Inspection of the Management, Administration and Operations of the City of Calgary Relating to the Bearspaw South Feeder Main

Final Report of David Goldie

Independent Inspector appointed under section 571 of the *Municipal Government Act*

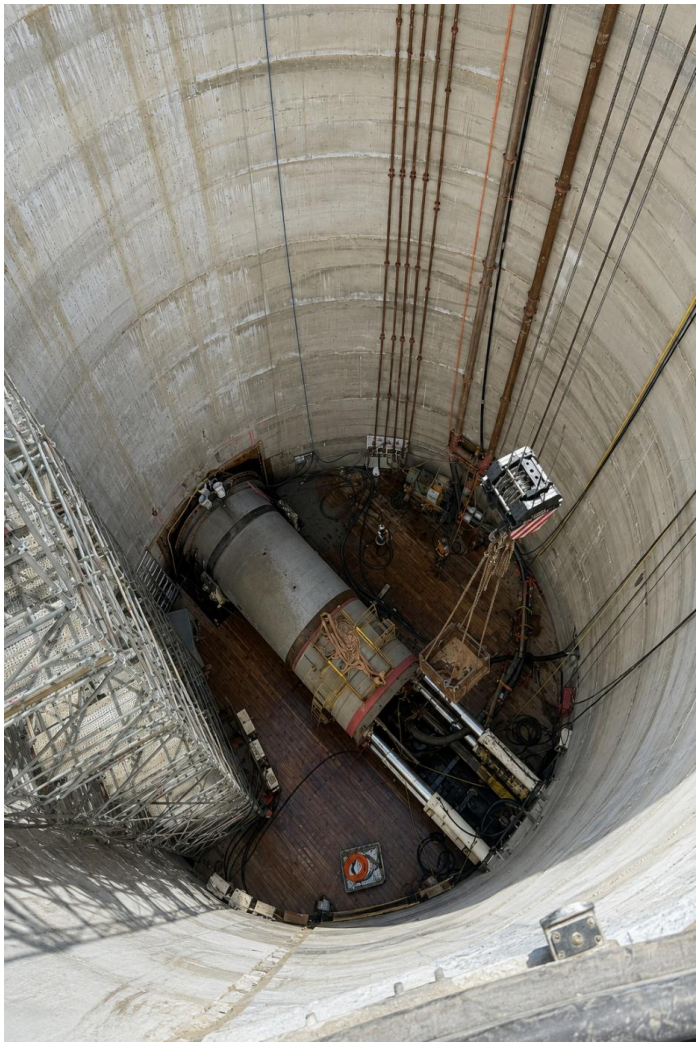
Ministerial Order MSD:016/26

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Bearspaw South Feeder Main replacement work, Calgary, July 2026. Photograph by David Goldie.

1 Executive Summary

The City of Calgary's (the "City's") Water Utility is a large, complex, rate-supported public service responsible for potable water, wastewater and stormwater assets with an estimated replacement value of approximately $89.6 billion. Its infrastructure is essential to public health, fire protection, economic activity, regional services and environmental protection. The Bearspaw South Feeder Main (BPSFM) is a critical component of this system, carrying treated water from the Bearspaw Water Treatment Plant into Calgary's water distribution network.

The critical BPSFM failures in 2024 and 2025 were not simply failures of a pipe. They exposed weaknesses in the systems through which the City identified critical infrastructure risks, decided what action to take, assigned accountability, funded and delivered the required work, and reported the resulting risks to Council.

On March 12, 2026, the Alberta Minister of Municipal Affairs appointed David Goldie under section 571 of the *Municipal Government Act* (MGA) to inspect the City's management, administration and operations with respect to the BPSFM. The Inspection considered governance, asset management and financial management practices affecting both the BPSFM and the broader Water Utility. It reviewed events from the 2004 McKnight Boulevard feeder main break through June 30, 2026, using financial information available to December 31, 2024, and assessed the City's practices against accepted-practice criteria.

1.1 Summary of investigation findings

The City could not have guaranteed that the BPSFM would never fail. It could, however, reasonably have been expected to manage known or knowable risks in a manner proportionate to the Main's criticality and the consequences of its failure. The Inspection found that prior reviews, risk analyses and asset information identified issues relevant to the BPSFM, but the City did not consistently convert those signals into timely inspections, funded work, explicit risk-acceptance decisions, accountable delivery plans or effective follow-through.

