



Staff Report

Request for Decision

TO: Committee of the Whole – May 22, 2025

AUTHOR: Kyle Doyle, Manager – Asset Management

SUBJECT: Volumetric Billing Project Update

OVERVIEW

Purpose of Report:

The purpose of this report is to provide an update on the Volumetric Billing Project and to seek Board approval to proceed with Mock Billing for North and South Pender Harbour Water Services based on the rate structures presented within this report. This report requests Board decision to accept, reject, or provide alternate direction with respect to staff's recommendations as presented below.

Recommendation(s):

- (1) THAT a volumetric billing rate structure for mock billing in 2025 and actual billing in 2026 for the North Pender Harbour Water Service and South Pender Harbour Water Service be established based on the following criteria:**
 - (a) Separate customer classes for Residential, Non-Residential, and Commercial farms based on BC Assessment property classifications,**
 - (b) Base charge categories based on meter sizes of ¾" or smaller, 1", and 1.5"- 2",**
 - (c) A quarterly base consumption allowance of 46m³ per connection;**
 - (2) AND THAT draft Bylaw schedules incorporating the rate structure be brought forward for review prior to the annual rate setting process for actual billing in 2026;**
 - (3) AND THAT the quarterly base charges for mock billing in 2025 be established as \$212.50 for connections with meters that are ¾" or smaller, \$275 for connections with 1" meters, and \$440 for connections with meters that are 1.5" – 2";**
 - (4) AND THAT the volumetric rate for mock billing in 2025 be set at \$4.00/m³ for consumption exceeding 46m³ per quarter;**
 - (5) AND FURTHER THAT development of an inclining block rate structure be deferred until 2027.**
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BACKGROUND

The Sunshine Coast Regional District (SCRD) is working to implement volumetric billing for water services. At the September 26, 2024 Committee of the Whole a project update was presented that highlighted challenges and reiterated the importance of a gradual transition to

volumetric billing. At the subsequent Board meeting the following directives were adopted:

278/24 **Recommendation No. 3** *Volumetric Billing Rate Considerations*
(in part)

AND THAT a Uniform Block rate structure be developed for the North and South Pender Harbour Water systems for the implementation of 'mock billing' in 2025 and actual volumetric billing in 2026;

AND THAT an Inclining Block rate structure be developed for consideration as soon as possible;

AND FURTHER THAT customer classifications be established based on BC Assessment Property Classes in consideration of establishing variable usage rates.

This prompted a review of various rate structures and the development of a report that dissected the merits of including a consumption allowance for each user. Two options for rate structures were presented at the December 10, 2024 Committee of the Whole which resulted in the following directives being adopted by the Board:

003/25 **Recommendation No. 3** *Volumetric Billing Rate Structure Update*

THAT the report titled Volumetric Billing Rate Structure Update be received for information;

AND THAT mock volumetric billing be implemented in 2025 for North and South Pender Water Services using the Base Rate method.

The purpose of today's report is to recommend a rate structure to be implemented for 2025 mock billing of North and South Pender water services. This report also seeks Board direction on the rates and charges to be used for the 2025 mock bills. The rates and charges that will be implemented for actual volumetric billing in 2026 will be brought forward for consideration later this year.

DISCUSSION AND ANALYSIS OF OPTIONS

The development of a rate structure and the determination of rates are critical elements of the Volumetric Billing Project. The rate structure proposed in this report was developed based on previous direction received from the Board and with consideration to the existing implementation of water meters. The rate structure framework can be applied to all SCRD water services with minor modifications.

The proposed rate structure is comprised of three components that can be adjusted to best achieve the desired outcome of volumetric billing; the Base Charge, the volumetric rate (used to calculate Consumption Charges), and the Consumption Allowance. Rate structures proposed in this report target approximately 80% of revenue recovery through Base Charges and 20% through Consumption Charges while consumption patterns adapt to volumetric billing.

Consumption Allowance

A key element of the proposed rate structure is the inclusion of a quarterly consumption allowance for each connection/water meter. The consumption allowance is intended to account for the volume of water a household uses on essential activities such as cooking, bathing, and washing laundry. The American Water Works Association (AWWA) estimates that an average person uses 270 litres per day (lpd) on these activities, and the most recent census indicates the average household in Area A contains 1.9 residents. This resulted in the proposed consumption allowance volume of 46m³/quarter (~500 lpd). Billable consumption is the usage that exceeds this allowance and is calculated on a quarterly basis.

