Capital Regional District

625 Fisgard St.,
Victoria, BC V8W 1R7

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

Wednesday, March 23, 2022 | **1:30 PM** | **6th Floor Boardroom, 625 Fisgard Street, Victoria, BC V8W 1R7**

D. Blackwell (Chair), L. Seaton (Vice-Chair), S. Brice, B. Desjardins, F. Haynes, L. Helps, B. Isitt, J. Loveday, R. Martin, R. Mersereau, K. Murdoch, C. Plant, D. Screech, N. Taylor, G. Young

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

1. Territorial Acknowledgement

2. Approval of Agenda

3. Adoption of Minutes

3.1. 22-195 Minutes of the July 28, 2021 Core Area Liquid Waste Management Committee Meeting

Recommendation: That the minutes of the Core Area Liquid Waste Management Committee meeting of July 28, 2021 be adopted as circulated.

Attachments: Minutes - July 28, 2021

3.2. 22-196 Minutes of the October 13, 2021 Core Area Liquid Waste Management Committee Meeting

Recommendation: That the minutes of the Core Area Liquid Waste Management Committee meeting of October 13, 2021 be adopted as circulated.

Attachments: Minutes - October 13, 2021

4. Chair's Remarks

5. Presentations/Delegations

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

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

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

6. Committee Business

6.1. 22-049 2022 Core Area Liquid Waste Management Committee Terms of Reference

Recommendation: That the Core Area Liquid Waste Management Committee receive the 2022 Terms of Reference attached at Appendix A.

Attachments: Staff Report: 2022 CALWMC Terms of Reference

Appendix A: 2022 CALWMC Terms of Reference

Appendix B: 2022 CALWMC Terms of Reference - Redlined

6.2. 22-181 Overview of Rainfall Intensity-Duration-Frequency Curves

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

Attachments: Staff Report: Overview of Rainfall Intensity-Duration-Frequency Curves

6.3. 22-182 Biosolids Management and Planning Update

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

Attachments: Staff Report: Biosolids Management and Planning Update

Appendix A: CRD Wastewater Treatment - Biosolids Production Report

6.4. 22-186 Core Area Wastewater Treatment Plant Capacity Update

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

Attachments: Staff Report: Core Area Wastewater Treatment Plant Capacity Update

Appendix A: ADWF Trend for past 10 years

Appendix B: Example Monthly Wastewater Flow Report

7. Notice(s) of Motion

8. New Business

9. Adjournment

The next meeting is May 25, 2022.

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

Meeting Minutes

Core Area Liquid Waste Management Committee

Wednesday, July 28, 2021 **1:30 PM** **6th Floor Boardroom**
625 Fisgard Street
Victoria, BC V8W 1R7

PRESENT
Directors: D. Blackwell (Chair), H. Braithwaite (for K. Murdoch) (EP), S. Brice, M. Brame (for B. Desjardins) (EP), F. Haynes, L. Helps, B. Isitt (1:36 pm) (EP), J. Loveday, R. Martin (EP), R. Mersereau (EP), C. Plant, N. Taylor, G. Young

Staff: B. Lapham, Chief Administrative Officer; L. Hutcheson, General Manager, Parks and Environmental Services; T. Robbins, General Manager, Integrated Water Services; M. Lagoa, Deputy Corporate Officer; S. Orr, Senior Committee Clerk (Recorder)

EP - Electronic Participation

Regrets: B. Desjardins, K. Murdoch, L. Seaton, D. Screech

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

1. Territorial Acknowledgement

The Chair provided the Territorial Acknowledgement.

2. Approval of Agenda

MOVED by Director Helps, SECONDED by Director Brice,
That the agenda for the July 28, 2021 Core Area Liquid Waste Management Committee meeting be approved.
CARRIED

3. Adoption of Minutes

3.1. 21-271 Minutes of the January 27, 2021 meeting.

MOVED by Director Taylor, SECONDED by Director Brice,
That the minutes of the Core Area Liquid Waste Management Committee meeting of January 27, 2021 be adopted as circulated.
CARRIED

4. Report of the Chair

There were no Chair's remarks.

5. Presentations/Delegations

There were no presentations or delegations.

6. Committee Business

6.1. 21-562 Residuals Treatment Facility - Bylaw No. 4414 - Other Municipal Solids Tipping Fees and Charges Bylaw No. 1, 2021

L. Hutcheson spoke to Item 6.1.

Discussion ensued regarding:
- Residuals cost
- Capital recovery
- Rate formula
- Out of region capacity
- Impacts of population density
- Projected growth

MOVED by Director Plant, SECONDED by Director Brice,
The Core Area Liquid Waste Management Committee recommends to the Capital Regional District Board:
1. That CRD Bylaw No. 4414, "Other Municipal Solids Tipping Fees and Charges Bylaw No. 1, 2021", be introduced and read a first, second, and third time; and
2. That CRD Bylaw No. 4414 be adopted.
CARRIED

6.2. 21-198 Core Area Wastewater System Commissioning and Operations Update and Construction Completion Status Report

T. Robbins spoke to Item 6.2.

Discussion ensued regarding:
- Odour control measures and reporting
- Outstanding work
- Tank lid maintenance
- Digester upset
- Treatment plant conveyance system
- Processing of biosolids
- Canada P3 Canada Fund
- Risk of funding eligibility
- Clover pump station vegetation
- Public communication and website

The Committee thanked staff for their work.

Director Mersereau left the meeting at 2:01 pm.

MOVED by Director Haynes, SECONDED by Director Brice,
The Core Area Liquid Waste Management Committee recommends to the Capital Regional District Board:
That this report be received for information.
CARRIED

7. Notice(s) of Motion

There was no notice of motion.

8. New Business

There was no new business.

9. Adjournment

MOVED by Director Brice, SECONDED by Director Haynes,
That the July 28, 2021 Core Area Liquid Waste Management Committee meeting be adjourned at 2:18 pm.
CARRIED

_____
CHAIR

_____
RECORDER

Meeting Minutes

Core Area Liquid Waste Management Committee

Wednesday, October 13, 2021 | **9:30 AM** | **6th Floor Boardroom, 625 Fisgard Street, Victoria, BC V8W 1R7**

Special

PRESENT
Directors: D. Blackwell (Chair), L. Seaton (Vice-Chair) (EP), M. Alto (for L. Helps) (EP), S. Brice, B. Desjardins (EP), J. Brownoff (for F. Haynes) (EP), B. Isitt (EP), D. Kobayashi (for R. Martin) (EP), J. Loveday, R. Mersereau, K. Murdoch (EP), C.Plant, D. Screech (EP), N. Taylor (9:37 am), G. Young

Staff: R. Lapham, Chief Administrative Officer; Nelson Chan, Chief Financial Officer; L. Hutcheson, General Manager, Parks and Environmental Services; T. Robbins, General Manager, Integrated Water Services; G. Harris, Senior Manager, Environment Protection; S. May, Senior Manager, Senior Manager Environmental Engineering (EP); M. McCrank, Senior Manager, Wastewater Infrastructure Operations; M. Lagoa, Deputy Corporate Officer; S. Orr, Senior Committee Clerk (Recorder)

EP - Electronic Participation

Regrets: F. Haynes, L. Helps, R. Martin

The meeting was called to order at 9:31 am

1. Territorial Acknowledgement

Director Loveday provided a Territorial Acknowledgement.

