



AGENDA

Climate Action Committee Meeting

Tuesday, March 25, 2025, 6:00 p.m.
Council Chambers, 400 Centre Road, Lions Bay
And Via Zoom Video Conference

Zoom Invite Link: <https://us02web.zoom.us/j/2780145720?omn=82713985269>
To join via phone, dial 778-907-2071 | Meeting ID: 278 014 5720

We are privileged to be meeting and doing work on behalf of the residents of Lions Bay on the traditional unceded territory of the Squamish and Musqueam Nations.

Pages

1. **Call to Order**
2. **Adoption of Agenda**
Recommendation:
That the Agenda of March 25, 2025, be adopted as presented.
3. **Public Participation**
4. **Delegations**
 - 4.1 **Introduction to Natural Asset Management and Nature-based Solutions**
- Michele Lewis from the Municipality of Gibsons
- for information
5. **Approval of Minutes of Prior Meetings**
- none
6. **Business Arising from the Minutes**
7. **Unfinished Business**
 - 7.1 **Mini Recycling Depot Update**
Regarding the Request for Decision submitted to Council
- Verbal feedback from the Director of Operations or Chair N Abbott
- for information
 - 7.2 **Furnace Infrastructure Replacement Environmental Upgrade (FIREUP) Project Update**
- Verbal progress feedback from the Director of Operations or Chair N Abbott
- for information
8. **New Business**
 - 8.1 **Climate Action Committee Recommendations from the Michele Lewis delegation**

- *for discussion*

8.2 Water Metering Project

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- *Written report from the Director of Operations K Buhr for discussion on next steps, including verbal update on progress feedback from DOO or from Chair N Abbott*

- *for information*

8.2.1 Implementation of Water Metering Grant in Lions Bay
Councillor N Abbott

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- *Committee Chair Report for information*

9. Recommendation to Council

10. Public Questions and Comments

11. Adjournment

Recommendation:

THAT the Climate Action Committee Meeting be adjourned.



STAFF REPORT

DATE: 20 March, 2025 **FILE:** PW-2025-019

TO: Ross Blackwell, Chief Administrative Officer

FROM: Karl Buhr, Director of Operations

RE: **BC WATER METER PILOT PROGRAM GRANT**

RECOMMENDATION

That, pursuant to Lions Bay's successful proposal to the BC Water Meter Pilot Program for universal property meters plus 10 watermain zone meters and 11 remote pressure management installations, at a 100 percent grant-funded cost of \$3,940,703:

1. *Council directs the CAO to execute the Ministry of Housing and Municipal Affairs Contribution Agreement before its noon March 25, 2025, deadline; and*
2. *Council commits the municipality to deliver the proposed project by 31 March 2027, and to participate in the ongoing Pilot Project.*

WHAT IS THIS ABOUT?

The Province's water meter pilot program has awarded Lions Bay \$3.94 mil. to install universal water metering and other significant infrastructure improvements. This fully funded project offers complete management of water demand down to the individual user level, in perpetuity.

BACKGROUND

In December 2024, the Province launched a long-anticipated \$50 mil. water metering pilot program. Communities of between 300 and 5000 water service connections were eligible to propose fully funded projects would result in universal metering. Data collected during installation and operation would be made available to the program and communities would actively participate in both an adjunct research project and a community of best practice. Volume-based rate structures were not required to apply.

Building on work already underway, Lions Bay staff developed a capital and operating model to complete the program's application for 555 single-family, 12 ICI (institutional-commercial-industrial), and 3 multifamily property-line water meters. Also proposed were 10 metered watermain zones to add to the two operating today, as well as remote network pressure management capability at 11 strategic locations. The application was submitted on Jan. 22, a week before deadline. A requested revision reduced average per-meter cost without eliminating zone metering, (since knowing individual user demand without knowing zone demand would be of



limited use in Lions Bay, given its very high per-capita consumption; [see sidebar](#)). The final proposal was for \$3,940,703, including a 15% contingency.

On Feb. 25 we heard that 45 proposals had been received from qualified water operators, and ours was one of 19 awarded. The Ministry of Housing and Municipal Affairs had embargoed disclosure until public announcement, and a previous version of this report was considered by Council in Closed meeting on Mar. 18 for that purpose, with no decision reached. On Mar. 19, the Ministry waived their embargo to allow Council to consider the grant in open meeting in time for acceptance within a one-day deadline extension to noon, Mar. 25. This report has been produced for the Special Council Meeting of Mar. 24.

