# Capital Regional District

625 Fisgard St.,
Victoria, BC V8W 1R7

## Notice of Meeting and Meeting Agenda
## Core Area Liquid Waste Management Committee

**Wednesday, July 23, 2025** | **11:30 AM** | **6th Floor Boardroom, 625 Fisgard Street, Victoria, BC V8W 1R7**

C. Coleman (Chair), D. Kobayashi (Vice Chair), M. Alto, S. Brice, J. Brownoff, J. Caradonna, Z. de Vries, B. Desjardins, S. Goodmanson, C. Harder, K. Murdoch, D. Murdock, C. Plant, D. Thompson, S. Tobias, C. McNeil-Smith (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.** 25-0837 Minutes of the Core Area Liquid Waste Management Committee of March 26, 2025

***Recommendation:*** That the minutes of the Core Area Liquid Waste Management Committee of March 26, 2025 be adopted as circulated.

***Attachments:*** Minutes: March 26, 2025

### 4. Chair's Remarks

### 5. Presentations/Delegations

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

*Delegations will have the option to participate electronically. Please complete the online application at www.crd.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.*

### 6. Committee Business

**6.1.** 25-0577 Liquid Waste Management Plan - Amendment No. 13 Inflow and Infiltration

***Recommendation:*** The Core Area Liquid Waste Management Committee recommends to the Capital Regional District Board:
That Amendment No. 13 to the Core Area Liquid Waste Management Plan be submitted to the Province of British Columbia Ministry of Environment and Parks for approval.

***Attachments:***
- Staff Report: Liquid Waste Management Plan – Amendment No.13 I&I
- Appendix A: Core Area Liquid Waste Management Plan, Amendment No. 13
- Appendix B: Core Area LWMP Sec 5 I&I Overflow KWL Final Report V2
- Appendix C: LWMP Engagement Summary

**6.2.** 25-0792 Kosapsum Nation Capacity Transfer - Service Agreement Update

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

***Attachments:***
- Staff Report: Kosapsum Nation Capacity Transfer - Service Agreement Update
- Appendix A: Schedule "B" of Bylaw No. 2312
- Appendix B: Schedule "C" of Bylaw No. 2312

**6.3.** 25-0793 Core Area Liquid Waste Management Committee 2025 Mid-Year Capital Projects and Operations Update

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

***Attachments:***
- Staff Report: Mid-Year Capital Projects and Operations Update
- Appendix A: Core Area Wastewater Capital Program - Current Status

## 7. Notice(s) of Motion

## 8. New Business

## 9. Adjournment

The next meeting is October 15, 2025 Special Budget.

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

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625 Fisgard St.,
Victoria, BC V8W 1R7

# Capital Regional District

## Meeting Minutes

## Core Area Liquid Waste Management Committee

**Wednesday, March 26, 2025** **11:30 AM** **6th Floor Boardroom**
**625 Fisgard Street**
**Victoria, BC V8W 1R7**

PRESENT
Directors: D. Kobayashi (Vice Chair), M. Alto (11:41 am), S. Brice, J. Brownoff (EP), J. Caradonna, Z. de Vries (EP), B. Desjardins, K. Guiry (for S. Goodmanson), K. Harper (for D. Murdock), C. Harder, K. Murdoch, D. Thompson (11:47 am) (EP), S. Tobias (EP), M. Westhaver (for C. Plant) (EP), C. McNeil-Smith (Board Chair, ex-officio)

Staff: T. Robbins, Chief Administrative Officer; A. Fraser, General Manager, Infrastructure and Water Services; G. Harris, Acting General Manager, Parks, Recreation and Environmental Services; J. Dales, Senior Manager, Wastewater Infrastructure Operations; R. Tooke, Senior Manager, Environmental Innovation; S. Heidary-Monfared, Manager, Process Engineering; P. Kickham, Manager, Environmental Regulations; M. Lagoa, Deputy Corporate Officer; J. Dorman, Committee Clerk (Recorder)

EP - Electronic Participation

Regrets: C. Coleman (Chair), S. Goodmanson, D. Murdock, C. Plant

The meeting was called to order at 11:32 am.

### 1. Territorial Acknowledgement

Acting Chair Kobayashi provided a Territorial Acknowledgement.

### 2. Approval of Agenda

**MOVED by Director Brice, SECONDED by Director Murdoch,**
**That the agenda for the Core Area Liquid Waste Management Committee meeting of March 26, 2025 be approved.**
**CARRIED**

### 3. Adoption of Minutes

**3.1.** 25-0370 Minutes of the June 26, October 9, December 11, 2024 and January 8, 2025 Core Area Liquid Waste Management Committee Meeting

**MOVED by Director Desjardins, SECONDED by Director Brice,**
**That the minutes of the Core Area Liquid Waste Management Committee meetings of June 26, October 9, and December 11, 2024, and January 8, 2025, be adopted as circulated.**
**CARRIED**

## 4. Chair's Remarks

Acting Chair Kobayashi reminded committee members of the April 22, 2025 tour focusing on CRD's conveyance and liquid treatment processes.

## 5. Presentations/Delegations

There were no presentations or delegations.

## 6. Committee Business

**6.1.** 25-0070 2025 Core Area Liquid Waste Management Committee Terms of Reference

A. Fraser presented Item 6.1. for information.

**6.2.** 25-0371 Core Area Wastewater Treatment Plant Odour Mitigation Update

A. Fraser presented Item 6.2. for information.

Discussion ensued on the following:
- permission and notification for backwash maintenance
- cross connection control and water studies
- fair versus favourable weather conditions
- quality of effluent and chemicals used

**Director Alto joined the meeting in person at 11:41 am.**
**Director Thompson joined the meeting electronically at 11:47 am.**

**6.3.** 25-0146 Biosolids Literature Review Outcomes

P. Kickham presented Item 6.3. for information.

## 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 Caradonna, SECONDED by Director Alto,**
**That the Core Area Liquid Waste Management Committee meeting of March 26, 2025 be adjourned at 11:53 am.**
**CARRIED**

_____
CHAIR

_____
RECORDER

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**EEP 25-22**

**REPORT TO CORE AREA LIQUID WASTE MANAGEMENT COMMITTEE**
**MEETING OF WEDNESDAY, JULY 23, 2025**

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**SUBJECT** **Liquid Waste Management Plan – Amendment No. 13 Inflow and Infiltration**

## ISSUE SUMMARY

The Core Area Liquid Waste Management Plan (CALWMP) requires an amendment to address updated inflow and infiltration requirements. Staff have prepared Amendment No. 13 to the CALWMP for submission to the Province of British Columbia Ministry of Environment and Parks.

## BACKGROUND

Liquid waste management plans allow the Capital Regional District (CRD) and local governments to develop community-specific solutions for the management of liquid waste, stormwater and environmental protection in accordance with the BC *Environmental Management Act*. The current CALWMP was originally approved by the Province in 2003 and was last updated with Amendment No. 12 in 2018. The CRD is updating components of the plan and formed a Technical and Community Advisory Committee (TCAC) in October 2023 to assist the Core Area Liquid Waste Management Committee (CALWMC) and the CRD Board, regarding amendments to the CALWMP. As part of the TCAC process, Kerr Wood Leidal Associates Ltd. (KWL) reviewed options regarding proposed amendments to CALWMP Section 5 (Management of Infiltration and Inflow and Control of Wastewater Overflows (Appendix A)) and worked with staff and the TCAC to make recommendations in a report (Appendix B).

At the February 13, 2024 TCAC meeting, the committee reviewed and provided final comments on the proposed new Section 5 of the CALWMP and the KWL report, expressing their support for both. The agenda and minutes from that meeting were subsequently received for information by the CALWMC at their June 26, 2024 meeting.

xʷsepsum Nation (Esquimalt) and Songhees Nation were contacted and offered an opportunity to participate in the TCAC, as well as review and comment on this material (as participants in the CALWMP).

Staff began public engagement in October 2024 to get feedback on the proposed amendment over four weeks, which included print ads, social media posts and the Get Involved website. The proposed amendment was also referred to core area municipal engineering staff for internal discussions at the municipal level; and sent directly to First Nations listed in the Province of British Columbia First Nation Consultation Areas database.

Consultation is now complete, and staff are ready to prepare the amendment package for submission to the provincial regulator. The results of consultation are summarized in Appendix C.

## ALTERNATIVES

*Alternative 1*
The Core Area Liquid Waste Management Committee recommends to the Capital Regional District Board:

That Amendment No. 13 to the Core Area Liquid Waste Management Plan be submitted to the Province of British Columbia Ministry of Environment and Parks for approval.

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

## IMPLICATIONS

*Environmental & Climate Implications*

The Municipal Wastewater Regulation stipulates that sanitary sewer overflows must not occur, unless during a storm with a greater than five-year return period. The Clover Point long outfall is the only location in the core area that does not meet this requirement and (using a conservative model) is predicted to overflow for approximately 60 hours per year during the eight largest winter storm events. In the three complete winters since completion of all core area wastewater project upgrades (2022-2025), overflows at Clover Point have averaged approximately 12 hours per winter. These overflows consist of highly dilute sewage mixed with rainwater, are generally short in duration, and are predicted to represent a negligible risk to the receiving marine environment.

The goal of updating the CALWMP is to replace the current commitment to reduce Inflow and Infiltration (I&I) to less than four times the average dry weather flow by 2030. The proposed approach of reducing and eliminating Clover Point long outfall overflows during sub-five-year storm events is intended to be a practical solution that meets provincial environmental protection requirements.

*Regulatory Implications*

An amendment to the CALWMP to address management of I&I satisfies a provincial regulatory requirement as a condition of the provincial approval of Amendment No. 12.

The key updated CRD commitments are to:
- complete a study assessing the impacts of storm event overflows from the Clover Point long outfall
- assess storage and treatment options to reduce overflows caused by I&I at the Clover Point long outfall
- create a mass balance model/tool to assess, document and improve the effectiveness of the CRD and municipal asset management plans for eliminating overflows at the Clover Point long outfall by 2045

The key updated plan participant commitments are to:
- prepare drainage improvement strategies for those areas where building foundation drains are unable to connect to the storm drainage system
- implement a new or update an existing sewer bylaw to require the replacement of private laterals (a major contributor to I&I) that have exceeded their service life, if sanitary municipal sewer flows exceed allotted flows from Bylaw No. 4304

*Financial Implications*

Major improvements to the core area marine wastewater discharges were completed in 2020,

with $775 million in projects delivered through the Core Area Wastewater Treatment Project. That work did not fully address the commitments in Section 5 of the CALWMP. A 2021 estimate of the cost to achieve the current CALWMP commitment "*to reduce I&I through conveyance system upgrades sufficiently to reduce maximum daily wet weather flows to less than four times the average dry weather flow by 2030*" was $260 million (Class "C" estimate). During planning for the Core Area Wastewater Treatment Project, the CRD also obtained a cost estimate of $100 million for installing a wet weather wastewater treatment plant at Clover Point. Staff anticipate that the updated cost estimates for both options would be significantly higher in 2025.

## CONCLUSION

As a condition of the Ministry of Environment and Parks approval of Amendment No. 12 on June 20, 2018, the Capital Regional District is required to update inflow and infiltration commitments in the Core Area Liquid Waste Management Plan.

Staff undertook a public engagement process to solicit feedback from First Nations, municipal staff, and the public regarding proposed changes to the Core Area Liquid Waste Management Plan Section 5 - Management of Infiltration and Inflow and Control of Wastewater Overflows. Staff have prepared Amendment No. 13 with a proposed commitment to reduce and eliminate wastewater overflows, which is intended to be a practical solution that meets provincial environmental protection requirements.

## RECOMMENDATION

The Core Area Liquid Waste Management Committee recommends to the Capital Regional District Board:
That Amendment No. 13 to the Core Area Liquid Waste Management Plan be submitted to the Province of British Columbia Ministry of Environment and Parks for approval.

| | |
|---|---|
| Submitted by: | Glenn Harris, Ph.D., R.P.Bio., Acting General Manager, Parks, Recreation & Environmental Services |
| Concurrence: | Alicia Fraser, P. Eng., General Manager, Integrated Water Services |
| Concurrence: | Nelson Chan, MBA, FCPA, FCMA, Chief Financial Officer, GM Finance & IT |
| Concurrence: | Ted Robbins, B. Sc., C. Tech., Chief Administrative Officer |

## ATTACHMENTS

Appendix A: Core Area Liquid Waste Management Plan, Amendment No. 13
Appendix B: Review of Core Area LWMP Section 5, Management of I&I and Control of Wastewater Overflows, Final Report Version 2, Kerr Wood Leidal (February 28, 2024)
Appendix C: Engagement Summary - Liquid Waste Management Plan Amendment (June 2025)

# CAPITAL REGIONAL DISTRICT
# CORE AREA LIQUID WASTE MANAGEMENT PLAN

## AMENDMENT NO. 13

## SECTION 5
(Replaces Section 5 in Amendment No. 12)

## MANAGEMENT OF INFILTRATION AND INFLOW AND CONTROL OF WASTEWATER OVERFLOWS

## TYPE OF AMENDMENT: CRD INITIATED – MINOR

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## REGULATORY REQUIREMENT

The Municipal Wastewater Regulation (MWR), ***Part 3, Division 2 – Overflows, and Inflow and Infiltration Requirements***, sets out the conditions for overflows and inflow and infiltration.

With respect to Overflows, MWR Article 42 (1) (a) states: "A discharger must ensure that an overflow does not occur during storm or snowmelt events with a less than 5-year return period, unless the person responsible for the municipal wastewater collection system develops and implements, as part of a liquid waste management plan, measures to eliminate overflows".

With respect to Inflow and Infiltration (I&I), MWR Article 44 (1) (a), states: "A discharger must ensure that inflow and infiltration does not occur such that the maximum daily flow exceeds 2 times the ADWF [average dry weather flow] at the treatment plant during storm or snowmelt events with a less than 5-year return period, unless the person responsible for the municipal wastewater collection system addresses, as part of a liquid waste management plan, how inflow and infiltration can be reduced".

On March 24, 2022, the Capital Regional District (CRD) was directed to "complete the separation of combined sewers in the Humber Catchment area by December 31, 2025" and to propose a new timeline for the separation of the Rutland Catchment that is "in line with the overarching commitment to reduce inflow and infiltration to below four times average dry weather by 2030."

## GOAL

The goal of the Core Area Liquid Waste Management Plan is to meet the intent of the MWR by preparing inflow, infiltration and overflow management plans to achieve the following:

The primary objective is to reduce inflow and infiltration to eliminate overflows for storm events with less than a 5-year return period from all CRD facilities by 2030, except the Clover Point long outfall. The next key objective would be to eliminate overflows for storm events with less than a 5-year return period from all CRD facilities including the Clover Point long outfall by year 2045.

## COMMITMENTS

To achieve the goals and objectives noted above, the CRD and participants discharging into the CRD wastewater system commit to the following actions:

CRD Commitments:

1) Monitoring municipal sewer flows into the core area trunk sewer system and assessing compliance with the peak flow allocations in CRD Bylaw No. 4304 (Table 1).

2) Analyzing available flow data for I&I on a periodic basis including flow data from the CRD cost sharing meters and municipal pump stations (when suitable).

3) Completing a study assessing the impacts of storm event overflows from the Clover Point long outfall including climate change implications, environmental impacts, social impacts, budget estimates to eliminate 5-year overflows, and impact on taxpayers.

4) Establishing an education program for homeowners and key stakeholders (i.e. home inspectors, realtors, plumbers) that promotes repair and maintenance of private property sewer laterals.

5) Assisting municipalities with catchment-specific studies designed to address high I&I and/or overflows (as budget allows).

6) Assessing storage and treatment options to reduce overflows caused by I&I at the Clover Point long outfall.

7) Reviewing and updating, if appropriate, the CRD model bylaw for private sewer lateral laterals (2015) for municipalities to consider adopting or incorporating into existing bylaws.

8) Creating a mass balance model/tool to assess, document, and improve the effectiveness of the municipal asset management plans and CRD I&I Management Plan for eliminating overflows at the Clover Point long outfall by 2045.

