



REGIONAL
DISTRICT
OF NANAIMO



2023 Annual Report

Liquid Waste Management Plan

Submitted to the Ministry of Environment and Climate Change Strategy

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Table of Contents

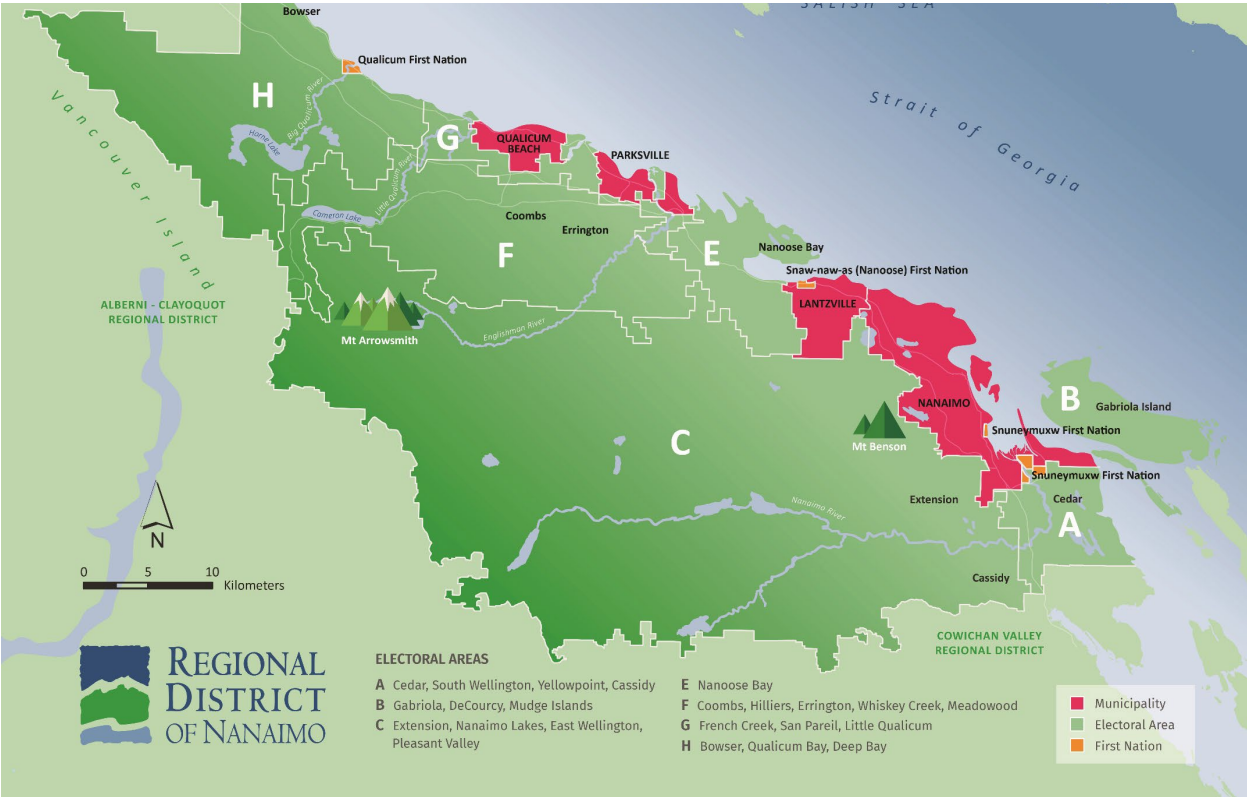
1)	<i>Introduction</i>	1
	1.1 Regional District of Nanaimo	1
	1.2 Wastewater Services	2
	1.3 Liquid Waste Management Plan	2
	1.4 Annual Report	3
	1.5 LWMP Amendment	3
2)	<i>Status of the LWMP Commitments</i>	3
	2.1 Meetings	5
	2.1.1 LWMP Monitoring Committee	5
	2.1.2 W3C	5
	2.1.3 Rainwater Working Group	5
3)	<i>Ongoing Program Implementation</i>	5
4)	<i>Emerging Issues</i>	6
	4.1 Shellfish Harvesting Areas	7
	4.2 Contaminants of Emerging Concern	7
	4.3 Heritage Resources	7
	4.4 Climate Change	8
	4.4.1 Sea Level Rise Adaptation	8
	4.4.2 Bay Avenue Pump Station Replacement	8
	4.5 Non-Point Sources of Pollution	8
	<i>Summary of Comittments...</i>	Appendix A
	<i>Update on the Regional Strategy for Rainwater Management...</i>	Appendix B

1) Introduction

1.1 Regional District of Nanaimo

The Regional District of Nanaimo (RDN) provides regional governance and services to approximately 170,000 people on the central east coast of Vancouver Island. The RDN includes the City of Nanaimo (Nanaimo), District of Lantzville (Lantzville), City of Parksville (Parksville), Town of Qualicum Beach (Qualicum Beach), and seven unincorporated Electoral Areas, shown in Figure 1. Snuneymuxw, Snaw-naw-As, and Qualicum First Nations have communities in the RDN and the RDN is in the traditional territories of several First Nations.

Figure 1. Communities in the Regional District of Nanaimo



1.2 Wastewater Services

In Nanaimo, Lantzville, Parksville, Qualicum Beach, and on Snuneymuxw First Nations lands, those communities operate sanitary sewer collection services. In Electoral Areas A, E, and G, the RDN operates six small sewer collection systems. Wastewater from these collection systems goes to one of four treatment facilities operated by the RDN:

- French Creek Pollution Control Centre (FCPCC)
- Nanoose Bay Pollution Control Centre (NBPCC)
- Greater Nanaimo Pollution Control Centre (GNPCC)
- Duke Point Pollution Control Centre (DPPCC).

Each facility has a marine outfall that discharges treated effluent to the Strait of Georgia. The RDN also operates 23 pump stations, two septage receiving sites and more than 50 km of pipes to transport wastewater. In total, the RDN treats wastewater from approximately 135,000 people¹.

About 35,000 people and businesses are outside sewer service areas and use septic systems for wastewater treatment. A small number of properties use holding tanks. Island Health oversees septic systems and holding tanks. However, the RDN has facilities to accept and treat waste trucked from privately-owned septic and holding tanks.

1.3 Liquid Waste Management Plan

The Liquid Waste Management Plan (LWMP) is the RDN's long-range plan to manage wastewater. An LWMP approved by the Province of BC (the Province) authorizes wastewater treatment facilities and discharges and establishes elector approval for long-term borrowing.

The Province approved the RDN's first LWMP in 1999 and an LWMP Amendment in 2014. The 2014 LWMP Amendment is the current plan. It organized commitments into ten programs:

1. Public Wastewater Systems Program
2. Private Onsite Systems Program
3. Source Control Program
4. Odour Control Program
5. Rainwater Management / Drinking Water & Watershed Protection (DWWP) Program
6. Volume Reduction Program
7. Inflow & Infiltration Program
8. Pollution Control Centres Program
9. Resource Recovery Program
10. Biosolids Program

The LWMP programs make 118 commitments. The LWMP also identifies five emerging issues to follow.

¹ Separately, Snaw-naw-as First Nation also owns and operates their own wastewater collection, treatment, and disposal system.

1.4 Annual Report

The RDN prepares an annual report on the LWMP by June 30 of each year. The annual report tracks the status of the 118 program commitments and is organized as follows:

- Section 2 updates the status of the commitments that were underway or outstanding as of the 2022 Annual Report.
- Section 3 highlights ongoing progress towards the goals of the LWMP Programs.
- Section 4 notes progress to address emerging issues.

1.5 LWMP Amendment

In 2021, the RDN initiated an LWMP amendment. In December 2023, the RDN submitted a request to the Minister of Environment and Climate Change Strategy to amend the LWMP. Therefore, this annual report (with the Summary of Commitments in Appendix A) tracks the final status of the 118 program commitments and marks the transition to the action items proposed the pending [LWMP Amendment](#).

2) Status of the LWMP Commitments

The 2022 LWMP Annual Report documented that, by the end that year, 108 of the 118 commitments were already met. There were no outstanding commitments for these programs:

- Public Wastewater Systems Program
- Private Onsite Systems Program
- Source Control Program
- Odour Control Program
- Volume Reduction Program
- Rainwater Management / Drinking Water and Watershed Protection Program.

Table 1 summarizes status of the ten outstanding LWMP commitments and explains if they were carried through to the LMWP Amendment, adjusted, or removed. Appendix A summarizes the status of all 118 commitments.

Table 1. Status of In Progress and Outstanding Commitments

Program	Commitment	Status
Inflow & Infiltration	Design [NBPCC treatment] upgrades to RDN infrastructure so flows up to two times ADWF will receive secondary treatment and all flows in excess of this amount will receive primary treatment.	The 2023 LWMP Amendment Action Item 1.11 is to Design NBPCC secondary treatment upgrade to provide secondary treatment for flows up to two times average dry weather flow during storm or snowmelt events with less than a 5-year return period. Excess flows will receive at least primary treatment.

Program	Commitment	Status
Inflow & Infiltration	Enhance the source control program to encourage landowners to check gutters and outside drains for connection to the sewer system, avoid planting trees and shrubs over sewer laterals, ensure basement drains and sump pumps are not connected to the sanitary sewer, and replace broken or leaky pipes located on private property.	<p>The 2023 LWMP Amendment addresses I&I:</p> <ul style="list-style-type: none"> ▪ Section 2.4 includes landowner tips to reduce I&I. ▪ Action Item 4.7 is to promote a public education program to generate support to reduce I&I on private property.
Pollution Control Centres	Upgrade NBPCC to provide secondary treatment by 2023.	The 2023 LWMP Amendment modifies the timeline. Action Item 1.12 is to provide secondary treatment at NBPCC by 2040.
	Expand FCPC capacity.	Detailed design underway. The FCPC Expansion and Odour Control Upgrade is one of the capital projects identified in the 2023 LWMP Amendment.
	Coordinate with Development Services through the Official Community Plan (OCP) review process to identify property owners in growth containment boundaries [in Nanoose Bay] who are interested in establishing public wastewater services.	The 2023 LWMP Amendment removes this commitment because the OCP process is governed separately by the <i>Local Government Act</i> . Further, the RDN Planning Department determines the scope and timeline of an OCP review. Wastewater Services will support the Planning Department outside of the LWMP.
	[For NBPCC] Consider resource recovery, visual, and olfactory buffers and the number of pump stations required.	The 2023 LWMP Amendment mentions that resource recovery is considered at the start of projects in the Project Identification and Scope of Work form. LWMP Amendment Action Item 1.9 says the RDN will consider visual buffers during the design of the NBPCC secondary treatment upgrade.
	Review and update the Fairwinds sewer servicing agreement and [Development Cost Charge] DCC bylaw for the Nanoose Bay area.	These have been removed from LWMP Amendment because DCC collection and reviews are governed separately by the <i>Local Government Act</i> .
	Develop a DCC bylaw to allow properties in the growth containment area to purchase capacity at DPPCC.	

