



Calgary's historical water demand

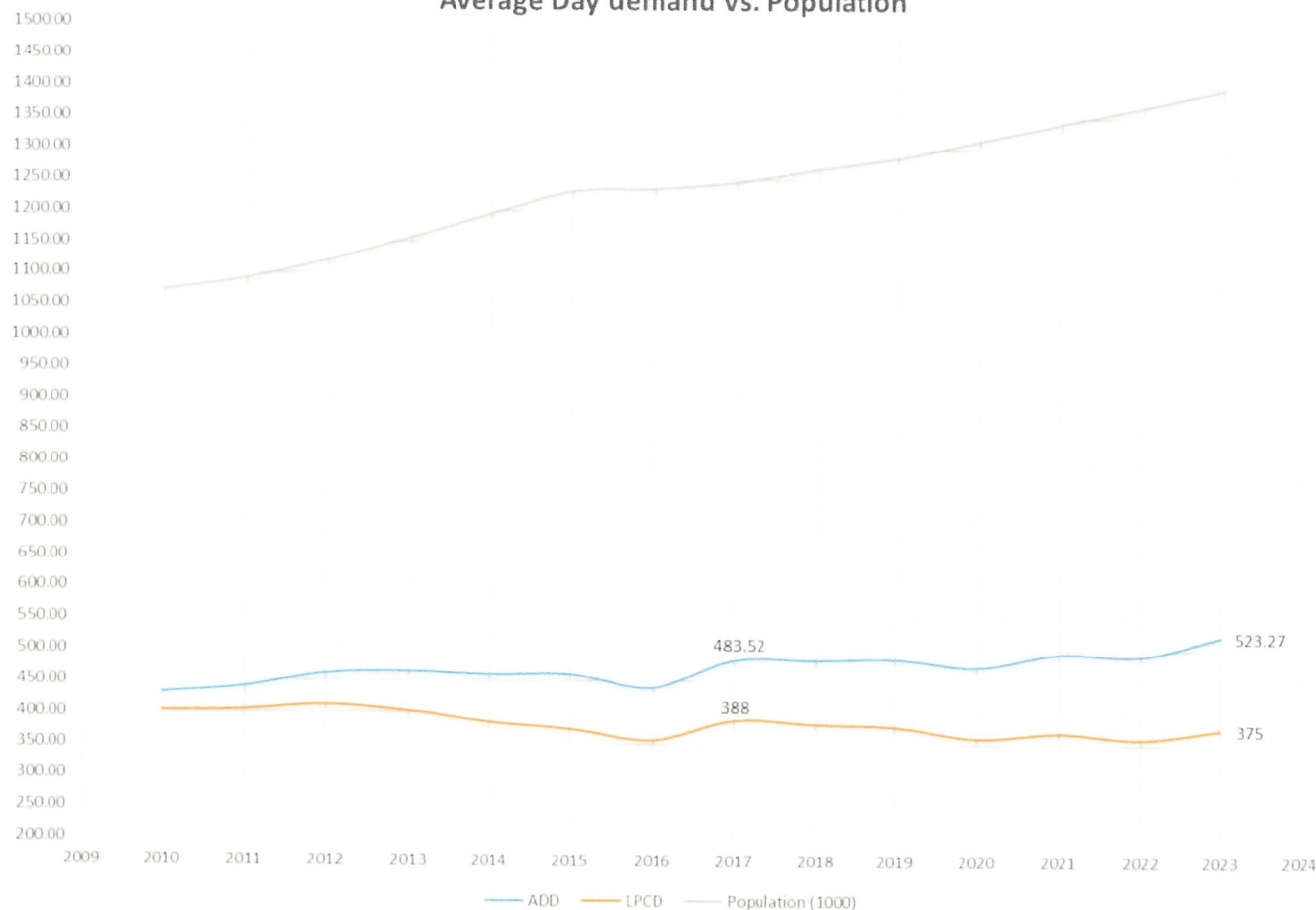
The average day demand in 2022 was 351 Lpcd.

