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REPORT TO THE CORE AREA LIQUID WASTE MANAGEMENT COMMITTEE
MEETING OF WEDNESDAY, APRIL 17, 2019

SUBJECT **Core Area Inflow & Infiltration Program – Update**

ISSUE

To present an update on the activities and accomplishments of the Core Area Inflow & Infiltration (I&I) Program, including work carried out by the core area municipalities and efforts related to private property I&I.

BACKGROUND

The Core Area Liquid Waste Management Plan (LWMP) sets out goals and commitments for the municipalities and Capital Regional District (CRD) to manage inflow and infiltration. The Core Area I&I Management Plan, which was updated in 2017, contains the plan for meeting the LWMP commitments. The purpose of this update is to highlight progress toward meeting these commitments. Each fall, a detailed annual report is also presented to Committee and the Board.

The key I&I commitments in the LWMP are to reduce wet weather flows below four times average dry weather flow at Clover Point and McLoughlin Point wastewater treatment plant by 2030. The core area municipalities with newer sewers are generally already meeting this objective and are focusing on I&I prevention. The municipalities with older sewers, and inherently higher I&I, are focussed on resource allocation and projects to reduce their I&I and meet their commitments by 2030.

The core area I&I Management Plan includes a logical process for addressing I&I that focuses on addressing the areas with the highest I&I first. The process involves identifying areas that have elevated I&I, inspecting those areas (i.e., camera inspections), and prioritizing sewer rehabilitation and sewer renewal work accordingly. Overviews of municipal I&I actions to date, along with specific actions, are as follows:

Colwood continues to add new infrastructure to its young and growing system and diligently inspects new infrastructure to prevent I&I. It also inspects manholes and collects sewer flow data from its pump stations. In 2019, the CRD will carry out a project to document flow data accuracy from Colwood's municipal pump stations

Esquimalt camera inspected and smoke tested its entire sewer system, relined approximately half of its sewers, repaired manholes found to have structural defects and separated almost all combined manholes between 2004 and 2016. This work increased the reliability of the sewer system and reduced I&I. However, additional work is still needed to meet the LWMP commitments by 2030, notably I&I from private property and cross connections. In 2017 and 2018, Esquimalt interpreted results of its smoke testing program to find cross connections and developed a pilot project to install inspection chambers on sewer laterals. In 2019, Esquimalt is having a sewer model built. The model benefits from the work done by the CRD in 2018 to document flow data accuracy from Esquimalt's municipal pump stations. In 2019, the CRD will work with Esquimalt to identify and carry out a pilot project to further reduce I&I.

Langford has a rapidly-expanding new sewer system. Their sewer contractor diligently inspects new connections and is incentivized to continuously monitor and repair the sewer system to preserve sewer capacity for future growth. In 2017 and 2018, Langford rehabilitated 75 sewer inspection chambers and two sections of sewer with root intrusions. It also camera inspected eight kilometres of sanitary sewer and inspected 136 manholes. In 2019, the CRD will carry out a project to document flow data accuracy from Langford's municipal pump stations.

Oak Bay has the only combined sewers in the CRD, which are located in the Uplands. These sewers routinely overflow during rainfall events and are a top priority for provincial regulators. In 2017, Oak Bay finalized a plan to separate the sewers in the Uplands after years of substantial engineering effort, consultant studies and public consultation. Oak Bay received a grant to help fund the Humber catchment storm main design, worked with a consultant to prepare a request for proposal on the Humber design and is close to 100% design completion.

Amendment 12 of the LWMP, which was conditionally approved by the Province, requires that Oak Bay submit a cost-benefit analysis by December 31, 2019 of various timeframes to separate the Uplands system, including scenarios for a minimum four-year timeline, the 2027-2047 timeline, and something in between. The District of Oak Bay must also provide a timeline to rehabilitate the existing combined sewer pipeline that is to be repurposed as the sanitary sewer pipeline; this portion of the pipeline is particularly old and susceptible to inflow and infiltration. (The conditional approval of Amendment No. 12 also requires the CRD to complete a broader update and amendment to the LWMP by December 31, 2021, with the target of reducing/ eliminating overflows at Clover Point by 2030. Meeting this target will rely on key reductions to inflow and infiltration in municipalities throughout the Clover conveyance system.)

Since the original submission of Amendment No. 12 in 2016, the District of Oak Bay has sought and received limited external funding to further the design stages of the project. The separation cost estimates initially submitted in the Amendment have since been refined based on completion of detailed designs, and the District will continue to seek external funding to reduce property tax impacts to Uplands homeowners and accelerate the overall project timeline.