Program	Commitment	Status
Resource Recovery	Examine opportunities for using reclaimed water for the Fairwinds Golf Course.	This commitment was removed from the LWMP Amendment because the RDN will participate in a discussion if one is initiated by Fairwinds Golf Course.
Biosolids	Improve the quality of biosolids through upgrades to wastewater treatment infrastructure and innovative technologies and techniques (i.e., decrease volatile solids content and pathogen concentrations).	LWMP Amendment Action Item 2.1 reaffirms the RDN’s commitment to beneficially manage RDN Class A or Class B biosolids. Action Item 2.2 makes the commitment to continue the existing biosolids management programs if they remain viable.

2.1 Meetings

The RDN holds several meetings to advance programs and policies related to the LWMP. These meetings are listed below.

2.1.1 LWMP Monitoring Committee

In 2023, LWMP Monitoring Committee meetings were held on March 7 and October 17. Recent meeting agendas and minutes are available at rdn.bc.ca/agendas-minutes-videos.

2.1.2 W3C

The RDN hosts Wastewater and Water Collaborative (W3C) meetings twice a year to meet with staff from the City of Nanaimo, District of Lantzville, City of Parksville and Town of Qualicum Beach. In 2023, W3C meetings were held on April 20 and October 23.

2.1.3 Rainwater Working Group

In 2023, Water Services hosted a Rainwater Working Group meeting on November 29 to advance the Regional Strategy for Rainwater Management.

3) Ongoing Program Implementation

The LWMP has many commitments that were met in previous years, yet implementation towards these goals continues. Table 2 highlights select work on some program with commitments that are already considered to be met.

An implementation update on the Regional Strategy for Rainwater Management was provided for information to the RDN Board at the January 9, 2024, regular Board meeting. The update, which covers activities both in and out of the scope of the LWMP, is included in Appendix B.

Table 2. Ongoing Program Implementation in 2023

Program	Activities
Private Onsite Systems	<ul style="list-style-type: none"> Offered four SepticSmart workshops. Provided over \$40,000 SepticSmart rebates to residents for septic system improvements. To date, this program has contributed over \$365,000 to maintain septic systems in the RDN.
Odour Control	<ul style="list-style-type: none"> Monitored odour dispersion with Vancouver Island University at GNPCC and FCPC. Results helped confirm a blocked bioscrubber at FCPC. The FCPC expansion project includes significant improvements to plant odour controls.
Inflow & Infiltration / Volume Control	<ul style="list-style-type: none"> Consultants began a desktop review of RDN wastewater pipeline infrastructure for the Wastewater Pipeline Condition Assessment and Rehabilitation Plan. On completion, the RDN will have, for its large linear infrastructure: <ol style="list-style-type: none"> A prioritized list for condition assessment. Recommended assessment methods, specifications, procedures, and allowable limits for various pipe sizes and types. Recommended rehabilitation methods and order of magnitude capital cost for various pipe sizes and types.
Pollution Control Centres	<ul style="list-style-type: none"> RDN was awarded \$18,696,847 from the Investing Canada Infrastructure Program’s Green Infrastructure grant program for the FCPC Expansion and Odour Control Upgrade Project.
	<ul style="list-style-type: none"> DCC Bylaws for GNPCC and FCPC were revised in 2023.
	<ul style="list-style-type: none"> Held an open house at GNPCC on May 6 and at FCPC on June 3.
	<ul style="list-style-type: none"> Informed residents of major projects through the GetInvolved RDN website.
Biosolids	<ul style="list-style-type: none"> Produced 6,841 tonnes of biosolids in 2023. RDN biosolids are beneficially used in a forest fertilization program and a soil fabrication program.

4) Emerging Issues

The LWMP recognizes that new issues may emerge from innovations in water quality monitoring and from an evolving regulatory environment. The LWMP commits to keeping informed on the emerging issues listed below.

- Shellfish Harvesting Areas
- Contaminants of Emerging Concern
- Heritage Resources
- Climate Change
- Non-point Sources of Pollution.

4.1 Shellfish Harvesting Areas

Conditional Management Plans allow shellfish harvesting areas to remain open in areas which may close as a precaution due to their proximity to wastewater infrastructure. The areas can remain open long as the pollution source is not present.

FCPCC currently operates with a Conditional Management Plan for two pump stations that have bypasses. These bypasses have been in place since the system was built in the 1970s and during this time there has been no reported need to bypass the flow. Furthermore, pump redundancy, back-up power, and a Supervisory Control and Data Acquisition System make it unlikely that an overflow would occur at these locations.

RDN's Conditional Management Plan outlines the roles and responsibilities of each partner, as if a discharge of untreated wastewater occurs from the pump station bypasses. The FCPCC Conditional Management Plan has been in effect since 2015.

In 2023 the RDN removed the bypass from the Bay Avenue Pump Station during the Bay Avenue Pump Station Replacement Project.

4.2 Contaminants of Emerging Concern

Contaminants of emerging concern refer to a variety of pharmaceuticals, personal care products, and industrial contaminants. Many contaminants of emerging concern lack established methods for sample collection and testing. Similarly, Provincial or Federal standards for acceptable levels are not present for many of these contaminants.

Most of the contaminants in wastewater come from private residences and businesses. For that reason, the RDN will continue to address the quality of effluent through strategic investments in critical infrastructure as well as by promoting the Source Control Program and Sewer Use Regulatory Bylaw.

To better understand contaminants of emerging concern in RDN wastewater:

- In 2018, the RDN hired a consultant to prepare a memo on contaminants of emerging concern and microplastics. The memo was included in that year's annual report.
- In 2020, the RDN initiated a study to investigate contaminants of emerging concern in wastewater at GNPCC and FCPCC. Samples were collected and analyzed in 2020 and 2021. Study results were presented at the [October 26, 2021, Regular Board Meeting](#).
- In 2022 the RDN continued to monitor select contaminants of emerging concern to build upon the study initiated in 2020.

4.3 Heritage Resources

The Province of BC protects heritage sites through the *Heritage Conservation Act*. This protection applies to both private and Crown land and a provincial heritage permit is required before altering or developing a heritage site. Before 2019, the RDN determined archaeological potential as warranted for each project. Since 2019, RDN Wastewater Services has held Blanket Permits/Multi-assessment Permits from the Archaeology Branch. The RDN also obtains site-specific permits when appropriate.

4.4 Climate Change

4.4.1 Sea Level Rise Adaptation

The RDN is preparing for sea level rise through the Sea Level Rise Adaptation Program. Progress is as listed below. More information is available at: rdn.bc.ca/sea-level-rise-adaptation-program.

- 2015: Completed Terms of Reference
- 2017: Acquired LIDAR data (with a \$10,000 contribution from Wastewater Services)
- 2017: The RDN was awarded a \$150,000 grant to acquire coastal floodplain mapping
- 2018: Updated the Floodplain Management Bylaw No. 1496
- 2020: Released coastal flood hazard information
- 2021: Revised coastal flood hazard information
- 2021: Released Englishman River Floodplain Map
- 2022: Released Little Qualicum River Floodplain Map
- 2023: Released floodplain maps for Nanaimo River and Horne Lake.

4.4.2 Bay Avenue Pump Station Replacement

The Bay Avenue Pump Station conveys about 85% of the City of Parksville's wastewater to FCPC. A pump station replacement was underway in 2021 to 2024 (anticipated completion). This project was designed to move critical electrical and controls equipment above the year 2100 floods levels, including wave run-up and free board. Before the replacement this critical equipment was located below the recommended safe design elevation.

4.5 Non-Point Sources of Pollution

Non-point sources of pollution come from sources other than an outfall pipe. Some examples of non-point pollution include agricultural and stormwater runoff, onsite sewage systems, and discharges from vessels.

- The LWMP Private Onsite Systems Program addresses pollution from onsite sewage systems.
- The RDN also has agreements with BC Ferries and Seaspan to establish a pump ashore program at GNPCC and DPPCC to accept and treat the wastewater produced on the vessels.

Appendix A – Summary of Commitments



	LWMP Commitment	Status	Comment	Change for LWMP Amendment
0 Approval Conditions	1 Within 30 days of receipt of this letter, provide terms of reference, plan and schedule for completion of Stages 1 & 2 of an Environmental Impact Study for each of the GNPCC, NBPCC and French Creek Pollution Control Centre (FCPCC) sewage treatment and disposal facilities.	Met	(2014) Letter to MOE LWMP Approval Condition Nov 2014	N/A
	2 By January 31, 2015, provide the Environmental Impact Study for the marine portion of the GNPCC outfall replacement project.	Met	(2015) Letter to MOE LWMP Approval Condition Jan 2015	N/A
1 Public Wastewater Systems	1. Establish a strategy to achieve wastewater servicing in growth containment areas:			
	1 (i) A study to identify Village Centres with the development potential to warrant an investment in wastewater infrastructure	Met	(2013) Rural Village Centres Study. The study showed that Cedar Village has the greatest potential to develop as a complete community with an investment in sewer. Bowser, Red Gap, Coombs, and Fairwinds were ranked second (Fairwinds is already serviced by sewer).	Met - do not carry forward to LWMP Amendment.
	1 (ii) Complete sewer servicing engineering studies for Bowser and Cedar villages	Met	(2017) Bowser Village Wastewater Servicing Design Report (presents proposed technology for wastewater treatment/discharge and design for sewer collection) (2016) Capacity and Cost Review of the Duke Point Pollution Control Centre (discusses existing infrastructure and capacity limitations)	Met - do not carry forward to LWMP Amendment.
	1 (iii) Coordinate with Development Services through the OCP review process to identify property owners in growth containment boundaries who are interested in establishing public wastewater services	Met	(2020, 2022) Wastewater worked with Development Services to support the Electoral Area F OCP Review. (2017) Wastewater Services worked closely with Development Services from 2015-2017 to review the Electoral Area H - Official Community Plan, Bylaw No. 1335.	Met - do not carry forward to LWMP Amendment. Wastewater Services will continue to support the OCP review process when requested.
	2. Establish a strategy to achieve wastewater servicing for properties with failing private onsite systems:			
	2 (i) Draft a bylaw to allow properties with failing onsite systems to connect to sewer services, where available	Met	(2019) This commitment was modified from creating a new bylaw to assessing properties on a case-per-case basis.	Met - do not carry forward to LWMP Amendment. Bylaw not required to meet the intent of this action.
	2 (ii) Improve public awareness of areas which may connect to RDN sewer systems for health and environmental reasons (failing onsite system) and create a guide which walks homeowners through the sewer connection application process	Met	(2020) A guide is posted at www.rdn.bc.ca/rdn-sewer-systems .	Met - do not carry forward to LWMP Amendment.
2 (iii) Work with property owners, as needed, in locations where there are known onsite system failures to establish connections to public wastewater infrastructure	Met	Ongoing as needed.	Met - do not carry forward to LWMP Amendment. Wastewater Services will continue to work with property owners outside of the LWMP.	
2 (iv) Develop a webpage to inform the public of historic sewer servicing studies and of the criteria for the provision of future sewer services.	Met	(2021) This commitment was modified to provide information by request as these studies lose relevance over time. The criteria for the provision of future sewer services is provided on the RDN website: https://www.rdn.bc.ca/rdn-sewer-systems .	Met - do not carry forward to LWMP Amendment.	

