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CEDARS OF TUAM WATER SERVICE COMMISSION
SPECIAL MEETING

Notice of Meeting on Friday, February 4, 2022 at 1:00 PM
Creekside Meeting Room, 108-121 McPhillips Avenue, Salt Spring Island, BC

Gary Holman Peter Wypkema

Zoom Link:
https://us06web.zoom.us/j/81219756310?pwd=bnNwR1Juay9qUmRkT3JBaGY2N1V6UT09

AGENDA

1. Territorial Acknowledgement / Call Meeting to Order

2. Limited Space Meeting Resolution

That this resolution applies to the Cedars of Tuam Water Service Commission for the meeting being held on Friday, February 4, 2022, and that the attendance of the public at the place of the meeting will be limited in accordance with the applicable requirements or recommendations under the Public Health Act, despite the best efforts of the Commission because:

a. The available meeting facilities cannot accommodate more than (10) people in person, including members of the Commission and staff, and
b. There are no other facilities presently available that will allow physical attendance of the Commission and the public in sufficient numbers; and

That the Commission is ensuring openness, transparency, accessibility and accountability in respect of the open meeting by the following means:

a. By making the meeting agenda, as well as the other relevant documents, available on the CRD website, and directing interested persons to the website by means of the notices provided in respect of the meeting,
b. By making the minutes of the meeting available on the CRD website following the meeting.

3. Approval of Agenda **1-2**

4. Director and Chair's Report

5. Report

5.1 Cedars of Tuam Water New Well Grant Application, Loan Authorization and Water Conservation Plan **3-16**

The Cedars of Tuam Water Service Commission recommends the Electoral Areas Committee recommends to the Capital Regional District Board:

1. That the Board supports an application for grant funding for the SSI: Cedars of Tuam – New Well and Water Treatment Plant Project through the Investing in Canada Infrastructure Program – Green Infrastructure – Environmental Quality Program; and that the Board supports the project and commits to any associated ineligible costs and cost overruns.

2. That the Board review, accept and endorse the Cedars of Tuam Water Conservation Plan, Revised January 2022.

3. That staff be directed to proceed with preparing the Loan Authorization Bylaw, authorizing the borrowing up to $600,000 with the amortization term of 30 years.

4. That staff be directed to present the project and funding option to the ratepayers; and bring forward a report to the Commission on the results of the public engagement, and ratepayer's preferred electoral assent process.

6. Next Meeting - TBD

7. Adjournment

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REPORT TO CEDARS OF TUAM WATER SERVICE COMMISSION
MEETING OF, FEBRUARY 4th, 2022

SUBJECT **Cedars of Tuam Water New Well Grant Application, Loan Authorization and Water Conservation Plan**

ISSUE SUMMARY

To seek approval to proceed with preparing the Loan Authorization Bylaw, community consultation, and electoral assent process to advance the Cedars of Tuam Investing in Canada Infrastructure Program grant application (ICIP). A Capital Regional District (CRD) Board resolution is required for the grant application. The ICIP application also requires Service Commission and CRD Board endorsement of a current Water Conservation Plan.

BACKGROUND

The CRD is submitting an ICIP grant under the Green Infrastructure – Environmental Quality Sub-Stream. The ICIP-EQ program targets capital infrastructure projects in communities that will protect public health and environment, promote climate change resilience and support broad public benefits and service sustainability. The Cedars of Tuam new well and water treatment plant (WTP) meets one of the federal outcomes for green infrastructure – environmental quality that will support increased access to potable water. Projects must start within 2 years of the date of application and be completed by December 31st, 2026. The ICIP deadline for submission is **February 23, 2022**.

As a requirement of the ICIP application, a Board resolution supporting the project and commitment to its share of the project is required together with endorsement of a current Water Conservation Plan. The Cedars of Tuam had developed a Water Conservation Plan in October of 2011. Although the underlying strategies for water conservation have remained unchanged, it has been revised with new information and data added to bring it forward to 2022 as the Plan must be endorsed within the last five (5) years. Further, "A Manual for Owners and Residents of the Cedars of Tuam Water System", developed in January of 2010 will be submitted with the ICIP application. The Water Conservation Plan is attached as Appendix A to this report.

The funding provided towards infrastructure projects is a three-way cost share between federal and provincial partners and the local government. Applicants must be prepared to finance project construction and their cost-share of the project, as well as cover any cost over-runs. The funding split is as follows:

Table 1: Program Funding Splits

Ultimate Recipient	*Federal*	*Provincial*	*Total Senior Gov't Contribution (up to)*	*Ultimate Recipient Contribution (up to)*
Local government	40%	33.33%	73.33%	26.67%

One of the requirements of the ICIP is a resolution/bylaw identifying the source of the proponent's share of the project costs including sufficient funds for cost overruns. The resolution is to be submitted as part of the application package, or within **one month** after the submission deadline

due to timing of CRD Board meetings.

The CRD must also submit evidence that their full share of funding has been or will be secured. This evidence may be in the form of staff reports and/or resolutions of board/council directing the use of reserve funds, or a loan authorization bylaw that has **received third reading**, and/or a date that borrowing has been approved through a formal public approval process and a copy of the related bylaw.

