Capital Regional District

625 Fisgard St.,
Victoria, BC V8W 1R7

Notice of Meeting and Meeting Agenda
Environmental Services Committee

Wednesday, October 16, 2024 **1:30 PM** **6th Floor Boardroom**
625 Fisgard St.
Victoria, BC V8W 1R7

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

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

1. Territorial Acknowledgement

2. Approval of Agenda

3. Adoption of Minutes

3.1. 24-1006 Minutes of the July 17, 2024 and September 25, 2024 Environmental Services Committee Meetings

Recommendation: That the minutes of the Environmental Services Committee meetings of July 17, 2024 and September 25, 2024 be adopted as circulated.

Attachments: Minutes - July 17, 2024

Minutes - September 25, 2024

4. Chair's Remarks

5. Presentations/Delegations

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

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

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

5.1 Delegations

5.1.1 24-1050 Delegation - Erin Tunnicliffe; Representing Peninsula and Area Agriculture Commission: Re: Agenda Item 6.2. Regional Canada Goose Management Service - Activities Update

6. Committee Business

6.1. 24-943 Regulating Curbside Organics Collection

Recommendation: The Environmental Services Committee recommends to the Capital Regional District Board:
That staff continue implementing the organics diversion strategy as currently outlined in the 2021 Solid Waste Management Plan.

Attachments: Staff Report: Regulating Curbside Organics Collection

Appendix A: Previous Staff Report (October 18, 2023)

Appendix B: Options for Organics Diversion and Collection

6.2. 24-960 Regional Canada Goose Management Service - Activities Update

Recommendation: The Environmental Services Committee recommends to the Capital Regional District Board:
That staff be directed to develop increased service levels for consideration in the 2026 service planning process.

Attachments: Staff Report: Regional Canada Goose Management Service - Activities Update

Appendix A: 2024 CRD Egg Addling Report (September 2024)

Appendix B: 2024 CRD Moult Survey Report (September 2024)

6.3. 24-1025 Previous Minutes of Other CRD Committees and Commissions for Information

Recommendation: There is no recommendation. The following minutes are for information only:
- Climate Action Inter-Municipal Task Force - September 27, 2024

Attachments: Minutes: Climate Action Task Force - September 27, 2024

7. Notice(s) of Motion

7.1. 24-1021 Motion with Notice: Recycle BC Soft Plastics Multi-family Residences Pilot Program (Director Caradonna)

Recommendation: The Environmental Services Committee recommends to the Capital Regional District Board:
Given that RecycleBC has opted to expand a pilot program to undertake home-based collection of soft plastics at select multi-family residences across the region;
That CRD staff report back on the potential to partner with RecycleBC on this program, and to report more generally on the costs, implications, and potential benefits of the CRD incorporating home-based collection of soft plastics into the CRD's recycling program over time.

8. New Business

9. Adjournment

The next meeting is November 20, 2024.

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

Meeting Minutes

Environmental Services Committee

Wednesday, July 17, 2024 **1:30 PM** **6th Floor Boardroom**
625 Fisgard St.
Victoria, BC V8W 1R7

PRESENT
Directors: B. Desjardins (Chair) (EP), S. Tobias (Vice Chair), J. Brownoff, J. Caradonna, G. Holman (EP), D. Kobayashi (EP), D. Murdock (EP) (1:33 pm), M. Tait, D. Thompson, A. Wickheim, C. Plant (Board Chair, ex-officio)

Staff: T. Robbins, Chief Administrative Officer; L. Jones, General Manager, Parks and Environmental Services; G. Harris, Senior Manager, Environmental Protection; N. Elliott, Manager, Climate Action Programs; A. Linwood, Controller, Financial Services; M. Lagoa, Deputy Corporate Officer; J. Dorman, Committee Clerk (Recorder)

EP - Electronic Participation

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

1. Territorial Acknowledgement

Director Brownoff provided a Territorial Acknowledgement.

2. Approval of Agenda

MOVED by Director Plant, SECONDED by Director Tait,
That the agenda for the July 17, 2024 Environmental Services Committee meeting be approved.
CARRIED

3. Adoption of Minutes

3.1. 24-731 Minutes of the June 19, 2024 Environmental Services Committee Meeting

MOVED by Director Caradonna, SECONDED by Director Wickheim,
That the minutes of the Environmental Services Committee meeting of June 19, 2024 be adopted as circulated.
CARRIED

4. Chair's Remarks

Acting Chair Tobias did not have any Chair's Remarks

Director Murdock joined the meeting electronically at 1:33 pm.

5. Presentations/Delegations

There were no presentations or delegations.

6. Committee Business

6.1. 24-711 Update to Provincial Local Government Climate Action Program

N. Elliott spoke to Item 6.1.

Discussion ensued on the following:
- per capita rate allocation of the funding program
- CRD funds and future plans
- province wide funding per capita for regional districts versus municipalities

MOVED by Director Caradonna, SECONDED by Director Tait,
The Environmental Services Committee recommends to the Capital Regional District Board:
That the funding associated with the extended BC Local Government Climate Action Program be distributed as follows in years 2025 and 2026: $75,088 for CRD Climate Action Service; $11,512 for Juan de Fuca Electoral Area; $24,552 for Salt Spring Island Electoral Area; and $10,522 for Southern Gulf Islands Electoral Area.
CARRIED

6.2. 24-712 Reporting Back on Collaborative Action Regional Boats Workshop

G. Harris spoke to Item 6.2.

Discussion ensued on the following:
- potential cost and jurisdiction
- coast-wide strategy
- inclusion of GVHA, Canadian Coast Guard and RCMP
- public engagement
- scope of existing services and licensing programs

MOVED by Director Plant, SECONDED by Director Tait,
The Environmental Services Committee recommends to the Capital Regional District Board:
1. That staff bring back a report that considers expanding the core area harbours service to a regional service, including costs and resourcing requirements;
2. That the report, What We Heard Summary Report: Regional Workshop: Collaborative Action to Resolve Boat-Related Issues in the Capital Region, be provided to local governments and First Nations in the capital region for consideration; and
3. That the CRD Board continue to advocate to the provincial and federal governments to take a leadership role in developing a coast-wide solution that will support local governments.
CARRIED

6.3. 24-708 Previous Minutes of Other CRD Committees and Commissions for Information

The following minutes were received for information:
a) Climate Action Inter-Municipal Task Force - June 21, 2024

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 Wickheim, SECONDED by Director Tait,
That the July 17, 2024 Environmental Services Committee meeting be adjourned at 2:29 pm.
CARRIED

_____
CHAIR

_____
RECORDER

Making a difference...together

625 Fisgard St.,
Victoria, BC V8W 1R7

Capital Regional District

Meeting Minutes

Environmental Services Committee

Wednesday, September 25, 2024 **1:30 PM** **6th Floor Boardroom**
625 Fisgard St.
Victoria, BC V8W 1R7

Special Meeting

PRESENT
Directors: S. Tobias (Vice Chair), K. Armour (for B. Desjardins), J. Brownoff (2:08 pm) (EP), J. Caradonna, G. Holman, D. Kobayashi (EP), D. Murdock (EP), M. Tait (1:32 pm) (EP), D. Thompson, A. Wickheim (1:54 pm) (EP)

Staff: T. Robbins, Chief Administrative Officer; N. Chan, Chief Financial Officer; R. Smith, Acting General Manager, Parks, Recreation & Environmental Services; N. Elliott, Manager, Climate Action Programs; P. Kickham, Manager, Environmental Regulations; T. Watkins, Manager, Environmental Resources Management, Policy and Planning; K. Jo, Senior Financial Advisor, Financial Service; M. Lagoa, Deputy Corporate Officer; J. Dorman, Committee Clerk (Recorder)

EP - Electronic Participation

Regrets: Director(s) B. Desjardins, C. Plant

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

1. Territorial Acknowledgement

Director Holman provided a Territorial Acknowledgement.

Director Tait joined the meeting electronically at 1:32 pm.

2. Approval of Agenda

MOVED by Director Caradonna, SECONDED by Alternate Director Armour,
That the agenda for the September 25, 2024 Environmental Services Committee meeting be approved.
CARRIED

3. Presentations/Delegations

There were no presentations or delegations.

4. Special Meeting Matters

4.1. 24-864 Environmental Resource Management - 2025 Operating and Capital Budget

R. Smith spoke to Item 6.1.

Discussion ensued on the following:
- cost allocation, debt financing and overhead rates
- service delivery and CRD services
- innovative project funding and revenue generation

Director Wickheim joined the meeting electronically at 1:54 pm.

MOVED by Director Caradonna, SECONDED by Director Thompson,
The Environmental Services Committee recommends the Committee of the Whole recommend to the Capital Regional District Board:
That Appendix A, 2025 Operating and Capital Budget - Environmental Resource Management be approved as presented and form the basis of the Provisional 2025-2029 Financial Plan.
CARRIED

4.2. 24-851 New Hartland Policies - Quarterly Update

T. Watkins presented Item 4.2. for information.

Discussion ensued on the following:
- diversion stations metrics and co-processing possibilities
- compliance and enforcement performance indicators
- clean versus dirty wood processing

Director Brownoff joined the meeting electronically at 2:08pm

4.3. 24-865 Update on Corporate Greenhouse Gas Emissions Targets

N. Elliott presented Item 4.3. for information.

Discussion ensued on the following:
- cost reduction analysis and carbon pricing
- regional versus corporate emissions
- Hartland GHG active capture

4.4. 24-870 Climate Budgeting Update

N. Elliott spoke to Item 4.4.

Discussion ensued on cost reflection and analysis.

MOVED by Director Caradonna, SECONDED by Director Thompson,
The Environmental Services Committee recommends to the Capital Regional District Board:
That staff be directed to:
1. Work internally on the elements of Climate Budgeting to understand what new governance mechanisms would look like in practice.
2. Develop public communications materials, based on the latest greenhouse gas inventory data, for use by the CRD and local governments that more clearly communicate the urgency of this policy issue; and
3. Utilize Climate Budgeting approaches in the CRD's next climate action strategy planning cycle.
CARRIED

4.5. 24-914 Organic Matter Recycling Regulation, Biosolids Literature and Legal Review - Verbal Update

P. Kickham presented Item 4.5. for information.

Discussion ensued on concerns regarding contaminants and Health Canada updates to address PFAS (forever chemicals).

4.6. 24-873 Solid Waste Disposal: Hartland Landfill Tonnage Report - July 2024

T. Watkins presented Item 4.6. for information.

Discussion ensued on the following:
- out of region tonnages
- exportation and control of exported waste
- comparison of 2024 versus 2023 tonnages

4.7. 24-877 Previous Minutes of Other CRD Committees and Commissions for Information

The following minutes were received for information:
a) Solid Waste Advisory Committee - September 6, 2024

5. Adjournment

MOVED by Director Thompson, SECONDED by Director Caradonna,
That the September 25, 2024 Environmental Services Committee meeting be adjourned at 2:46 pm.
CARRIED

_____
CHAIR

_____
RECORDER

Making a difference...together

ERM 24-59

REPORT TO ENVIRONMENTAL SERVICES COMMITTEE
MEETING OF WEDNESDAY, OCTOBER 16, 2024

SUBJECT **Regulating Curbside Organics Collection**

ISSUE SUMMARY

To present on the continued implementation of the organics diversion strategy and to evaluate and report on pathways for mandatory separation of curbside collection and diversion of organics.

BACKGROUND

The Solid Waste Management Plan (SWMP) was principally developed to reduce the amount of waste material sent to the Hartland Landfill, and guide how the region's solid waste is managed in a safe, secure and sustainable way now, and in the future. According to the 2022 Solid Waste Stream Composition Study, 16.7% of waste currently sent to Hartland Landfill is organic material (approximately 28,500 tonnes per year). A landfill ban on organics and soiled paper products was implemented at Hartland Landfill in January 2015. In addition to the ban on organics, the CRD has several programs in place to support the reduction and diversion of organic materials from the landfill, including operating a food scraps transfer station, receiving yard and garden material at rates lower than general refuse, funding the Victoria Compost Education Centre and partnering with Love Food Hate Waste Canada. It is anticipated that with continued programming, the downward trend in organic waste disposal (67kg/capita in 2021) will continue towards reaching the 2031 waste disposal target of 42kg/capita.

The CRD also established the Solid Waste Stream Collector Incentive Program, which began earlier this year. This program is designed to incent multi-stream waste collection, including organics. With the implementation of this new initiative, along with the other programs, it is anticipated that the downward trend in organic waste disposal will continue and accelerate. The next solid waste stream composition study, which will provide further insight into organics disposal trends, is scheduled for 2026.

At the November 8, 2023 Capital Regional District (CRD) Board meeting, staff were directed to *continue implementing the organics diversion strategy as currently outlined in the new Solid Waste Management Plan, and evaluate and report to committee on pathways to mandatory separation of curbside collection and diversion of organics* (staff report attached as Appendix A). In response to the Board's direction, staff sought a legal opinion, and the options are provided as Appendix B.

Overall, this review found that the CRD, as a regional district, has the authority under the *Environmental Management Act* to manage municipal solid waste or recyclable material for the purpose of implementing the SWMP. This is further supported by the *Local Government Act*, which allows regional districts like the CRD to provide a collection service*, by bylaw to regulate, store and manage municipal solid waste and recyclable material.* However, given that regulating mandatory organics collection is a departure from the strategies currently set out in the SWMP, implementing the above-mentioned measures would require amendments to the SWMP, further consultation with affected stakeholders and provincial approval.

ALTERNATIVES

Alternative 1
The Environmental Services Committee recommends to the Capital Regional District Board:
That staff continue implementing the organics diversion strategy as currently outlined in the 2021 Solid Waste Management Plan.

Alternative 2

The Environmental Services Committee recommends to the Capital Regional District Board:
That staff accelerate the current organics diversion strategy by beginning the process to amend the Solid Waste Management Plan by conducting community-wide consultations with the intent of adopting a bylaw regulating curbside organics collection across the region.

Alternative 3
The Environmental Services Committee recommends to the Capital Regional District Board:
That this report be referred back to staff for additional information.

IMPLICATIONS

Financial Implications

Financial implications associated with regulating a mandatory curbside organics collection service include costs associated with enforcing the bylaw and the costs associated with delivering a curbside collection service. A market sounding and/or tender would be required to confirm current market pricing; however, it is expected that costs to operate a regional wide organics collection service are comparable to the cost to operate the blue box collection program ($60-$80 per household per year). Processing and marketing of collected materials would represent an additional expense and would vary depending on the quantity of material received but would be in the range of $140 to $170 per tonne. There would likely also be capital costs associated with providing collection containers to those being offered the service.

Service Delivery Implications

If the Board wishes to further explore regulating mandatory curbside collection, the CRD would need to adopt a bylaw; however, to do so, the SWMP would need to be amended. Proposed amendments would require extensive community-wide consultation, beginning with municipalities to determine support for regulating mandatory curbside organics collection and preferences for a service delivery approach (e.g., service provided by municipalities, the CRD, or residents contracting for service directly with the private sector). The Regional District of Nanaimo (RDN), for example, has adopted a bylaw which requires owners or occupiers of a property, as of January 2025, to have separate containers for different types of solid waste and recyclable materials. A bylaw similar to the RDN's would make it mandatory for multi-family and industrial, commercial, and institutional property owners, as well as single-family homes who do not receive municipal collection services, to separate out organics and recyclable items from the waste (See Appendix B).

In 2021, it was determined that the CRD and the municipalities didn't control sufficient tonnages of organic waste feedstock to validate the business case to build a dedicated in-region organics processing facility. As a result, the decision to develop an in-region processing facility was tabled

until feedstock conditions or on-island private processing capacity changed. Regulation of a region-wide mandatory organic curbside collection service may change the business case for developing an in-region organics processing facility by providing further additional feedstock tonnages if this service were to be provided by the CRD and/or municipalities.

CONCLUSION

In response to the Board's direction, Capital Regional District staff sought legal review on pathways for mandatory separation of curbside collection and diversion of organics. This review found that regulating and managing a region-wide curbside organics collection service can be done through the adoption of a bylaw; however, to do so, the Solid Waste Management Plan would need to be amended. Proposed amendments would require consultation with affected stakeholders and provincial approval. It is anticipated that with continued programming, the downward trend in organic waste disposal will continue towards the 2031 disposal target of 42kg/capita and no change in organics collection policy is deemed necessary at this time.

RECOMMENDATION

The Environmental Services Committee recommends to the Capital Regional District Board:
That staff continue implementing the organics diversion strategy as currently outlined in the 2021 Solid Waste Management Plan.

Submitted by:	Tom Watkins, Acting Senior Manager, Environmental Resource Management
Concurrence:	Russ Smith, Acting General Manager, Parks, Recreation & Environmental Services
Concurrence:	Ted Robbins, B. Sc., C. Tech., Chief Administrative Officer

ATTACHMENTS

Appendix A: Staff Report to Environmental Services Committee: Implications of Regulating Curbside Organics Collection (October 18, 2023)
Appendix B: Options for Mandatory Requirements for Organics Diversion and Collection

Making a difference...together

APPENDIX A

ERM 23-43

REPORT TO ENVIRONMENTAL SERVICES COMMITTEE
MEETING OF WEDNESDAY, OCTOBER 18, 2023

SUBJECT **Implications of Regulating Curbside Organics Collection**

ISSUE SUMMARY

To present implications of regulating curbside organics collection from municipalities and electoral areas in the region.

