Scott Point Waterworks District

Strategic Plan (revision Oct, 2022)

Context
Scott Point Waterworks District ("the District") is an improvement district providing potable water services to 61 properties located on Scott Point on Salt Spring Island, B.C. The District was created by Order in Council of the British Columbia legislature and received its Letters Patent in 1967.

The affairs of Scott Point Waterworks District are overseen by a Board of 3 trustees, chosen by election from among eligible property owners on Scott Point for a 3 year term. One trustee is chosen as the Chair and the duties of financial officer, administration officer, and operations management are shared between the trustees. Operation of the District's water system, which includes routine maintenance, quality testing, leak investigation, and meter reading is contracted to North Salt Spring Waterworks District.

Why a Strategic Plan
Strategic planning is an essential exercise so that the District is aware of key operational, financial and physical risks it faces. This plan is intended to provide trustees, residents, and regulators with an understanding of the short and long term decisions to control these risks to an appropriate level. The plan then outlines the investments required to maintain water availability and quality, and the impact of these investments on reserves, tolls and taxes.

In 2017 the trustees worked to develop a comprehensive understanding of the physical risks to the District's infrastructure and business risks of operations. Using templates provided by the B.C. Water and Waste Association and the Ministry of Health, business resilience and a physical risk assessments were developed and reviewed with a number of past trustees. The results were then discussed with all residents at the 2018 Annual General Meeting and posted on the District's website along with a 10 Year Financial Plan.

This Strategic Plan incorporates and updates the resilience assessment and financial plan, provides clear future business objectives, and discusses issues and future investments. It is intended that trustees revisit this plan on an annual basis to see if any changed circumstances require revisions, and that trustees regularly communicate the principles and specifics of this plan with residents.

Regulatory Requirements
Three provincial regulators provide oversight of the affairs of the District and actions of the Trustees. The Ministry of Health is responsible for drinking water safety and the Vancouver Island Health Authority ("Island Health") issues the annual operating permit and provides oversight of water quality, and approves changes to treatment works. The Ministry of Municipal Affairs ("Ministry") provides oversight

over the passing of by-laws, filing of financial information and other legislative requirements. The Ministry of Land, Water, and Resource Stewardship ("LandWARS?") issues groundwater licenses and provides oversight for the protection of water resources.

The Capital Regional District and Islands Trust are not regulators, but are involved with water issues on Salt Spring Island through policy development and control over zoning and the official community plan. With the exception of the Reservoir and treatment plant at Well 1 on District property, and the Well 1 waste line and the well and treatment plant at Well 4 located on private property under easement, the District's facilities are located on road allowance under the control of the Ministry of Transportation and Infrastructure under site-specific permits.

The primary risk to the District comes from ensuring that water delivered to residents is free of pathogens, remains potable, and is in compliance with the Drinking Water Protection Act and Regulation. Compliance assurance is achieved through ensuring that the contract operator follows the Water Testing Plan filed annually with Island Health, and they employ appropriately qualified personnel as required by the Operating Permit. An Emergency Response Plan is filed regularly with Island Health and covers appropriate actions for a number of scenarios.

The trustee's actions must follow the provisions of the Local Government Act and the recommended practices included in the Improvement District Trustee's Handbook. Compliance assurance is provided by the requirement to send all bylaws to the Ministry for approval and/or registration, and the filing of an Annual Report with the Ministry. Assurance is also provided through the District's key value of transparency which requires disclosure of important District information to residents through the website.

The extraction of groundwater under the Water Sustainability Act must comply with conditions of the Water License issued by LandWARS which contains provisions for maximum annual and daily water extraction amounts. Compliance assurance is achieved through the requirement to retain flow meter records and file an Annual Water System Return.