The Cedars of Tuam new well and WTP conceptual designs have a construction cost of approximately $1,743,500 (Class D cost estimate with up to ±40%). If the grant is awarded and the project budget is approved, staff will proceed with detailed design and Class A cost estimate of ±10%-15% will be provided from final drawings and specifications for a tender ready project.

To fund the local government's share of the ICIP is as follows:

Cedars of Tuam Well and WTP Project Cost Estimate	
WTP Construction (Labour and Materials)[1 and 3]	$1,054,010
Engineering, Quality Assurance and Project Management	$193,990
Contingency (25%) [2]	$312,000
CRD Project Management, Internal Costs and Legal Costs	$183,500
Total Estimated Cost	**$1,743,500**

1. Cost Estimation is based on conceptual/preliminary design as of September 2019 (Class D, ±40%)
2. 25% contingency is allowed due to uncertainties and risks associated with regulatory approval as well as preliminary analysis and design from conceptual/preliminary design project.
3. To allow for cost increases from the 2019 estimate until current date a factor of 20% was added.

There are currently insufficient funds in the Capital Reserve ($18,697 as of December 31, 2021) to fund the proposed work; therefore, it is recommended to fund the project through a loan authorization bylaw as follows:

Cedars of Tuam Well and WTP Loan Authorization Amount	
Total Eligible Costs	$1,560,000
ICIP Portion of Eligible Costs (73.33%)	<$1,143,948>
CRD Project Management and Internal Costs	$183,500
Total Loan Authorization Amount (Rounded from $599,552)	**$600,000**

Recipients of grant funding will be responsible for ineligible costs, managing project risks, including cost increases, as the ICIP is not designed to deal with cost overruns. Any project cost increases will be the responsibility of the Ultimate Recipient.

Where applicants plan to use or have applied for funds from other federal or provincial programs, the source of these funds must be disclosed. Applicants who have confirmed or identified potential sources of other senior government funding for their project should note that the ICIP program is subject to federal stacking rules. Federal funding towards the project is limited to the Government of Canada contribution in Table 1, from all federal sources. Community Works Funds cannot be utilized for the Ultimate Recipient's funding contribution to the project.

ALTERNATIVES

Alternative 1

The Cedars of Tuam Water Service Commission recommends the Electoral Areas Committee recommends to the Capital Regional District Board:

1. That the Board supports an application for grant funding for the SSI: Cedars of Tuam – New Well and Water Treatment Plant Project through the Investing in Canada Infrastructure Program – Green Infrastructure – Environmental Quality Program; and that the Board supports the project and commits to any associated ineligible costs and cost overruns.

2. That the Board review, accept and endorse the Cedars of Tuam Water Conservation Plan, Revised January 2022.

3. That staff be directed to proceed with preparing the Loan Authorization Bylaw, authorizing the borrowing up to $600,000 with the amortization term of 30 years.

4. That staff be directed to present the project and funding option to the ratepayers; and bring forward a report to the Commission on the results of the public engagement, and ratepayer's preferred electoral assent process.

Alternative 2

That this report be referred back to staff for additional information.

IMPLICATIONS

Financial Implications

Currently there is no parcel tax within the Cedars of Tuam water service area, the service budget is funded by user charge only from the properties connected to the system. The estimated new debt servicing cost is proposed to be funded by a new parcel tax requisition from all the taxable folios in the service area (16 taxable folios and 17 SFEs as of December 2021 (one lot has a home and a cottage)).

Long-term debt for all BC municipalities, including regional districts, must be arranged through the Municipal Finance Authority (MFA). MFA issues debenture debt for different terms from 5 years to a maximum 30 years.

For analytic purposes only, the estimated debt servicing cost alternatives under four different amortization term scenarios are simulated and shown below based on the indicative interest rates published on MFA website as of January 27, 2022.

Loan	**Amortization Term**			
Loan Authorization **$600,000**	**15 year**	**20 year**	**25 year**	**30 year**

Indicative Interest Rate	2.86%	2.99%	2.99%	2.99%
Cost of Borrowing $	**168,497**	**240,505**	**302,040**	**364,788**
Annual Debt Payment $	**51,233**	**42,025**	**36,082**	**32,160**
Annual Parcel Tax per taxable folio $	**3,202**	**2,627**	**2,255**	**2,010**

The longer amortization term will minimize the annual debt payments, but results in higher total cost of borrowing and higher future interest risk exposure. A debt term of 15 years mitigates interest rate risk to only one subsequent renewal period. CRD staff consider multiple guidelines on each issue with respect to term maturity, including the interest risk exposure, estimated useful life of the infrastructure and the overall impact of both the annual debt payment costs and total cost of borrowing when bringing forward recommendations.

