionally over-abundant Canada Geese are an ongoing concern in the CRD as they degrade coastal ecosystems, water quality, and public health and have a negative economic effect on local businesses, farms, parks, health agencies, and airport authorities.



Figure 1: Examples of habitat types utilized by resident Canada Geese as nesting grounds.

Acknowledgements

The Guardians of Mid-Island Estuaries Society would like to thank the following Capital Regional District and municipal employees for their guidance and support in the ecological protection of southern Vancouver Island. Norm Doerksen, Superintendent of Public Works, Central Saanich, kept a small working group of community participants meeting annually to implement mitigation activities and population monitoring post 2012 Regional Canada Goose Management Strategy. Norm provided us with local intel regarding high populations and local insight into which locations would most benefit from resident Canada Goose mitigation efforts, including agricultural properties, watersheds, and private land. Jeff Weightman who graciously checked in with our crews to make sure they had the resources to successfully carry out their work. Jeff also shared valuable local knowledge leading us to nesting hotspots near Oak Bay and Esquimalt.

Mr. Mike Hicks, who has been championing the need for to control resident Canada Geese impacting sports fields, farms, and public green space in the Capital Regional District. His years of experience of working in the natural landscapes of the CRD have given him firsthand knowledge of the need for efforts in protecting its unique eco-systems. Mike 's involvement in Canada Goose fouling mitigation on sports and recreation fields within municipal parks has greatly contributed to addressing the public health and safety concerns of CRD citizens.

Finally, Dr. Glenn Harris for supporting GoMIES' Canada Goose population monitoring, which is critical in providing a foundation for making future mitigation decisions. Dr. Harris has been able to tie together and coordinate the various individuals and organizations that contribute to an efficient resident Canada Goose mitigation strategy within the CRD.



Introduction

Members of the Guardians of Mid Island Estuaries Society (GoMIES) have worked to protect and restore estuaries for over 30 years and have led community-based Canada Goose mitigation activities on Vancouver Island from Saanich to Campbell River since 1998. Our science-based research approach has evolved to protect tidal sedge marsh habitats by applying eco-cultural techniques to prevent goose herbivory and degradation to critical salmon and wildlife habitat, paired with effective Canada Goose population monitoring surveys and population control measures. This work has been conducted in partnership with 6 First Nation Bands including K'omoks (Comox), Tsawout (Saanich), Snaw-naw-as (Nanoose), Snuneymuxw (Nanaimo), We Wai Kum (Campbell River), and Tla'amin (Powell River).

We have learned that when communities take part in a comprehensive spring addling program, in combination with adult population reductions through natural mortality, hunting, and First Nations harvests, then impacts associated with locally over-abundant CAGO can be significantly reduced. Recently, within the CRD our addling program expanded to cover Crown Ecological Reserves, Federal and Provincial administered conservation lands, and private lands including but not limited to farms, quarries & golf courses. GoMIES has built a high level of proficiency towards finding goose nests in a variety of habitat types and has begun training First Nation Guardians and conservation stewards in best practices to help curb juvenile recruitment. In 2021 we prevented 2188 eggs from hatching in 4 regional districts on Vancouver Island with 60% of these eggs occurring in 5 municipalities of the CRD.

The City of Parksville and the Regional District of Nanaimo have provided significant financial resources and efforts to reduce CAGO populations in their region since 2002 and after 20 years they have lowered nesting and moult populations by over 75%. In 2017, Parksville proposed a resolution at the AVICC where all municipalities signed a declaration to work together to share CAGO management responsibilities and this was formally passed at the UBCM. A MOU agreement has been endorsed by many municipalities on Vancouver Island and a key recommendation of this document will be for the municipalities of the CRD to also become active in “shared mitigation” to reduce impacts of over-abundant CAGO in most communities (Appendix 2.).

Longer Term Mitigation Activities to Manage Locally Over-Abundant Canada Geese within the CRD:

The implementation of a methodical and comprehensive egg addling program is a widely recognized tool to effectively reduce population growth. By incorporating annual CAGO population surveys within the CRD, the location of densely populated nesting sites can be determined. As a result of these surveys, strategic selection of sites with the highest nesting densities, favorable access, and or critical public or environmental safety concerns, can be addressed while achieving the greatest returns for the effort in a fiscally responsible manner.