High water use: leak fixing since May 2023 has resulted in a 50% reduction in water consumption. Today's wintertime rates are around 400,000 gallons or 1,510,000 litres per day. At approx. 1550 users, Lions Bay water demand is thus 1000 litres per person per day, still three times the regional average. Some of this demand is leakage that still needs to be found. Some of it will be legitimate large uses in gardens and pools, but not in winter. Some of it may unfortunately be proscribed use seen in some unmetered communities: heat pumps, power generation, aquaculture and once-through water features. Metering is vital to conserve Lions Bay's water for its intended purposes, especially in times of short supply.

WHAT IS WATER METERING?

Meters determine the volume of a fluid flowing through a channel over a period of time. In a municipal context, they measure the volume of water flowing through a pipe. A typical water meter project at nearby Bellingham, Washington is illustrated in the short video at <https://www.youtube.com/watch?v=0rMAL3yowWU>.

The Province's pilot program requires advanced metering infrastructure (AMI), which entails real-time readings delivered over-the-air to a central platform. All the meter offerings we would consider measure flow ultrasonically several times a second, and every 15 minutes a data packet is sent to a secure management platform over the cellular network. **At the end of a 20-year battery life, meters below 1" in size are replaced. A typical (¾-inch) AMI meter replacement costs \$475 in 2025 dollars.** We amortise this cost over 15 years in our operating model.



Figure 1: a typical AMI meter, Neptune's 3/4" Mach 10



Figure 2: a meter setter

During installation, the existing water service line is exposed by excavator, hydrovac and by hand. A *meter setter* is cut into the line at a standard height to grade. A concrete *meter box* is placed over the setter, the *meter pit* is backfilled, and the meter is installed in the setter. Its cellular antenna is mounted to the box lid, the serial number is registered on the platform, and the resident is provided an information package.

Zone meters would be installed in-house utilising specialised sub-contractors. Half the installs would be magnetic flowmeters with typical accuracies of 0.1-1.0% and half would utilise the PRV manufacturer's pressure differential and valve stem position technology, with an accuracy of 2%.



HOW DOES METERING BENEFIT LIONS BAY?

- 1) **24/7 leak detection**, at every service connection and in all watermain zones, addressing our fundamental need to measure and manage demand, especially during times of restricted supply.
- 2) Accurate seasonal consumption data for planning watermain, fire flows, fire reserves and storage, potentially **delaying infrastructure investments**.
- 3) Consumer feedback on a secure webpage and quarterly statements. Awareness of consumption has been found to result in up to **25% reduction in usage** in metered communities.
- 4) **Re-establishing service shutoffs** lost due to slumping, construction of retaining walls, and driveway paving. We would work with legal counsel to establish a basis on which to locate meter pits away from the property line to reduce costs of digging under retaining walls and on slopes, while establishing whose responsibility each part of the distribution network is.
- 5) Provincial staff have acknowledged in writing that **future infrastructure grants for water projects** will expect applicants to be metering water as an increasingly strategic commodity. Not yet acknowledged but also not denied is that water metering will be made mandatory in BC sooner rather than later, possibly the rationale for the Province allocating \$50 mil. for pilot projects.
- 6) Equitable billing. Lions Bay's current flat annual tariff averages \$2100, the highest water utility rate in BC by far. Volume-based tariffs distribute the fixed costs of producing water, incentivising water conservation: properties that use less, pay less. Staff's testing of a trial volume-based tariff with tiered levels and rates dependent on season produces **bills ranging from \$1600 to \$2600 per year**. Crediting of already-paid flat rates, rebates for leakage fixed in good time, and removal of extraordinary draws such as firefighting, are provided for. Any change to the water tariff requires Council approval, and would be finetuned by our retained engineering firm and tested against actual usages, before coming to Council in 2026 for consideration during annual water rate setting.
- 7) With the availability of power and data in remote locations, the opportunity to install real-time water quality monitoring, **replacing a single workday-only hand sample**¹.

PROJECT DELIVERY

Design: the funded project cost includes **\$120,000 for engineering**, including updating our water model to ensure we understand how much water is going where at what pressures and flowrates, to ensure that mains and PRVs are correctly sized, that correct firefighting reserves are maintained, and that fire flows can be relied upon.