	LWMP Commitment	Status	Comment	Change for LWMP Amendment	
2 Private Onsite Systems	1. Enhance SepticSmart education program content:				
	1 (i) Annually review the SepticSmart education program; update where necessary	Met	Ongoing. Septic Maintenance Rebate Program was introduced in 2014.	Met - modify through LMWP Amendment. Refer to Education, Outreach & Collaboration Focus Area.	
	1 (ii) Enhance the source control component of the SepticSmart program Work with VIHA and Water Services to develop area-	Met	Ongoing. The SepticSmart workshops, presentation and website material are updated annually	Met - do not carry forward to LWMP Amendment.	
	1 (iii) specific communications or newsletters for areas at high risk for groundwater contamination	Met	(2014-2019, 2022) SepticSmart Newsletter (2017) State of our Aquifers Newsletter https://www.rdn.bc.ca/dwwp-reports	Met - do not carry forward to LWMP Amendment.	
	1 (iv) Host at least four SepticSmart education workshops annually	Met	(2023) SepticSmart workshops offered in-person again (2020-2022) SepticSmart information shared on website only. Unable to offer workshops due to public health restrictions.	Met - modify through the LWMP Amendment. Refer to Education, Outreach & Collaboration Focus Area.	
	1 (v) Evaluate the potential for a mandatory onsite system maintenance program in the RDN	Met	(2014-2019): Held 4 SepticSmart workshops each year. (2012) Mandatory Maintenance Feasibility Study. A Mandatory Maintenance program was not supported by the Board, which carried a motion to continue with an educational role through the existing SepticSmart program.	Met - modify through LWMP Amendment. Refer to Education, Outreach & Collaboration Focus Area.	
	2. Work with Development Services to adopt draft changes to Land Use and Subdivision Bylaw (No. 500) which would enable the RDN to acquire privately-owned onsite systems serving at least 60 parcels, if petitioned				
	no specific actions identified	Met	(2020): The RDN modified this commitment and will assess a petition on a on a case-by-case basis. To date, RDN has not received a petition so bylaw changes are not justified.	Met - do not carry forward to LWMP Amendment.	
3. Limit holding tanks in the RDN:					
3 (i) Review and revise the Pump & Haul Local Service Establishment Bylaw (No. 975) and the Sewage Disposal Regulation Bylaw (No. 1224) so only grandfathered properties and properties with failed onsite systems qualify for the septage receiving rate reduction	Met	(2017) This commitment was modified. Holding tanks are permitted by Island Health. The authority to limit pump and haul tanks lies with the Province. When addressing this comittment, it became clear that the role of Wastewater Services is to set quality standards and establish a rate structure for wastewater treatment. Bylaw 1752, 2017 to repeal RDN Pump & Haul Local Service Establishment Bylaw No.975, 1995; Trucked Liquid Waste Rates and Regulations Bylaw No. 1732, 2016 (adopted in 2017; repeals and replaces Bylaw No 988, 1218, and 1224)	Met - do not carry forward to LWMP Amendment.		
3 (ii) Work with VIHA and Building Inspection Services to limit holding tanks on new developments.	Met	(2016) See modification above. Wastewater Services will support efforts led by VIHA and Building Inspection Services to limit holding tanks on new developments.	Met - do not carry forward to LWMP Amendment.		

	LWMP Commitment	Status	Comment	Change for LWMP Amendment
3 Source Control	1. Enhance regional source control:			
	1 (i) Work with the municipalities to develop similar source control bylaws or adopt a single bylaw	Met	(2016) Legal advice on the use or reference of Bylaw 1730 by each member municipality was provided to municipal wastewater staff. (2015) Regional Sewage Source Control Bylaw No. 1730, 2015 and Bylaw Enforcement Ticket Regulation Amendment Bylaw No. 1418.04, 2015 adopted on November 24, 2015. These bylaws replaced the former RDN Sewer Use Regulatory Bylaw No. 1225, and include updated and improved contaminant restrictions, user fees for waste discharge permits. (2015) The W3C Source Control working group formed in 2015.	Met - do not carry forward to LWMP Amendment.
	1 (ii) Amend the Trucked Liquid Waste Disposal Bylaw (No. 988) to allow marinas to apply for reduced holding tank waste disposal rates if they provide free pump-out services to discourage marine dumping	Met	(2017) Trucked Liquid Waste Bylaw No. 1732 was adopted in January 2017 (replacing) Bylaw No. 988). Bylaw No. 1732 enables marine sewage facilities to apply for a reduced rate of 0.01/gallon for holding tank waste. (2016) See Trucked Liquid Waste Rates and Regulations Bylaw No. 1732, 2016, Part 8: Holding Tank Registration. Subsection 25.	Met - do not carry forward to LWMP Amendment.
	1 (iii) Work with municipalities, marinas, and/or harbour authorities to accept wastewater from marine vessels as opportunities arise	Met	RDN accepts wastewater from BC Ferries' ships docking at the Departure Bay, Gabriola Island and Duke Point terminals. (2016) RDN began accepting wastewater from Seaspan vessels.	Met - do not carry forward to LWMP Amendment. Wastewater Services will continue to work with applicants upon request.
	2. Enhance the public education and outreach strategy:			
	2 (i) Collaborate with other RDN departments to promote pollution prevention strategies	Met	(2019) Updated the RDN Solid Waste department's "What Goes Where" app to add special instructions for "Do not flush down the toilet" or "Do not put down the drain" items. (2017) RDN Get Involved program was replaced with a new platform at www.getinvolved.rdn.ca to focus on public engagement. (2013) RDN launched a unified outreach website called "RDN Get Involved" at rdnetinvolved.ca with a goal of promoting interdepartmental outreach strategies, including pollution prevention.	Met - carry forward through LWMP Amendment. Refer to Education, Outreach & Collaboration Focus Area.
	2 (ii) Liaise with other local governments to share source control strategies	Met	(2018-2023) RDN participates in the Source Control Community of Practice; a meeting hosted by the BC Water and Wastewater Association to share source control ideas and innovations. (2014-2023) W3C meetings discuss source control. (2020) The RDN submitted a resolution to the 2020 Association of Vancouver Island Communities Convention to request advocacy at the federal level for the development of clear standards for products labelled "flushable" and to increase regulatory oversight of labelling and advertising of such products. UBCM endorsed the resolution. As a result, UBCM will work with FCM to advocate at the federal level for the development of clear standards for products labelled "flushable" and to increase regulatory oversight of labelling and advertising of such products.	Met - carry forward through LWMP Amendment. Refer to Education, Outreach & Collaboration Focus Area.
	2 (iii) Promote source control through the SepticSmart program	Met	(2020) Revised the GNPCC Source Control Operating Procedure GN-OP-05 to improve response to periodic inputs of high-strength waste to GNPCC, in coordination with the City of Nanaimo. (2020) Promoted Septic Awareness week September 14-18 with six other regional districts.	Met - Carry forward to LWMP Amendment through the SepticSmart program. Refer to Education, Outreach & Collaboration Focus Area.
	2 (iv) Encourage green boating practices	Met	Georgia Strait Alliance's Guide to Green Boating was promoted on the RDN website for several years.	Met - do not carry forward to LWMP Amendment.

	LWMP Commitment	Status	Comment	Change for LWMP Amendment	
3 Source Control	2 (v) Target the outreach program on RDN residents, medical clinics, the hospital, and businesses to address pharmaceuticals, personal care products, organics, fat, oil, grease, and I&I	Met	(2019) "No Drainers" posters was produced for elementary school audience. Social media presence increased to promote source control and other LWMP programs. (2016) The RDN teams with the BC Pharmacy Association to encourage residents to take part in the BC Medications Return program, which allows for then return of medication to participating pharmacies. On May 17, 2016, the RDN and the BC Pharmacy Association issued a joint media release on the topic of safe disposal of unused medications. (2020) Completed the 5-Year Wetland Mapping and Monitoring Research Project with Vancouver Island University / Mt. Arrowsmith Biosphere Region Research Institute. (2019) Partnered with Walley Creek Streamkeepers and the Ministry of Forests, Lands, Natural Resource Operations and Rural Development to allow stream flow monitoring and set up a hydrometric monitoring station (2018-2022) RDN Team WaterSmart hosted Water to Earth Month activities in March and April alongside community partners	Met - modify through LWMP Amendment. Refer to Education, Outreach & Collaboration Focus Area.	
	2 (vi) Partner with RDN community members with an interest in promoting source control (e.g. non-governmental organizations; local stewardship groups)	Met	(2016-2017) RDN Team WaterSmart partnered with community groups to host Water Day Events in March and April (2014-2015) RDN partnered with WCOWMA-BC to promote and provide rebates for septic system maintenance. (2014-2022) The Community Watershed Monitoring Network is a partnership between the RDN, the Ministry of Environment and Climate Change Strategy, Mosaic Forest Management, and community watershed stewardship groups. The RDN provides the equipment, coordinates the program, and works with the Ministry to complete annual training and data analysis. https://www.rdn.bc.ca/community-watershed-monitoring . (2013-2022) Coordinated groundwater monitoring via the RDN Volunteer Observation Well Network. (2019) Social media presence increased to promote source control and other LWMP programs.	Met - do not carry forward to LWMP Amendment. Partnerships will continue through the separate Drinking Water and Watershed Protection Program. Refer to Water Protection Focus Area.	
	2 (vii) Consider publishing regular articles (e.g. newspaper or Regional Perspectives) promoting source control	Met	(2018) Wastewater Services invested over \$5,000 to update public education material to align with the RDN 2018 Graphic Standard. These graphics have been used for promotional purposes. (2018/2019) RDN began publishing monthly advertisements in the local newspapers. Since then, the ads have included information on rebates, SepticSmart workshops, water conservation and open house opportunities.	Met - do not carry forward to LWMP Amendment.	
	2 (viii) Update the RDN website information on source control	Met	Updated periodically: www.rdn.bc.ca/flush-it-right	Met - do not carry forward to LWMP Amendment.	
	3. Monitor wastewater influent:				
	3 (i) Monitor influent and biosolids quality and review discharge permits to assess potential contaminant sources	Met	(Ongoing) Influent is monitored annually and reported in annual reports. Biosolids quality is monitored according to the Organic matter Recycling Regulation and reported in annual reports. (2021) Completed the Contaminants of Emerging Concern Planning Study.	Met - do not carry forward to LWMP Amendment. Monitoring requirements are captured elsewhere.	
	3 (ii) Work with RDN Bylaw Services to provide enforcement as needed.	Met	As needed. In 2017 Wastewater Services worked by Bylaw Services to enforce Bylaw 1730 and correct an unauthorized discharge to the DPPCC.	Met - do not carry forward to LWMP Amendment. This activity is completed as needed.	