2. Approval of Agenda

MOVED by Director Brice, SECONDED by Director Loveday,
That the agenda for the October 13, 2021 Core Area Liquid Waste Management Committee meeting be approved.
CARRIED

3. Presentations/Delegations

There were no presentations or delegations.

4. Special Meeting Matters

4.1. 21-772 2022 Service Planning - Wastewater

T. Robbins spoke to Item 4.1.

Discussion ensued regarding:
- Staffing
- Operating and maintenance costs

MOVED by Alternate Director Alto, SECONDED by Director Brice,
That the Core Area Liquid Waste Management Committee recommends the Committee of the Whole recommend to the Capital Regional District Board:
That Appendix A, Community Need Summary - Wastewater be approved as presented and form the basis of the 2022-2026 Financial Plan.
CARRIED

4.2. 21-763 Core Area Liquid Waste Management Service - 2022 Operating and Capital Budget

T. Robbins spoke to Item 4.2.

Discussion ensued regarding:
- Operating costs compared to other facilities
- Regulatory requirements for disinfection
- Reserve fund contributions
- Long term indexing
- Capacity usage of the Saanich Peninsula Wastewater service

MOVED by Director Plant, SECONDED by Director Loveday,
That the Core Area Liquid Waste Management Committee recommends that the Committee of the Whole recommends that Capital Regional District Board:
1. Review and approve the 2022 Core Area Liquid Waste Management Service operating and capital budgets as presented; and
2. Direct staff to balance the 2021 actual revenue and expenses on the transfer to the operating, equipment, and capital replacement reserves.
CARRIED

4.3. 21-773 Core Area Inflow & Infiltration Program - 2021 Summary

S. May spoke to Item 4.3.

Discussion ensued regarding:
- Clarity regarding storm events
- Inflow and infiltration monitoring and enforcement
- Future reporting on calculation of return period for wet weather events

MOVED by Director Brice, SECONDED by Director Loveday,
That the Core Area Liquid Waste Management Committee recommends to the Capital Regional District Board:
That this report be received for information
CARRIED

4.4. 21-783 Core Area Wastewater Treatment Project Closeout

T. Robbins spoke to Item 4.4.

Discussion ensued regarding:
- Program fund reserve benefits
- Staffing costs

MOVED by Director Mersereau, SECONDED by Director Brice,
The Core Area Liquid Waste Management Committee recommends to the Capital Regional District Board:
That Core Area Wastewater Treatment Project Closeout Report be received for information.
CARRIED

5. Adjournment

MOVED by Director Brice, SECONDED by Director Mersereau,
That the October 13, 2021 Core Area Liquid Waste Management Committee meeting be adjourned at 10:17 am.
CARRIED

_____
CHAIR

_____
RECORDER

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IWS 22-01

REPORT TO CORE AREA LIQUID WASTE MANAGEMENT COMMITTEE
MEETING OF WEDNESDAY, MARCH 23, 2022

SUBJECT **2022 Core Area Liquid Waste Management Committee Revised Terms of Reference**

ISSUE SUMMARY

This report is to provide the 2022 Core Area Liquid Waste Management Committee (Committee) Revised Terms of Reference for the Committee's information.

BACKGROUND

Under the *Local Government Act* and the Capital Regional District (CRD) Board Procedures Bylaw, the CRD Board Chair has the authority to establish standing committees and appoint members to provide advice and recommendations to the Board.

On December 8, 2021, the CRD Board approved the 2022 Terms of Reference for standing committees. Terms of Reference (TOR) serve to clarify the mandate, responsibilities and procedures of standing committees and provide a point of reference and guidance for the Committees and members.

Housekeeping updates were made to the Committee's previous TOR (Appendix A) to reflect the dissolution of the Project Board. A redlined copy of the 2022 Core Area Liquid Waste Management Committee TOR is attached as Appendix B.

The TOR are being provided for the Committee's information. Any additional revisions to the TOR will require ratification by the Board.

CONCLUSION

Terms of Reference serve to clarify the mandate, responsibilities and procedures of committees and provide a point of reference and guidance for the committees and their members.

RECOMMENDATION

That the Core Area Liquid Waste Management Committee receive the 2022 Terms of Reference attached at Appendix A.

Submitted by:	Ted Robbins, B.Sc., C.Tech., General Manager, Integrated Water Services
Concurrence:	Larisa Hutcheson, P.Eng., General Manager, Parks & Environmental Services
Concurrence:	Robert Lapham, MCIP, RPP, Chief Administrative Officer

ATTACHMENTS

Appendix A: 2022 Core Area Liquid Waste Management Committee Terms of Reference
Appendix B: 2022 Core Area Liquid Waste Management Committee Terms of Reference (Redlined)

Terms of Reference

CORE AREA LIQUID WASTE MANAGEMENT COMMITTEE

PREAMBLE

The Capital Regional District (CRD) Core Area Liquid Waste Management Committee (CALWMC) is a standing committee established by the CRD Board and will oversee and make recommendations to the Board regarding the Core Area Liquid Waste Management Plan and certain aspects of the Core Area Wastewater Treatment Project (CAWTP).

The Committee's official name is to be:

Core Area Liquid Waste Management Committee

1.0 PURPOSE

a) The mandate of the Committee is to oversee and make recommendations to the Board regarding the:

   i. Administration and regulatory reporting for the Core Area Liquid Waste Management Plan

   ii. Core area trunk sewers and sewage disposal systems

b) The Committee will act as the steering committee of the Technical and Community Advisory Committee, as outlined in Appendix A.

2.0 ESTABLISHMENT AND AUTHORITY

a) The Committee will make recommendations to the Board for consideration.

b) The Board Chair will appoint the Committee Chair, Vice Chair and Committee members annually.

3.0 COMPOSITION

a) The membership is comprised of all directors on the CRD Board from the following municipalities that are participants in the Core Area Liquid Waste Management Plan:

- Colwood
- Esquimalt
- Langford
- Oak Bay
- Saanich

- Victoria
- View Royal
- An elected representative and alternate from each of the Songhees Nation and Esquimalt Nation Councils (Board Procedures Bylaw No. 3828)

b) All Board members are permitted to participate in standing committee meetings, but not vote, in accordance with the CRD Board Procedures Bylaw; and

c) First Nation members are permitted to participate in standing committee meetings at their pleasure, in accordance with the CRD Procedures Bylaw, where the Nation has an interest in matters being considered by the committee.

4.0 PROCEDURES

a) The Committee shall meet quarterly and have special meetings as required at the call of the Committee Chair;

b) The agenda will be finalized in consultation between staff and the Committee Chair and any Committee member may make a request to the Chair to place a matter on the agenda through the Notice of Motion process;

c) With the approval of the Committee Chair and Board Chair, Committee matters of an urgent or time sensitive nature may be forwarded directly to the Board for consideration

d) A quorum is a majority of the Committee membership and is required to conduct Committee business

5.0 RESOURCES AND SUPPORT

a) The General Manager, Integrated Water Services and General Manager, Parks & Environmental Services will act as a liaison to the Committee with support from other departments, as required; and

b) Minutes and agendas are prepared and distributed by the Corporate Services Department.