9) Submitting 5-year updates of the I&I Management Plan to the Province.

Participant Commitments:

1) Performing detailed catchment investigations and preparing compliance plans for participant area inputs to the core area sewer system that both exceeds their sewer allocations and contributes to sub 5-year overflows.

2) Preparing asset management plans identifying sewer asset life span, when sewer assets will be replaced, the level of funding required, and how that will help to reduce inflow and infiltration over time as infrastructure is renewed.

3) Preparing drainage improvement strategies for those areas where building foundation drains are unable to connect to the storm drainage system.

4) Applying for grants targeted specifically to address catchment areas contributing to overflows with less than a 5-year return period.

5) Carrying out additional flow monitoring in catchments with elevated I&I, as appropriate.

6) Carrying out the recommendations outlined in the I&I Management Plan that relate to their specific participant area or collection system.

7) If sanitary municipal sewer flows exceed allotted flows from Bylaw No. 4304, implement a private sewer lateral replacement bylaw, or update existing sewer bylaws, to require the replacement of laterals that have exceeded their service life. The bylaw updates shall be complete by 2027 or within two years of initial non-compliance.

**Table 1: Allocated Sewer Flows from Bylaw No. 4304**

| Allocation Point | Allocated Average Dry Weather Flow (ML/day) | Allocated Peak Daily Flow (ML/day) |
|---|---|---|
| **COLWOOD** | | |
| **Total (Parson's minus Meaford)** | **4.70** | **18.8** |
| **ESQUIMALT** | | |
| Esquimalt Panhandle | 0.12 | 0.48 |
| Lang Cove Pump Station | 1.28 | 5.12 |
| Dockyard | 1.01 | 4.04 |
| Kinver | 0.44 | 1.76 |
| Pooley Place | 0.06 | 0.24 |
| Devonshire | 1.85 | 7.40 |
| Wilson | 0.37 | 1.48 |
| Head | 1.68 | 6.72 |
| Anson | 0.24 | 0.97 |
| **Total** | **7.10** | **28.40** |
| **LANGFORD** | | |
| **Total *(Meaford)*** | **14.12** | **56.48** |
| **OAK BAY** | | |
| Windsor | 2.92 | 11.68 |
| Humber *(combined sewers)* | 0.60 | 2.40 |
| Rutland *(combined sewers)* | 0.37 | 1.48 |
| Currie Net | 0.97 | 3.88 |
| Currie Lift Station | 1.62 | 6.48 |
| Harling Point Pump Station | 0.20 | 0.79 |
| **Total** | **6.62** | **26.48** |
| **SAANICH** | | |
| Marigold Pump Station | 13.19 | 52.76 |
| City Boundary | 5.88 | 23.52 |
| Harriet | 3.27 | 13.08 |
| Townley | 0.61 | 2.44 |
| Haultain | 0.57 | 2.27 |
| Arbutus | 7.08 | 28.31 |
| Haro | 0.79 | 3.17 |
| Penrhyn Lift Station | 0.93 | 3.73 |
| **Total** | **32.89** | **131.56** |

| Allocation Point | Allocated Average Dry Weather Flow (ML/day) | Allocated Peak Daily Flow (ML/day) |
|---|---|---|
| **VICTORIA** | | |
| Cecelia | 3.14 | 12.57 |
| Chapman & Gorge | 0.35 | 1.40 |
| Selkirk | 0.28 | 1.11 |
| Langford - Vic West | 0.19 | 0.77 |
| Hereward | 1.91 | 7.65 |
| Sea Terrace | 0.33 | 1.32 |
| Trent Net | 7.33 | 29.32 |
| Hollywood | 0.54 | 2.16 |
| Olive | 23.06 | 92.24 |
| Clover Net | 1.50 | 6.01 |
| **Total** | **38.30** | **153.19** |
| **VIEW ROYAL** | | |
| Craigflower Pump Station | 3.54 | 14.16 |
| Shoreline Trunk | 0.14 | 0.55 |
| **Total** | **3.54** | **14.16** |
| **ESQUIMALT NATION** | | |
| **Total** | **0.07** | **0.28** |
| **SONGHEES NATION** | | |
| Songhees Nation | 0.59 | 2.36 |
| Maplebank | 0.010 | 0.04 |
| **Total** | **0.66** | **2.64** |

AMENDMENT APPROVALS

Capital Regional District Board Approval _____ , 2025

Ministry of Environment and Parks Approval _____ , 202__

KERR WOOD LEIDAL
consulting engineers

**Greater Vancouver**
200 - 4185A Still Creek Drive
Burnaby, BC V5C 6G9
**T** 604 294 2088
**F** 604 294 2090

## Review of Core Area LWMP Section 5

# Management of I&I and Control of Wastewater Overflows

**Final Report Version 2**
**February 28, 2024**
**KWL Project No. 0283.481-300**

**Prepared for:**
**Capital Regional District**

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# Contents



# Figures

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# Appendices

# 1. Review of Core Area LWMP Section 5

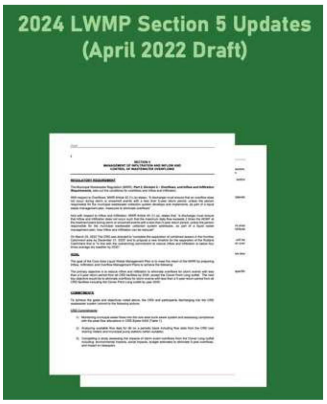
## 1.1 Background

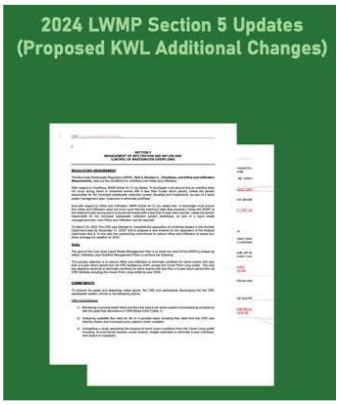
The purpose of this report is to review the options for the Capital Regional District (CRD) and member municipalities regarding the CRD's proposed amendments to *Section 5: Management of Infiltration and Inflow and Control of Wastewater Overflows* of the *Core Area Liquid Waste Management Plan* (LWMP). Specifically, this report reviews the CRD's proposed amendments developed by a CRD Technical Working Group in April 2022.

Section 1 of this report reviews the current commitments, develops a strategy on how they may be improved, and recommends some changes for consideration. Sections 2 through 6 provide further detail and clarity regarding the proposed changes.

## 1.2 Previous and Updated Changes to LWMP Section 5 Commitments

There are three versions of Section 5 discussed in this section, namely the original commitments, the CRD's proposed changes developed in 2022, and suggested changes for consideration put forward by KWL.


### 2019 LWMP Section 5 Commitments

The current commitments of Section 5 of the LWMP are presented as Appendix A and were consolidated in 2019. There are four commitments focusing on the following: developing I&I management plans, continued flow monitoring, enforcement of sewer use bylaws, and a commitment to undertake specific capital programs.

## Proposed 2022 Section 5 Commitments Update

The CRD formed a Technical Working Group (consisting of Core Area municipal engineers and CRD staff) in early 2022 as part of a project to update the LWMP. The group's first task was to develop an update to Section 5. The proposed update was developed in April 2022 and is included as Appendix B.

The proposed changes adopted in 2022 are included as Appendix B. The proposed changes re-commit the municipalities to I&I management and SSO reduction with the following objectives:

> *The primary objective is to reduce inflow and infiltration to eliminate overflows for storm events with less than a 5-year return period from all CRD facilities by 2030, except the Clover Point Long outfall. The next key objective would be to eliminate overflows for storm events with less than a 5-year return period from all CRD facilities including the Clover Point Long outfall by year 2045.*

The changes also commit the CRD to eight commitments ranging from monitoring and flow analysis to assisting municipalities in I&I management programs and reporting to the province. Further, there are five commitments for participants that discharge wastewater into the CRD's conveyance system ranging from conducting I&I investigations to development of asset management plans and funding levels.

## Proposed Recommendations to the 2024 Commitments Update

The CRD and the member municipalities dramatically reduced sanitary sewer overflows (SSOs) over the past 25-years such that there is only one location (Clover Point) where SSOs occur less than a 5-year return period. As a result of this achievement, the new commitments reflect a combination of managing existing I&I in younger collection systems and further reducing I&I in older systems, particularly in areas tributary to Clover Point. However, there is a deadline extension request of fifteen years to allow more time for member municipalities to lower I&I flows. The deadline originally proposed by the CRD and granted by the Province was 2030. The new requested deadline is 2045. For the Province to accept this request, it is likely that a number of conditions will be required.

KWL's recommended changes to the proposed 2024 Section 5 Commitments are discussed in Section 1.3 below.

## 1.3 Approach to 2024 Review

The strategy adopted in this review focusses on four points:

1. **Understanding the rationale for the proposed timeline extension**: Considerable work has been performed by the CRD and member municipalities on understanding the extent of I&I response since the mid 1990s. Significant lessons have been learned on the amount of I&I reduction required to complete the next phase including understanding the scale of partially separated service connections. The CRD should strive to develop an 'auditable' I&I reduction strategy that shows how the SSO elimination target of 2045 can be met. Dealing with the partially separated service connections and implementing a private service renewal bylaw will take additional time. This should be the basis for the request of an extension;
2. **Linking existing asset management plans and life-expectancy infrastructure planning to funding levels.** This establishes the funding that can be put into place to rehabilitate sewer systems. It is an important step to establishing the scope of I&I reduction programs. Showing how these rehabilitation programs will achieve the I&I reduction needed to meet the 2045 deadline will be an important step in demonstrating proof;
3. **Establishing a date when a private sewer lateral renewal bylaw can be implemented.** Since private property I&I levels can range from 50% to 80% of total I&I, establishing a date when services can be renewed/replaced is important; and
4. **Develop drainage plans to properly service areas with partially separated sewer laterals**. Laterals from partially separated lots cannot be separated without a proper drainage system. A sewer lateral renewal bylaw cannot be enforced without providing a homeowner with a proper connection.
5. **Evaluate the impact of a changing climate on the 5-year return period.** Rainfall patterns are changing. Storms are becoming less frequent but more intense. The current 5-year return period analysis is based on historical rainfall records. It is important for the CRD to review the current analysis and adjust for future climate trends.

## 1.4 Proposed Additional Commitments

Based on the strategy above, the following additional commitments are recommended to be included in the 2024 Section 5 update.

**Additional/Modified CRD Commitments**

1. *Complete a study assessing the impacts of storm event overflows from the Clover Long outfall including climate change implications, environmental impacts, social impacts, budget estimates to eliminate 5-year overflows, and impact on taxpayers.*
2. *Assess storage and treatment options to reduce overflows caused by I&I at the Clover Point Long outfall.*
3. *Create a mass balance model/tool to assess, document, and improve the effectiveness of the municipal asset management plans and CRD I&I Management Plan for eliminating overflows at the Clover Long Outfall by 2045.*

The first additional commitment provides an order of magnitude cost to accommodate the current flows and eliminate SSOs at Clover Point. It is important to know this number, and understand the consequence of not reducing I&I.

The second additional commitment creates a tool that when coupled with a proper asset management plan and funding levels can predict how the 2045 deadline will be achieved.

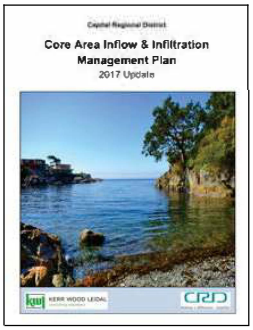
**Additional Participants (municipalities) Commitments**

1. *Prepare drainage improvement plans for those areas where building foundation drains are unable to connect to the storm drainage system.*
2. *If sanitary municipal sewer flows exceed allotted flows from Bylaw 4304, consider implementing a private sewer lateral replacement bylaw to replace laterals that have exceeded their service life and separate combined storm and sanitary connections.*

The first additional participant commitment recognizes the increased effort to resolve and correct partially separated sewer laterals. In some cases, the solution will involve the rebuilding of the local storm sewer system.

The second additional commitment recognizes that I&I originating from private sewer laterals can range from 50 to 80% of all I&I. Therefore, if a participant is close to or exceeding their allotted flows, that participant should consider implementing a bylaw that renews service laterals.

# 2. I&I Management




The CRD and the member municipalities began their I&I reduction programs in the 1990 through a program of pilot studies. Those pilot programs continued through to 2020. In 2017, the CRD issued the Core Area I&I Management Plan. The plan laid out a common approach to I&I reduction and how it was to be measured, reported, and compared between municipalities. It also set in place the basis of how I&I reduction programs were to be undertaken.

## 2.1 Current Trends in CRD I&I Reduction

As previously mentioned, considerable effort and expense has been expended on I&I reduction and sanitary collection system expansion in the Core area since 2000. Table 2-1 shows the progress that has been achieved in the Core Area.

**Table 2-1: Storm Related Overflows: 1995 to 2023 (Sub 5-year Return Period)**

| | Location | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SSOs | Western Trunk (sensitive) | 13 | 4 | 3 | 3 | 7 | 1 | 0 | 0 | 5 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SSOs | Eastern Trunk (sensitive) | 8 | 10 | 13 | 11 | 15 | 5 | 7 | 4 | 12 | 8 | 11 | 12 | 11 | 4 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| SSOs | West/East Trunks (other) | 21 | 28 | 32 | 30 | 50 | 7 | 9 | 19 | 45 | 9 | 18 | 30 | 38 | 13 | 52 | 36 | 25 | 14 | 10 | 6 | 21 | 2 | 10 | 21 | 8 | 10 | 11 | 9 | 1 |
| CSOs | Uplands Combined Sewer | 11 | 20 | 26 | 22 | 25 | 8 | 14 | 7 | 24 | 14 | 21 | 21 | 19 | 6 | 26 | 17 | 14 | 19 | 17 | 20 | 23 | 7 | 6 | 19 | 10 | 19 | 24 | 13 | 7 |
| | Total* | 52 | 62 | 74 | 66 | 97 | 21 | 30 | 30 | 86 | 31 | 50 | 63 | 70 | 23 | 78 | 53 | 39 | 33 | 28 | 26 | 44 | 9 | 16 | 40 | 18 | 31 | 35 | 22 | 8 |

SSOs up to a 5-year return period only occur at the Clover Point Long Outfall now as of 2023

*All waters including Macaulay, McMicking, Clover, Finnerty

Completion of the Marigold Storm Tank and Macaulay o/f Improvements (2004)

Completion of the Trent Street Pump Station (2009)

Completion of the Arbutus Storm Tank, Macaulay P.S., Clover P.S., Trent Forcemain Extension, and McLoughlin WWTP (2022)

Significant projects include the following:

1. Completion of the Marigold Storm Tank and Macaulay Emergency Overflow improvements in 2004;
2. Completion of the Trent Street Pump Station in 2009; and
3. Completion of the Arbutus Storm Tank, Macaulay P.S., Clover P.S., Trent Forcemain Extension, and McLoughlin WWTP in 2022.

Concurrently, the member municipalities have all formalized their I&I reduction programs and have made progress either by reducing I&I response or not allowing I&I to increase further.

Table 2-2 shows the trend in I&I levels throughout the core area.