BACKGROUND

The Capital Regional District's (CRD) new Solid Waste Management Plan (SWMP) was developed to reduce the amount of waste material sent to the Hartland Landfill, and guide how the region's solid waste is managed in a safe, secure and sustainable way now and in the future. The plan targets greater than one-third reduction of waste from current levels of 409 kg/capita annually to 250 kg/capita in 10 years.

In 2022, the CRD completed a Waste Stream Composition Study which estimated that approximately 16.7% of waste currently sent to Hartland Landfill is organic material (approximately 28,500 tonnes per year). Organic material is not garbage and should be diverted for processing in support of a circular economy. When reviewing the Waste Stream Composition Study results, the Solid Waste Advisory Committee passed a motion recommending the CRD regulate mandatory collection of organic waste and, subsequently at the April 12, 2023 meeting, the CRD Board directed staff to explore regulating mandatory curbside organics collection from the municipalities and electoral areas in the region.

Disposal of organic waste has been trending downward, with waste stream composition studies showing that the organic waste received for disposal at Hartland Landfill decreasing from:

- 120 kg/capita in 2010
- 75 kg/capita in 2016 (37% decrease from 2010)
- 67 kg/capita in 2021 (11% decrease from 2016)
- 42 kg/capita is the 2031 SWMP organic waste target

To meet the Solid Waste Management Plan target of reducing waste disposal down from 400kg/capita (2021) to 250kg/capita (2031) requires a 37% decrease by 2031 – equating to a 25kg/capita reduction in kitchen scraps being disposed of at Hartland landfill.

A landfill ban on food scraps and soiled paper products was put in place at Hartland Landfill in January 2015 contributing to this downward trend, and the ban is enforced by CRD bylaw officers. The CRD has programs in place to support the reduction and diversion of organic materials from the landfill. In addition to the 2015 landfill ban of organics, these programs include operating a food scraps transfer station, receiving yard and garden material at rates lower than general refuse, funding the Victoria Compost Education Centre and partnering with Love Food Hate Waste Canada.

Within the new SWMP, strategy 3 commits the CRD to support reduction of avoidable food waste, and strategies 7-9 commit the CRD to increasing waste diversion (including organics diversion) within the single family, multi-family and institutional, industrial and commercial (ICI) sectors. A new hauler incentive policy set to begin in 2024, is designed to incent multi-stream waste collection including organics. With the implementation of this new policy along with the other

programs in place to support reduction and diversion of organic materials it's anticipated that the downward trend in organic waste disposal will accelerate. The next waste composition study, which will provide further insight into organics disposal trends, is scheduled for 2026.

Currently in the capital region, curbside organics collection falls under municipal purview and is offered by 6 out of the 13 municipalities to single family residents. Within the remaining 7 municipalities, electoral areas and amongst all multi-family and ICI sectors in the region, residents and businesses can obtain organics collection through private service providers on a voluntary basis. A summary of current curbside collection service can be found in Appendix A. In response to Board Direction, staff have obtained a legal opinion to understand the feasibility of regulating mandatory curbside organics collection, region-wide. This review found that the CRD Board has authority under the Local Government Act to establish a bylaw to regulate a mandatory curbside collection for organics in the capital region. Such a bylaw could be written to involve a combination of:

- Municipal Collection Service: Collection service provided directly or through service contracts managed by municipalities;
- Private Collection Service: Collection service procured by residents or businesses contracting directly with the private sector; or
- CRD Collection Service: Collection service provided or contracted by the CRD, similar to the curbside blue box recycling program.

Given that regulating mandatory organics collection is a departure from the strategies for managing organics that are currently set out in the SWMP, it is likely that regulating mandatory curbside organics collection would require a SWMP Amendment and associated consultation and Provincial approval would be required.

ALTERNATIVES

Alternative 1
That the Environmental Services Committee recommends to the Capital Regional District Board: That staff continue implementing the organics diversion strategy as currently outlined in the new Solid Waste Management Plan.

Alternative 2
That the Environmental Services Committee recommends to the Capital Regional District Board: That staff accelerates the current organics diversion strategy by beginning the process to amend the current Solid Waste Management Plan by consulting on the CRD regulating mandatory curbside organics collection.

IMPLICATIONS

Financial Implications

Financial implications associated with regulating mandatory curbside organics collection include costs associated with enforcing the bylaw, and depending on selected service delivery approach (e.g., service provided by municipalities, the CRD, or residents contracting for service directly with the private sector), the cost associated with delivering curbside collection service. A market sounding and/or tender would be required to confirm current market pricing; however, it is expected that costs to operate a regionally provided curbside organics collection service are comparable to the cost to operate the blue box collection, program ($62.87/household/year (2024 rates)).

Service Delivery Implications

If the Board wishes to further explore regulating mandatory curbside collection, staff will need to begin by consulting with municipalities to determine support for regulating mandatory curbside organics collection and preferences for service delivery approach (e.g., service provided by municipalities, the CRD, or residents contracting for service directly with the private sector). Once consultation has been completed, staff would return to the Board to seek direction on subsequent next steps.

Should a CRD or expanded municipal collection service be established, this would generate additional organics feedstock tonnages owned by the relevant collection provider that would require processing. Between 2019 and 2021, the CRD investigated establishing an in-region organics processing facility. In 2021, it was determined that the CRD and the municipalities didn't control sufficient tonnages of organic waste feedstock to validate the business case to build a dedicated in-region organics processing facility, and the decision to develop an in-region processing facility was tabled until feedstock conditions or on-island processing capacity changed. Regulation of region-wide mandatory organic curbside collection may change the business case for developing an in-region organics processing facility by providing further guaranteed feedstock tonnages if this service were to be provided by the CRD and/or municipalities.

CONCLUSION

The Capital Regional District's (CRD) recently approved Solid Waste Management Plan outlines proposed organic diversion strategies. The CRD has authority under the Local Government Act to regulate curbside collection service for organics in the capital region. Regulating mandatory curbside collection can be done through the adoption of a bylaw which could require curbside collection of organics for some or all residents and/or businesses through services provided directly or contracted by the CRD, municipalities, or the private sector. It's anticipated that the downward trend in organic waste disposal (67kg/capita in 2021) will continue to trend towards the 2031 disposal target of 42kg/capita and no change in organics collection policy is deemed necessary at this time.

RECOMMENDATION

That the Environmental Services Committee recommends to the Capital Regional District Board: That staff continue implementing the organics diversion strategy as currently outlined in the new Solid Waste Management Plan.

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

ATTACHMENT

Appendix A: Solid Waste Collection Provided by Municipality by Material Type and Sector

APPENDIX A

SOLID WASTE COLLECTION PROVIDED BY MUNICIPALITY BY MATERIAL TYPE AND SECTOR

	Garbage		Yard & Garden Materials		Kitchen Scraps		Sectors Serviced
	Collection	Drop-off	Collection	Drop-off	Collection	Drop-off	
Municipality							
Central Saanich							
Colwood				M			SF
Esquimalt	M			M	M		SF
Highlands							
Langford							
Metchosin							
North Saanich				M			SF
Oak Bay	M	M	M	M	M		SF
Saanich	M		M	M	M		SF
Sidney	M*		M*		M*		SF
Sooke							
Victoria	M		M	M	M		SF
View Royal	M*		M*	M	M*		SF
Electoral Area							
Juan de Fuca		M					SF
Southern Gulf Islands							
Salt Spring Island							

M - Waste collection service provided by municipality
M* - Municipally managed program with direct service provided by contractor
SF - Single-family

APPENDIX B

OPTIONS FOR MANDATORY REQUIREMENTS
FOR ORGANICS DIVERSION AND COLLECTION
October 2024

---

1. CRD to seek additional regulatory power that requires property to have separate containers for solid waste including recycling and organics.

As an example, the Regional District of Nanaimo (RDN) has been granted additional power, by bylaw, which requires owners or occupiers of a property to have separate containers for different types of solid waste and recyclable materials. The CRD could seek to obtain similar regulatory power that the Province has already granted the RDN, which would require owners or occupiers of property to do the same. A bylaw similar to the RDN's would make it mandatory for multi-family and industrial, commercial, and institutional (ICI) owners (who do not receive municipal collection services) to provide separate containers for garbage, recyclables and organics.

2. CRD to seek additional regulatory power that requires owners or occupiers of property to use an organics collection service.

An organic collection service could be provided by the CRD, another local government or by a private service provider. However, some consideration needs to be given to properties where collection services are not available, and for owners who dispose of organics by other acceptable means, such as on-site composting or delivery to a licensed composting facility.

Currently, curbside organics collection falls under municipal purview, and is only being offered by 6 of the 13 municipalities to single family residents. For this reason, the CRD could consider providing curbside collection services in areas where such services are not available (i.e., the remaining 7 municipalities, electoral areas and amongst all multi-family and ICI sectors in the region). The CRD could also consider providing these services to a larger portion of the region including within municipal areas.

3. Hauler Incentive Program and Changes to Tipping Fees

The RDN, for instance, has a licensing program for commercial haulers with the objective of incentivizing increased diversion by offering lower tipping fees to enable haulers to provide lower rates to residents, and by imposing a disposal levy. The disposal levy serves as a disincentive to commercial haulers who are required to pay for material that is disposed of at the landfill. Similarly, the CRD as of January 2024, increased general refuse tipping fees from $110/tonne to $150/tonne. This change in tipping fees will support diversion efforts in the waste management industry and will better align with general refuse tipping fees in other on-island regional districts. During this time, the CRD implemented the Waste Stream Collector Incentive Program. This program allows Hartland account customers to receive a rebate on general refuse if they voluntarily self-report waste collection data and promote multi-stream collection. This program, however, is voluntary in nature and does not mandate haulers to participate.

Making a difference...together

EEP 24-61

REPORT TO ENVIRONMENTAL SERVICES COMMITTEE
MEETING OF WEDNESDAY, OCTOBER 16, 2024

SUBJECT **Regional Canada Goose Management Service - Activities Update**

ISSUE SUMMARY

To provide an update on the Regional Canada Goose Management Service activities in 2023-2024.

BACKGROUND

In February 2023, the Capital Regional District (CRD) Board established a Regional Canada Goose Management Service to work with key partners to reduce the impact of the rapidly growing Canada goose (CAGO) population in the region and to coordinate implementation of the Regional Canada Goose Management Strategy (RCGMS). The RCGMS provides guidance for controlling adverse impacts of the population of non-migratory, resident CAGO and recommends the use of management tools such as preventing feeding, habitat modifications, water management, hazing, egg addling, hunting, harvests and public outreach. This report outlines the service activities undertaken in 2023-2024 to implement the RCGMS and provides recommendations for future service levels.

The following activities were taken to coordinate implementation of the RCGMS:

Administration and Coordination

The CRD hired a half-time coordinator in September 2023 to coordinate goose management efforts in the region, establish partnerships with key agencies responsible for wildlife management, engage with landowners affected by geese and undertake coordinated mitigation efforts. The service was supplemented this past spring with an auxiliary Goose Management technician to support the egg addling program, conduct recruitment/young of the year surveys, and to assist with the region-wide summer moult survey. Staff developed a detailed communications strategy to increase awareness of the regional impacts of the growing population and to engage with landowners experiencing issues. In January 2024, the CRD established the Regional Canada Goose Working Group made up of representatives from local governments and First Nations, provincial and federal partners, Peninsula and Area Agricultural Commission, and other key stakeholders. The working group meets quarterly to share information and coordinate efforts across the region.

Coordinated Nest Survey and Egg Addling Program

The CRD obtained a region-wide egg addling permit from Canadian Wildlife Service. Several local governments and 55 participating landowners added their properties to the CRD's permit and granted CRD technicians access to their land to survey nests and addle eggs. CRD staff discovered 142 active nests on 18 properties and addled 672 eggs. 31 missed nests (eggs already hatched) and 5 inaccessible nests were found, resulting in total of 178 nests located. Some landowner agencies addled eggs or contracted egg addling on their lands, resulting in an additional 280 active nests located and 1,369 eggs addled. In 2024, a total of 422 active nests

were located and 2,041 eggs were addled preventing their recruitment to the local Canada goose population. The 2024 egg addling report is attached in Appendix A.

Region-wide CAGO Summer Moult Survey

Previous moult surveys estimated the regional summer breeding population of geese at 2,500, though these were only partial surveys focused on known hotspots like Sooke Basin, Esquimalt Lagoon, Oak Bay shoreline, and northeast Saanich Peninsula. In June 2024, the CRD collaborated with working group partners, local governments, First Nations and conservation groups to conduct the first region-wide CAGO moult survey. A total of 6,669 geese were counted and new hotspots were identified along the shorelines of Victoria, Metchosin, East Sooke, Juan de Fuca Electoral Area, Southern Gulf Islands, and on private farmlands, golf courses, small lakes and ponds. The 2024 moult survey report is attached in Appendix B.

Canada Goose Harvest

The CRD contracted an experienced non-profit agency to coordinate with First Nations to implement an ethical and humane harvest of Canada geese under permits obtained from Canadian Wildlife Service and the Province of British Columbia. In late June, the harvest reduced the population by 465 birds and the meat was shared among the participating First Nations communities.

Despite significant success in coordinating efforts to manage the regional Canada goose population since service establishment, the actual population is significantly higher than previous estimates indicated and the negative impacts from goose populations are more widely spread and significant.

ALTERNATIVES

Alternative 1
The Environmental Services Committee recommends to the Capital Regional District Board:
That staff be directed to develop increased service levels for consideration in the 2026 service planning process.

Alternative 2
That this report be referred back to staff for further information.

IMPLICATIONS

Environmental and Social Implications

The increasing Canada goose population continues to affect regional farmlands and degrade coastal ecosystems and salmon habitats through over-grazing, trampling of vegetation, soil erosion, and the spread of invasive species. Additionally, public health concerns are rising due to high densities of fecal matter, degradation and contamination of water sources, territorial goose conflicts, the spread of disease, and increased risk of exposure to Highly Pathogenic Avian Influenza. These impacts are seen at public and private sites, including sports fields, swimming beaches, golf courses, and farmlands. Significant economic impacts also persist for local farmers, who are experiencing increased maintenance costs and financial losses due to Canada goose damage.

The service has provided more accurate data on the regional goose population. According to the 2023 Christmas Bird Count data, an estimated 9,000-11,000 geese overwinter in the capital region, primarily on farmland and recreational playing fields. Staff continue to receive reports from the farming community about large flocks wiping out entire crops in a matter of hours, despite efforts at hazing, habitat modification and regional egg addling. Similar to the moult population estimates, staff anticipate that overwintering populations are also substantially higher than previously thought. Staff plan to conduct a region-wide survey in January 2025 to obtain a more accurate and up-to-date estimate of the overwintering population, which will better inform future management efforts.

Recruitment surveys showed the largest numbers of goslings were in Colwood, Saanich and the Gulf Islands. More robust addling programs are needed in areas with high numbers of juveniles. Areas where the ratio of adults to juveniles are high will require additional harvests to effectively reduce the CAGO population.

Current mitigation efforts, including a coordinated egg addling program and an annual harvest, may help stabilize the CAGO population but are unlikely to result in a significant enough reduction to meaningfully ease the environmental, recreational, and economic impacts across the region. Additional resources will enable increased mitigation efforts.

Intergovernmental and First Nations Implications

Several municipal partners have expressed capacity issues to fully participate in egg addling programs and would benefit from additional CRD staff capacity to conduct addling on their lands.

Two local First Nations communities participated in the harvest and have expressed interest in future harvests. Efforts to engage with First Nation Guardians programs to participate in a coordinated egg addling program are ongoing.

Financial Implications

The current service budget is $237,000. In 2024, this supported a part-time coordinator ($85K), egg addling program including a six-week assistant Goose Management technician ($25K), a region-wide summer moult survey ($35K), one annual harvest ($82K) and administrative support/equipment ($10K). Without a budget increase, staff cannot achieve the mitigation efforts required to achieve a meaningful reduction of the CAGO population and their impacts. These resources appear sufficient to stabilize the regional population but are insufficient to dramatically reduce the population to a sustainable level in the near future.

Service Delivery Implications

A significant reduction in the CAGO population in the short-term is required to lessen the significant negative ecological, economic, recreational impacts and public health concerns caused. An increase to the Regional Canada Goose Management Service levels would enable additional mitigation efforts, including increased capacity for the coordinated egg addling program and support for additional First Nation-led harvests.

