

Planning and Development Services Briefing to

Infrastructure and Planning Committee

2026 March 11

ISC: UNRESTRICTED

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Utility Infrastructure Capacity Update

PURPOSE OF BRIEFING

This briefing addresses the direction in Notice of Motion - Repeal of Blanket Rezoning (Land Use Bylaw 1P2007 Amendments Implementing City-Wide Residential Rezoning), EC2025-0995, as amended, that Administration report back with an infrastructure capacity assessment by Q1 2026. This briefing explains how The City tracks water and wastewater capacity needs at site-specific, community and citywide levels. Calgarians are concerned about whether the city's infrastructure can handle growth. Administration evaluates utility capacity for both new and redeveloping areas. Monitoring helps identify capacity constraints and guide capital upgrades.

SUPPORTING INFORMATION

How Capacity Is Assessed

The City's water and wastewater network is comprised of smaller scale, local pipes that are connected to larger water distribution feeder mains or wastewater collection trunks which are ultimately connected to water and wastewater treatment plants.

- Site Specific: Ongoing review of site-specific development applications ensures no development application proceeds without adequate utility infrastructure capacity.
- Community: Mid-Range Local Area and New Community Plans detail population forecasts and growth patterns, guiding water and wastewater studies to pinpoint where cumulative development may strain current systems and indicate where future utility investments are needed.
- Citywide: Long-range plans (Water Long Range Plan and Sanitary District Studies) and calibrated water and wastewater models translate population and land use forecasts into capital system improvements needed to support continued growth and system reliability.

Planning Inputs and Forecasting

Population forecasts are updated regularly using economic data. Information from land use plans and local area plans shows where this growth is likely to happen across the city. The Water Long Range Plan and Sanitary District Modelling look at different possible futures, including changes in population, climate, and how people use services. These plans are updated often so that infrastructure investments reflect current trends and expected growth. Local area planning also highlights specific places, such as corridors and activity centers, where growth is most likely to be concentrated.

Capacity Assessments

Each level of capacity assessment informs the other: site-specific approvals provide real data that improve future forecasts, local area planning guides where investment may better support

the market and align with infrastructure strategies, and citywide planning identifies when major investments are required to meet overall population growth within the city and broader region.

Site Specific

At the site or street level, water pipe size and capacity are driven by fire protection needs, not population. Fire protection requirements depend on how close buildings are to each other, the type of construction materials used, and the size of the buildings. For wastewater infrastructure, higher population density (ex. larger scale condo or multifamily developments) can require additional capacity.

The City monitors the combined effect of growth when reviewing service needs for individual development applications. As noted in the Infrastructure Readiness for Residential Grade Oriented Infill (R-CG) report (IP2025-1000), previously presented to Council, only one water upgrade was triggered by R-CG development in the last year. The report also identifies city funded initiatives that support site level developments with cost sharing support as shown in Attachment 5, Table 2. The Established Area Linear Levy Pilot will fund 11 local water and wastewater pipe upgrades, usually the responsibility of developers, using Housing Accelerator Funds (77 per cent) and utility rates (23 per cent) supporting 2,175 units at ~\$2,855 per unit. The average cost per meter of ~\$2,800/m was covered by a HAF investment of \$2,100/m. If there were no HAF funding available, the developer would be responsible for these costs.

New Community Area Structure Plans

For new community Area Structure Plans, forecasted population projections are used to determine required pipe extensions to connect the existing water network or wastewater system to new communities as well as other major regional infrastructure required to service the overall area. As new Growth Applications are submitted indicating market interest, timing for water and wastewater pipes is refined to match developer timing.

Established Community Local Area Plans

For Local Area Plans in established areas, forecasted growth patterns are used to assess cumulative redevelopment impacts on existing water and wastewater systems. System models identify required future upgrades, with locations and timing aligned to development. By the end of 2026, The City will have completed 19 local water upgrades and seven wastewater upgrades within Local Area Plan areas since the program began in 2015 totaling \$24 million in investment. Upgrades under the water and wastewater redevelopment programs will help enable future redevelopment of the higher density areas identified in the LAP at the nodes and corridors.