**Table 2-2: I&I Reduction Trends**

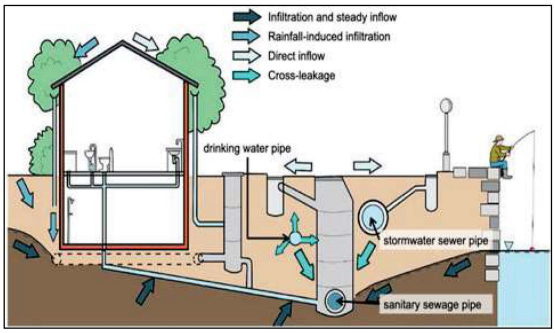
| | 2010 | 2012 | 2014 | 2016 | 2019 | Trend |
|---|---|---|---|---|---|---|
| Colwood | 10,309 | 8,540 | 7,965 | 8,777 | 8,777 | ↓ |
| Esquimalt | 52,412 | 52,599 | 48,727 | 51,471 | 48,786 | ↓ |
| Langford | 11,023 | 9,364 | 9,222 | 10,606 | 8,587 | ↓ |
| Oak Bay | 51,873 | 48,133 | 46,600 | 55,686 | 56,123 | → |
| Saanich | 15,514 | 13,613 | 15,427 | 15,223 | 14,369 | → |
| Victoria | 96,734 | 94,281 | 84,650 | 76,026 | 73,490 | ↓ |
| View Royal | 12,322 | 12,294 | 13,216 | 14,525 | 11,541 | → |

Based on 5-year, 24-hour, volume L/ha/day I&I response

As a result of both the I&I reduction programs and system improvements, sanitary sewer overflows (SSOs) have been reduced substantially such that they only occur at the long overflow at Clover Point for rainfall events less than a 5-year return period. SSOs have been reduced to less than 80 hours annually. The Clover Long Overflow is 1.2 km long and discharges into the Juan de Fuca Straight at a depth of 65 m. The overflow, along with the Macaulay long overflow, were the original outfalls used to discharge screened, raw sewage from the 1970s to the commissioning of the McLoughlin WWTP in 2022.

## 2.2 Identification of Partially Separated Service Laterals

One of the discoveries of multiple pilot studies has been the identification of partially separated service laterals. These laterals are still a combined storm and sanitary service. Their existence is usually due to the absence of a public storm sewer or storm sewer with sufficient depth for connection. They could also be a result of older homes constructed prior to a public storm sewer, and not separated after the storm sewer was installed.




Shallow storm sewers were constructed as a result of ditch enclosure projects. Ditches were enclosed with storm sewers to provide drainage for street surfaces. However, it was never the intention to connect the houses.

Shallow storm sewers are at an elevation higher than the elevation of the building foundation drains. As a result, the lots in these areas cannot separate their sanitary and storm sewer connections without public-side drainage improvements (See Section 2.3).

Partially separated service laterals (also known as semi-combined service laterals in some parts of North America) are also found in other parts of Canada as well. The consequence of this finding will result in significantly more expensive I&I reduction programs in those areas.

## 2.3 Need for Drainage System Improvements

To rectify the partially separated laterals, a proper drainage path will need to be created. Possible proper drainage service paths include the following:

- Identification of older, partially connected services that can be separated and connected to newer storm sewers (i.e., for older services that were never connected to new storm sewers);
- Extending existing storm sewers to service lots that do not have adequate drainage alternatives then separating partially separated sanitary services;
- Construction of a new storm sewer system at a lower elevation to connect both the roof and foundation drains;
- Disconnection of roof leaders to drain to pervious areas and construction of foundation drain sump-pump systems to connect to the existing shallow storm sewer system;
- Disconnection of roof leaders and replacement of storm sewer system with bio-infiltration (rain garden) systems with low elevation groundwater collection pipe systems to drain foundation drains; or,
- Rain barrel collection system for roof leaders with directed releases to pervious areas, road-side bio infiltration facilities, and deep perforated drains picking up only foundation piping and trench groundwater.

Depending on the characteristics of each area, different solutions are also possible including rainwater harvesting options. However, existing master drainage plans should be modified to incorporate these changes and implemented over time to provide a proper outlet. The timing of implementation will be a factor of existing storm sewer condition, elevation of downstream connection point, and available budget.

## 2.4 Impact of Re-Diverting I&I to the Storm Sewer System

Concern was raised at a fall 2023 Technical Advisory Committee (TAC) meeting regarding the impact of diverting I&I to storm sewers and what the resultant impact would be on pipe flows. From an ideological point of view, rainwater and groundwater should not be conveyed in sanitary sewer systems as it is expensive to treat, and it has more beneficial uses elsewhere such as augmenting creek systems for aquatic habitat and recharging local, seasonal groundwater aquifers. Diverting the I&I from rehabilitated sanitary sewers will increase stormwater flows but only marginally.

The amount of water re-diverted into the storm sewer system can be calculated as follows:

**Table 2-3: Estimation of Re-Diverted I&I to Storm Sewer System**

| Component | Volume (L/ha/d) |
|---|---|
| 5-year, 24-hour Rainfall (64.2 mm) [1] | 624,000 |
| Average Victoria I&I Rate (from Table 2-2) | 73,490 |
| Difference | 550,510 |
| I&I Expressed as a % of Total Rainfall | 11.8% |
| Estimated Percentage Split between the I&I Groundwater/ Interflow Components (GWI/RII-Slow) and Faster Runoff Components (SWI/RII-Fast) [2] | 50/50 |
| **Resulting impact to peak flows in stormwater system** | **5.9%** |

1. Based on the updated 2020 Gonzales IDF Curves and multiplied by one representative hectare.
2. Assumes that once I&I is removed from the sanitary sewer, only the stormwater inflow (SWI) and rainfall-induced infiltration-fast (RII-Fast) components contribute to stormwater peak flows.

In other words, stormwater flows can be expected to increase approximately 6% (a maximum amount assuming all runoff I&I components are diverted). These increases can be lessened through roof leader disconnection strategies and green infrastructure implementation such as bio-infiltration facilities and rain gardens.

# 3. Asset Management Programs

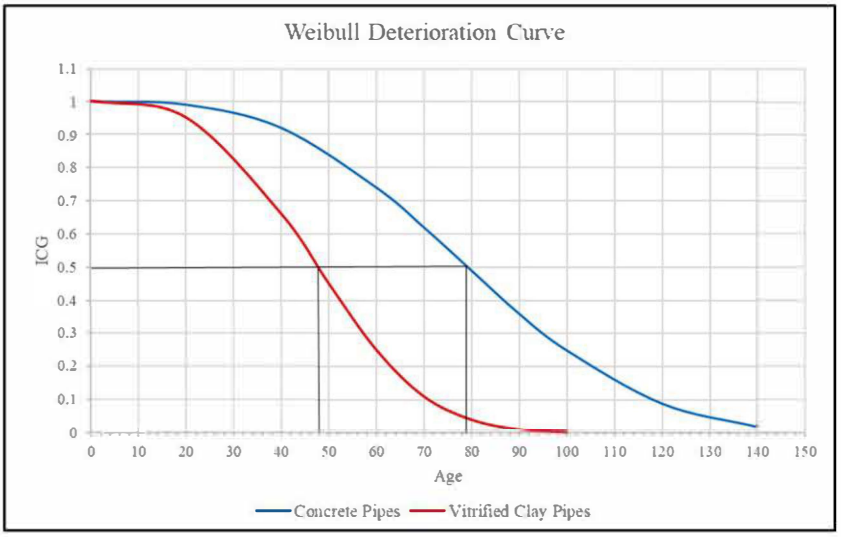
## 3.1 Background

Most municipalities have development of asset management plans either underway or completed. However, many plans are under-funded as the utility fees charged do not cover the expected asset replacement costs in a timeline that matches the expected service life of the piping systems. Further, there are insufficient funds to also cover interim rehabilitation costs to repair the collection system from structural and I&I related defects (i.e., prior to its ultimate replacement).

For these reasons, many municipalities find it difficult to predict future I&I reduction levels without the certainty of future funding levels. If the Province is being asked to grant an extension to the existing 2030 deadline, the CRD will likely be asked to provide some form of certainty that the 2045 extension is achievable. The decision to balance the funds collected versus the funds required to maintain and replace an asset is political and requires public support.

## 3.2 Identification of Service Life

All assets will eventually deteriorate to the point of failure or loss of function. It is important that municipalities assign reasonable service lives to their assets then develop financing plans to fund their replacement. Figure 3-1 shows an example of an expected Internal Condition Grade (ICG) probability based on an assumed service life of 60 years for VC pipe and 100 years for concrete pipe. Actual condition assessment data from CCTV inspections can help establish reasonable service lives.




(ICG score out of 5 is divided by 5 to obtain a probability fraction)

**Figure 3-1: Internal Condition Grading (ICG) Example** [1]

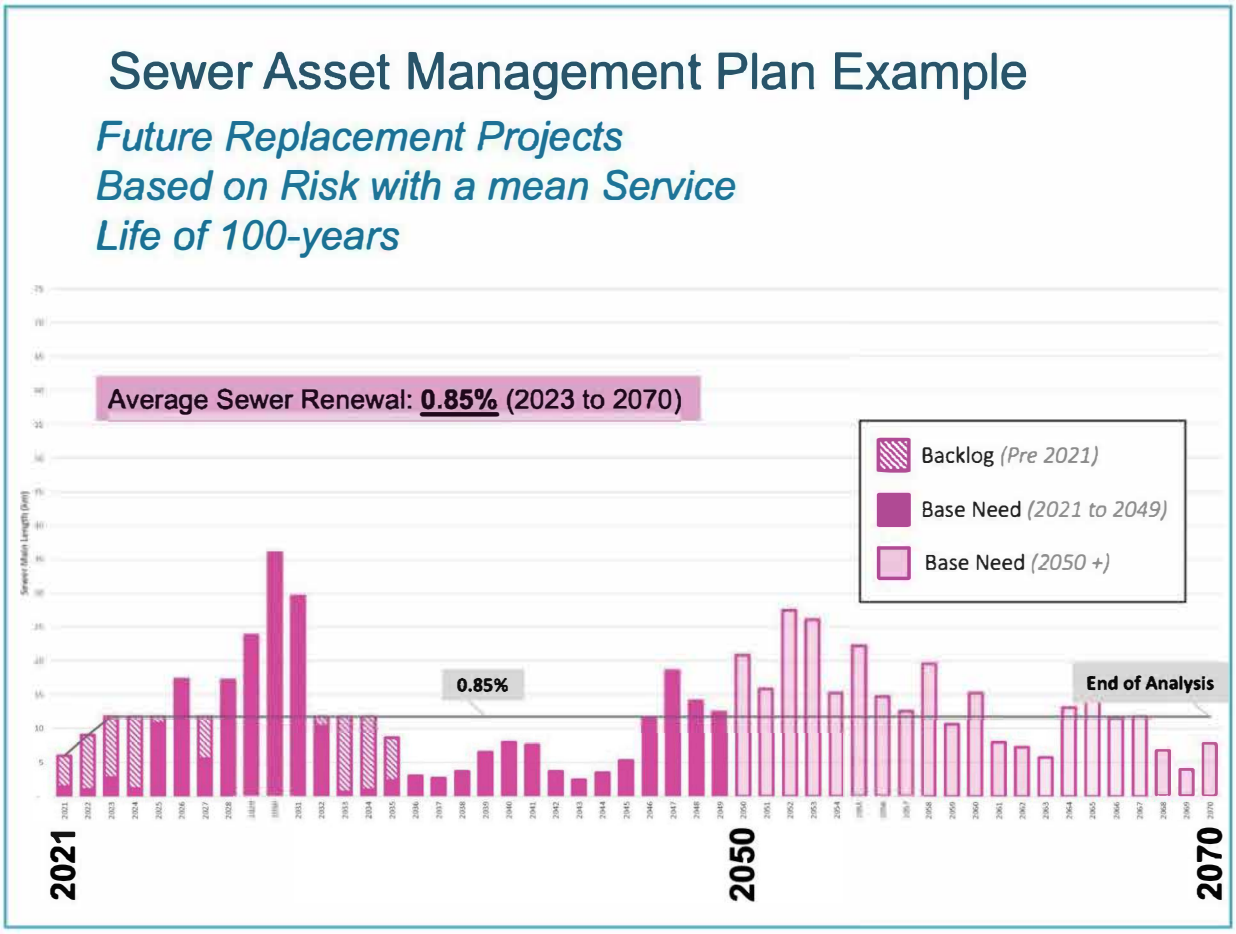
Determining expected service lives of sanitary sewer piping systems, allows the establishment of proper capital replacement levels. Adding inspection/maintenance and interim repair components to the capital replacement levels, yields recommended funding budgets.

[1] *A Deterioration Model for Sewer Pipes Using CCTV and Artificial Intelligence* by Comfort Salihu 1, Saeed Reza Mohandes 2, Ahmed Farouk Kineber 3ORCID, M. Reza Hosseini 4,*ORCID, Faris Elghaish 5 and Tarek Zayed 1

## 3.3 Example of Funding Plan

Figure 3-2 shows a simplified example of the cashflows associated with an asset management plan. In this example, the service life of the piping systems was established at 100-years. The figure shows a common scenario where the base needs in the earlier years (2021 to 2035) exceeds the recommended renewal funding as a considerable portion of the pipes were installed in the 1920s and 1930s. Compensating for this, a backlog was established to assist in balancing the replacement schedule.

**Figure 3-2: Sewer Asset Management Plan Cashflows**




In this example, it was determined that an average sewer renewal of 0.85% of total asset value would be sufficient in the 2021-2070 time horizon to maintain the replacement component of the plan. An additional funding component would then be added to the 0.85% to allow for the interim repair and maintenance components. The cost of the interim repair component can be estimated from I&I management plans identifying I&I levels not representative of their age, and CCTV inspections showing defects needing attention.

# 4. I&I Reduction Accounting

## 4.1 Background

The current CRD *I&I Management Plan* shows basic trending of I&I by sewer catchment (See Section 2). Future I&I reduction can be predicted knowing the proposed future programs for rehabilitation and replacement based on adopted funding levels. It is likely that the Province will require some level of re-assurance that the anticipated reductions will meet the new 2045 target. Once the funding levels and I&I reduction programs are established, I&I reduction predictions can be estimated.

## 4.2 Need for Mass Balance Model/Tool

It is possible to predict the level of I&I reduction based on the specific programs and implementation rates adopted by a municipality. A sub-basin can be split into four components:

1. Rate of replacement of private service laterals due to age and condition;
2. Rate of replacement of partially separated service laterals;
3. Scope and rate of interim rehabilitation projects on the public sewer components (i.e., I&I rates not acting their age); and
4. Rate of replacement projects when public sewers reach the end of their service lives.

The CRD has broken down the Core Area into over 108 sub-catchments. The CRD I&I management plan assigns archetypes of the interim rehabilitation and monitoring programs required in each sub-basin. In most basins, only monitoring and inspection are required. However, in older sub-basins some level of investigation and repair may be required if the sub-basin is not acting its age (see Section 5 of the *Core Area I&I Management Plan* and Figure 4-1 below). Ultimately though, once the sub-basin pipe components reach the end of their service lives, replacement is required.

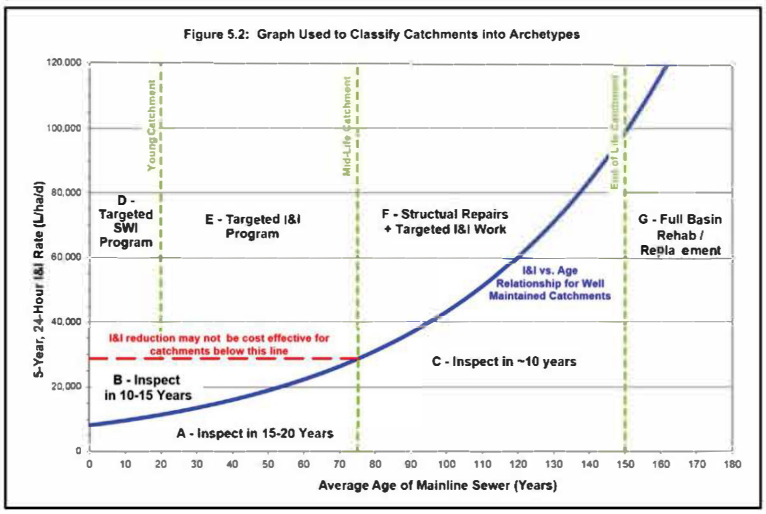



**Figure 4-1: CRD I&I Archetypes (from I&I Management Plan)**

Using the above four components, an estimate of annual I&I reduction can be predicted for each sub-basin. Reductions in the sub-basins tributary to Clover Point can then be used to show how SSO elimination in 2045 will be achievable.

# 5. Private Sewer Lateral Replacement Bylaw

## 5.1 Background

Private sewer laterals include portions of the system not owned by the public utility. Most of the private sewer connections in the CRD are detached residential buildings and are relatively simple systems. Multiple-family residential, residential strata and non-residential buildings may involve more complex systems.