This demand includes residential, industrial, commercial, and institutional customers, as well as authorized water use (firefighting, flushing) and water loss.

The residential metered consumption in 2022 was ~170 Lpcd.

Although significant water use reductions have been achieved in Calgary already, there is a need for continued reductions.

Average Day demand vs. Population





Planning Criteria: Calgary compared to EPCOR

| | Calgary | Edmonton (Epcor) |
|------------------------------|----------|----------------------------------|
| Combined ADD criteria | 350 Lpcd | 220 Lpcd |
| Combined MDD criteria | 585 Lpcd | 330 Lpcd |
| Residential demand criteria* | n/a | 160 Lpcd (ADD) 240 Lpcd (MDD) |

*to be used for area-level transmission sizing only

While there are differences in water demand criteria between Edmonton and Calgary, the methodology used in sizing and designing the water distribution, transmission and supply systems is similar and aligned with Alberta Standards and Guidelines for Municipal Waterworks, Wastewater and Storm Drainage Systems.

For the purpose of overall system planning and major infrastructure sizing of plants and transmission infrastructure both Edmonton and Calgary are using a combined MDD demand criteria.

Edmonton's area-level transmission infrastructure is similar to the function of Calgary's 400 mm watermains used in development of new greenfield communities (developer sized).



Key differences and factors influencing water demand

Water Loss

- Edmonton's 2021 water loss was presented as 5.4%. Calgary's was 22% in 2022.

Geotechnical conditions

- Edmonton has primarily clay-based soils means leaks from services and mains surface quickly, leading to fast repair times.
- Calgary has primarily gravel-based soils means leaks from services and mains drain through the ground and do not come to surface.



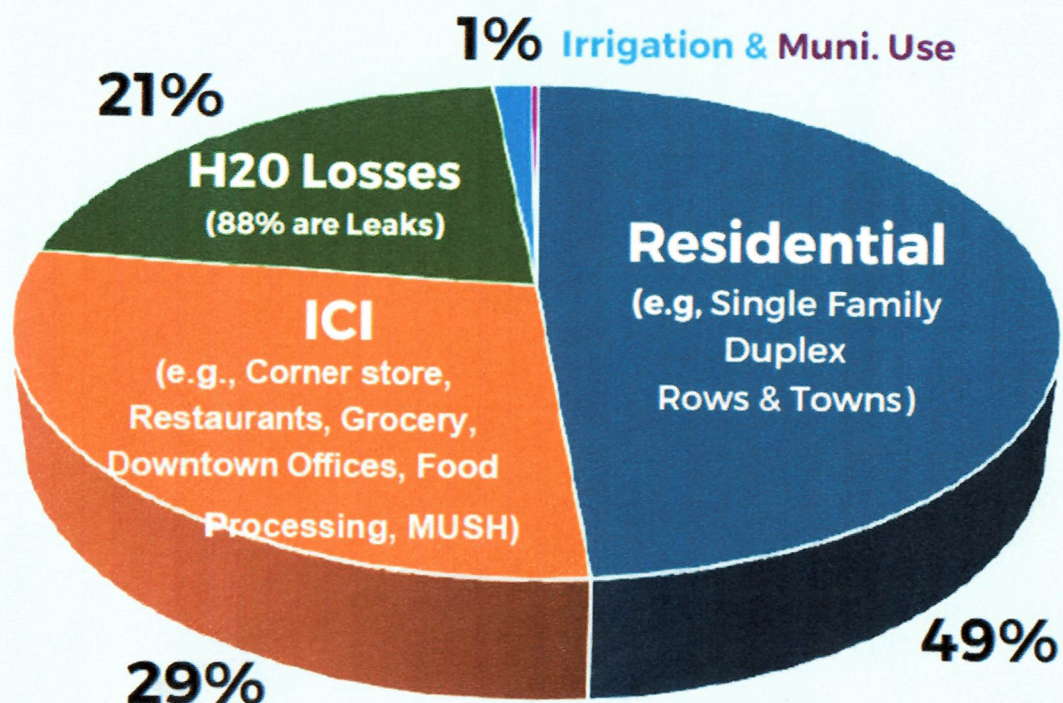
Universal Metering

- Edmonton has had universal metering since 1903, Calgary has had universal metering since 2014

Water Rate Structure

- Edmonton has an inclining block rate – cost for water by volume increases with the more water consumed.
- Calgary has uniform rate structure – customers pay a rate based on meter size and account type. Utility rates do not increase as customers consume more water.