Approved by CRD Board December 8, 2021

APPENDIX A

STEERING THE TECHNICAL AND COMMUNITY ADVISORY COMMITTEE CORE AREA AND WEST SHORE SEWAGE TREATMENT

In accordance with the Terms of Reference of the Technical and Community Advisory Committee Core Area and West Shore Sewage Treatment (TCAC) approved by the Capital Regional District Board (CRD), August 14, 2013, the Core Area Liquid Waste Management Committee (CALWMC) will steer the TCAC as follows:

- Make recommendations to the CRD Board to appoint TCAC members
- Make requests to TCAC for appropriate technical and community consultation advice and input in order to facilitate informed decision-making in a variety of CAWTP matters that have not been delegated to the CAWT Project Board
- Dissolve the TCAC at the end of the planning stage of the Core Area and West Shore sewage treatment project or at a time determined by the CALWMC

CORE AREA LIQUID WASTE MANAGEMENT COMMITTEE

PREAMBLE

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The Committee's official name is to be:

Core Area Liquid Waste Management Committee

1.0 PURPOSE

a) The mandate of the Committee is to oversee and make recommendations to the Board regarding the:

i. Administration and regulatory reporting for the Core Area Liquid Waste Management Plan

ii. Core area trunk sewers and sewage disposal systems

~~iii. Receipt of monthly updates from the Project Board and to monitor ongoing budget and risks.~~

~~b) The administration of the CAWTP has been delegated to the Core Area Wastewater Treatment Project Board (the "Project Board").~~

b) ~~c)~~ The Committee will act as the steering committee of the Technical and Community Advisory Committee, as outlined in Appendix A.

2.0 ESTABLISHMENT AND AUTHORITY

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5.0 RESOURCES AND SUPPORT

a) The General Manager, Integrated Water Services and General Manager, Parks & Environmental Services will act as a liaison to the Committee with support from other departments, as required; and

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Approved by CRD Board _____

APPENDIX A

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- Dissolve the TCAC at the end of the planning stage of the Core Area and West Shore sewage treatment project or at a time determined by the CALWMC

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EFE 22-08

REPORT TO CORE AREA LIQUID WASTE MANAGEMENT COMMITTEE
MEETING OF WEDNESDAY, MARCH 23, 2022

SUBJECT **Overview of Rainfall Intensity-Duration-Frequency Curves**

ISSUE

To provide an overview of rainfall Intensity-Duration-Frequency (IDF) curves, as requested by the Core Area Liquid Waste Management Committee at its October 13, 2021 meeting.

BACKGROUND

Historical Intensity-Duration-Frequency (IDF) curves are graphical tools that describe the likelihood of a range of extreme rainfall events. They are used by water resource managers, engineers, urban and regional planners to manage impacts and risks related to extreme rainfall. Practitioners should be aware of key challenges (i.e., climate change) and limitations in measuring extreme rainfall and creating IDF curves, to avoid misuse.

IDF curves are created using complex statistical techniques and records of past rainfall. They are built using the maximum rainfall values, per year, for each IDF curve time interval (i.e., 1hr, 2hr, 6hr, 12hr and 24hr) and are calculated using multiple years of data. IDFs that are built using short datasets are considered less reliable than IDFs based on long datasets.

IDF curves are only as reliable as the rainfall data used to create them. The most reliable IDF curves are generated from rain gauges that are properly sited, professionally calibrated and maintained and have long continuous datasets. In the CRD, the most reliable IDFs come from Environment and Climate Change Canada.

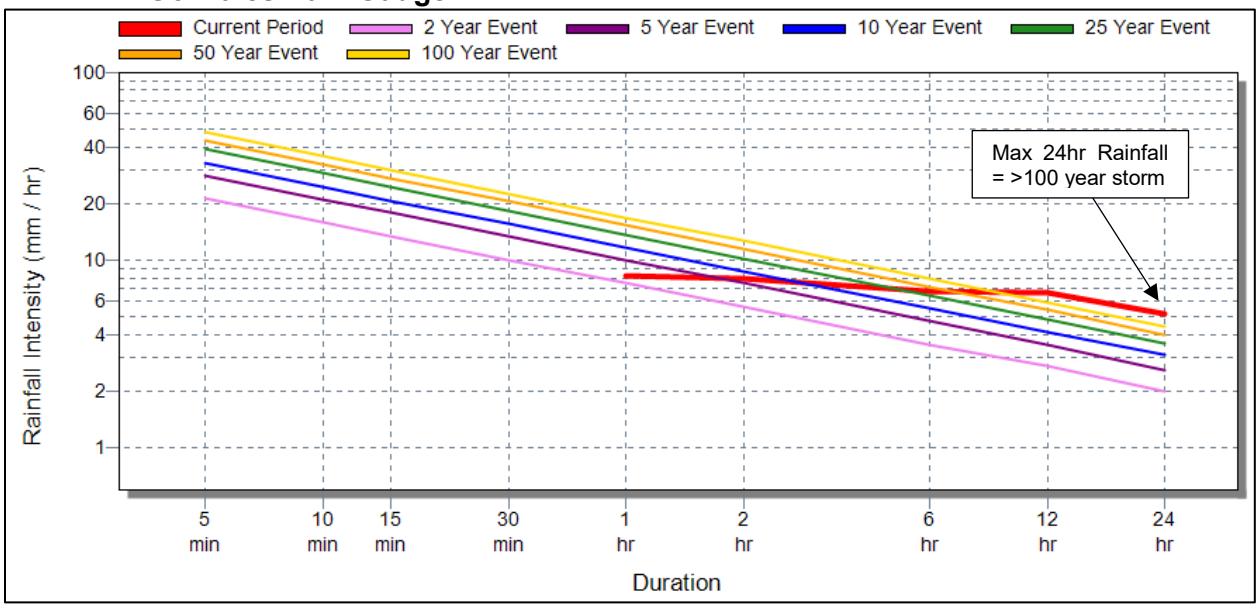
On their own, IDF curves do not currently account for recent impacts of climate change, as they are built using historical data. However, professionals routinely utilize methods to 'shift' historical IDF curves to account for climate change, local variations in rainfall, etc. Over time, the changes in rainfall event characteristics will be incorporated into the charts as they are updated. The impact of climate changes on precipitation events can also be understood through climate projections via climate models.

Figure 1 shows an example of an IDF chart with additional data indicated for the November 15, 2021 rainfall event. This was a massive storm event that resulted in significant flooding throughout BC. It was greater than a 100-year storm, based on the 24-hour return period. The IDF curve comes from Environment and Climate Change Canada's Gonzales rain gauge. The red line represents the measured rainfall from a local CRD rain gauge. The red line connects the peak 1-hour, 2-hour, 6-hour, 12-hour and 24-hour rainfall from the storm event.

Note that the axes in this chart are logarithmic scales that aid in the portrayal of data over large ranges. The declining slope of the curves below indicate high intensity rainfall occurs over shorter durations. For example the 2-year rainfall event, illustrated as the purple line, is defined as approximately 7.5 mm/hr, if it lasts for one hour only, whereas a rate of 2 mm/hr over 24 hours is also defined as a 2-year rainfall event.

Future updates of IDF curves will likely result in the lines shifting upwards due to more frequent rainfall events with higher intensity over longer durations.

Figure 1: Measured Rain from the Douglas Street Rain Gauge Superimposed on the Gonzales Rain Gauge IDF



CONCLUSION

Historical Intensity-Duration-Frequency (IDF) curves are graphical tools that describe the likelihood of a range of rainfall events. They are used by water resource managers, engineers, urban and regional planners to manage impacts and risks related to extreme rainfall. Practitioners should understand how to use, read and interpret IDF curves before incorporating the information for decision-making. Users should also be aware of key challenges (i.e., climate change) and limitations in measuring extreme rainfall and creating IDF curves, in order to avoid misuse.