The delivery of the addling program must be intra-jurisdictional and implemented across the landscape addressing nesting activity in diverse habitats and for the benefit of varied stakeholders. Canada geese are a very adaptable species and have a wide range of suitable and productive nesting habitats. The most favorable nesting habitats include nearshore islands, parks, grasslands, freshwater lakes and waterways,

wetlands, farmland, forest edge, and rock quarries. Within the CRD these habitats can be found on lands owned or managed by First Nations, Federal or Provincial Governments, Municipal Governments, Parks, Ecological Reserves, Bird Sanctuaries, Department of National Defence, airports, marinas, and private golf courses, farms, quarries, and other commercial developments.

GoMIES has many years of experience managing and implementing addling programs on Vancouver Island. Past experiences have revealed that the most successful addling programs are carried out by dedicated staff from municipalities, conservation organizations, First Nations, and other invested stakeholders. The aggression of nesting geese, challenging characteristics of varied habitats, and the difficulty in locating camouflaged nests discourage most participants. Volunteers can be helpful but must be supported by dedicated experienced professionals, highly skilled in nest search and addling techniques and aggressive wildlife evasion skills. Equally important and a condition of Federal permit authorization is to carry out addling techniques that maintain the highest regard for animal welfare. The turnover rate for volunteers is usually quite high and the effectiveness of the addling program depends on the familiarity of the addling crew with the specific site and landscape they are working in. Geese prefer to nest in the same location year after year so by having wildlife biologists, technicians, and land managers familiar with local hotspots with strict safety protocols in place helps improve effectiveness and reduce costs.

Municipal bylaws restricting the discharge of firearms should be reviewed and where appropriate, exemptions allowed where Canada Goose mitigation through lethal means can be safely implemented i.e., farms and quarries. Provincial Conservation Officers and the RCMP can be requested to verify the property meets the requirements for safe use of firearms for this purpose. Environment Canada Wildlife Permits are required to carry out this activity “outside of the hunting season.” At least one Central Saanich farm is implementing this strategy and is successfully reducing the impacts of summer resident Canada Geese on his crops.

Strategic Partners and Stakeholders in Canada Goose Mitigation

Local First Nations:

GoMIES has a strong working relationship with the Tsawout First Nation. In 2018 and 2019 Tsawout FN graciously hosted GoMIES and several other First Nations during initial CAGO mitigation work. This work has had measurable benefits on stabilizing local invasive CAGO moulting populations. GoMIES believes that training First Nations Guardians and Stewardship Technicians to become skilled at CAGO nest searches and egg addling techniques is a key step towards sustained and efficient expansion of addling capacity on Vancouver Island. First Nations could provide addling on their traditional territories as they are already familiar with the land and the demands of its terrain. Tsartlip and Tsou-ke First Nations would also be contacted by GoMIES to gauge interest in developing an addling training program in their traditional territories. Tsawout Fisheries staff have already committed to learn and assist in 2022. These First Nations have an abundance of nesting geese within their territories as identified through the data collected through 2020 and 2021 surveys. GoMIES addling training programs were very successful with K’omoks Guardians who now have 6 members skilled to lead addling in their territory. In addition, GoMIES has recently been approved for funding by the City of Campbell River to train 6 Wei Wai Kum Guardians in 2022. All First Nation Bands within the boundaries of the CRD would be considered a valued source of

knowledge regarding local CAGO populations and preferred nesting and moulting locations and should be encouraged to contribute to and participate in the CAGO population surveys within the CRD.

Municipal Staff:

Staff from the individual municipalities within the CRD would be valuable partners to the CRD CAGO mitigation program. Their working knowledge of the landscape would be a valued asset. Staff members working in Parks would be prime candidates as they likely have prior knowledge of CAGO nesting locations in their specific jurisdictions. Addling training could be provided and renewed by a GoMIES staff member annually to account for turnover in staff experienced by municipalities.

Federal Government of Canada:

Canada Geese are protected under the Migratory Birds Convention Act (1994); therefore, federal approval permits are required prior to the initiation of CAGO mitigation operations. Guardians of Mid-Island Estuaries Society has a productive working relationship with Canadian Wildlife Service (CWS). This federal entity is responsible for issuing all appropriate permits for CAGO addling and First Nation harvests. CWS is branch of the Department of Environment and Climate Change Canada.

