District of
SECHELT

DRAFT Water Efficiency and Conservation Strategy

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- Councilor Matt McLean
- Tom Beck
- Stu Dornbierer
- Simon Grant
- Winston Wade

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1. Introduction

Water is a precious resource. We rely on it for almost every aspect of everyday life. We use water in our homes for drinking, food preparation, cleaning, and gardening. We also rely on it in our communities for commercial, institutional, and industrial purposes. Water is critical for public health and safety and is used for healthcare and firefighting. Finally, many enjoy water for recreation and greening public spaces.

Residents in the District of Sechelt are very aware of the value of water. Most Sechelt residents and businesses obtain water from the Chapman Water System, which is run by the Sunshine Coast Regional District (SCRD). The SCRD is committed to providing residents and businesses in Sechelt with high quality water services. The Chapman Water System has water supply limitations and so the SCRD has recently invested substantial efforts to investigate and pursue additional water supply sources.

With this in mind, the District of Sechelt is interested in identifying opportunities to increase the efficiency of water use and conserve potable water. A Water Efficiency and Conservation Strategy can help the District support residents in wisely enjoying water both inside and outside their homes, while ensuring that the community has a sufficient supply of affordable water, both now and in the future.

Water Conservation in BC

The Province of British Columbia encourages municipalities to develop water conservation plans. By 2013, over 40% of BC communities had water conservation plans.[1] The Province has provided a guidance document to help small and medium-sized communities develop plans. It suggests that communities follow the steps shown in Figure 1.

Water Conservation Planning in Sechelt

In 2020, the District of Sechelt initiated the Water Efficiency and Conservation Strategy project. This project builds on prior work completed by the District of Sechelt and SCRD and aligns with the recommended steps shown in Figure 1:

- Steps 1, 2: Comprehensive Regional Water Plan (CRWP) (SCRD, 2013)
- Step 3: Water Demand Analysis (SCRD, 2018)
- Step 5: Draft Water Efficiency Strategy Plan: A Discussion Document for Achieving Water Efficiency (WESP)(DoS, 2016).

Scope of Work

The objectives of the DoS Water Efficiency and Conservation Strategy are:

- Review water efficiency and conservation options
- Recommend appropriate water efficiency and conservation measures
- Outline associated costs (where feasible)
- Recommend implementation steps and timeline for strategy

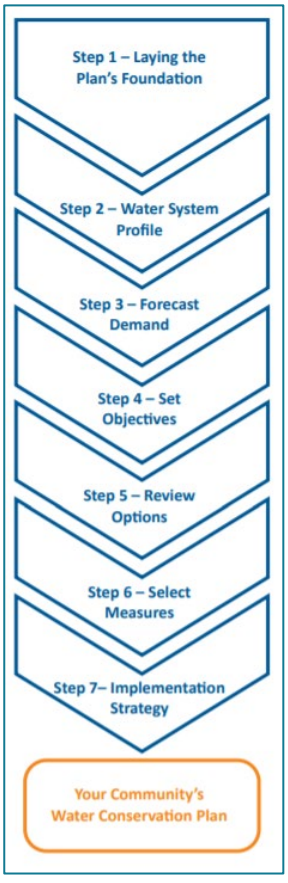

Figure 1: Water Conservation Planning in BC.[1]

This will support the District in completing Steps 6 and 7 of the water conservation planning process. An action plan has been identified as an item for future work (details TBD).

[1] https://www.obwb.ca/newsite/wp-content/uploads/WCG_Design3.0_Web.pdf

2. Water Supply

The District of Sechelt is a community of approximately 11,200 that lies within the Sunshine Coast Regional District (SCRD). The District of Sechelt is serviced by the Chapman Water System, which serves a population of approximately 23,000. The remaining users of the Chapman System are in SCRD electoral areas.

Currently, 98% of the water supplied by the Chapman Water System comes from the Chapman watershed.[2] This coastal watershed experiences high variability in precipitation, with very wet winters and very dry summers.

BC's coastal watersheds are increasingly impacted by climate change and water supply sources are increasingly under stress due to reduced snowpacks and longer summer droughts. Population growth places additional pressure on these variable supplies.

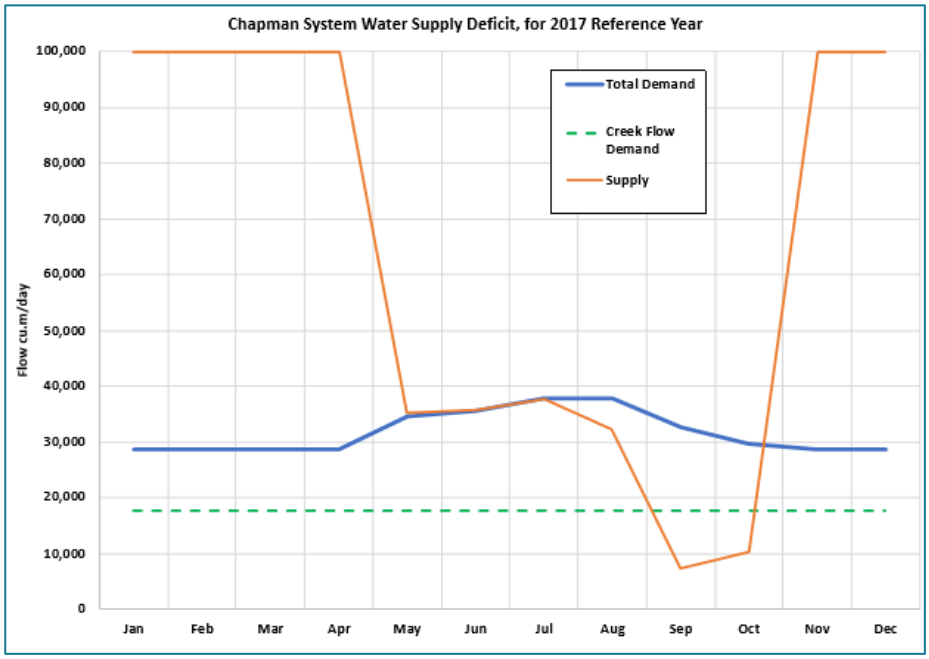

Figure 2: Chapman Water Supply Deficit (2017). Source: SCRD Water Demand Analysis (2018). Water Supply refers to water from watershed contribution, Chaster Well, Chapman Lake, and Edwards Lake.

In 2015, the Province of BC introduced an environmental flow needs (EFN) requirement on Chapman Creek to ensure there is sufficient water available to maintain environmental health.[3] This reduces the volume of water available to the Chapman Water System.

In recognition of the difference between the supply of water available and the water demand in the community, the SCRD has taken action to reduce demand and increase water supplies.