RECOMMENDATION

The Core Area Liquid Waste Management Committee recommends to the Capital Regional District Board:
That this report be received for information.

Submitted by:	Stephen May, P.Eng., Senior Manager, Facilities Management & Engineering Services
Concurrence:	Larisa Hutcheson, P.Eng., General Manager, Parks & Environmental Services
Concurrence:	Robert Lapham, MCIP, RPP, Chief Administrative Officer

JM:sm

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EEP 22-07

REPORT TO CORE AREA LIQUID WASTE MANAGEMENT COMMITTEE
MEETING OF WEDNESDAY, MARCH 23, 2022

SUBJECT **Biosolids Management and Planning Update**

ISSUE SUMMARY

To update the Core Area Liquid Waste Management Committee regarding biosolids short-term management and long-term planning, and initiation of pilot studies to investigate thermal destruction technologies as a long-term biosolids management option.

BACKGROUND

After commissioning of the Core Area Wastewater Treatment Project, residual solids from the Mcloughlin Point Wastewater Treatment Plant are now processed at the new Residuals Treatment Facility (RTF) into a dried pelletized Class A biosolid product. The Capital Regional District's (CRD) approved short-term (2021-2025) Biosolids Beneficial Use Strategy, and contingency plan for management of biosolids, is transport and incineration at the Lafarge cement plant, or incorporation into engineered cover systems at Hartland Landfill when Lafarge is not operating.

During the first year of operation, consistent delivery of Class A biosolids to Lafarge under the Beneficial Use Strategy has been challenging. While staff have addressed a number of logistical issues pertaining to biosolids delivery, Lafarge has been unable to receive product consistently due to a number of unplanned shut-downs. Lafarge is currently carrying out planned maintenance and is anticipated to be back in operation by early April.

Biosolids not shipped to Lafarge are managed under the CRD's Short-Term Contingency Plan and used at Hartland Landfill as both a nutrient additive to improve vegetation growth in areas of Hartland Landfill and as an engineered bio-cover to mitigate fugitive methane emissions.

The CRD summarizes the biosolids production and management in a monthly update that is reported through our website (Appendix A).

As a condition of provincial approval of the CRD's short-term plans, the Province requires a final submission of a long-term biosolids management plan by Q2 of 2024. In 2020, the CRD issued a Request for Expressions of Interest that focused on the use of thermal technologies as a long-term beneficial use option for biosolids produced at the RTF. Given the complex operational nature of thermal technologies, the CRD's external consultant recommended pilot studies at existing facilities be carried out to ensure their viability for biosolids management. The recommendation to enter into negotiations with successful candidates and to pursue pilot studies at existing facilities, up to a maximum budget of $400,000, was approved at the February 10, 2021 CRD Board meeting.

CRD staff engaged in technical discussions with potential candidates and selected three facilities to provide detailed proposals for staff review. The detailed work proposals were incorporated into contracts with the first two vendors listed below, with negotiations underway with the third vendor:

- EPCOR and Chartech: Bench-scale laboratory testing and pilot-scale high-temperature pyrolysis testing at a commercial facility located in London, Ontario.
- Aries Clean Technologies LLC: Proxy pilot-scale gasification testing at the Linden Roselle Sewerage Authority located in Linden, New Jersey.
- Waste Management: Biosolids data review and proxy pyrolysis pilot testing at the Silicon Valley Clean Water Authority located in Redwood, California.

It is anticipated that the bench-scale testing and data review of the pilot studies will be completed in Q2 of 2022 and the pilot scale testing and reporting will be completed in Q3/Q4 of 2022.

The analysis of the pilot studies will be incorporated into a broad options analysis for the CRD Board's consideration in Q1/Q2 2023. That information will then require a public consultation process, as defined by the Province, before a final long-term plan is approved by the Board and submitted to the Ministry of Environment and Climate Change in Q4 of 2023. Concurrently, staff will continue to implement the definitive short-term management plan that bridges the operational plans to the long-term biosolids management plan.

At the July 14, 2021 CRD Board meeting, staff were directed to support the business case process the Township of Esquimalt is undertaking to explore feasibility and gasification of solid waste. Staff inquired with biosolids pilot vendors whether their existing facilities were capable of processing municipal solid waste. Vendors advised staff that extensive pre-processing of solid waste would be required prior to processing in their facilities, and that additional permitting from regulatory agencies may be required prior to initiating any testing.

At the request of the Township of Esquimalt, the CRD is also providing support for biosolids testing under their pilot program for integrated waste management though gasification.

IMPLICATIONS

Financial Implications

Total award contract amounts equalled the approved maximum budget amount of $400,000. Funding for long-term biosolids management planning, including pilot studies, will be taken from the Core Area Liquid Waste Planning Operating Reserve Fund. Staff have also identified $50,000 from the Operating Reserve Fund to support the Township of Esquimalt's pilot project. Staff have identified grant opportunities (Federation of Canadian Municipalities "Pilot Project: Waste Stream Management" Program and "Study: Waste Stream Management" Program) as potential funding sources to support this project.

Regulatory Implications

In BC, municipal wastewater residuals must be beneficially reused, in accordance with provincial requirements. The Province approved the CRD's short-term Biosolids Beneficial Use Strategy but directed the CRD to consider options for long-term biosolids management. As directed by the Minister of Environment and Climate Change Strategy, land application must be included in the options analysis for long-term biosolids management, which will follow this pilot project stage.

CONCLUSION

Given the complex operational nature of thermal technologies, the CRD is pursuing pilot studies at existing facilities for biosolids utilization. The CRD obtained detailed proposals and awarded contracts to three vendors to complete pilot study work scheduled for 2022. Information from pilot studies will inform viability of thermal technologies as biosolids management options under the CRD's long-term biosolids planning process, which is due to be completed in Q2 of 2024.

RECOMMENDATION

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

That this report be received for information.

Submitted by:	Glenn Harris, Ph.D., R.P.Bio., Senior Manager, Environmental Protection
Concurrence:	Larisa Hutcheson, P. Eng., General Manager, Parks & Environmental Services
Concurrence:	Robert Lapham, MCIP, RPP, Chief Administrative Officer

ATTACHMENT

Appendix A: CRD Wastewater Treatment – Biosolids Production Report (December 2021)

Wastewater Treatment

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BIOSOLIDS PRODUCTION REPORT

Capital Regional District | December 2021

Summary of Biosolids Production & End Use

1. Amount of Biosolids Produced

A total of 67 tonnes (t) of Class A biosolids produced at the Residuals Treatment Facility (RTF) were provided to Lafarge per the Definitive Plan. A total of 143 t were used as an interim landfill cover layer and a total of 94 t were used to produce Biosolids Growing Medium (BGM) as part of the approved Contingency Plan.

Information on the CRD's biosolids beneficial use strategy can be found here. The Definitive Plan can be found here and the Contingency Plan can be found here.