Private sewer laterals generally include the pipe connection from a building sewer to the property line or in Oak Bay's case, the private lateral continues to the mainline connection point.

The private sewer lateral should be considered as part of the system from an I&I perspective. As such, municipalities should adopt a structured private sewer renewal program with proper inspections. Ideally this is a program that can be integrated into standard operating procedures with minimal oversight.

## 5.2 Possible Options

The CRD and Metro Vancouver have conducted extensive reviews of private sewer lateral programs throughout North America since 2008. [2] This included both regulatory and incentive approaches.

**Regulatory Approaches**

- Municipal Bylaw – may require that private sewers be kept in good condition and specifies enforcement measures and fees. These are municipal sewer bylaws that forbid cross connections. Orders can/are issued requiring homeowner to correct and bring connection into compliance with the bylaw.
- Provincial Regulation – would be needed to create new powers for local governments to regulate sewer laterals, for instance at point of sale.
- Expropriate Laterals – would involve expropriating all sewer laterals and the municipality assuming responsibilities for maintenance and replacement. Would involve large expense and increase to utility fees.
- Insurance Program – typically focused on covering sewer backup costs and would not reduce I&I on a widespread basis.
- Lateral Condition Certification – would be implemented through bylaw structures and require that a sewer lateral condition certificate be obtained.

[2] Private Sewer Lateral Programs: A Study of Approaches and Legal Authority for Metro Vancouver Municipalities, 2008, The Sheltair Group and West Coast Environmental Law.

Private Property Inflow & Infiltration Management Options for the CRD Core Area (2011, updated in 2014 and 2022). The Sheltair Group

**Incentive Approaches**

- Subsidies (Rebates and Loans) – similarly to other municipal rebate programs (e.g., low-volume water fixtures), property owners could be incentivized to maintain and replace sewer laterals by accessing rebates or loans from the municipality.
- Property Tax Exemption – property taxes or utility fees could be discounted for qualifying properties, likely requiring some form of certification.
- Provincial Tax Exemption – this could involve a reduction in property transfer taxes or other provincially-administered tax at the time of a property sale for qualifying properties, likely requiring some form of certification.

Some of the above measures have been considered for implementation in several BC municipalities. The City of Vancouver and City of Surrey, for example, have mandatory requirements in place for sewer lateral replacement based on building permit value. The Municipality of Esquimalt recently amended their existing Subdivision and Development Bylaw to achieve the same objective (December 2023).

Potential impediments to successful implementation (other than the City of Vancouver, Surrey, and Esquimalt examples) have included:

- lack of political support for point-of-sale trigger mechanisms;
- provincially regulated issues such as building code may require changes to provincial acts and powers available to local governments; and
- organizational burden to administer any or all of the above measures.

Given the foregoing, the Metro Vancouver municipalities have adopted the approaches outlined in Sections 5.3 and 5.4 below. It is recommended that one of the following two private lateral replacement measures be adopted as part of an I&I Management strategy for CRD municipalities with the older service connections (see Section 5.5).

## 5.3 Lateral Replacement – New Construction and Building Permit Trigger

As mentioned above, Esquimalt, Surrey, and Vancouver have adopted this approach. The approach is based on a trigger based on a certain building permit dollar amount. A set of conditions and actions are required to ensure that the service is either operating within reasonable limits or it is replaced.

Table 5-2 highlights the basic attributes of Surrey and Vancouver bylaws.

Information on Esquimalt's modifications to their *Subdivision and Development Bylaw* can be found here:

https://www.esquimalt.ca/sites/default/files/docs/municipal-hall/bylaws/3128_-_Subdivision_and_Development_Servicing_Bylaw_3128_2023.pdf

The staff report supporting the proposed change, can be found here:

https://esquimalt.ca.legistar.com/ViewReport.ashx?M=R&N=Text&GID=5&ID=31032&GUID=317567EC-AF19-4C1B-A9EA-3983DDF26E7E&Title=Legislation+Text

## 5.4 Lateral Replacement – Certification Method

Based on the noted challenges in implementing a universally applicable sewer lateral certification and replacement program, the following practices are recommended:

1. Incentive-based method with certifications required, which would involve inspection and testing as described in Section 5.2;
2. Base utility rate for non-certified sewer laterals or expired certifications, which could be stepped up over time once a program is in place and property owners have been given time to comply;
3. Utility rate discount for certified sewer laterals. Provide automatic certification for PVC services less than 30-years old;
4. Premiums added to utility rate if City determines private lateral to be in bad condition due to side shot CCTV inspection or observation port inspection;
5. Enhanced premiums added to utility bill for combined connections provided a functional storm sewer is available. Rebates are offered for separation; and
6. Consider working with home insurance companies to provide additional incentives for certified laterals.

Determining an appropriate premium and discount structure would need to be done by each municipality.

## 5.5 Private Lateral Renewal Bylaw

Since I&I on private sewer laterals can represent 50 to 80% of all I&I, a renewal program will be required on private property to reduce I&I rates. The pipe material will eventually fail. Municipal Renewal Bylaws are considered to be the best practice available.

However, the urgency to implement such a bylaw is not equally shared across all municipalities. The younger sewerage areas will have more time to implement such a bylaw.

Suggested additional LWMP Section 5 commitment:

> *If sanitary municipal sewer flows exceed allocated flows from Bylaw 4304, consider implementing a private sewer lateral replacement bylaw to replace laterals that have exceeded their service life and separate combined storm and sanitary connections.* [3]

Based on the above and referring to Table 5-1 below, the communities of Esquimalt, Oak Bay, and Victoria should consider implementing a private sewer lateral renewal bylaw.

**Table 5-1: Actual Flows Versus Allocated Flows by Municipality**

| Municipality | Allocated Peak Daily Flow (ML/d) | Peak 24-hr Flow | | Status |
|---|---|---|---|---|
| | | 5-yr Rainfall Event (ML/d) | % of Allocated Capacity | |
| Colwood | 18.80 | 7.70 | 41% | ✓ |
| Esquimalt | 28.36 | 30.16 | 106% | ⊗ |
| Langford | 56.48 | 17.01 | 30% | ✓ |
| Oak Bay | 26.48 | 37.96 | 143% | ⊗ |
| Saanich | 131.56 | 83.52 | 63% | ✓ |
| Victoria | 153.19 | 150.64 | 98% | ⊖ |
| View Royal | 14.17 | 7.10 | 50% | ✓ |

[3] CRD Bylaw 4304 outlines the maximum flow contribution by each municipality to the regional trunk sewer system and McLoughlin WWTP.

## 5.6 Key Actions Needed

Municipalities close to or exceeding their sewer capacity allotment should consider adopting a private lateral replacement bylaw and determine what methods and resources will be used to inspect the new service.

Municipalities with partially separated services should also develop public-side stormwater servicing strategies as the bylaw cannot be enforced without a proper drainage connection.

The following actions are required to implement the program described above:

1. Adopt a Lateral Replacement Bylaw: either the Building Permit Trigger Method or the Certification Method in municipalities exceeding or near allocated flows;
2. Determine what methods and resources will be used to inspect the new services;
3. For cities with significant Vitrified Clay (VC) laterals and partially separated connections, consider the Certification Method and/or other tools available to municipalities as laterals may be replaced on a timelier basis; and
4. Develop public-side stormwater servicing plans to address areas with partially separated private sewer-laterals.

**Table 5-2: Private Lateral Replacement Bylaws Based on Building Permit Triggers**

***Excerpts from the City of Vancouver Program***

2.2 NEW PUBLIC SEWER CONNECTION FOR CONSTRUCTION - Subject to Section 2.9, a new public sewer connection is required whenever:

(a) **a new house** or building is constructed, or

(b) an existing house or building is renovated, and the estimated construction value is more than:

(i) **100% of the latest building assessment (from the BC Assessment Authority), or**
(ii) **$95,000, whichever is the greater,** and the work involves:
(iii) extensive excavation work,
(iv) enlargement of the plumbing system by adding two or more fixtures,
(v) an increase in the number of bedrooms, or
(vi) a resulting increased demand upon the existing sewer system after renovations are complete.

***Excerpts from the City of Surrey Program***

39. When there is an application to redevelop a parcel, the following shall apply to the service connection and the building sanitary sewer:

a) If the service connection or the building sanitary sewer is **less than 30 years old**, the owner must provide **a video inspection** from a pipe **assessment certification program (PACP)** certified contractor and recommendation for the City to review. The owner shall repair or replace the service connection or the building sanitary sewer, or both, if the City determines that: it contains defects or deficiencies, including excessive damage; is not in adequate condition for service; does not meet the City's Design and Construction Standards; or is made of materials other than PVC;

b) If the service connection or the building sanitary sewer **is 30 years old or older and is made of materials other than PVC, a replacement or new service connection or building sanitary sewer, or both, is required**;

c) If the service connection or the building sanitary sewer is **30 years old or older and is made of PVC**, the owner must provide **a video inspection from a PACP** certified contractor and recommendation for the City to review. The owner shall repair or replace the service connection or the building sanitary sewer or both, if the City determines that it: contains defects or deficiencies, including excessive damage; is not in adequate condition for service; or does not meet the City's Design and Construction Standards;

d) **Despite Sections 39(a), (b) and (c), all no-corrode, asbestos, cement, clay or otherwise non-standard material pipes of any age or condition shall be replaced with PVC** or an alternate pipe material approved by the City;

e) Despite Sections 39(g) and (h), renovations to an existing building on a parcel **where the combined building value is less than or equal to $120,000 are exempt from the requirements of this Section 39;**

# 6. Recommendations

## 6.1 Recommendations

### Additional Actions for CRD

1. Comple a study assessing the impacts of storm event overflows from the Clover Long outfall including climate change implications, environmental impacts, social impacts, budget estimates to eliminate 5-year overflows, and impact on taxpayers.
2. Assess storage and treatment options to reduce overflows caused by I&I at the Clover Point Long outfall.
3. Create a mass balance model/tool to assess, document, and improve the effectiveness of municipal asset management plans and CRD I&I Management Plan for eliminating overflows at the Clover Long Outfall by 2045.

### Actions for Younger Sewer Collection Systems

1. Continue the investigations as outlined in the CRD Core Area I&I Management Plan.
2. Update Asset Management Plans to show how cashflows support sewer pipe service life selection. (May mean modifying future cashflows)

### Actions for Older Sewer Collection Systems

1. Identify partially separated service areas and develop long-term plans for drainage upgrades to these.
2. Update Asset Management Plans to incorporate predicted sewer lifetimes (will result in funding levels to match sewer service lives).
3. Consider implementing/updating a private sewer lateral bylaw if 5-year storm exceeds allocated flows.

# 7. Report Submission

Prepared by:

**KERR WOOD LEIDAL ASSOCIATES LTD.**

Chris Johnston, P.Eng.
Principal, I&I Specialist

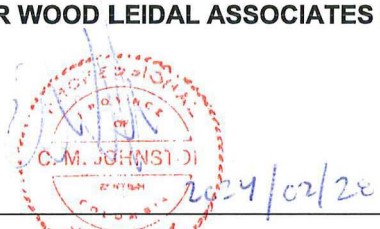
Reviewed by:

Jason Vine, M.A.Sc. P.Eng.
Senior Associate

# 7. Report Submission

Prepared by:

**KERR WOOD LEIDAL ASSOCIATES LTD.**




Chris Johnston, P.Eng.
Principal, I&I Specialist

Reviewed by:

Jason Vine, M.A.Sc. P.Eng.
Senior Associate

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## Revision History

| Revision # | Date | Status | Revision | Author |
|---|---|---|---|---|
| A | January 12, 2024 | For Review by CRD | Draft No.1 | CJ |
| 0 | February 6, 2024 | Final Version 1 | | CJ |
| 1 | February 28, 2024 | Final Version 2 | | CJ |

KERR WOOD LEIDAL
consulting engineers

## Appendix A

# 2019 Consolidated LWMP Section 5 Existing Commitments

**CAPITAL REGIONAL DISTRICT**
**CORE AREA LIQUID WASTE MANAGEMENT PLAN**
(Consolidated Version incorporating all applicable amendments, February 2019)

# SECTION 5
# MANAGEMENT OF INFILTRATION AND INFLOW AND CONTROL OF WASTEWATER OVERFLOWS

## GOAL

Condition 17(1)(a) of Schedule 1 of the Municipal Sewage Regulation (MSR) requires that if infiltration and inflow (I&I) causes daily flows to be greater than 2 times the average dry weather flow (ADWF), the discharger must address "how I&I can be reduced as part of a Liquid Waste Management Plan" and condition 17(2) outlines the treatment and discharge requirements for such flows.

The goal of the I&I program is therefore to comply with this requirement of the MSR by developing and implementing a strategy aimed at reducing the amount of rainwater and groundwater entering the core area's sanitary sewer system from both the publicly owned and privately owned parts of the system in order to reduce and eventually eliminate overflows from the system.

How the Capital Regional District (CRD) proposes to substantially meet the requirements of Condition 17(2) is addressed in Sections 4 and 6 and in the draft operational certificate in Section 12.

## COMMITMENTS

The CRD and the participating municipalities commit to the following actions to reduce I&I sufficiently to reduce maximum daily wet weather flows to less than four times the average dry weather flow by 2030:

1. Continue flow monitoring in each municipality to further refine priority areas for remediation.

2. Develop, by the end of 2011, and submit to the Ministry of Environment, comprehensive inflow and infiltration management plans for the core area that will:
   a) Identify and evaluate options and opportunities that promote the minimization of groundwater and rainwater I&I into municipal sanitary sewer systems, including I&I originating from service laterals (private and public sections of sewer connections).
   b) Identify needed changes to legislation and legal authority to enable options and strategies.
   c) Identify opportunities for the inspection of private sewers connected to municipal sewers:
      (i) as part of the municipal process in evaluating and issuing renovation and building permits for serviced properties; and/or
      (ii) at the time of property transfer; and/or
      (iii) targeted inspections.
   d) Require the repair or replacement of private sewers that have cross-connections between storm sewers and sanitary sewer or are identified as being in poor condition.

3. Update, by the end of 2011, and enforce sewer use bylaws to prohibit the construction of rainwater and groundwater connections to sanitary sewers.

