Corporation of the City of
NEW WESTMINSTER

REPORT
Engineering Services

To:	Mayor Cote and Members of Council	**Date**:	December 13, 2021
From:	Lisa Leblanc Director of Engineering Services	**File**:	09.1710.01 (Doc# 1967176)
		Item #:	2021-616

Subject: **Metro Vancouver Integrated Liquid Waste and Resource Management Plan: Sewage Rate Allocation**

RECOMMENDATION

THAT Council receive the update on Metro Vancouver Integrated Liquid Waste and Resource Management Plan: Sewage Rate Allocation

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PURPOSE

The purpose of this report is to provide an update on Metro Vancouver Integrated Liquid Waste and Resource Management Plan: Sewage Rate Allocation.

SUMMARY

The Metro Vancouver regional sewage service is funded by member municipalities through a liquid waste levy. The sewage rate cost allocation is determined based on the municipal sewage flow measured under dry weather conditions. If Metro Vancouver moves toward a wet weather cost allocation to incentivize Inflow and Infiltration (I&I) management, it would unnecessarily penalize combined sewer communities and divert needed resources from sewer separation work. Municipalities undertaking annual sewer separation work under the Liquid Waste Management Plan (LWMP) commitment should continue to be levied based on dry weather flow conditions.

BACKGROUND

Metro Vancouver is currently in the process of updating the regional Integrated Liquid Waste and Resource Management Plan (LWMP). The multi-year process has commenced in 2020 and is planned for completion in 2024. In 2021, Metro Vancouver is

engaging stakeholders and developing the vision, goals and guiding principles. Key public and member jurisdictions feedback includes:

- Minimize sewage overflow to local waters
- Improving water quality in stream and creeks
- Minimizing GHG emissions
- Keep rates affordable, fair and provide value for services
- Engage and collaborate with those we serve, integrate indigenous perspectives
- Integrate climate resiliency
- Integrate improved performance metrics and streamline progress reporting
- Accelerate action on wet weather flows, including those originating on private property from Inflow and Infiltration (I&I), that lead to sewer overflows

EXISTING POLICY AND PRACTICE

Metro Vancouver provides regional liquid waste services to member municipalities including trunk sewers, pump stations, storage tanks and sewage treatment facilities. The servicing cost is recovered by liquid waste levies charged to the member municipalities. A cost apportionment methodology determines how the total levy is divided among sewage areas and then municipalities within each sewage area. New Westminster is located within the Fraser Sewage Area (FSA).

Unlike the regional water levy where each municipality pays the same unit rate ($ per m^3) for the total volume of water purchased, the regional liquid waste levy is somewhat more complex. Many factors are used in the liquid waste cost apportionment methodology including 1) measured flows, 2) population growth statistics, 3) property assessment, 4) Metro Vancouver Bylaw No. 283.

The cost apportionment separates the liquid waste components into growth (i.e. development driven) works and non-growth (i.e. supporting existing population) works. These components are further divided into Tier 1 (basic sewage area projects), Tier 2 (large regional projects such as treatment plants) and Tier 3 (projects with broad regional benefits). Figure 1 illustrates the overall liquid waste apportionment methodology.

