

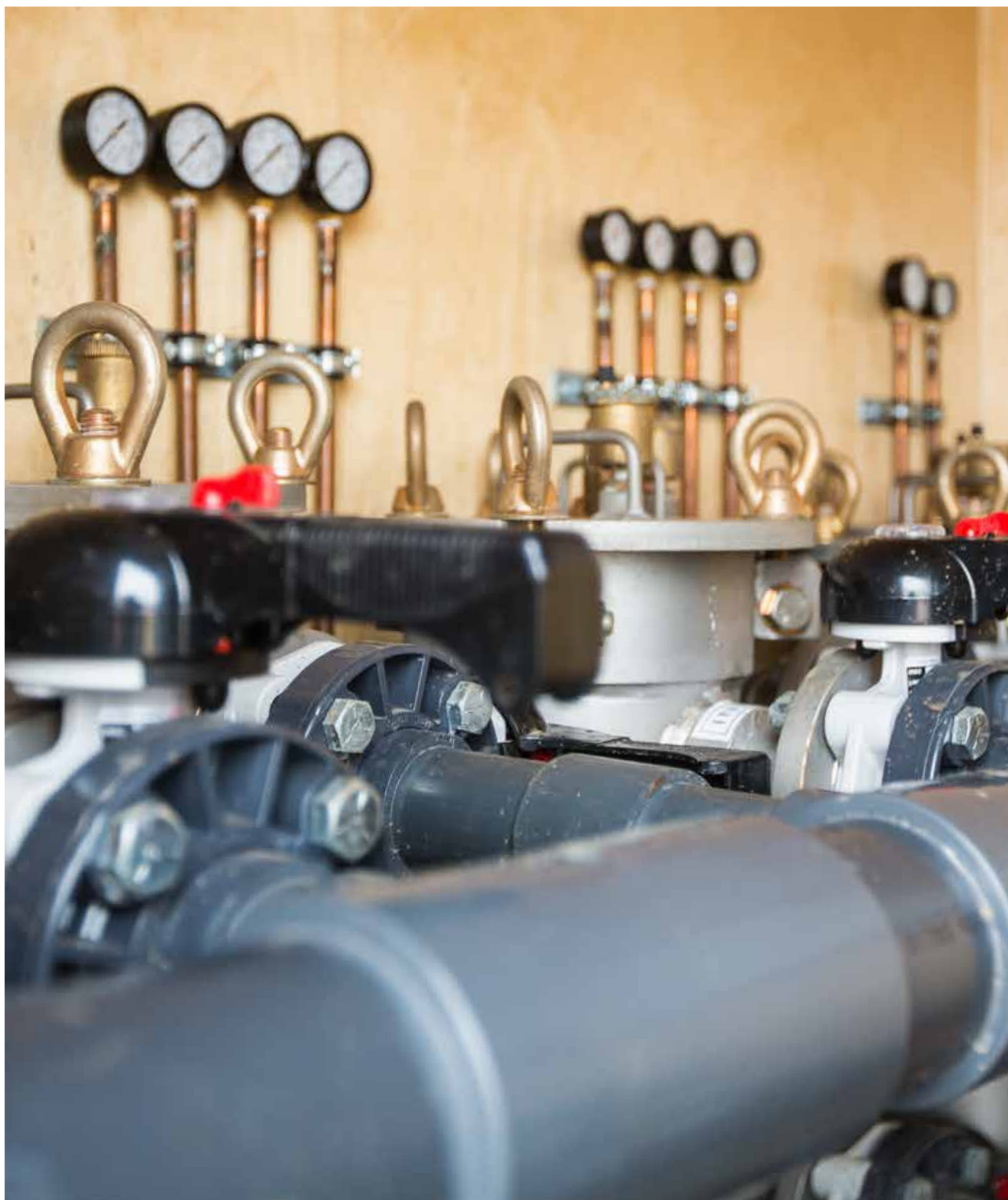
Saanich Peninsula Liquid Waste Management Plan