Most recently, the SCRD has been investigating the use of groundwater to supplement supplies. It was found that the most effective and affordable option would be the development of groundwater supplies on Church Road. At the time of this report (August 2020), the SCRD had obtained community support to pursue these supplies. It is expected that a water license will be issued in the fall and construction will commence then, as well.

[2] The remainder comes from groundwater wells.
[3] The EFN was amended in 2017.

However, even with the expanded supply there is still a gap between the volume of water currently used by the community (when watering restrictions are not in place) and the volume of water available in the region.

3. Water Demand

In the Chapman Water System, the community currently uses an annual average of approximately 0.58 cubic meters/day/capita of water.[4] On a dry summer day without water restrictions, the average per capita use can more than double (almost 1.2m^3/day/capita in 2010).[5]

Both the average annual use and the max day use in the Chapman Water System are higher than regional, provincial and national averages (see Figure 2)[6].

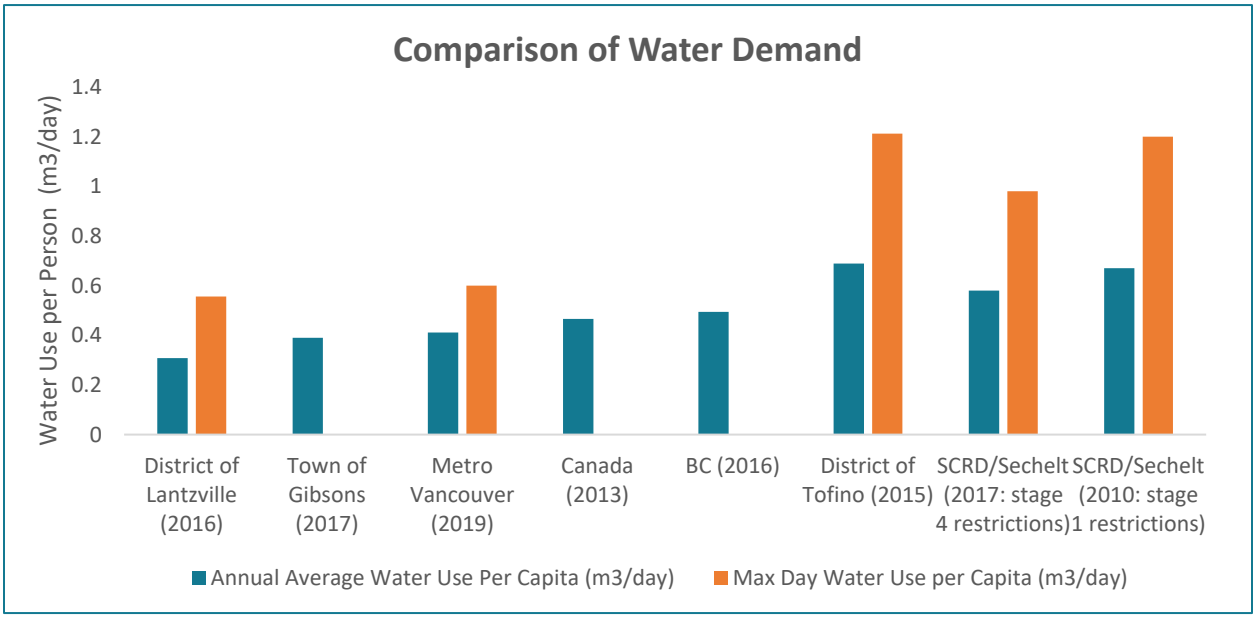

Figure 3: Water Demand Compared to Local, Regional, and Provincial Averages

[4] SCRD Water Demand Analysis (2018): This is the net total water use divided by hypothetical number of people. It includes ICI and hydrant flushing.

[5] This was the case in 2010. It is not confirmed if that would be still the case if no restrictions were in place. Additional assessment of demand was outside the scope of this project.

[6] While some of the increased summer demand may be related to tourism, it is likely that a significant percent of the water demand is related to local factors. In Tofino, tourist visitation increases the population substantially (there are 2,000 residents and 600,000 visitors/year). So, in Tofino, it is reasonable to attribute a large percentage of demand is related to tourism. However, on the Sunshine Coast, tourists are a smaller percentage of demand (30,000 residents and 343,000 visitors/year), so there are more likely local factors influencing demand. Source: Sunshine Coast tourism: https://sunshinecoastcanada.com/app/uploads/2017/07/SCT-Strategic-Business-Plan-2015-2019.pdf), https://www.destinationbc.ca/content/uploads/2019/05/Sunshine-Coast-Destination-Development-Strategy_Final.pdf); Tofino tourism: https://tofino.civicweb.net/filepro/document/96554/2019VitalConversationonSustainableTourism-SummaryReport.pdf

Types of Water Use

The water used by the District of Sechelt is used for a variety of purposes, including

- Municipal – District of Sechelt infrastructure including parks and pools
- Institutional – Schools and hospital
- Commercial – Malls, restaurants, businesses, etc.
- Residential - multi family (e.g. condominiums, single dwellings with a suite, duplexes)
- Residential - single family (single family dwellings)
- Authorized Unbilled (firefighting, flushing water mains, cleaning reservoirs)

There is also water lost due to leakage in the distribution system (as occurs in most water systems).

Industrial, Commercial, and Institutional (ICI) use is metered and forms a very small portion of total water demand. The vast majority of water demand is from residential uses. Currently, residential use is not metered in the Sechelt area (R. Shay, personal communications, August 14, 2020).

Given that: 1) the majority of water use is residential, 2) there are significant summer spikes in summer demand, and 3) usage drops drastically with lawn watering restrictions, it is assumed that the greatest opportunities for water conservation are related to irrigation and summer outdoor water use (R. Shay, personal communications, August 14, 2020). However, without universal metering, there is limited Sechelt-specific information regarding which areas and practices should be the focus of water conservation efforts.

According to local irrigation contractors, one reason for the increased demand may be the area's sandy soils. Without amendments, many of the area's soils do not hold water well and so it is easy to over-water when irrigating. In addition, high percolation rates may allow leaks in irrigation systems and pipes to go undetected.

Current Demand Management Initiatives

To reduce water needs, the SCRD has initiated a wide range of demand management actions including rebate programs (rainwater harvesting and low flow appliances/fixtures), water restrictions, communications, and metering (except in Sechelt area).[7] In several regards, the SCRD has been a provincial leader with water conservation initiatives, developing one of BC's earliest and most innovative toilet replacement programs, and requiring the use of rain sensors in new irrigation systems. Additionally, the current Water Conservation Stages are one of the most sophisticated and stringent in BC.