Context - Physical Assets

Groundwater Resource

The District's water supply comes from 3 wells. Well 1 (RO) and 4 (RVYC) are drilled to depths of 180 ft. and 240 ft. respectively in a fractured bedrock aquifer identified as Aquifer No. 721. This aquifer is considered to have low productivity and moderate vulnerability and demand. Well 3 (Welbury) is located off of Scott Point and is drilled to a depth of 44 ft. in the unconsolidated sand and gravel material above Aquifer No. 721. The recharge of groundwater is dependent on precipitation. Environment Canada data shows has remained relatively consistent over the last

five years, with an average annual precipitation around 900 mm. The aquifer and the bedrock fractures that contain groundwater appear to be finite and increased precipitation above normal does not raise groundwater levels higher than historical maximums.

The geography of Scott Point is a long skinny peninsula in close contact with the ocean, resulting in groundwater with an elevated risk of seawater intrusion. Wells 1 and 4 are drilled to depths below sea level and are dependent on seawater interface to maintain groundwater levels. Well 1 is of particular concern as it has always been brackish and treatment through reverse osmosis is required to remove dissolved salts caused by seawater intrusion. Well 3 is not at risk of seawater intrusion, but does not produce reliable quantities of water during periods of little precipitation. Unconstrained pumping of wells caused by system or residence leaks is a major risk to the water resource.

The groundwater resource is finite and does not meet the current volumetric requirements of local by-laws controlling development and sub-division. However, the nature of habitation on Scott Point (average household size, percentage of full time to part time residents, limitations on commercial use of property) has been historically consistent. Combined with close attention to leak detection, as well as rainwater capture and conservation efforts by all residents result in adequate supply amounts, but just. During periods of drought, watering restrictions may become necessary.

Water Treatment

The District has a water quality management framework that incorporates the principles of Multi-Barrier Approach for Ensuring Safe Drinking Water published by Health Canada. The 4-3-2-1-0 treatment objective is used at each of the District's three wells and water treatment plants. Various filtration technologies and the use of sodium hypochlorite for disinfection ensures product water quality meets the quality objectives of the Guidelines for Canadian Drinking Water Quality.

While water meets the potable water standard in the Guidelines and the Drinking Water Protection Regulation, the District is managing a few quality and aesthetic issues:

- levels of naturally occurring manganese can cause issues with treatment effectiveness,
- levels of disinfectant by-products caused by the reaction of natural elements with chlorine may exceed guidelines,
- higher water hardness can cause concerns over limescale formation,
- annual variations in groundwater levels can lead to changes in raw quality requiring treatment adjustments, and
- the volume of groundwater resource used during processing may be excessive.

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Distribution System

The water main consists of 2,000 meters of NPS 4 diameter asbestos-concrete pipe which is now 50 years old. The District monitors the condition of the water main through leakage calculations and physical examination of the pipe when opportunities arise. While ground conditions and low main pressure are generally good for main longevity, there are some sections where soils and high water table are impacting the pipe condition. There are also risks from the number of trees growing over the pipe. Most of the water main valves were installed in 2002 and are well within expected lifespan. Valves are exercised annually during main flushing to ensure they remain operational. While the long term use of asbestos-concrete is not cause a concern from a drinking water perspective, any repairs involving cutting require appropriate measures to protect workers from released fibres.

The main and the connected fire hydrants were installed in 1967, and are undersized under current fire fighting standards. Salt Spring Fire/Rescue has indicated that the new larger hydrant installed at the Reservoir in 2012 is part of their water shuttle service accreditation and that the old hydrants remain useful to supplement fire fighting efforts. The hydrants are serviced every 2 to 3 years.

The service lines from the main to the meter servicing each residence, and the meter set itself are well beyond expected service life, and either do not meet current standards for reduced lead levels in the brass alloy, or are made of uncoated copper tubing susceptible to external corrosion. The District's plans include a program of replacement. It is noted that residents are responsible for installation and upkeep of a shut-off valve and piping connecting the meter to the residence.