2016 Annual Programs Report



CRD

Making a difference...together



Saanich Peninsula Liquid Waste Management Plan

The Capital Regional District (CRD), on behalf of the Saanich Peninsula participants—Central Saanich, North Saanich, Sidney, Tseycum First Nation, Pauquachin First Nation, Tsawout First Nation and Tsartlip First Nation—manages wastewater and stormwater according to strategies and activities outlined in the Saanich Peninsula Liquid Waste Management Plan (the “Plan”). Other significant stakeholders in the Plan include the Victoria Airport Authority and the Institute of Ocean Sciences. The 25-year Plan was originally approved by the BC Ministry of Environment (MOE) under the *Environmental Management Act* in October 1996, and has had 4 amendments, most recently consolidated in October 2009.

CRD liquid waste management involves planning, operation and maintenance, as well as various other activities that have regulatory reporting requirements and commitments to support, inform and educate stakeholders about liquid waste and environmental protection.

There are 5 general objectives of the Plan:

- to ensure efficient, and optimal, operation and maintenance of liquid waste infrastructure
- to reduce contaminants in the liquid waste infrastructure and the environment
- to monitor and assess risks associated with the liquid waste infrastructure on human health and the environment
- to report out on provincial and federal regulatory requirements and inform stakeholders and the public
- to plan and implement liquid waste infrastructure upgrades

There are 8 programs that work to achieve the Plan objectives:

- operations, maintenance and planning
- inflow and infiltration management
- corrosion and odour control
- wastewater and marine environment monitoring
- source control
- stormwater quality
- trucked liquid waste management
- onsite wastewater management

This brochure provides a brief summary of the 2016 to mid-2017 activities undertaken to meet the Plan objectives by the various programs.



Operations, Maintenance and Capital Planning

The proper operation of liquid waste infrastructure is critical to ensuring environmental and human health protection.

The Integrated Water Services Department

The Integrated Water Services Department (Operations) is responsible for the operation and maintenance of the Saanich Peninsula wastewater system, including sewage collection from municipal systems, conveyance through CRD trunk systems, secondary treatment at the Saanich Peninsula Treatment Plant, and disposal through the ocean outfall in Bazan Bay. The 2016 core budget for this service was approximately \$3.1 million. Minor capital projects are planned for the conveyance system on an ongoing basis.

Significant activities included:

- operating the facility so there were no compliance issues and no sewer overflow or bypass events.
- undertaking sonar and visual inspections of the treatment plant and Sidney pump station outfalls. Two minor leaks found in the treatment plant outfall were repaired within 3 weeks of discovery.
- completion of approximately 95% of preventative maintenance work orders planned for the year, including restoration of manholes in problematic portions of the conveyance system.
- maintaining odour control devices throughout the conveyance system to reduce sewer odours as part of the Corrosion & Odour Control Program (Corrosion).

There are 2 significant planning initiatives related to the Plan.

The first relates to Plan commitments to “pursue an effective and diversified program for the beneficial reuse of Class A biosolids”. Production of Class A biosolids at the Saanich Peninsula Treatment Plant ceased in 2011 following a Board motion that “[ended] the production, storage and distribution of biosolids for land application at all CRD facilities and parks”. Since then, the treatment plant sludge has been disposed of at Hartland Landfill as controlled waste. Options for beneficial reuse are currently being explored, both independently for Saanich Peninsula, as well as together with the CRD’s core area plans for wastewater treatment and regional integrated resource management.

The second significant planning project is related to an assessment for disinfection at the Saanich Peninsula Treatment Plant. The plant was originally commissioned without disinfection, with conditions that would trigger a future review. One condition (10 years of operation) was triggered in 2011 and staff initiated a review at that time. Since then, it has been identified that the largest potential driver for disinfection would be improving access to currently-closed shellfish harvesting areas in the marine environment. The CRD is working with the 4 Saanich Peninsula First Nations to identify closed areas that have the most significant shellfish harvesting potential. This information will be used to determine whether disinfection at the treatment plant will facilitate opening the closed harvesting areas.

