Regional Water Supply Strategic Plan Progress Report

Update No. 1, September 2020

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APPENDIX A

On track | Future actions(s) planned | Delayed | No planned action(s)

Commitment	Strategic Priority	Actions	Annual Status (by year)	Progress Made	Progress Pending
Provide high quality, safe drinking water	**Manage and protect the Greater Victoria Water Supply Area (GVWSA).**	• Continue to actively protect the GVWSA and water supply infrastructure from unauthorized activities and seek opportunities to acquire ownership and control of the remaining catchment lands and critical adjacent lands to act as a buffer.	2018 2019 2020 2021 2022	• Development and adoption of land acquisition priorities for the GVWSA. • Remediation of the Weeks Lake gravel pit that was contaminated with lead and hydrocarbons. • Training and designation of additional watershed security officers.	
		• Reduce risk to water supply and ecosystems from contaminants and invasive plants, animals and pathogens by completing a biosecurity risk assessment and implementing biosecurity mitigation measures.	2018 2019 2020 2021 2022		• Completion of a GVWSA biosecurity strategy for the GVWSA.
		• Implement the GVWSA climate change adaptation initiatives to reduce the impact of the potential types, magnitude and rate of climate change on GVWSA ecosystems, water quality and infrastructure.	2018 2019 2020 2021 2022	• Implementation of climate change actions related to increasing the capacity of stream crossing structures (29 stream crossings upgraded) and upgrade of weather and hydrology monitoring in the GVWSA. • Precipitation and Flood studies completed relative to dam safety/infrastructure. • Initiation of a collaborative research project with the University of Victoria and Natural Resources Canada to model potential changes to the forests in the GVWSA with climate change and the implications of these changes for wildfire risk.	

		• Assess the need for more active forest management to protect and enhance forest health and resilience.	2018 2019 2020 2021 2022	• Aerial and airphoto mapping and ground investigation to monitor forest insect and diseases present in the GVWSA.	
		• Reduce risk of landscape level wildfire by designing and implementing forest fuel management treatments.	2018 2019 2020 2021 2022	• Completion of burn probability mapping for the GVWSA to guide forest fuel management. • Completion of forest fuel management treatments by thinning, pruning and removing, chipping or burning woody debris (2 major fuel treatment corridors completed).	• Planning for a prescribed burning trial in the Leech WSA.
	Maintain a multi-barrier approach to drinking water quality protection	• Continually evaluate the effectiveness of the water treatment processes.	2018 2019 2020 2021 2022	• The water quality monitoring program for the Greater Victoria Drinking Water System uses a combination of online analyzers and daily grab samples to ensure that water treatment is effective and all water quality parameters are in compliance with the regulatory requirements.	
		• Use the Regional Water Supply Service drinking water safety plan in operational and capital project decision making	2018 2019 2020 2021 2022	• The Greater Victoria Drinking Water Safety Plan, a comprehensive water quality risk registry, was completed in 2018, and is annually updated to inform operational and capital upgrades.	
		• Maintain multiple accreditations to ensure highest quality drinking water testing.	2018 2019 2020 2021 2022	• ISO 17025 accreditation (first certified 2017 to ISO 17025:2015, recertified in 2019 to new standard ISO 17025:2017). • Reassessed by Canadian Association for Laboratory Accreditation (CALA) every 2 years to maintain accreditation status. Requires	

				successful participation in a semi-annual proficiency testing program. • Certified by Provincial Health Officer (PHO) for water microbiology. Maintenance of approval contingent on thrice yearly successful participation in proficiency testing program and onsite audit every 3 years.	
		• Continue to develop and refine the Utility Operator Training Program and ensure adherence to Environmental Operator Certification Program requirements.	2018 2019 2020 2021 2022	• Environmental Operator Certification Program (EOCP) Corporate Recognition Award for IWS internal operator program • Continued Utility Operator exposure to all utility disciplines, for well-rounded development. • Ensure compliance and progression through EOCP certifications as a requirement of the Utility Operator Program.	
		• Identify and implement progressive and innovative training and development opportunities with respect to utility operations and management for departmental staff.	2018 2019 2020 2021 2022	• Utilize professional training consultants to expand knowledge of all working environments.	
	Maintain a risk register for the Regional Water Supply System that identifies potential risks to water quality, water supply and water transmission and provide mitigation and adaptation measures.	• Regularly review Regional Water System hazards, risks and vulnerabilities and update the risk register.	2018 2019 2020 2021 2022	• A Corporate Risk Register has been established by the CRD, managed by the Manager Risk and Insurance which includes Regional Water System risks. • A Drinking Water Safety Plan was developed that lists and categorizes risks to the Regional Water Supply and tracks actions to reduce or mitigate those risks. • A HRVA study was completed March 2017 and the recommendations are to be included in the RWS Risk Register	• The RWS Capital Plan includes a Risk and Resilience study and a Seismic Assessment of Critical Facilities.

