



REPORT TO CORE AREA LIQUID WASTE MANAGEMENT COMMITTEE
MEETING OF WEDNESDAY, JUNE 26, 2024

SUBJECT Core Area Wastewater Treatment Plant Capacity Allocation Review

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, 2022 to September 30, 2023.

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, 2022 to September 30, 2023) 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. 2024).

Table 1: McLoughlin WWTP Allocations and Actual Measured ADWF and PWWF: 2023

Participant Area	Allocated ¹ ADWF Capacity (MLD)	ADWF ² (Jun + Jul + Aug, 2023)		Allocated ¹ PWWF Capacity (MLD)	PWWF ³ (Between Oct 1 to Sep 30)	
		MLD	% of Allocated Capacity		MLD	% of Allocated Capacity
Colwood	4.70	2.81	59.8%	18.80	5.37	28.5%
Esquimalt	7.10	4.44	62.5%	28.40	21.77	76.6%
Esquimalt Nation ⁴	0.07	0.06	85.7%	0.28	0.21	74.5%
Songhees Nation	0.66	0.53	80.3%	2.64	1.82	68.8%
Langford	14.12	9.36	66.3%	56.48	15.49	27.4%
Oak Bay	6.62	5.35	80.8%	26.48	37.96	143.3%
Saanich	32.89	20.92	63.6%	131.56	49.72	37.8%
Victoria	38.30	27.99	73.1%	153.20	99.07	64.7%
View Royal	3.54	1.96	55.4%	14.16	3.75	26.5%
Total	108.00	73.42	68.0%	432.00	235.14	54.4%

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, 2022 to Sep 30, 2023 occurred on December 24, 2022 (it excludes overflow volumes)

⁴ Esquimalt Nation's flow is calculated on a correlation with adjacent catchments. A new flow meter is being installed in 2024.

Table 2: Actual Measured Total Annual Flow: (Oct 1, 2022 to Sep 30, 2023)

Participant Area	Total Annual Wastewater Flow (m ³)	Average Annual Flow (AAF)		Percent of Total Core Area Flows
		m ³ /day	MLD	
Colwood	1,124,967	3,082	3.08	3.74%
Esquimalt	2,040,215	5,590	5.59	6.78%
Esquimalt Nation ¹	25,307	69	0.07	0.08%
Songhees Nation	221,365	606	0.61	0.74%
Langford	3,501,060	9,592	9.59	11.63%
Oak Bay	2,499,492	6,848	6.85	8.30%
Saanich	8,617,797	23,610	23.61	28.62%
Victoria	11,290,931	30,934	30.93	37.50%
View Royal	785,662	2,152	2.15	2.61%
Total	30,106,796	82,484	82.48	100.00%

¹ Esquimalt Nation's flow is calculated on a correlation with adjacent catchments. A new flow meter is being installed in 2024.

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. The graph in Appendix A shows the ADWF trends for each participant over the last 10 years.

Based on the flow data for 2023, all participants are under their allocated ADWF and MPWWTP is at about 68% of its capacity. Because 2023 was a dry year, (40% less precipitation than normal), the PWWF total was only 54.4% of the plant's capacity. However, one Participant exceeded their PWWF allocation primarily due to their combined sewers in the Uplands Area.

If a participant uses 90 percent or more of their allocated ADWF capacity and desires additional capacity, then there are provisions in Bylaw 2312 for the parties to commence negotiations with the CRD to engage with other participants for reallocation of capacity. Currently the CRD does not have any formal requests, and all participants are below the 90% capacity noted in the bylaw. That said CRD has been approached by two participants who have an interest in increasing their allocation, though no formal requests have been received to date.

Participants are provided with monthly flow reports on a quarterly basis and are informed when peak flow allocations have been exceeded. An example flow report is attached as 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 to reduce their flows to less than 4xADWF.

IMPLICATIONS

Environmental & Climate Action

Climate change modelling predicts that the region will have more intense wet weather storms, so it is important for participants to continue with their I&I reduction plans to reduce PWWF 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 continuing to stabilize now that the new plant has operated for a few years. Costs for individual participants could go up or down depending on their total average annual flow which depends on their growth and I&I 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.

Regional Growth Strategy Implications

MPWWTP is currently at 68% 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, depending on increased growth/housing being promoted by senior levels of government.

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, 2022 to September 30, 2023, the McLoughlin Point Wastewater Treatment Plant operated at about 68% of its Average Dry Weather Flow (ADWF) capacity and 54.4% of its peak day capacity. The Core Area wastewater system performed well, as designed, and based on current growth in the Core Area, it is projected to have sufficient ADWF capacity to 2045. One participant exceeded their Peak Wet Weather Flow (PWWF) capacity which resulted in overflows at Humber, Rutland and Clover outfalls. Overflows will continue at designated relief points until PWWF are reduced to less than four times the ADWF.

RECOMMENDATION

There is no recommendation, this report is for information only.

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ATTACHMENT(S)

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