The Regional Source Control Program

The Regional Source Control Program (Source Control) protects Saanich Peninsula sewage collection and treatment facilities, public health and safety, and the marine receiving environment by reducing the amount of contaminants that industries, businesses, institutions and households discharge into the district’s sanitary sewer systems. The 2016 budget for this work was approximately \$130,000.

Significant activities included:

- ensuring an annual Code of Practice inspection frequency for the Food Service and Kitchen Cleaning sectors (>120 regulated businesses on the Peninsula) to ensure grease trap requirements are being met and that conveyance system grease blockages are avoided. On a region-wide basis, 2 grease blockages in municipal sewers were investigated in 2016 and 7 tickets were issued to non-compliant Food Services and Kitchen Cleaning operations.
- collaborating with the Corrosion program to establish sulphide-generating trends at various hotspot locations in the conveyance system to ensure that concentrations of sulphide in the system do not reach levels that increase potential for pipe corrosion.



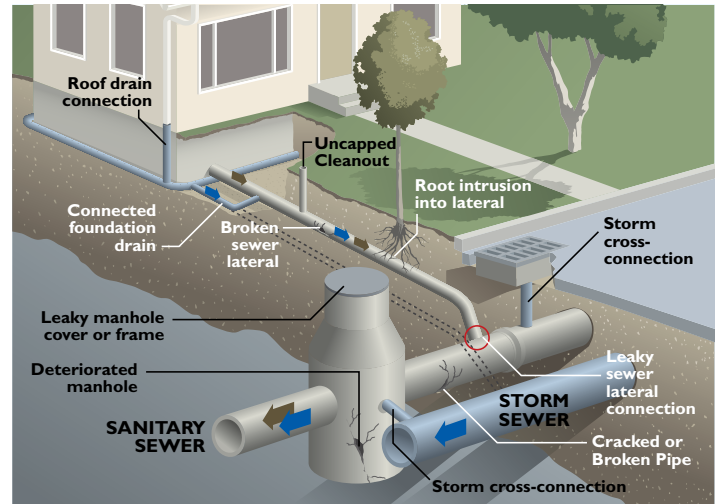


The Inflow and Infiltration Program

Inflow and infiltration (I&I) management is an important component of the Plan to ensure proper operation of the sewage conveyance system. I&I management on the Saanich Peninsula is currently facilitated primarily by the municipalities with CRD support. I&I assessments have been undertaken historically, but relatively little CRD-facilitated activity has occurred in recent years. However, the CRD has recognized the need to increase efforts on I&I management as the system is aging.

Significant activities included:

- planning for the installation of additional wastewater conveyance system flow meters, which will allow for better I&I assessments in the future.



The Stormwater Quality Program

The Stormwater Quality Program (Stormwater) plans, promotes and coordinates the management of stormwater quality in consultation with the municipalities and First Nations. The 2016 budget for the program was approximately \$107,000. The program helps assess the operation of municipal stormwater infrastructure and impacts to the environment, both freshwater and marine.

Significant activities included:

- ongoing monitoring and evaluation of stormwater discharges along the coastline of the Peninsula, to identify stormwater conveyance system operational issues such as cross-connections or failing infrastructure.
- participating at numerous outreach events to provide private property owners with information regarding stormwater management.
- providing monitoring support, data and education to support the discussions with municipalities and First Nations regarding improving access to shellfish resources.
- completing a Green Stormwater Infrastructure Design Guidelines document to promote efforts to reduce stormwater input into the conveyance system.
- adopting a Saanich Peninsula Stormwater Source Control Bylaw (Bylaw 4168).

The Onsite Wastewater Management Program

The Onsite Wastewater Management Program (Septic) is a pollution prevention program for septic systems that aims to protect public health and safety, local surface and groundwater resources, and the environment. The program strives to reduce the number of malfunctioning onsite wastewater systems by promoting proper care and maintenance. On the Saanich Peninsula, Septic program activities are primarily education and outreach focused. The 2016 region-wide budget for Septic program education and outreach was approximately \$41,000.

Significant activities included:

- participating at numerous outreach events and Septic Savvy workshops to educate owners about the proper care and maintenance of their onsite systems.