CITY OF CALGARY AVERAGE DAILY WATER CONSUMPTION



June 11th, 2024
The City of Calgary
PO Box 2100, Station M
Calgary, AB, T2P 2M5

Attention: **Chair, Sonya Sharp**

**Re: June 12, 2024, Infrastructure and Planning Committee Meeting
BILD Response to:
Item 7.3 Growth Infrastructure Continuous Improvement Implementation Plan
IP2024-0573**

Dear Chair Sharp and Committee Members,

On behalf of BILD Calgary Region's members, we write to you to provide comments, feedback and recommendations for a constructive pathway forward in respect of the eight directions to Administration, "... to improve the information available and used in developing an off-site levies bylaw, and maintain affordability for services provided through growth-enabling infrastructure ...".

Background:

Committee members may recall that those eight directions emanated from a request by BILD at the January 16th, 2024, Council meeting to extend the deadline to finalize the Off-Site Levy Bylaw. Notwithstanding the fact that the empirical data and details for water-related infrastructure was not provided to industry stakeholders until December 4, 2023, the vote failed 7-8 at Council. In the alternate, the noted eight Council directions were passed. BILD believes some of those directions are clearly intended to ensure timely follow-up actions in support of reviewing key inputs, specifically maximum daily water demand (MDD), its corresponding impact on benefit allocation and determination of benefitting area, to ensure Off-site Levies and corresponding barriers to new housing supply are set at a fair and reasonable level. This is also consistent with Council directions passed at the September 16, 2023, special Saturday Council Meeting on Housing Affordability.

Meetings with Administration:

In the lead-up to the subject Committee meeting, BILD met with Administration, as late as Friday, June 7, 2024, to share our perspectives on their response to Council's directions. We are pleased to report that we believe our discussions have confirmed that BILD and Administration are aligned in terms of an overall goal of:

- "Keep[ing] water services affordable by **maximizing service from existing infrastructure and reducing the volume of water to treat and distribute, thereby reducing operating costs and delaying capital investments,**
- Ensur[ing] water is available for Calgary's growing population by reducing the per-customer amount of water withdrawn from our rivers,
- Mak[ing] Calgary more resilient to drought by using water wisely and fostering a 'culture of sustainability' among Calgarians to ensure we have enough to meet our future water needs and protect our rivers."¹

¹ January 30, 2024, City of Calgary internal memo to Mayor and Members of Council from Sarah Huber, M.Eng., P.Eng. Manager, Utilities Project Development, Capital Priorities & Investment, et al., re: Accelerated Water Loss Program.

BILD's Feedback on Administration's Proposal:

We note Direction c, "Request data from the development industry that shows empirical evidence of which water saving measures are being leveraged in new community development and home construction, to inform the work on maximum water demand," has been completed. BILD's comprehensive May 9th, 2024, response to The City of Calgary's Ms. Jennifer Black, is included in Attachment 3 to Item 7.3.

In its response to Ms. Black's request, BILD summarized:

Addressing the challenges of water demand and water conservation is crucial in ensuring affordable, vibrant, and prosperous residential communities in Calgary. Calgary must be competitive and affordable to attract and maintain investors, increase jobs, increase tourism, and maintain or increase standards of living for Calgarians.