4. Implement the overflow reduction plans contained in the sanitary sewer overflow management plan, which was submitted to the Ministry of Environment in June 2008. These plans are summarized as follows:

Table 5.1
Prioritized Order of CRD Overflow Reduction Plan
(Updated based on current information)

| Priority No. | O/F Name | Action Plan | Estimated Year of Completion | Estimated Cost ($2008) to Complete |
|---|---|---|---|---|
| 1. | Monterey Avenue MH0130 | Complete and commission Trent pump station | 2008 (Complete) | $500,000 |
| 2. | Macaulay Point Pump Station | Complete installation of standby power | 2008 (Complete) | $800,000 |
| 3. | Harling Pump Station | Install a screen on the overflow pipe | 2008 (Complete) | $10,000 |
| 4. | Shoreline Drive MH0340 | Commence with capacity deficiency study and identify upgrade options | 2010 | $50,000 |
| 5. | Penrhyn Lift Station | Investigate pump and genset capacity | 2010 | $600,000 |
| 6. | Humber Combined Sewers | Oak Bay plans to separate the sewers in the Uplands area | 2015 | To be determined (Oak Bay cost) |
| 7. | Rutland Combined Sewers | Oak Bay plans to separate the sewers in the Uplands area | 2015 | To be determined (Oak Bay cost) |
| 8. | Head Street MH0040 | Twin the NWT from Macaulay Point to MH0055 | 2015 | $20,000,000 |
| 9. | Sea Terrace MH0055 | Twin the NWT from Macaulay Point to MH0055 | 2015 | as above |
| 10. | Broom Road | Extend Trent forcemain down to Clover Point | 2017 | as above |

Table 5.2
Prioritized Order of Colwood Overflow Reduction Plan

| Item No. | Work Name | Description | Estimated Year of Completion | Estimated Cost ($2008) to Complete |
|---|---|---|---|---|
| 1. | SCADA Upgrade | Upgrade the SCADA system to collect flow data from all pump stations. | 2008 (Complete) | $10,000 |
| 2. | CCTV Inspection | Continue to inspect all new sewers that are installed to ensure they are well constructed | Annually | $15,000 |
| 3. | Sewer System Maintenance | Continue to clean all mains and manholes, and repair as necessary. | Annually | $50,000 |
| 4. | Lift Station Maintenance | Continue to maintain all lift station components to ensure that they run efficiently. | Annually | $72,500 |

Table 5.3
Prioritized Order of Esquimalt Overflow Reduction Plan

| Item No. | Work Name | Description | Estimated Year of Completion | Estimated Cost ($2008) to Complete |
|---|---|---|---|---|
| 1. | Sewer Relining | Relining and repairs to sewer mains rated poor and poorest | Completed | n/a |
| 2. | Combination Manhole Separation | • 148 manholes remain to be separated<br>• 29 manholes to be separated in 2008<br>• Five manholes separated per year from 2009 to 2025 | 2025 | $950,000 |
| 3. | Grafton Pump Station Upgrade | New electrical power supply, kiosk and controls | 2008 (Complete) | $38,000 |
| 4. | Grafton Pump Station Upgrade | Pump replacement | 2012 | $40,000 |
| 5. | Sewer Main Replacement | Replacement of undersize sewer main on Craigflower Road between Tillicum Road and Lampson Street | 2009 (Complete) | $250,000 |
| 6. | Municipal Wide Smoke and Dye Testing | Smoke and dye testing underway to identify cross connections in attempts to reduce I&I in the future. The full scope of the project has not yet been determined. | 2010 | unknown |

Table 5.4
Prioritized Order of Langford Overflow Reduction Plan

| Item No. | Work Name | Description | Estimated Year of Completion | Estimated Cost ($2008) to Complete |
|---|---|---|---|---|
| 1. | Sewer Master Plan Upgrades | Continue with infrastructure upgrades as identified in the Sewer Master Plan. | Ongoing | $0.2-0.5 Million |
| 2. | CCTV Inspection | Continue to video inspect all new sewers that are installed to ensure that they are well constructed. | Annually | $15,000 |
| 3. | Manhole Inspection | Continue to visually inspect manholes to ensure that they do not leak. | Annually | $15,000 |
| 4. | Pump Station Maintenance | Continue to maintain all pump station components to ensure that they run efficiently. | Annually | $200,000 |
| 5. | Sewer System Maintenance | Continue to keep the sewers clean and free from defects. | Annually | $25,000 |

Table 5.5
Prioritized Order of Oak Bay Overflow Reduction Plan

| Item No. | Work Name | Description | Estimated Year of Completion | Estimated Cost ($2008) to Complete |
|---|---|---|---|---|
| 1a. | Uplands Sewer Separation Humber Catchment | Construction of new storm sewer | To be confirmed by December 31/2019 | $5,285,000 |
| 1b. | Uplands Sewer Separation Rutland Catchment | Construction of new storm sewer | To be confirmed by December 31/2019 | $9,815,000 |
| 1c. | Uplands sanitary sewer pipeline rehabilitation | Rehabilitation of the former combined sewer pipeline to address infiltration | To be confirmed by December 31/2019 | $3,000,000 |
| 2. | Oak Bay Inflow and Infiltration Rehabilitation Project | Continue with phased rehabilitation projects in various catchments | Annually | $500,000 |
| 3. | CCTV Inspection | Video inspection of sewer mains | Annually | $25,000 |
| 4. | Sewer System Maintenance Program | Maintenance to keep sewers clean and free from defects. | Annually | $240,000 |

Table 5.6
Prioritized Order of Saanich Overflow Reduction Plan

| Item No. | Work Name | Description | Estimated Year of Completion | Estimated Cost ($2008) to Complete |
|---|---|---|---|---|
| 1. | Dysart Pump Station | Complete construction of the new Dysart pump station. | 2008 (Complete) | $2,500,000 (est.) |
| 2. | The following pump stations will be upgraded:<br><br>Vantreight Lift Station<br>Murray #1 Pump Station<br>Murray #2 Pump Station<br>Arundel Pump Station<br>Glenwood Pump Station<br>Ashley Pump Station<br>Dunkirk Pump Station<br>Colquitz Pump Station<br>Gorge Pump Station | Rebuild pump station and add a new standby generator. | 2009-2015 | $500,000 Annually |

Table 5.7
Prioritized Order of Victoria Overflow Reduction Plan

| Item No. | Work Name | Description | Estimated Year of Completion | Estimated Cost ($2008) to Complete |
|---|---|---|---|---|
| 1. | James Bay I&I Pilot Project | Commence with the rehabilitation of sewer mains, laterals and manholes in James Bay. | 2010 | $3,000,000 |
| 2. | Hydraulic Model | Continue to complete a hydraulic model of the City's entire sanitary sewer collection system. | 2009 | $100,000 |
| 3. | Overflow Elimination | Investigate, monitor and abandon, if possible, existing known overflow locations. | 2010 | $100,000 |
| 4. | Combined Manhole Separation | Investigate, monitor and initiate a program to separate combined manholes. | 2015 | $400,000 |

Table 5.8
Prioritized Order of View Royal Overflow Reduction Plan

| Item No. | Work Name | Description | Estimated Year of Completion | Estimated Cost ($2008) to Complete |
|---|---|---|---|---|
| 1. | Upgrade Pump Stations | Upgrade pump stations where required to improve pump performance, provide standby power and collect better data. | 2017 | $140,000 |
| 2. | CCTV Inspection | Continue to video inspect all new sewers that are installed to ensure that they are well constructed. | Annually | $20,000 |
| 3. | Manhole Inspection | Continue to visually inspect manholes to ensure that they do not leak. | Annually | $5,000 |
| 4. | Pump Station Maintenance | Continue to maintain all pump station components to ensure that they run efficiently. | Annually | $120,000 |
| 5. | Sewer System Maintenance | Continue to keep the sewers clean and free from defects. | Annually | $40,000 |

**APPENDIX C**

Excerpt from the Capital Regional District Core Area Liquid Waste Management Plan – Sanitary Sewer Overflow Management Plan, June 2008.

KERR WOOD LEIDAL
consulting engineers

## Appendix B

# 2024 LWMP Section 5 Updates

# SECTION 5
# MANAGEMENT OF INFILTRATION AND INFLOW AND CONTROL OF WASTEWATER OVERFLOWS

## REGULATORY REQUIREMENT

The Municipal Wastewater Regulation (MWR), ***Part 3, Division 2 – Overflows, and Inflow and Infiltration Requirements,*** sets out the conditions for overflows and inflow and infiltration.

With respect to Overflows, MWR Article 42 (1) (a) states: "A discharger must ensure that an overflow does not occur during storm or snowmelt events with a less than 5-year return period, unless the person responsible for the municipal wastewater collection system develops and implements, as part of a liquid waste management plan, measures to eliminate overflows" .

And with respect to Inflow and Infiltration, MWR Article 44 (1) (a), states that: "a discharger must ensure that inflow and infiltration does not occur such that the maximum daily flow exceeds 2 times the ADWF at the treatment plant during storm or snowmelt events with a less than 5-year return period, unless the person responsible for the municipal wastewater collection system addresses, as part of a liquid waste management plan, how inflow and infiltration can be reduced".

On March 24, 2022 The CRD was directed to "complete the separation of combined sewers in the Humber Catchment area by December 31, 2025" and to propose a new timeline for the separation of the Rutland Catchment that is "in line with the overarching commitment to reduce inflow and infiltration to below four times average dry weather by 2030."

## GOAL

The goal of the Core Area Liquid Waste Management Plan is to meet the intent of the MWR by preparing Inflow, Infiltration and Overflow Management Plans to achieve the following:

The primary objective is to reduce inflow and infiltration to eliminate overflows for storm events with less than a 5-year return period from all CRD facilities by 2030, except the Clover Point Long outfall. The next key objective would be to eliminate overflows for storm events with less than a 5-year return period from all CRD facilities including the Clover Point Long outfall by year 2045.

## COMMITMENTS

To achieve the goals and objectives noted above, the CRD and participants discharging into the CRD wastewater system commit to the following actions:

CRD Commitments:

1) Monitoring municipal sewer flows into the core area trunk sewer system and assessing compliance with the peak flow allocations in CRD Bylaw 4304 (Table 1).

2) Analyzing available flow data for I&I on a periodic basis including flow data from the CRD cost sharing meters and municipal pump stations (when suitable).

3) Completing a study assessing the impacts of storm event overflows from the Clover Long outfall including: environmental impacts, social impacts, budget estimates to eliminate 5-year overflows, and impact on taxpayers.

4) Establishing an education program for homeowners and key stakeholders (i.e. home inspectors, realtors, plumbers) that promotes repair and maintenance of private property sewer laterals.

5) Assisting municipalities with catchment specific studies designed to address high I&I and/or overflows (as budget allows).

6) Periodically assessing options to reduce overflows caused by I&I.

7) Reviewing and updating, if appropriate, the CRD model bylaw for private sewer lateral laterals (2015) for municipalities to consider adopting or incorporating into existing bylaws.

8) Submitting 5-year updates of the I&I Management Plan to the Province.

The Participants who discharge into the CRD wastewater system commit to the following actions:

1) Performing detailed catchment investigations and preparing compliance plans for participant area inputs to the core area sewer system that both (1) exceeds their sewer allocations and (2) contribute to sub 5-year overflows.

2) Preparing asset management plans identifying sewer asset life span, when sewer assets will be replaced, the level of funding required, and how that will help to reduce inflow and infiltration over time as infrastructure is renewed.

3) Applying for grants targeted specifically to address catchment areas contributing to overflows less than a 5-year return period.

4) Carrying out additional flow monitoring in catchments with elevated I&I, as appropriate.

5) Carry out the recommendations outlined in the I&I Management Plan that relate to their specific participant area or collection system.

**Table 1: Allocated Sewer Flows from Bylaw 4304**

| Allocation Point | Allocated Average Dry Weather Flow (ML/day) | Allocated Peak Daily Flow (ML/day) |
|---|---|---|
| **COLWOOD** | | |
| **Total (Parson's minus Meaford)** | **4.70** | **18.8** |
| **ESQUIMALT** | | |
| Esquimalt Panhandle | 0.12 | 0.48 |
| Lang Cove Pump Station | 1.28 | 5.12 |
| Dockyard | 1.01 | 4.04 |
| Kinver | 0.44 | 1.76 |
| Pooley Place | 0.06 | 0.24 |
| Devonshire | 1.85 | 7.40 |
| Wilson | 0.37 | 1.48 |
| Head | 1.68 | 6.72 |
| Anson | 0.24 | 0.97 |
| **Total** | **7.09** | **28.36** |
| **LANGFORD** | | |
| **Total *(Meaford)*** | **14.12** | **56.48** |
| **OAK BAY** | | |
| Windsor | 2.92 | 11.68 |
| Humber *(combined sewers)* | 0.60 | 2.40 |
| Rutland *(combined sewers)* | 0.37 | 1.48 |
| Currie Net | 0.97 | 3.88 |
| Currie Lift Station | 1.62 | 6.48 |
| Harling Point Pump Station | 0.20 | 0.79 |
| **Total** | **6.62** | **26.48** |
| **SAANICH** | | |
| Marigold PS | 13.19 | 52.76 |
| City Boundary | 5.88 | 23.52 |
| Harriet | 3.27 | 13.08 |
| Townley | 0.61 | 2.44 |
| Haultain | 0.57 | 2.27 |
| Arbutus | 7.08 | 28.31 |
| Haro | 0.79 | 3.17 |
| Penrhyn Lift Station | 0.93 | 3.73 |
| **Total** | **32.89** | **131.56** |
| **VICTORIA** | | |
| Cecelia | 3.14 | 12.57 |
| Chapman & Gorge | 0.35 | 1.40 |
| Selkirk | 0.28 | 1.11 |
| Langford - Vic West | 0.19 | 0.77 |

| Allocation Point | Allocated Average Dry Weather Flow (ML/day) | Allocated Peak Daily Flow (ML/day) |
|---|---|---|
| Hereward | 1.91 | 7.65 |
| Sea Terrace | 0.33 | 1.32 |
| Trent Net | 7.33 | 29.32 |
| Hollywood | 0.54 | 2.16 |
| Olive | 23.06 | 92.24 |
| Clover Net | 1.50 | 6.01 |
| **Total** | **38.30** | **153.19** |
| **VIEW ROYAL** | | |
| Craigflower Pump Station | 3.54 | 14.16 |
| Shoreline Trunk | 0.14 | 0.55 |
| **Total** | **3.54** | **14.16** |
| **ESQUIMALT NATION** | | |
| Total | 0.07 | 0.28 |
| **SONGHEES NATION** | | |
| Songhees Nation | 0.59 | 2.36 |
| Maplebank | 0.010 | 0.04 |
| **Total** | **0.63** | **2.52** |

KERR WOOD LEIDAL
consulting engineers

## Appendix C

# 2024 LWMP Section 5 Updates (Proposed KWL Suggestions)

# SECTION 5
# MANAGEMENT OF INFILTRATION AND INFLOW AND CONTROL OF WASTEWATER OVERFLOWS

## REGULATORY REQUIREMENT

The Municipal Wastewater Regulation (MWR), ***Part 3, Division 2 – Overflows, and Inflow and Infiltration Requirements,*** sets out the conditions for overflows and inflow and infiltration.

With respect to Overflows, MWR Article 42 (1) (a) states: "A discharger must ensure that an overflow does not occur during storm or snowmelt events with a less than 5-year return period, unless the person responsible for the municipal wastewater collection system develops and implements, as part of a liquid waste management plan, measures to eliminate overflows" .

And with respect to Inflow and Infiltration, MWR Article 44 (1) (a), states that: "a discharger must ensure that inflow and infiltration does not occur such that the maximum daily flow exceeds 2 times the ADWF at the treatment plant during storm or snowmelt events with a less than 5-year return period, unless the person responsible for the municipal wastewater collection system addresses, as part of a liquid waste management plan, how inflow and infiltration can be reduced".

On March 24, 2022 The CRD was directed to "complete the separation of combined sewers in the Humber Catchment area by December 31, 2025" and to propose a new timeline for the separation of the Rutland Catchment that is "in line with the overarching commitment to reduce inflow and infiltration to below four times average dry weather by 2030."

## GOAL

The goal of the Core Area Liquid Waste Management Plan is to meet the intent of the MWR by preparing Inflow, Infiltration and Overflow Management Plans to achieve the following:

The primary objective is to reduce inflow and infiltration to eliminate overflows for storm events with less than a 5-year return period from all CRD facilities by 2030, except the Clover Point Long outfall. The next key objective would be to eliminate overflows for storm events with less than a 5-year return period from all CRD facilities including the Clover Point Long outfall by year 2045.

## COMMITMENTS

To achieve the goals and objectives noted above, the CRD and participants discharging into the CRD wastewater system commit to the following actions:

CRD Commitments:

1. Monitoring municipal sewer flows into the core area trunk sewer system and assessing compliance with the peak flow allocations in CRD Bylaw 4304 (Table 1).

2. Analyzing available flow data for I&I on a periodic basis including flow data from the CRD cost sharing meters and municipal pump stations (when suitable).

3. Completing a study assessing the impacts of storm event overflows from the Clover Long outfall including: climate change implications, environmental impacts, social impacts, budget estimates to eliminate 5-year overflows, and impact on taxpayers.

4. Establishing an education program for homeowners and key stakeholders (i.e. home inspectors, realtors, plumbers) that promotes repair and maintenance of private property sewer laterals.

5. Assisting municipalities with catchment specific studies designed to address high I&I and/or overflows (as budget allows).

6. Assessing storage and treatment options to reduce overflows caused by I&I at the Clover Point Long outfall.

7. Reviewing and updating, if appropriate, the CRD model bylaw for private sewer lateral laterals (2015) for municipalities to consider adopting or incorporating into existing bylaws.

8. Creating a mass balance model/tool to assess, document, and improve the effectiveness of the municipal asset management plans and CRD I&I Management Plan for eliminating overflows at the Clover Long Outfall by 2045.