Contaminant Reduction

Liquid waste can contain contaminants that have the potential to adversely impact human health and the environment. There are various commitments and activities in the Plan to reduce the input of these contaminants to the environment.

Source Control

The Source Control Program reduces inputs of contaminants into the sewer system in numerous ways, which leads to the reduction of contaminants discharged to the environment.

Significant activities included:

- undertaking targeted Code of Practice inspections for various sectors, including Automotive, Dry Cleaning, Dental, Photographic Imaging and Printing, to ensure onsite waste management systems are functioning efficiently. The Automotive and Dry Cleaning sectors were prioritized, as these sectors generate the contaminants that are most commonly measured in Saanich Peninsula sewage at concentrations that could cause environmental effects.
- undertaking semi-annual inspections of the 8 active Industrial, Commercial and Institutional (ICI) permits and annual inspections of the 19 active ICI authorizations, to ensure onsite waste management systems are in place.
- working with 3 distilling operations (1 on the Peninsula) to research the industry, investigate potential impacts and determine whether additional Code of Practice direction or regulation is warranted.
- delivering the Clean Water Begins at Home 2.0 outreach program, in collaboration with the Septic program, that educates regional residents on managing activities around the home that can introduce contaminants into the sewer and onsite systems.
- promoting of the BC Medications Return Program in collaboration with Island Health and the Health Products Stewardship Association.
- developing a new video series that reinforces source control practices.

Stormwater

The Stormwater program also undertakes activities that reduce contaminant input to the environment and protect human health.

Significant activities included:

- continuing work with municipalities to resolve high-risk stormwater discharges by undertaking upstream investigations to find sources of contaminants and bacteria. These efforts resulted in repairs of sewage-stormwater cross-connections and municipal infrastructure. As a result, bacterial levels have been reduced and the number of high-risk stormwater discharges has declined from 8 locations to 6.
- implementing the Stormwater Source Control bylaw in collaboration with the Source Control program to reduce contaminant input into the environment from sources such as parking lots, outdoor storage facilities, and automotive repair shops.
- completing a Green Stormwater Infrastructure Guidelines document and Watershed-wise Business Best Management Practices brochure to promote contaminant reduction in watersheds, and ultimately the stormwater infrastructure and marine environment.
- continuing the Ollie the Otter Watershed Warden Badge program to educate children about their impacts on (and interactions with) the environment, watershed functionality and contaminant behavior in watersheds.
- promoting the Keyline Water Management: Field Research & Education in the Capital Region program to reduce contaminants leaving agricultural areas.



The Trucked Liquid Waste Program

The Trucked Liquid Waste Program objectives are to ensure non-domestic trucked liquid waste is handled and disposed of in an appropriate and responsible manner, and to prevent adverse impacts to human health and the environment. The 2016 region-wide budget for this program was \$56,000.

Significant activities included:

- undertaking a characterization study of the chemical composition of trucked liquid waste from various sources to inform the region's primary trucked liquid waste treatment contractor and allow them to refine their treatment processes to improve efficiency and reduce odour and corrosion-related contaminants to municipal sewage infrastructure.
- delivering new and concise outreach material targeting catch basin maintenance to reduce contaminant loading to the stormwater system.
- continuing outreach to trucked liquid waste generators and haulers to provide information about proper management and disposal of wastes, technical reports and tools for waste haulers, as well as a service provider directory.



Monitoring and Assessing Risks

There are numerous activities under the Plan that are undertaken to monitor and assess risks to human health and the environment from liquid waste.

Wastewater and Marine Environment Program

The Wastewater and Marine Environment Program (Marine) monitors and assesses wastewater quality and quantity, and the potential effects of the Bazan Bay outfall to the marine environment. Monitoring is undertaken over a 4-year cycle. The 2016 budget for this work was approximately \$146,000 (included in the \$3.1 million sewer system operating budget).