In 2024 approximately 45% of meters in the Pender Harbour area did not exceed the 46m³ threshold in any of the four quarters. A consumption allowance fundamentally shifts the burden of cost recovery further towards the high-volume users by reducing the volume of billable consumption and driving higher costs per unit of water. A consumption allowance provides an additional mechanism that can be adjusted accordingly to ensure that objectives (revenue sufficiency, conservation, equity) of volumetric billing are being achieved. Based on previous year's data, many residents are unlikely to exceed the consumption allowance in 2026 and can expect a stable and predictable cost of service.

Base Charges and Consumption Charges

Transitioning from the existing billing structure to volumetric billing will be a significant change for everyone involved. This will impact the Users' ability to understand their new bills, the staffs' efforts to distribute bills and answer customer enquiries, as well as the Budget Managers' requirements to ensure sufficient revenue is collected to fund operations for each Service.

During the planning of this project the consultant, Intergroup, recommended that 80% of revenue should be recovered through base charges when volumetric billing is first introduced to ensure that sufficient revenue is collected and to allow staff and residents time to adapt to the transition. This ratio should only be adjusted when a high degree of confidence in consumption patterns has been established. The components of a User Fee are illustrated by Figure 1 below.

User Fee	Base Charge: applied to every meter. Includes = <i>Consumption Allowance</i> . Can vary based on meter size and property classification.	+	Consumption Charge: calculated by the product of the volumetric rate multiplied by billable consumption (vol. of water usage in excess of <i>Consumption Allowance</i>)
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Figure 1: Components of a User Fee

The specific Base Charges and volumetric rates were determined through an analysis of historical consumption data and projected future consumption patterns. The total revenue collected through the new rates and fees must be sufficient to meet the annual operating expenditures of the service while striving to be fair and equitable to all users.

Proposed Rate Structure

A rate structure is recommended that considers both the classification of the property usage and the size of the meter in determining the base charge. Classifications in the rate structure are based on BC Assessment property classifications. SCRD proposes to sort property classifications into the categories of 'Residential', 'Non-Residential', and 'Commercial Farm'. By referencing the BC Assessment property classifications there will be fewer situations that require staff to adjudicate the classification of each property.

A cost multiplier based on meter size was developed through a review of the AWWA equivalent meter-size ratios as well as observed costs associated with the installation and replacement of various meter sizes. This culminated in a rate structure that can be used across all SCRD water services illustrated in Table 1 below.

Table 1: Proposed Volumetric Billing Rate Structure

Classification [BC Assessment Classifications]	Meter Size	Base Charge (includes consumption allowance)	Volumetric Rate (charged on consumption exceeding allowance)
Residential [1]	3/4" or smaller	~80% Revenue Requirement	
	1"	[3/4" or smaller] * 1.3	
	1.5 - 2"	[3/4" or smaller] * 2.1	
Non-Residential [2,3,4,5,6,7,8]	3/4" or smaller	= Residential Rate*	Target 20% Revenue
	1"	[3/4" or smaller] * 1.3	
	1.5 - 2"	[3/4" or smaller] * 2.1	
Commercial Farm [9]	3/4" or smaller	= Residential Rate	
	1"	[3/4" or smaller] * 1.3	
	1.5 - 2"	[3/4" or smaller] * 2.1	

Once the Base Charge is determined for Residential properties with a ¾" or smaller meter, the remaining Base Charges in this structure are calculated based on the ratios shown in the table above. When a value for a Base Charge for a 'typical residential connection' is provided in this report – these refer to a Residential ¾" or smaller meter.

*No variation in Base Charges across property classifications has been incorporated into the rate structure at this time, only for the water meter sizes. Volumetric rates are proposed to be the same for all customers. Different Base Charges and volumetric rates based on classifications can be implemented as more consumption data is available to ensure balanced equity and conservation signals.

