

**REPORT TO CORE AREA LIQUID WASTE MANAGEMENT COMMITTEE
MEETING OF WEDNESDAY, OCTOBER 16, 2019**

SUBJECT **Core Area Inflow & Infiltration Program – 2019 Report**

ISSUE

To present a summary of activities and accomplishments of the Core Area Inflow & Infiltration (I&I) Program for the period of 2018 to mid-2019, including infrastructure work carried out by the participating municipalities and efforts related to private property I&I.

BACKGROUND

The Core Area Liquid Waste Management Plan (CALWMP) sets out goals and commitments for the municipalities, First Nations and Capital Regional District (CRD) to manage I&I through the Core Area I&I Management Plan. The Core Area I&I 2019 Report documents progress toward meeting these commitments for the period of 2018 to mid-2019.

In 2019, the CRD developed a sewer model for the core area using up to date flow data and I&I data. The model was used to determine if the CRD is on track to meet its overflow related commitments in the CALWMP by the 2030 deadline. The model found that the number of overflow locations contravening the 2030 commitments will be reduced to only Clover Point and the combined sewers in the Uplands once the treatment plant project is complete. The frequency of these overflows will be determined when all new components of the system are operational, but it is clear that overflows will occur during less than a 5-year rain event. In order to eliminate these overflows, Oak Bay and Victoria will need to sustain, and perhaps, accelerate I&I reduction efforts.

Overviews of municipal I&I actions, along with specific actions from this reporting period, are as follows:

Colwood diligently inspects its new underground infrastructure to manage and prevent I&I. It also continues its visual inspection program for manholes and cleanouts. In 2018, Colwood updated its pump station SCADA system. The I&I program will work with Colwood to establish sewer flow meter data for Colwood pump stations using the new SCADA system.

Esquimalt completed an extensive infrastructure investigation between 2004 and 2016, including: camera inspection and smoke testing; relining of approximately half of its sewers; targeted repairs to manholes; and separation of its combined manholes. This work increased the sewer system performance and reduced I&I. In 2018 and 2019, Esquimalt modelled its sewer and stormwater systems, started development of a cost sharing strategy and bylaw for I&I and worked with CRD Source Control to determine possible cross connections into the Gorge Waterway. In late 2019, in conjunction with the I&I program, Esquimalt will have all of its I&I-related data (i.e., smoke testing and camera inspections), reviewed by a consultant who will provide the municipality with a prioritized list of I&I rehabilitation projects.

Langford has a rapidly expanding new sewer system. Langford diligently inspects new connections and is incentivized to monitor and repair the sewer system to preserve sewer capacity for future growth. In 2018 and 2019, Langford camera-inspected 7 kilometres of sewer, inspected 203 manholes, repaired 3 manholes and rehabilitated 71 inspection chambers.

Oak Bay is working on the Uplands combined sewer separation project, including an additional plan submission to the Province, due by December 31, 2019. In addition to that work, Oak Bay rehabilitated 1,725 m of sewer, separated 8 combined sewer laterals, camera-inspected 13.8 km of sewer (year 3 of a 5-year program) and installed 116 inspection chambers. The CRD and Oak Bay are currently working on a pilot program involving the collection of camera inspection, smoke testing and manhole inspection data in 3 small catchments with high I&I. The goal is to prioritize I&I reduction efforts in these catchments and provide a framework for similar work in the rest of the municipality. I&I program staff are also working to develop reliable flow metering data from Oak Bay's pump stations.

Saanich continues its sewer maintenance and repair program, including camera inspections, sewer relining, smoke testing to eliminate unused connections and flow monitoring. Saanich is near completion of a SCADA system upgrade. In 2018, Saanich relined or replaced 3,500 meters of sanitary sewer.

Victoria continues to manage its sewer repair and replacement work in its sewer master plan, which was fully updated in 2018. Victoria installed 12 open channel flow meters and 3 rain gauges in 2018. These meters produced high quality flow data and will be valuable for assessing future I&I reduction efforts. Victoria also relined 3.3 km of sanitary sewer, camera-inspected 20 km of sewer, replaced 700 m of sewer, eliminated cross connections from 6 catch basins and carried out significant work to eliminate a number of combined manholes. The CRD plans to work with Victoria on an I&I-focused project in 2020.

View Royal continues its program related to sewer maintenance and repairs, camera inspections, sewer flushing and flow monitoring. In 2018, View Royal repaired 4 sewer manholes and carried out operational maintenance (i.e., flushing) based on camera inspection results.

The Esquimalt Nation had a consultant inspect its sewer system and prepare a report containing recommendations for maintenance, repairs and I&I reduction, etc. The Esquimalt Nation is currently looking at funding options for this work.