	LWMP Commitment	Status	Comment	Change for LWMP Amendment
4 Odour Control	1. Maintain and upgrade equipment:			
	1 (i) Continue using current odour control measures and consider new control technologies as required	Met	(2022-2024) Partnered with Vancouver Island University to monitor odours at GNPCC and FCPCCC (2013-2023) See sections below	Met - Modify through LWMP Amendment. Refer to Wastewater Infrastructure Focus Area.
	1 (ii) Address odour at Bay Ave Pump Station	Met	(2022-2023) The Bay Avenue Pump Station Upgrade project added two odour control components. (2011) Ion Generator installed. (2019) Completed at GNPCC	Met - do not carry forward to LWMP Amendment.
	1 (iii) Replace biofilter media at GNPCC and FCPCCC	Met	(2018) Completed at FCPCCC (2012) Completed at FCPCCC (2012) Completed at GNPCC	Met - do not carry forward to LWMP Amendment.
	1 (iv) Reverse the air flow through the trickling filter at FCPCCC	Met	(2012) Completed	Met - do not carry forward to LWMP Amendment.
	1 (v) Install ion generators at Hall Road and Chase River Pump Stations	Met	(2012) Completed (2011) Completed	Met - do not carry forward to LWMP Amendment.
	1 (vi) Review the odour management system at GNPCC to identify potential improvements	Met	(2015) GNPCC Odour Assessment Modeling – Technical Memorandum No. 7 (2013) GNPCC Odour Study	Met - do not carry forward to LWMP Amendment. See 1(i) above
	1 (vii) Complete improvements to the odour management system at the NBPCCC outfall manhole	Met	(2019) Rebuilt manhole (extra detail can be found in budget line items) (2013) Completed (double task, see Pollution Control Centre section) GNPCC Secondary Treatment Upgrade (2019) Upgrades completed and included carbon scrubbers for the headworks and dewatering building bin loading area; new synthetic media biofilters for the primary tanks and thickeners; and covers over the primary sedimentation tank weirs. The upgrades should significantly reduce odours outside the property boundaries. (2017) GNPCC 100% Design Report included an odour strategy (2015) GNPCC Preliminary Design included an odour strategy	Met - do not carry forward to LWMP Amendment.
1 (viii) Incorporate odour controls into the design phase of future capital works projects including upgrade of GNPCC, NBPCCC and expansion of FCPCCC	Met	FCPCCC Expansion and Upgrade (2018-2023) Detailed design includes a significant odour control upgrade (2019-2020) RDN partnered with VIU who will use sophisticated equipment to fingerprint FCPCC's current odour emissions and recommend odour control strategies. (2018) FCPCCC Preliminary Design included an odour strategy NBPCCC Secondary Treatment Upgrade (2020-2022) Preliminary Design completed (2019) Conceptual design began in 2019	GNPCC: Met - do not carry forward FCPCCC: Met - do not carry forward NBPCCC: Modify through LWMP Amendment. Refer to Wastewater Infrastructure Focus Area.	

	LWMP Commitment	Status	Comment	Change for LWMP Amendment
4 Odour Control	1 (ix) Seek resident input before upgrading or expanding facilities	Met	<p>NBPCC Secondary Treatment Upgrade Project (2020) GetInvolved webpage launched: https://www.getinvolved.rdn.ca/nbpcc FCPCC Upgrade Project (2022) Two Public Information Meetings on September 20. Office hours on September 27, October 6, and October 20. (2019) Office Hours on May 14, May 23, May 28 and June 6. Public Information sessions on March 27 and October 9 (2019) GetInvolved webpage launched: https://www.getinvolved.rdn.ca/french-creek-expansion. (2018) Open House on June 2 (2016) Open House on April 30 (2015) Open House on May 9 GNPCC Upgrade (2016) Open House on June 11 (2015) Open Houses on February 10 and 11 and July 8 The RDN completed extensive public consultation during the LWMP amendment and continues to seek input through open houses, public meeting and through the LWM Monitoring Committee.</p>	GNPCC: Met - do not carry forward FCPCC: Met - do not carry forward NBPCC: In progress. Carry forward to LWMP with modifications. Refer to Education, Outreach & Collaboration Focus Area.
	2. Investigate, document, and respond to odour complaints			
	no specific actions identified	Met	(2013-2022) Odour reports, investigations and responses are included in the annual report for each wastewater treatment facility.	Met - do not carry forward to LWMP Amendment. Odour reporting is covered separately in the annual reporting for each facility.
5 Rainwater Management / Drinking Water & Watershed Protection	1. Develop a regional strategy on rainwater management			
	1 (i) Collaborate with Development Services, Water Services, Energy & Sustainability Services, and member municipalities to create a Rainwater Management Plan	Met	(2022) The RDN Board endorsed the Regional Strategy for Rainwater Management through Motion 22-205. (2022) The Regional Strategy on Rainwater Management was completed. (2018) City of Nanaimo completed the Municipal Natural Asset Initiative; a benchmark study across Canada that calculated the value of Buttertubs Marsh as a natural stormwater asset.	Met - do not carry forward to LWMP Amendment.
	1 (ii) Liaise with other local governments to share rainwater management strategies When developing the plan, consider subdivision development standards (i.e. low impact development principles, green infrastructure policies, erosion and control standards, onsite rainwater management, watercourse protection, and wetland protection) and non-point source control (i.e. runoff pollution)	Met	(2018) The RDN co-hosted the Nanaimo Water Stewardship Symposium 2018, that had a focus on green infrastructure, natural assets and watercourse protection. (2018) Several RDN Directors met with the Minister of Health, Adrian Dix at the Union of British Columbia of Municipalities (UBCM) Convention to discuss the challenges of securing water in the Regional District and Gulf Islands and to request the province to develop guidance and standards to permit the use of rainwater as a potable water source for small water systems.	Met - do not carry forward to LWMP Amendment. Continuation will be done through the DWWP Program.
	1 (iii) Support Building Code changes that remove barriers to rainwater harvesting	Met	(2016) The RDN Board submitted a resolution to AVICC urging the Province to develop rainwater-specific standards for sourcing, treatment, and infrastructure to further enable the implementation and approval of rainwater sources for potable water. This resolution was enabled in April 2016 at	Met - do not carry forward to LWMP Amendment.
	1 (iv) Subject to Board approval of the Rainwater Management Plan, Wastewater Services and Water	Met	(2022) Implementation of the Regional Strategy for Rainwater Management began after the RDN Board endorsed the Regional Strategy for Rainwater Management through Motion 22-205.	Met - do not carry forward to LWMP Amendment.
	1 (v) Services will coordinate the plan, administer the budget, and oversee collaboration with other departments and jurisdictions	Met		Met - do not carry forward. Continuation will be done through the DWWP Program.
	1 (vii) Establish watershed performance targets and standards to mitigate the impacts of land development	Met	(2022) Completed Phase 2 of the Watershed Performance Targets for the French Creek Water Region (2021) Developed Watershed performance targets for rainwater management in the French Creek Water Region	Met - do not carry forward. Continuation will be done through the DWWP Program.

	LWMP Commitment	Status	Comment	Change for LWMP Amendment
5 Rainwater Management / Drinking Water & Watershed Protection	2. Implement rainwater management initiatives under the Drinking Water & Watershed Protection Action Plan:			
	2 (i) Develop a regional Water Budget to increase our understanding of ground and surface water resources	Met	<p>(2019) Phase 3 started and involves creating numerical models for those priority areas in order to run scenarios that will help water managers analyze water supply and demand and anticipate how the system will respond to changes. This includes modelling climate aspects such as snowpack and snow water equivalent, precipitation, groundwater recharge, streamflow to understand 'supply' and 'demand.' See DWWP Action Plan 2.0 draft</p> <p>(2017) Phase 2: Added additional groundwater and surface water monitoring sites in 2017, in priority target areas including Cedar-Yellowpoint, nanoose and French Creek. See rdnwaterbudget.ca</p> <p>(2013) Phase 1 completed.</p> <p>(2018) The RDN DWWP program hired consultants to analyze and report on surface water quality data trends observed over the past 7 years of the Community Watershed Monitoring Network (CWMN) in a comprehensive review that included streamflow, climate and land use. See <i>Surface Water Quality Trend Analysis for Regional District of Nanaimo Community Watershed Monitoring Network Data (2011-2017)</i>.</p>	Met - do not carry forward to LWMP Amendment. The Water Budget is coordinated through the DWWP Program.
	2 (ii) Monitor water quality in selected streams to study the impact of land use on watershed health (e.g. Community Watershed Monitoring)	Met	<p>The CWMN completed its 8th year in 2018, continuing to collect surface water quality data - turbidity, dissolved oxygen, temperature, conductivity - from over 60 established monitoring locations and refining processes for data management.</p> <p>Two sampling sites were added to the CWMN specifically to monitor wastewater infrastructure where it intersects or neighbours streams (lower Chase River and Holden Creek).</p>	Met - do not carry forward to LWMP Amendment. Community Watershed Monitoring is coordinated by the DWWP Program.
	2 (iii) Monitor the impacts of climate change on hydrology in the RDN to identify flood risks.	Met	<p>(2019) See section 5.2.1 and Phase 3 of water budget. See DWWP Action Plan 2.0 draft</p> <p>(2017) A hydrometric monitoring station was installed on Nanoose Creek.</p> <p>(2016) A hydrometric monitoring station was installed on Haslam Creek to address priority data gaps. A geodatabase has been put together to house all the climate/hydrometric stations for ease of access to information for long term planning or to monitor flood risk/intense rain events.</p> <p>(2015) A snow pillow/weather station at Mt. Arrowsmith was installed in collaboration with several partners.</p> <p>(2014) The RDN completed the <i>Regional Hydrometric and Climate Monitoring Scoping Study</i> and identified priority areas and partners interested in expanding data networking.</p> <p>(2020) The Board adopted the DWWP Action Plan 2.0 in February 2020.</p>	Met - do not carry forward to LWMP Amendment. Continuation will be done through the DWWP Program. Additional climate change priorities are coordinated by the RDN Energy and Sustainability department.
	2 (iv) Continue to implement the seven programs detailed in the DWWP Action Plan including integrated watershed management planning	Met	<p>(2019) The DWWP Action Plan Update was underway, incorporating the findings from the 10-year review and from engagement sessions with key stakeholders and the public. This will included overlapping commitments in RDN LWMP for rainwater management. See DWWP Action Plan 2.0 draft</p> <p>(2018) The <i>DWWP: 10 Year Action Plan Implementation Review report</i> was presented to the Board.</p>	Met - do not carry forward to LWMP Amendment. The RDN DWWP Program continues to implement the revised Action Plan 2.0.