9. Submitting 5-year updates of the I&I Management Plan to the Province.

The Participants who discharge into the CRD wastewater system commit to the following actions:

1. Performing detailed catchment investigations and preparing compliance plans for participant area inputs to the core area sewer system that both (1) exceeds their sewer allocations and (2) contribute to sub 5-year overflows.

2. Preparing asset management plans identifying sewer asset life span, when sewer assets will be replaced, the level of funding required, and how that will help to reduce inflow and infiltration over time as infrastructure is renewed.

3. Preparing drainage improvement plans for those areas where building foundation drains are unable to connect to the storm drainage system.

4. Applying for grants targeted specifically to address catchment areas contributing to overflows less than a 5-year return period.

5. Carrying out additional flow monitoring in catchments with elevated I&I, as appropriate.

6. Carry out the recommendations outlined in the I&I Management Plan that relate to their specific participant area or collection system.

7. If sanitary municipal sewer flows exceed allotted flows from Bylaw 4304, consider implementing a private sewer lateral replacement bylaw to replace laterals that have exceeded their service life and separate combined storm and sanitary connections.

**Table 1: Allocated Sewer Flows from Bylaw 4304**

| Allocation Point | Allocated Average Dry Weather Flow (ML/day) | Allocated Peak Daily Flow (ML/day) |
|---|---|---|
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| Hollywood | 0.54 | 2.16 |
| Olive | 23.06 | 92.24 |
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| **SONGHEES NATION** | | |
| Songhees Nation | 0.59 | 2.36 |
| Maplebank | 0.010 | 0.04 |
| **Total** | **0.63** | **2.52** |

# Engagement Summary

## Liquid Waste Management Plan Amendment

Capital Regional District | June 2025

The purpose of the Engagement Summary report is to share what we heard when engaging with community members for the proposed Amendment No. 13, Core Area Liquid Waste Management Plan.

## Background

The Capital Regional District (CRD) is updating Section 5 of the Plan to reduce rainwater infiltration into the sanitary sewer, and the resulting overflows that happen during winter storm events and public engagement is an important part of the process. The proposed approach of reducing and eliminating overflows during these storm events is intended to be a practical solution that meets the regulator's expectation of requirements ensuring long-term health and environmental protection. The CRD's engagement objectives were to inform the community to build awareness and understanding about the amendment and to gather feedback to be considered by the Board ahead of adopting these changes.

## Engagement Process

The level of engagement for public participation was to inform interested and affected people about the upcoming change and consult with them to listen to their comments and consider them as part of the final amendment decision process. Audiences and Interest Holders included:

- First Nations
- Residents/Taxpayers
- Business owners
- Community members and groups
    - Environmental Stewardship Groups
- Municipal Engineering departments within core area

- Technical and Community Advisory Committee (Core Area Liquid Waste Management)
- Ministry of Environment and Climate Change Strategy

Table 1: Public engagement opportunities and promotion (Attachments A & B)

| Timing | Activity | Details |
|---|---|---|
| Feb 2024 | Technical and Community Advisory Committee review | Amendment Information |
| Oct – Nov, 2024 | Public Engagement | Get Involved info and survey, Email to subscribers |
| Oct – Nov, 2024 | Facebook posts | Invitation to engage |
| Oct 14, 2024 | Media Release | Invitation to engage |
| Oct – Nov, 2024 | Print Ads (TC, Black Press) | Invitation to engage |
| Oct – Nov, 2024 | CRD Website Feature Topic | Invitation to engage |
| Oct 2024 | Letter to First Nations | Invitation to engage |

## What We Heard

### Get Involved Website:

Visitors: 239
Contributors: 10
Responses: 10

### Question

Please share any comments or suggestions you have about the proposed amendment to the Liquid Waste Management Plan.

#### Responses

1. I recommend that the proposed plan incorporate a commitment from member municipalities to complete dye testing of all relevant properties in their jurisdiction within 5 years of implementation. This would allow for the identification of most cross connections and significantly improve the situation. I believe that education will not

make a dent in the problem, as someone who works in the industry. The reality is, this infrastructure is "out of sight, out of mind" for private property owners. The

prevailing mentality is "if it's not broke, don't fix it. This is a problem for the CRD, not your average citizen, so expecting action from private citizens is unrealistic in my opinion. I recommend the issuance of RFP's so private industry can assist in completion of the dye testing if municipal public works crews are not able to complete this work in the alloted time. The education piece would be necessary to explain why crews need to complete dye testing, and that's where that portion of the budget should go.

2. Implement the private sewer lateral replacement bylaw immediately regardless of current I&I. Use enforcement. Education is a contractor's boondoggle when it comes to asset management. I've lived in many Cities in North America, and nowhere have I seen baby boomer property owners, or any property owners, diapered and burped to the extent they are in the CRD. Well maybe south Florida, but you see how that's going. The free-ridership and public menace of this zero-sum mindset does need some serious public education, spend dollars there. How can affordable housing be a priority when slumlords allow multi million-dollar properties rooves to cave in (120 and 122 Ontario St), laterals to collapse and when gas leaks blow up buildings (266 and 268 Ontario St). One can only hope that when the population becomes majority-renter this generational legacy with be laid bare as a cautionary tale. It is fundamentally unfair to kick this asset management can down the road to the Millennial plus generations. -Meet with Insurance providers, actuaries and Real Estate Professionals re: basement flooding and other property issues, including a by law requirement to sell a structure with intact laterals. It's most important for the CRD and elected officials to understand when Insurance will become unprofitable BEFORE companies leave the area and this becomes another avoidable emergency. -Start a fund with additional taxes levied on buildings without a lateral inspection 10 or less years old. This fund will help pay for the I&I treatment costs, storage costs and other associated costs without penalizing responsible property owners. -Discourage the residential planting of Willows and other trees known to tear up lateral lines and encourage the planting of smaller trees and native shrubs that don't create free-ridership issues with power lines, sewer lines, water lines and the carbon footprint of municipalities that for some crazy reason drive around belching diesel and gumming up traffic whilst collecting perfectly home-compostable leaves in the autumn.

3. I support the amendment to protect the environment from overflows during storms that are increasingly frequent and more severe with climate change effects increasing. It makes sense to separate stormwater systems from sewer systems and to consider using bylaws to require replacement of laterals that have exceeded their service life on private property.

4. Honestly, even though I'm a technically savvy person, I am hard pressed to comment on this plan because it's over my head. I'm honoured to be given this opportunity and thankful for all the very impressive expertise that has gone into creating this plan. My only two concerns are that it does indeed address the problem now and into the future and how much will it increase my tax bill? Gratefully!

5. I suggest that all municipalities and the CRD be encouraged to develop rain gardens (or rainways) wherever possible to divert storm water away from the storm drain system both reducing potential over flow as well as reducing the amount of contaminants getting into streams and waterways. Also it should be recommended for all jurisdictions that properly designed raingardens and pervious surfaces be part of approving all future land and real estate developments, similarly with large building developments that have large roof areas holding cisterns should also be part of the design requirements and where possible the consideration of green roofs to slow down storm runoff. See attached link. https://www.theenergymix.com/newvancouver-rain-garden-reduces-runoff-boosts-public-space/ https://www.cbc.ca/player/play/video/9.6547690

6. From the reading I understand that generally the I and I comes from 3 sources: the CRD maintained pipes, municipal areas that are not wired/suitable for seperate storm/sewer systems and homeowner's pipes/systems. It would appear 1st source is looked after by CRD maintenance, 2nd source will need municipal cooperation/bylaws which leaves 3rd source...homeowner system. Why not offer homeowners a rebate / fee reduction program to entice routine (professional) inspections of home infrastructure ...every 5 years?? Not sure what percentage of I and I would come from homes but assuming that CRD I and I amount is limited/controlled by inspections, one would think that home I and I input could be relatively high. Potential CRD savings on system "fixed/solutions" could help fund a home inspection incentive program??

7. I would like to see plans to address the stormwater going into the Gorge waterway and Colquitt Creek, which is a habitat for salmon and migratory birds. Additionally, The Gorge waterway is place where we swim in the summer, but after heavy brainstorms, it's not possible because the stormwater affects the E. coli levels. I would like to see testing of pollutants in the waterway as well, not just e.coli. I'd also like to see more testing at a variety of locations, including the gorge waterway at multiple locations along the gorge with increase frequency throughout the summer months.

8. I think we should subsidize storm water retention tanks and rain water reuse in residential neighbourhoods. We could make this standardized, similar to in Bermuda, so we have lower water bills, and lower costs for infrastructure.

## Public Inquiry (Email)

Hello,

I understand that there is a proposal being made regarding core area liquid waste and stormwater overflows. It seems that Clover Point is a primary focus, but I'm concerned that other areas may not be receiving enough attention.

Could you clarify if this plan will affect areas like Claremont Hill and the overflow into Elk and Beaver Lake, as well as Cordova Bay? My previous understanding from the CRD's information on septic overflow from Claremont Hill was

that the main issue was agricultural runoff from nearby farms, rather than algae blooms linked to septic overflow. Is this still the case?

Having lived near Elk Lake for over 50 years, I've witnessed the worsening conditions in both lakes, with blue-green algae becoming a persistent problem. Beaver Lake, in particular, never recovered this year. While walking my dogs through the woods, I've noticed a decline in stream health and occasional foamy discharges. I'm aware that many older homes on Claremont Hill were once on septic systems—have these systems all been properly removed?

I am concerned that this issue might be overlooked to avoid the costly removal of old septic fields. Could you please provide me with reports detailing what is leaching into the streams during storm overflows and the current condition of Elk and Beaver Lakes? I would also appreciate any updates on what the CRD is doing to monitor overflow from Claremont and any studies that have been conducted regarding the lakes' declining health.

Thank you, and I look forward to your response.

## First Nations

The following First Nations were sent letters inviting feedback on the proposed amendment during the public engagement process:

- BOḰEĆEN
- Sc'ianew
- Songhees
- Spune'luxutth
- SȾÁUTW_
- W_JOŁEŁP
- W_SÁNEĆ
- W_SIḴEM
- xʷsepsum
- Cowichan
- Halalt
- Lyackson
- Semiahmoo
- Snuneymuxw
- Stz'uminus
- Ts'uubaa-asatx

In addition to this invite, xʷsepsum and Songhees First Nation were invited to participate in the Technical and Community Advisory Committee.

The following First Nations responded to the request for feedback:

- Beecher Bay (Attachment C)
- Tswaout – deferred comments to the Songhees and Esquimalt Nations
- Esquimalt Nation – acknowledged receipt but did not comment
- Penelakut Tribe – deferred comments to the local First Nations

## Next Steps

Feedback collected will be incorporated into a final amendment package. This report will go to the CRD Board for submission to the provincial regulator.

## Attachments

Attachment A – Get Involved: Liquid Waste Management Plan Amendment
Attachment B – Print Ad: Liquid Waste Management Plan Amendment
Attachment C – Letter: Beecher Bay First Nation

Get Involved: [Liquid Waste Management Plan Amendment | Get Involved CRD]




Home / Liquid Waste Management Plan Amendment

## Liquid Waste Management Plan Amendment

Liquid Waste Management plans allow the CRD and local governments to develop community specific solutions for the management of liquid waste, stormwater and environmental protection in accordance with the BC Environmental Management Act.

The Core Area Liquid Waste Management Plan was created for the cities of Victoria, Langford and Colwood, the districts of Oak Bay and Saanich, the Township of Esquimalt and the Town of View Royal. Section 5 of the plan addresses management of inflow and infiltration and control of wastewater overflows. The current Plan was originally approved by the Minister of Environment in 2003 and was last updated with Amendment 12 in 2018.

The CRD is updating Section 5 of the Plan to explain how it will reduce overflows that happen during storms which are expected to occur more than once every five years. The proposed approach of reducing and eliminating overflows during these storm events is intended to be a practical solution that meets regulatory requirements while ensuring long-term environmental protection.

**The feedback period has now closed. Thank you for your comments. Feedback will be incorporated into a final amendment package to the CRD Board for submission to the provincial regulator.**

Information | Comment Form

### Inflow and Infiltration and Wastewater Overflows

Inflow and Infiltration (I&I) occurs when stormwater and groundwater enter sanitary sewer systems. In general, I&I issues are related to improperly cross-connected stormwater collection pipes, and the age of sewer systems, which deteriorate and allow groundwater intrusion into the sewer over time.

I&I becomes a problem in sewer systems by exceeding the capacity of the system to convey and/or treat the high volume of clean rain or groundwater that infiltrates the sewer during wet winter months and rain events. When this capacity is exceeded, the excess flow of mixed stormwater and wastewater overflows to the marine environment at various emergency discharge points. The system is designed to overflow under these conditions to prevent major damage to infrastructure.

### Proposed Updates to the Plan

Print Ad: Liquid Waste Management Plan Amendment

# BEECHER BAY FIRST NATION

Beecher Bay First Nation
4901B East Sooke Rd
Sooke, BC, V9Z 1B6

Phone: 250.478.3535
Fax: 250.478.3585
E-mail: reception@beecherbay.ca

Dec. 19th, 2024

Capital Regional District
Parks, Recreation & Environmental Services
625 Fisgard Street, PO Box 1000

Attn: Glenn Harris

Dear Mr. Harris,

Thank you for your letter dated October 21, 2024, regarding the Core Area Liquid Waste Management Plan Updates.

We have now had an opportunity to review your letter and attached map and understand that the current updates to the Inflow and Infiltration and sanitary sewer overflow systems are not taking place in Sc'ianew's territory. Seeing that you have been working with Esquimalt Nation and Songhees Nation directly, we are comfortable deferring to those Nations in whose territory the work is being done. We appreciate your update and do not require greater depth of engagement at this time.

Overall, Sc'ianew is committed to protecting and promoting a healthy marine environment and would emphasize the importance of robust infrastructure and treatment processes for sewer systems. Of course, infrastructure improvements beyond our lands impact our waters, and Inflow and Infiltration issues and sanitary sewer overflows risk jeopardizing the health of our marine environment. For these reasons, we wish to continue to receive updates from you regarding planning and operations of sewer infrastructure in the region.

More specifically, Sc'ianew is very interested in collaborating with you on this topic. Having strong infrastructure and robust waste treatment is a top priority for our Nation. Please consult with us at the earliest stage of planning, for liquid waste management plan updates in the Westshore area. We should be consulted with deeply, at that time.

Sincerely,

Ruth Sauder
BBFN CAO

Copy: Chief and Council, russchipps@telus.net; traci.bbfncouncil@gmail.com; sheeba@beecherbay.ca
Brian Chatwin, Chatwin Engineering, bricha@chatwinengineering.com
Emily Peiffer, JFK Law, epieffer@jfklaw.ca

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**REPORT TO CORE AREA LIQUID WASTE MANAGEMENT COMMITTEE**
**MEETING OF WEDNESDAY, JULY 23, 2025**

---

**SUBJECT** **Kosapsum Nation Capacity Transfer - Service Agreement Update**

## ISSUE SUMMARY

To provide an update on the transfer of wastewater treatment capacity from the Township of Esquimalt to xʷsepsum (Kosapsum) Nation and the associated updates to Schedule "C" of Bylaw No. 2312, "Liquid Waste Management Core Area and Western Communities Service Establishment Bylaw No. 1, 1995".

## BACKGROUND

On June 24, 2024, the Capital Regional District (CRD) received a letter from Kosapsum Nation requesting an increase in capacity from 0.07 ML/day (MLD) ADWF to 0.14 ML/d ADWF to accommodate their growing needs and development goals in the short term. Kosapsum Nation had reached 86% of its capacity in 2023, nearing maximum allocation.

The process for the transfer of treatment capacity is laid out in Section 9 of Bylaw No. 2312, which allows for a participant to buy treatment capacity from another participant.

In general, the CRD facilitates negotiations between the Transferor and Transferee for the permanent transfer of capacity and will calculate the value of capacity. It is ultimately up to the Transferor and Transferee to agree on a suitable price for both parties.