Structures

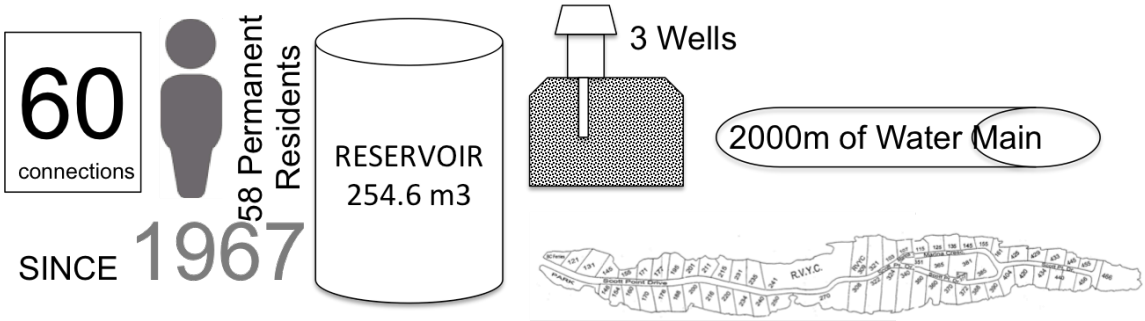
The 245,600 litre (litres, m3 or Imp Gallons?) reservoir was installed in 2012 and meets the District's requirements for load balancing, fire fighting and provides the system's water pressure. The Reservoir was constructed to current seismic standards.

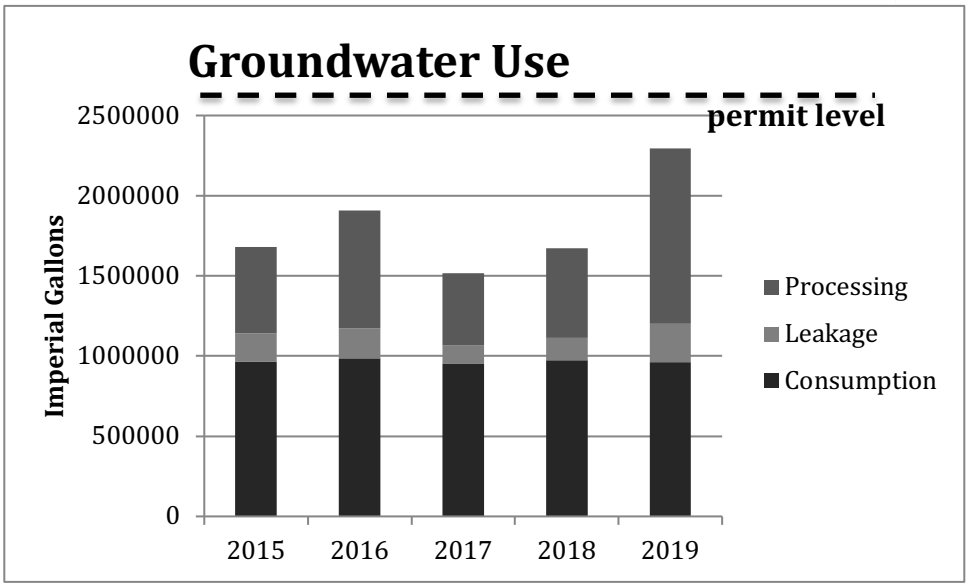
There are 4 smaller plastic storage tanks associated with water treatment at the treatment plants. Two 13,600 litre outdoor tanks at Well 1 were installed in 2018 and meet code requirements. Older, smaller tanks are installed inside the pumphouses at Well 3 and Well 4, but remain in good shape.

The buildings housing the water treatment plants are between 40 and 20 years old and were constructed to residential standards. While the roofs have been replaced with metal, there are concerns regarding the fire resistance of the wood structure and cladding, and with impact of moisture on the inside walls and insulation.