	LWMP Commitment	Status	Comment	Change for LWMP Amendment
5 Rainwater Management / Drinking Water & Watershed Protection	2 (v) Implement the Water Conservation Plan	Met	<p>(2019) The RDN Water Conservation Plan is scheduled to be updated with new targets set. Up to date report link can be found at this web page: https://www.rdn.bc.ca/use-water-efficiently</p> <p>(2018) The RDN Water Systems' progress against the targets laid out in the 2013 Water Conservation Plan was reviewed - found that RDN Water Systems are on track to meet targets across all service areas (observed 31% decrease in water use per connection since 2004). See <i>Water Conservation Evaluation: Targets, Trends and Trajectories</i> .</p> <p>A WaterSmart Garden Rebate program for efficient irrigation and soil improvements was piloted in all RDN Water Service Areas in 2016 and ran region-wide.</p> <p>(2017) A WaterSmart Garden Rebate program for efficient irrigation and soil improvements was piloted in all RDN Water Service Areas in 2016 and ran region-wide.</p> <p>(2015) Graphical billing was piloted.</p> <p>(2014-2022) The Watershed Friendly Yard campaign started using attractive yard signs and a draw for a rain barrel to encourage and highlight water efficient landscape practices in the community.</p>	Met - do not carry forward to LWMP Amendment. Continuation will be done through Water Services.
	2 (vi) Refine the Water Budget Study to assist in land use and development decisions	Met	<p>(2019/2020) A refined Water Budget for Nanoose is planned for 2019 and for French Creek in 2020. Also, see section 5.2.1 and the DWWP Action Plan 2.0 draft</p> <p>(2017) Expanded Nanoose monitoring program to French Creek, Cedar/Yellowpoint and data collection is ongoing, leading to the next phase Water Budget Analysis.</p> <p>(2016) in Nanoose (Area E) a water monitoring plan was developed in 2016, to outline how to gain more data and refine water availability assessment. This will be a multi-year monitoring and analysis project. French Creek, Cedar/ Yellowpoint are other priority areas that had a monitoring plan developed in 2016 for further data collection to support a phase two water budget.</p> <p>(2015) Nanoose (Area E) water monitoring plan was started.</p> <p>Team WaterSmart provides these programs and partnerships through:</p> <ul style="list-style-type: none"> -Team WaterSmart educational workshops -Team WaterSmart community booths -School presentations and field trips 	Met - do not carry forward to LWMP Amendment. Continuation will be done through the DWWP Program.
	2 (vii) Continue to provide water education, incentive programs and watershed monitoring partnerships.	Met	<ul style="list-style-type: none"> -Rainwater harvesting incentive program -Rural Water Quality Protection incentive program (for well water testing, wellhead construction upgrades, well closure) -WaterSmart Garden Rebate Program offers incentives for homeowners to upgrade to efficient irrigation hardware / controls and to augment their soil/mulch. 	Met - do not carry forward to LWMP Amendment. Continuation will be done through the DWWP Program.

	LWMP Commitment	Status	Comment	Change for LWMP Amendment
6 Volume Reduction	1. Reduce per capita water consumption:			
	1 (i) Promote water conservation incentives like low-flow toilet rebates	Met	(2009-2013) Low flow toilet rebate program 2009-2013. Over 1,500 toilets were replaced under this program.	Met - do not carry forward to LWMP Amendment.
	1 (ii) Work with provincial regulators to provide public with information around opportunities for greywater reuse, as supported by the BC Building code and provincial regulations	Met	(2016) The BC Ministry of Health published the Manual of Composting Toilet and Greywater Practice. (2018-2023) In March and April RDN Team WaterSmart hosted virtual webinars and activities for "Water to Earth" month. This included workshops on topics related to water conservation and watershed protection, field trips and steam walks. (2016-2017) RDN Team WaterSmart partnered with community groups in the Region to host two "Water Day" events in March and April. These events featured interactive displays on a variety of water- related topics, educational activities for children and a total of 6 workshops on topics related to water conservation and watershed protection. (2014-2022) Team WaterSmart performed residential irrigation check-ups to help residents reduce outdoor water use	Met - do not carry forward to LWMP Amendment.
	1 (iii) Educate the public through free workshops and online information	Met	(2016) Team WaterSmart website was updated to include an interactive map showing the watering restrictions in effect in each water service area, municipality, and improvement district within the region. See www.teamwatersmart.ca (2015) RDN Team WaterSmart partnered with community members to host one streamside stewardship workshop (Grandon Creek) and two rainwater harvesting workshops, in a series of 10 workshops related to water conservation and protection. (2014-2015) The RDN partnered with WCOWMA-BC to promote and provide rebates for septic system maintenance. (2014) RDN Team WaterSmart partnered with community members to host a free Rain Garden Workshop and two streamside stewardship workshops (Departure Creek and Nile Creek), in a series of 10 workshops related to water conservation and protection. Wastewater and Water Collaborative (W3C) Meetings are held with municipal staff twice a year to address these topics. Meeting dates include: (2023) April 20 and October 23 (2022) April 27 and October 4 (2021) March 31 and September 22 (2020) June 18 and September 28 (2019) March 15 and September 6 (2018) March 2 and September 14 (2017) April 21 and September 22 (2016) March 4 and September 30 (2015) March 12 and September 25 (2014) April 15 and October 16	Met - do not carry forward to LWMP Amendment. Continuation will be done through the DWWP Program.
	1 (iv) Hold semi-annual meetings with the City of Nanaimo, District of Lantzville, City of Parksville, and Town of Qualicum Beach to develop a regional volume reduction strategy	Met		Met - do not carry forward to LWMP Amendment. Water Services coordinates water conservation with municipalities.

	LWMP Commitment	Status	Comment	Change for LWMP Amendment
6 Volume Reduction	1 (v) Continue to develop and implement water conservation measures through the DWWP service, with a target of reducing per capita water consumption by 25% between 2009 and 2030	Met	<p>(2020) Updated the Regional District of Nanaimo Water Service Areas Water Conservation Plan (2020-2030).</p> <p>(2019) Wastewater Services contributed \$15,000 to the DWWP Action Plan update.</p> <p>(2018) The RDN Water Systems' progress against the targets laid out in the 2013 Water Conservation Plan was reviewed and found that RDN Water Systems are on track to meet targets across all services areas</p> <p>-Observed a 31% decrease in water use per connection since 2004</p> <p>-Observed that maximum month water production stayed well below the reference threshold of 2004 production levels, between 2011-2017</p> <p>(2016-2022) Offered a WaterSmart Garden Rebate program for efficient irrigation and soil improvements.</p> <p>(2014-2016) The Watershed Friendly Yard campaign uses attractive yard signs and a draw for a rain barrel to encourage and highlight water efficient landscape practices in the community.</p>	Met - do not carry forward to LWMP Amendment. Water Services implements the updated Water Service Areas Water Conservation Plan (2020-2030).
	2. Reduce water consumption used in RDN buildings and			
	2 (i) Install low-flow or dual flush toilets and other water-saving devices in RDN buildings	Met	Ongoing with new construction according to the Corporate Climate Change Plan.	Met - do not carry forward to LWMP Amendment. This is part of RDN policy and will be done separate from the LWMP.
	2 (ii) Consider water efficient technology when designing infrastructure upgrades and expansion	Met	Ongoing according to the Green Building Policy	Met - do not carry forward to LWMP Amendment. This is part of RDN policy and will be done separate from the LWMP.
2 (iii) Promote the use of reclaimed water when practicable	Met	Ongoing. Reclaimed water from FCPC is used at Morningstar Golf Course.	Met - do not carry forward to LWMP Amendment.	
	3. Identify potential sources of sanitary sewer overflows and develop a strategy to eliminate			
	no specific actions identified	Met	<p>(2023) Performed a flow assessment and capacity review for the Departure Bay Forcemain and developed a plan to mitigate any potential issues.</p> <p>(2027-2023) Performed capacity monitoring for FCPC's Bay Avenue Pump Station (BAPS). Completing BAPS Upgrade in 2023.</p> <p>(2017) Nanaimo Interceptor Hydraulic Modeling Study. The steady state stimulation did not predict any overflows within the study area.</p>	Met - carry new commitments forward to LWMP Amendment. See Wastewater Infrastructure Focus Area.

	LWMP Commitment	Status	Comment	Change for LWMP Amendment
7 Inflow & Infiltration	1. Monitor I&I entering RDN infrastructure:			
	1 (i) Set up an I&I monitoring function for GNPCC and FCPC in FlowWorks (flow monitoring system)	Met	FlowWorks data are reviewed regularly. Catchments with high flows are further investigated as needed by staff of member municipalities (i.e. Harewood). FlowWorks is a web-base tool for monitoring, analyzing and reporting flow data.	
	1 (ii) Evaluate flow data to understand system reaction to rainfall and high flow events	Met	FlowWorks data are reviewed regularly. Catchments with high flows are further investigated as needed by staff of member municipalities (i.e. Harewood). FlowWorks is a web-base tool for monitoring, analyzing and reporting flow data.	
	1 (iii) Use CCTV to inspect GNPCC and FCPC interceptors on a 5-year cycle	Met	(2017) RDN Nanaimo Interceptor Hydraulic Modeling Study was completed. (Ongoing) Sections of the GNPCC interceptor are CCTV monitored annually. (Ongoing) FCPC interceptor is CCTV monitored every 5 years. Environment Canada and member municipalities operate rain gauges (2021) Monthly inspections of Lantzville, Johnstone Rd (Qualicum Beach), Ocean Place (Parksville) flow meters, and FCPC effluent meter. Replacement of Johnstone Road (Qualicum Beach) flow meter and depth sensor. Repair to underground conduit line. Dye test calibration of NBPC and GNPCC Parshall Flumes (2020) Monthly inspections of Lantzville, Johnstone Rd (Qualicum Beach), Ocean Place (Parksville) flow meters, and FCPC effluent meter. Replacement of depth sensor on the Lantzville flow meter. Replacement of depth sensor on Johnstone Rd flow meter.	
1 (iv) Maintain and install flow meters and rainfall gauges as needed	Met	(2018) In January, laser flow meter at GNPCC was replaced by a Parshall Flume to improve the accuracy. Replaced the influent meter at FCPC with one that is intrinsically safe. Repaired wiring on the Lantzville flow meter. Replaced the Ocean Place Flow meter. (2017) The Ocean Place Flow meter was repaired in 2017. (2016) New wireless modems installed on all flow meters. Level sensors in flow meters are tested monthly for accuracy. (2015) Installed influent flow meter at FCPC.	Met - do not carry forward to LWMP Amendment. Monitoring is part of routine operations.	