[7] In 2018, the SCRD requested support from DoS residents for a loan to support universal metering. The intent of the metering project would be to support improved water system management, provide options for volumetric pricing (so that people would pay based on the volume of water used), and support private-side leak detection. An alternate approval process (AAP) was used in requesting community support, but it did not pass (>10% of residents objected). Concerns cited included uncertainty regarding pricing and an interest in first seeing greater efforts invested in (supply side) leak repair and increased supplies. The SCRD installed meters in areas outside of the DoS and found that it helped identify many private-side leaks (many >20,000-30,000L/day). This has led to a significant reduction in wasted water at a relatively low cost (the most common leaks cost <$200 to fix).

The SCRD has also been working on leak detection and repair activities in the distribution system and has recently increased the water main replacement budget to ensure that leaking distribution pipes can be replaced in a timely manner. At the time of the report, the older pipes in the Chapman system (which would have a greater likelihood of leaking) had primarily been replaced.

In recent years, water use in the Chapman System has decreased (Figure 3). However, this decrease is at least partially due to highly restrictive (and unpopular) outdoor water use limits (Stage 4 restrictions in 2012, 2015, 2017, 2018, and stage 3 restrictions in 2016 and 2019).

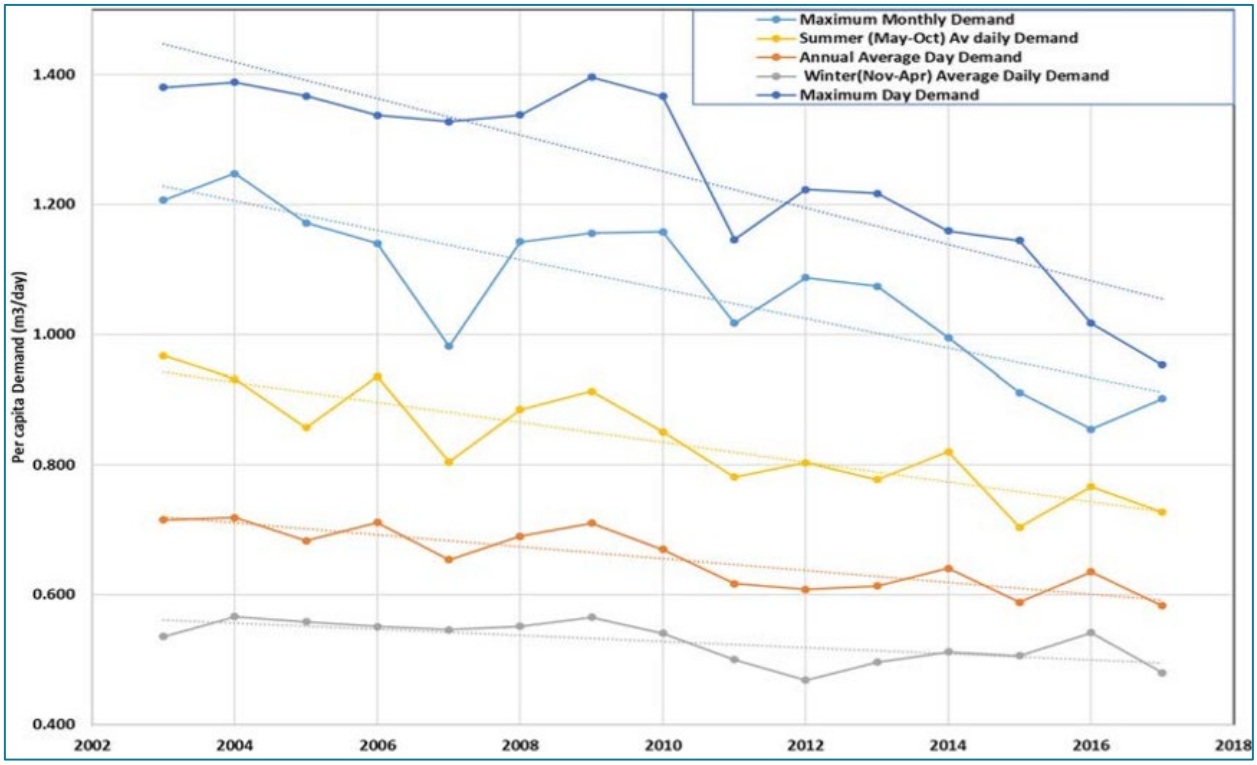

Figure 4: Per capita water demands in the Chapman Water System. Source: Water Demand Analysis

4. Water Efficiency and Conservation Goals and Targets

Water Efficiency and Conservation Goals

The District and SCRD are interested in supporting residents to use water efficiently so that they can enjoy a sufficient supply of water inside and outside their homes, while reducing the need for increasingly costly (and more challenging) water supply projects.

The SCRD Board is also supportive of food security and supports an approach to demand management that encourages residents to produce food at home, while using water efficiently in order to maintain an affordable supply of potable water.

Water Conservation Targets

The SCRD Board and District of Sechelt Council have not formally adopted water conservation targets. However, the CRWP references a targeted recommended reduction in water demand of 30% between 2010 and 2020.

In 2010, the annual per capita water demand was 0.67m^3/day, so a 30% reduction would require reducing the annual per capita water demand to **0.48m^3/day** by 2020.

This is a reasonable goal, as it would bring the consumption in the Chapman System closer to the BC average 0.49m^3/person/day[8] (2016). It is also a sensible target, given the high cost of accessing new water supplies in the area.

Assuming that the current population of Sechelt is 11,200, and the population of Sechelt in 2030 is 13,408 (2% population growth with new population living in new development), this reduction in use could be achieved by striving for the following example reductions:[9]

- Reduce winter/indoor demand for existing uses by 15%
- Reduce summer/outdoor demand for existing uses by 70%
- Reduce winter/indoor demand in new development by 35%
- Reduce summer/outdoor demand in new development by 70%.[10]

[8] It is likely that the current (2020) BC per capita water use is even lower and will be much lower in 2030.

[9] Actual average annual growth has been less then 10% over last 10 years. These values are provided to demonstrate the percent of water demand reductions required to meet targets.

5. Selection of Water Conservation Measures

To develop a water efficiency and conservation strategy, water conservation measures were inventoried, ranked, and then selected for inclusion in an implementation strategy. The work followed the process outlined in Figure 5.