CONCLUSION

The new Regional Canada Goose Management Service has demonstrated success in controlling the regional population and gathering important information to support ongoing species management. The regional population is higher than previously predicted, however, and impacts to farmlands, public infrastructure, and public and wild lands continue to be well-documented. Current resources and efforts appear sufficient to maintain the population at its current levels, but additional resources would be required to reduce the regional population to a level that meets economic, social and environmental objectives.

RECOMMENDATION

The Environmental Services Committee recommends to the Capital Regional District Board:
That staff be directed to develop increased service levels for consideration in the 2026 service planning process.

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

ATTACHMENTS

Appendix A: 2024 CRD Egg Addling Report (September 2024)
Appendix B: 2024 CRD Moult Survey Report (September 2024)

2024 Egg Addling Report

Regional Canada Goose Management Strategy

CRD | ENVIRONMENTAL PROTECTION

Prepared by:

Regional Canada Goose Management Program

Capital Regional District
625 Fisgard Street, PO Box 1000
Victoria, BC V8W 2S6

September 2024

1.0 Acknowledgements

The Capital Regional District (CRD) conducts its business within the traditional territories of over 20 First Nations, including Songhees, xʷsepsəm (Esquimalt), W̱JOŁEŁP (Tsartlip), BOḰEĆEN (Pauquachin), SȾÁUTW̱ (Tsawout), W̱SIKEM (Tseycum), MÁLEXEŁ (Malahat), Sc'ianew (Beecher Bay), T'Sou-ke, Pacheedaht and Pune'laxutth' (Penelekut). All of whom have a long-standing relationship with the land and waters from time immemorial that continues to this day.

The CRD would like to recognize the continued hard work and dedication of the numerous groups who have contributed to Canada goose (CAGO) management in the capital region including Peninsula Area Agricultural Commission, Guardians of our Salish Estuaries, First Nations, South Island Farmer's Institute, Parks Canada, Department of National Defence, BC Parks, Victoria International Airport, Swan Lake Christmas Hill Nature Sanctuary, Galiano Island Conservancy and municipal staff from the region. The CRD would also like to acknowledge the contributions made from individuals such as Tom Michell, Bob Maxwell, Katie Underwood, Jody Wells and John Costello.

Figure 1. Photo of a Canada goose nest (photo by Samantha Hammond)

Figure 2. Photo of CRD technician marking Canada goose eggs (photo by Katie Lauer)

2.0 Introduction

Historically, Canada geese found on Vancouver Island were occasional migratory visitors over the autumn and winter months and were very rarely seen nesting. In the 1960's and 70's a CAGO introduction program was implemented by the Canadian Wildlife Service, BC Fish and Wildlife Branch and various other organizations to increase wildlife viewing and hunting opportunities in the capital region. The introduced geese were young birds from various subspecies of Canada geese who were unable to learn migrating behaviour patterns from their parents. Eventually these geese interbred, creating a hybrid population of non-migratory resident geese which are not native to the region. [1] [2]

According to Christmas Bird Count data, the current Vancouver Island CAGO population ranges from 16,000-21,000 with an estimated 9,000-11,000 birds overwintering in the capital region [3]. The exponential growth of the regional CAGO population is degrading coastal ecosystems and waterways by over-grazing, trampling vegetation, soil erosion and the spread of invasive species. These areas include endangered Garry Oak ecosystems, near-shore islands in ecological reserves and estuaries that are critical habitats for young salmon [4] [5] [6]. Increased public health concerns have risen from public and private recreational sites including parks, sports fields, swimming beaches, golf courses and farmlands. These concerns are due to high densities of fecal matter, degradation and contamination of water sources, territorial goose conflicts and spread of disease [7]. Significant economic impacts have occurred with local farmers experiencing financial losses from CAGO damaging crops through grazing and soil erosion, increasing maintenance costs, and contaminating crops and water with their droppings. Poultry farms are also at risk of exposure of Highly Pathogenic Avian Influenza from CAGO [8]. These impacts have resulted in an increased pressure on local governments to take coordinated action.

In 2012, the CRD partnered with municipalities and other stakeholders to develop a Regional Canada Goose Management Strategy (RCGMS) to provide guidance for controlling the adverse impacts that the population of non-migratory, resident CAGO have in the capital region [2]. These management tools include population monitoring, preventing feeding, habitat modification, hazing, egg addling, hunting, harvesting and public outreach. Since its development, numerous actions have been undertaken with hazing strategies becoming the most popular. Unfortunately, without a coordinated approach, geese and their associated impacts have moved into new areas, expanding the nesting and overwintering populations.

In February 2023, the CRD Board approved the Canada Goose Management Service Establishment Bylaw No. 1, 2022 (Bylaw No. 4522) that aims to reduce the impact of the rapidly growing CAGO population in the capital region. This bylaw was adopted after receiving elector assent through a regional alternative approval process. The RCGMS includes:

- monitoring, mapping and reporting on CAGO populations and their impacts.
- coordinating and establishing collaborative partnerships with municipalities, First Nations, large landowners, Peninsula and Area Agricultural Commission, other government agencies and stewardship groups to implement the CRD's RCGMS.
- development and implementation of a communications strategy and public education program to support the management of CAGO populations.

- collaborating with other Vancouver Island regional districts, local governments, and First Nations to reduce CAGO populations through the Vancouver Island Canada Goose Management Working Group.

The RCGMS identifies egg addling as an effective approach to population reduction. This type of program is crucial for reducing the number of geese recruited into the population each year. Since 2018, the CRD has supported CAGO management actions in the capital region and has contracted an egg addling program with the Guardians of Our Salish Estuaries (GOOSE) since 2020. Additionally, other organizations in the region have supported CAGO management efforts with their own egg addling programs. For example, BC Parks entered a 10-year agreement in 2022 with GOOSE to addle eggs on the ecologically sensitive offshore islets of Oak Bay. The Department of National Defence (DND) has been implementing egg addling and other mitigation measures for over four years and Parks Canada has been involved in egg addling efforts since 2015. While these efforts have slowed the growth of the resident CAGO population, more work needs to be done to significantly reduce the recruitment of new geese.

The CRD initiated an in-house egg addling program in spring 2024 to build capacity and expand egg addling efforts into new areas. This initiative aims to build a comprehensive knowledge base of CAGO nesting behaviour, assist in addling efforts and promote coordination at a regional scale. Insights gained in the first year will inform subsequent efforts, fostering partnerships with landowners, managers, stewardship groups and First Nations. This report outlines the methods and results of the 2024 CRD egg addling field season and discusses limitations and recommendations for enhancing its effectiveness in subsequent years.

3.0 Methods

The egg addling program was initiated to reduce the number of geese recruited into the local population by decreasing egg viability and hatching success. The program ran from March to May 2024.

3.1 Partnership Building and Land Access

- **Working group**: A Regional Canada Goose Working Group (RCGWG) was established to coordinate efforts and share information between different stakeholders across the capital region.
- **Permit acquisition**: A regional permit from Environment & Climate Change Canada Canadian Wildlife Service (ECCC-CWS) was applied for in February and received on April 4, 2024. Additional park use permits were acquired for work in Sooke parks and View Royal parks on April 25 and April 30 respectively. Private property owners could join the permit by signing a land authorization form.
- **Program information dissemination**: Details about the CRD's new egg addling program were shared with the Peninsula and Area Agriculture Commission (PAAC), Esquimalt Lagoon Stewardship Initiative, Gorge Waterway Initiative, Capital Region Invasive Species Partnership and RCGWG during meetings and distributed through newsletters and mailing lists by CRD staff, PAAC, Ministry of Agriculture and the South Island Farming Institute. CRD staff engaged with municipal partners, First Nations, land managers and parks staff to determine potential CAGO nesting sites.
- **Landowner outreach**: A letter and pamphlet were created to inform property owners about the program and encourage participation. These materials were mailed to properties in known nesting hot spots.

- **Landowner authorization**: Participating landowners signed an authorization letter, adding their property to the CRD's permit and granting CRD technicians access to their land.
- **Ongoing engagement**: Continuous door-to-door canvassing and information sharing were conducted throughout the program in areas with confirmed CAGO nesting.
- **Partner relations**: Continue working with partners currently providing nest surveys and egg addling mitigation work in the capital region.
  - GOOSE continues to work with PAAC, the District of Central Saanich, BC Parks and various other stakeholders to provide egg addling services on farmlands, quarries and ecological reserve islets.
  - Parks Canada continues to conduct egg addling activities on park lands with a significant CAGO presence including Fort Rodd Hill and various sections of the Gulf Island National Park Reserve.
  - DND continues to provide mitigation measures on their lands and islets around the Esquimalt Harbour.
  - Swan Lake Christmas Hill Nature Sanctuary conducts its own egg addling program at the nature sanctuary in Saanich.
  - CRD staff offered nest identification and survey training to municipal parks staff through the RCGWG. Additional egg addling training was provided in the field to Saanich parks staff.

3.2 Nest Surveys and Egg Addling

- **Nest surveys:** Conducted on foot by CRD staff from April 4 to May 25 on properties the CRD had permission to access. Geese were gently removed from nests to allow technicians to addle eggs.
- **Sterilization**: When a nest with eggs was discovered, the egg addling protocol found below was followed:
  a) Eggs underwent a float test (see Figure 3) and were not addled if beyond the development guidelines defined by the American Veterinary Medical Association [9].
  b) If the eggs were at stage 1, they were below the incubation threshold for addling and were coated with vegetable oil to prevent gas exchange. If eggs were between development stages 2 and 5, they were addled by vigorously shaking the egg. If eggs were at stage 6, no sterilization techniques were administered (see Figure 3).
  c) All eggs were then marked with a nest number and placed back into the nest to allow the goose to continue incubation, reducing the likelihood of re-nesting.
  d) All nesting sites were re-visited in two-week intervals to sterilize any newly laid eggs and search for nests laid later in the breeding window.
- **Geographic Information System (GIS) tracking**: Addling information was entered into a GIS app called FULCRUM. Nest details, location information, visit date(s), and other notes or photos were recorded. Supplemental GIS data was compiled, and included areas where no nests were found, locations of missed or inaccessible nests, locations of recently hatched goslings and other relevant information.

- **Partner Egg Addling:** CAGO management partners (GOOSE, DND, Parks Canada and others) conducted nest surveys and egg addling using the same or similar methods and techniques as described above.

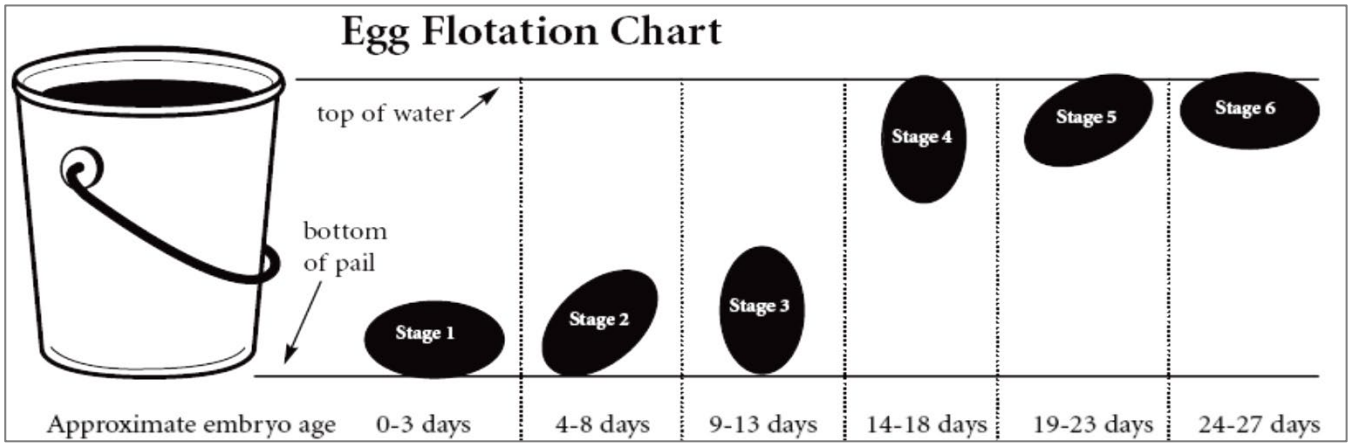


Figure 3. Float test infographic used to determine the age of a Canada goose egg. Image adapted from Iowa Department of Natural Resources [11]

3.3 Recruitment Surveys

- **Recruitment surveys**: Additional nest and recruitment surveys continued in late May and early June after the CAGO breeding window closed. Missed nests that were identified had GPS data recorded and areas with goslings highlighted potential nesting locations to access in the 2025 egg addling season. A brood is defined as a group of goslings with only its parents in attendance and can help us identify a missed nest. A gang brood is defined as multiple broods amalgamated into one, with more than two parents in attendance and can indicate multiple missed nests [10].
- **Online submissions**: Additional nest and gosling locations were extracted from a naturalist website called eBird where bird observations are mapped and submitted by the public. Submissions will continue to assist in the location of new nests in the following years.

Figure 4. Photo of Canada geese with their goslings spotted in downtown Victoria (photo by Lori Nickerson)

4.0 Results

4.1 Land Access Results

In March and April, CRD staff contacted 117 property owners with efforts largely focused on private farmlands and monitored the nesting status of multiple sites across the capital region (Table 1). Sites are defined as any area owned, leased, or managed by a particular group or person on either public or private lands. A total of 142 nests were discovered, with most nests (67%) located on private land and the remaining 33% located on public land (Figure 5). The number of nests found on each site varied with some sites having over 50 nests and others with just one. A total of 18 sites were discovered with active nesting and were addled by CRD staff. An additional 37 sites with historical breeding CAGO activity were surveyed with no nests being discovered.

CRD staff surveyed an additional 37 properties with historical CAGO activity where no nesting activity was found. Access was denied to three sites and authorization was delayed for another 17 properties. With contact now established, these properties can be more easily accessed for the 2025 CAGO nesting season. Attempts to contact the remaining 30 properties were made through mailouts, door-to-door visits, or by leaving informative letters; however, no replies were received.

Table 1. 2024 CRD program land access results in the capital region

Land Access Status	Site Count
Properties contacted	117
Surveyed by the CRD	55
Properties with active nesting	18
Properties with no nesting	37
Denied access	3
Potential sites added for 2025	29

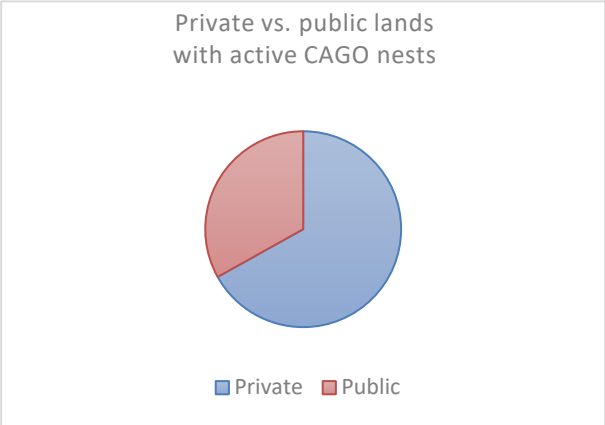


Figure 5. Pie chart comparing the difference between private and public lands where the CRD conducted egg addling activities.

4.2 Egg Addling Results

The 2024 CRD egg addling season began when the permit from ECCC-CWS was obtained. Surveys covered 55 sites and a total of 142 nests were discovered with 672 eggs that were addled or oiled by the CRD (Table 2). These nesting locations occurred at 18 different sites across seven municipalities and electoral districts. Additional data including missed nests, potential nests and inaccessible nests were included in the FULCRUM app (Table 3). Missed nests are defined as nests with eggs that failed the float test, were already hatching or had already hatched. Potential nests occurred when nesting activity was present, but the evidence was inconclusive and requires further verification next year. Combining missed and potential nests, the locations of an additional 31 nests could be more easily accessed next year. Inaccessible nests could not be safely accessed by CRD technicians and were largely located on steep cliffsides.