On September 26, 2024 CRD sent letters to each of the municipal Chief Administrative Officers summarizing Kosapsum Nation's request for additional capacity at the MPWWTP and the process for the transfer of treatment capacity. On October 9, 2024, staff presented a report to the Core Area Liquid Waste Management Committee (the Committee), providing a summary of the request and actions to date.

Of the local government participants that received the letters, only the Township of Esquimalt responded indicating their willingness to provide the requested 0.07 MLD of ADWF allocated flow to the Kosapsum Nation, reducing their allocated capacity from 7.10 MLD to 7.03 MLD. A meeting was held with both parties and the terms of the transfer were negotiated. As agreed by both parties, the transfer took place on June 15, 2025. Table 1 below shows the revised allocations:

**TABLE ONE: ALLOCATION OF DESIGN CAPACITY AS MEASURED BY ADWF**

| Participant Area | Allocated ADWF Capacity (MLD) | % of Total |
|---|---|---|
| Colwood | 4.70 | 4.35% |
| **Esquimalt** | **7.03** | **6.51%** |
| **Kosapsum Nation** | **0.14** | **0.13%** |
| Songhees Nation | 0.66 | 0.61% |
| Langford | 14.12 | 13.07% |
| Oak Bay | 6.62 | 6.13% |
| Saanich | 32.89 | 30.45% |
| Victoria | 38.30 | 35.46% |
| View Royal | 3.54 | 3.28% |
| Total | 108.00 | 100.00% |

By operation of law, Schedule “B” and Schedule “C” of Bylaw No. 2312 (as amended by Bylaw No. 4304) have been updated to reflect the change in allocation and are attached in Appendix A and Appendix B respectively.

## IMPLICATIONS

*Service Delivery Implications*

To date the CRD has received several inquiries about the process to transfer allocated wastewater capacity and the valued cost of that capacity. To date no other formal requests for additional treatment capacity have been received, however it is anticipated as municipalities update their Official Community Plans requests may be received. The following table summarizes the average day used by each participant in 2024 and the change from 2023.

**TABLE TWO: 2024 TREATMENT PLANT CAPACITY SUMMARY**

| Municipality/ Participant | Total Flow Jun+Jul+Aug, 2024 (m3) | ADWF Jun+Jul+Aug, 2024 (ML/day) | Allocated ADWF Design Capacity at WWTP (ML/day) | 2024 % ADWF of Capacity Used | ADWF Jun+Jul+Aug, 2023 (ML/day) | ADWF change in % from 2023 to 2024 |
|---|---|---|---|---|---|---|
| Saanich | 1,945,432 | 21.15 | 32.89 | 64.29% | 20.92 | 1.07 |
| Oak Bay | 523,549 | 5.69 | 6.62 | 85.96% | 5.35 | 6.41 |
| Victoria | 2,719,801 | 29.56 | 38.30 | 77.19% | 27.99 | 5.62 |
| Esquimalt | 417,700 | 4.54 | 7.10 | 63.95% | 4.44 | 2.25 |
| View Royal | 189,087 | 2.06 | 3.54 | 58.06% | 1.96 | 4.60 |
| Colwood | 270,811 | 2.94 | 4.70 | 62.63% | 2.81 | 4.62 |
| Langford | 929,610 | 10.10 | 14.12 | 71.56% | 9.36 | 7.95 |
| Kosapsum Nation | 5,313 | 0.06 | 0.07 | 82.50% | 0.06 | (5.10) |
| Songhees Nation | 46,592 | 0.51 | 0.66 | 76.73% | 0.53 | (5.00) |
| **Core Area Total** | **7,047,895** | **76.61** | **108.00** | **70.93%** | **73.43** | **4.33** |

## CONCLUSION

This report provides the Core Area Liquid Waste Management Committee with an update on the wastewater treatment capacity transfer between xʷsepsum (Kosapsum) Nation and Township of Esquimalt.

## RECOMMENDATION

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

| | |
|---|---|
| Submitted by: | Alicia Fraser, P. Eng., General Manager, Infrastructure and Water Services |
| Concurrence: | Varinia Somosan, CPA, CGA, Acting Chief Financial Officer |
| Concurrence: | Kristen Morley, J.D., Corporate Officer & General Manager, Corporate Services |
| Concurrence: | Ted Robbins, B. Sc., C. Tech., Chief Administrative Officer |

## ATTACHMENT(S)

Appendix A: Schedule “B” of Bylaw No. 2312
Appendix B: Schedule “C” of Bylaw No. 2312

# CRD Core Area Wastewater Service Area Allocated Flow Capacities to Participants

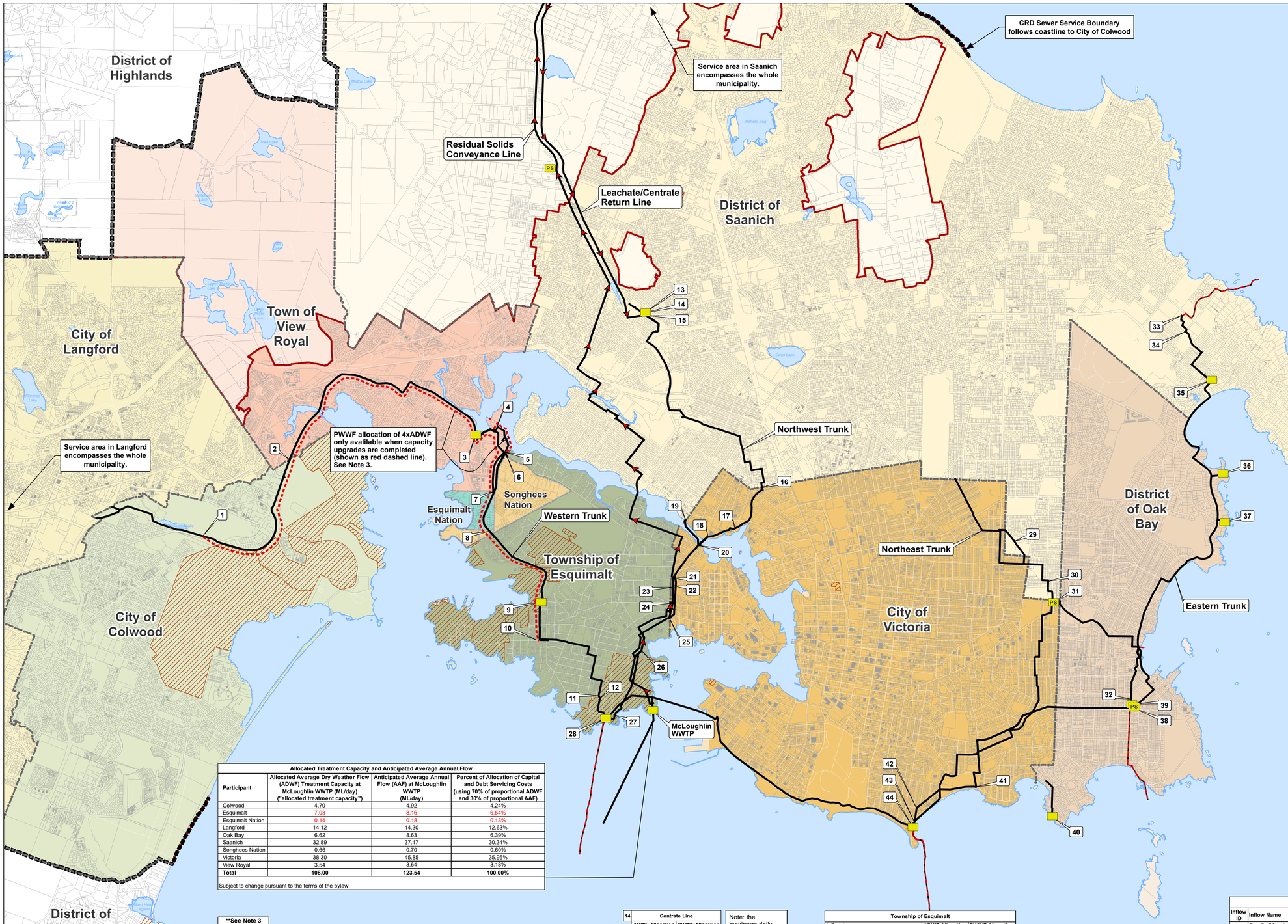
## Schedule B to Bylaw 2312 as Amended by Bylaw 4304

July 2025

Making a difference...together

1:25,000 NAD 1983 UTM Zone 10N

October 2019 | CoreAreaTrunkSewersAllocatedFlowCapacities_ScheduleB.mxd | gis@crd.bc.ca




| Allocated Treatment Capacity and Anticipated Average Annual Flow | | | |
|---|---|---|---|
| **Participant** | **Allocated Average Dry Weather Flow (ADWF) Treatment Capacity at McLoughlin WWTP (ML/day) ("allocated treatment capacity")** | **Anticipated Average Annual Flow (AAF) at McLoughlin WWTP (ML/day)** | **Percent of Allocation of Capital and Debt Servicing Costs (using 70% of proportional ADWF and 30% of proportional AAF)** |
| Colwood | 4.70 | 4.92 | 4.24% |
| Esquimalt | 7.03 | 8.16 | 6.54% |
| Esquimalt Nation | 0.14 | 0.18 | 0.13% |
| Langford | 14.12 | 14.30 | 12.63% |
| Oak Bay | 6.62 | 8.63 | 6.39% |
| Saanich | 32.89 | 37.17 | 30.34% |
| Songhees Nation | 0.66 | 0.70 | 0.60% |
| Victoria | 38.30 | 45.85 | 35.95% |
| View Royal | 3.54 | 3.64 | 3.18% |
| **Total** | **108.00** | **123.54** | **100.00%** |

Subject to change pursuant to the terms of the bylaw.

**See Note 3

| City of Langford | | | |
|---|---|---|---|
| **Inflow ID** | **Inflow Name** | **ADWF Allocation (L/s)** | **PWWF Allocation** (L/s)** |
| 1 | Meaford | 163.5 | 654.0 |
| | Meaford (Colwood) | 0.4 | 1.4 |
| 2 | Parsons | 163.5 | 654.0 |
| 3 | Craigflower PS | 163.5 | 654.0 |
| 28 | Macaulay Point PS | 163.5 | 654.0 |
| | **Total** | **163.5** | **654.0** |
| | | **(14.12 MLD)** | |

| Town of View Royal | | | |
|---|---|---|---|
| **Inflow ID** | **Inflow Name** | **ADWF Allocation (L/s)** | **PWWF Allocation (L/s)** |
| 3 | Craigflower PS | 41.0 | 164.0 |
| 4 | Shoreline Trunk** | 1.6 | 6.4 |
| 28 | Macaulay Point PS | 41.0 | 164.0 |
| | **Total** | **41.0** | **164.0** |
| | | **(3.54 MLD)** | |

| City of Colwood | | | |
|---|---|---|---|
| **Inflow ID** | **Inflow Name** | **ADWF Allocation (L/s)** | **PWWF Allocation** (L/s)** |
| 2 | Parsons | 54.4 | 217.5 |
| 3 | Craigflower PS | 54.4 | 217.5 |
| 28 | Macaulay Point PS | 54.4 | 217.5 |
| | **Total** | **54.4** | **217.5** |
| | | **(4.70 MLD)** | |

| Songhees Nation | | | |
|---|---|---|---|
| **Inflow ID** | **Inflow Name** | **ADWF Allocation (L/s)** | **PWWF Allocation (L/s)** |
| 6 | Songhees Nation | 6.8 | 27.1 |
| 4 | Shoreline Trunk** | 6.8 | 27.1 |
| 3 | Craigflower PS | 6.8 | 27.1 |
| 8 | Maplebank | 0.1 | 0.5 |
| 28 | Macaulay Point PS | 7.3 | 29.3 |
| | **Total** | **7.3** | **29.3** |
| | | **(0.66 MLD)** | |

| 14 Centrate Line | |
|---|---|
| **ADWF Allocation (L/s)** | **PWWF Allocation (L/s)** |
| 45.0 | 45.0 |

| 15 Leachate Line | |
|---|---|
| **ADWF Allocation (L/s)** | **PWWF Allocation (L/s)** |
| 39.2 | 39.2 |

Note: the maximum daily allocations for the Centrate and Leachate Lines are capped at the values noted.

| Esquimalt Nation | | | |
|---|---|---|---|
| **Inflow ID** | **Inflow Name** | **ADWF Allocation (L/s)** | **PWWF Allocation (L/s)** |
| 7 | Esquimalt Nation | 1.6 | 6.5 |
| 4 | Shoreline Trunk** | 1.6 | 6.5 |
| 3 | Craigflower PS | 1.6 | 6.5 |
| 28 | Macaulay Point PS | 1.6 | 6.5 |
| | **Total** | **1.6** | **6.5** |
| | | **(0.14 MLD)** | |

| Township of Esquimalt | | | |
|---|---|---|---|
| **Inflow ID** | **Inflow Name** | **ADWF Allocation (L/s)** | **PWWF Allocation (L/s)** |
| 3 | Craigflower PS | 1.4 | 5.7 |
| 4 | Shoreline Trunk | 1.4 | 5.7 |
| 5 | Esquimalt Panhandle | 1.4 | 5.7 |
| 9a | Lang Cove PS (DND) | 5.8 | 23.1 |
| 9b | Lang Cove PS (Esquimalt) | 9.0 | 35.9 |
| 10 | Dockyard (DND) | 6.7 | 26.8 |
| | Dockyard (Esquimalt) | 4.8 | 19.2 |
| 11 | Kinver | 5.1 | 20.4 |
| 12 | Pooley Place | 0.7 | 2.8 |
| 21 | Devonshire (Esquimalt) | 21.0 | 83.9 |
| | Devonshire (Songhees Nation) | 0.4 | 1.5 |
| 24 | Wilson (Esquimalt) | 4.2 | 16.6 |
| | Wilson (Victoria) | 0.1 | 0.4 |
| 26 | Head (DND) | 2.9 | 11.4 |
| | Head (Esquimalt) | 16.5 | 66.1 |
| 27 | Anson (DND) | 2.8 | 11.2 |
| 28 | Macaulay Point PS | 81.4 | 325.6 |
| | **Total** | **81.4** | **325.6** |
| | | **(7.03 MLD)** | |

| District of Saanich | | | |
|---|---|---|---|
| **Inflow ID** | **Inflow Name** | **ADWF Allocation (L/s)** | **PWWF Allocation (L/s)** |
| 13 | Marigold PS | 152.7 | 610.9 |
| 16 | City Boundary | 73.2 | 292.7 |
| 19 | Harriet | 37.8 | 151.1 |
| 28 | Macaulay Point PS | 266.7 | 1066.8 |
| 29 | Townley | 2.0 | 8.2 |
| 30 | Haultain | 6.6 | 26.3 |
| 33 | Arbutus | 81.9 | 327.7 |
| 34 | Haro - Uvic | 9.2 | 36.7 |
| 35 | Penrhyn LS (Saanich) | 10.7 | 42.9 |
| | Penrhyn LS (Oak Bay) | 0.1 | 0.2 |
| 44 | Clover Point PS | 113.9 | 455.7 |
| | **Total** | **380.6** | **1522.5** |
| | | **(32.89 MLD)** | |

| City of Victoria | | | |
|---|---|---|---|
| **Inflow ID** | **Inflow Name** | **ADWF Allocation (L/s)** | **PWWF Allocation (L/s)** |
| 17 | Cecelia (Victoria) | 33.5 | 133.9 |
| | Cecelia (Saanich) | 2.8 | 11.0 |
| 18 | Chapman and Gorge (Victoria) | 3.9 | 15.6 |
| | Chapman and Gorge (Saanich) | 0.2 | 1.0 |
| 20 | Selkirk (Victoria) | 2.6 | 10.5 |
| | Selkirk (Esquimalt) | 0.6 | 2.3 |
| 22 | Langford -Vic West (Victoria) | 1.9 | 7.5 |
| | Langford -Vic West (Esquimalt) | 0.3 | 1.3 |
| 23 | Hereward | 22.1 | 88.2 |
| 25 | Sea Terrace (Victoria) | 3.6 | 14.5 |
| | Sea Terrace (Esquimalt) | 0.2 | 0.8 |
| 28 | Macaulay Point PS | 67.7 | 270.6 |
| 31 | Trent Net (Victoria) | 81.5 | 325.9 |
| | Trent Net (Saanich) | 2.9 | 11.5 |
| 41 | Hollywood (Victoria) | 4.0 | 15.9 |
| | Hollywood (Oak Bay) | 2.3 | 9.3 |
| 42 | Olive | 266.0 | 1064.1 |
| 43 | Clover Net | 22.2 | 88.9 |
| 44 | Clover Point PS | 375.6 | 1502.4 |
| | **Total** | **443.3** | **1773.0** |
| | | **(38.30 MLD)** | |

| District of Oak Bay | | | |
|---|---|---|---|
| **Inflow ID** | **Inflow Name** | **ADWF Allocation (L/s)** | **PWWF Allocation (L/s)** |
| 32 | Windsor | 5.0 | 19.9 |
| 36 | Humber | 7.1 | 28.4 |
| 37 | Rutland | 4.4 | 17.8 |
| 38 | Currie Net (Oak Bay) | 38.5 | 154.2 |
| | Currie Net (Victoria) | 1.9 | 7.4 |
| | Currie Net (Saanich) | 0.6 | 2.4 |
| 39 | Currie Lift Station (Oak Bay) | 19.2 | 76.7 |
| | Currie Lift Station (Victoria) | 0.03 | 0.13 |
| 40 | Harling Point PS | 2.3 | 9.3 |
| 44 | Clover Point PS | 76.6 | 306.5 |
| | **Total** | **76.6** | **306.5** |
| | | **(6.62 MLD)** | |

Notes:

1. ADWF = Average Dry Weather Flow (June 1 to August 31).
PWWF = Peak Wet Weather Flow (max flow over a 24-hour period).
L/s = Litres per second. MLD = Mega Litres per day.