Cost of Service

The average cost to collect, store, treat, and distribute each cubic meter of water can be determined by simply dividing the annual quantity of water that is delivered to customers by the sum of the operational expenses. For North and South Pender this is shown in Table 2 below based on 2024 data.

Table 2: Average Cost of Service per Unit Delivered

Service	2024 Operational Budget	2024 Volume of Water Metered (m ³)	2024 Cost per m3 of Water
North Pender	\$634,000	134,000	\$4.73
South Pender	\$990,000	242,000	\$4.09

This simplistic method to determine the average cost of supplying water to residents does not capture that many of the expenditures related to the provision of water services do not scale linearly with the volume of water that is delivered. It should be noted that the operational budgets for 2025 have increased for both water services and are anticipated to increase for 2026. It can be expected that the unit cost for water will increase as the volume of water consumed by users is reduced through conservation and leak resolution efforts.

Data Analysis

The analysis of historical water consumption for North and South Pender has been refined since the last project update was presented. The newly available 2024 water meter data show a slight increase (~2%) in total consumption across the two services compared to the previous year (Figure 2).

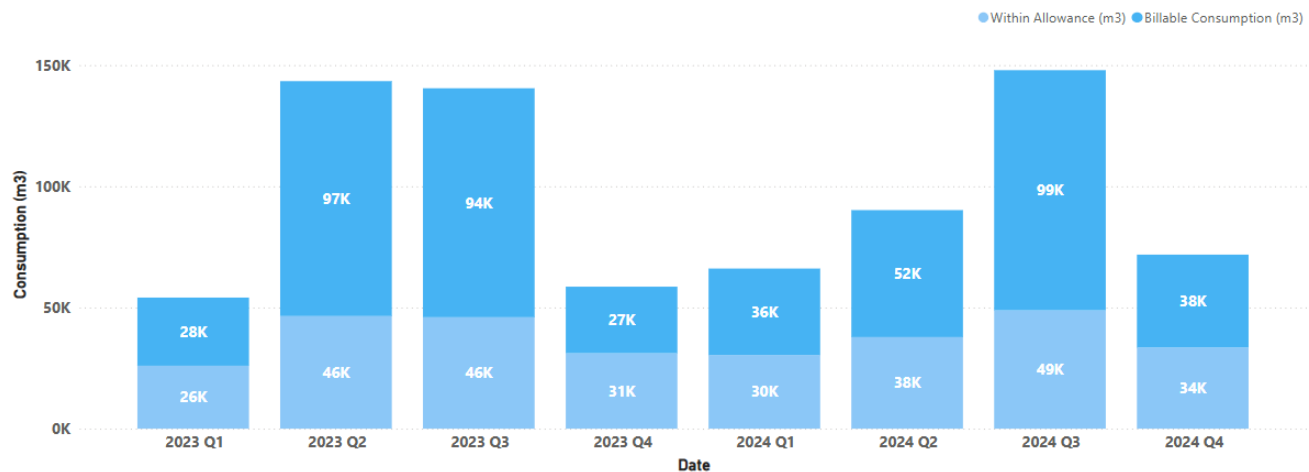


Figure 2: Historical Consumption -North and South Pender Combined (46m³/qtr consumption allowance)

This graph illustrates how usage patterns shifted away from billable consumption (consumption above the consumption allowance) despite the increase in total usage. From 2023 to 2024 billable consumption in North and South Pender declined nearly 10% without a strong conservation incentive in place. This magnitude of a reduction in consumption was projected to occur after volumetric billing was implemented in previous analysis. This can be attributed to an increased effort to resolve leaks and an approximate 25% annual increase in

precipitation in 2024 compared to 2023 (see Figure 3). The volume of rain for the six-month period from April to September in 2024 was equal to the seven-year average.