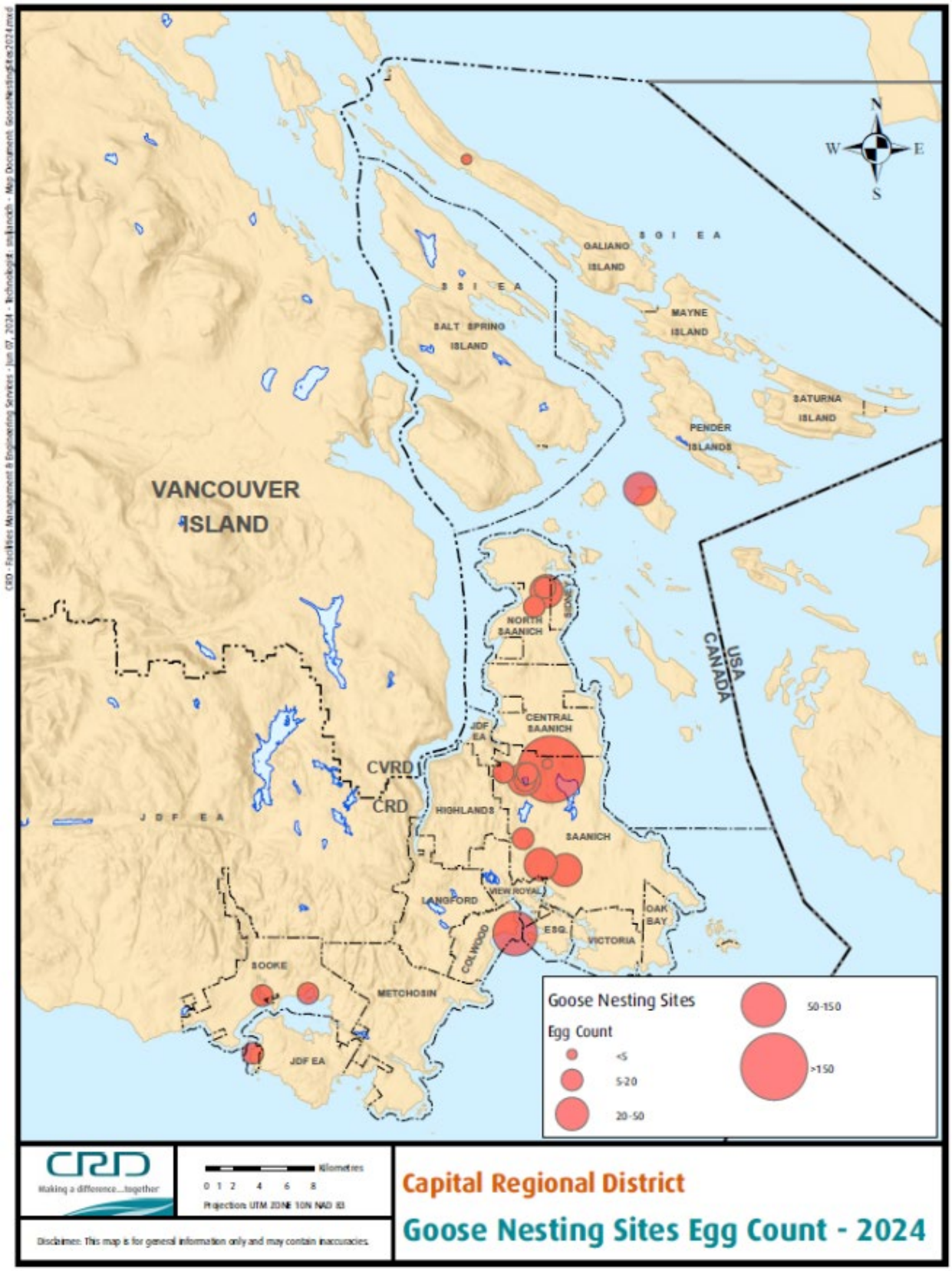


Figure 6. Map depicting the locations of Canada goose eggs treated by CRD technicians during the 2024 season

Table 2. Total number of CAGO nests, eggs and sites treated in each municipality by CRD technicians

Municipality	Sites	Total Nests	# of Treated Eggs
Gulf Islands	2	14	53
North Saanich	3	11	58
Saanich	9	79	396
Colwood	1	33	143
East Sooke	1	2	6
Sooke	2	3	16
Total	**18**	**142**	**672**

Table 3. Total number of known CAGO nests in the capital region

Nest Type	Count
Treated Nests	142
Missed Nests	19
Potential Nests	12
Inaccessible Nests	5
Total Known Nests	**178**

4.3 Coordinated Egg Addling Results

Addling efforts have been underway in the capital region for several years from partner organizations such as GOOSE, DND, Parks Canada and other groups. The coordinated efforts led to 422 nests and 2,041 eggs being addled in the capital region during the 2024 CAGO breeding season (Table 4). Addling efforts in the capital region have prevented a total of **5,232** Canada geese from entering the regional population since 2022. The CRD's egg addling program has increased the number of treated eggs in the region by 20% in its first year.

Table 4. Total known CAGO nests and eggs treated in the capital region from 2022-2024

	2022		2023		2024	
Partner	Nests	Eggs	Nests	Eggs	Nests	Eggs
CRD	n/a	n/a	n/a	n/a	142	672
Guardians of our Salish Estuaries	236	1,162	207	1,019	201	1,037
Department of National Defense	53	175	54	206	38	148
Parks Canada	38	156	63	261	28	97
Other	21	108	19	104	13	87
Totals	**348**	**1,601**	**343**	**1,590**	**422**	**2,041**

4.4 Recruitment Surveys

In May, the CAGO nesting season naturally slowed down and as geese began to abandon their nests, goslings from untreated nests began to hatch. Identifying areas with goslings can help staff target new areas and uncover additional breeding hot spots for future egg addling programs.

CRD staff conducted 33 recruitment surveys which uncovered 273 young from approximately 42 broods. Two locations had large gang broods and the number of nests these goslings hatched from could not be determined. A total of 380 CAGO nest and gosling data submissions from eBird were compiled and investigated, which led to the addition of 90 locations to survey in 2025. Current gosling sightings were checked and confirmed with pictures or ground surveys and an additional 241 goslings were documented. Unfortunately, the number of broods and sizes were not included in the eBird submissions and therefore, an estimated number of missed nests could not be determined. A total of 514 goslings were spotted throughout the capital region. Confirmed sightings were compiled into a GIS layer in the FULCRUM app (Figure 7) that will prove invaluable to CRD staff in identifying new nesting sites in 2025. Salt Spring Island, Burnside Road West, Granville Avenue, Oldfield Road and Royal Roads University have all been identified as CAGO breeding hot spots requiring additional addling efforts in the 2025 season.

Figure 7. Map of CAGO recruitment surveys conducted in the capital region in May and June 2024. Yellow dots indicate confirmed young of the year locations.

5.0 Discussion

In its first year, the coordinated, region-wide CAGO egg addling program focused heavily on building relationships with landowners, identifying new nesting sites, and securing permission and access to both private and public lands. Over the past four years, the Guardians of Our Salish Estuaries were contracted by the CRD to champion the region's egg addling program in priority areas while also working with BC Parks, farmers, First Nations and others. Their areas of focus included farmlands, quarries and the ecologically sensitive islets off Oak Bay. After the regional CAGO service was initiated, the CRD gained additional capacity to create an in-house addling program, enabling the CRD to take on a coordination role and expand the program into new areas. The program change delayed the start of the program and surveys to discover new nesting sites began in early March. In April, a goose management technician was hired to assist with implementation. A regional permit was applied for by CRD staff to streamline the permitting process and alleviate the administrative burden from individual landowners. The permit received on April 4 from ECCC-CWS was delayed. This occurred for both the CRD and other egg addling partners, shortening the nest survey and egg addling window by up to two weeks.

Initially, CRD staff sought information from farmers, landowners and municipal parks staff through word of mouth, email newsletters and meetings. However, it was quickly discovered that many private landowners that had nesting geese on their property were not reachable through these methods. Additionally, tips from concerned citizens who spotted nesting geese on private properties often lacked sufficient contact information, making it challenging to follow-up. To address this issue and reach a broader audience, CRD staff developed a package containing a landowner letter and pamphlet detailing the egg addling program which could be mailed directly to known addresses. This package was also left at properties where CRD staff attempted contact while in the field. Of the 113 properties contacted within the boundaries of the CRD, three properties denied access and no response was received from 17 properties. These 20 properties contain known CAGO nests and new strategies for communication should be explored further next season. The combination of mailed packages and direct owner contact proved to be an effective communication strategy overall and should begin earlier and be expanded next year to cover new areas - specifically the Gulf Islands, North Saanich, Metchosin and Sooke.

The capital region encompasses a large land area and requires coordinated efforts from various partners to implement the egg addling program. The CAGO nesting window is only six to eight weeks, and eggs must be discovered within the first three weeks to be ethically sterilized using standard egg addling techniques. Organizations such as DND, Parks Canada, BC Parks and various others are actively engaging in egg addling activities on their own lands. This allows the CRD to focus on privately owned farmlands and other areas where the need for assistance is greatest. Key partners, such as farmers and municipal parks staff, are uniquely positioned to identify and report CAGO nesting locations while performing their regular duties. CRD staff found it most helpful when landowners or managers could guide them around their properties and highlight key areas where nesting geese have been observed. When municipal parks staff conducted nest surveys with CRD staff, it saved significant time because of their familiarity with the area. Building and expanding these relationships will be crucial for the growth of the egg addling program. CRD staff can facilitate this by engaging directly with the

farming community and other landowners and by increasing the number of participants in the regional CAGO working group. This group will continue to play a vital role in the information-sharing and relationship building platform necessary for this program.

A CAGO nesting hot spot is defined as an area with significant activity and represents approximately 75% of all nests located in 2024, with one site containing over 50 nests. These areas remain a top priority, and despite being concentrated, require a significant amount of time and attention to survey. Most nest surveys require a minimum of two visits, with hot spots often requiring three. In some cases, the terrain may be difficult and slow to navigate safely. However, even seemingly flat terrain (e.g., farmers fields) has enough vegetation mounds or dips to serve as hiding spots for nesting geese to tuck in down low, so that nests are not apparent until the technician is within metres of them. CAGO have a high site fidelity and will return to a successful nesting site in subsequent years. This allows us to obtain cumulative nesting records that can be accessed and expanded each year, reducing the time and effort required to discover nesting sites. More nesting locations can be further identified through participation from the public, scouting pre-nesting season mated CAGO pairs and following leads developed from supporting GIS data and recruitment surveys. A regional CAGO Communications Plan, which includes education on CAGO impacts and a media release asking for assistance from the public in reporting nests, was anticipated to roll out for the 2024 season; however, due to time and resource constraints, implementation of the Communications Plan was deferred to 2025. This plan will be an integral part of the regional egg addling program going forward in future seasons.

Overall, the first year of the coordinated regional egg addling program was successful. An additional 672 eggs from 142 nests were sterilized by CRD staff, bringing the regional total to 2,041 eggs. This represents an increase of 20% in just the first year. Data collected from the CRD's partners indicates that at least 5,232 CAGO were prevented from entering the resident population over the last three years. However, the total number of eggs addled in the capital region since management efforts began is unknown and likely much higher. As regional knowledge of nests is collected, the CRD can assist in developing a more strategic addling program that can be coordinated with interested stakeholders and partners.

6.0 Recommendations

The coordinated regional CAGO egg addling program had a successful first season. The program could be further improved to increase success in the following ways:

6.1 Increase Public Awareness and Participation in Reporting Nests

- Execute a public awareness campaign that includes media releases, social media content and mailouts. This strategy should aim to increase public awareness of CAGO impacts and the reason mitigation techniques are needed.
- A media release and social media campaign should be implemented ahead of nesting season (March) asking for the public's assistance in locating nests.

6.2 Promote Collaboration

- Effective addling in the capital region requires the promotion, development and assistance of addling efforts with interested First Nations, municipal staff, land managers and stewardship groups.
- Offer training by CRD staff to interested parties to get more participants involved. Focus on engaging with First Nations guardian programs.
- Continue to develop working relationships with other groups to understand how to best assist with current addling activities in the capital region.
- Work directly with the farming community and farming groups to obtain access to more properties with active CAGO nesting.
- Continue building relationships with landowners, First Nations and municipal staff.

6.3 Increase Egg Addling Budget

- Make the Goose Management Technician position an annual three-month term to include pre-season planning, scheduling and scouting for mated pairs to uncover new nesting areas.
- Increase the goose management budget to include extra hours for the Goose Management Coordinator to participate in the egg addling field season.

6.4 Diversify Addling Methods

- Cooling and freezing eggs is another method of addling that is accepted by the American Veterinary Medical Association and used in more densely populated areas like Vancouver, BC. Treated eggs are thawed and swapped with fertile eggs to prevent re-nesting. This method allows the technician to quickly treat eggs with minimal interaction (less than a minute) and can be a suitable option for nests in high-profile areas. This can help alleviate concerns some municipalities have with the sensitivities and concerns of a potentially viewing public.
- Obtain a kayak or row boat and chest waders to access more nests.

6.5 Streamline Processes

- Apply for a regional egg addling permit from ECCC-CWS in February that private landowners can join with a land authorization form.
- Reduce the bureaucracy and paperwork burden for municipalities, farmers and other land owners to make participation in the egg addling program easier by removing park use permit requirements for nest surveys and obtaining the regional egg addling permit.

7.0 Conclusion

The first year of the coordinated egg addling program has shown promising progress and early signs of success. Addling is an essential tool required to limit recruitment and reduce population growth effectively. While current efforts are slowing the growth of CAGO populations and leading to stabilization, they are unlikely to achieve significant reductions on their own. To achieve meaningful results, it is crucial to allocate more resources, build stronger partnerships, implement additional mitigation measures and expand the program further.

Figure 8. Photo of a hard-to-reach goose nest at Hartland Landfill (photo by Samantha Hammond)

8.0 References

[1] A. C. S. Neil K. Dawe, "The Canada Goose (Branta canadensis) on Vancouver Island, British Columbia," *British Columbia Birds,* vol. 20, pp. 24-40, 2010.

[2] CRD, "Regional Canada Goose Management Strategy," CRD, Victoria, 2012.

[3] N. A. Society, "The Christmas Bird Count Historical Results [online]," 2020. [Online]. Available: http://www.christmasbirdcount.org. [Accessed 12 February 2024].

[4] R. Best, "Exotice Grasses and Feces Deposition by an Exotic Herbivore Combine to Reduce the Relative Abundance of Native Forbs," *Oecologia,* vol. 158, pp. 319-327, 2008.

[5] J. R. B. R. J. B. P. A. M. Isaac-Renton, "Effects of Introduced Canada Geese (Branta canadensis) on Native Plant Communities of the Southern Gulf Island, British Columbia," *Ecoscience,* vol. 17, no. 4, pp. 394-399, 2010.

[6] G. o. M.-I. E. Society, "Canada goose Management Strategy for Mount Arrowsmith Biosphere Region," Towards the Region of Goose-Damged estuaries, 2015.

[7] R. H. a. J. E. Lisa Dessborn, "Geese as vectors of nitrogen and phosphorus to freshwater systems," *Inland Waters,* vol. 6, pp. 111-122, 2016.

[8] G. o. Canada, "Animals susceptinle to H5N1 highly pathogenic vian influenza (HPAI)," 31 Aug 2023. [Online]. Available: https://inspection.canada.ca/animal-health/terrestrial-animals/diseases/reportable/avian-influenza/animals-susceptible-to-h5n1-hpai/eng/1375992449648/1375992451039.

[9] A. V. M. Association, "AVMA Guidelines for the Euthanasia of Animals: 2020 Edition," AVMA ISBN 978-1-882691-09-8, SChaumberg, IL, 2020.

[10] M. P. Conover, "Gang Brooding in Canada Geese: Role of Parental Condition and Experience," *The Condor,* vol. 111, no. 2, pp. 276-282, 2009.

[11] A. H. B. B. Guy Zenner, "Guidelines for Controlling Canada Goose Populations and Injuries Canada Goose Activities," Iowa Department of Natural Resources, 2013.

2024 Moult Survey Report

Regional Canada Goose Management Strategy

CRD | ENVIRONMENTAL PROTECTION

Prepared by:
Regional Canada Goose Management Program

Capital Regional District
625 Fisgard Street, PO Box 1000
Victoria, BC V8W 2S6

September 2024

1.0 Acknowledgements

The Capital Regional District (CRD) conducts its business within the traditional territories of over 20 First Nations, including Songhees, xʷsepsəm (Esquimalt), W̱JOŁEŁP (Tsartlip), BOḰEĆEN (Pauquachin), SȾÁUTW̱ (Tsawout), W̱SIKEM (Tseycum), MÁLEXEŁ (Malahat), Sc'ianew (Beecher Bay), T'Sou-ke, Pacheedaht and Pune'laxutth' (Penelekut). All of whom have a long-standing relationship with the land and waters from time immemorial that continues to this day.

The CRD would like to recognize the hard work and dedication of the numerous groups who made this year's Canada goose population survey in the capital region possible. These groups are as follows:

- CRD staff and outreach team
- Malahat Nation
- Agile Drone Services
- Rocky Point Bird Observatory
- Galiano Island Conservancy
- Mayne Island Conservancy
- Saturna Island Marine Research and Education Society
- Pender Island Conservancy
- District of Saanich parks staff
- City of Victoria parks staff
- Town of Sidney staff
- Horticulture Centre of the Pacific
- Swan Lake Christmas Hill Sanctuary
- Numerous golf courses
- Individuals such as Jody Wells for counting geese and Bette Longland, Emily Harris, Jim Reisin and Larry Sluggett for allowing us onto their properties to use drone technology.

The CRD would also like to recognize the hard work and dedication of groups who contributed to Canada goose (CAGO) population surveys in the past including the Peninsula Area and Agricultural Commission, Guardians of our Salish Estuaries, Ministry of Agriculture and Rocky Point Bird Observatory.