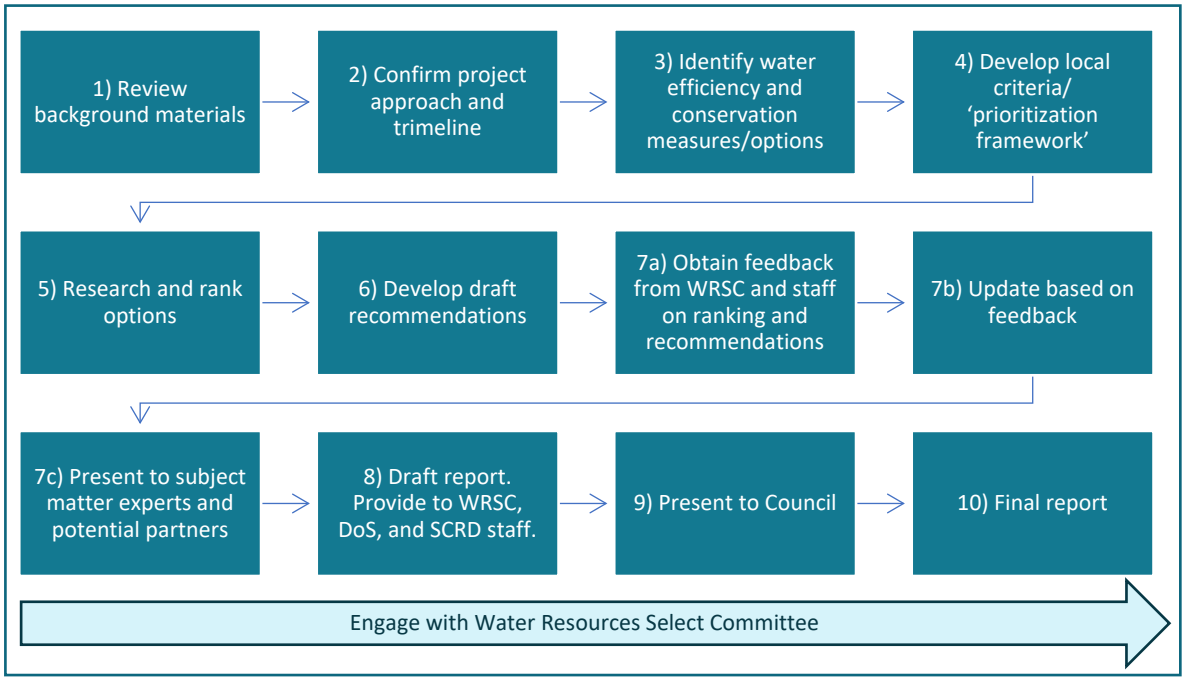

Figure 5: Approach to Water Efficiency and Conservation Strategy Development

Further details are provided below. Throughout the process, guidance and feedback was provided by the Water Resources Select Committee and DoS and SCRD staff.

1) Review background materials to understand context: Resources reviewed included:
    - SCRD Comprehensive Regional Water Plan
    - SCRD Water Demand Analysis
    - SCRD and DoS websites and relevant Council and Board reports
    - Water Efficiency Strategy Plan Discussion Paper (2016)
    - Discussion Document provided by the Water Resource Select Committee (WRSC).
2) Confirm project approach and timeline: Met with the WRSC and DoS staff to discuss.
3) Identify water conservation measures/options: Reviewed and selected measures from the background materials and the following additional sources:
    - Ideas presented by the Water Resources Select Committee (WRSC)
    - Ideas presented by DoS and SCRD staff
    - Reports on best practices (e.g. RDN Innovative Options and Opportunities for Sustainable Water Use)
    - Consultant's experience

    Measures were categorised into the following categories:
    - Planning and Legal Options
    - Operations and Maintenance

- Economic and Financial
- Community Engagement and Outreach

As suggested by the WRSC, it was decided to include measures that could be taken by both the DoS alone, and measures that would require collaboration with the SCRD.

4) Develop local criteria for ranking options (called the 'prioritization framework), as shown in Table 1.
5) Research and evaluate options using the local criteria. Obtain feedback on rankings from the WRSC, DoS, and SCRD staff. Table 1 in Appendix A lists all measures with background information, and their rankings.
6) Develop recommendations based on the ranking of measures. Options that scored:
    - 4 or higher: implement ASAP (2020-2022).
    - 3 or higher: implement in 2023-2030 (unless ongoing).
    - Less than 3: defer for future consideration.
7) Implementation Strategy Workshop: obtain feedback from WRSC, DoS, and subject matter experts (see Appendix B for meeting notes).
8) Draft report. Provide to WRSC and staff for feedback. SCRD staff reviewed the report on factual correctness of the information included without commenting on any of the assumptions, recommendation, assessments, or conclusions.
9) Present to Council.
10) Update draft report based on feedback from Council and then deliver final report.

Water Resources Select Committee (WRSC)

The WRSC provided valuable input into the water efficiency and conservation strategy. The WRSC included representation from Council, the hatchery, and members of the public with experience in water management.

The WRSC provided input through an introductory Discussion Document, three Committee meetings, review of project materials, and personal communications. The WRSC helped form the prioritization matrix, provided guidance on the rankings of measures, and input on the implementation strategy.

Key messages provided by the WRSC include:

- The community is interested in seeing the District and SCRD show a leadership role in water conservation and management. This could include increased collaboration, investigation of water supply options, and leak detection and repair (in the distribution system).
- The community is divided in terms of opinions on universal metering. While many see the role of meters in identifying private-side leaks and providing an incentive for conservation, others view metering as an overly simplistic approach to demand management that relies on simply increasing costs to reduce demand.
- Most residents are concerned about the unknowns with metering (e.g. costs are unknown).
- While some members of the community would like to see developers pay more for additional supply, others want to ensure that the cost of development isn't prohibitive.

The WRSC provided several additional water efficiency and conservation options for consideration including bulk metering, occupancy survey (to better estimate per capita use), and increased communications. The WRSC highly recommended further investigation of the use of reclaimed water to offset potable demand and increase the volume of water available (e.g. through use to supplement EFNs).

The WRSC recommended an 'incremental approach' to implementation, with initial actions focused on increased collaboration and water conservation at the DoS and SCRD level, coupled with community outreach and education.

Table 1: Prioritization Framework

Measurement	Criteria	Definition	Weight
Effectiveness	Impact	The speed and scale of water conservation (particularly in summer months). Impact is determined by how well the measure directly reduces consumption, and also by how many users would be affected by the measure. Where possible, considers how much the water increases in 'value' (e.g. if water goes from being wasted to use for drinking, that would be a high increase in value).	**35%**
	Independent Benefits	The ability of an option to produce benefits independent of water conservation (e.g. reduced wastewater flows, increased property values, reduced energy use, climate change mitigation or adaptation, improved aquatic health, improved emergency preparedness).	**5%**
Resources Required	Resources to Initiate	The initial cost and staff resources of implementing an option. Considers resources required by District, residents, and potential partners (e.g. SCRD).	**10%**
	Resources to Maintain	The ongoing cost and staff resources to maintain an option. Considers resources required by District, residents, and potential partners (e.g. SCRD).	**10%**
	Partnerships and Support	The degree of support potentially provided by external organizations, volunteer groups, and other agencies.	**5%**
Ease of Implementation	Adoptability	The ease with which the District can implement an option (considers compatibility with existing resources, organizational structure, and jurisdiction).	**10%**
	Community Support	Refers to the level of public interest in the option and compatibility with community culture and values.	**15%**
	Fairness and Equity	Refers to the degree to which an option benefits a wide range of residents.	**10%**
TOTAL			**100%**

6. Priority Water Efficiency and Conservation Measures

Table 2 provides an overview of the priority measures recommended for consideration in the District of Sechelt Water Efficiency and Conservation Strategy. These measures are described in detail, with information on recommended actions, the lead department or organization, and estimated costs. (Note: it is recommended that the District develop a more detailed plan and budget prior to implementing measures).