CWS also manages three Migratory Bird Sanctuaries within the CRD (Shoal Harbour MBS 144 ha, Victoria Harbour MBS 1840 ha, and Esquimalt Lagoon MBS 134 ha). Originally established to control hunting, these three regional Migratory Bird Sanctuaries provide important habitat for migrating, nesting, and moulting birds. However, CAGO have become year-round resident birds that have displaced many native nesting birds and caused severe habitat degradation (removal of eel grass and tidal marshes) within these “Sanctuaries”. A 2020 CAGO survey of the Esquimalt Lagoon revealed extensive shoreline habitat degradation and loss of estuary Carex sedge marsh habitats and similar concerns have been raised by members of the Rocky Point Bird Observatory along Gorge Harbour.

Department of National Defence:

GoMIES has worked in co-operation with the Department of National Defence and have helped them fill the gaps in their addling program in and around the Winchelsea Islands Canadian Forces Maritime and Experimental Test Range, in Nanoose Bay. Sharing data and terrain approach information with the DND has increased the efficiency of the CAGO addling program in the Mid-Island Region. Continuing this equally beneficial relationship with the DND in areas around the Maritime Forces Headquarters/Joint Task Force Pacific Headquarters will increase scope on the broader picture of CAGO mitigation within the CRD. DND did have representation on the CRD CAGO Working Group.

BC Parks:

In 2021 GoMIES were grateful to establish a working relationship with the BC Parks volunteer Ecological Wardens. This partnership has proved invaluable in monitoring and now preventing the degradation of the ecological health of the protected islands on the southern coast of Vancouver Island. These volunteers alerted us to the need for professional addling services required on the Ecological Reserves of Great Chain Island, Trial Islands, Jemmy Jones, and several others.

BC Parks, Habitat Ecologist (Erica McLaren) should be approached to participate in the CAGO Working Group along with a representative of the Garry Oak Ecosystem Recovery Team (GOERT).

Private Development Sector:

Local large scale urban developers are eager to form coalitions in Canada Goose mitigation. Royal Bay developers have shown interest in working cooperatively with other stakeholders to increase CAGO mitigation opportunities on their development lands within the CRD. Royal Roads University may also be interested in participating in CAGO mitigation as their lands border the Esquimalt Lagoon Bird Sanctuary and their grounds are fouled by CAGO year-round. Nesting has been reported on active construction sites in the CRD which can interfere with daily operations and is a cause for concern to public safety.

Golf Courses:

Local businesses that utilize grass based and aquatic landscapes in the CRD, most specifically golf courses, are also negatively affected by resident CAGO. One prominent golf course has exhausted the majority of legal CAGO mitigation options and is eager to work cooperatively with other stakeholders on a much broader scale to reduce CAGO impacts to their course and surrounding environment, on behalf of their members. Other golf courses within the CRD in areas of high CAGO nesting concentrations should be encouraged to participate and support CAGO mitigation activities.

Natural Resource Sector:

Active gravel quarries in the CRD have also been found to support high concentrations of nesting CAGO pairs. CAGO utilize the small, vegetated ponds found in quarries to provide protection for goslings from terrestrial predators. These CAGO populations cause disruptions to daily operations, create water quality concerns, and impose employee health and safety concerns. Having worked effectively and safely in a busy quarry in Central Saanich for the past several years, GoMIES has formed a valuable partnership that has resulted in the management group having much interest in working cooperatively at the other two pits located in Sooke and Duncan. Their cooperation is appreciated as 2 of the three pits are situated adjacent to prime agricultural lands where the geese move to forage on summer cash crops.

Agricultural Sector:

Resident Canada Goose populations are threatening the economic viability of farming on Vancouver Island. Within the CRD, the overabundant resident Canada Goose population has significant impacts on 1000's of acres of vegetables, berries, grain, grass and corn crops. Impacts to the local farm crops include cash crop consumption, fouling, and plant damage. Farmers have been complaining for many years and their complaints and estimated financial losses are well documented through the Peninsula & Area Agricultural Commission. Through our recent work in the Saanich area, we were introduced to a farmer who had abandoned his farming opportunities many years ago due to the constant presence and foraging pressure of resident geese. His 25-acre property has become a Canada Geese nesting and rearing area for the last 10+ years. He has lost his farm status and his very productive land remains unfarmed. Observations in the area reveal similar situations on surrounding properties. Agricultural producer associations and individual farmers are increasingly willing to advocate, support and participate in a large scale, region wide CAGO mitigation program.