Public outreach: most members of the public will only be peripherally aware of water metering in Lions Bay. The grant provides **\$28,500 for public consultation and customer education**.

¹ Water regulator Vancouver Coastal Health has already approved changing the chlorine measurement at the Works Yard sample point for live chlorine data at the Kelvin Beach Control Room, recently installed as part of the SCADA Upgrade budget.



Installation: delivery of the project is **straightforward: in 24 months dig 600 holes down to the service line, cut in a meter and install a 40x60 cm concrete box overtop**, on approximately this timeline:

Month/Year → Item ↓	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	Y2	Y3
Installs, 3/4"	10	19	18	16	20	20	44	25	25	25	25	25	275	0
Installs, 1.5"		1	2	2	2	2	1							
Installs, 2"				1	2	2	2	2	1					
Installs, 4"				1										

Our original proposal relied on the selected meter vendor delivering a turnkey project and indicative costs were obtained from one vendor, taking into account the high price of digging deeper than normal pits in Lions Bay's steep and rocky terrain. During Ministry review we were advised that while our proposal was very thorough, our average cost per meter was also too high. We therefore removed two master zone meters, accounted for 24 meter pits as part of the CUBB.3 watermain project slated for this summer, costed installation using a municipality-managed contractor instead, removing almost a million dollars from the initial proposal.

Contingencies: a **\$514,000 15% contingency** is provided against higher than estimated excavation costs, miscounts, misestimates, inflation and expediting. All vendors under consideration source from the US, and meters appear on the Canadian government's second round tariff list; industry groups and meter vendors are already reportedly working on exemption applications.

Project management: **\$150,000 for up to 30 months of contract project management** is provided for. While meter installation itself may be straightforward compared to some of Lions Bay's more recent infrastructure projects, the pilot project aspects will require meticulous documentation and recordkeeping, data analysis, reporting to the Ministry, and presentation of lessons learned to municipal counterparts throughout the Province.

Operation: the project funds **\$17,000 for integration of the metering platform to our MAIS accounting platform** to allow quarterly billing.

Enhancements: **\$218,800 for zone flow measurement** utilising our PRV manufacturer's proprietary technology at six PRV stations and cut-in magnetic flowmeters at four further PRV stations, complementing two currently operational. All new installations include power drops under BC Hydro's Express Connect program. As a pilot, half the data connections would be hardwired fibreoptic, and half cellular modem (already successfully trialling at the Timbertop pressure booster pump station). And, **\$145,800 for remote pressure management** at 11 locations, allowing PRVs to be remotely turned down on demand. While reported reductions of up to 20 percent--typically applied overnight--are attractive to an operator, this aspect of the project also speaks to its pilot nature: our experience will allow other operators that *have to pay for metering themselves* to judge whether pressure management is worthwhile.

[This page in landscape for clarity]

OPERATING EXPENSES

Conservatively estimated, power and data costs for zone meters and pressure management will add \$14,600 a year to the water operating budget, a 1.2% increase on 2024. Universal water metering, including platform, data connectivity, quarterly billing *and 15-year amortisation of meter replacement*, before quantity discounts, will add \$23,900 a year to the water budget, a 2.0% increase.

OPERATING COSTS, \$2024: ZONE METERING	PER	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	Y2	Y3
Power to zone installs/mo	\$45.00	90	180	270	315	315	315	315	315	315	315	315	315	3,780	3,780
Data, wired to zone installs/mo	\$100.00	-	-	100	200	300	400	500	600	600	600	600	600	7,200	7,200
Data, wireless to zone installs/mo	\$50.00	50	100	150	200	250	300	300	300	300	300	300	300	3,600	3,600
		140	280	520	715	865	1,015	1,115	1,215	1,215	1,215	1,215	1,215	14,580	14,580
OPERATING COSTS, \$2024: PREMISE METERING															
Typical AMI platform (1-250 endpoints) annual subscription	\$4,721	4,721											4,721	15,000	15,000
Cellular data plan (1-500) per endpoint	\$18.88	16	46	74	99	131	231	231	271	310	349	389	428	10,327	10,327
Connections that now don't have to be inspected, 1 hour/yr	-\$50.00	-500	-950	-900	-800	-1,000	-2,200	-1,250	-1,250	-1,250	-1,250	-1,250	-1,250	-27,350	-27,350
Mock billing, per account, quarterly	\$5.00				235			735			985			5,440	
Live billing, per account, quarterly	\$7.50													2,243	17,220
Amortise meter replacement, years >	15	24	70	114	155	206	257	366	428	490	551	612	672	8,680	8,680
		4,261	-834	-712	-311	-664	-1,712	82	-551	-450	635	-250	4,571	14,339	23,877

CONTRACTUAL OBLIGATION

The Province's Contribution Agreement (CA) arrived on Monday, Mar. 17, and was reviewed by legal counsel on Mar. 18: "[we]... do not have any concerns about the language. The terms are same or similar to contribution agreements the Province has with other municipalities."