Snapshop

Scott Point Waterworks District





Planning Horizon

The Ministry requires that Improvement Districts maintain a five-year financial plan. In 2017, after a detailed examination of the key issues and risks facing the District, a 10 year financial plan incorporating planned capital expenditures, inflationary pressures on operating costs, forecast water tolls and parcel taxes, and anticipated financial reserves was developed, discussed with residents, and approved by the trustees. This plan, the key risks and impact on tolls and parcel taxes is updated annually and incorporated into this Strategic Plan.

Risks

The main risks faced by the District were outlined in the 2017 business resilience and physical risk assessments. The Risk Management Plan stemming from this assessment was reviewed and updated by the trustees in 2021. The major identified risks include:

- Impact on groundwater from extended droughts and seawater intrusion
- Damage to facilities from earthquake, wildfire, or electrical fire
- Contamination caused by failure of treatment failures

- Water shortage caused by premises leakage
- Age related failure of the water main and service connections
- Lack of District management capacity

Managing these risks involves a combination of education, oversight of operations, performance monitoring, physical infrastructure, and insurance. The Risk Management Plan is operationalized by development of the Strategic Objectives below.

Omissions

There are three high impact risks that where possible improvements have been intentionally omitted from the 10-year financial plan and this Strategic Plan:

- The District's location in an active seismic zone means there is risk to elements of the water system from a major earthquake. While an earthquake is an almost certainty, the timing is very uncertain. While new facilities like the reservoir and intermediate tanks have been constructed to modern seismic standards, the District considers the impact of a major earthquake on other facilities as something that will have to be dealt with when it occurs and plan financial reserves to accommodate only for temporary repairs.
- The future impact of climate change on the District and its water resources is difficult to determine. Rising sea levels may increase saltwater intrusion into the aquifer and reduced precipitation may reduce the volume of groundwater available for production and use. Changes need to be monitored and plans developed in response to observed changes.
- The Ministry of Municipal Affairs funded a study by CRD to examine governance models for the delivery of water on Salt spring Island. Any actions stemming from this study could alter how the District is managed and operated in the future.

Mission Statement

Primary

- Deliver safe and reliable potable water to residents of Scott Point.

Secondary

- Protect the interests of ratepayers and residents through good governance practices
- Proactively identify and manage water quality, groundwater resource, and infrastructure damage risks
- Maintain appropriate financial reserves

Key Values

- Integrity – we will meet or exceed operational and financial expectations of ratepayers and regulators
- Transparency – operational and financial matters are matter of public record and easy for ratepayers to access
- Simplicity – processes will be easy for trustees and ratepayers to understand

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Strategic Objectives

The major strategic objectives were identified in the 2017 business resilience and physical risk assessments and categorized using Ministry of Health templates.

1. Management Capacity

No.	Objective	Initiative	Rate
1-1	Maintain relationships with contract operator and monitor their capacity and effectiveness	Set regular meetings with NSSWD to discuss issues	
1-2	Strengthen or build internal processes, policies, and procedures to ensure regulatory compliance and to make oversight easier for current and future trustees	Complete and post a set of management policies and operating procedures.	
1-3	Educate residents on water issues to ensure responsibilities are understood, trustees' decisions are supported, and future trustees develop familiarity	Keep website current. Regular newsletters. Poll residents on information needs	

2. Financial Capacity

No.	Objective	Initiative	Rate
2-1	Maintain appropriate reserve levels to deal with future issues and needed investments	Regularly evaluate the appropriate level of operating, capital and renewal reserves	
2-2	Annually update and review the 10-Year Financial Plan for tolls, taxes, physical assets and expenditures	Share 10 Year Plan with residents	
2-3	Regularly review financial controls and insurance to limit exposure to unexpected financial challenges, and update as necessary.	Annual review by trustees, triennial review by auditor	