Figure 1. Katie Lauer counting geese from a CRD boat (photo by Gabriel Junker)

Figure 2. Malahat Nation boat operator during moult survey (photo by Samantha Hammond)

2.0 Introduction

Historically, Canada geese found on Vancouver Island were occasional migratory visitors over the autumn and winter months and were very rarely seen nesting. In the 1960's and 70's a CAGO introduction program was implemented by the Canadian Wildlife Service, BC Fish and Wildlife Branch and various other organizations to increase wildlife viewing and hunting opportunities in the capital region. The introduced geese were young birds from various subspecies of Canada geese who were unable to learn migrating behaviour patterns from their parents. Eventually these geese interbred, creating a hybrid population of non-migratory resident geese which are not native to the region [1] [2].

According to Christmas Bird Count data, the current Vancouver Island CAGO population ranges from 16,000-21,000 with an estimated 9,000-11,000 birds overwintering in the capital region [3]. The exponential growth of the regional CAGO population is degrading coastal ecosystems and waterways by over-grazing, trampling vegetation, soil erosion and the spread of invasive species. These areas include endangered Garry Oak ecosystems, near-shore islands in ecological reserves, and estuaries that are critical habitats for young salmon [4] [5] [6]. Increased public health concerns have risen from public and private recreational sites including parks, sports fields, swimming beaches, golf courses and farmlands. These concerns are due to high densities of fecal matter, degradation and contamination of water sources, territorial goose conflicts and spread of disease [7]. Significant economic impacts have occurred with local farmers experiencing financial losses from CAGO damaging crops through grazing and soil erosion, increasing maintenance costs, and contaminating crops and water with their droppings. Poultry farms are also at risk of exposure of Highly Pathogenic Avian Influenza from CAGO [8]. These impacts have resulted in an increased pressure on local governments to take coordinated action.

In 2012, the CRD partnered with municipalities and other stakeholders to develop a Regional Canada Goose Management Strategy (RCGMS) to provide guidance for controlling the adverse impacts that the population of non-migratory, resident CAGO have in the capital region [2]. These management tools include population monitoring, preventing feeding, habitat modification, hazing, egg addling, hunting, harvesting and public outreach. Since its development, numerous actions have been undertaken with hazing strategies becoming the most popular. Unfortunately, without a coordinated approach, geese and their associated impacts have moved into new areas, expanding the nesting and overwintering populations.

In February 2023, the CRD Board approved the Canada Goose Management Service Establishment Bylaw No. 1, 2022 (Bylaw No. 4522) that aims to reduce the impact of the rapidly growing CAGO population in the region. This bylaw was adopted after receiving elector assent through a regional alternative approval process. The RCGMS includes:

- monitoring, mapping and reporting on CAGO populations and their impacts.
- coordinating and establishing collaborative partnerships with municipalities, First Nations, large landowners, Peninsula and Area Agricultural Commission, other government agencies and stewardship groups to implement the CRD's RCGMS.

- development and implementation of a communications strategy and public education program to support the management of CAGO populations.
- collaborating with other Vancouver Island regional districts, local governments and First Nations to reduce Canada goose populations through the Vancouver Island Canada Goose Management Working Group.

Population surveys are an important component of the RCGMS and are utilized to inform regional decisions and show the effectiveness of applied management techniques. Hot spot surveys in the region have been completed since 2021; however, a complete regional population survey that includes all municipalities and electoral districts has not been previously completed. In late June and July, CAGO moult their flight feathers and congregate with their young of the year near bodies of water. At this time, they are unable to fly and will stay in their chosen area for long periods, presenting a unique opportunity to conduct an accurate population count that includes young of the year amounts with little chance of overlapping results. A collaborative approach that includes partnership with CRD staff, local First Nations and local stewardship groups allowed us to conduct a coordinated moult survey of CAGO across the capital region. This report outlines the history, methods and results of the 2024 Regional Canada Goose Moult Survey.

2.1 Canada Goose Moult Survey History in the CRD (2017-2023)

In July 2017, Guardians of Our Salish Estuaries (GOOSE) conducted an aerial moult survey from Sooke to Sidney using a Jet Ranger helicopter. This survey observed 4,002 CAGO, and an additional 500 geese were estimated to be found in areas not covered by the survey, bringing the estimated total to 4,502. The highest concentrations were found in Sooke Basin, Esquimalt Lagoon and Saanich Peninsula and these areas were deemed local hot spots [9]. In June 2019, GOOSE conducted a drone survey from Sooke to Sidney and Salt Spring Island. This survey identified approximately 4,298 CAGO and it was noted that 35-40% of all geese counted were young of the year [9]. In late June 2020, GOOSE conducted a moult survey via kayak and counted 2,774 CAGO between Sooke and Sidney [9] (Figure 3).

In 2021, 2022 and 2023 GOOSE conducted moult surveys using various methods including kayaks, boats, land surveys and utilizing data from a naturalist website called eBird to determine local “hot spots” [10] [11]. The surveys covered locations from Sooke to North Saanich and in all three years, the largest concentrations of geese were found in Sooke, Esquimalt Lagoon, Oak Bay shoreline and the northeast coast of the Saanich Peninsula (Appendix A). The number of moulting Canada geese in the region was recorded as 1,902 in 2021, 3,616 in 2022, and 2,625 in 2023 (Figure 3). The figures from these reports are the only known documentation of summer CAGO population numbers from 2017 to 2023. However, large areas such as the Gulf Islands, Juan de Fuca Electoral Area and farmlands have not been included in these population estimates. Canada geese migrate seasonally and will move between municipalities and islands for breeding and feeding purposes. Therefore, CAGO from all regions need to be considered to have a comprehensive population estimate that can inform management efforts and ensure the RCGMS is successful.

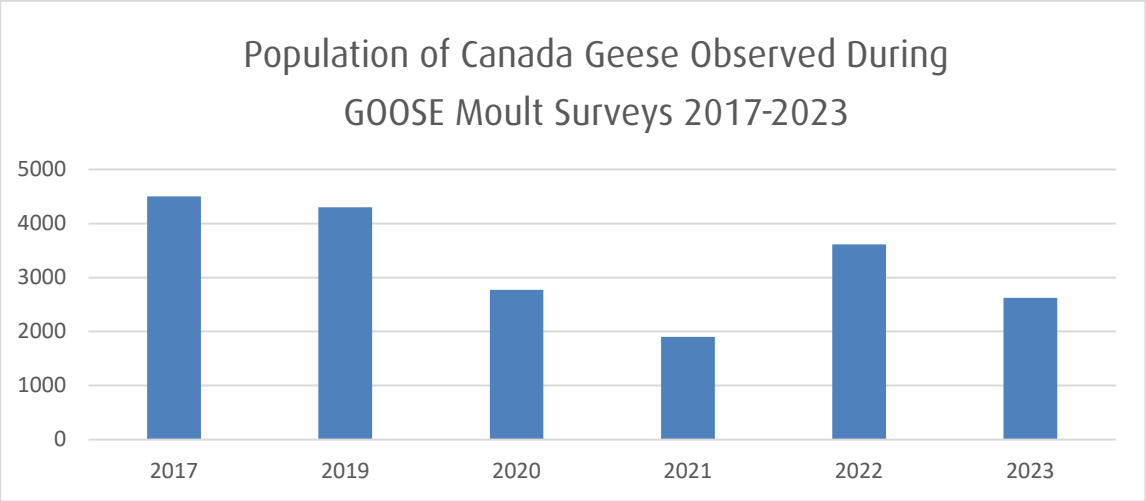


Figure 3. Total CAGO observed during GOOSE moult surveys completed in the capital region from 2017-2023. Data compiled from [9] [10] [11]

3.0 Methods

The Regional Canada Goose Moult Survey was initiated to create a baseline summer population estimate that can be utilized to inform regional decisions and show the effectiveness of applied management techniques. A collaborative approach was used, and the capital region was separated into marine and land-based surveys to ensure the maximum amount of area was covered by surveyors. The survey occurred between June 23-29, 2024.

3.1 Collaboration and Training

The capital region is a large land mass consisting of 13 municipalities and electoral districts which include the Southern Gulf Islands. To reach as many locations as possible, numerous groups across the capital region were asked to participate in the survey:

- **First Nations:** A request was sent out to all local First Nation groups within the capital region requesting a partnership that included use of their boat, boat operator and staff member. Malahat Nation agreed to participate, and a contract was developed.
- **Stewardship groups**: Groups from all over the capital region were contracted to participate in the survey. These groups included Rocky Point Bird Observatory, Galiano Island Conservancy, Mayne Island Conservancy, Pender Island Conservancy and Saturna Island Marine Research and Education Society. A local birder named Jody Wells also contributed to the survey.
- **Large landowners and managers:** Staff from areas with large numbers of moulting CAGO were contacted and asked to count geese in their areas. Participants included CRD Parks, Saanich Parks, City of Victoria, Township of Sidney, Horticulture Centre of the Pacific, Swan Lake Christmas Hill Sanctuary, Royal Colwood Golf Club, Highland Pacific Golf and Victoria Golf Centre.
- **Training**: Training sessions were held on June 17 and June 20, 2024 using Microsoft Teams to ensure all participants in the survey followed the same data collection protocols, learned how to use the Geographic Information System (GIS) app called FULCRUM, and knew how to identify adult and juvenile CAGO.

- **Testing:** Participants were encouraged to test out the FULCRUM app in the field using yellow test points prior to the survey dates.

3.2 Data Collection

To ensure reliability of the CAGO survey results, the following measures were implemented to achieve high accuracy in the population counts:

- **Training and calibration**: All participants underwent training to ensure consistency in collecting data and identifying and counting CAGO.
- **Equipment:** Binoculars, cell phone or tablet, FULCRUM app, camera and printed data sheets (See Appendix B).
- **Data collection:** The FULCRUM app was used to track GPS locations, population counts, photos and additional data while in the field. The data was entered into FULCRUM on a phone or iPad and was also written on a hard paper copy (Appendix B).
- **Population counts:** Adult and juvenile CAGO population numbers were counted by two surveyors and compared for accuracy. One person entered the data into FULCRUM, the other wrote a hard copy. Pictures were taken at each moulting site that could be used to confirm numbers after.
- **Photographic evidence**: Photographs were taken during both marine and land surveys. These images were reviewed later to verify and cross-check the initial counts.
- **Standardized protocols**: Following standardized survey protocols ensured that all participants used the same methods and criteria for counting.
- **Cross-referencing with eBird data**: Comparing survey results with eBird data helped identify any additional geese that may have been missed during the survey.

3.3 Survey Zones

The shorelines of the capital region were separated into zones and assigned to each boat prior to the survey. The shorelines, lakes and other areas not covered by boat or drone were separated into zones and assigned to land groups prior to the survey.

- Canada geese congregate in large open areas that have access to sufficient food and water; protected shorelines are favoured where geese can move in and out of the water with ease. The topography of the region was reviewed and areas with a high probability of moulting CAGO were chosen for the survey.
- The suitable areas were sectioned by dates to reduce the chances of CAGO moving between areas and resulting in overlapping results (Table 1).
- Urban centres, forests and steep rocky shorelines were omitted from the survey.

Table 1. Locations and groups by survey date (large landowners counted CAGO during survey dates but are not included below)

Date	Survey Zones	Method	Groups Participating
June 23	Metchosin, Colwood, Esquimalt and Esquimalt harbour	Land and boat surveys	CRD staff, Parks Canada
June 24	Farmlands, Oak Bay islets, Gorge waterway, Victoria, Oak Bay, east coast from Cordova Bay to Sidney	Drone, land and boat surveys	CRD staff, Rocky Point Bird Observatory, Town of Sidney, City of Victoria
June 25	West coast from Saanich Inlet to Swartz Bay, Piers, Moresby and Portland Islands, east coast of Salt Spring Island, Galiano Island	Land and boat surveys	CRD staff, Malahat Nation, Galiano Island Conservancy, Rocky Point Bird Observatory
June 26	Municipal parks, west coast of Salt Spring Island, Pender Island, Mayne Island, Shirley to Jordan River	Land and boat surveys	CRD staff, Malahat Nation, Rocky Point Bird Observatory, Pender Island Conservancy, Mayne Island Conservancy, Saanich Parks
June 27	Becher Bay to Sooke, China Beach, Gordon Beach	Land surveys	CRD staff, Rocky Point Bird Observatory
June 28	Sombrio Beach, Port Renfrew	Land surveys	CRD staff
June 29	Saturna Island	Land surveys	Saturna Island Marine and Education Society

3.4 Marine and Land Surveys

Moulting CAGO congregate on or near water while they moult. Marine surveys were conducted using boats that moved slowly along the shorelines of the capital region to discover groups of moulting geese. Land surveys were conducted in all areas that the drone and boats were unable to access due to time and resource constraints.

- **Marine surveyors:** Malahat Nation and the CRD provided boats for the shoreline surveys of the region. A designated "Canada goose spotter", boat operator and one additional staff member were aboard each boat to conduct the moult survey.
- **Drone technology:** A drone operator from Agile Drone Services was contracted to assist with aerial surveys over farmland in the region. The drone used in the survey was a DJI M300 RTK with a H20 T sensor. A CRD staff member assisted the drone operator with exploratory CAGO counts. Infrared cameras were used to help identify groups of CAGO in areas with tall grass (Appendix C).
- **Local stewardship groups:** Completed direct counts using scopes and binoculars at regional lakes, shorelines, farms and other areas.
- **Large landowners and managers:** Municipal parks staff, CRD parks staff, golf course attendants and various other large landowners counted geese in their areas during the moult survey.

- **Additional data**: eBird data was examined to discover if any additional CAGO were counted during the time of the survey.

4.0 Results

The 2024 Regional Canada Goose Moult Survey was completed by all involved parties during the week of June 21-28 and covered all 13 municipalities and electoral districts in the CRD. A total of 492 locations were surveyed including over 650 km of shoreline. Of these locations, 258 were found to have no geese and 234 were found to have geese (Figure 4). The moult survey training sessions were provided by Katie Lauer, Goose Management Technician and were well attended with 14 people in the first session and 22 attending the second. A total of 6,669 geese were counted in the CRD (Figure 5).

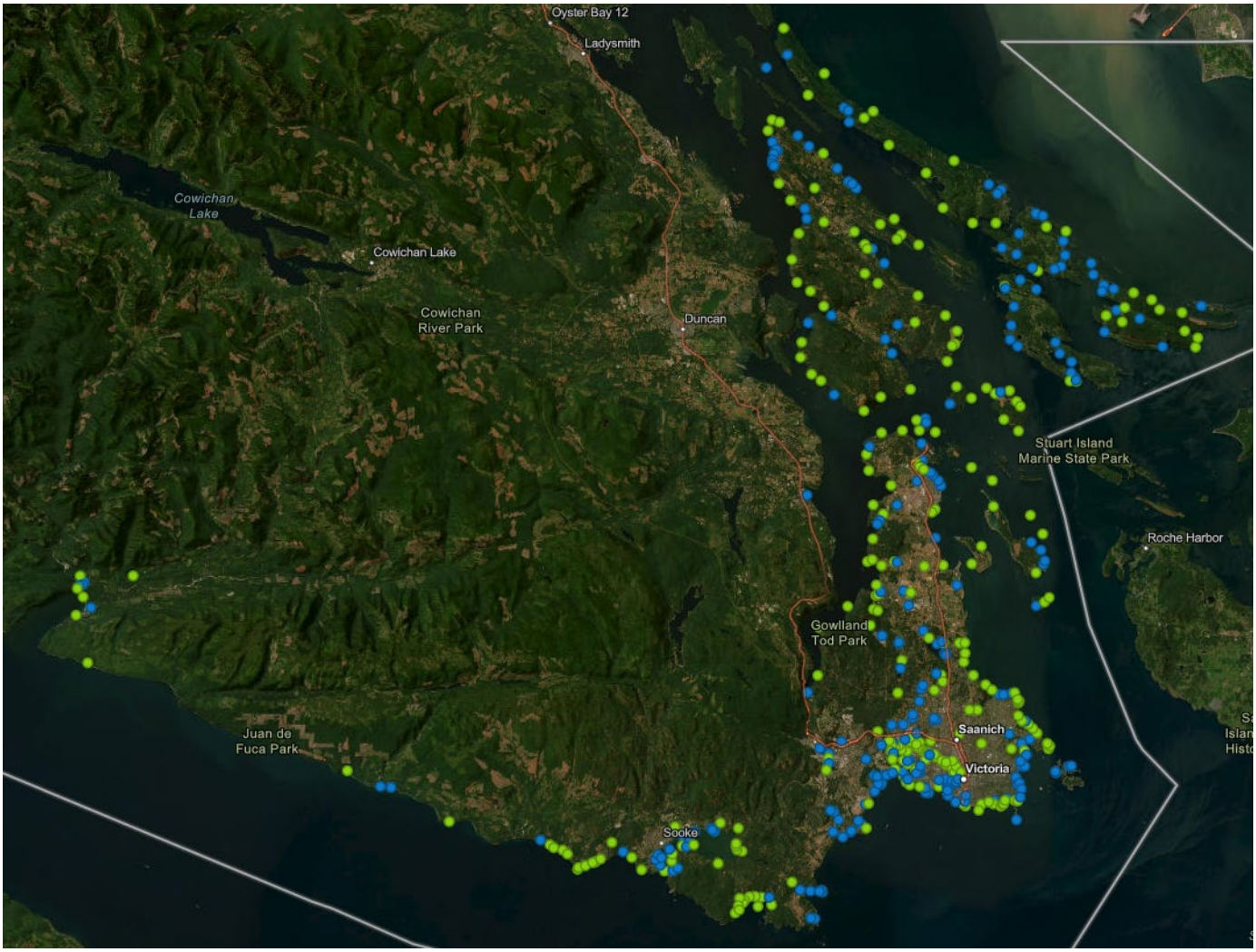


Figure 4. Data points collected in the FULCRUM app during the Regional Canada Goose Moult Survey. Green dots represent sites with no geese and blue dots represent sites with geese.