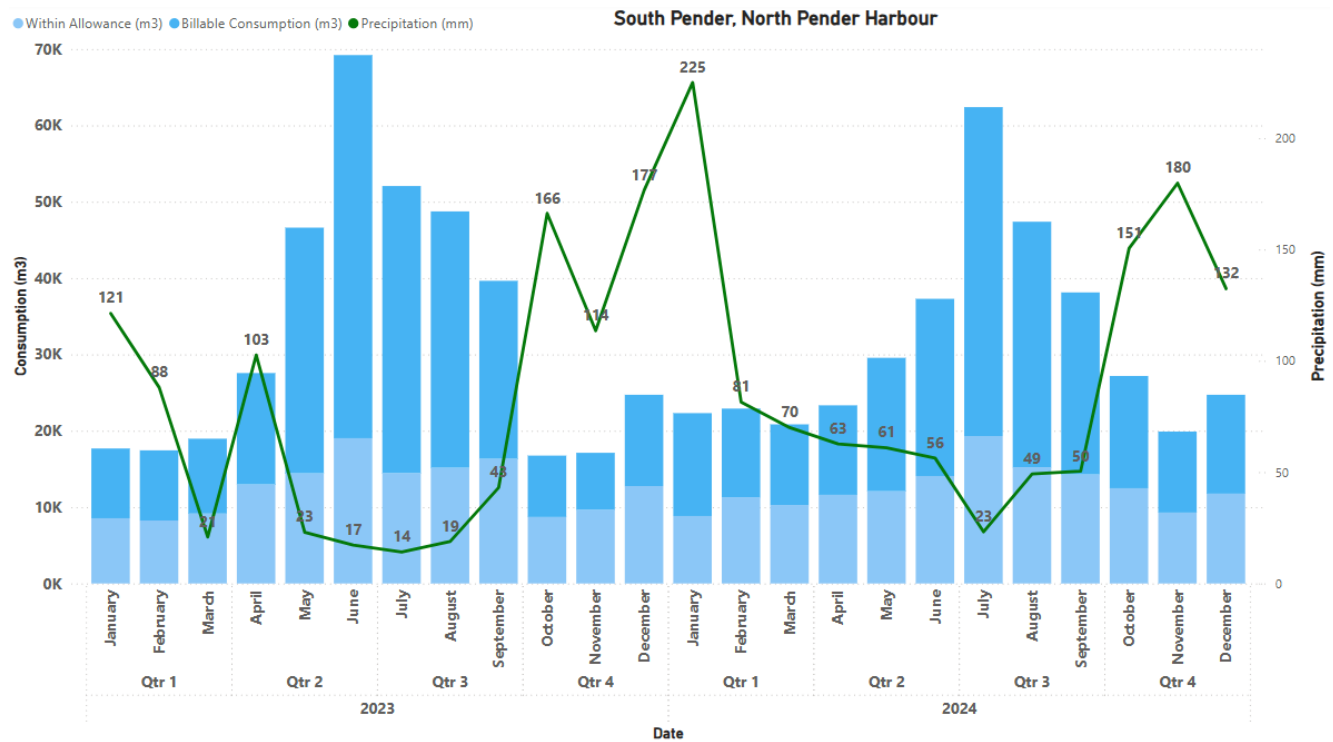


Figure 3: Monthly Precipitation vs Consumption

A revised sensitivity analysis of the impact of various consumption scenarios on projected revenue sufficiency was conducted to determine an appropriate consumption charge (Table 4). The recommended base charge of \$850 per year for a typical Residential connection (smaller than ¾" meter) was used in this analysis.

Table 3: Rate Sensitivity Summary

Water Service	Volume of Billable Consumption vs 2024 data	Variance from Target Revenue		
		Rate A: \$3.50/m³	Rate B: \$4.00/m³	Rate C: \$4.50/m³
North Pender	100%	\$125,000	\$161,000	\$199,000
	75%	\$60,000	\$88,000	\$116,000
	66%	\$40,000	\$64,000	\$89,000
	50%	-\$4,000	\$14,000	\$33,000
	33%	-\$46,000	-\$33,000	-\$20,000
South Pender	100%	\$233,000	\$305,000	\$377,000
	75%	\$106,000	\$161,000	\$215,000
	66%	\$66,000	\$114,000	\$163,000
	50%	-\$19,000	\$17,000	\$53,000
	33%	-\$100,000	-\$75,000	-\$51,000

This table presents the projected revenue for each service given five variations of billable consumption relative to the 2024 volume of water that was consumed above the proposed 46m³ quarterly allowance. Projected revenue is shown for three different volumetric rates.