	LWMP Commitment	Status	Comment	Change for LWMP Amendment
7 Inflow & Infiltration	2. Reduce I&I into RDN owned infrastructure:			
	2 (i) Repair manholes as needed; perform regular maintenance of interceptors	Met	<p>(2021) Completed repairs to the Departure Bay Forcemain. Completed repairs on the Columbia Beach interceptor near manhole 2 and 3.</p> <p>(2019) The RDN completed a second Qualicum Beach Interceptor erosion protection project for a section of exposed pipeline on August 30, 2019 by Knappett Industries.</p> <p>Three GNPCC northslope manhole frames and covers were replaced and completed on August 30, 2019 by Knappett Industries.</p> <p>(2018) City of Nanaimo completed an I&I Reduction Strategy</p> <p>(2017) Repairs were made to FCPC manholes 39, 36, 30 and 12 to enable access for CCTV inspection.</p> <p>(2016) Erosion protection project was completed on the Qualicum Interceptor between manholes 16 and 17. Performed routine inspections of manholes and interceptors.</p> <p>(2015) The RDN completed the Qualicum Beach Interceptor Pipeline Protection study.</p>	Met - carry new commitments forward to LWMP Amendment. Refer to Wastewater Infrastructure Focus Area.
	2 (ii) Investigate grant funding opportunities (e.g. Gas Tax Fund) for infrastructure rehabilitation	Met	<p>(2021) Applied to the Investing in Canada Infrastructure Program (Rural and Northern Communities) for grant funding for the NBPC sewer upgrades.</p> <p>(2020) Applied to the Investing in Canada Infrastructure Program for grant funding for the FCPC Expansion and Odour Control Upgrade Project; the DPPCC UV Upgrade; the Departure Bay Pump Station and Forcemain Upgrade (GNPCC); and the NBPC Secondary Treatment Upgrade</p> <p>(2018) RDN was awarded \$6 million in Federal Gas Tax Funds to assist with the \$82 million GNPCC Secondary Treatment Upgrade Project.</p> <p>(2017) RDN applied for grant funding through the Strategic Priorities Fund.</p> <p>(2016) the RDN applied for grant funding through the Clean Water and Wastewater Fund for the GNPCC Secondary Treatment Project, FCPC Expansion Project, NBPC Secondary Treatment Upgrade Project, the NBPC Forcemain Replacement Project, and the Chase River Forcemain Replacement and Pump Station Upgrades Project.</p> <p>(2015) the RDN applied for grant funding through the Strategic Priorities Fund</p> <p>(2013) RDN requested financial assistance from the Province at the Union of BC Municipalities (UBCM) Convention to help fund the secondary treatment upgrade projects at GNPCC and NBPC</p>	Met - carry forward to LWMP Amendment. Refer to Wastewater Infrastructure and Administrative Tasks Focus Areas.
	3. Design upgrades to RDN infrastructure so flows up to 2 times ADWF will receive secondary treatment and all flows in excess of this amount will receive primary treatment			
	3(i) Design upgrades to RDN infrastructure so flows up to 2 times ADWF will receive secondary treatment and all flows in excess of this amount will receive primary treatment	In Progress	<p>(Met in 2017) GNPCC 100% Design for secondary treatment met this.</p> <p>(Near completion) FCPC Detailed Design will meet this.</p> <p>(In Progress) NPCC secondary treatment preliminary design was complete in 2022.</p>	Met / In Progress - carry forward to LWMP Amendment and focus on NBPC upgrades. Wastewater Infrastructure Focus Area.

	LWMP Commitment	Status	Comment	Change for LWMP Amendment
7 Inflow & Infiltration	4. Develop a regional strategy on I&I management:			
	4 (i) Hold semi-annual meetings with the municipalities to develop regional monitoring and reduction targets for inflow and infiltration	Met	(Ongoing) Wastewater and Water Collaborative (W3C) Meetings are held with municipal staff twice a year to address this topic. Meeting dates are listed under Volume Reduction 1(iv).	Met - modify through LWMP Amendment. Refer to Education, Outreach & Collaboration Focus Area.
	4 (ii) Share flow and rainfall data with municipalities	Met	Flow monitoring data is shared at the W3C meetings	
	4 (iii) Consider requiring replacement or disconnection of private laterals when granting demolition permits	Met	(2014-2015) Considered private laterals at W3C meeting on April 15, 2014, October 16, 2014, March 12, 2015, and September 25, 2015. Decision to focus on owned infrastructure.	Met - do not carry forward to LWMP Amendment.
	4 (iv) Consider providing municipal or regional staff to witness or perform service connections	Met	This task has been considered by Wastewater Services staff. It is the responsibility of the municipalities to witness or perform service connections and not regional staff.	Met - do not carry forward to LWMP Amendment.
	4 (v) Work with the member municipalities to continue to reduce flows due to I&I and to eliminate sewer overflows	Met	(2018) The City of Nanaimo completed an I&I Reduction Strategy. The City of Nanaimo continue to grout manholes and remove the Harewood wyes, a significant source of I&I.	Met - see 4(1) above. Refer also to Wastewater Infrastructure Focus Area.
	5. Help landowners manage private property I&I:			
5 (i) Enhance the source control program to encourage landowners to check gutters and outside drains for connection to the sewer system, avoid planting trees and shrubs over sewer laterals, ensure basement drains and sump pumps are not connected to the sanitary sewer, and replace broken or leaky pipes located on private property	Partial	(2020) RDN applied for an infrastructure planning grant in 2020 to complete an I&I Homeowners Best Practices Guide but was application was not successful.	Partial - modify through LWMP Amendment. Refer to Administrative Items Focus Area.	
5 (ii) Consider providing incentives to enable residents to reduce private property I&I.	Met	Strategies to reduce private property I&I have been considered at W3C meetings. To date, the priority has been on addressing I&I on owned infrastructure.	Met - modify through LWMP Amendment. Refer to Administrative Items Focus Area.	

	LWMP Commitment	Status	Comment	Change for LWMP Amendment
8 Pollution Control Centres	1. Comply with permit or operational certificate:			
	1 (i) Manage wastewater collection and treatment using the RDN's EMS to meet permit requirements	Met	(Ongoing) RDN Wastewater Services has been ISO 14001 Certified since 2005 and has been part of the National Water and Wastewater Benchmarking Initiative since 2001 with the goal of continually improving service and environmental performance.	Met (ongoing). Carry forward to LWMP Amendment. Refer to Administrative Items Focus Area.
	1 (ii) Work with MOE staff to establish reasonable timelines and scope of any required receiving environment monitoring programs	Met	(2021-2022) FCPCC Pre-REM Field Monitoring for Marine Environmental Impact Study Underway (2020) GNPCC REM Report (2017-2019) GNPCC REM Report (2016) GNPCC Receiving Environment Monitoring Program Scoping Document	Met - will continue working with the Province as needed.
	2. Maintain existing infrastructure:			
	2 (i) Update and evaluate asset management and preventative maintenance plans	Met	(2020) Completed an Asset Management Replacement Cost Study (2019) Asset Management Review and Implementation Report (2016) Asset Management Policy	Met - carry forward through LWMP Amendment with modifications. Refer to Administrative Items Focus Area.
	2 (ii) Systematically inspect, detect, and correct incipient failures	Met	(Ongoing) Wastewater Services has a Computer Maintenance Management System used for preventative, corrective, urgent, and emergency maintenance (2016) Five Finger Outfall replacement completed. See notice.	Met - do not carry forward to LWMP Amendment.
	2 (iii) Replace the GNPCC effluent outfall line by 2015	Met	(2015) 95% Final Design Report for Five Fingers Outfall (2014) Five Finger Outfall replacement started	Met - do not carry forward to LWMP Amendment.
	2 (iv) Prepare an Environmental Impact Study for the GNPCC outfall	Met	(2015) GNPCC Outfall EIS - Marine (2014) GNPCC Outfall EIS - Land (2021) Repaired a section of the Departure Bay Forcemain. (2020-2021) Detail design to repair a section of the Departure Bay Forcemain. (2019) Completed a transient analysis.	Met - do not carry forward to LWMP Amendment.
	2 (v) Monitor the condition of the Departure Bay forcemain	Met	(2017) A condition assessment of the Departure Bay Force Main was completed using "Pipe Diver" and "Smart Ball" electromagnetic sensing tools. (2016) Performed monthly visual inspections and routine annual air/vacuum relief valve inspections.	Met - do not carry forward to LWMP Amendment.
	2 (vi) Improve the odour management system at the NBPCC outfall manhole	Met	(2019) Rebuilt manhole (2013) Complete	Met - do not carry forward to LWMP Amendment.
	3. Expand and provide secondary treatment at GNPCC:			
	3 (i) Commission a third digester (complete 2013)	Met	(2013) See as-built drawings	Met - do not carry forward to LWMP Amendment.
	3 (ii) Construct a fourth primary sedimentation tank (complete 2013)	Met	(2013) See as-built drawings	Met - do not carry forward to LWMP Amendment.
3 (iii) Upgrade the facility to provide secondary treatment by 2018	Met	(2020) Secondary treatment began operating (2019) Started commissioning in 2019 (2016) Letter to MOE re LWMP Update 2016-217 (2018) In March, the RDN was awarded \$6 million in Federal Gas Tax Funds to assist with the \$82 million GNPCC Secondary Treatment Upgrade Project (2017) Application to the Strategic Priorities Fund	Met - do not carry forward to LWMP Amendment.	
3 (vii) Explore federal and provincial grant options to fund secondary treatment	Met	(2016) Application to the Clean Water and Wastewater Fund (2015) Application to the Strategic Priorities Fund (2013) September request to the Province at the UBCM Convention to help fund GNPCC secondary treatment upgrade	Met - do not carry forward to LWMP Amendment.	

	LWMP Commitment	Status	Comment	Change for LWMP Amendment
8 Pollution Control Centres	4. Provide secondary treatment at NBPCC:			
	4 (i) Upgrade the facility to provide secondary treatment by 2023	In Progress	(2022) The RDN Board passed Motion 22-124 to seek an LWMP Amendment to change the timeline for NBPCC secondary treatment upgrade to prioritize critical sewer upgrades (2021) Preliminary Design (2019) Conceptual design Applied to these grant funding programs: (2021) Investing in Canada Infrastructure Program (Rural and Northern Communities) for the NBPCC sewer upgrades.	Modify as part of LWMP Amendment to provide secondary treatment by 2040. Refer to Wastewater Infrastructure Focus Area.
	4 (ii) Explore federal and provincial grant options to fund secondary treatment	Met	(2016) Canada Water and Wastewater Fund grant for Nanoose Bay Pollution Control Centre Secondary Treatment Upgrade (2013) Requested financial assistance from the Province at the UBCM convention for the NBPCC secondary treatment upgrade	Met - carry forward through LWMP Amendment. Refer to Administrative Tasks Focus Area.
	5. Expand capacity at FCPC:			
	5 (i) Expand the treatment plant capacity	In Progress	(2022) Revisions to Detailed Design (2021-2022) Value Engineering Study (2019-2022) Detailed Design Report (2018) Detailed Design for FCPC started; applied for Green Infrastructure Grant (2017) Preliminary Design Report completed	In Progress - carry forward through LWMP Amendment. Refer to Wastewater Infrastructure Focus Area.
	6. Work with Development Services to complete a sewer servicing strategy for Nanoose Bay:			
	6 (i) Coordinate with Development Services through the OCP review process to identify property owners in growth containment boundaries who are interested in establishing public wastewater services	Unscheduled	The Development Services' OCP review schedule determines this timeline. The last Electoral Area E OCP completed in 2005. An OCP review is not scheduled.	Remove from LWMP amendment because the Planning Department determines the OCP review process and timeline. Wastewater Services will support the Planning Department outside of the LWMP.
	6 (ii) Consider resource recovery, visual, and olfactory buffers and the number of pump stations required	In Progress	(2021) Preliminary design for the secondary treatment upgrade began in 2021 and considers resource recovery, visual buffers and olfactory buffers. Pump stations will be covered in a separate future project.	In Progress - modify through LWMP Amendment. Refer to Wastewater Infrastructure Focus Area.
	6 (iii) Review and update the Fairwinds sewer servicing agreement and DCC bylaw for the Nanoose Bay area	Unscheduled		Remove this during future LWMP amendment because DCC collection and reviews are governed separately by the <i>Local Government Act</i> .