Significant activities included:

- undertaking wastewater and surface water monitoring to meet regulatory requirements, assess risks to human health and confirm proper operation of the outfall diffuser. Beyond routine requirements, staff also monitored the impacts of the recent outfall breach event, both in the water column above the leak, and along the shoreline.
- undertaking seafloor monitoring to meet regulatory requirements, assess risks to marine life and assess the spatial extent of outfall impacts. This monitoring component is undertaken once every 4 years.
- undertaking sludge monitoring to compare to Organic Matter Recycling Regulation limits.
- participating in Vancouver Island University and Vancouver Aquarium projects that are working to assess microplastics in the ocean waters and sea life of the Salish Sea. The CRD provided sewage, marine sediment and Clover Point horse mussels to the researchers so they can develop analytical methodologies that determine both quantity and type of plastics, the first step in assessing the risk of these emerging contaminants of concern.
- completing a detailed statistical trend assessment of the 2001–2015 sewage and sludge data to determine temporal trends in loadings and concentrations of various contaminants. This information will be used to assess risks to the environment of any contaminants experiencing increasing trends, as well as to assess the success of Source Control program initiatives in reducing contaminant input to the system.
- providing monitoring and data to support the discussions with municipalities and First Nations regarding improving access to shellfish resources.

Stormwater

One of the main objectives of the Stormwater program is to assess risks from stormwater discharges to human health and the marine environment.

Significant activities included:

- monitoring stormwater discharges for environmental concern based on the level of metals and organic contaminants measured in sediment from within the stormwater collection system. Staff compare sediment contaminant levels to freshwater and marine sediment quality guidelines to identify contamination issues and assess risk.
- undertaking a second year of monitoring stormwater discharges at high-use beaches to determine human health risks. This monitoring was driven by the observed significant increase in recreational activities in local marine waters, even in the winter. Staff shared information with Island Health to determine whether beach closures were warranted, and with the municipalities to investigate potential mitigation and remediation measures.
- monitoring the health of Saanich Peninsula creeks using water quality parameters, including the assessment of invertebrate animals living in creek sediment.
- collaborating with Central Saanich and the Peninsula Streams Society to identify sources of contamination in an industrial park.

Source Control

The Source Control program undertakes monitoring to determine risks of the various contaminant sources into the sewage system. Some of the monitoring must be undertaken by the businesses holding Source Control authorizations and permits, while other monitoring is undertaken by the program itself.

Significant activities included:

- contributing key manhole samples to the Vancouver Island University and Vancouver Aquarium microplastic projects. The results will be used to determine whether sections of the conveyance system that receive sewage from different types of activities (e.g., predominantly residential versus commercial or industrial) generate different types and quantities of microplastics.