Service Establishment

The Cedars of Tuam system was established as a specified area in 2002 to operate a water supply system (the CRD took over the service which was originally installed in ~ 1970). The existing Cedars of Tuam well and water treatment plant are at the end of their useful life and the well itself has been failing to produce enough water to meet demand, particularly over the drought in the summer of 2021. Water had to be trucked in to meet the demand of the residents. The CRD may levy a tax requisition on the ratepayers in the Cedars of Tuam service area to fund the annual operating costs and transfers to reserves for the service. The current maximum tax levy is the greater of $25,425 or $6.75/$1,000 on actual assessed value of land and improvements to a maximum of $81,899 based on 2021 assessment. The Cedars of Tuam service has sufficient room in the tax levy to meet the debt servicing costs for the proposed $600,000 loan authorization.

Water Conservation Plan

One of the requirements of the ICIP grant program is Board endorsement of a water conservation plan for any drinking water and wastewater projects. In order to meet the grant application requirements, the Board endorsement for the Water Conservation Plan must be submitted with the application.

The Cedars of Tuam Water Conservation Plan contemplates population and potential growth, current water demand, water supply capacity and climate change adaptation and mitigation and in this context sets out water demand reduction targets as well as measures for current and planned water conservation. Measures include universal metering, reporting usage on water bills, consumption based billing as well as community awareness and education. Further, the Plan is periodically reviewed. The benefit of having a Plan is that it creates a sense of community responsibility, accountability, awareness and to a certain extent creates peer pressure for water conservation. Water, particularly on Salt Spring Island, is a precious resource and a formal Water Conservation Plan, when implemented and followed ensures it will always be available.

Alternative 1

It is recommended the Commission proceed with Alternative 1 and seek electoral assent for borrowing the total of the amount not covered by the ICIP grant (26.67% of eligible costs) plus all of the ineligible costs with a thirty (30) year amortization and adopt the Cedars of Tuam Water Conservation Plan.

1. The grant is not guaranteed and will be very competitive.

2. If the grant is not awarded some other solution must be developed to provide an adequate supply of water to the community.

3. ICIP requires a secured funding plan for the replacement within the application to support the cost of the project. The funding plan is to include sufficient funds to cover all eligible costs, cost overruns beyond budget contingencies, ongoing operational costs associated with the project.

4. ICIP may not consider applications if the project represents a risk to the program funder, including, but not limited to, if there is a potential for the project not to proceed should there be applicant funding difficulties; the project does not have public support; and the applicant does not demonstrate they are able to manage, maintain, and finance the project over the long term.

5. The loan authorization bylaw can be held at third reading until grant award.

Alternative 2

Alternative 2 will require the further development of options to provide an adequate supply of water. Options other than trucking water, an extension of the pipeline from the Fulford Water Service or dissolution of the Water Service with taxpayers drilling their own wells all will still require further development and exploration.

Funding Approval Options

There are three options for approval of a loan authorization bylaw under the LGA to undertake this project:

1. Electoral Participating Area Petition Process
2. Alternative Approval Process
3. Referendum Process

Electoral Participating Area Petition Process

The owners of parcels within the service can sign and submit a petition under section 408 of the LGA to give their consent to borrowing and maximum term for the debt in relation to the infrastructure works. This is used for services where there are a small number of parcels. The petition must be signed by the owners of at least 50% of the parcels liable to be charged in relation to the proposed borrowing, and the persons signing must be the owners of parcels that in total represent 50% of the net taxable value of all land and improvements within the participating area.

An Electoral Participating Area Petition and would cost approximately $1,000.

Alternative Approval Process (AAP)

Local/regional governments can use the Alternative Approval Process under Section 345 of the LGA to obtain participating area approval of a loan authorization bylaw. It is most commonly used in relation to long-term borrowing bylaws as it is a less expensive option than using a referendum.

If more than 10% of the affected electors sign a counter-petition opposing the bylaw, a referendum must be held if the Committee still wishes to adopt it. Proceeding to referendum voting must occur no later than 80 days after the deadline established for submitting elector response forms during the AAP.

An AAP would take approximately six (6) months, and would cost approximately $5,000.

Referendum Process

The referendum process is typically used to seek approval by assent of the electors, Section 407 of the LGA, where for a participating area, a majority of the valid votes are counted in favour of the bylaw to fund a project. Typically, a referendum question is developed and then reviewed by the Inspector of Municipalities at the province, requesting the electors to approve the borrowing of a specified amount of funds for the project. If electoral assent is not received, local government must wait at least six (6) months before seeking elector assent on another bylaw for the same purpose in a referendum. In special circumstances, the local government may request approval from the Minister to hold another assent voting opportunity sooner.

Based on the above tentative schedule, the referendum would take approximately seven (7) months and cost approximately $10,000.

Public Engagement

Due to the financial impact of the alternatives on the taxpayers, there is a need for public engagement to inform the stakeholders of the issues, alternatives, impacts and timeline for the process. The exact form and extent of this process will be developed once the Commission decides on the preferred borrowing alternative.

The CRD follows the Public Participation Spectrum developed by the International Association for Public Participation (IAP2) as a model for developing our public engagement strategy. The Spectrum outlines varying levels of public participation: inform, consult, involve, collaborate and empower. Even though the taxpayers are empowered by default through an electoral assent process, at this point in the public engagement process, staff advise focusing on informing and consulting with the ratepayers to provide them with information needed to assist them in making an informed decision. During the process, a method of obtaining public feedback will be an important factor in order to determine the community understanding of the project, gauge their support for borrowing, and their preference for the method to seek electoral assent.