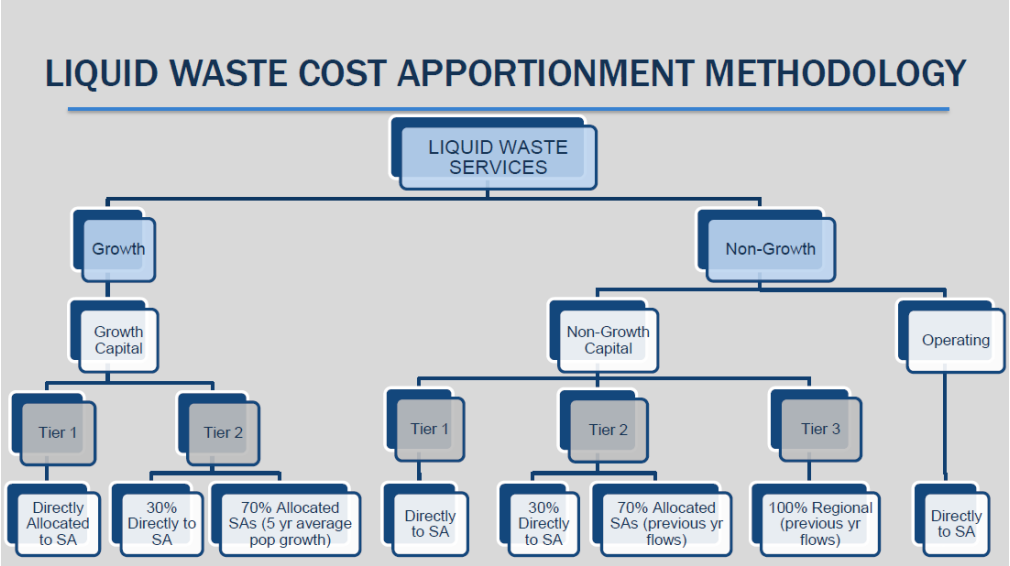

Figure 1

ANALYSIS

Wet Weather Management and Combined Sewerage Management are priority areas in the Metro Vancouver LWMP update to reduce rainwater inflow into the sanitary sewerage system. Rainwater and groundwater enter the sewerage system as Inflow & Infiltration (I&I) through pipe joints, lid covers, private and public laterals, cross connection of storm and sanitary lines, etc. In combined sewage areas, rainwater and sanitary sewage are mixed together into a single sewerage system and during heavy rain events, the system capacity is overloaded. Both I&I and combined flow consume conveyance and treatment capacity of the regional sanitary sewage system and result in sanitary sewage overflow (SSO) or combined sewage overflow (CSO) into the receiving water bodies during heavy storm events.

Regional Approach to Inflow & Infiltration

Since the mid 1990's, Metro Vancouver municipalities have collaborated to better understand Infiltration and Inflow (I&I) Issues and to explore cost effective I&I management solutions. I&I comes from three source levels: private system, municipal system or regional system. Over the last two decades I&I management efforts and reductions have been mixed.

The current LWMP update is exploring an option of incentivizing I&I abatement through wet weather cost allocation. Current sewage levies are based on municipal discharge measured under Dry Weather Flow (DWF)[1] conditions. A change to Wet Weather Flow (WWF)[2] would incentivize municipalities to increase their efforts and investment towards repairing and/or rehabilitating their sanitary sewers and laterals and tackle on-site/private I&I.

[1] DWF is the 25th percentile of the average daily sewage flow
[2] WWF is the 75th percentile of the average daily sewage flow

Combined Sewer Separation

Under the existing LWMP, New Westminster and Burnaby are committed to separate 1.5% of their respective combined sewer system annually in an effort to reduce wet weather overflows. New Westminster has made significant progress over the years as approximately 50% of the City combined sewer system has now been separated (see Attachment 1). When a segment of combined sewer is separated, approximately 30% of storm runoff (i.e. road drainage) is immediately diverted into the new storm sewer. The remaining 70% of the runoff comes from private properties and will be diverted as buildings are redeveloped. In addition, the City is also implementing Integrated Storm Water Management (i.e. rain gardens, infiltration trenches, on-site flow retention, etc.) to reduce rainwater entering the sewer systems. The City is continuing to invest a significant portion of the annual capital program to fulfill our commitment under the LWMP.

Cost Allocation Affordability Implications

The option of converting Metro Vancouver liquid waste levy from DWF to WWF will have significant financial impacts to the City. In combined sewage areas, the separation of combined sewer is far more effective in reducing wet weather inflow than typical I&I measures. WWF cost allocation does not recognize New Westminster's effort and annual investment in sewer separation and unfairly penalizes combined sewer communities.