In addition to the Uplands separation work, Oak Bay also carried out a five-year I&I pilot project in south Oak Bay in the late 2000s and is currently in year three of a five-year program to camera inspect all the sewers in Oak Bay. In 2017 and 2018, Oak Bay rehabilitated 1.4 kilometres of sanitary sewer, replaced three manholes, and separated 21 cross-connections. Oak Bay is currently building a sewer model. In late 2018, the CRD started an I&I reduction pilot project focused on identifying the most cost-effective I&I reduction options for three Oak Bay sewer catchments with high I&I.

Saanich continues with programs related to sewer maintenance and repairs, camera inspections, smoke testing and flow monitoring. Annually, Saanich replaces or relines approximately three kilometres of sanitary sewer and relines or replaces approximately 80 sewer laterals to the property line. This is in addition to projects to upsize or redirect its sewer system or to upgrade pump stations. In 2019, the CRD will work with Saanich to generate sewer flow data from Saanich pump stations.

Victoria prioritizes and schedules its sewer repair and replacement work in its sewer master plan. This plan requires substantial effort to put together and it could not be updated until the site of the core area treatment plant was finalized. While delayed, Victoria deployed 12 sewer flow meters, camera inspected its entire system and smoke tested its entire sewer system. From 2009 to 2012, Victoria carried out a $3.6 million pilot project in James Bay to test I&I reduction methods. In 2017 and 2018, it completed its sewer master plan, rehabilitated or repaired 3.8 km of sewer main and replaced 11 sewer manholes. It also camera inspected 17 kilometres of sewer main. In early 2020, the CRD will work with Victoria to identify and carry out an I&I reduction pilot project for the municipality.

View Royal continues with programs related to sewer maintenance and repairs, camera inspections, sewer flushing and flow monitoring. In 2017, View Royal completed a drainage master plan. It is currently working on its sewer master plan. It also repaired two sections of sewer and four manholes. In 2018, the CRD carried out a project to document flow data accuracy from View Royal's municipal pump stations.

Esquimalt Nation continues its program related to sewer maintenance, including active flow monitoring of their pump station. In 2018, Esquimalt Nation completed an I&I study to investigate I&I sources, along with detailed design, to remediate.

Songhees Nation continues its program related to sewer maintenance and repairs. Songhees completed an I&I study to investigate I&I sources, along with detailed design, to remediate. In 2017, the Songhees Nation initiated the implementation of sewer improvements to address the study findings.

The CRD continues to work with its municipal partners on I&I-related efforts in the core area. This includes efforts related to standardizing I&I approaches, preparing management plans and annual reports, private property I&I initiatives, and education. It also involves coordination with municipalities and related organizations from across the country that are dealing with similar issues. Key recent work includes:

- Completing the Core Area I&I Management Plan five-year update.
- Updating the I&I educational approach and related materials, which will be available by the third quarter of 2019. The approach is focused on encouraging the inspection and maintenance of sewer laterals to prevent basement flooding. The work includes substantial stakeholder engagement.
- Carrying out a project to document flow data accuracy from municipal pump stations. Half of this work was completed in 2018, with the rest scheduled for completion in 2019.
- Carrying out I&I related pilot projects with the core area municipalities. The first project was started in late 2018, and involves I&I investigation work (i.e., smoke testing) in three Oak Bay catchments with high I&I. The goal is to identify the most cost-effective I&I reduction options for these catchments and to document lessons learned. Staff plan to do I&I reduction pilot projects in Esquimalt in 2019, and in Victoria in 2020.

ENVIRONMENTAL IMPLICATIONS

I&I reduction efforts will need to be accelerated in the municipalities that currently don't meet the 2030 LWMP I&I commitments to prevent overflows to local creeks, beaches and ecosystems.

SOCIAL IMPLICATIONS

Reduced I&I and overflows will also reduce the number of beach closures. As residents and businesses become more aware of I&I through ongoing public education and outreach programs, there will be a greater understanding of how everyone can be part of the solution to reduce I&I.

CONCLUSION

The core area I&I program carries out a number of I&I related activities. These are presented to the CALWMC as part of the annual reports in the fall. The purpose of this staff report is to provide a mid-year update as requested. The core area I&I program's annual update to be presented in the fall will provide an up-to-date status of each municipalities I&I flow rates and related overflows.

RECOMMENDATION

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

That this report be received for information.

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