CONCLUSION

The Cedars of Tuam well and WTP was originally constructed in the early 1970s. Since its original construction, there were modifications and upgrades to the system to address performance issues. The well has been failing to produce enough water to meet the demand of the residents, particularly this past summer (2021) where water had to be trucked in from both Vancouver Island and locally from Salt Spring Island. The total cost of the project is estimated at $1,743,500 and staff will be submitting an application for up to 73.33% ICIP grant funding towards the cost of the project that is intended to provide an adequate, safe and secure supply of quality potable water. Should the CRD be successful in an ICIP grant award it will allow the project to proceed. The

Cedars of Tuam Water Service Water Conservation Plan is an important and integral component of the ICIP application and its timely endorsement will fulfill the requirement in the application.

RECOMMENDATION

The Cedars of Tuam Water Service Commission recommends the Electoral Areas Committee recommends to the Capital Regional District Board:

1. That the Board supports an application for grant funding for the SSI: Cedars of Tuam – New Well and Water Treatment Plant Project through the Investing in Canada Infrastructure Program – Green Infrastructure – Environmental Quality Program; and that the Board supports the project and commits to any associated ineligible costs and cost overruns.

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Submitted by:	Karla Campbell, BPA, Senior Manager, Salt Spring Electoral Area
Concurrence:	Nelson Chan, MBA, CPA, CMA, Chief Financial Officer
Concurrence:	Kristen Morley, J.D., General Manager, Corporate Services & Corporate Officer
Concurrence:	Robert Lapham, MCIP, RPP, Chief Administrative Officer

ATTACHMENT(S)

Appendix A: Cedars of Tuam Water Service Water Conservation Plan, Revised January 2022

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Cedars of Tuam Water Service
WATER CONSERVATION PLAN

C. Sunderland
October 2011

Updated: Dean Olafson, January 2022

As a condition of the British Columbia Community Water Improvement Program grant awarded for upgrades to the Cedars of Tuam water system, this Water Conservation Plan identifies targets and opportunities for sustainable water use in the Cedars of Tuam community.

2022 Update - *As a requirement for the Canada - British Columbia, Investing in Canada Infrastructure Program grant application for the Cedars of Tuam new water well and water treatment plant, this Water Conservation Plan has been reviewed and updated. Since the original date of this plan in 2011, there are very few changes to the plan, strategy, well performance, number of users, demand, supply, conservation measures and targets however this summer's past drought conditions, which necessitated the trucking of water to meet demand, has highlighted the need for a new well and water treatment plant. A new section, "**Water Production and Demand – 2022 Update**" (below) has been added to update the plan with currently available information.*

This plan supplements the *Manual for Owners and Residents of the Cedars of Tuam Water System* (Bain et. al., 2010), which was adopted by the Cedars of Tuam Water Service Commission at its Annual General Meeting of September 27, 2010.

Population and Potential Growth

The Cedars of Tuam Water Service Area includes 16 taxable folios, all of which are connected to the water system. Each connection serves a single-family dwelling. Population fluctuates seasonally. For the purpose of this analysis, the population is assumed to average 24 residents (Bain et. al., 2010).

There is limited potential for population growth in the Cedars of Tuam Water Service Area. There are no undeveloped folios in the area, and based on the relatively small lot sizes, steep topography and lack of a sewer system, subdivision is extremely unlikely. Secondary dwellings are allowed on residential parcels on Salt Spring Island; however, the Islands Trust (which has jurisdiction for land use) restricts the approval of secondary dwellings where drinking water supply capacity or wastewater facilities are constrained. Thus it is estimated that the area has already achieved its maximum number of households.

Expansion of the service area is subject to the approval of the Capital Regional District Board (normally following a recommendation by the local service commission). There are several dwellings in immediate proximity to the Cedars of Tuam water system, served by individual private wells. It is possible that the owners of some of those dwellings may seek inclusion in the Cedars of Tuam water service area in the future. Inclusion of additional properties in the service area would be contingent upon sufficient water supply capacity, which does not currently exist.

There is potential for an increase in average household size, although there are no apparent drivers for such an increase in order to predict a significant change. For the purpose of this study, it is assumed that the maximum population of the service area is 32, or two residents per existing dwelling.

Current Water Demand (2011)

Water treated and supplied to the distribution system is measured monthly. Total annual water production and water production per capita for the years 2006-2010 is shown in Figure 1. Customer water meters were read March 31, June 30, September 30 and December 31, 2010. Quarterly water production, retail demand and non-revenue water for April-December 2010 are shown in Figure 2 (total cubic metres) and Figure 3 (litres per capita per day).

The annual average retail water demand in the Cedars of Tuam Water Service Area in 2010 is estimated to have been 192 litres per capita per day (l/c/d). Seasonal variation in water demand is primarily the result of the changes in occupancy of part-time dwellings. Landscape irrigation also accounts for a portion of summer demand.