Biosolids production and end use data for December 2021 is as follows:

Biosolids Type	Produced		End Use			
			Definitive Plan [b]	Contingency Plan: BGM [c]	Contingency Plan: Biocover [c]	Hartland Landfill [d]
Dried [a] Class A	This month	304 t	67 t	94 t	0 t	143 t
	Year to date	2,220 t	631 t	140 t	0 t	1,449 t
Non-Class A	This month	64 t				64 t
	Year to date	5,041 t				5,041 t

[a] Greater than 90% solids

[b] Used as an alternative fuel at the Lafarge cement manufacturing facility in Richmond, BC

[c] Placed within the leachate containment areas of Hartland Landfill

[d] Dried Class A Biosolids are placed within leachate containment areas as a layer of interim cover maximizing potential for fugitive gas mitigation, and Non-Class A Biosolids are landfilled as a controlled waste

2. Compliance Monitoring

The CRD's contractor, Hartland Resource Management Group (HRMG), tests biosolids produced at the Residuals Treatment Facility (RTF) to ensure the biosolids are Class A, as defined by the British Columbia Organic Matter Recycling Regulation (OMRR). Testing is performed by CARO Analytical Services.

OMRR specifies that for Class A biosolids, metals concentrations must not exceed "those specified in Trade Memorandum T-4-93 (September 1997), Standards for Metals in Fertilizers and Supplements, as amended from time to time." The latest version of OMRR can be found here and the latest version of Trade Memorandum T-4-93 can be found here.

Class A biosolids compliance data for December 2021 is as follows:

Substance	OMRR Limit [a] (mg/kg dry weight)	Biosolids (mg/kg dry weight)		
		Average	Minimum	Maximum
Metals				
Arsenic (As)	666	2.5	2.3	2.7
Cadmium (Cd)	177	1.6	1.4	1.8
Chromium (Cr)	9,333	37.1	33.0	41.1
Cobalt (Co)	1,333	3.4	2.9	3.8
Copper (Cu)	6,666	483	451	514
Mercury (Hg)	44	0.5	0.5	0.5
Molybdenum (Mo)	177	8.2	7.4	9.1
Nickel (Ni)	1,600	18.8	16.2	21.3
Lead (Pb)	4,444	32.3	28.2	36.3
Selenium (Se)	124	4.0	3.9	4.0
Thallium (Tl)	44	<0.10	<0.10	<0.10
Vanadium (V)	5,777	18.1	15.1	21.0
Zinc (Zn)	16,444	751	737	765
Fecal Coliforms				
MPN	1,000	<3.0	<3.0	<3.0

[a] For metals, the maximum allowable concentrations for Class A biosolids are calculated based on a 500 kg/ha annual application rate; for fecal coliforms, the maximum allowable concentration is a fixed value

Making a difference...together

IWS 22-02

REPORT TO CORE AREA LIQUID WASTE MANAGEMENT COMMITTEE
MEETING OF WEDNESDAY, MARCH 23, 2022

SUBJECT **Core Area Wastewater Treatment Plant Capacity Update**

ISSUE SUMMARY

To provide an update on average and peak wastewater flows at McLoughlin Point Wastewater Treatment Plant (MPWWTP) for the period from October 1, 2020 to September 30, 2021.

BACKGROUND

The design capacity of MPWWTP for tertiary treatment was based on an average dry weather flow (ADWF) of 108 megalitres per day (MLD). The maximum peak day, (also known as peak wet weather flow), hydraulic capacity of MWWTP is 4xADWF which is 4 x 108 = 432 MLD. Under peak wet weather flow (PWWF) conditions, wastewater from each of the primary, secondary and tertiary treatment systems are blended together prior to discharge out the outfall. The capacities of MPWWTP are regulated under the Ministry of Environment Authorization No 108831.

Bylaw No. 2312 sets out the ADWF and PWWF allocations for all participants who purchased capacity at the MPWWTP. The capacity allocations by participant and the actual measured ADWF and PWWF, (for the period from October 1, 2020 to September 30, 2021) are noted in Table 1. The total and average annual flow (AAF) for that same period is noted in Table 2. Annual flows are measured for that period so that the Capital Regional District (CRD) can use that data for annual financial requisitions for the upcoming budget year (i.e. 2022).

Table 1: McLoughlin WWTP Allocations and Actual Measured ADWF and PWWF: 2021

Participant Area	Allocated [1] ADWF Capacity (MLD)	ADWF [2] (Jun + Jul + Aug, 2021)		Allocated[1] PWWF Capacity (MLD)	PWWF [3] (Between Oct 1 to Sep 30)	
		MLD	% of Allocated Capacity		MLD	% of Allocated Capacity
Colwood	4.70	2.76	58.7%	18.80	8.33	44.3%
Esquimalt	7.10	4.52	63.7%	28.40	33.77	118.9%
Esquimalt Nation [4]	0.07	0.06	79.6%	0.28	0.32	112.6%
Songhees Nation	0.66	0.49	73.9%	2.64	2.75	104.2%
Langford	14.12	8.50	60.2%	56.48	18.32	32.4%
Oak Bay	6.62	5.11	77.1%	26.48	31.63	119.4%
Saanich	32.89	21.66	65.9%	131.56	91.95	69.9%
Victoria	38.30	27.74	72.4%	153.20	194.61	127.0%
View Royal	3.54	1.93	54.4%	14.16	5.82	41.1%
Total	**108.00**	**72.76**	**67.4%**	**432.00**	**387.48**	**89.7%**

Note: 1. Allocated ADWF and PWWF Capacity are set in Bylaw 2312
2. ADWF is measured from June 1 to August 31 and divided by 91 days.
3. PWWF for the period of Oct 1, 2020 to Sep 30, 2021 occurred on December 22, 2020 (it excludes overflow volumes)
4. Esquimalt Nation's flow is calculated on a correlation with adjacent catchments. A new flow meter is proposed to be installed in 2022.

Table 2: Actual Measured Total Annual Flow: (Oct 1, 2020 to Sep 30, 2021)

Participant Area	Total Annual Wastewater Flow (m^3)	Average Annual Flow (AAF)		Percent of Total Core Area Flows
		m^3/day	MLD	
Colwood	1,169,227	3,203	3.20	3.38%
Esquimalt	2,451,306	6,716	6.72	7.08%
Esquimalt Nation [1]	27,738	76	0.08	0.08%
Songhees Nation	243,313	667	0.67	0.70%
Langford	3,326,988	9,115	9.12	9.61%
Oak Bay	3,054,622	8,369	8.37	8.83%
Saanich	10,234,679	28,040	28.04	29.57%
Victoria	13,284,750	36,397	36.40	38.39%
View Royal	816,583	2,237	2.24	2.36%
Total	**34,609,206**	**94,820**	**94.82**	**100.00%**

Note: 1. Esquimalt Nation's flow is calculated on a correlation with adjacent catchments. A new flow meter is proposed to be installed in 2022.

ADWF's typically provide a better correlation with actual population growth whereas PWWF and AAF can vary from year to year depending on storm events and annual precipitation. Refer to the graph attached in Appendix A to see the ADWF trends for each participant over the last 10 years.

Based on the flow data for 2021, all participants are under their allocated ADWF and MPWWTP is at about 67.4% of its capacity. However, the PWWF (which typically occurs during the largest storm event of the year), indicates that several participants are exceeding their allocations. Participants are provided with monthly flow reports on a quarterly basis and are informed when peak flow allocations have been exceeded. For reference, an example flow report is attached in Appendix B. The monthly reports provide a variety of useful information to assist participants in understanding their wastewater flows. Participants are encouraged to continue with their inflow and infiltration (I&I) reduction plans in order to reduce their flows to less than 4xADWF.

ALTERNATIVES

Alternative 1
That the Core Area Liquid Waste Management Committee recommend to the Capital Regional District Board:
That this report be received for information.

Alternative 2
That the Core Area Liquid Waste Management Committee refer the report back to staff for additional information.