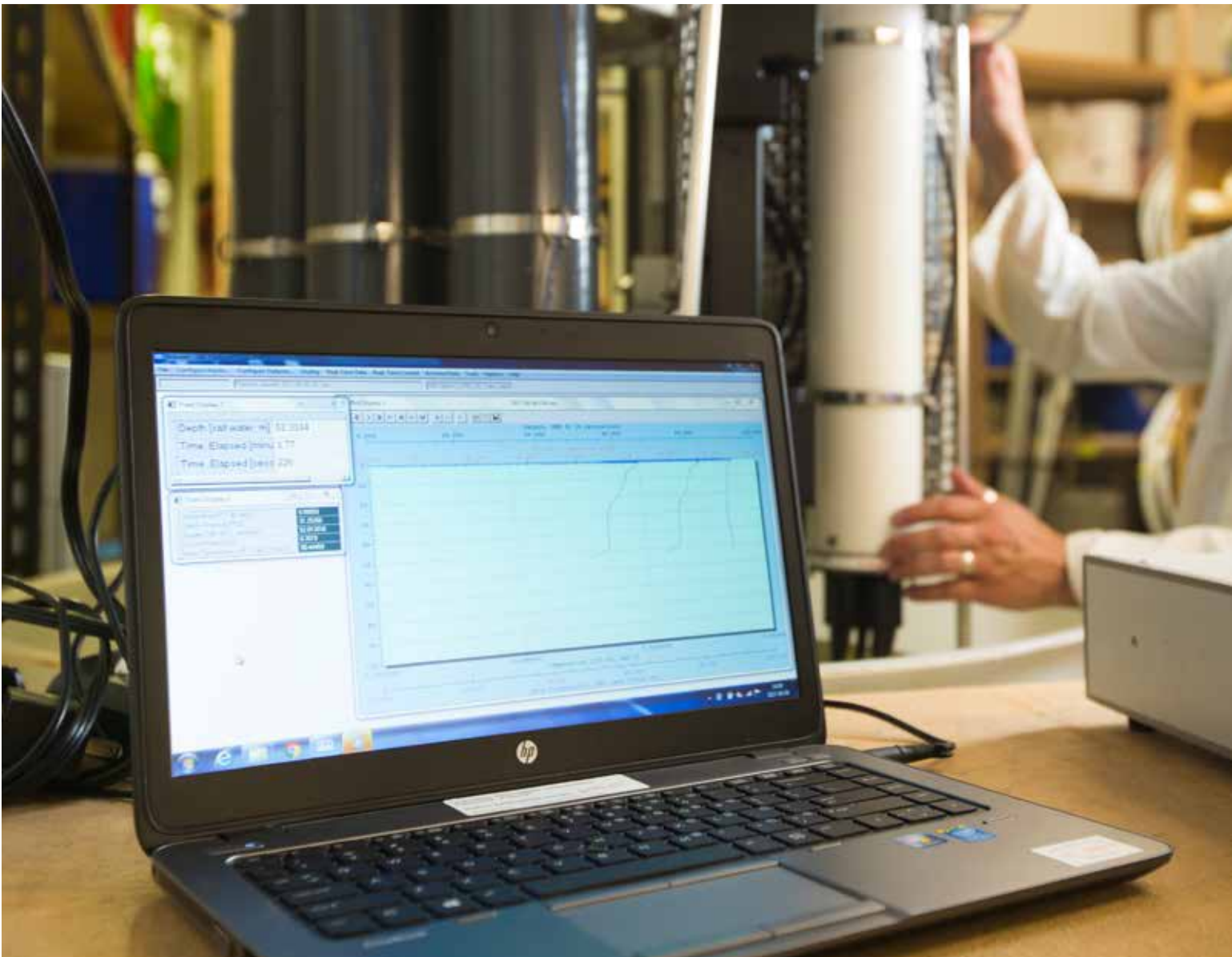
Corrosion

The Corrosion program undertakes routine monitoring from approximately May through September each year. The objective of the program is to identify locations where sewer corrosion is a concern and where odours may cause a public nuisance. Staff respond to odour nuisance complaints submitted by the public, of which there was only 1 in 2016-2017. The 2016 budget for this program was approximately \$18,000.

Significant activities included:

- planning and implementation of corrosion and odour control tests to assess control efficacy and identify options to improve mitigation.





Reporting

The CRD is required to submit data and other information to satisfy provincial and federal regulatory requirements.

These include:

- monthly and quarterly compliance reports summarizing wastewater quality compared to limits in the Operational Certificate for the Saanich Peninsula Treatment Plant and the federal wastewater regulations.
- annual reports summarizing the Marine and Source Control program activities undertaken in that calendar year, including monitoring and regulatory efforts, as well as any new initiatives and emerging contaminants that may be targeted in the future. These annual reports are made available to the public, and also used internally to assess outfall functionality and to determine whether there are any trends in contaminants that may warrant Source Control program investigation or operational changes.

The CRD also regularly produces reports specifically for internal and external stakeholders.

These include:

- annual reports by the Stormwater program to inform the municipal and First Nations stakeholders. These reports summarize the monitoring activities and include a risk assessment of the stormwater discharges monitored that year, which is used by the municipalities to prioritize remediation and repairs of the stormwater infrastructure.
- annual reports by the Septic and Trucked Liquid Waste programs that summarize their activities throughout the year.