Figure 1. Water Production

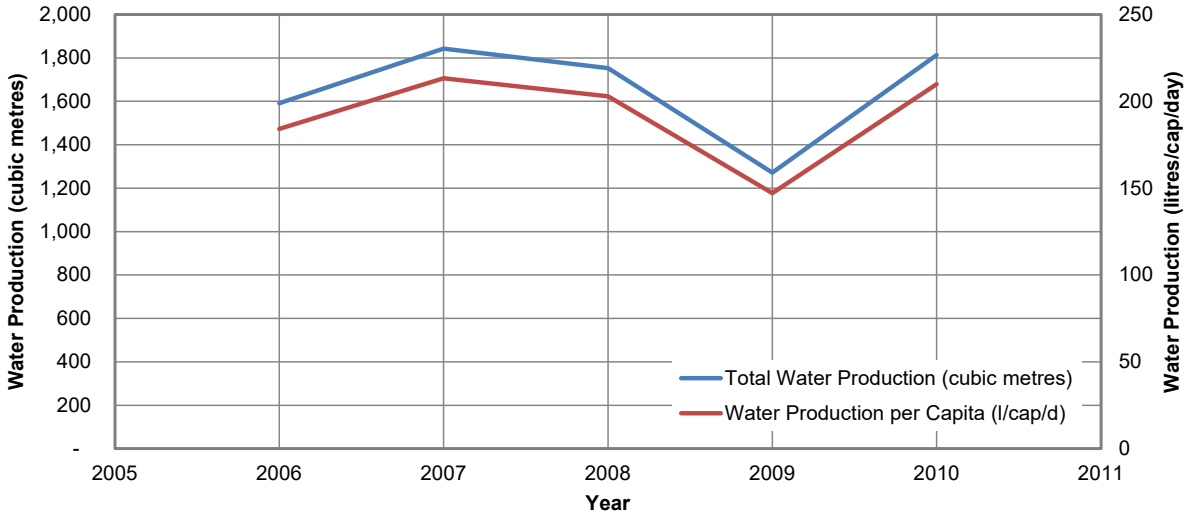


Figure 2. Quarterly Water Production, Retail Use and Non-Revenue Water (2010)

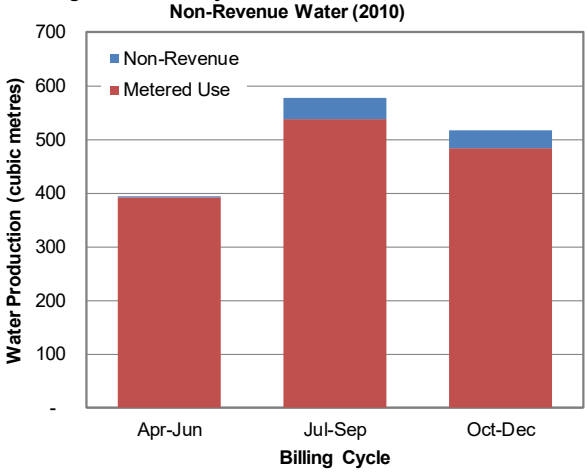


Figure 3. Water Production, Retail Use and Non-Revenue Water Per Capita (2010)

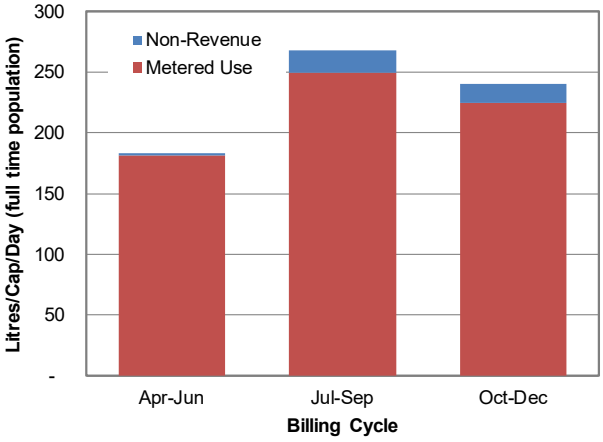
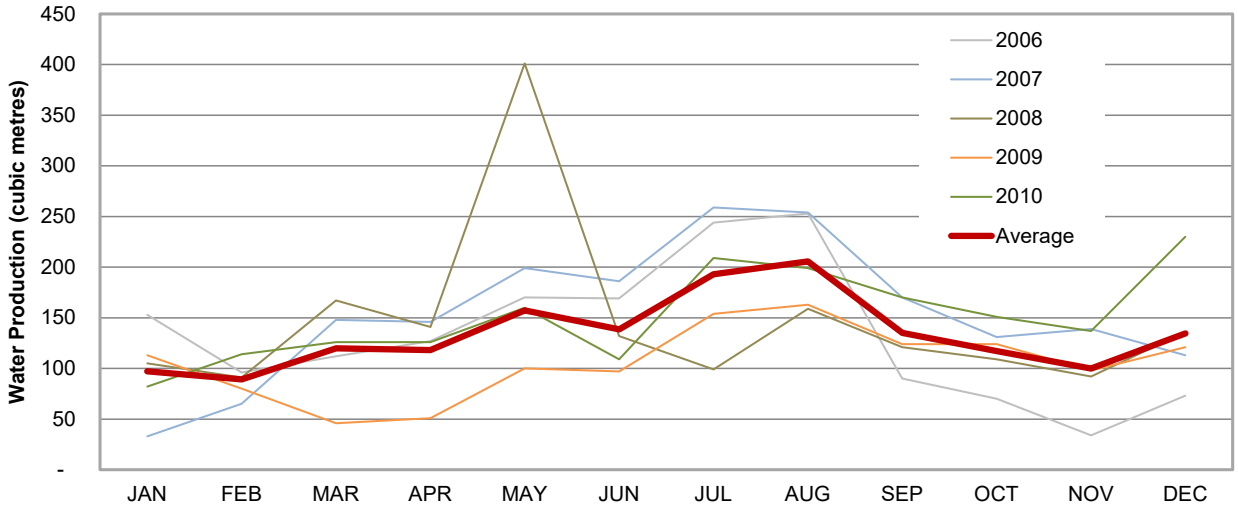