Community Stewardship Organizations:

There are many groups dedicated to the preservation of sensitive ecosystems, land, habitat, and wildlife conservation values. GOERT, Rocky Point Bird Observatory, The Victoria Naturalists just to name a few. These organizations and many others are recognizing the importance of minimizing the impacts to the

natural flora and fauna because of the constant foraging pressure of the introduced over-abundant CAGO within the CRD. Many of these organizations have come forward to provide valuable historical knowledge of the increasing population accounts and increased impacts to the ecosystem. Many groups have provided staff and other resources to implement and support important CAGO surveillance and mitigation activities. A comprehensive list of the many conservation organizations active within the CRD should be generated as part of the in-depth action plan process and sharing knowledge and information with these groups will build strong community support for a well-structured CAGO mitigation program.

Establish and Maintain Processes and Protocols for Information Sharing and Decision Making

Issues and Recommendations:

The CRD developed a Canada Goose Management Strategy in 2012 but has not actively worked to implement key mitigation activities in recent years. A web site is hosted by the CRD as part of the Regional Goose Management Strategy and provides a good place for more information to be uploaded to this site to better inform the public of recent and on-going initiatives. GoMIES has a proven track record in working with communications and parks staff in Parksville and Powell River. We have learned what is most effective in terms of one point of contact. GoMIES would play an important role in ensuring public access to general and scientific information regarding the impacts the locally over-abundant CAGO population has on the natural environment and share the story of their origin and the distinct difference between this population and the native migratory population. This information could be posted onto the CRD website. Such information could include key partnerships and progress made in other Island communities and touch on the widespread economic impacts these introduced geese have across the landscape. While each individual municipality may have differing impacts from the year-round presence of Canada Geese the CRD as a whole has suffered public health and safety risks, water quality issues, fish and wildlife habitat destruction, crop depredation losses to farms, and municipal sports and recreation impacts. This awareness will help to inform the public and provide the background information in support of the proposed comprehensive CAGO Mitigation Action Plan.

The CAGO impacts to rare, threatened, or red-listed flora and fauna within nearshore Oak Bay Islands is urgent and needs to be addressed as these Garry Oak Ecosystems are converting to invasive plant and CAGO nesting hotspots which could affect their Ecological Reserve protection status.

The CRD should participate in the Vancouver Island CAGO Working Group (VICAGOWG) to share information, techniques, program successes and lessons learned (Appendix 2 – MOU). The City of Parksville has led this group since 2015 with other members being representatives of Campbell River, Comox Valley Regional District, Regional District of Nanaimo, Qualicum Beach, Powell River (including the Tla'min First Nation), and Nanaimo. Members of the CRD CAGO Working Group have attended several meetings but have not formally signed the MOU. These municipalities have actively supported or implemented addling programs, CAGO banding and re-sight studies, population surveys, management and mitigation plans, and First Nations harvests at a cost of over \$400,000 since 2015. GoMIES has conducted the most complete CAGO population surveys of any region in BC for the entire east coast of Vancouver Island (including Gulf Islands, Central Coast, and Powell River) funded mostly by the Ministry of Agriculture and Fisheries. The CRD has greatly benefited by these CAGO mitigation and population assessments but as the region of Vancouver Island with the highest year-round populations with no formal

comprehensive addling program; unabated juvenile recruitment has detrimentally affected all CRD municipalities and communities in the mid and upper Vancouver Island.

Annual public information sessions along with more frequent stakeholder engagement sessions would help to educate interested parties as to “why” these mitigation activities are necessary and how important it is they show support for these efforts. The CRD or Municipal offices can provide the venue to reduce the cost of hosting such events.

Development of a CRD CAGO Mitigation Steering Committee to ensure the program is operating within the mandate of the CRD and to provide frequent updates to the CRD regarding the activities and progress of the mitigation program.

This mitigation plan should be thought of as a long-term plan with costs expected to lessen as sustained activities lower CAGO populations (as realized by the RDN, City of Parksville, and Powell River).