Billable consumption in 2026 is projected to decrease by up to 50% compared to 2024 due to the strong conservation incentives created by volumetric billing. This would result in an estimated 30% reduction in total consumption. This is expected to be achieved through the combination of increased conservation and leak resolution efforts. Abnormal weather, such as a drought or an exceptionally high amount of precipitation, will also influence consumption patterns.

If billable consumption decreases by 50% compared to 2024, a volumetric rate of \$4 per cubic meter would recover sufficient revenue for both North and South Pender Harbour Water Services' 2025 Operating budget. This is a significant increase compared to the rates presented at the December 12 Committee of the Whole. The revised analysis accounts for the observed reduction in 2024 consumption, weather impacts, projected leak fixes, as well as potential leak resolution incentivization impacts on revenue.

Inclining Blocks

A review of existing software and billing processes indicates that it is possible to incorporate inclining block rates with any of the options that follow, however it is not recommended. The purpose of inclining blocks are to strengthen conservation incentives for higher users. The options presented below all impose significant incentives to conserve water usage, and their impact on consumption behavior should be observed before introducing inclining blocks. This aligns with the guidance provided by Intergroup during the project planning phases. Inclining blocks should be revisited after consumption patterns stabilize along with all the options to balance the distribution of costs for each water service. Intergroup suggests this may take as long as three years after the transition to volumetric billing.

Implementation Challenges

Transitioning to volumetric billing will uniquely impact customers that share a water meter. The SCRD will bill only the owner of each water meter for all consumption that is recorded as it is impossible to determine the allocation to the individual users of a shared meter. Under the current billing method each unit is charged a flat rate for their water service individually. This will present a challenge for owners of shared meters that do not have a formalized cost sharing agreement established between themselves and the other users they support.

OPTION 1 – Implement Mock Billing for the Pender Harbour Water Services with a 46m³ Quarterly Consumption Allowance

Proceeding with Option 1 would see mock billing implemented in North and South Pender using the rate structure and rates described in the analysis above and shown in Table 4 below.

These rates will be used to populate the mock bills being issued in the coming months and are not necessarily the rates that will be imposed for 2026 Billing. A subsequent report recommending 2026 rates and other Bylaw updates will be presented later this year.

Table 4: Recommended Rate Structure and Charges

Classification [BC Assessment Classifications]	Meter Size	Quarterly Base Charge	Volumetric Rate <46 m ³	Volumetric Rate > 46 m ³
Residential [1]	3/4" or smaller	\$213	\$0/m ³	\$4.00/m ³
	1"	\$275		
	1.5 - 2"	\$440		
Non-Residential [2,3,4,5,6,7,8]	3/4" or smaller	\$213	\$0/m ³	\$4.00/m ³
	1"	\$275		
	1.5 - 2"	\$440		
Commercial Farm [9]	3/4" or smaller	\$213	\$0/m ³	\$4.00/m ³
	1"	\$275		
	1.5 - 2"	\$440		

This option aligns with the recommended ratio of 80% / 20% for Base Charges and Consumption Charges respectively.

The following table illustrates total annual User Fees for a range of possible consumptions over a year. These examples assume that consumption is consistent across all four quarters for the year.

Table 5: Option 1 - Sample Annual Bills

Avg. Daily Consumption (L)	Avg. Quarterly Consumption (m3)	% of Customers in 2024	Annual Base Charge	Annual Consumption Charge	Total Annual User Fees
500	45.6	68.9 %	\$850	\$0	\$850
1,000	91.3	15.5 %	\$850	\$183	\$1,033
5,000	456.3	13.2 %	\$850	\$1,643	\$2,493
10,000	912.5	1.3 %	\$850	\$3,468	\$4,318
20,000	1825.0	0.4 %	\$850	\$7,118	\$7,968

By implementing this rate structure, the (mock) charges for providing water to Pender Harbor residents will shift to a more equitable distribution than the current approach. This will result in the mock bill showing cost savings over the current approach for any residents who use less than the allowance volume. For residents that exceed that allowance there will be a strong incentive to reduce consumption.

Staff Recommendation

Staff recommend Option 1.