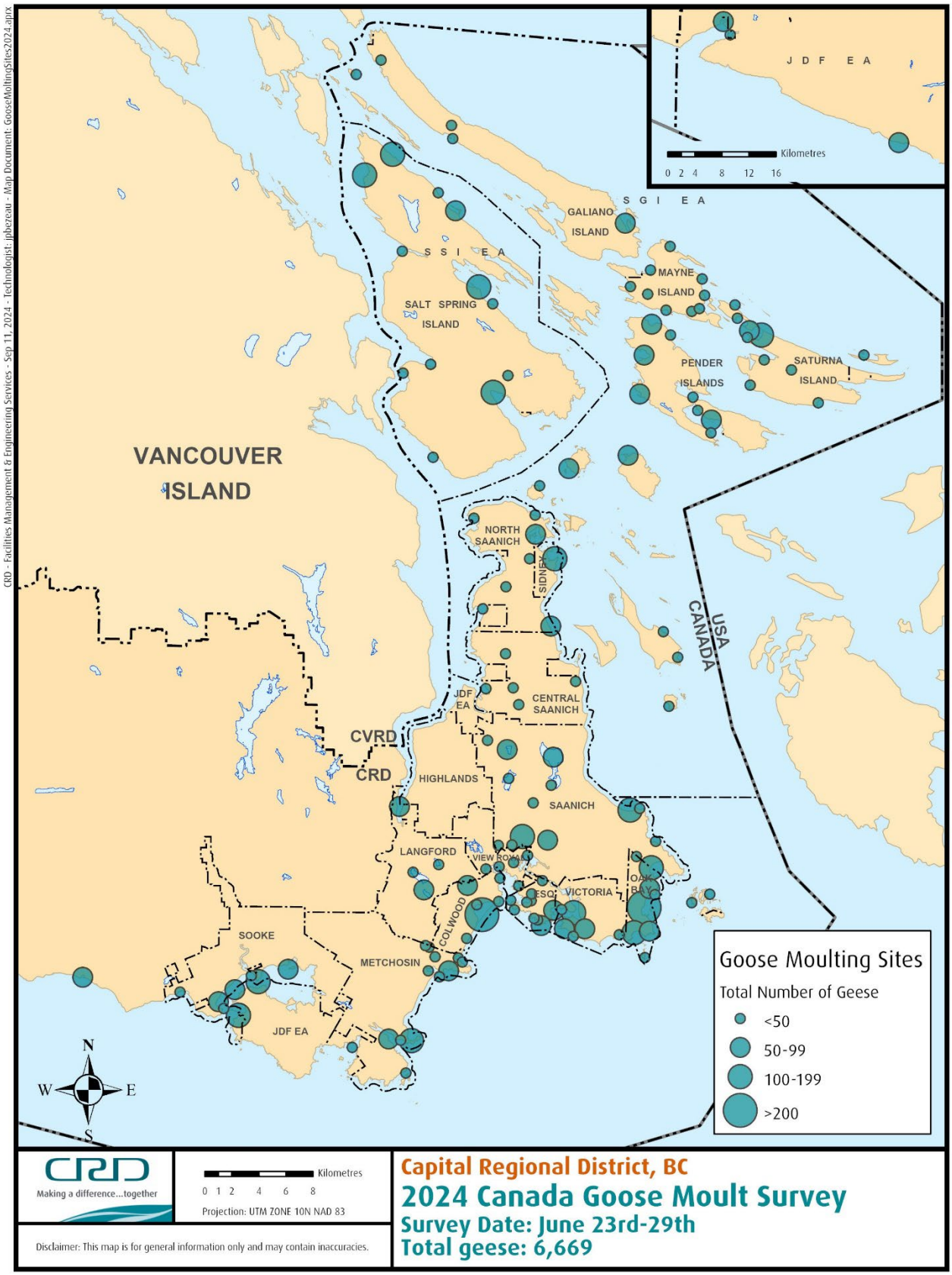


Figure 5. Results of the 2024 Regional Canada Goose Moult Survey. Western portion of Juan de Fuca Electoral Area shown in upper corner of map.

A total of 5,645 adult and 1,025 juvenile CAGO were counted in the capital region bringing the total to 6,669. The largest concentrations of moulting CAGO were discovered in Sooke, Colwood, Oak Bay, Saanich and the Gulf Islands (Table 2). The Gulf Islands with the largest populations of CAGO were Salt Spring Island, Pender Island and Mayne Island (Table 3). Despite the scale of the survey conducted this year, it is unlikely that all geese in the capital region were counted, and the actual CAGO totals may be 500-1,000 higher.

Table 2. Population totals of CAGO for the municipalities and electoral districts included in the 2024 Regional Canada Goose Moult Survey

Municipality	Adults	Juveniles	Total
Juan de Fuca	256	41	297
Sooke	562	25	587
Metchosin	339	17	356
Colwood	456	142	598
Langford	150	40	190
View Royal	46	48	94
Esquimalt	258	59	317
Victoria	278	30	308
Oak Bay	696	57	753
Saanich	485	155	640
Central Saanich	55	42	96
Sidney	85	75	160
North Saanich	206	36	242
Gulf Islands	1,773	258	2,031
Totals:	**5,645**	**1,025**	**6,669**

Table 3. Population totals of CAGO for each of the Gulf Islands included in the 2024 Regional Canada Goose Moult Survey

Gulf Island	Adults	Juveniles	Total
Piers Island	13	3	16
Moresby Island	20	41	61
Sidney Island	52	16	68
D'Arcy Island	14	0	14
Pender Island	347	71	418
Saturna Island	128	25	153
Samuel Island	100	0	100
Mayne Island	207	40	247
Galiano Island	112	15	127
Salt Spring Island	658	43	701
Chatham Islands	49	4	53
Cabbage Island	18	0	18
Portland Island	55	0	55
Totals:	**1,773**	**258**	**2,031**

The survey showed a total of 1,025 juvenile CAGO with the largest numbers being seen in Colwood, Saanich and the Gulf Islands (Table 2, Figure 6). Numerous survey accounts indicated difficulty discerning between juveniles and adults during boat surveys where it was difficult to get close to moulting geese. This indicates that the overall number of juveniles is likely much higher in those survey areas.

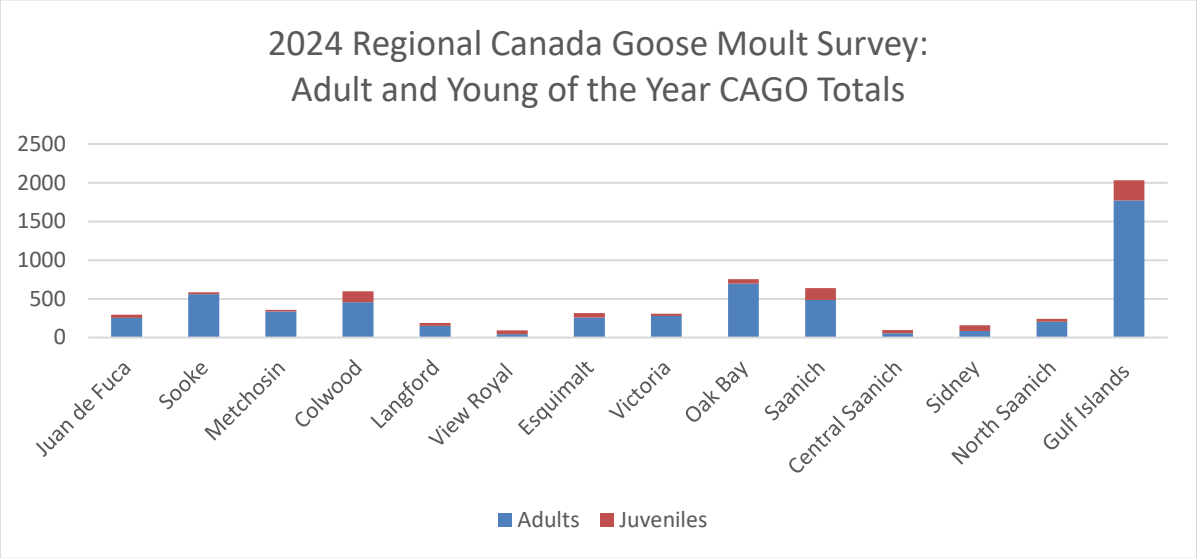


Figure 6. Bar graph showing the ratio of juvenile to adult CAGO counted during the 2024 Regional Canada Goose Moult Survey

5.0 Discussion

5.1 Hot Spots

Hot spots are defined as areas with a significant concentration of moulting CAGO. This year's moult survey confirmed previously identified hot spots from past surveys and identified several new ones. The shorelines of Sooke Harbour, Colwood, Esquimalt, Victoria, and Oak Bay continue to have the highest concentrations of moulting CAGO, accounting for 48% of the entire population. The 2024 Regional Canada Goose Moult Survey expanded survey efforts to include large areas where CAGO had not been previously counted. These areas included the shorelines of Victoria, Metchosin, East Sooke, the Gulf Islands, private farmlands, golf courses, Juan de Fuca Electoral Area and lakes and ponds. Including these areas more than doubled the total population that was estimated in 2023.

Canada geese breeding further inland tend to walk to smaller bodies of water near their nesting sites instead of migrating to ocean shorelines. The population numbers in Saanich, including privately owned farmland, were much higher than previous surveys had suggested. One private property in Saanich had 110 CAGO in and around a small pond. These geese likely came from their nesting locations on surrounding properties to moult. Similar pockets were discovered throughout farmlands in Saanich, Central Saanich and North Saanich. These areas should be considered small hot spots, as the likelihood of agricultural impacts is drastically increased. The shorelines of Metchosin, particularly along William Head and Albert Head, should be considered new hot spots. The Gulf Islands also included a significant number of CAGO, comprising 30% of the total population in the capital region. The north end of Salt Spring Island, Pender Island and Mayne Island all had significant populations of moulting geese. Future management efforts should be expanded to include these locations, particularly the Gulf Islands, where no known egg addling or First Nation harvests are known to occur.

5.2 Juvenile Recruitment

This year's moult survey included recruitment surveys which count the number of juvenile geese that have been recruited into the local population of CAGO. Recruitment surveys were also completed during the 2024 regional egg addling season. These surveys occurred in May while juvenile geese were still young and close to where they had hatched indicating areas with missed nests. The number of juvenile geese in a group of moulting geese was tallied whenever survey conditions allowed. Unfortunately, numerous surveyors recorded having difficulty distinguishing between juvenile and adult geese while in the field. Due to the timing of the survey, juvenile geese could have been between the ages of 2-12 weeks old. CAGO grow quickly and begin to look like adult CAGO at around 6-8 weeks of age; at this point it can be difficult for even the most seasoned birder to correctly identify juveniles from a distance. It was found that surveys completed on land or with drone technology had the least trouble correctly identifying juveniles.

Colwood, Saanich and the Gulf Islands had the most juveniles with 142, 155 and 258 respectively. The moult recruitment surveys have highlighted numerous locations that need egg addling programs to effectively reduce the number of geese recruited into the population in 2025. Whereas areas with high adults to juvenile percentages will likely require additional removal methods to effectively see a reduced population.

5.3 Drone Test

In the capital region, CAGO frequently use privately owned farmlands as breeding grounds and will stay to moult if a water feature is within walking distance. While geese are moulting, they are more vulnerable to predation and will hide in tall grass and crops when approached or threatened - this makes surveying these areas challenging. To overcome this, drone technology was tested on farmlands and shorelines to determine its efficacy as a tool for future CAGO population surveys. The drone was flown at an average height of 400 feet and was able to cover up to 350 acres of farmland from one deployment zone. Permission was obtained from landowners at each deployment zone prior to the survey and airspace permission was approved from NavCanada. The drone was able to take clear pictures and video from an elevation of 400 feet while recording the GPS location and elevation. Most of the photos taken in the survey utilized a 5-10x zoom; however, up to 200x was available. This enabled surveyors to count juvenile and adult geese without disturbing them or scaring them into covered areas. Additional CAGO were discovered in areas missed by the surveyor's initial scan by using an infrared camera (Appendix C). The drone proved to be an asset that should be utilized in future surveys to cover areas of farmland and sections of shoreline not easily accessed by land.

5.4 Regional Population

Moult surveys completed in the capital region from 2021-2023 showed a population of approximately 1,902-2,625 resident CAGO [11]. The 2024 Regional Canada Goose Moult Survey indicates a population of approximately 6,669 resident CAGO, which is two to four times higher than estimated by previous surveys. CAGO are known winter migrants, and the population is expected to increase another 30-50% over the winter months, particularly in open fields and farmlands. The population of CAGO remains high despite the numerous mitigation strategies that have been applied to the region attempting to reduce the CAGO population. Over the last four years, egg

addling efforts have prevented 5,232 Canada geese from entering the resident population. Harvests led by First Nations across Vancouver Island have removed approximately 6,000 CAGO and an additional 28,119 CAGO have been hunted since 2012 [12].

Canada geese are incredibly resilient birds with high breeding success rates. Increased efforts to reduce the overall population of CAGO need to occur in all areas of the capital region, including new hot spots where mitigation efforts have yet to be applied. Collared CAGO were documented in two locations: Fort Rodd Hill and the Goldstream estuary. These geese were collared and banded in Nanaimo, BC during the spring of 2017 indicating that CAGO will migrate across Vancouver Island. Geese from Nanaimo have been observed beyond Vancouver Island in areas such as Vancouver, Washington and Oregon [13]. However, the movements of resident CAGO in the capital region has been poorly documented due to the lack of a banding program and it is unknown if any moult migrations occur within our resident population. Future strategies should include collaboration between all districts across Vancouver Island and other neighbouring cities to collar birds to monitor their movement and to ensure reduction methods are occurring everywhere.

6.0 Recommendations

6.1 Population Survey

- Completed full regional population surveys of CAGO are critical to understanding the effectiveness of applied reduction techniques.
- An annual Regional Canada Goose Moult Survey should occur in the capital region when resources are available. At a minimum, a survey that occurs bi-annually is essential.
- Winter surveys need to be conducted to determine the population estimate of overwintering CAGO in the capital region.
- A banding program should be considered to study the movements of CAGO throughout the capital region and other jurisdictions.

6.2 Promote Collaboration

- Continue to develop working relationships with other groups to collaborate on future population surveys.
- Work directly with the farming community to gather information on CAGO population numbers, impacts, crop types and movements.
- Develop working relationships with landowners, First Nations, municipal staff, provincial staff, organizations and local governments.

6.3 Increase Mitigation Efforts

- Increase the goose management budget to include extra funds for increased reduction techniques to be applied in the capital region. This is necessary to reduce the population of CAGO in a meaningful way.
- Explore additional avenues of funding for CAGO mitigation efforts to increase the overall goose management budget.
- Explore additional opportunities for collaboration between municipalities, electoral districts and outside jurisdictions.

7.0 Conclusion

The 2024 Regional Canada Goose Moult Survey was successfully conducted with participation from over 16 groups including First Nations, stewardship groups, municipalities and large landowners. Despite numerous efforts to reduce the overall population, the survey reveals an estimated 6,669 resident CAGO, which is much higher than anticipated. The data collected has established a baseline CAGO population that can inform regional management decisions, focus mitigation efforts, and ensure the effectiveness of management techniques. A comprehensive Regional Canada Goose Moult Survey and a regional overwintering Canada goose population survey should occur every one to two years to ensure effective management is occurring across all areas. To achieve meaningful results, it will be crucial to allocate additional resources, increase collaboration and implement further reduction measures to enhance the success of the Regional Canada Goose Moult Survey.

Figure 7. Juvenile and adult CAGO at Esquimalt Gorge Park on June 24, 2024 (photo by Anne Nightengale)

References

[1] A. C. S. Neil K. Dawe, "The Canada Goose (Branta canadensis) on Vancouver Island, British Columbia," *British Columbia Birds,* vol. 20, pp. 24-40, 2010.

[2] CRD, "Regional Canada Goose Management Strategy," CRD, Victoria, 2012.

[3] N. A. Society, "The Christmas Bird Count Historical Results [online]," 2020. [Online]. Available: http://www.christmasbirdcount.org. [Accessed 12 February 2024].