Annual Monitoring of the CAGO population is important and can be achieved effectively by empowering First Nation, Community Stakeholders and Naturalist groups to work cooperatively with the CAGO Mitigation Program Team. Ground counts are recommended but periodically (every few years) a more intensive aerial count will help to reveal the thorough effectiveness of the actions taken by the CRD towards CAGO mitigation and may be funded in combination with other Vancouver Island communities.

Table 1: 2022-23 CRD Canada Goose Action Plan

| Activities | Descriptions | Expected Results | Start Date | End Date |
|--|---|---|----------------|----------------|
| <i>Addling permits from ECCC: Canadian Wildlife Service and BC Crown Lands Officer accompanied with Management Plans</i> | <ul style="list-style-type: none"> Prepare addling permit to CWS with all landowner forms signed and list all individuals participating in addling including Tsawout First Nation representatives | <ul style="list-style-type: none"> 30 + private farms and large commercial landowners throughout the CRD and Provincial approval for all Crown Islands in Oak Bay/Victoria Obtain landowner permissions from all private and public landowners or managers | February 2022 | March 15, 2022 |
| <i>Implement a comprehensive addling program throughout known and expected hotspots within all municipalities in the CRD</i> | <ul style="list-style-type: none"> Focus on private farms, golf courses, large land developments, quarry, Crown islands and estuaries. CRD and municipal parks could be included if nests reported, and we have Parks Manager permission letter. | <ul style="list-style-type: none"> Locate approximately 300 Canada Goose nests and addle all eggs found. Map all locations and record data during at least 2 site visits to each nest Identify new sites for future years and count all adult birds and juveniles observed | March 28, 2022 | May 20, 2022 |

| | | | | |
|--|---|--|---------------------|---------------------------|
| <p><i>Conduct a summer moult count at all known hotspots along marine waterways and larger lake and wetlands both on public and private lands but predominately waterfront Crown or urban parks.</i></p> | <ul style="list-style-type: none"> • Ground counts and kayaks will be used over a two-week period. • Volunteer naturalists could assist along with local First Nations during their marine based activities. | <ul style="list-style-type: none"> • All Canada Geese observed will be counted and recorded on a GPS system for future mapping. Most groups will be photographed. Populations will be recorded and reported out as within each municipality and as a total for the CRD. Surveys started in early June will be able to determine adult populations and juvenile young of the year to measure success of addling and help determine location gaps in our addling efforts. | <p>June 1, 2022</p> | <p>June 17, 2022</p> |
| <p><i>Partnership Building and Community Outreach</i></p> | <ul style="list-style-type: none"> • Golf courses, PAAC, Royal Bay Development, First Nations, Ministry of Agriculture, BC Parks, GOERT, CWS, DND, Victoria Airport, Parks Canada, Rocky Point Bird Observatory, Naturalists, etc. | <ul style="list-style-type: none"> • More organizations, First Nations, all CRD municipalities, and volunteer groups sharing the responsibilities of CAGO mitigation to protect ecological, social, recreational, health, commercial and agricultural values. • Outreach presentations both in-person and through Zoom if necessary | <p>On-going</p> | <p>On-going</p> |
| <p><i>Addling Summary</i></p> | <ul style="list-style-type: none"> • Data compiled and mapped within each municipality. | <ul style="list-style-type: none"> • Summary Table submitted | <p>June</p> | <p>August 31, 2022</p> |
| <p><i>Moult Count Summary</i></p> | <ul style="list-style-type: none"> • Data compiled and mapped within each municipality. | <ul style="list-style-type: none"> • Summary Table submitted along with GPS locations to CRD GIS department for mapping | <p>August</p> | <p>September 29, 2022</p> |
| <p><i>Year End Reporting</i></p> | <ul style="list-style-type: none"> • Overview of all activities above with recommendations and budget revisions | <ul style="list-style-type: none"> • Draft Report for CRD Review | | <p>November 30, 2022</p> |