3. Technical Capacity

No.	Objective	Initiative	Rate
3-1	Maintain a multi-year capital plan to ensure equipment is replaced at or before end of life,	Regularly review capital equipment	

	and meets appropriate regulatory requirements.	maintenance, remaining life and replacement cost	
3-2	Monitor consumption, precipitation, water levels and source protection to ensure adequate of supplies are available to meet reasonable needs.	Maintain and report monthly data collection on key parameters Minimize water used during processing	
3-3	Encourage conservation through education of residents, encouragement of rainwater harvesting for non-potable uses, opposition of growth in density, and use of rate structure to encourage further conservation	Continue to inform residents of high use. Review trailing block rate structure. Encourage rainwater capture by residents	
3-4	Maintain relationships with regulators, water quality and hydrogeological expertise		
3-5	Ensure operations minimize adverse effects on health, safety and environment		

4. Operational Capacity

No.	Objective	Initiative	Rate
4-1	Monitor well and treated water quality to ensure treatment meets expectations and remains effective	Maintain database. Regularly review with trustees & residents. Consult with expertise as required	
4-2	Ensure operational plans are in place to deal with physical risks to groundwater and facilities and take actions or make investments to reduce failures and leakage to acceptable levels.	Maintain risk register and review with residents. Incorporate costs of new controls into financial plans	
4-3	Prevent abnormal operating conditions from impacting water quality or health of groundwater resource	Enhance data availability and alarm monitoring through SCADA system	
4-4	Maintain access to operators with the required skills and training	Maintain relationship with NSSWD, discuss common needs with other water systems	

Investment Plan

The following investments are contemplated in the 10-Year Plan to support the above Strategic Objectives

- Objective 3-1
  - Multi-year program to replace old meters, brass fittings, and copper service connections to premises,
  - Monitor leakage rate and the cause of any leaks on water main, and conduct occasional physical examination to identify sections of the main that may require major repairs or replacement,
  - Assess condition of fire hydrants and water main valves from maintenance reports and replace or repair as necessary.
- Objective 3-2
  - Replace well pumps with models with lower capacity capable of operating wells in "sipping mode".
- Objective 3-5
  - ~~Interception of backwash water into dispersal fields to reduce impact on environment (done)~~
  - Treatment building modifications to improve seismic resistance, reduce code violations, and discourage pest or mould intrusion, decrease power consumption
  - Make tanks and filter vessel modifications to make it easier to drain and clean out,
  - Review need for additional security at facilities.

Objective 4-1

- Schedule replacement of filter media at appropriate intervals,
- Upgrade Well 3 treatment by replace piping, renew media, install new meters and sediment filtration, connect to SCADA system
- Investigate non ion-exchange water softening processes and compare to using the RO to reprocess hard water from Well 4,
- Consideration of LED UV technology as additional barrier against source contamination.

- Objective 4-2
  - Treatment building modifications to reduce risk from fire caused by wild fire or electrical equipment,
  - Trim trees along right-of-way to reduce impact of roots on the water main pipe.
- Objective 4-3
  - Connect other devices to SCADA system to provide more alarm monitoring and increase protection of the system,
  - Construct facilities to implement Drought Plan and accept alternative supply by truck.

Other investments that are possible, but not included in the 10-Year plan are:

- Objective 3-2
    - Construction of additional storage for use as summer seasonal supply,
    - Investigate other additional supply from desalination or new wells located off Scott Point.

Financial Plan

In keeping with Object 2-1 the 10-Year Financial Plan gives a view of future expenditures balanced against revenues required to ensure that the District remains financially strong with appropriate reserve levels. The 10 Year Plan starts with the approved budget for the next calendar year and extends out 9 more years. This plan incorporates inflation of operating costs at 2% and includes initiative specific costing for non-routine maintenance and capital spending.

This 2023-2032 Plan indicates that Renewal Reserve starts at a low level, given the recent spending on Project Blend and builds to target levels within 3 years without a requirement to increase tolls or parcel taxes. Of course, these are projections and actual amounts of reserves, tolls and taxes will be re-examined each year.