[4] R. Best, "Exotice Grasses and Feces Deposition by an Exotic Herbivore Combine to Reduce the Relative Abundance of Native Forbs," *Oecologia,* vol. 158, pp. 319-327, 2008.

[5] J. R. B. R. J. B. P. A. M. Isaac-Renton, "Effects of Introduced Canada Geese (Branta canadensis) on Native Plant Communities of the Southern Gulf Island, British Columbia," *Ecoscience,* vol. 17, no. 4, pp. 394-399, 2010.

[6] G. o. M.-I. E. Society, "Canada goose Management Strategy for Mount Arrowsmith Biosphere Region," Towards the Region of Goose-Damged estuaries, 2015.

[7] R. H. a. J. E. Lisa Dessborn, "Geese as vectors of nitrogen and phosphorus to freshwater systems," *Inland Waters,* vol. 6, pp. 111-122, 2016.

[8] G. o. Canada, "Animals susceptinle to H5N1 highly pathogenic vian influenza (HPAI)," 31 Aug 2023. [Online]. Available: https://inspection.canada.ca/animal-health/terrestrial-animals/diseases/reportable/avian-influenza/animals-susceptible-to-h5n1-hpai/eng/1375992449648/1375992451039.

[9] G. o. M.-I. E. Society, "Canada Goose Mitigation and Population Monitoring," Submitted to Capital Regional District, Victoria, 2022.

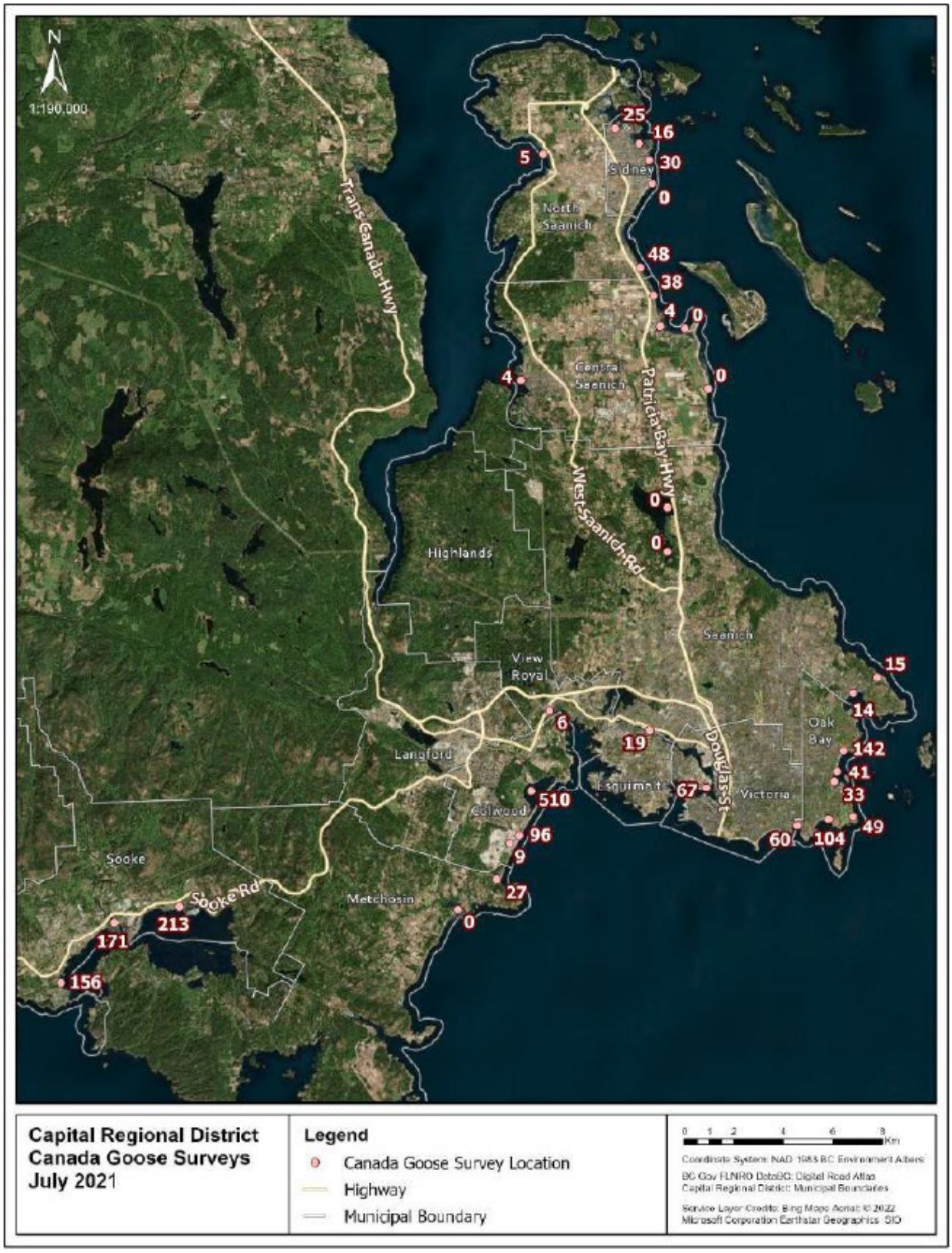
[10] G. o. M.-I. E. Society, "Canada Goose Mitigation and Population Monitoring 2022," Submitted to the Capital Regional District, Victoria, 2022.

[11] G. o. O. S. Estuaries, "Canada Goose Mitigation and Population Monitoring in the Capital Regional District 2023," Submitted to the Capital Regionl District, 2023.

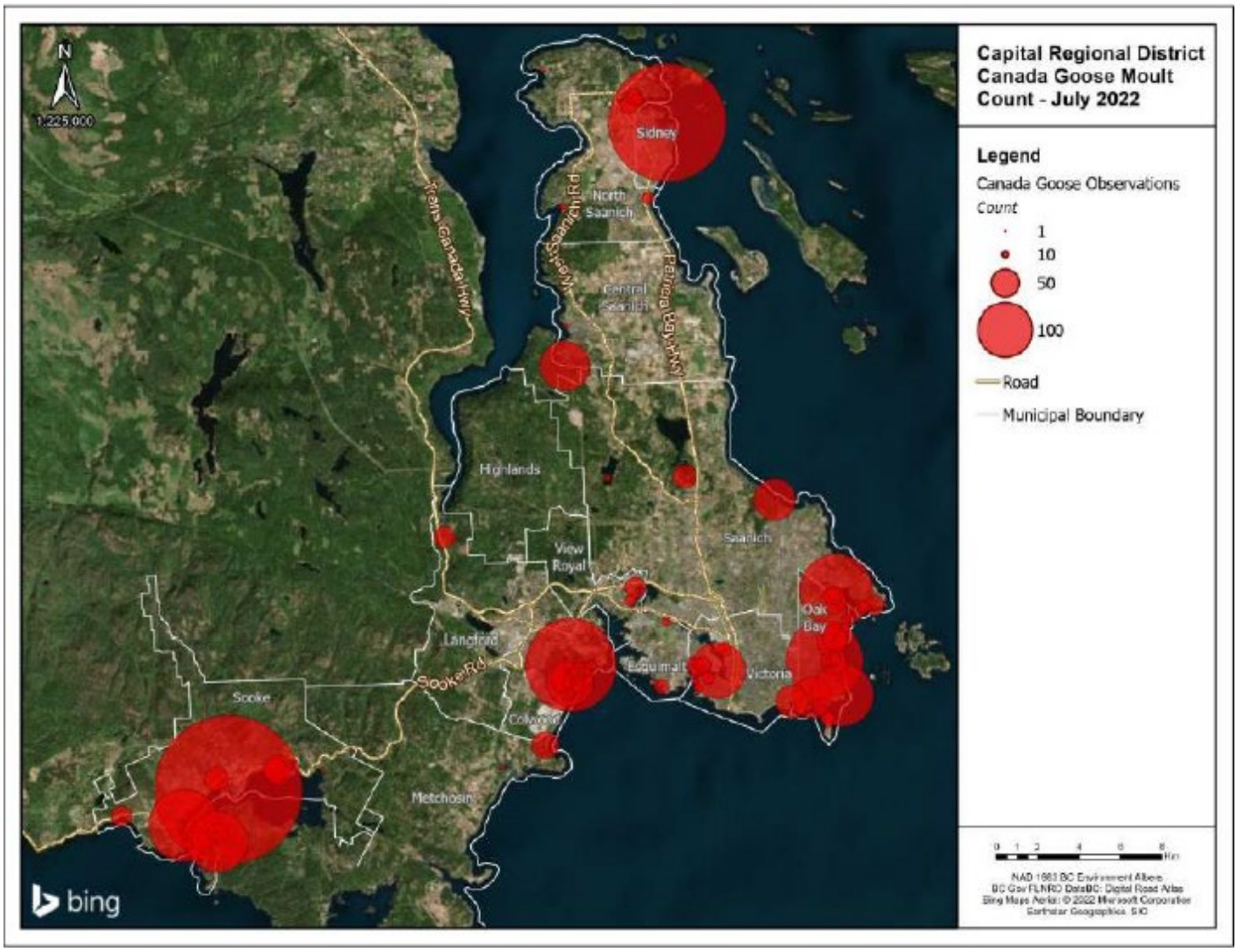
[12] G. o. B. Columbia, "Data Catalogue," 09 11 2023. [Online]. Available: https://catalogue.data.gov.bc.ca/dataset/hunter-sample-survey-estimates-1976-to-current/resource/e3a8de8c-dbc8-498d-8a70-8f578ef548de. [Accessed 30 08 2024].

[13] S. P. a. E. Demers, "Abundance, distribution, movement and mortality of canada Geese (Branta canadensis) in Nanaimo, British Columbia," *British Columbia Birds,* vol. 29, pp. 36-43, 2019.

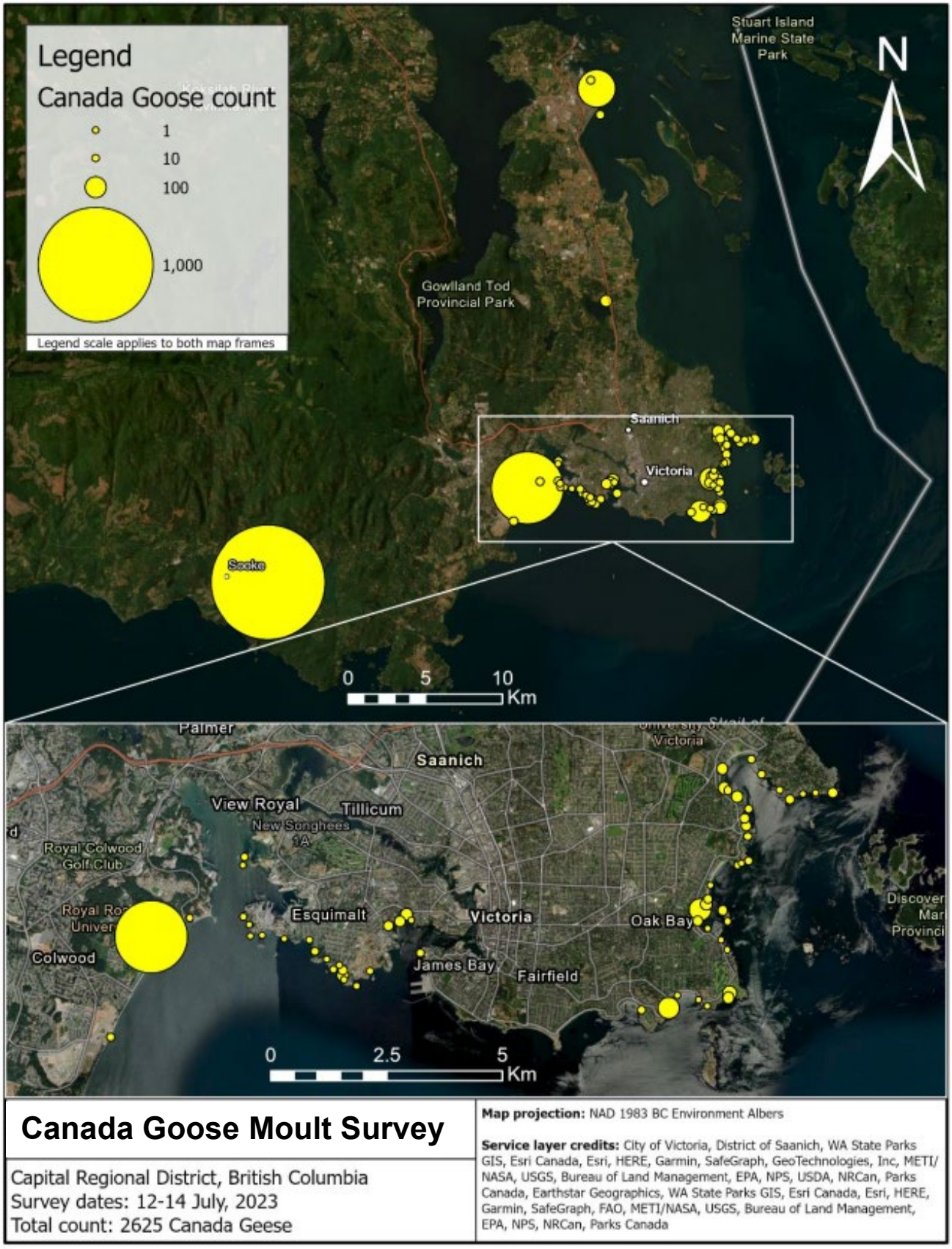
Appendix A - Maps of past Canada Goose Moult Surveys in the Capital Region



Map 1. 2021 CRD CAGO Moult Survey completed by GOOSE. CAGO population totals and survey locations are white numbers outlined in red.



Map 2. 2022 CRD CAGO Moult Survey completed by GOOSE



Map 3. Map showing the results of the 2023 CRD CAGO moult survey completed by GOOSE.

Appendix B - Hard Copy Data Sheet

Canada Goose Moult Survey Datasheet
CRD 2024

(mandatory information in bold)

Date	**Author(s)**
Weather/Tide Info	

Time	**Location*** (Lat/Long or Description)	**Total Geese**	Adults	Juveniles	Notes

*Preference for Latitude/Longitude Coordinates

Page _____

Appendix C - Sample Photos Taken From Drone Survey (June 24, 2024)

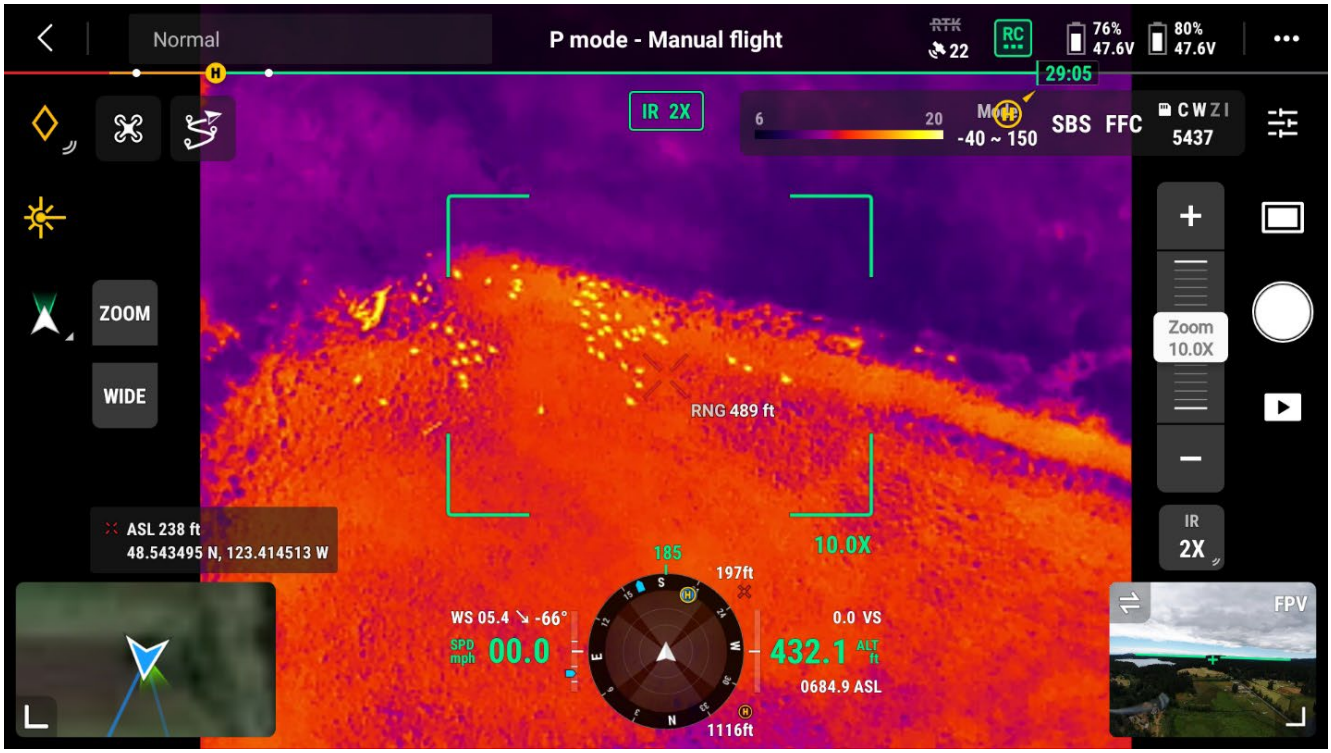


Photo 1. Photo taken on June 24, 2024 with DJI M300 RTK drone from Agile Drone Services. Photo shows Canada geese in field from an elevation of 489 feet with an infrared optical camera at 10.0x zoom.