IMPLICATIONS

Regional Growth Strategy Implications

MPWWTP is at is currently at 67.4% of its ADWF design capacity and performing well as designed. Based on anticipated growth in the Core Area, it is projected to have sufficient capacity to 2045 as planned.

Environmental & Climate Implications

Climate change modelling predicts that the Region will have more intense wet weather storms, so it is important for participants to continue with their inflow and infiltration reduction plans to reduce peak wet weather flows and resulting overflows. The Core Area system is designed to convey and treat peak flows up to 4xADWF. Overflows will continue at designated relief points until PWWF's are less than 4xADWF.

Financial Implications

The operational cost to convey and treat Core Area wastewater is stabilizing now that the new plant has operated for a full year. Costs for individual participants could go up or down depending on their total average annual flow which depends on their growth and inflow and infiltration volumes (i.e. those who have higher I&I will pay a higher proportional share of the annual operating cost). The cost to reduce I&I can be significant as well, so it may take many years to lower I&I but there is a long-term financial and environmental benefit to lower wastewater volumes.

CONCLUSION

Bylaw No. 2312 establishes the maximum allocated capacity for each of the Core Area participants. Based on the flow data for the period from October 1, 2020 to September 30, 2021, the MPWWTP operated at about 67.4% of its ADWF capacity and 89.7% of its peak day capacity. The Core Area wastewater system performed well, as designed, and based on growth in the Core Area, it is projected to have sufficient ADWF capacity to 2045 as planned. However, some participants exceeded their PWWF capacity which resulted in overflows. Overflows will continue at designated relief points until PWWF are reduced to less than 4xADWF.

RECOMMENDATION

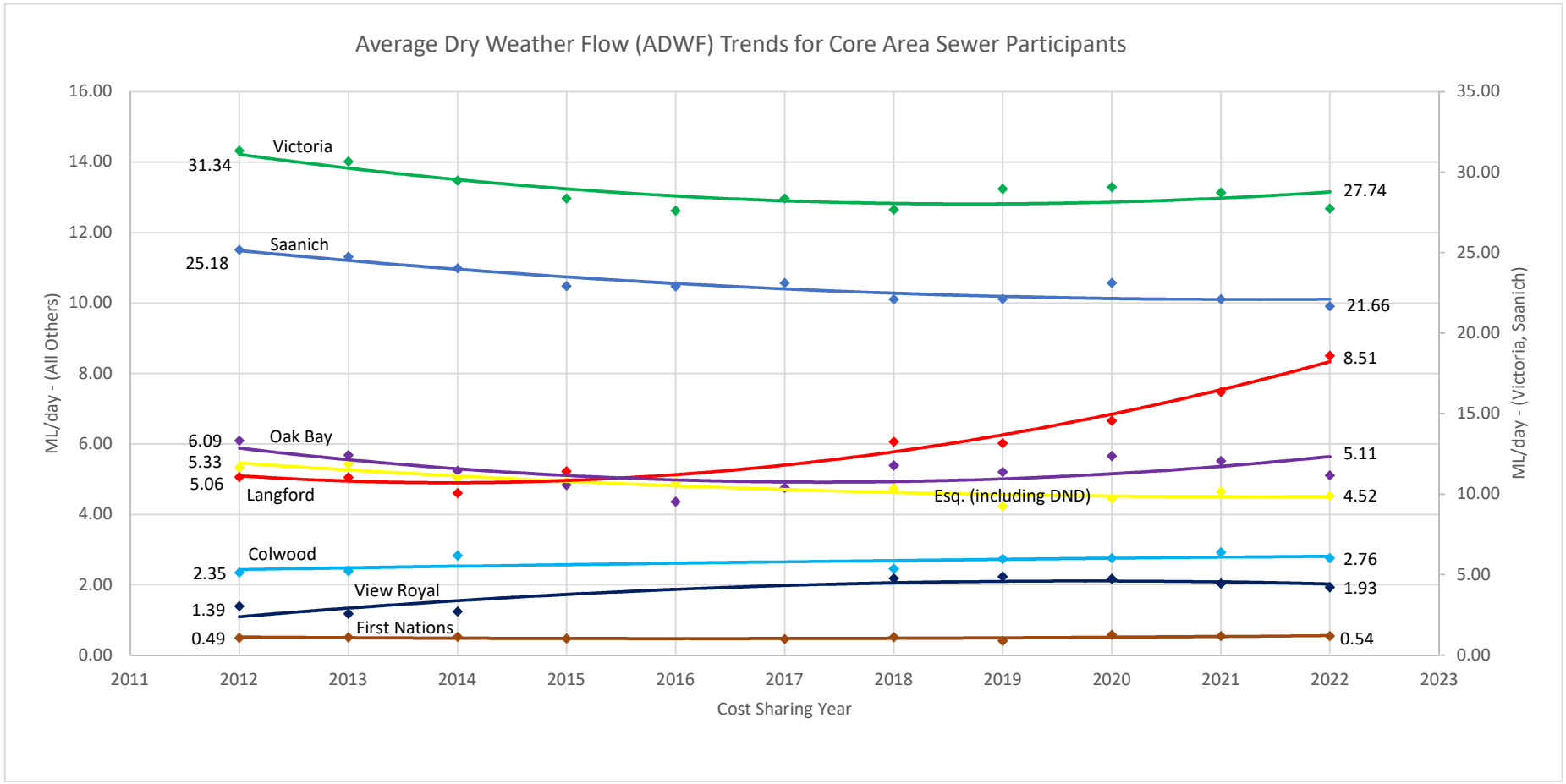
That the Core Area Liquid Waste Management Committee recommend to the Capital Regional District Board:
That this report be received for information.

Submitted by:	Malcolm Cowley, P.Eng., Manager, Wastewater Engineering and Planning
Concurrence	Joseph Marr, P.Eng., Acting Senior Manager, Infrastructure Engineering
Concurrence:	Ted Robbins, B.Sc., C.Tech., General Manager, Integrated Water Services
Concurrence:	Robert Lapham, MCIP, RPP, Chief Administrative Officer

ATTACHMENTS

Appendix A: ADWF Trend for past 10 years
Appendix B: Example Monthly Wastewater Flow Report

APPENDIX A


Average Dry Weather Flow (ADWF) Trends for Core Area Sewer Participants
ML/day - (All Others)
ML/day - (Victoria, Saanich)
Cost Sharing Year
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Victoria
31.34
27.74
Saanich
25.18
21.66
8.51
Oak Bay
6.09
5.11
Langford
5.06
Esq. (including DND)
5.33
4.52
Colwood
2.35
2.76
View Royal
1.39
1.93
First Nations
0.49
0.54

CRD IWS
Core Area Wastewater System

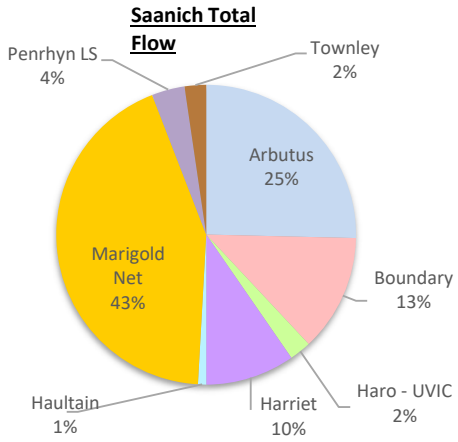
Monthly Wastewater Flow Report for Saanich - October 2021

Disclaimer: The data used in this report is considered preliminary. It may be further corrected in the annual cost requisition report.