				• Updated Cross Connection Control and water conservation bylaws to align with building and plumbing codes and operational requirements including the uni-directional flushing program. • Phase One of the of the PH and Corrosion study for the Regional Water Supply system complete.	• Phase Two of the study will involve tap sampling to determine lead concentrations and sources.
		• Continue the emphasis on wildfire prevention, early detection and suppression capability, preparedness, forest fuel management and post-fire rehabilitation planning to reduce and mitigate the risk of a large-scale wildfire affecting the water supply area and source water quality.	2018 2019 2020 2021 2022	• Wildfire prevention and suppression remains a priority for the GVWSA, an infrared camera to assist with monitoring for wildfire starts has been installed at a high point in the GVWSA, along with a new FTE request for wildfire/security to ensure patrols can be fully staffed.	• Completion of a study on post-wildfire hazards and mitigation options in the Sooke WSA.
		• Continue to monitor and evaluate the implications of the reliance on unfiltered source water and the absence of a filtration step in the water treatment process.	2018 2019 2020 2021 2022		• This will be considered in the context of the Water Supply Master Plan Update recommendations (2021) and consultation with Island Health.
		• Conduct specific seismic risk evaluations of critical assets.	2018 2019 2020 2021 2022	• A specific Dam Safety Risk Register has been created and includes recommendations from various Dam Safety studies and Dam Safety Reviews. • The Sooke, Saddle and Deception Dams Emergency Procedures document has been updated along with dam breech scenario inundation mapping.	

Provide an adequate, long-term supply of drinking water	**Plan and prepare for future water supply needs to meet demand considering impacts of climate change, population growth, and per-capita demand rates**	• Evaluate climate change impacts and risks on water supply and incorporate mitigation and adaptation recommendations in operating and capital plans.	2018 2019 2020 2021 2022	• Completion of planning and progress on the implementation of a hydrology monitoring system in the Leech WSA. • Upgrade of hydrology monitoring stations in the Sooke and Goldstream WSAs. • Study on the effects of climate change on Sooke Lake Reservoir completed. • Installation of long term forest monitoring plots completed. • Flood forecasting system to guide operating decisions regarding reservoir operating rules. • Consolidated and formalized the Fisheries Water Release Program for the Sooke, Charters and Goldstream Rivers.	• Goldstream Water Supply Area Capacity Study • Sooke Lake Reservoir – North Basin Water Quality Feasibility Study
		• Update service population and service population growth rate forecasts with current census data, considering municipal Official Community Plan land use and population directions, to estimate growth related water demand.	2018 2019 2020 2021 2022	• The Capital Plan includes the Master Plan Update that will address the current and future water demand issues.	
		• Establish long-term per capita demand rate projections and Demand Management Program objectives to achieve rates and determine annual water demand by sector.	2018 2019 2020 2021 2022	• Agricultural Water Demand Model and Land Use Inventory completed.	• A Comprehensive “By Sector” water demand report will be presented in 2021.
		• Undertake regular monitoring and assessment of the physical, chemical, and biological parameters of the Leech Water Supply Area (WSA) source water and determine a plan to address potential water quality, ecological and ecosystem implications at Sooke Lake Reservoir resulting from diversion of Leech WSA source water (Leech River water) to	2018 2019 2020 2021 2022	• Completion of planning and implementation of a hydrology monitoring system in the Leech WSA.	