Other forms of reporting are more informal and include:

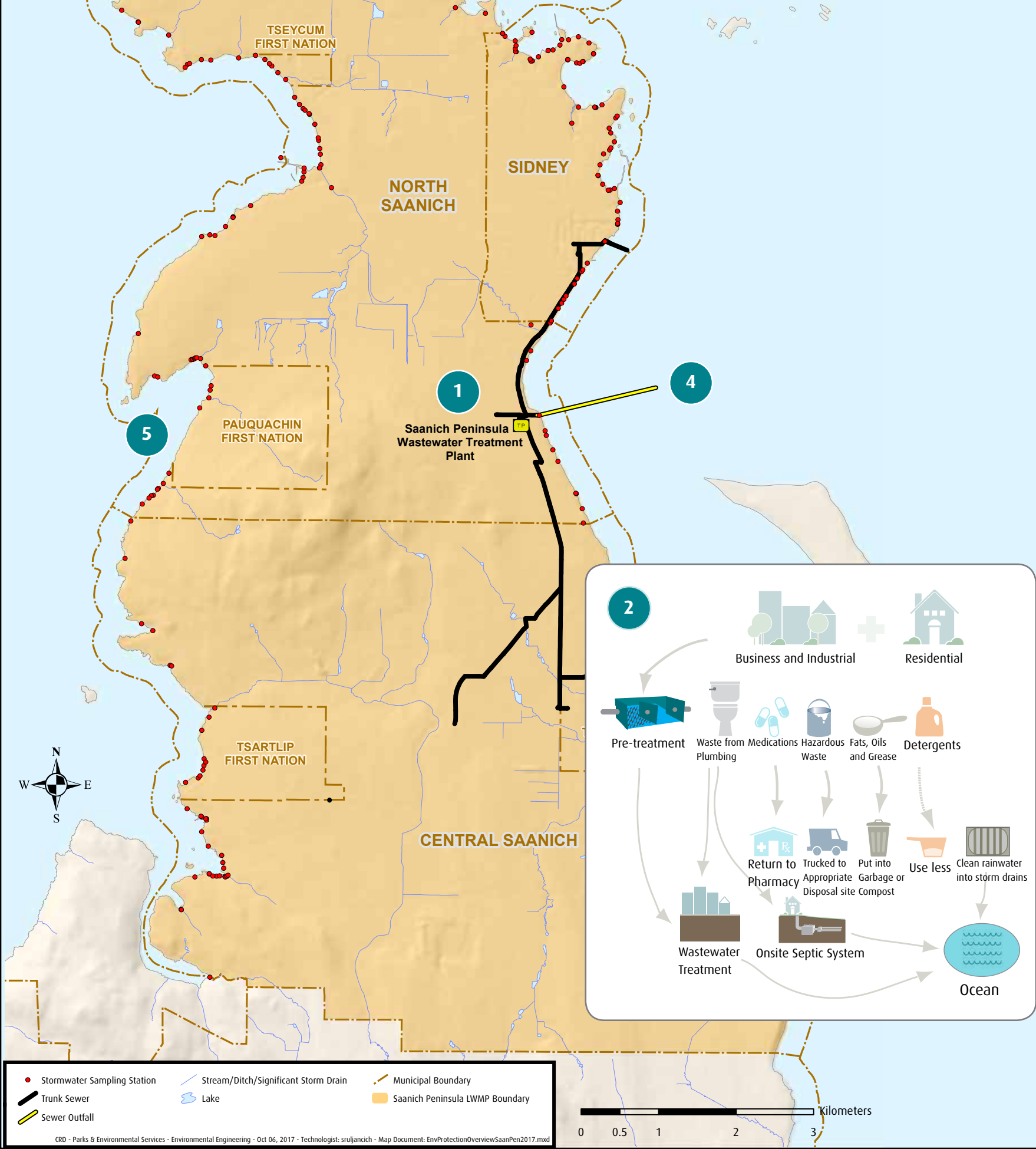
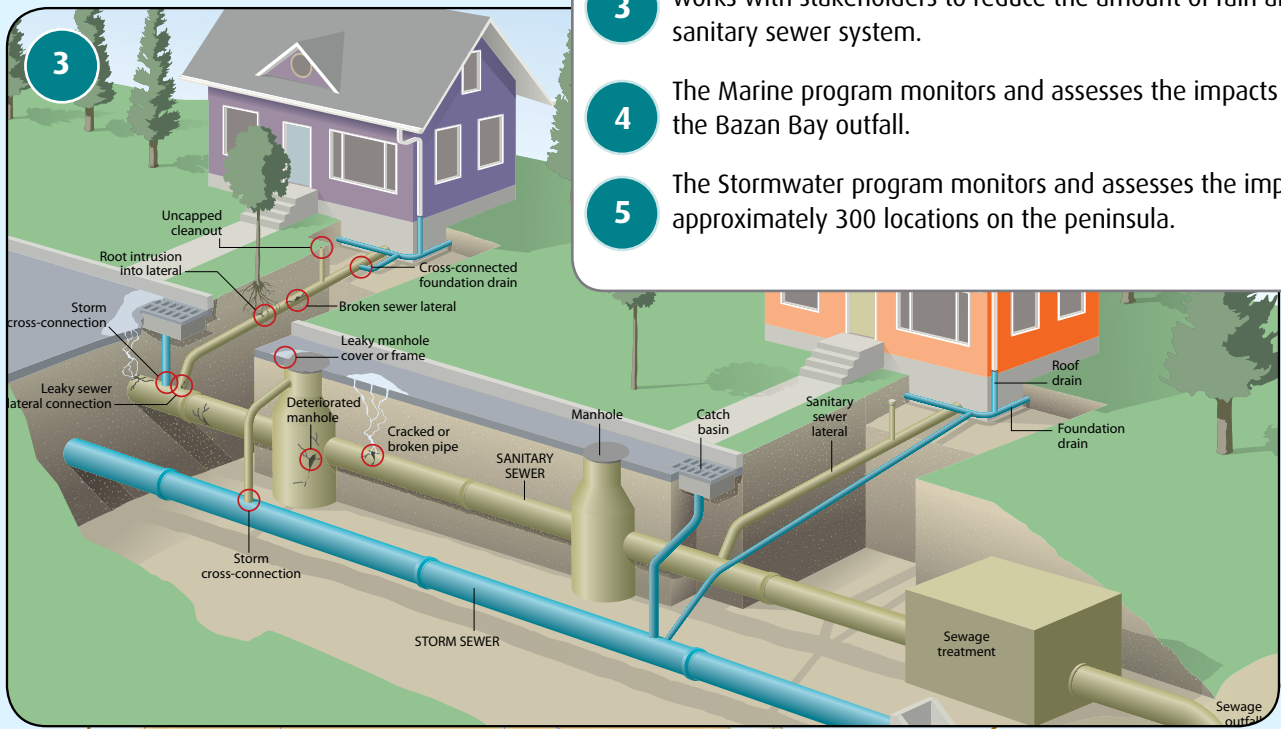
- participating in various multi-stakeholder initiatives, such as the First Nations Shellfish group and the new Community Integrated Watershed Management group. These initiatives provide a forum for sharing information between partners and create opportunities for collaboration on environmental projects and outreach activities.
- participating in various community, outreach and education events and celebrations, and sponsoring free public talks. These events provide avenues to share information about numerous Plan programs.

Emergency notifications:

- emergency notifications are issued as required, often in response to operational events such as storm-related wastewater overflows or equipment failures. Island Health is consulted for any event that has the potential to impact human health. Both the provincial and federal governments are also notified.

Program Linkages

- 1 Operations staff work to operate, maintain and replace the trunk sewer, pump stations and outfalls.
- 2 The Source Control, Trucked Liquid Waste and Septic programs all work together to ensure potential contaminants are properly disposed of and do not enter into the environment.
- 3 Inflow and infiltration issues potentially occur throughout the peninsula. The I&I program works with stakeholders to reduce the amount of rain and groundwater entering the sanitary sewer system.
- 4 The Marine program monitors and assesses the impacts of wastewater discharged through the Bazan Bay outfall.
- 5 The Stormwater program monitors and assesses the impacts of stormwater discharged at approximately 300 locations on the peninsula.





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