As recommended by the Water Resources Select Committee (WRSC), the list includes actions that would be taken by both the DoS and the SCRD.

Table 2 lists measures that ranked highly and are suggested for implementation between 2020 and 2024. Measures that have been recommended in the longer-term are not discussed in detail in this table, as the approach to implementation will vary as the context changes. A timeline for later measures in included in the implementation strategy (Table 3) and notes on these measures can be found in Table 1 in Appendix A.

Table 2: Recommended Water Efficiency and Conservation Measures

Measure	Recommended Actions	Lead Organization	Estimated Cost	Suggested Time

Update Subdivision and Development Control Servicing Standards bylaw	As soon as possible, provide the following suggestions to the consultant currently working on the subdivision and development control servicing standards bylaw:
	• Create Landscaping Requirements that include:
	  ○ In all subdivisions and all lots, water consumption must be minimized through conservation techniques such as micro-irrigation and xeriscaping. All irrigation system should be automatic drip/underground and be equipped with a soil moisture sensor. Landscaping is to meet the minimum depth of topsoil or amended organic soil on all landscaped areas of a property:
	  ○ Shrubs – 45 cm,
	  ○ Groundcover and grass – 30 cm, and
	  ○ Trees – 30 cm around and below the root ball. (e.g. District of Lantzville, RDN).
	  ○ Water required for landscaping should not be obtained from the potable water system and must be provided from a rainwater harvesting collection and storage system or through the use of reclaimed water.
	  ○ Require provision of a landscape plan and security deposit for all subdivisions > 10 lots.
	Update Water Service Standards: Allow 10% reduction in per capita demand when water conservation, water reuse, and rainwater harvesting are used. Allow reduction in max day demand (10-50%, based on specifications of professional engineer), where the max day demand will be kept lower by using rainwater and reclaimed water.
	• Update the Sanitary Systems Design Criteria to allow for reduced flows where water conservation measures are in place and where greywater reuse is in place (where supported by a professional engineer) (e.g. RDN).
		District of Sechelt (Planning and Development)	Nominal	ASAP

Council Policy for Rezoning	Develop a council policy, outlining water conservation and efficiency measures to be considered with rezoning applications. Suggested actions: • In fourth quarter of 2020 or first quarter of 2021, Planning and Engineering staff work together to draft a policy that identifies water conservation requirements to be requested with rezoning or OCP amendment applications. For example, if proposing more than 10 units (or multi-family, ICI), the policy could require water efficient landscaping, an underground automatic irrigation system (if installed), collection of rainwater for landscaping, and other efficiency measures (as appropriate). This would be referred to the SCRD for comment and then presented to Council.	District of Sechelt (Engineering and Operations, Planning and Development)	Nominal	ASAP

Measure	Recommended Actions	Lead Organization	Estimated Cost	Suggested Time
Develop water management MOU between the DoS and SCRD	Develop an MOU between the SCRD and DoS, making a commitment to collaboration on key water management issues. This will help support conservation plan implementation and demonstrate to residents that the two organizations are taking a leadership role in collaborative water management. An MOU could be initiated by the DoS Council for a test period of three years (with a potential renewal at the end). Initial items to be considered include: • Increased collaboration in communications: The two organizations already collaborate and there is room for greater streamlining. SCRD water conservation and customer messaging (e.g. distribution of updated WaterWise planting guide) could be amplified through DoS communications channels and DoS communications materials could be shared by the SCRD. • Increased collaboration with planning: Currently, referrals are sent from the DoS to the SCRD for feedback. While the SCRD provides valuable feedback, sometimes it is not concrete/specific enough for it to be actionable by DoS planners and translated into development requirements. It would be ideal to have a checklist of considerations for referrals. This simple task would allow increased collaboration using existing resources. • Support collaboration in operations: Parks and operations staff already collaborate on the ground level, but there are likely more opportunities for increased collaboration to support water conservation (e.g. use of reclaimed water in SCRD and DoS parks). • Strategic alignment: identifying a high-level alignment in water management could be used to identify partnerships and opportunities across departments. • Support of conservation program: Sechelt Council could confirm its position in support of the SCRD conservation program, including outreach and metering. • Plan implementation: the MOU could identify ways the organizations will work together to implement some of actions identified in this plan. • Collaboration with Sechelt First Nation: the DOS and SCRD could commit to reaching out to the Sechelt First Nation (SFN) to identify opportunities for collaboration • Water governance: the MOU could support opportunities for collaboration in watershed governance.	District of Sechelt Council and CAO	Nominal	2020
Engage with Sechelt First Nation	Continue efforts to build relationships with the SFN and identify opportunities in collaborate improved watershed and water system governance. This would be best accomplished by the leadership at the DoS reaching out to the leadership at SFN (if this has not already happened) and asking to meet. Then, later, identifying opportunities for collaboration. While not a direct water conservation action, there is value in developing partnership with the SFN community.	District of Sechelt Council and CAO	Nominal	2020

Measure	Recommended Actions	Lead Organization	Estimated Cost	Suggested Time
Leak Detection and Repair	Continue existing leak detection and repair work and investigate use of noise correlator for leak investigation in distribution system.[11]	SCRD	TBD	Ongoing
Ongoing communications with water system customers	Conduct proactive communications with water systems customers. The SCRD and DoS are currently working together to increase communications with water systems customers. Further efforts may include: providing information on the actions that the DoS and SCRD are taking in partnership to support local water management, resources on water efficiency and conservation (e.g. importance of soil amendments), identifying how water use fees are being used, clarity regarding the focus of water restrictions (lawns vs. gardens), information on how residential use compares to target use (if meters are installed), the pros and cons of metering, etc.	SCRD (Utility Services) and District of Sechelt (Engineering and Operations)	TBD: Nominal-$50,000/ year	Ongoing
Reclaimed Water Use	Identify the best use of reclaimed water and then move forward with implementation. Suggested actions: • Reclaimed water study: identify the optimal use of reclaimed water. Options under consideration include commercial use (e.g. car and boat washing), public use; distribution to one or more of the following users: Lehigh mine, Blue Ocean Golf Course, District of Sechelt parks, gardens and playing fields (irrigation use); use by agriculture; and release to Chapman Creek (discharging reclaimed water to Chapman Creek could increase the domestic water supply available out of Chapman Lake, by reducing the draw out of Chapman Lake for the purpose of meeting the EFN minimum flow requirements). • Move forward with implementing recommended option.	District of Sechelt Engineering and Operations (Wastewater)	TBD	2020-2022
Update Water Rates and Regulations Bylaw	Work with the SCRD to update existing water rates and regulations bylaw (SCRD bylaw 422). Content of updates TBD based on research and community input. May include updates to address meters, specific methods for achieving water conservation targets, and opportunities to support green infrastructure (considering SCRD jurisdictions). Will include requirements for construction, where appropriate (e.g. requiring rain sensors with irrigation, banning single flow through air condition systems, potentially removing requirements around size of pipes in buildings, if they are no longer relevant with building code updates and other legislative changes).	SCRD (Utility Services)	Nominal	2020/2021