- ITO procurement, the CA requires that contracts with third parties are awarded in a way that is transparent, competitive, and consistent with value for money principles. All works associated with the project must be publicly tendered unless notified to the Province.
- ITO funding, the Province makes a one-time upfront payment of \$3,940,703. Interest must be spent on the project. If actual project costs are lower than the grant, the Province may request a repayment.
- ITO reporting, nothing onerous or what we do not already do.



OPTIONS ARISING

1. Approve as recommended.
2. Decline the funding opportunity.
3. Provide other specific direction.

FINANCIAL CONSIDERATIONS

The Financial considerations are set out above.

LEGAL CONSIDERATIONS

The primary legal considerations are contractual as set out above.

Respectfully submitted,

Report Approved By,

A handwritten signature in black ink, appearing to read "Karl H. Buhr".

Karl Buhr
Director of Operations

A handwritten signature in black ink, appearing to be a stylized "R" followed by a period.

Ross Blackwell, CAO
Chief Administrative Officer



THE MUNICIPALITY OF THE VILLAGE OF LIONS BAY

Type	Committee Chair Report		
Title	Implementation of Water Metering Grant in Lions Bay		
Authors	Neville Abbott	Reviewed By:	
Date	March 20, 2025	Version	V1
Issued for	Special Council Meeting March 25, 2025		

Background.

The purpose of this report is to provide Council with a high-level summary of Infrastructure Committee (IC) and Climate Action Committee (CAC) actions and opinions regarding water metering in Lions Bay.

Summary of Infrastructure and Climate Action Committee Actions on Water Metering:

Climate Action Committee Minutes - March 7, 2024

On Feb 1, 2024 committee member Norm Barmeier prepared a report intended to be submitted to RCM Feb 20, 2024 the recommendation read *The Lions Bay Climate Action Committee (CAC) recommends that council give direction to staff to start phasing in residential water metering requirements in the building bylaws.*

This report was not submitted to Council in deference to the DoO's report titled 2024 Water Plans submitted to the RCM February 20, 2024.

Infrastructure Committee March 21, 2024

A collaboration of John Rob & Norm Barmier resulted in the presentation of a 6-page report from the CAC to the IC, the ask was for support of the CAC recommendation as follows.

The Lions Bay Climate Action Committee (CAC) recommends that council i) accept in principle the adoption of water metering contingent on ii) the development of a program and an implementation plan that addresses single-residence vs zone metering, equipment, capital costs and financing, rate structures, and community engagement. It recommends that this plan be prepared with through collaboration of the Infrastructure and Climate Action committees as soon as is practical, with the aim, after adoption, of subsequently giving direction to staff to phase in the residential water metering program as developed.

From the minutes - *The I.C. supports the proposed new water by-law from a technical perspective as long as the community fully understands what is being asked. Further, the I.C. suggest the water metering should be is grant funded as we believe there are other projects that also require access to limited funding.*

Regular Council Meeting April 16, 2024

Under committee reports Council was advised that CAC member John Rob presented information report regarding water metering in BC to the IC and information was favourably received and IC members expressed an interest in working on a joint proposal for Council support.

Infrastructure Committee – April 18, 2024

From the minutes - *The I.C. supports the proposed new water by-law from a technical perspective as long as the community fully understands what is being asked. Further, the I.C. suggest the water metering should be is grant funded as we believe there are other projects that also require access to limited funding.*

The I.C. fully endorses the current initiative to proceed with zone metering, and to expand this to include a pilot programme which will focus on the larger water consumers such as commercial, multiplex dwellings and the “large leak repeat offenders”

Climate Action Committee June 27, 2024.

Water metering recommendations – the committee reviewed the revised draft from John Rob and suggested that the CAC ...*support Staff with community engagement such that residential water metering can be implemented...*