Based on recent I&I study[3] by Metro Vancouver, the total 2016 investments by member municipalities for sewer condition evaluation and rehabilitation are $3.64M and $16.6M respectively. This translates to a regional re-investment level of $2.84 per meter of existing sewer system for I&I management. New Westminster's 2016 total re-investment level for rehabilitation and separation is $13.37 per meter of existing sewer system; the City's investment rate is almost 5 times higher than the regional average. Due to rising market conditions, New Westminster's 2021 investment level for sewer rehabilitation and separation is approximately $27 per meter of the existing sewer system. As New Westminster reinvestment rate in the sewer system to address I&I and combined sewer separation is already orders of magnitude higher than the regional average in I&I abatement, any future change to regional liquid waste levy using WWF needs to acknowledge the affordability and equity implications to combined sewer municipalities.

In the end, both I&I management and combined sewer separation have the same overall goal – to reduce wet weather flow in the regional sewer system and sewage overflows.
A WWF based sewage allocation levy would unnecessarily penalize communities with combined sewers and divert scarce financial resources from effective sewer separation reduction works. Dollar for dollar, sewer separation reduces significantly more wet weather inflows and sewage overflows then I&I programs.

[3] *"Controlling Inflow and Infiltration in Metro Vancouver Area" - Metro Vancouver - Policy, Planning & Analysis Tables 1 & 2, Mar 2019*

City Staff Proposal

Staff proposes that in the new LWMP update, municipalities with combined sewage areas continue to be levied based on DWF cost allocation, provided that they continue to fulfil their annual sewer separation commitment (i.e. annually 1.5% of the system for New Westminster). The proposal is based on the following principles:

- Overall goal of I&I abatement and sewer separation is the same: Reduce wet weather flow into the sanitary system
- Combined sewage flows are orders of magnitude higher than I&I flows
- Recognize I&I abatement is the priority for separated sewer communities
- Recognize sewer separation is the priority for combined sewer communities and reducing CSOs benefits everyone in the region
- New policies & strategies need to consider affordability and equity and recognize the different challenges facing separated and combined sewer communities
- Leverage redevelopment by requiring owners to replace old laterals and separate on-site sewers as triggered by major building permits

Next Steps

As Metro Vancouver advances the process to update the region's LWMP, City representatives will need to collaborate with other combined sewage municipalities and advocate for exemption to the WWF sewage rate allocation proposal as it would be incongruent with our collective effort to separate combined sewage and reduce wet weather inflow and CSOs.

FINANCIAL IMPLICATIONS

The City's 2021 operating budget includes a Metro Vancouver liquid waste levy of $10.2M. The financial impact is unknown at this time if Metro Vancouver moves towards a Wet Weather Flow sewage rate allocation under the new LWMP. The City's 2021-2025 Capital Plan includes average annual investments of $4M and $1.7M for sewer separation and sewer rehabilitation respectively.

INTERDEPARTMENTAL LIAISON

Engineering Services Department consulted with Finance Department in the preparation of this report.

OPTIONS

The following options are presented for Council's consideration:

1. Receive the update on Metro Vancouver Integrated Liquid Waste and Resource Management Plan: Sewage Rate Allocation, or

2. Provide other direction to staff.

Staff recommends Option 1.

CONCLUSION

Combined sewage communities such as New Westminster already invest significant capital resources to fund the annual sewer separation and rehabilitation programs which are commitments under the regional Liquid Waste Management Plan. A wet weather cost allocation under consideration by Metro Vancouver would penaltize combined sewer communities and is incongruent with our collective effort to reduce wet weather inflow and CSOs. Municipalities undertaking annual sewer separation should continue to be levied based on dry weather flow conditions.

ATTACHMENTS

Attachment 1 - City Separated Sewer Area Plan

APPROVALS

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