Figure 4. Monthly Average Water production



Water Supply Capacity

Well drawdown test records are not available; however, operational experience indicates that the Cedars of Tuam well currently operating is able to sustain demands typically in excess of 7 m^3/day (1 lgpm) in late summer and early fall in an average year although shortfalls have been experienced in dry years and under unusually high demands (e.g. significant leak or irrigation system malfunction). The seasonal period of lowest well yield (and lowest groundwater level) corresponds with maximum seasonal demand. Well yield is greater at other times of year; however, storing a sufficient volume of water to significantly increase water supply capacity during the period of low well yield is impracticable.

For the purpose of this analysis, it is assumed that the seasonal minimum yield of the existing well is 10 m^3/day (1.5 lgpm) in an average year. Based on historical climate data for Mayne Island, precipitation in the driest year on record was 69% of average. Assuming well yield is directly related to annual precipitation (likely worst-case scenario), the seasonal minimum well yield in a drought is assumed to be 7 m^3/day (1.0 lgpm).

The community has developed and secured access to a new well near the service area that will provide a sufficient quantity and quality of water to meet the long term needs of the community; however, the cost to develop a pump house and pipeline to connect the new well to the service area will be substantial, and it will benefit the community do defer this project as long as possible.

Water Production and Demand – 2022 Update

Referring to Figure 5, the amount of water extracted (water production) from the ground water in 2020 is unfortunately unknown. This is the result of inaccurate water meter readings due to sand intrusion from the ground water source. Sand builds up in the meter creating a false low reading. Water demand (customer water billing) for the service totaled 1,476 m3 of water; a 2% decrease from the previous year and an 18% increase from the 5 year rolling average.