	LWMP Commitment	Status	Comment	Change for LWMP Amendment
8 Pollution Control Centres	7. Develop a DCC Bylaw to allow new construction to use existing capacity at DPPCC:			
	7 (i) Develop a DCC bylaw to allow properties in the growth containment area to purchase capacity at DPPCC	Partial	<p>Before a DCC bylaw can be created and capacity at DPPCC can be purchased, the <i>Duke Point Sewer Service Connection Agreement</i> between the City of Nanaimo and the RDN needs to be amended.</p> <p>(2017) The Cedar Village Sewer Servicing Study reviewed the potential for properties in the growth containment area to purchase capacity at DPPCC. DCCs were considered in the DPPCC Cost and Capacity Review which began in August 2015 and completed 2017.</p> <p>(2016) Capacity and Cost Review of the Duke Point Pollution Control Centre (see PWS section)</p>	Remove this during future LWMP amendment because DCC collection and reviews are governed separately by the <i>Local Government Act</i> .
8 Pollution Control Centres	8. Review DCC plan every year and revise bylaws when necessary to adequately fund growth-related projects			
	8 (i) Revise DCC bylaws at GNPCC, NBPCC, and FCPC.	Met	<p>(2021-2022) DCC Bylaw review underway for Northern and Southern Communities.</p> <p>(2017) Bylaw No. 1547.01 DCC within Southern Community Sewer Service Area and Bylaw 1442.03 DCC within the Northern Community Sewer Service Area</p> <p>(2005) Bylaw No. 1443 Fairwinds (Nanose) Wastewater Treatment Development Cost Charges Bylaw</p>	Met - Remove this during future LWMP amendment because DCC collection and reviews are governed separately by the <i>Local Government Act</i> .

	LWMP Commitment	Status	Comment	Change for LWMP Amendment
9 Resource Recovery	1. Reduce resource consumption at wastewater treatment			
	1 (i) Complete a study to review resource recovery opportunities at RDN wastewater facilities	Met	(2019) FCPC Expansion and Odour control project investigated heat recovery options, solar panels for hot water, and geothermal energy potential. (2017) GNPCC 100% Design. Resource Recovery is integrated into GNPCC Secondary Treatment design. The final design includes a water system to reuse effluent as operational wash water in place of potable water, an increase in the production of biogas, and an increase in the use of biogas as an energy source for the biolers. The heat will be transferred through the hydronic system to heat the occupied spaces and the treatment process	Met - Remove this during future LWMP amendment because reviews are done during process selection when relevant.
	1 (ii) Evaluate wastewater treatment operations which require energy, water, chemicals or fuel and identify activities that can be run more efficiently, if any	Met	(Ongoing) As part of the National Water and Wastewater Benchmarking Initiative, Wastewater Services compares its data to other facilities across Canada of similar size to monitor performance and identify areas to improve efficiency.	Met - do not carry forward to LWMP Amendment.
	2. Recover resources from wastewater:			
	2 (i) Commission a cogeneration facility for biogas recovery and energy generation at GNPCC	Met	(2012) Cogeneration system at GNPCC was commissioned. (2009) Cogeneration system construction started. See biosolids program information in LWMP Program 10: Biosolids.	Met - do not carry forward to LWMP Amendment.
	2 (ii) Continue to beneficially use biosolids according to the Biosolids Program	Met	(Ongoing) The biosolids management program started in 1999. Since then, RDN biosolids have been beneficially used in soil fabrication, agriculture, landfill closures, mine reclamation and forestry applications.	Met - carry forward to the LWMP Amendment. Refer to Biosolids Management Focus Area.
	2 (iii) Reclaim water for use onsite in compliance with MOE guidelines (MOELP 2001)	Met	(Ongoing) FCPC delivers reclaimed water to Morningstar Golf Course in compliance with is Permit PE-4200	Met (ongoing). Do not carry forward to LWMP Amendment as authorization for reclaimed water is managed under Permit (to RDN and Morningstar Golf Course).
	2 (iv) Discuss future opportunities for reclaimed water use with Morningstar Golf Course	Met	(Ongoing) Morningstar Golf Course continues to receive reclaimed water from FCPC according to their permit.	Ongoing. Modify through LWMP Amendment to install equipment to monitor the quality of reclaimed water. Refer to Wastewater Infrastructure Focus Area.
	2 (v) Consider potential resource recovery options for new projects, particularly through process selection	Met	(2022) RDN supported Morningstar Golf Course through their minor permit amendment. (2019-2022) FCPC Expansion and Odour control project will investigate heat recovery options, solar panels for hot water, and geothermal energy potential. (2017) Resource recovery is integrated into GNPCC 100% Design	Ongoing. Continue as needed. Refer to Wastewater Infrastructure Focus Area.
	2 (vi) Examine opportunities for a district heating project at Hammond Bay Elementary using the GNPCC outfall	Met	(2017) School District 68 received funding from the Carbon Neutral Action Program and School Enhancement Program for the project and completed the connection to the outfall pipe. (2016) The outfall replacement project was completed (2014) The RDN installed two stubs into the new effluent outfall line to facilitate easy connection for the proposed School District 68 district heating project.	Met - do not carry forward to LWMP Amendment.
2 (vii) Examine opportunities for using reclaimed water for the Fairwinds Golf Course.	Unscheduled		Remove from LWMP amendment because the RDN will participate in a discussion if one is initiated by Fairwinds Golf Course.	

	LWMP Commitment	Status	Comment	Change for LWMP Amendment
10 Biosolids	1. Produce, at minimum, Class B biosolids:			
	1 (i) Develop a Biosolids Management Plan to assess options for the beneficial use of RDN biosolids, including land application, energy generation, and other possible resource recovery strategies	Met	(2021) Renewed the contract for the Forest Fertilization Program at a new site (2021) Renewed the contract for the Soil Fabrication Program (2018) A Site Optimization Study was completed. (2016) A Biosolids Options Study was completed. (2011) Biosolids Management Plan completed. Provided a better understanding of readily achievable alternative management options available to the RDN for biosolids management. (Ongoing) FCPCC biosolids consistently meets Class A quality. GNPCC biosolids consistently meets Class B quality.	Met - do not carry forward to LWMP Amendment.
	1 (ii) Improve the quality of biosolids through upgrades to wastewater treatment infrastructure and innovative technologies and techniques (i.e. decrease volatile solids content and pathogen concentrations)	In Progress	(2022) Biosolids annual report include a review of advancements in biosolids technologies in Canada (2022) Completed a review of biosolids management options used in other jurisdictions. (2020) Issued a Standing Request for Expression of Interest to explore management opportunities.	In Progress - modify through LWMP Amendment. Refer to Biosolids Management Focus Area.
	1 (iii) Monitor and report biosolids quality according to operational certificate/discharge permit and OMRR	Met	(2017-2022) The RDN's Qualified Professional monitors and reports the biosolids management program in an annual Biosolids Management Summary (2014-2016) RDN monitors and reports the biosolids management program in a Biosolids Annual Report (2021) The RDN renewed Harmac's biosolids management contract for a four-year soil fabrication contract. The RDN awarded a five year biosolids management contract to SYLVIS Environmental Services for a forest fertilization project at the new Blackjack site. Both programs are contingencies for each other. Contingency site management is included in SYLVIS's contract and SYLVIS identified several additional contingency sites.	Met - do not carry forward to LWMP Amendment. Biosolids are regulated elsewhere.
	1 (iv) Establish a contingency plan for temporary storage or application of biosolids if the VIU site is not useable	Met	(2017-2022) RDN established a contingency site at the Harmac mill where RDN biosolids, Harmac wood waste, and mineral soil are used to fabricate soil for cover material that will be used during the closure of the harmac landfill.	Met - do not carry forward to LWMP Amendment. The Biosolids Management program has a contingency plan

	LWMP Commitment	Status	Comment	Change for LWMP Amendment	
10 Biosolids	2. Expand biosolids-based education and outreach activities targeted at RDN residents:				
	2 (i)	Develop and distribute information on source control in order to improve biosolids quality	Met	See Program 3 Source Control (2022) Developed a Focus on Soil Fabrication Factsheet (2021) Developed a Focus on Forest Fertilization Factsheet (2015) RDN developed a Biosolids Brochure RDN website posts material to increase awareness of the application area, regulations, monitoring and research including surface water quality monitoring reports and groundwater supplies www.rdn.bc.ca/biosolids (2021) Completed a Preliminary Hydrogeological Risk Assessment for Biosolids Application at the Blackjack forest fertilization site.	Met - do not carry forward to LWMP Amendment.
	2 (i)	Develop material to increase awareness of precautions taken to ensure the storage and application of biosolids do not negatively impact groundwater	Met	(2012) Completed a groundwater impact assessment that concluded that past and proposed future application of biosolids within the Biosolids Application Area will not impact groundwater quality in any of the wells located in the region. (2003) RDN completed a groundwater impact assessment that concluded that past and proposed future application of biosolids within the Biosolids Application Area will not impact groundwater quality in any of the wells located in the region.	Met - do not carry forward to LWMP Amendment.
	2 (iii)	Continue working with local user groups to communicate plans for biosolids application areas	Met	(2018) Biosolids open houses for the Nannaimo Mountain Bike Club held April 2018 (2017) NMBC Agreement to coordinate land use to establish mountain biking reserves, biosolids application reserves and areas of integrated use (2015) Biosolids open houses for the Nannaimo Mountain Bike Club held October 2015 (2014) Biosolids open houses for the Nannaimo Mountain Bike Club held August 2014 (2023) May 6, 2023 GNPCC Open House; June 3, 2023 FCPC Open House. Biosolids information will be available. (2019) June 8, 2019 FCPC Open House. Biosolids educational materials available.	Met - do not carry forward to LWMP Amendment.
	2 (iv)	Provide educational material and outreach at open houses and other events.	Met	(2018) June 2, 2018 FCPC Open House. Biosolids educational materials available. (2016) April 30, 2016 FCPC Open House. June 11, 2016 GNPCC Open House. Biosolids educational materials available. (2015) May 9, 2015 FCPC Open House. February 10, 11 and July 8, 2015 GNPCC Open House. Educational materials available. (2014) April 30, 2014 GNPCC Open House. Biosolids educational materials available.	Met - do not carry forward to LWMP Amendment. This can be done through best practices.