The Songhees Nation continues its program related to sewer maintenance and repairs. Initiated in late 2015, the Songhees completed a study to investigate I&I sources, along with a detailed design for remediation. Most of the recommended work has not been completed yet.

Through the **Core Area I&I Program**, the CRD continues to work with its municipal and First Nations partners on I&I-related management and reduction efforts. This includes regional flow monitoring, standardizing I&I approaches, preparing management plans and annual reports, education programs and private property I&I initiatives. This also involves coordination with municipalities and national organizations that are dealing with similar issues.

In 2019, the CRD finalized the cornerstone document for its updated I&I education approach. The approach has the same goals as the existing approach: to encourage property owners to get their

sewer laterals inspected and to keep them maintained; however, the new approach promotes those actions as a way to prevent basement flooding, which directly benefits property owners. The document is clear and concise and is designed to unify the messaging that stakeholders use when educating the public. The document includes logos and support from the Canadian Standards Association, Institute of Catastrophic Loss Reduction (insurance association), Victoria Real Estate Board and the Insurance Brokers Association of BC. It also received significant feedback and support from the ASTTBC Home Inspectors Association. The updated approach is summarized in the Outreach Project Overview: Preventing Basement Flooding. The approach, along with additional supporting educational materials (i.e. brochure), will be rolled out in late 2019. This educational document is included as Appendix D in the attached 2019 Report.

Other key actions completed in 2018 and early 2019 include:

- Updated I&I analyses for 62 catchments in the Core Area. In general, the I&I rates were similar to those from the last analyses in 2016; however, the new analyses included a detailed breakdown of sewer flow components, which can be used to better understand the root cause of the I&I in each catchment. The 2020 report will include additional analyses for catchments that didn't have suitable or available flow data in 2019.
- Initiated a pilot project (in progress) in 3 small catchments in Oak Bay.
- Participated on a national expert stakeholder committee tasked with developing a national standard for addressing I&I in new construction.
- Assisted consultants developing both the CRD's and Esquimalt's sewer models.
- Carried out a project to confirm flow data accuracy from municipal pump stations.
- Key components of the education approach were finalized with the new approach to be implemented in late 2019. The stakeholder engagement portion will be based on recommendations from the stakeholders themselves, based on interviews and a report completed in 2018.

The work described above will continue to support the regional effort to control and reduce municipal I&I flow rates; however, continued and focused work is still needed to meet the LWMP commitment of reducing wet weather flows below 4 times average dry weather flow at Clover Point and the McLoughlin Point wastewater treatment plant by 2030. Municipalities with older sewers, and inherently higher I&I, will need to allocate additional resources and accelerate efforts to meet their respective I&I reduction targets.

ALTERNATIVES

Alternative 1

That the Core Area Liquid Waste Management Committee recommend to the CRD Board:
That the Core Area Inflow & Infiltration Program 2019 Report be approved.

Alternative 2

That the Core Area Liquid Waste Management Committee direct staff to submit a revised report.

FINANCIAL IMPLICATIONS

The CRD engages with core area municipalities and First Nations to identify and reduce the amount of rain and ground water that enters the sanitary sewer system. The 2018 budget for this work was \$404,818. Municipal infrastructure repair initiatives are funded by the respective municipality. Monitoring, reporting, strategy and leadership are facilitated by the CRD I&I program.

ENVIRONMENTAL IMPLICATIONS

The work documented in the report supports CALWMP commitments related to reducing overflows, which will have a positive impact on local creeks, beaches and ecosystems.

SOCIAL IMPLICATIONS

Reduced I&I and overflows will reduce the number of beach closures and impacts on the natural environment. Public education and outreach programs for residents and businesses raise awareness of the issues and provide greater understanding of how everyone can contribute to I&I reduction.

CONCLUSION

The Core Area Inflow & Infiltration Program 2019 Report summarizes the activities and accomplishments of participating municipalities and First Nations for 2018 to mid-2019. While much work has been done to date, modelling indicates that municipalities contributing to Clover Point, with older sewer catchments, need to enhance their efforts on I&I reduction to meet the commitment in the CALWMP to prevent overflows for less than 5-year rain events by 2030.

RECOMMENDATION

That the Core Area Liquid Waste Management Committee recommend to the Capital Regional District Board:

That the Core Area Inflow & Infiltration Program 2019 Report be approved.

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Concurrence:	Larisa Hutcheson, P.Eng., General Manager, Parks & Environmental Services
Concurrence:	Robert Lapham, MCIP, RPP, Chief Administrative Officer

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Attachment: Appendix A – Core Area Inflow & Infiltration Program 2019 Report