*The water-saving measures implemented by the building and land development industry, as illustrated above, demonstrate a concerted effort to reduce water demand. **Backed by EWSI's Discussion Paper and bolstered by empirical evidence from the City of Calgary's residential metering data², these industry measures significantly contribute to lowering maximum water demand in new community development.** This proactive approach fosters long-term sustainability and resilience in water resource management and design, ensuring a more efficient and responsible utilization of our vital water resources.*

*To aid in informing the work on maximum daily demand and right sizing the water infrastructure design parameters for new community developments, **we believe it would be beneficial for us to jointly propose to Council engaging an industry expert to undertake a comprehensive third-party empirical analysis using the current measurement data similar to the EWSI Discussion Paper.** This collaboration could ensure that infrastructure design parameters are finely tuned for efficiency and effective deployment of precious capital, showcasing empirical evidence of water-saving measures implemented in new community development and home construction.* Such data would significantly contribute to our efforts in understanding and addressing maximum water demand design metrics.

We are aligned with Administration in terms of an overall goal, and acknowledge and respect the work submitted by Administration in response to directions a, b, f, and g. However, BILD's view is Administration's proposals on those directions are lacking sufficient details and specific assigned accountabilities to ensure follow-through on timely completion and is absent a sense of urgency which matches the housing supply crisis. Commensurate with related calls to action from IPC members were made at the most recent IPC meeting held on May 15, 2024; respecting New Community Growth Applications, it is important to reject comparisons to, adoption or acceptance of "middle-of-the-pack" MDD and other performance metrics in the absence of a timely and urgent arms-length review, as recommended below. Such acceptance doesn't address the real questions respecting the appropriateness of the allocation of city-wide averages into the current MDD used for new growth in Calgary, nor does it reasonably and adequately address the housing supply and affordability crisis in Calgary.

Slide 6 of Calgary's Water Demand: Presentation to BILD, March 6th, 2024³, shows, "The residential metered consumption in 2022 was ~170 Lpcd." Slide 16 shows the residential demand criteria used by EPCOR/EWSI for MDD of 240 Lpcd. This compares to the demand criteria of 585 Lpcd used by Calgary for each new unit of new community growth. While there may be other factors to consider, the city-wide MDD demand criteria the City of Calgary applies to each unit of new residential growth is significantly greater than Edmonton uses. **This difference is due in part to the embedding in the city-wide averages applied to new growth, the higher institutional, commercial and industrial uses as well as the higher water loss rates from aging infrastructure in older**

² Calgary's Water Demand: Presentation to BILD, March 6th, 2024, slide 6, and slide 16.

³ Calgary's Water Demand: Presentation to BILD, March 6th, 2024, slide 6.

communities, into areas and infrastructure where those uses and losses do not or are unlikely to occur at the same rate. The matter of the MDD applicable to new growth requires immediate review and reconciliation to confirm right-sized water-related infrastructure, efficient and effective City expenditures, fair and reasonable benefit allocation, minimization of under-utilization of infrastructure and better-informed assessment of capital requirements for new growth applications.

The Importance of timely Follow-up Actions:

- 1) Restoration of housing affordability in Calgary:
 - a) Overbuilding of infrastructure negatively impacts existing homeowners and increases the risk of higher utility rates.
 - b) Overcharging of renters and buyers of new homes by unnecessarily high development charges erodes affordability.
- 2) Ensuring efficient and effective City expenditures, maximizing the use of, “existing infrastructure and reducing the volume of water to treat and distribute, thereby reducing operating costs and delaying capital investments,” best minimizes and mitigates risks and costs of operating and maintenance issues arising from under-utilized infrastructure due to slower pace of growth [than forecast].
- 3) Unduly restricting the benefitting area by using an MDD much higher than adjacent, comparable jurisdictions unduly restricts approval of new community growth areas and housing supply.