1. Monthly Wastewater Flow Data: Oct 2021

This data summarizes the volume of flow measured from catchments contributing to Saanich's total flow (map on page 3).

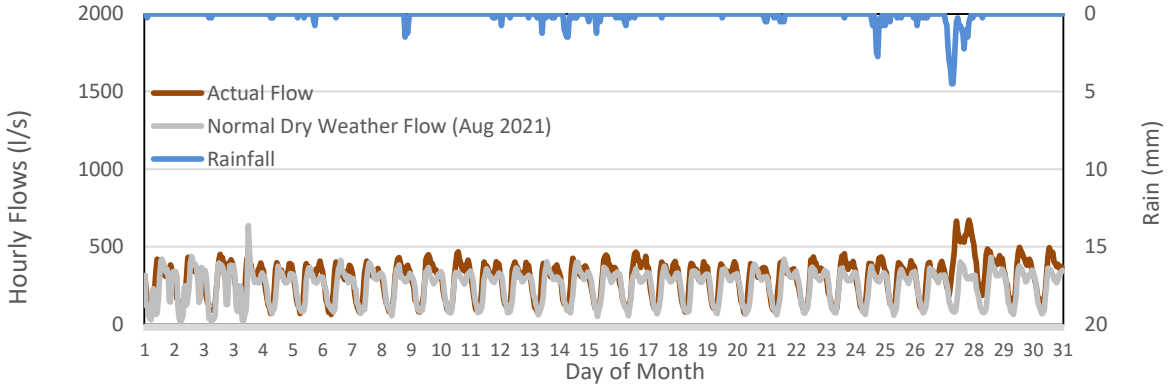
Flow Meter Name	Total Monthly Flow	
	m^3	%
Arbutus	199,874	25%
Boundary	100,023	13%
Haro - UVIC	18,301	2%
Harriet	76,094	10%
Haultain	6,982	1%
Marigold Net	340,950	43%
Marigold PS	*425,488*	
(Minus Hartland Leachate)	*- 84,539*	
Penrhyn LS	28,105	4%
Townley	18,122	2%
Monthly Flow	**788,451**	**100%**



SAANICH FLOW = Marigold Net + Boundary + Harriet + Townley + Haultain + Arbutus + Haro + Penrhyn

2. Saanich Hourly Sewer Flows Oct 2021

This graph shows actual flow (brown) and rainfall (blue), per day, for the month and compares it to normal dry weather flow (grey).



3. Key Wastewater Flow Stats: Oct 2021

Metric	Flow (m^3) [1]
Total Monthly Flow	788,451
Average Daily Flow	25,434
Minimum Daily Flow	22,038
Peak 24hr Flow (PWWF) [2]	43,708
Peak 1hr Flow [3]	58,059
Average Dry Weather Flow (ADWF)[4]	21,663
Estimated Daily Domestic Flow [5]	16,247

[1] Excludes overflows that may have occurred (overflow volumes are not measured).

[2] Calculated as maximum rolling 24 hr flow for the month.

[3] Expressed as 24 hour flow (peak 1 hr flow x 24).

[4] Average daily flow from most recent Jun 1 to Aug 31 data. Includes groundwater infiltration over that period.

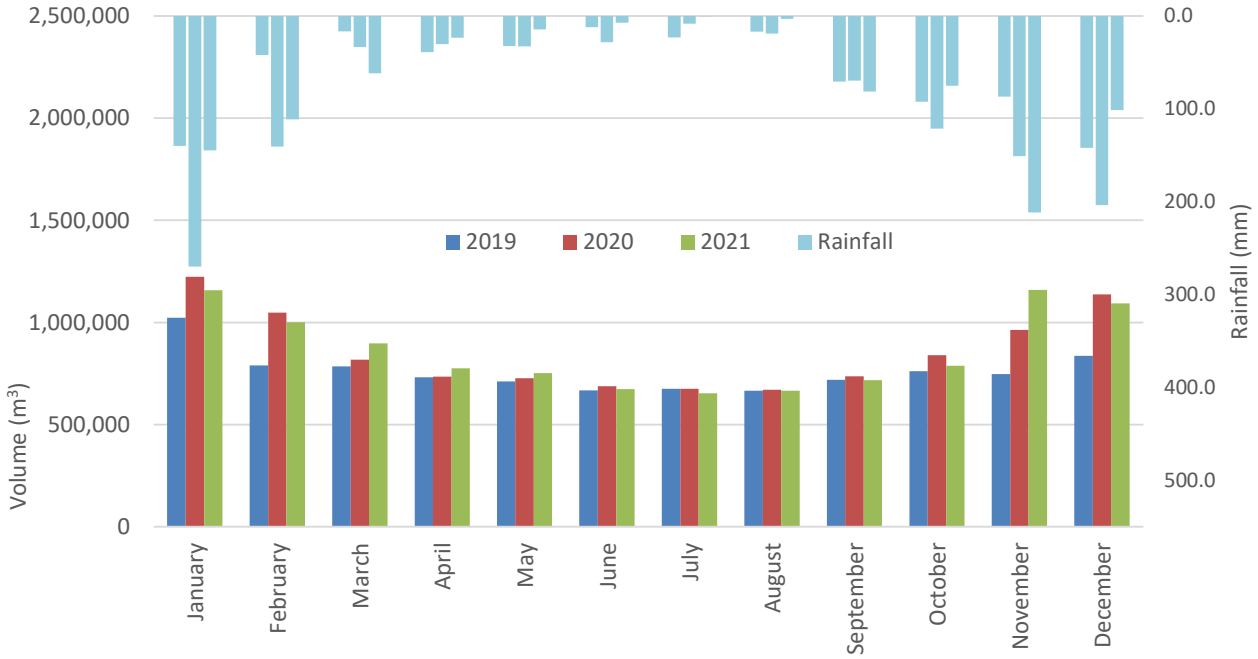
[5] Calculated as ADWF minus summer groundwater (70% of minimum hourly flow x 24 hours).

Overflows (monitored by CRD): Oct 2021

Location	Date
Finnerty Outfall	None

4. Monthly Wastewater Flow: Historical vs. Current

This graph shows the total Saanich flow for each month and compares it with previous years.



5. Inflow & Infiltration Flow Summary: Oct 2021

Key I&I Metrics	Value [1]
Total Monthly Flow (m^3)	788,451
Estimated Domestic Flow for Month (m^3) [2]	503,662
I&I Volume for Month (m^3) [3]	284,789
I&I Volume for Month (% total flow)	36%
Peak 24hr Flow (PWWF) [4]	2.0 x ADWF
Peak 1hr Flow [5]	2.7 x ADWF

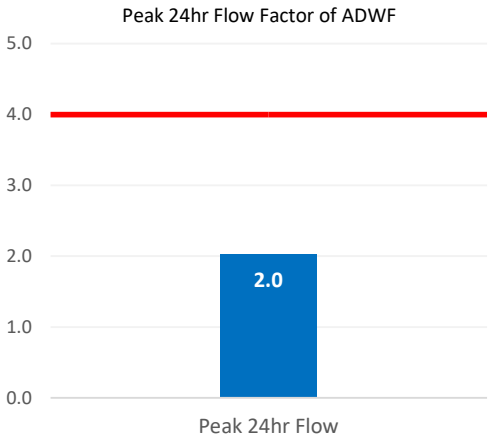
[1] Excludes overflow volume

[2] Determined by (Est. Daily Domestic flow from section 3.) x (number of days per month)