Citywide Water Distribution Network

The Water Long Range Plan (WLRP), updated every five to ten years, identifies major water system improvements needed for resiliency, redundancy, and growth. The 2021 WLRP identified multiple citywide projects including the North Calgary Water Servicing (NCWS) and South Calgary Water Servicing (SCWS), to support growth and increase system redundancy and noted that potential North Sector capacity constraints could begin in 2029 without NCWS. A 2022 assessment using short-term growth forecasts confirmed these constraints, leading to limits on new community growth until NCWS capacity is expanded in stages. This proactive approach protects service levels for existing residents while allowing development to proceed in previously approved areas.

Phase 1 (Stages 1 and 2) is expected to be in service by 2029. Ultimately, the completed NCWS and additional pumping from the new Water Treatment Plant will provide sufficient water distribution capacity for the next 25 years of forecasted growth for the north sector.

A high level assessment was completed for the south sector in 2024 and concluded the SCWS is needed to be completed and operational by 2031 to support forecasted growth. A more detailed analysis is underway utilizing short term forecasts and considering opportunities to speed up or phase SCWS and other improvements.

While the NCWS and SCWS projects are under construction, the existing water distribution network is constrained during extended outages of the Bearspaw South Feedermain (BPSF). Work to accelerate the replacement pipe and upcoming planned repairs for the BPSF will help mitigate this risk over the next 12 months. This constraint also underscores the need to accelerate and phase NCWS and SCWS where possible.

Citywide Wastewater Collection Network

Sanitary District Studies are updated every five to ten years and, together with wastewater flow monitoring, population projections, and land-use assumptions, help manage sewer capacity risks and plan for future upgrades. A modern wastewater model can now analyze everything from major trunks to local pipes, leading to more accurate capacity evaluations. Around 30 wastewater trunks are nearing or have surpassed their design limits, and upgrade schedules are assessed each year based on growth trends and their impact on the system. On average \$29 million has been invested in upgrades annually which corresponds to approximately four trunk upgrades being completed.

A notable wastewater collection trunk upgrade is the Inglewood 15 Street S.E. Sanitary Trunk, which serves the northern region of the city. This recently completed project was designed to accommodate projected growth and provide adequate capacity through 2076.

Citywide Treatment Plants

The City regularly monitors water and wastewater treatment plant capacity and is moving ahead with expansions to keep systems reliable during recent periods of high growth. Capacity assessments completed in 2024 show that water demand is expected to exceed planned treatment capacity around 2035, and wastewater capacity around 2029.

To respond to this accelerated growth, The City is speeding up the design of treatment plant expansions and improvements. The City will continue to invest in timely upgrades to existing treatment plants to support future population growth. However, faster-than-expected growth means long-term plans may need to be updated and expansions or new facilities built sooner than originally planned.

In addition, the City is advancing water demand management measures to reduce overall water use and wastewater generation, helping extend the capacity of both existing and future treatment plants as much as possible.

Timing and Proactive Planning

Ongoing monitoring of growth and changing usage patterns is critical to ensuring infrastructure capacity meets required service levels. Planning across all three levels allows The City to remain proactive and flexible in supporting growth.

The City coordinates pipe replacements with growth planning when possible. Before replacing an aging pipe, staff assess if upsizing will support future growth but avoid doing so prematurely

to prevent inefficient spending and operational issues like poor water quality or odor in underused pipes. When upsizing for growth, new pipes also resolve existing asset concerns. Each opportunity is evaluated using asset management plans and growth forecasts to balance risks and benefits, enabling targeted infrastructure renewal that supports expansion.

As the city continues to grow and change, infrastructure upgrades will be needed, which is a normal condition for any growing city or region. This does not mean the system was undersized, but that it is expanding to serve a growing population. The goal is to ensure the system is designed and operated efficiently, with upgrades identified early and delivered in time to meet growth-related service needs. The City's monitoring and multi-layered approach to growth infrastructure planning has been working as intended, even during recent years of sustained high growth.

Future Capacity Assessment Updates

Administration will deliver future updates on infrastructure capacity assessments (not limited to water and wastewater) to Council through the annual Citywide Growth Strategy Update briefing in Q4 annually. Capital maps that indicate proposed timing of infrastructure construction for the next ten years will be provided at that time.

Author: Maggie Choi and Marie Standing – City and Regional Planning

General Manager Debra Hamilton concurs with the information in this Briefing.