Should the Committee choose to go with Option 1, a recommendation has been proposed in the Overview section on page one of this report.

OPTION 2 – Implement Mock Billing for the Pender Harbour Water Services with a 36.5m³ Quarterly Consumption Allowance

Reducing the quarterly consumption allowance to 36.5m³ (from 500 lpd to 400 lpd) will increase the volume of billable consumption by approximately 5%. This additional billable consumption volume enables a reduced cost per unit of water sold while still recovering sufficient revenue. A volumetric rate of \$3.50 / m³ would recover a similar total revenue as Option 1.

This option aligns with the recommended ratio of 80% / 20% for Base Charges and Consumption Charges respectively.

By implementing a lower consumption allowance the burden of cost shifts from the high users to the lower users. This reduces the conservation incentive for higher users. The lower volumetric rate would see the highest users save approximately \$1000 dollars annually compared to Option 1. The following table illustrates total annual User Fees for a range of possible consumptions over a year. These examples assume that consumption is consistent across all four quarters for the year.

Table 6: Option 2 - Sample Annual Bills

Avg. Daily Consumption (L)	Avg. Quarterly Consumption (m3)	% of Customers in 2024	Annual Base Charge	Annual Consumption Charge	Total Annual User Fees
500	45.6	68.9 %	\$850	\$32	\$882
1,000	91.3	15.5 %	\$850	\$192	\$1,042
5,000	456.3	13.2 %	\$850	\$1,469	\$2,319
10,000	912.5	1.3 %	\$850	\$3,066	\$3,916
20,000	1825.0	0.4 %	\$850	\$6,260	\$7,110

By implementing this rate structure, the (mock) charges for providing water to Pender Harbor residents will shift to a more equitable distribution than the current approach. This will result in the mock bill showing cost savings over the current approach for any residents who use less than the allowance volume. For residents that exceed that allowance there will be a strong incentive to reduce consumption.

Staff Recommendation

Staff do not recommend this option.

Should the Committee choose to go with Option 2, a recommendation could be considered, as follows:

- THAT a volumetric billing rate structure for mock billing in 2025 and actual billing in 2026 for the North Pender Harbour Water Service and South Pender Harbour Water Service be established based on the following criteria:
 - Separate customer classes for Residential, Non-Residential, and Commercial farms based on BC Assessment property classifications,

- Fixed charge categories based on meter sizes of ¾" or smaller, 1", and 1.5"-2",
- A quarterly base consumption allowance of 36.5m³ per connection,
- AND THAT draft Bylaw schedules incorporating the rate structure be brought forward for review in October 2025 prior to the annual rate setting process for actual billing in 2026
- AND THAT quarterly fixed rate charges for mock billing in 2025 be established as \$212.50 for connections with meters that are ¾" or smaller, \$275 for connections with 1" meters, and \$440 for connections with meters that are 1.5" - 2"
- AND THAT the volumetric rate for mock billing in 2025 for consumption exceeding 36.5m³ per quarter be set at \$3.50/m³
- AND THAT development of an inclining block rate structure be deferred until 2027.

OPTION 3 – Implement Mock Billing for the Pender Harbour Water Services with a Higher Base Charge

This option considers an increased Base Charge to enable a lower volumetric rate to be implemented while still recovering sufficient total revenue. The quarterly Consumption allowance remains at 46m³. This approach would reduce the cost for high volume consumers while still maintaining the cost certainty for the users who do not exceed the quarterly consumption allowance.

By increasing the Base Charge this option deviates slightly from the recommended 80/20 ratio of revenue recovery through Base and Consumption Charges respectively. This option would see approximately 83% of the revenue recovered through Base Charges and would present a reduced incentive for conservation when compared to Option 1. Option 3 would see the highest users save approximately \$1000 annually compared to Option 1. The following table illustrates total annual User Fees for a range of possible consumptions over a year. These examples assume that consumption is consistent across all four quarters for the year.