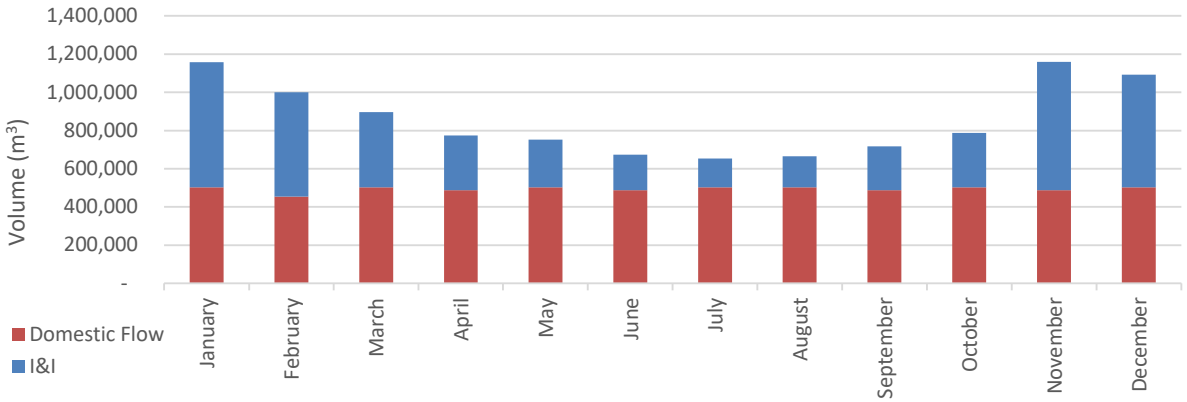
[3] Determined by subtracting Estimated Domestic Flow from Total Monthly Flow

[4] Determined by dividing Peak 24hr Flow from section 3. by ADWF

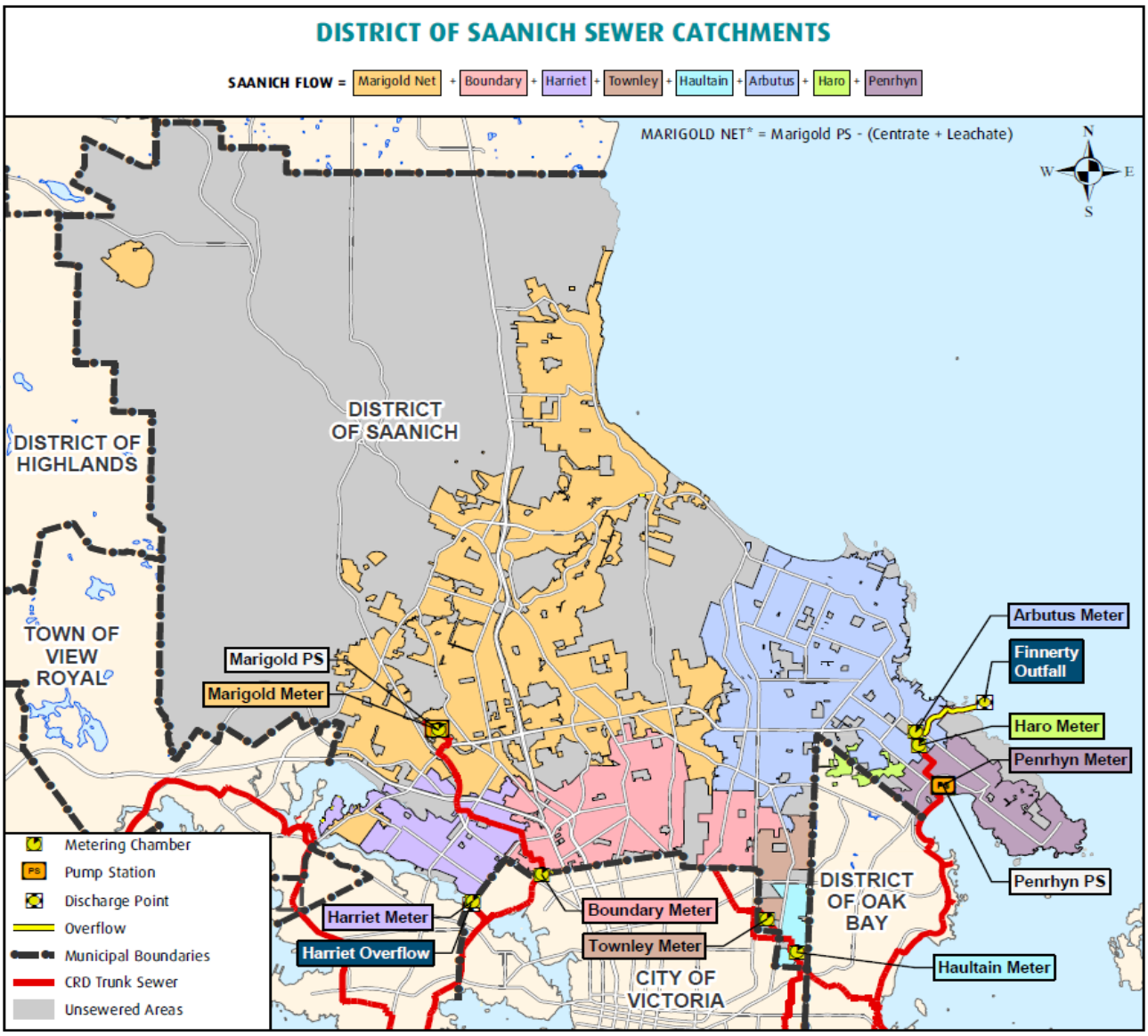
[5] Determined by dividing Peak 1hr Flow from section 3. by ADWF



6. Monthly Flows: I&I and Domestic Flow (2021)



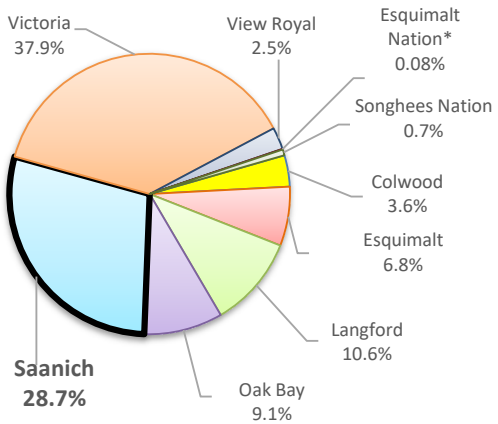
Disclaimer: The data used in the monthly wastewater flow report may be further corrected in the annual cost requisition report.



7. Regional Flow Data: Oct 2021

Participant Area	Total Monthly Flow	
	m^3	%
Colwood	99,428	3.6%
Esquimalt	187,321	6.8%
Langford	291,431	10.6%
Oak Bay	249,222	9.1%
Saanich	**788,451**	**28.7%**
Victoria	1,043,895	37.9%
View Royal	69,440	2.5%
Esquimalt Nation*	2,214	0.08%
Songhees Nation	19,349	0.7%
Total	**2,750,750**	**100.0%**

*Flows are calculated based on engineering estimates



Disclaimer: The data used in the monthly wastewater flow report may be further corrected in the annual cost requisition report.

APPENDIX B

Disclaimer: The data used in the monthly wastewater flow report may be further corrected in the annual cost requisition report.