		Sooke Lake Reservoir (ie. combining source waters).			
		• Develop a plan to undertake more 'intensive' monitoring of Leech River water quality to inform treatability recommendations and long term treatment strategy.	2018 2019 **2020** 2021 2022	• Water quality sampling and testing in the Leech WSA began in 2020 and will continue through 2022.	
		• Determine conceptual 'hard' capital infrastructure plan to design and construct the necessary infrastructure to divert Leech WSA flows to Sooke Lake Reservoir.	2018 2019 **2020** 2021 2022	• The Capital Plan includes the Master Plan Update that will address the concept of diverting the Leech watershed water to the system.	
		• Conduct a feasibility study to explore the design and construction of supply and transmission infrastructure at Sooke Lake Reservoir to provide increased resiliency, including consideration of a deep northern intake and a secondary transmission pipe between the reservoir and the treatment facilities.	2018 2019 **2020** 2021 2022	• The Capital Plan includes the Master Plan Update that will address the supply and transmission infrastructure resiliency and long term capacity and treatment requirements.	
		• Undertake biannual Supply System hydraulic modelling to confirm system capacity.	2018 2019 **2020** 2021 2022		• The Capital Plan includes the Hydraulic Capacity study of the transmission system.
	Develop a higher level of public understanding of the drinking water supply system and value of water through education and engagement	• Continue to improve Regional Water Supply service and system information available to the public through a variety of media streams, to raise awareness around specific topics including water supply and conservation, and supply infrastructure investment.	**2018** **2019** **2020** 2021 2022	• Increased use of CRD social media streams (Twitter and Facebook) • Continue to prepare the Daily, Weekly and Monthly Water Watch and include information on the CRD webpage.	
		• Continue to promote the value of the drinking water resource through Water Supply Area public and school tours and other outreach.	**2018** **2019** **2020** 2021 2022	• Expansion of public and school tours of the GVWSA facilitated by a 0.5 FTE approved in 2019 (exception: no tours in 2020 due to COVID-19). • The Water Advisory Committee (WAC) has formally considered and provided advice on:	

		• Continue to have two-way dialogue with the Water Advisory Committee regarding water supply matters.	2018 2019 2020 2021 2022	• Post Disaster Water Supply and Distribution Plan • Water Supply Area Land Acquisition Study • Impacts of Malahat Detour Route Proposal • Health Canada change in Lead Guidelines for Drinking Water and CRD Actions.	
		• Explore opportunities for mutually beneficial collaborative partnerships to carry out research and monitoring initiatives in the water supply area and across the system.	2018 2019 2020 2021 2022	• Successful research partnerships with University of Victoria, NSERC forWater network, Canadian Forest Service in the areas of: wildfire fuel and burn modelling; paleo-ecological record of large wildfires and forest changes; hydrology of the Leech WSA.	

Provide a reliable and efficient drinking water transmission system	**Maintain a capital planning process and appropriate investment in water supply infrastructure to ensure reliable system performance**	• Complete a short term (annual and 5-year), medium term (5-10 year), long term (10-20 year) and long range (20-50 year) asset management plan – informed by asset condition and remaining service life assessment, water operation and maintenance history, water audit, changing regulatory requirements, Hazard, Risk and Vulnerability Assessment (HRVA) recommendations, and system capacity requirements.	2018 2019 2020 2021 2022	• Completed Regional Water Supply Water Audit
				• The Capital Plan includes the Asset Management Planning, which will address many topics including Level-of-Service, asset inventory, valuation, condition assessment, utilization, failure modes analysis, asset life expectancy, actions to extend useful life, business risk exposure, consequences of failure, O&M strategies, utility protection, etc.
				• 2018-2020 Capital Investment value has been $15,000,000, focused on Infrastructure Renewal and Resiliency including:
				  • Goldstream Water Treatment Plant Upgrades
				  • Lubbe Dam No. 4 Replacement	