Table 2: 2022-23 CRD Canada Goose Population Management and Mitigation Program Budget

| ACTIVITY | DESCRIPTION | LABOUR DESCRIPTION | TIMELINE | BUDGET |
|---|---|--|------------------------|-------------|
| <i>Applications for Addling permits from ECCC & Writing Supporting Management Plans</i> | <ul style="list-style-type: none"> Writing specific regional management plans based on population surveys, ecological & economic impacts, landowner, and stakeholder partnerships, proposed mitigation activities, and submit wildlife permit application(s) | <ul style="list-style-type: none"> Generating maps, population survey accounts, historic impact accounts and mitigation activities, proposed mitigation activities and rationale, obtaining landowner authorizations First time Landowner Authorizations usually done in person & onsite and usually incur travel expenses | Jan to Mid-March | \$15,000.00 |
| <i>Addling Plan & Implementation</i> | <ul style="list-style-type: none"> Strategically implement a comprehensive addling program within municipalities encompassed by the CRD Target Municipal Parks and Recreation Lands, Oak Bay Islands, Private Quarries, Golf Courses, Farms Nest Search, Geo-reference site, addle & document # eggs, visit up to 3 times per season in prime habitats | <ul style="list-style-type: none"> Three crews of 2 people minimum Vehicle Expenses, Boat Expenses Meals & Accommodation Expenses Municipal Staff & First Nation Training & Involvement Approximately 300 nests per season | Mar 28 to May 20, 2022 | \$45,000.00 |
| <i>Summer Moults Population Survey</i> | <ul style="list-style-type: none"> Comprehensive survey of adult & young geese throughout the CRD Reveals nesting success and identifies future priority areas Data compiled and mapped within each municipality. Include community groups where possible i.e., Naturalists | <ul style="list-style-type: none"> Two crews of 2 people Focus on freshwater lakes and coastal marine habitats Vehicle Expenses, Boat Expenses Meals & Accommodation Expenses Honorarium for Community Group participation (km or lunch) | June 1 - 17, 2022 | \$12,000.00 |
| <i>Partnership Building</i> | <ul style="list-style-type: none"> Educate stakeholders and potential partners about all aspects of CAGO environmental and economic impacts that pertain to their | <ul style="list-style-type: none"> In person and onsite discussions Encourage participation and or financial support for CAGO mitigation activities within the CRD | Ongoing | \$12,500.00 |

| | | | | |
|--|--|---|---------------|---------------------|
| | <ul style="list-style-type: none"> organization – estuaries, farms, sensitive ecosystems, recreational lands, and lakes etc. Golf courses, PAAC, Royal Bay Development, First Nations, Ministry of Agriculture, BC Parks, GOERT, CWS, DND, Victoria Airport, Parks Canada, Rocky Point Bird Observatory, Naturalists, etc. | <ul style="list-style-type: none"> Attend potential partner organization meetings or activities Engage approximately 20 potential partnership organizations per year Develop a PowerPoint presentation that can be used for community outreach | | |
| <i>Addling Summary</i> | <ul style="list-style-type: none"> Data compiled and mapped within each municipality. | <ul style="list-style-type: none"> Reporting information includes nesting habitat types, landownership, location/municipality, # of adult geese on site, photos, comparisons to previous years data if a revisited site Work with CRD GIS department to build maps showing nests within all municipalities | June - August | \$5,000.00 |
| <i>Moult Count Summary</i> | <ul style="list-style-type: none"> Data compiled and mapped within each municipality. | <ul style="list-style-type: none"> Reporting information includes moult location habitat types, landownership, municipality, # of adult and YOY geese on site, photos, comparisons to previous years data if a revisited site Work with CRD GIS department to build maps showing moulting populations within all municipalities | August - Sept | \$5,000.00 |
| <i>Year End Reporting & CRD Municipal Committee Presentation</i> | <ul style="list-style-type: none"> Overview of all activities above with recommendations and budget revisions | <ul style="list-style-type: none"> Draft Report and circulate for CRD Review and revise for Final Submission Outline success/pitfalls, and strategy for next year's program | November 30 | \$5,000.00 |
| <i>Administration</i> | <ul style="list-style-type: none"> Office Incidentals Bookkeeper | <ul style="list-style-type: none"> 5% | | \$5000.00 |
| <i>VICAGOWG Report & Presentation</i> | <ul style="list-style-type: none"> Report CRD Involvement & Program Success | <ul style="list-style-type: none"> Outline expansive and intensive approach CRD has taken | Annual | In Kind |
| | | | TOTAL | \$104,500.00 |

APPENDIX 1 – Summary Report

APPENDIX 2 – VICAGOWG MOU