[11] Leak detection and repair is an ongoing part of the SCRD operations and maintenance activities and budget. The SCRD currently conducts leaks detection activities using an acoustic sounding technology called geophones. A newer technology – a noise correlator has been demonstrated to the SCRD twice (it didn't work in the first demo and may work in the second). The technology acts like a large microphone and picks up the sound of leaks. Given that much of the distribution system is along the highway, it can be difficult to use the technology to identify leaks with the highway noise. The SCRD is investigating if and how this technology should/could be used. It shows promise for investigating known leaks (less potential for identifying leaks) and staff will continue to investigate.

Measure	Recommended Actions	Lead Organization	Estimated Cost	Suggested Time
OCP Update: Develop Water Conservation Development Permit Area (DPA) and Policies in Support of Rainwater Harvesting and Water Reuse	Provide the following suggestions for a water conservation DPA to the consultant retained to conduct the OCP update: • Require a sufficient volume of rainwater collection and storage in all new development and major renovations so that potable water is not used for outdoor irrigation. The necessary volume would be 18,000L or greater (consult local business that supplies rainwater harvesting systems to obtain information on the necessary volumes for an average lot in the DoS). • If not done in the subdivision servicing bylaw, for developments with 10 or more units, require a landscaping plan and security deposit for all landscaping to ensure that landscaping is either xeriscape or only uses drip irrigation (supplied from non-potable sources). A regional approach is recommended to ensure consistency across the whole Chapman Service area (e.g. develop a protype that other local governments can adopt, if desired).[12]	District of Sechelt (Planning and Development)	Nominal	OCP update: 2020/ 2021
Develop and distribute water efficiency and conservation resources	• Develop branded and recognizable water efficiency and conservation resources with Sunshine Coast-focused imaging and messaging. • Develop a rainwater harvesting guide for the SCRD. The guide should identify realistic volumes of water that can be collected and stored in dry summer months on the Sunshine Coast. • Develop resources that share information on waterwise landscaping, soil amendment, and best practices with irrigation systems. • Develop other resources as needed (e.g. a brochure for accommodation providers, to share information on water conservation with guests).	SCRD (Utility Services)	$500-$10,000/ year	Ongoing
Rebate programs: rainwater harvesting	Support the existing SCRD rainwater harvesting incentive program. • If meters are installed, suggest modifying the rainwater harvesting rebates to support income qualified residents in accessing rainwater (up to 80% of cost up to $1,000). (Use City of Vancouver Recreation Department standards for assessing and proving income qualifying status.)	SCRD (Utility Services)	TBD: $40,000/ year	Ongoing

[12] While DoS staff were supportive of this approach, the SCRD is uncertain of the cost/benefit of a water conservation DPA (considering reach, impact, limitations to enforcement) and has not support the use of a DPA in their work plan. Source: https://www.scrd.ca/files/File/Administration/Agendas/2019/2019-OCT-17%20ISC%20Agenda%20Package.pdf (Annex A).

Measure	Recommended Actions	Lead Organization	Estimated Cost	Suggested Time
Water conservation at DoS facilities	Identify opportunities for water conservation at DoS facilities and implement these options. Suggested actions: • Conduct upgrades to parks irrigation system (e.g. adding rain sensors) (fall 2020) • Conduct audit of parks irrigation systems to identify leaks, maintenance requirements, suggested update, and an irrigation schedule (October 2020) • Conduct upgrades as recommended (e.g. automated systems) and share information on upgrades with community.	District of Sechelt Engineering and Operations (Parks)	TBD: $1,000-$30,000	2020-2021
Universal metering	Provide the community with an opportunity to make a decision about financing water meters through a referendum or alternate approval process. It is recommended that the SCRD and DoS partner to conduct extensive communications prior to AAP or referendum to share information on pros and cons of meters and potential impacts on the community. If water meters are supported, then move to installing.	SCRD (Utility Services)	Variable. Meter installation approx.$5 million, over many years.	2021
Public workshops on water conservation and alternate sources	Work with the SCRD to develop public workshops on waterwise gardening, soil amendment, drip irrigation, rainwater harvesting, alternative water sources, etc. Host in conjunction with community partners such as local water service companies and the Botanical Gardens.	SCRD (Utility Services)	$8,000	2022
Rebate programs: outdoor water efficiency	Develop a rebate program to support residents in reducing outdoor water use. Refer to the RDN example. Include incentives for soil amendment to address the region's sandy soils.	SCRD (Utility Services)	$30,000/ year	2022 (with potential metering)
Conservation-oriented pricing and rate structures	Work with the SCRD to develop a rate structure that is equitable and conservation oriented. An inclined block structure (a water price structure where the cost of water goes up, if higher amounts of water is used) is recommended as it is the most equitable, while supporting conservation. A summer water use surcharge of 25% for the top block (most excessive water users) may be considered. The implementation of pricing should be paired with a communications campaign, outdoor water use rebates, an income qualified leak repair rebate program, and a leak forgiveness policy (where the cost of the wasted water is forgiven when a customer provides proof that they have fixed a leak ASAP).	SCRD (Utility Services)	$10,000	2023

Measure	Recommended Actions	Lead Organization	Estimated Cost	Suggested Time
Rebate programs: income qualifying leak correction rebate	Prior to the implementation of water pricing, it is recommended that the SCRD/DoS develop an income-qualified leak repair rebate program to support lower-income residents in fixing private side leaks. The intent of this program is to help residents who discover leaks, but have limited financial resources, save water by repairing those leaks. The program could provide a rebate of 90% up to $1,000 for income qualifying properties. The City of Vancouver has a leisure access card program that can be used as a model for proof of income-status. To increase accessibility, use with leak forgiveness and defer water bill payment until after the rebate has been received. This program is an equitable balance to the outdoor water use rebate program.[13]	SCRD (Utility Services)	$50,000/year	Approx. 2023 (if water meters are installed, then ASAP)

[13] Often, owners of irrigation systems have a higher household income and so many argue that it is unequitable to provide incentives for outdoor water conservation upgrades because these users are the ones that are most likely to have the resources to make upgrades. An income-qualifying leak detection program can help balance water conservation support across the community.