BILD’s Recommendations:

- 1) **Engage an arms length third-party engineering resource** acceptable to industry stakeholders and The City to **promptly complete (i.e., by Q4, 2024) a review of new community water infrastructure design metrics utilizing existing Calgary data, and comparable data from proximate jurisdictions** (e.g., Harmony, Cochrane, Edmonton) for new growth areas. Similar work was completed by EPCOR as part of the 2021 EWSI Discussion Paper⁴.
BILD believes the cost of this work could be funded from the Planning and Development Reserve.
- 2) **Apply a reasonable water loss factor to the MDD** for new growth communities as determined by the third-party engineering resource. **BILD recommends a water loss factor of 10%, consistent with the 2014 AUMA Resolution⁵.**
- 3) **Implement, as indicated by the third-party review, the MDD for new community growth design parameters, rework the benefit allocation and adjust the benefitting area for water-related infrastructure, and update the off-site levy financial models and the off-site levy bylaw by January 1, 2025.**
- 4) **Implement the District Meter Areas Strategy/AMI to measure and validate the parameters for new community MDD** included as part of Administration’s recommendations and the Accelerated Water Loss Strategy; **update, as indicated, the offsite levy bylaw for January 1, 2026, and beyond.** Continue to validate and update, as appropriate, the MDD assumption/design determinates for new communities/new growth, including any findings concerning water loss. Update the off-site levy accordingly.
- 5) **Execute the City of Calgary Accelerated Water Loss Strategy.**

⁴ EPCOR Water Services Inc. One Water Planning, Edmonton’s Changing Water Use, Water Use Trends and Design Guidelines Discussion Paper, June 2021.

⁵ 2014 Urban Municipal Water Conservation, Efficiency and Productivity Plan – Targets and Actions for the Urban Municipal Sector, July 2014.

Final thoughts:

In terms of directions d, and e, based on discussions at the Off-site Levy Governance Committee, BILD accepts the plans and timelines proposed by Administration. BILD notes that Administration has determined reporting and acceptance of the Off-site Levies Annual Report by Committee and Council is to be discontinued. We believe that reporting and acceptance of the Off-site Annual Report by Committee and Council should be continued, particularly in light of the follow up actions in item e.

Regarding item h, BILD understands further discussion on this item will occur at the June 20, 2024, Intergovernmental Affairs Committee meeting. BILD reserves judgement on that item pending the disposition/acceptance of BILD's other recommendations herein. In any case BILD strongly believes any discussion of alternative funding is premature and should not advance until matters with respect to MDD, benefit allocation and benefitting area have been appropriately and fairly resolved.

The City Charter changes which took effect recently, essentially return applicable off-site levy legislation and regulations to their balanced state prior to the implementation of the City Charter Regulations. The biggest change impacts appeal rights, now to an administrative tribunal rather than the courts. In BILD's view, such change should be embraced by both industry and The City as a lower-cost process, with referral to a tribunal with expertise in these matters. In the rare event of a dispute and appeal to the administrative tribunal, this should result in timelier decision making and greater certainty for all.

Lastly, as much as Administration puts forth the view it developed an off-site levy which is reasonable and fair, BILD is only partially able to agree with and support that viewpoint. BILD disagrees that the levy inputs, benefit allocation and determination of benefitting areas for water-related infrastructure are sound and based on the best information. Council's passing of the directions with respect to the right-sizing of infrastructure can only be taken as Council needing further reassurance and validation that the data points used are the most reasonable and appropriately support efficient and cost-effective addition to housing supply and home construction.

Thus, BILD is only able to partially support Administration's recommendation, "That Infrastructure and Planning Committee recommend that Council receive this report for the Corporate Record."

Committee and Council direct Administration to adopt and implement BILD's recommendations, noted above, and report back to IPC with an updated, fully detailed work plan by no later than the September 2024 IPC meeting.

Should you have any questions, please contact the undersigned.

Yours truly,



Brian R. Hahn
Chief Executive Officer

Cc: David Duckworth, Chief Administrative Officer, City of Calgary
Stuart Dalglish, Chief Operating Officer, City of Calgary
Debra Hamilton, Acting General Manager, Planning and Development Services, City of Calgary
BILD Calgary Region Board
BILD Calgary Region OSL Steering Committee