Table 7: Option 3 - Sample Annual Bills

Avg. Daily Consumption (L)	Avg. Quarterly Consumption (m3)	% of Customers in 2024	Annual Base Charge	Annual Consumption Charge	Total Annual User Fees
500	45.6	68.9 %	\$900	\$0	\$900
1,000	91.3	15.5 %	\$900	\$160	\$1,060
5,000	456.3	13.2 %	\$900	\$1,437	\$2,337
10,000	912.5	1.3 %	\$900	\$3,034	\$3,934
20,000	1825.0	0.4 %	\$900	\$6,228	\$7,128

Staff Recommendation

“Staff do not recommend this option.

Should the Committee choose to go with Option 3, a recommendation could be considered, as follows:

- THAT a volumetric billing rate structure for mock billing in 2025 and actual billing in 2026 for the North Pender Harbour Water Service and South Pender Harbour Water Service be established based on the following criteria:
 - Separate customer classes for Residential, Non-Residential, and Commercial farms based on BC Assessment property classifications,
 - Fixed charge categories based on meter sizes of $\frac{3}{4}$ " or smaller, 1", and 1.5"-2",
 - A quarterly base consumption allowance of 46m³ per connection,
- AND THAT draft Bylaw schedules incorporating the rate structure be brought forward for review in October 2025 prior to the annual rate setting process for actual billing in 2026
- AND THAT quarterly fixed rate charges for mock billing in 2025 be established as \$225 for connections with meters that are $\frac{3}{4}$ " or smaller, \$295 for connections with 1" meters, and \$475 for connections with meters that are 1.5" – 2"
- AND THAT the volumetric rate for mock billing in 2025 for consumption exceeding 46m³ per quarter be set at \$3.50/m³
- AND THAT development of an inclining block rate structure be deferred until 2027.

FINANCIAL IMPLICATIONS

This project continues to demand coordinated efforts across the organization and close cooperation to ensure all elements are aligned and successfully implemented. It is estimated that 17 staff members and over 2,800 staff hours will be required to facilitate the transition to volumetric billing. Temporary staff resources required to accommodate increases in customer support demands will likely be required.

The implementation of volumetric billing will require additional resources or reallocation of duties for many departments.

- Finance will see a surge in resident enquiries during the transitional years and quarterly billing will add tasks throughout the year.
- Utility Services – Operations will see a surge in residents enquiring about accuracy of the meter reads and resolving leaks.
- Utility Services - Operations will need to prioritize timely meter repairs and replacements to maintain accurate billing.
- Utilities Services - Engineering, Building, Planning, and Legislative Services divisions will need to adapt to new Bylaws, processes, and policies.
- Communications – Implementing volumetric billing is a significant undertaking for the communications department. Additionally, transitioning from annual to quarterly billing will increase both the frequency and complexity of required communications.

Transitioning to Volumetric Billing exposes a risk that insufficient revenue may be collected if consumption patterns drastically change from historical patterns. This is not just related to both behavioral changes and leak resolution. In winter months as few as 6% of customers use more than 50% of the water. In the summer months nearly 70% of the water is consumed by 25% of the customers. An undeterminable portion of that consumption is related to service line leaks, and if these are resolved rapidly it can result in lower than anticipated revenue. It is anticipated that a 'Bill Adjustment for Leak' Policy, where residents that resolve major service line leaks are given a bill credit proportional to the volume of water leaked will impact revenue recovery.