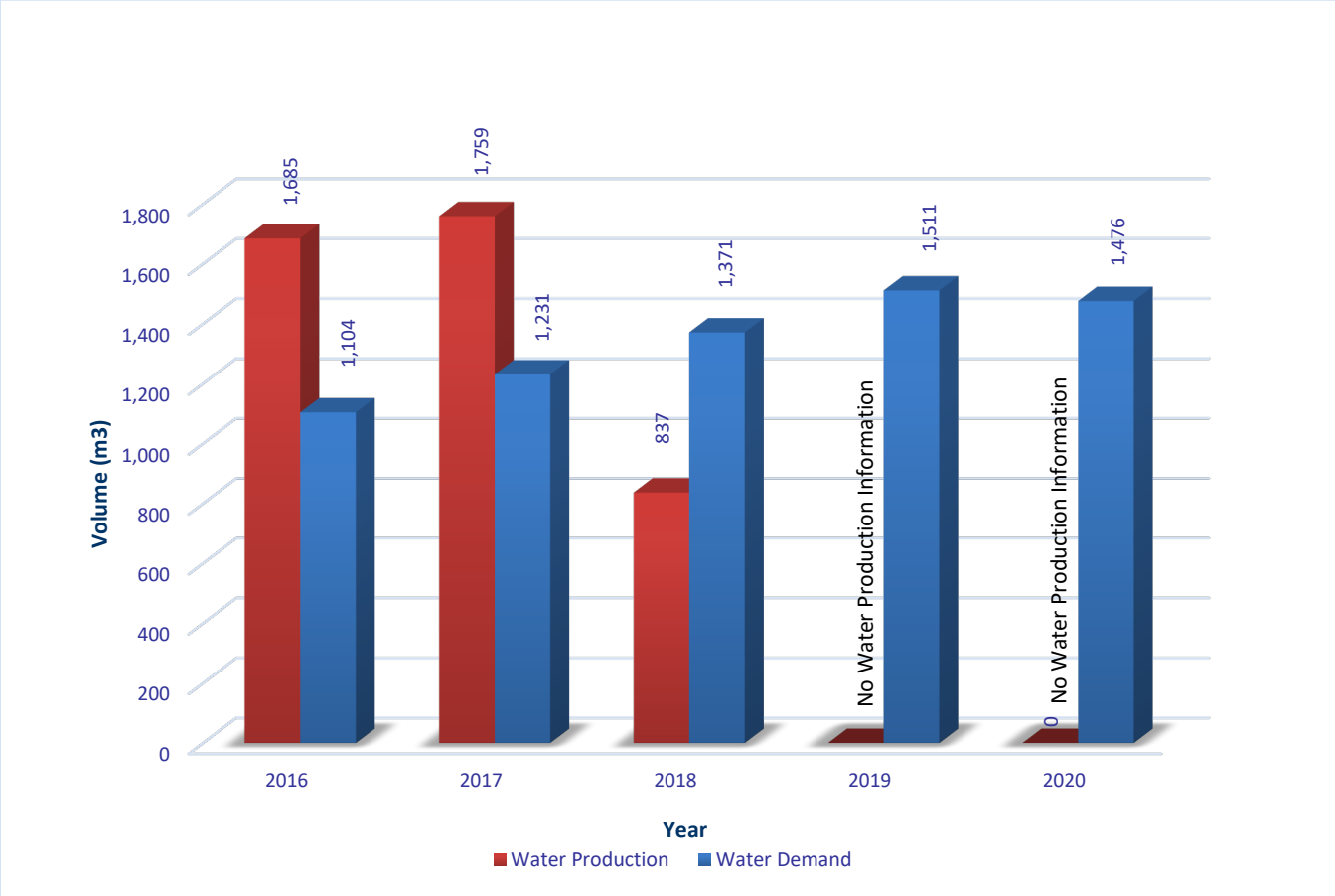


Figure 5: Cedars of Tuam Water Service Annual Water Production and Demand

The Cedars of Tuam Water System is fully metered, and water meters are read quarterly. Water meter information enables water production and consumption to be compared in order to estimate leakage losses in the distribution system. The difference between water produced and water demand (total metered consumption) is called non-revenue water and includes distribution leaks, meter error, and unmetered uses such as standpipe usage, distribution system maintenance and process water for the treatment plant. For 2020, the non-revenue water cannot be calculated due to the erroneous raw water meter production information. This inaccurate water production information will need to be resolved by either replacing the water meter with a different technology that is not influenced by sand or grit in the raw water source or investigating and eliminating the sand intrusion into the well. Capital improvements are planned in 2022 to address this issue.

Climate Change Adaptation and Mitigation

Precipitation patterns are expected to change in coming decades. For the CRD region, by the 2050s, annual precipitation is likely to increase, but probable scenarios based on Global Climate Model projections range from a decrease of 3 percent to an increase of 12 percent (Pacific Climate Impacts Consortium). For the purpose of this analysis, it is assumed that the worst case annual precipitation would be 3% less than the driest year on historical record. Again, assuming well yield is proportional to annual precipitation, climate change within the next 50 years may further reduce the seasonal minimum yield to 6.7 m^3/day.

The Cedars of Tuam water system has a relatively low carbon footprint due to its elevated source. However, reducing water use per capita will benefit the community and the environment by:

- reducing the costs and carbon emissions of expanding the infrastructure to accommodate growth (e.g. manufacturing, transporting and installing larger water mains)
- reducing the carbon emissions associated with trucking in water to overcome supply shortfalls in drought years
- maintaining more water storage in reserve for emergencies such as wildfires or extreme drought, which may increase due to climate change

Water Demand Reduction Target

Peak monthly water demand in the Cedars of Tuam Water Service Area occurs in August, coinciding with the seasonal minimum well yield. The average daily water production for August between 2006 and 2010 was 6.6 m^3/day. If the population of the area increases to 32 without corresponding changes in usage per capita, water demand in August would increase to 8.8 m^3/day, possibly exceeding available supply in the worst case drought year by up to 2.1 m^3/day. Peak month water demand would need to decrease to 207 l/c/d (72% of the 2006-2010 average) to avoid a water supply shortfall under the worst case scenario.

In order to minimize the risk of a supply shortfall in a drought year and to defer the need to develop and connect the new well, the following water conservation targets are proposed:

- Maintain total annual water supply and peak month water supply flows at or below the 2006-2010 averages of 1,650 m^3 and 206 m^3, respectively
- By 2020, reduce annual average water demand to 147 l/c/d
- By 2020, reduce peak month (August) water demand to 206 l/c/d

These targets can be achieved if the following occur by 2020:

- High efficiency toilets and front loading washing machines replace most existing fixtures and appliances.
- Leaks are found and repaired promptly in the distribution system and customer plumbing systems.
- Rainwater is harvested and stored by customers for non-potable uses, including all irrigation uses.

Current and Planned Water Conservation Measures

A planned adaptive strategy for water conservation is proposed for Cedars of Tuam, enabling conservation measures to be tailored to meet the changing needs of the community over time. This approach has proven successful for the CRD Greater Victoria water system. The following conservation measures are proposed as elements of a water conservation plan for Cedars of Tuam:

1. **Universal metering** (current) – Each customer connection to the water system is fitted with a water meter, which is read quarterly.

   The meters are estimated to be approaching the end of their service lives. The ongoing annual cost to read the meters and to replace them every 15 years is estimated to be $1,000, of which $500 (meter reading cost) is currently budgeted. Recovery of the replacement cost is expected to be addressed as an outcome of a Strategic Asset Management Plan for the service, scheduled to be completed in 2011.