7. Implementation Strategy

The recommended water efficiency and conservation measures can be categorized into four main themes, described below (and shown in Figure 6):

1) Leadership and Collaboration: increased coordination and leadership at the local government level.
2) Waterwise Land Use Planning and Regulations: improved land use planning to ensure that future development recognizes the need for water conservation on the Sunshine Coast.
3) Community Engagement and Outreach: greater community dialogue around water system management and waterwise practices.
4) Sustainable Service Delivery: sustainable and equitable provision of water services.

When implementing the water efficiency and conservation plan, an 'incremental approach' is recommended. The following section outlines the recommended approach to implementing the water efficiency and conservation strategy, considering these four themes.

1) Leadership and Collaboration	2) Waterwise Land Use Planning and Regulations	3) Community Engagement and Outreach	4) Sustainable Service Delivery
•Develop MOU with SCRD for collaboration in water conservation and water system management •Reclaimed water: identify the best use of reclaimed water and implement •Increased water conservation at DoS facilities	•Council policy for rezoning •Collaborate in update to Water Rates and Regulations Bylaw (SCRD) •Update Subdivision and Development Control Servicing Standards bylaw •OCP Update: Develop Water Conservation Development Permit Area (DPA) and policies supporting rainwater harvesting and reclaimed water use	•Increased communications with water system customers •Develop and distribute water efficiency and conservation resources. •Public workshops on conservation and alternate sources	•Ongoing leak detection and repair •Obtain community input on universal metering. Implement metering, if supported •Develop conservation-oriented pricing and rate structure •Provide financial incentives for improvements: rainwater harvesting, indoor efficiency, outdoor conservation, income qualifying leak correction

Figure 6: Recommendations for Water Efficiency and Conservation (2020-2024)

Sustainable Service Delivery

Sustainable service delivery ensures that current community service needs, and how those services are delivered (in a socially, economically and environmentally responsible manner) do not compromise the ability of future generations to meet their own needs.

Leadership and Collaboration

Initial efforts should focus on the District of Sechelt demonstrating a leadership role in water conservation through adoption of the plan, enhanced partnership with the SCRD, assessment of options to reduce potable water demand through reuse of water from the Water Resource Centre, and improved water conservation on District properties.

Waterwise Land Use Planning and Regulations

This work should be done in parallel with efforts to improve water efficiency and conservation requirements in land use planning and development regulations. There are several projects currently underway/scheduled, including an update to the subdivision servicing bylaw and OCP, that form critical opportunities to align District of Sechelt planning guidelines with regional water conservation efforts.

It is recommended that the District work with the community to update the OCP and subdivision servicing bylaw to be 'waterwise'. This will help ensure that future development in the District of Sechelt is done in a way that recognizes the water supply limits in the area and does not place undue cost on current residents and new homeowners.

Community Outreach and Engagement

It is also recommended that the SCRD and District of Sechelt increase communications with water system customers. The SCRD has recognized the need for greater communications with customers and in recent months has increased engagement through remote town hall style meetings, letters, and other communications.

It is recommended that the District of Sechelt and the SCRD collaborate to share messaging and identify further opportunities for outreach and community engagement. One way that the communications could be improved would be through developing recognizable, Sunshine Coast-branded materials for water customer communications that show the partnership between the DoS and SCRD.

These materials could be used to share information on the water system, identify engagement opportunities, and provide water conservation resources. 'Waterwise' resources can show residents how to reduce potable use during peak summer periods through water wise landscaping, soil amendment, improved irrigation management, and rainwater harvesting.

Another way that communications would be improved is by through increased public notifications (e.g. use email notification and/or advertisements or press releases in local newspapers to share information on the times and dates of water-related meetings).

It will be particularly important for the SCRD and DoS to have an open line of communications with water system customers as the SCRD moves forwards with water supply and demand management actions in coming years.

Sustainable Service Delivery

Once the SCRD and DoS have taken action to demonstrate increased leadership and collaboration, enhanced land use planning, and increased community outreach and engagement, it is recommended that the organizations work together to bring a discussion about sustainable service delivery to the community.

To be sustainable, it is essential that the SCRD and District of Sechelt residents to find a way to balance the limited water supplies in the area, with the water demands of the community. A key part of this will be developing an approach to pricing and water management that is equitable and sustainable. It will be important to discuss how desired water supplies can be delivered and paid for in a way that does not place financial pressures on vulnerable members of the community or future generations.

Currently, on average in the community, the desire for water is greater than the water that is available. Community members are aware that the water supply and associated infrastructure costs money and that this must be paid for through the cost of water. However, the community is divided in terms of how to best move forwards. Some would prefer to focus on water conservation, while others would prefer to invest funds in additional supplies. Universal metering with a volume-based price structure would allow the community to move forwards along both lines, with those who prefer to use less water, conserving and paying less, and those who prefer to use more water, paying more to reflect their increased preference for additional supplies.

Universal metering also has a significant added benefit of helping identify leaks. Reducing the volume of water wasted through leaks is substantially more cost-effective and sustainable than pursuing additional sources.

As there are some members of the community who are concerned about universal metering, it will be important for the District and SCRD to open a dialogue about metering with clear information on the pros and cons of different cost-recovery methods and the potential implications of universal metering for different residents.

While most communities have metering in place prior to developing a pricing structure, in the District of Sechelt, it may be wise to develop information on a pricing structure prior to a referendum/AAP, so that residents can have a clear understanding of the issue upon which they are deciding and how it will affect them. This will help community members make a more informed decision when voting.

Finally, if the community desires to have universal metering is put into place, it is recommended that the program is released with several incentive programs to encourage residents to provide an additional incentive for water conservation and to support lower-income residents in addressing water leaks on their properties.