				• Sooke Lake Reservoir Intake Screen Replacement	
		• Explore Regional Water Development Cost Charges to fund future growth related supply system infrastructure improvements.	2018 2019 2020 2021 2022		• The Capital Plan includes the study of creating a Development Cost Charge Program.
		• In collaboration with municipal and First Nations water purveyors, establish water supply service agreements.	2018 2019 2020 2021 2022	• Draft Water Supply Service Agreements with some of the First Nations in the region and water rate discussion continue.	
	Continually review cost effectiveness of service respecting operations and maintenance and capital investment decisions.	• Continue to review reactive, preventive and predictive operations and maintenance history and confirm operation and maintenance service levels for the Regional Water Supply Service that consider best practices and reliability centered maintenance approach.	2018 2019 2020 2021 2022	• Completed a Water Operations Review project in 2018 with a focus of reviewing the operational and maintenance teams for cost effectiveness and efficiency in service delivery. Have completed several phases of implementation and optimization based on the outcomes of the 2018 Review project.	• Continual improvement in terms of operational and maintenance optimization is required with a focused review over the next 5 years and the development of a sustainable approach going forward.
		• Consider life cycle costs with new infrastructure design and asset replacement.	2018 2019 2020 2021 2022	• Ongoing as part of annual Capital Plan development.	
		• In asset replacement decisions, balance maximizing infrastructure service life with infrastructure reliability.	2018 2019 2020 2021 2022	• Ongoing as part of Capital Plan; Asset Management Planning and Master Planning.	
		• Optimize capital investment taking into consideration priority, annual and long term budget and water rate impacts and resource availability to deliver the projects.	2018 2019 2020 2021 2022	• Ongoing as part of Capital Plan and output of the Corporate and RWS Risk Registers.	• Agricultural water rate review and options study.
	Develop and manage emergency bulk drinking water supply systems for Greater Victoria	• Establish emergency and post-disaster water supply protocols and obtain necessary supplies, materials and equipment to implement protocols. Establish water purveyor support roles and responsibilities in emergency water supply and distribution.	2018 2019 2020 2021 2022	• Resilient Hydrants: For use as a water distribution point during an emergency. Currently five hydrants are in place throughout the region and an additional five more will be installed by the end of 2020. These hydrants are a point of connection	• Construction of a critical equipment storage building. This structure will be used to store critical equipment and spare parts required for an emergency response related to the water supply systems.

				for the emergency water distribution modules. • Two emergency water supply/ distribution modules are ready for deployment consisting of a trailer module and a stationary module. • The two modules are regularly monitored and exercised to ensure immediate deployment capability in the event of an emergency. A second round of operator training was completed in 2020 to expand the pool of operators familiar with the deployment of this emergency equipment. • The seismic resilient 'hardened water main grid' continues to expand as water mains are replaced through capital projects. • Purchase of adapters for the emergency repair of concrete supply mains. The adapters act as an emergency repair coupling and allow the flexibility to utilize either Steel or Ductile Iron pipe material. • Standard Operating Procedures were developed to isolated key sections of the Regional Supply System in the event of an emergency or supply main failure. This will allow sections to be isolated while the failure is located and repaired.	• Upon completion of the critical equipment storage building, the requirement for additional emergency water distribution modules will be reviewed. • Additional Resilient Hydrants will continue to be installed at critical locations throughout the region.
		• Outline how an emergency/post disaster drinking water supply can be supported by regional emergency management plans and available senior government supports under certain conditions.	2018 2019 2020 2021 2022		• Further integration with Regional Emergency Management Partnership and collaboration with Municipal water purveyors.

	Continue to focus on retaining and recruiting experienced and professional employees responsible for the Regional Water Supply System engineering, system operation and maintenance, and management of the water supply area.	• Develop a succession plan to ensure key positions are backfilled by experienced and knowledgeable employees, and that system knowledge is preserved.	2018 2019 2020 2021 2022	• Staff hiring is ongoing to replace experienced staff who retire. Cross over training is required for each departing staff member.	
		• In alignment with CRD organizational development initiatives, provide learning and development opportunities for employees.	2018 2019 2020 2021 2022	• Efforts continue to be made to ensure knowledge is carried forward in procedures and practices such as standard operating procedures, emergency response procedures and system drawings to reduce the risk when staff retire. • Staff are required and fully supported to obtain continuing education credits so as to maintain their professional status whether it be as an engineer, technician, operator or other.	