2. **Reporting usage and water budgets on water bills** (current) – Information about water use has been displayed on water bills since January 2011, raising customer awareness about their water use. Further information is presented at annual general meetings and in community newsletters, enabling customers to compare their own usage with the range and average in their community and others. The following annual water budget target could be displayed on water bills:

Billing Period	Water Budget (cubic metres)
January-March (Q1)	20
April-June (Q2)	25
July-September (Q3)	33
October-December (Q4)	22
Annual Total	100

The cost of reporting usage and providing conservation messages on the water bills is currently budgeted.

3. **Consumption based water billing** (current) – Water is billed using a two-tier inclining block structure. Water for basic household needs (up to 75 m^3 every three months) is billed at \$0.90/m^3, and water use in excess of 75 m^3 every three months is billed at \$7.70/m^3. The upper tier rate is approximately equivalent to the cost of trucking in water, ensuring that the cost of very high usage is not passed on to careful water users. Customers very seldom use more than the quarterly water budget of 75 m^3. The consumption charges recover about 5% of the cost of water service, and the remaining 95% is recovered through a fixed annual charge.

   This structure maintains stable revenue for fixed costs (almost all costs unless trucked water is required), provides a sufficient quantity of water at an affordable cost for essential customer needs, and provides a strong price signal to reduce excessive usage in any of the four billing cycles. This structure has proven well suited to Gulf Island communities with a large proportion of seasonal or occasional users. Based on recent implementation of this structure in other CRD water services, an overall demand reduction of 5-10% may be reasonably expected. A third (middle) tier could be added to the consumption charge structure to provide a financial incentive to maintain water use below 25 cubic metres per quarter.

   The cost of consumption based billing is currently budgeted.

4. **Community Awareness and Education** (current; expand as needed to meet target) – Information about water use and conservation is provided in community newsletters and at typically well attended annual general meetings. Members of the community have prepared a *Manual for Owners and Residents of the Cedars of Tuam Water System* (attached) that includes water conservation advice. The manual has been endorsed by the Cedars of Tuam Water Service Commission and distributed to all residents in the service area. A more formal conservation awareness program may be implemented by linking information presented by mail and at the AGM with a community homepage on the CRD website that includes:
   a. water use statistics, and comparison with other areas and benchmarks/targets
   b. best practice guides (e.g. fixture and appliance standards, rainwater harvesting, leak prevention)
   c. links to CRD regional water conservation resources
   d. links to other organizations that provide water conservation resources tailored to the Gulf Islands (e.g. Mayne Island Integrated Water Systems Society, Salt Spring Island Water Council).

   The cost of a modest community awareness program including the AGM, newsletters and website content, is currently budgeted.

5. **Water Conservation Plan Renewal** (2016, and every five years thereafter) – A review of this plan will be conducted approximately every five years to update forecasts and targets, consider new information, and adjust program activities as required to meet targets.

   The cost to review and update this conservation plan is anticipated to be roughly \$1,000 every five years, which would require a new annual contribution of \$200 to the capital reserve fund.

Program Implementation Responsibility, Cost and Schedule

This Water Conservation Plan will be implemented by CRD staff, under the authority of the Cedars of Tuam Water Service Commission. The Commission has administrative authority delegated by the CRD Board under CRD Bylaw No. 3693, "Salt Spring Island Water, Sewer and Liquid Waste Disposal Commissions Bylaw No. 1, 2010" for provision of the water service.

The following implementation schedule is proposed:

Item No.	Implementation Year	New Budget Requirement	Note
1	2009 (completed)	$ 500	Estimated annual cost of asset maintenance and renewal
2	2011 (completed)	$ 0	Included in current budget
3	2012	$ 0	Included in current budget
4	2012	$ 0	Included in current budget
5	2016	$ 200	Annual contribution to reserve for plan renewal

Linkages to Other Plans and Policies

Water Conservation Plans for CRD electoral area water services will adhere to a similar format. Targets, program measures and knowledge will be shared between these service areas. Where the CRD provides sewer services, the benefits of water conservation for these services will be taken into account. Water Conservation Plans will be linked to Strategic Plans for the services. Where practicable, planning and program implementation will also be linked with the Greater Victoria water conservation and climate action services delivered by the CRD. Knowledge will be shared, and policies and programs will be coordinated, with other stakeholders such as improvement districts, other regional districts, the Islands Trust and the Mayne Island Integrated Water Systems Society and the Salt Spring Island Water Council.

References

1. Hendren, Gary and Richard H. Edwards. Cedars of Tuam Feasibility Study, Salt Spring Island, BC – Preliminary Report for Comment. Capital Regional District. May 2000.

2. Walker, Deborah and Colwyn Sunderland. Water Use and Conservation Update 2008. Capital Regional District. 2008.

3. Bain, Ronald et.al. A Manual for Owners and Residents of the Cedars of Tuam Water System. Salt Spring Island. January 2010.

4. www.plan2adapt.ca website. "Summary of Climate Variables – Climate Change for CRD Region in 2050s Period". Pacific Climate Impacts Consortium. Accessed 24 June 2011.