2. The ADWF Allocations are based the Core Area Wastewater Treatment Program where the total ADWF plant capacity of 108 MLD was allocated out to each participant based on their requested capacity.

3. PWWF is based on 4xADWF which the maximum flow allowed at McLoughlin WWTP as approved by the Ministry of Environment. These allocations will be available when the upgrades identified on the map are completed. Capacity upgrade at the Craigflower Pump Station can be achieved by forcemain twinning. Pump upgrades are not required to meet the PWWF allocation.

4. Total peak flows may not add cumulatively at downstream locations due to system attenuation (population-based on Harmon peaking factor).

5. Inflow allocations may not add cumulatively to participant totals due to inter-municipal cross boundary connections. Inter-municipal flows are not measured; they are estimated as shown in blue text in the tables.

6. Location and extent of future CRD sewers and facilities as depicted are preliminary and may change in accordance with the final system design.

7. Allocations are available up until the capacity at McLoughlin WWTP has been reached. New infrastructure and reallocation of flows will then be required. Allocations can be transferred amongst participants pursuant to the terms of the bylaw.

8. Note some infrastructure is currently being constructed as part of the Core Area Wastewater Treatment Project but is shown as existing on this map.

- Municipal Boundary
- CRD Growth Boundary
- CRD Core Area Sewer Service Boundary
- DND Areas
- Existing Sewer Main
- Overflow/Outfall
- Future Sewer Main
- 1 Wastewater Inflow Allotment at Indicated Location (Inflow ID)
- TP Treatment Plant
- RT Residuals Treatment Facility
- PS Pump Station

SCHEDULE "C"

# *ALLOCATION OF WASTEWATER FLOW AND COST APPORTIONMENT*

## ALLOCATION OF DESIGN CAPACITY

The treatment capacity of the wastewater treatment plant is 108 ML/day measured on the basis of Average Dry Weather Flows (ADWF). Design capacity is allocated to participants as shown in Table One, subject to adjustment for transfer of capacity in accordance with this bylaw.

### TABLE ONE: ALLOCATION OF DESIGN CAPACITY AS MEASURED BY ADWF

| | Allocated Treatment Capacity in ADWF (ML/day) | % of Total |
|---|---|---|
| Colwood | 4.70 | 4.35% |
| Esquimalt | 7.03 | 6.51% |
| Esquimalt Nation | 0.14 | 0.13% |
| Langford | 14.12 | 13.08% |
| Oak Bay | 6.62 | 6.13% |
| Saanich | 32.89 | 30.45% |
| Songhees Nation | 0.66 | 0.61% |
| Victoria | 38.30 | 35.46% |
| View Royal | 3.54 | 3.28% |
| Total | 108.00 | 100.00% |

Anticipated flow in terms of AAF are derived in the manner shown in Table Two. Table Three shows the percentage allocation of capital and debt servicing costs calculated from the % allocation of design capacity defined in terms of ADWF and AAF.

### TABLE TWO: CONVERSION OF ADWF DESIGN CAPACITY INTO AAF

| | ADWF (ML/day) | Conversion Factor * | AAF (ML/day) | % of Total |
|---|---|---|---|---|
| Colwood | 4.70 | 1.046 | 4.92 | 3.98% |
| Esquimalt | 7.03 | 1.161 | 8.16 | 6.61% |
| Esquimalt Nation | 0.14 | 1.286 | 0.18 | 0.15% |
| Langford | 14.12 | 1.013 | 14.30 | 11.58% |
| Oak Bay | 6.62 | 1.304 | 8.63 | 6.98% |
| Saanich | 32.89 | 1.130 | 37.17 | 30.09% |
| Songhees Nation | 0.66 | 1.061 | 0.70 | 0.56% |
| Victoria | 38.30 | 1.197 | 45.85 | 37.11% |
| View Royal | 3.54 | 1.028 | 3.64 | 2.95% |
| Total | 108.00 | | 123.54 | 100.00% |

*The conversion factor was calculated using measured ADWF and AAF in year 2012.

**APPENDIX B**

**SCHEDULE "C"**

## APPORTIONMENT OF CAPITAL AND DEBT SERVICING COSTS

### TABLE THREE: PERCENTAGE ALLOCATION OF CAPITAL AND DEBT SERVICING COSTS

| | % Distribution of ADWF | % Distribution of AAF | % Allocation of Debt Servicing Costs |
|---|---|---|---|
| *Weighting factor* | *0.7* | *0.3* | |
| Colwood | 4.35% | 3.98% | 4.24% |
| Esquimalt | 6.51% | 6.61% | 6.54% |
| Esquimalt Nation | 0.13% | 0.15% | 0.13% |
| Langford | 13.08% | 11.58% | 12.63% |
| Oak Bay | 6.13% | 6.98% | 6.39% |
| Saanich | 30.45% | 30.09% | 30.34% |
| Songhees Nation | 0.61% | 0.56% | 0.60% |
| Victoria | 35.46% | 37.11% | 35.96% |
| View Royal | 3.28% | 2.95% | 3.18% |
| Total | 100.00% | 100.00% | 100.00% |

All calculations subject to change based on transfer of treatment capacity pursuant to the terms of this bylaw.

Making a difference...together

**REPORT TO CORE AREA LIQUID WASTE MANAGEMENT COMMITTEE**
**MEETING OF WEDNESDAY, JULY 23, 2025**

---

**SUBJECT** **Core Area Liquid Waste Management Committee 2025 Mid-Year Capital Projects and Operations Update**

## ISSUE SUMMARY

To provide a mid-year update on the Core Area Wastewater System capital program and operations.

## BACKGROUND

### Capital Program Update

The Core Area Wastewater (CAWW) capital program reflects the planned capital spending for the next five years and forms part of the annual service budget that is approved in March each year by the Capital Regional District (CRD) Board. In 2025, there were 34 capital projects identified, some of which are programs containing several sub-projects. The approved 2025 budget is $16.8 million. The status of the major projects progressing in 2025 is detailed in Appendix A. Additional smaller projects will also progress based on criticality and resourcing.

### Operations Update

**Odour**
Preventative maintenance tasks and system upgrades with a higher risk of odour emissions are scheduled outside of seasonally warmer periods to reduce community impacts. Standard operating procedures include a review of factors such as wind, temperature, and tide patterns to reduce the risk of odour emission beyond the facility boundary during maintenance activities.

The backwash tank cleaning project completed this spring was the largest maintenance project conducted since the construction of the Plant. This project took place over a 21-day period and utilized all the administrative improvements developed over the last three years to mitigate the odour impacts. During this project window, two odour complaints were received, and only one was likely attributed to the maintenance work at McLoughlin Point Wastewater Treatment Plant (MPWWTP).

| Year | Number of days complaints received | Number of complaints | Number of unique complainants |
|---|---|---|---|
| 2022 | 85 | 101 | 29 |
| 2023 | 116 | 151 | 46 |
| 2024 | 47 | 73 | 33 |
| To Date 2025 | 24 | 34 | 9 |

When complaints are received, each is investigated to establish the nature of the odour. Following the commissioning of the MPWWTP in 2021, odour complaints have continued to trend down with 149 complaints in 2023 and 73 in 2024. Based on the 34 complaints received by mid-July, we expect this trend to continue for 2025. System upgrades (listed below) scheduled for the fall and winter of 2025 should also positively impact results for 2026.

**2025 System Upgrades**

Infrastructure work scheduled in 2025, to improve the system performance and reduce odour emissions, includes:

- Secondary Odour Control System Upgrades: Reduced moisture through the pre-filter improves odour elimination and extends the lifespan of the product and reduces maintenance activities. The contractor has been selected, and project completion is planned by December 2025.
- Densadeg No. 1 Scum Removal System: Improved scum removal eliminates an odour source and reduces the required frequency of Plant Maintenance. Project management by CRD, with equipment scheduled for delivery in October 2025 and construction to be completed by December 2025.
- MBBR Odour Extraction Ducting Improvements: The addition of mist eliminators and increasing the duct diameter will improve odour extraction from the MBBR tank. Parts are currently being manufactured with an installation date in Q4 2025.
- Dirty Backwash Tank Odour Treatment System Upgrade: Upgrading the current passive system to a larger fan unit. A purchase order has been issued to the supplier with an installation date in Q4 2025.

**Compliance**

Compliance monitoring is performed to ensure regulatory requirements are being met and reported.

The table below is a summary of non-compliance events to the end of June 2025:

| Month | # of times out of Compliance | Reasons for Non-Compliance |
|---|---|---|
| January | 0 | In compliance |
| February | 2 | Equipment error and a discharge of blended effluent due to a transformer fault |
| March | 1 | Suspected testing error |
| April | 1 | Wastewater biology recovery following a 21-day shutdown |
| May | 0 | In compliance |
| June | 1 | Wastewater biology recovery following a 21-day shutdown |
| Total to end of June | 5 | 5 Non-compliance events due to; two equipment faults, one testing error, and two wastewater biology recovery events |

The non-compliance events at the end of April and the start of June were both due to the Plant having to restart after a 21-day shutdown for maintenance. The wastewater biology requires some time to recover and reestablish itself to operate at regular levels.

In comparison, there were eight non-compliance events in 2024 through the end of May of 2024. These events are similar in nature regarding the type of non-compliance.

**Budget**
Aside from the noted ongoing odour system improvements and compliance events, the remainder of the system has had minimal unexpected operational issues to date in 2025. The operating expenditures are in alignment with the budget, with the exception of the $1.6 million amendment at the end of June to account for the mixing and trucking of Biosolids from the Residual Treatment Facility (RTF).

## CONCLUSION

This report provides the Core Area Liquid Waste Management Committee with updates on both ongoing capital programs for the Core Area Wastewater System and the Core Area Wastewater Treatment Project. In addition, information has been provided regarding operational issues and non-compliance events and budget anomalies.

## RECOMMENDATION

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

| | |
|---|---|
| Submitted by: | Joseph Marr, P. Eng., Senior Manager, Infrastructure Engineering |
| Submitted by: | Jason Dales, B. SC., WD IV, Senior Manager, Wastewater Infrastructure Operations |
| Concurrence: | Alicia Fraser, P. Eng., General Manager, Infrastructure and Water Services |
| Concurrence: | Ted Robbins, B. Sc., C. Tech., Chief Administrative Officer |

## ATTACHMENT(S)

Appendix A: Core Area Wastewater Capital Program – Current Status

**APPENDIX A**

**Core Area Wastewater Capital Program – Current Status**

| Project Number | Project Title | Total Budget | Target Schedule | Notes |
|---|---|---|---|---|
| 21-01 | Lang Cove Electrical and Building Upgrades | $1,200,000 | Complete Electrical Construction – Q2 2026<br><br>Complete Other Building Works to be initiated in 2026 and proceed through 2027 | Construction Contract has been awarded for electrical works for combined projects 21-01, 21-02 & 21-03. Electrical and controls upgrades are underway with Currie PS set to be complete in early Q3 2025 and Lang Cove by end of 2025. Marigold requires BCH service upgrades and other works and some scope will need to be deferred until the 2026 dry weather window. Additional building upgrades (include roof work) postponed to separate contract, after electrical work is complete. Combined Contract Value $2,914,282. |
| 21-02 | Marigold Electrical and Building Upgrades | $5,850,000 | | |
| 21-03 | Currie Major Electrical and Seismic Upgrades | $2,350,000 | | |
| 21-05 | Harling PS – Complete Replacement | $2,500,000 | Complete Design – Q1 2025<br><br>Construction Tendering – Q3 2025 | Design has been completed and package is tender ready to proceed in Q3 2025. |
| 21-06 | Shoreline Trunk Sewer Upgrade | $3,400,000 | Complete Preliminary Design Phase – Q2 2024 Commence Detailed Design in Q3 2025 | Options analysis and preliminary designs were delivered as a package for 21-06, 21-07 & 21-13.<br><br>RFP awarded for detailed design to start in Q3 2025. Shoreline Trunk to start construction in 2026, Craigflower FM in 2027 and Western Trunk in 2028. |
| 21-07 | Western Trunk Sewer Twinning | $25,000,000 | | |
| 21-13 | Craigflower Force Main Twinning | $20,655,000 | | |
| 21-09 | Bowker Sewer Rehabilitation Ph1 | $8,600,000 | Complete | Contract is Substantially Complete and Warranty Period has now passed without issue. |
| 21-11 | Manhole Repairs and Replacements | $3,600,000 | Design – Q3, Q4 2025 | Contract awarded to replace one urgent MH in Q3 2025. Designs of the remaining MHs and the Grit Chamber is progressing with construction to commence in 2026. |
| 24-11 | Western Trunk Grit Chamber Repairs | $3,500,000 | | |
| 24-10 | East Coast Interceptor and Bowker Sewer Rehab Ph 2 | $8,000,000 | Complete | Contract is now Substantially Complete and within the Warranty Period. |

**APPENDIX A**

| Project Number | Project Title | Total Budget | Target Schedule | Notes |
|---|---|---|---|---|
| 21-12 | Gorge Siphon Inlet Chamber Upgrade | $3,500,000 | Construction – Q3 2025 | Construction has commenced in Q2/Q3 2025. |
| 21-15, 21-16, 21-17, 21-19 | Meter Replacements (Parsons, Esquimalt Nation, Selkirk, Gorge & Chapman) | $1,700,000 (combined) | Complete Construction Q3 2025 | Parsons, Esquimalt Nation, and Selkirk meters are complete. Gorge/Chapman will be complete at end of Q3 2025. |
| 21-27 | New Infrastructure Optimization | $500,000 | Ongoing | Ongoing efforts for ongoing optimization improvements to new infrastructure. 2025 items being explored include operational adjustments to fine screen operations at Macaulay Point headworks and pump station. |
| 23-08 | Core Area Process and Mechanical Upgrades | $800,000 | Ongoing | Annual Provisional Account for smaller scale, ongoing improvements. 2025 work includes: secondary odour control system mist eliminator upgrade; installation of a mixing pump in residual solids pump station #2; and WWTP Disc Filter shear hub improvements. |
| 23-09 | Core Area Safety and Security Upgrades | $600,000 | Ongoing | Annual Provisional Account for smaller scale safety and security upgrades. 2025 work includes breezeway access hatch replacement and safety railing upgrades. |

Project Numbers refer to project numbers from the 2025 Capital Plan. The list focuses on the most notable project efforts underway but is not comprehensive of all ongoing capital project efforts.