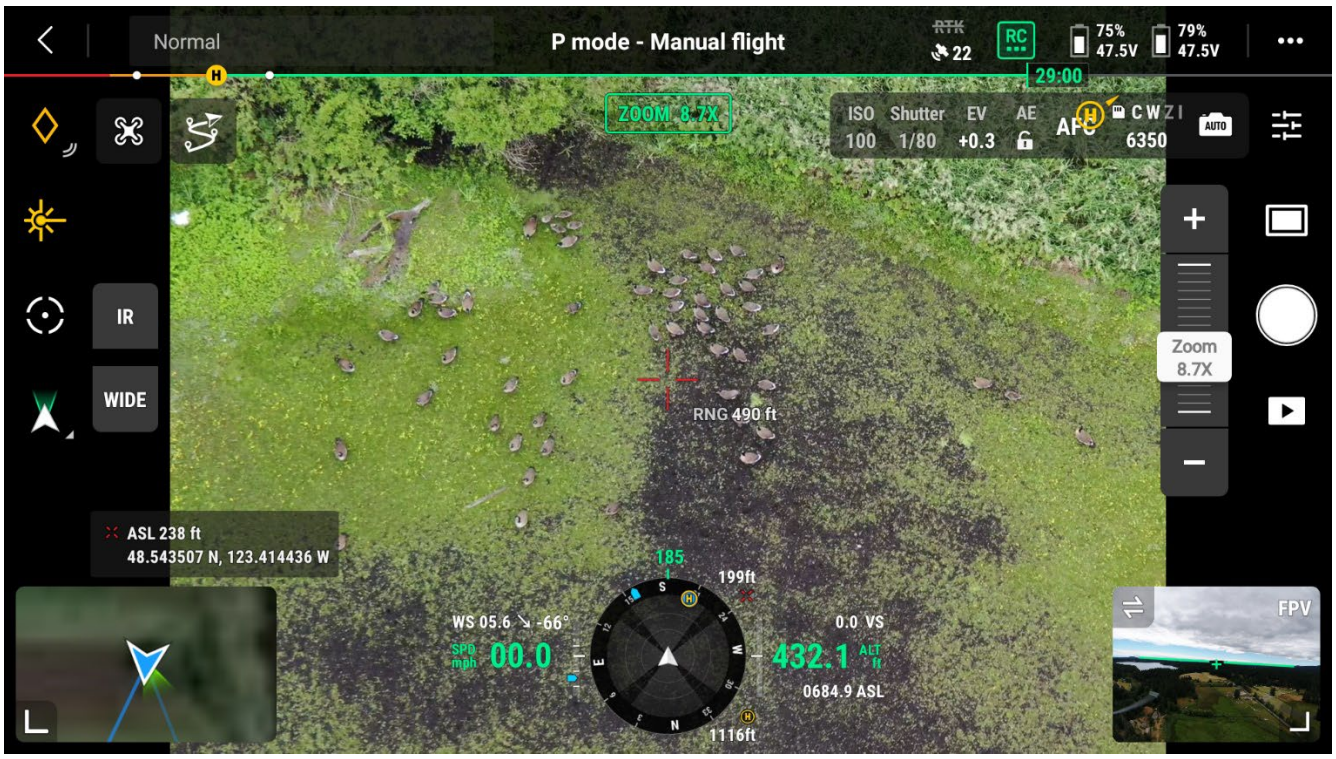


Photo 2. Photo taken on June 24, 2024 with DJI M300 RTK drone from Agile Drone Services. Photo shows Canada geese from Photo 1 with a regular camera at a distance of 490 feet with 8.7x zoom.

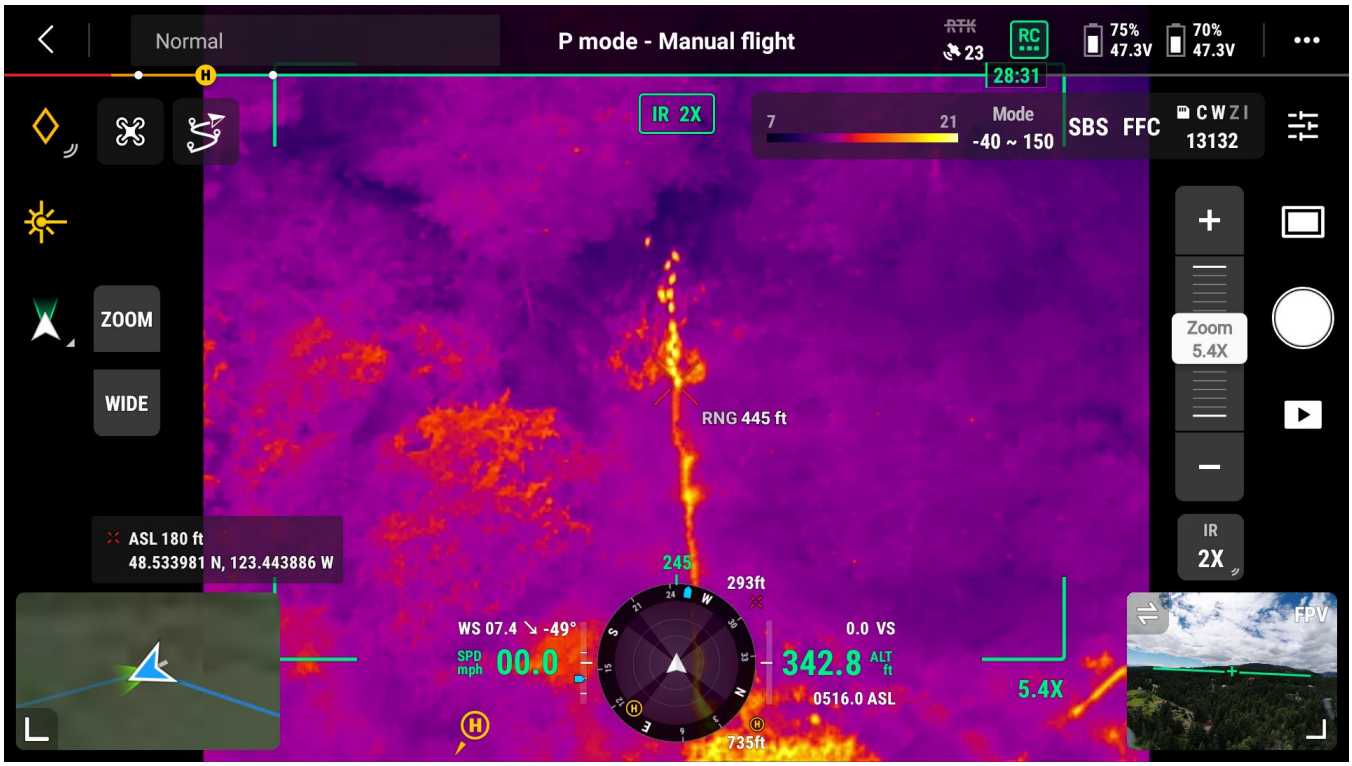


Photo 3. Photo taken on June 24, 2024 with DJI M300 RTK drone from Agile Drone Services. Photo shows Canada geese in tall vegetation with an infrared camera at distance of 445 feet with 5.4x zoom.

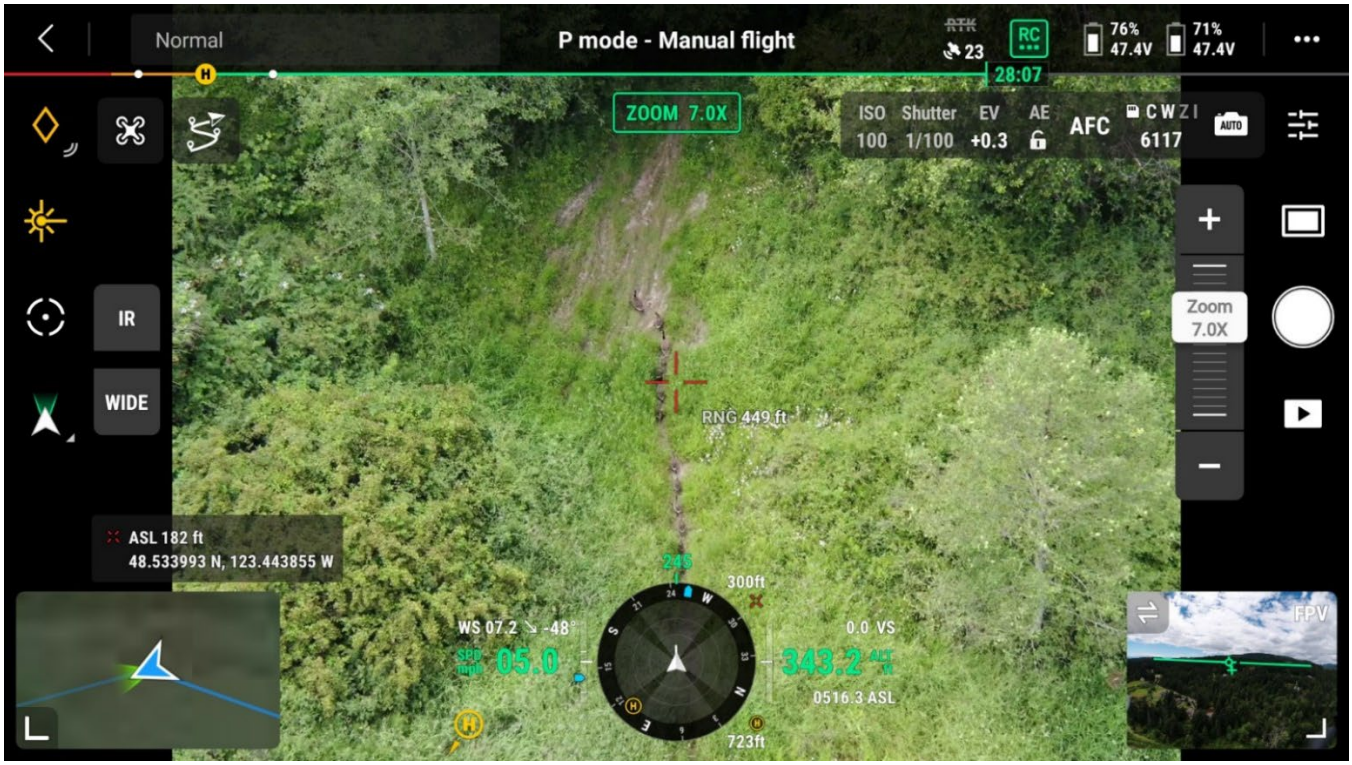


Photo 4. Photo taken on June 24, 2024 with DJI M300 RTK drone from Agile Drone Services. Photo shows Canada geese from Photo 3 with a regular camera at a distance of 449 feet with 7.0x zoom.

Photo 5. Photo taken on June 24, 2024, with DJI M300 RTK drone from Agile Drone Services. Photo shows Canada geese from Photo 4 further zoomed in at 13.1x zoom.

Making a difference...together

File: 0360-20
Climate Action Task Force

Capital Regional District

Meeting Minutes
Climate Action Inter-Municipal Task Force (IMTF)

Friday, September 27, 2024	**9:30 AM**	**Room 488/MS Teams** **625 Fisgard St.** **Victoria, BC V8W 1R7**

Present: Councillor D. Cavens (Esquimalt), S. Duck (Sidney), Councillor M. Gardiner (Victoria), Councillor D. Grove (Colwood), Councillor C. Smart (Oak Bay)

Electronic Participation: A. Baird (Highlands), Councillor S. Gray (Metchosin), A. MacKenzie (View Royal), Councillor T. St-Pierre (Sooke), Councillor M. Wagner (Langford)

Staff: N. Elliott (Manager, Climate Action Programs), M. Greeno (Community Energy Specialist), M. Rowe (Climate Action Program Assistant, Recorder)

External Presenter: A. Daniel (RUSH Initiative)

Regrets: Director P. Brent (SGI EA), Councillor J. Brownoff (Saanich), Director G. Holman (SSI EA), Mayor P. Jones (North Saanich), Councillor S. Riddell (Central Saanich), Director A. Wickheim (JdF EA)

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

1. Welcome and Introductions

- A round of introductions was made by Task Force members, CRD staff and presenters from the RUSH Initiative.

2. Territorial Acknowledgement

- N. Elliott provided a Territorial Acknowledgment.

3. Presentation: RUSH Initiative Overview

- Anne-Marie Daniel, and several colleagues involved in the RUSH Initiative, provided an overview and update on the interactive mapping project, followed by a Q&A session. See the accompanying presentation for details.
    - RUSH's Challenge to municipalities to work with local schools to plot 1000+ rain gardens, and plot and mark 1000+ storm drains in the capital region by December 21, 2024, was introduced, along with a funding request (upwards of $50,000) for consideration to support RUSH administration over the next three-years.

Actions:

a) CRD staff to provide RUSH Initiative presentation slides and 1000+ rain garden challenge with meeting minutes.

4. Approval of Agenda

- Agenda for the September 27, 2024 Climate Action Inter-Municipal Task Force meeting.

5. Adoption of Minutes

- Minutes from the June 21, 2024 Climate Action Inter-Municipal Task Force meeting.

MOVED by S. Duck, SECONDED by D. Grove
That the minutes of the June 21, 2024 Climate Action Inter-Municipal Task Force meeting be adopted as circulated.
CARRIED

6. 2024 UBCM Convention Debrief

- Members discussed climate-related items from the recent 2024 UBCM convention, including valuable lessons learned from communities that have experienced extreme climate events, confusing messaging related to protecting tree canopy and Firesmart practices, FortisBC event funding concerns, carbon tax related resolution, and CRD and municipal partner's win of a Community Energy Association Climate & Energy Action Award for the CRD Extreme Heat Vulnerability Portal.

7. Climate Action Program Updates

- N. Elliott provided background information and updates for the CRD Climate Action Service, including:
    - Recent CRD ESC discussions and Board directives (Foodlands Access Service, capital project funding process for SEAPARC heat recovery project, Regional Transportation Service, corporate GHG emission reduction targets, climate budgeting, community mobilization and additional policy analysis), CRD's Climate Action Strategy renewal process, climate adaptation capacity building grant application, CRD Public EV Charging Network, Zero Carbon Step Code, Home Energy Navigator regional building retrofit program, education programs and community outreach, energy benchmarking/Energy and Carbon Emissions Reporting.

- Members advised that the CRD consider:
    - Expanding support and offerings for owners of multi-family dwellings and stratas, particularly concerning home retrofits and considering potential negative impacts related energy benchmarking program. (M. Gardiner, Victoria; C. Smart, Oak Bay)
    - Supporting existing climate action groups in the region through possible grants or service agreements. (T. St-Pierre, Sooke; A. Baird, Highlands)

Actions:

b) CRD staff to include links to recent CRD ESC and Board meetings with the meeting minutes.
c) CRD staff to include options to support existing community climate action groups in ongoing community mobilization initiative.

8. Municipal Roundtable – Open Discussion

- Attendees provided brief updates regarding current projects and areas of interest in their respective municipalities and electoral areas. Discussion related to staff capacity changes, new parkland acquired and trees planted, new active transportation and EV infrastructure, policy and bylaw updates.

9. Task Force SharePoint Site

- Members were asked to contact Megan Rowe, Climate Action Program Assistant at mrowe@crd.bc.ca if they had any issues accessing or uploading documents to the collaboration site.

Action:

d) Members to utilize Task Force SharePoint site to share key documents and resources between members.

10. Adjournment

- Meeting adjourned at 12:00 pm.

New Actions	**Responsibility**	**Timeline**
CRD staff to provide RUSH Initiative presentation and 1000+ Rain Garden Challenge with meeting minutes.	Staff	ASAP
CRD staff to include links to recent CRD Board and ESC meetings with meeting minutes.	Staff	ASAP
CRD staff to include options to support existing community climate action groups in ongoing community mobilization initiative.	Staff	December meeting (check-in)
Past Actions	**Responsibility**	**Timeline**
Members to utilize Task Force SharePoint site to share key documents and resources between members. If you need assistance accessing the collaborative site, please contact staff.	IMTF	Ongoing
Members to provide future meeting topic requests to Manager, Climate Action Programs.	IMTF	Ongoing
CRD staff to attach the minutes from the previous meeting with future meeting invites, in addition to linking to the SharePoint collaboration site.	Staff	Ongoing