Summary of Commitments to 2023

	LWMP Commitment	Status	Comment	Change for LWMP Amendment
11 Emerging Issues	1 Shellfish Harvesting Areas	Met	<p>(2015-2023) RDN has a Conditional Management Plan for FCPC to allow shellfish harvesting in areas near wastewater infrastructure. These areas meet the standards for safe harvest of bivalve molluscan shellfish, except in time where a temporary source of pollution exists.</p> <p>(2022) Participated in the Pacific Region Interdepartmental Shellfish Committee Oyster Norovirus Mitigation Working Group. This group focused on understanding sources of pollution and ways to protect water quality and shellfish safety in Baynes Sound.</p> <p>(2022) Continued to monitor select contaminants of emerging concern.</p>	Activities may continue outside of the LMWP.
	2 Contaminants of Emerging Concern	Met	<p>(2021) Completed a Contaminants of Emerging Concern Planning Study</p> <p>(2018) The RDN received a memorandum on Emerging Substances of Concern (ESOCs)</p>	Carry forward to LWMP Amendment. Refer to Wastewater Infrastructure Focus Area.
	3 Heritage Resources	Met	<p>(2019-2023) RDN Wastewater Services has Multi-assessment Permits from the Archaeology Branch. The RDN also obtains site-specific permits when appropriate.</p> <p>(2021-2023) Bay Avenue Pump Station Replacement moves critical electrical and controls equipment above the year 2100 floods levels, including wave run-up and free board.</p> <p>(2020) Completed draft study to investigate the vulnerability of the Departure Bay Pump Station to the effects of sea level rise.</p>	The RDN obtains permits from the Archaeology Branch where appropriate (outside of the LWMP).
	4 Climate Change	Met	<p>(2019) Climate change is a priority in the Board Strategic Plan</p> <p>(2018) Updated Floodplain Management Bylaw No. 1469.</p> <p>(2018-2021) Coastal Flood Hazard Mapping developed, released and revised.</p> <p>(2017) The RDN acquired the LIDAR data (with a \$10,000 contribution from Wastewater Services). The RDN was awarded a \$150,000 grant to acquire coastal floodplain mapping.</p> <p>(2015) RDN Sea Level Rise Adaptation Program Terms of Reference developed.</p> <p>(Ongoing) SepticSmart Program addresses pollution from onsite sewage systems.</p>	Carry forward to LWMP Amendment. Refer to Wastewater Infrastructure Focus Area.
	5 Non-Point Sources of Pollution	Met	<p>RDN has agreements with BC Ferries to establish a pump ashore program at GNPCC and DPPCC to accommodate the wastewater produced on BC Ferries and Seaspan vessels.</p>	Activities may continue through the RDN Drinking Water and Watershed Protection Program.

Appendix B – Update on the Regional Strategy for Rainwater Management





REGIONAL
DISTRICT
OF NANAIMO

Implementation Update on the Regional Strategy for Rainwater Management

RECOMMENDATION

That the Board receive the Implementation Update on the Regional Strategy for Rainwater Management for information.

BACKGROUND

In March 2022, the RDN Board endorsed the [Regional Strategy for Rainwater Management](#) (RSRM) for collaborative implementation with member municipalities, Provincial agencies and community partners. Since that time, staff have been working with partners on implementing the strategy and are presenting an update on activities by way of this report.

Rainwater management is defined as the management of precipitation across the landscape and associated strategies to protect the natural water balance and health of watersheds in terms of:

- Maintaining groundwater recharge
- Mitigating flooding
- Protecting water quality
- Enhancing climate resilience

Rainwater, by its nature, is cross-jurisdictional and there are many organizations and individuals involved in managing rainwater on different scales. Municipalities manage rainwater and drainage within their boundaries through stormwater service areas. Upstream of the municipalities in our region, rainwater management in the rural areas is fragmented across various organizations including the RDN as the land use planning authority and the Ministry of Transportation and Infrastructure as the rural road drainage authority. This means collaboration is essential to ensure a holistic and effective approach to maintaining the natural water balance across the landscape in a changing climate, amidst land use changes and development.

The Highlights of the Strategy

The Regional Strategy for Rainwater Management is a foundational document to guide region-wide efforts in managing precipitation (all rain events, not just storms) across the regional land base. The Strategy outlines a framework for achieving a resilient approach to rainwater management in the region, structured as follows.

Set the Foundation → complete watershed studies, continue watershed monitoring, generate regional climate change projections, and complete a funding assessment.

Develop Performance Targets → use the foundational studies and data to set targets for: release rate, retention volume, recharge volume, and water quality to be applied to development within the region’s watersheds. While watershed-specific targets are being developed, interim regional targets can be implemented as a stopgap.

Implement Technical, Policy and Planning Tools → compile regional design standards and specifications for rainwater infrastructure, as well as develop regional guidance documents and manuals to support a comprehensive technical approach to rainwater management regionally; update policies, bylaws, development permit areas (DPAs), official community plans (OCPs); explore the use of covenants; update the development approvals process to include new requirements such as meeting performance targets; deliver targeted outreach and education programming on rainwater management; include a rainwater management focus in asset management planning including natural assets and parkland co-benefits; explore regional programs on recharge management and rainwater facilities.

Ongoing Implementation to Date

The following is a synopsis of activities related to the RSRM that took place in 2022-2023, listed with the associated Section of the Strategy or the associated Task # presented in the Implementation Recommendations tables in the RSRM.

Performance Targets

Section 5 Complete: Developed Watershed Performance Targets for Rainwater Management in the French Creek Water Region, presented to the Board in April 2023. The targets include baseflow release rate, retention volume, and infiltration area. These are proposed to be interim targets for the region until other watershed-specific targets are developed.

Foundational Studies

T.1 Near Complete: Regional Downscaled Climate Projections are being created for the region by Pacific Climate Impacts Consortium, for adoption in early 2024. These include projections related to temperature and precipitation.

Technical, Policy, Planning Tools

T. 24 Underway: Draft policy language related to improved rainwater management is being developed as part of the Area F OCP Update.

T. 21, T. 22 Underway: Draft Development Permit Area (DPA) Guidelines related to rainwater management and aquifer protection are being created as part of the Area F OCP Update, with the intention that it would roll into a region-wide DPA update in 2024 / 2025. This would be the mechanism by which to implement the interim watershed performance targets.

T. 11 Underway (related to above): A Rainwater Management Plan Checklist is being drafted and reviewed by Qualified Professionals as part of Area F OCP Update / New DPA Guidelines. This would standardize the requirements for Rainwater Management Plans submitted as part of development applications, for the ease of the applicants, professionals, and reviewers.

- T. 28 Ongoing: A Rainwater Strategy Implementation Group (a.k.a. the RDN Rainwater Working Group) has met three times since the RSRM was endorsed by the Board in March 2022. This multi-jurisdictional working group includes staff from member municipalities, RDN departments, the Ministry of Transportation and Infrastructure, community groups, etc., and meets bi-annually (spring and fall). It is a forum to keep communication lines open on projects relevant to rainwater management across the various organizations in the region and guide the implementation of the Strategy at the operational level.

- T. 30 Ongoing: Community monitoring partnerships have continued to collect data on surface water quality, benthic invertebrates, and wetlands, and are expanding into more streamflow data collection in partnership with the Province and BC Conservation Foundation.

- T. 32 Underway: At the RDN Admin Building, a project has been initiated to enhance an existing landscape swale into a rain garden demonstration site. This will serve as an educational asset as well as a green infrastructure asset.

- T. 36 Underway: As part of the Municipal Natural Assets Initiative, the RDN includes rainwater management assets in a high-level inventory, condition assessment, risk analysis, and level of service summary for the region. A separate but related initiative is implementing the Ecological Accounting Protocol for the riparian areas in the French Creek Water Region, similar to what has previously been completed for the Millstone River. This project uses a methodology that applies a land valuation to the natural commons area occupied by the stream corridor, to come up with a financial figure that could apply to funding natural asset management and maintenance.

- T. 31, 38, 39 Planned: Expand existing community education partnerships and outreach materials (i.e. multimedia, print, school-based, public workshops) to focus on resilient rainwater management in the RDN.

Next Steps Looking Ahead

While several activities have been completed and/or are underway, there are further actions recommended in the RSRM that have not yet been initiated. These actions will require more resources to be directed to their implementation in 2024 and beyond. Each year the RDN Rainwater Working Group should evaluate which recommendations to prioritize, and collectively assign resources to. The following are examples of some recommendations for consideration in the short term (2024-2026). Please refer to the RSRM in its entirety to see the full list of implementation recommendations, as for expediency not all are highlighted here.

- Section 4.4 Funding Assessment – complete an assessment of the funding needs and potential avenues for funding the full suite of actions within the RSRM, beyond what can be implemented via the Drinking Water and Watershed Protection (DWWP) operational budget and work plan.

- T. 13,
T. 17-20 Rainwater Management Guide – explore the creation of a document that could serve as a reference for the region, that compiles performance targets, design standards & specifications, Best Management Practices, etc., and would provide a harmonized approach across municipalities and Electoral Areas, if adopted by way of a new Rainwater Management Bylaw or Amendments to the Zoning Bylaws or Subdivision Servicing Bylaw.

- T. 29 Regional Rainwater Facility Feasibility – explore the feasibility of establishing facilities for water storage, infiltration, and flood detention, at various scales across the region, based on where there is hydrological need (i.e. where the performance targets cannot be met without) and also where there is available land or opportunity to engage in operational partnerships for such facilities.
- T. 37 Identify Co-benefits of Parkland Assets for Rainwater Management – related to the above, investigate where existing or potential Parkland could be used for intentional rainwater management (i.e. rainwater detention ponds, naturalized areas for groundwater recharge, allowable flood zones for times of high water etc.). This would require a geospatial assessment based on agreed-upon criteria.
- T.40 Workshops with Development Community on Performance Targets – related to the prospective implementation of new Development Permit Area or Zoning Bylaw requirements that include watershed performance targets for rainwater management, explore the opportunity to host educational workshops to keep the development community informed and involved.

FINANCIAL IMPLICATIONS

Several of the foundational tasks within the RSRM are aligned with the RDN’s Drinking Water and Watershed Protection Action Plan 2.0 and will be funded through the existing approved operating budget and work plan for the DWWP function. Member municipalities have existing operating budgets for stormwater infrastructure and services. Additional funding is required to support broader implementation of the full suite of actions within the RSRM, however. Through discussions with municipal partners, additional or repurposed funding sources via rainwater utility fees, development cost charges, cash-in-lieu, and grants can be investigated to expand financial support for the regional efforts under the RSRM. Once further developed, funding options will be presented to the Board for approval, informed by the Funding Options Assessment that is outlined in Section 4.4. of the RSRM.

STRATEGIC PLAN ALIGNMENT



Water Security - Understand our water resources and their risks, to manage our water resources effectively and sustainably.

Managing Impacts of Climate Change - Advance priority actions that are identified within RDN Board-approved plans and initiatives.

REVIEWED BY:

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