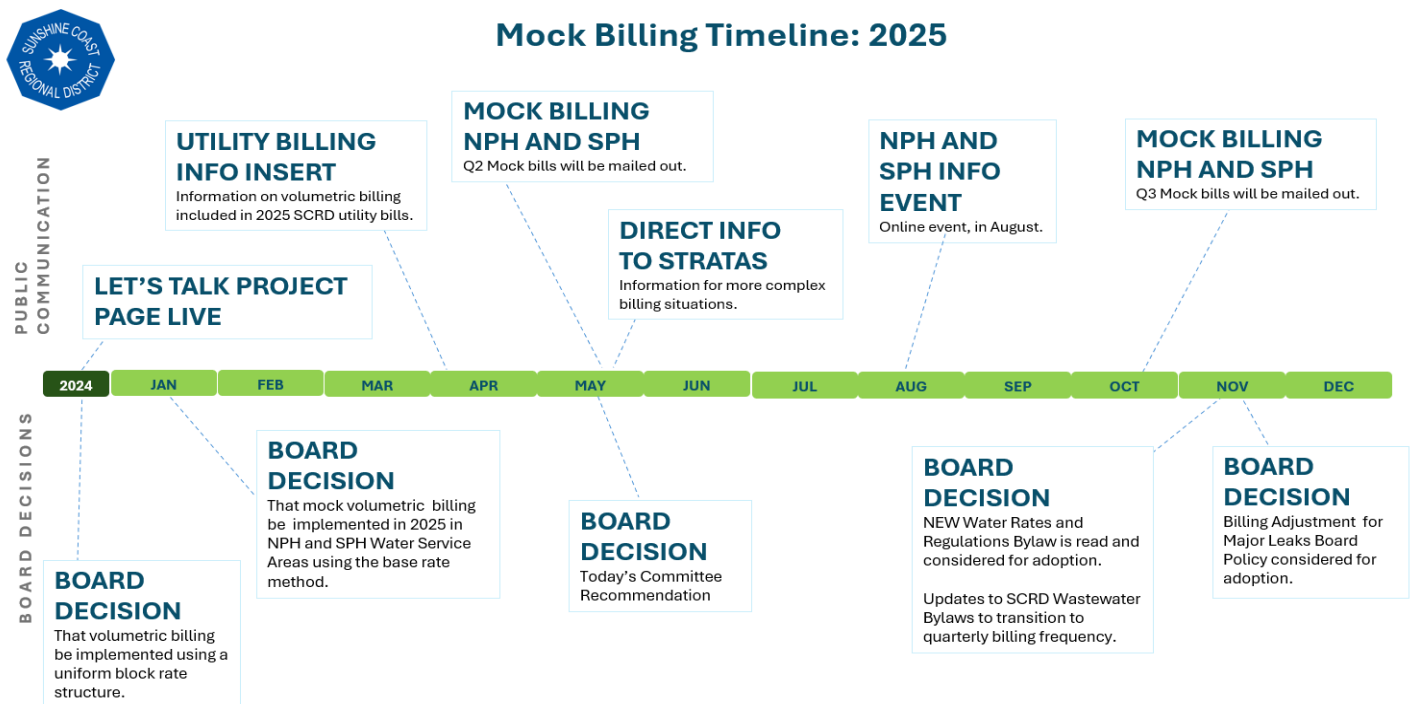
LEGISLATIVE IMPLICATIONS

Staff will bring forward an update to the Water Rates and Regulations Bylaw No. 422 to the Board for consideration and adoption in November 2025, which will include a finalized rate structure and the actual rates for 2026. Related Board Policies, such as one related to billing adjustments related to leaks, will be presented alongside the new bylaw.

STRATEGIC PLAN IMPLICATIONS

This initiative is directly referenced in the Board's Strategic Plan focus area of Water Stewardship. One of the ways the SCRD looks to achieve this goal is by: "Improving water demand management and increase the efficiency of water use by completing installation of water meters and implementing volumetric billing".

TIMELINE



COMMUNICATIONS

Volumetric billing information was included in all utility bills mailed out in early May. The project's Let's Talk page (letstalk.scrd.ca/water-billing) remains the central hub for updates, and residents are encouraged to visit the site to learn more or ask questions.

Following the adoption of the new rate structure, staff will maintain a steady flow of information to the community. This outreach will include news releases, advertisements in the Coast Reporter and Harbour Spiel, and regular updates on social media.

Communications will increase leading up to the distribution of mock bills to residents. The focus of the mock bills will be to help explain the rate structure to residents as the rates outlined in the mock bills will change when the real billing cycle begins in 2026.

SUMMARY AND CONCLUSION

The volumetric billing project is approaching the preparation of the first mock billing cycle. A rate structure has been developed that considers property classification and meter sizes and offers a common rate for both Pender Harbour Water Services. Analysis of new data suggests a more conservative consumption projection be considered to account for leak resolution. It is recommended that the Implementation of Mock Billing for North and South Pender Proceed with Option 1.

Reviewed by:			
Communications	X – A. Buckley	Finance	X – B. Wing
GM	X - R. Rosenboom	Legislative	X – S. Reid
CAO	X – T. Perreault	Other	