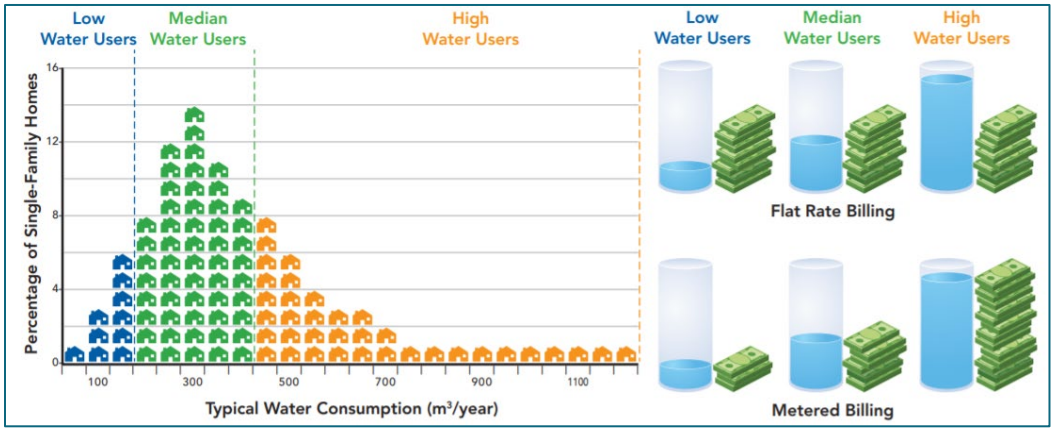

Figure 7: Typical Distribution of Residential Water Use. Source: http://www.metrovancouver.org/services/water/WaterPublications/ResidentialWaterMeteringinMV-BestPracticesGuide.pdf

Timeline

Table 2 provides an overview of the recommendations over time. Figure 6 provides a timeline, showing the estimated time to completion.

Table 3: Recommended Water Conservation Actions

Planning Horizon	Type of Activity			
	Community Engagement	**Legal / Land Use Planning**	**Operations and Management**	**Economic and Financial**
ASAP (2020-2021)	• Support SCRD conservation programming • Collaborate with the SCRD and SFN on water management • Ongoing communications with water system customers	• Update Subdivision and Development Control Servicing Standards bylaw • Council policy for rezoning • Update Water Rates and Regulations Bylaw (SCRD) • Develop Water Conservation Development Permit Area (DPA) • OCP update: support rainwater harvesting and reclaimed water use	• Ongoing leak repair (including use of a water leak noise correlator, as budget permits) • Study: use of reclaimed water to replace existing potable water demand • Water conservation at DoS facilities	• Ongoing rebate program: rainwater harvesting and indoor efficiency
Medium Term (2022-2024)	• Develop water conservation and efficiency resources • Public workshops on water conservation and alternate sources • Support professional development of irrigation contractors	• Implementation of water conservation requirements	• Implementation: use of reclaimed water • Universal metering	• Rebate program: outdoor water efficiency • Rebate program: income qualifying leak correction, indoor efficiency, rainwater harvesting • Conservation-oriented pricing and rate structures
Long Term (2025-2030)	• Demonstration garden • Tour: alternative water supplies • Targeted outreach: ICI and accommodation providers • Irrigation system inspections: ICI, multi-family, then residential	• Implementation of water conservation requirements • Support use of alternate supplies: greywater	• Alternate supplies on District properties	

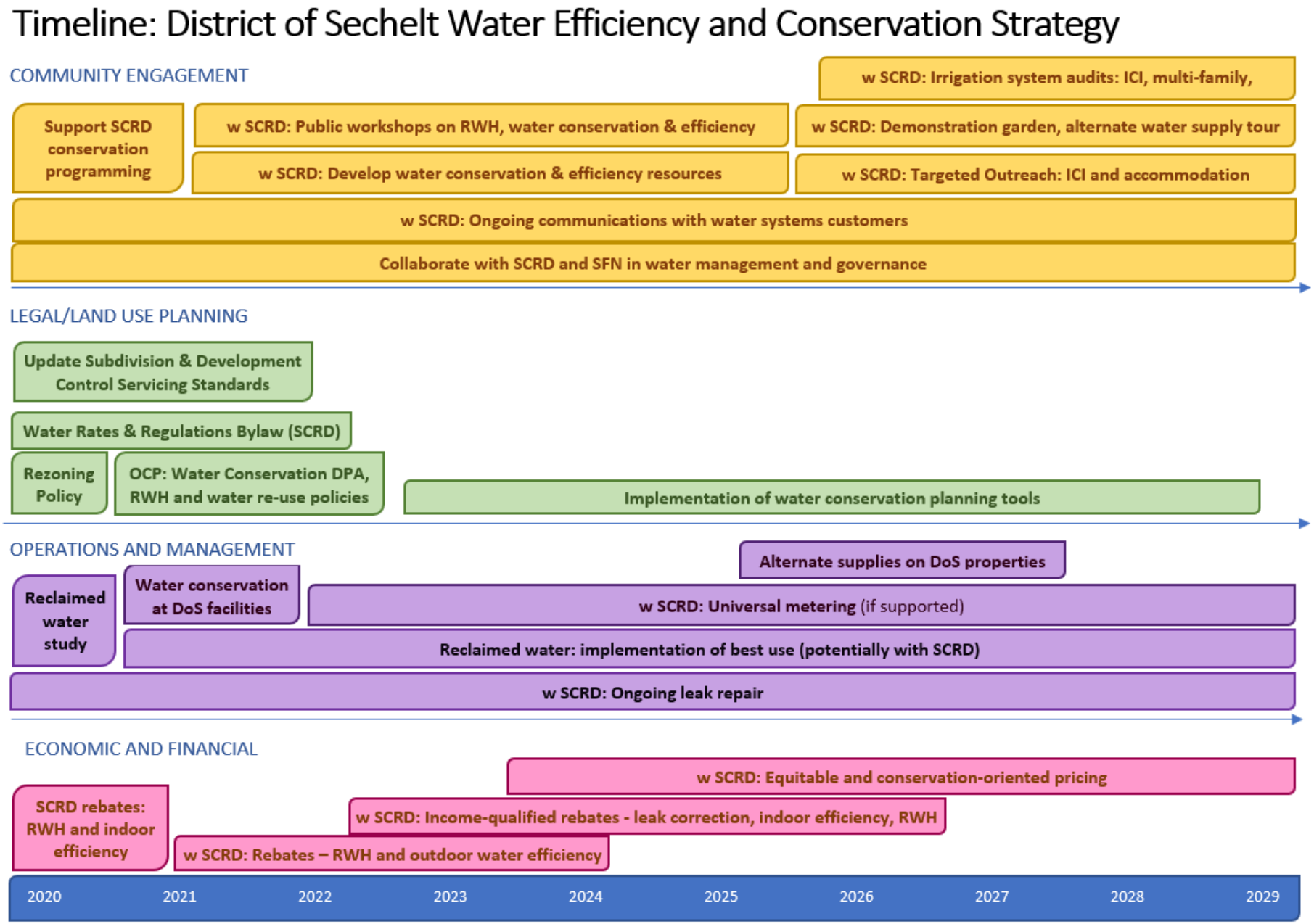

Figure 8: Timeline for Water Efficiency and Conservation actions in the District of Sechelt