The underlying problem was systemic rather than narrowly technical. Council received information about rates, budgets, service plans, capital programs and risks, but it was not consistently provided with an integrated picture connecting asset condition, service reliability, lifecycle renewal requirements, capital under-delivery and the consequences of deferring work. In 2015–2016, several important recommendations from an external review (completed by Raftelis Financial Consultants Inc. (Raftelis)) of the Utility were withheld from Council, representing both a significant governance failure and a missed opportunity to address structural weaknesses.

The Inspection focused on the factors that led to the 2024 and 2025 BPSFM failures. The Inspection recognizes that the City has begun implementing measures to improve governance and asset management practices. For example, the City created the Water Utility Oversight Board and appointed an Acting Chief Operating Officer for the Water Utility. These are useful initial steps, but the impact of these changes will take time to demonstrate improvements. Therefore, the Inspection did not focus on recent changes other than to assess whether the City is being responsive to recent failures. The effectiveness of the new measures will depend on whether they produce clearer decisions, stronger accountability, more transparent reporting and demonstrable reductions in infrastructure risk. The Inspection's recommendations are intended to embed those disciplines within the Utility's governance, asset-management and financial-management systems.

Findings about the BPSFM, potable-water loss and drinking-water assets apply to the drinking-water service unless otherwise indicated. Findings and recommendations concerning shared Utility governance, financial management, risk processes and cross-service planning apply to all three service lines to the extent those common arrangements govern each.

1.2 Governance findings and recommendations

The governance problem was not that Council received no information or that the Utility lacked capable personnel. Council approved rates and budgets and received substantial reporting, while the Utility employed

experienced technical and professional staff. The weakness was that the governance system did not consistently bring asset condition, service reliability, financial capacity, capital delivery and residual risk together for decision-making. Except for the handling of the Raftelis review addressed in sections 1.5 and 4.4.1, the evidence points primarily to an institutional governance failure rather than the conduct of specific individuals.

The 2022 reorganization increased this challenge by distributing Utility responsibilities across several departments. That structure required stronger mechanisms to integrate operational, engineering, asset, risk, financial and capital-delivery information; assign accountability; and escalate significant decisions to the appropriate executive, oversight body or Council.

- **Recommendation 1: Establish a Council-approved reserved-matters protocol.** Define material Utility decisions that require Water Utility Oversight Board review and Council consideration, including changes to reliability standards, acceptance of significant residual risk, critical-asset deferrals, major capital delays and departures from approved financial-resilience targets.
- **Recommendation 2: Require service-cost-risk decision briefs.** Provide Council with standardized decision briefs that clearly present the service, reliability, financial, regulatory and residual-risk implications of material Utility decisions, together with alternatives, accountability and follow-up requirements.
- **Recommendation 3: Tie high-consequence risk mitigation to executive accountability.** Assign critical-risk mitigation actions to named executives, incorporate them into performance objectives and require recovery plans and escalation where inspections, projects or other mitigation measures fall materially behind schedule.
- **Recommendation 4: Report capital under-delivery by risk consequence.** Explain capital variances according to their causes and disclose the reliability, resilience, regulatory and residual-risk consequences of delays, along with interim controls, revised timelines and accountable executives.
- **Recommendation 5: Provide the Water Utility Oversight Board with independent analytical capacity.** Give the Board access to independent technical, financial, regulatory and asset-management expertise, including the authority and resources to commission studies or audits where risks or uncertainties are material.

1.3 Asset management findings and recommendations

The Utility had asset-management plans, risk processes, technical expertise and capital-planning tools. The finding is not that these elements were absent, but that they did not consistently operate as a single lifecycle-management system capable of converting known or knowable high-consequence risks into inspection, mitigation, funded execution, escalation and explicit acceptance of residual risk.

The BPSFM failure should therefore be treated as a sentinel event. It exposed a broader class of risks associated with critical assets, limited redundancy, incomplete condition information, rising water loss and constraints on the Utility's ability to deliver planned work. This does not mean that every Utility asset is unsafe or poorly managed. It means that high-consequence assets require more disciplined identification, condition assessment, contingency planning, intervention thresholds and follow-through than the City's previous systems consistently provided.

- **Recommendation 6: Establish and maintain a Tier 1 critical asset inventory and risk register.** Identify all Utility assets whose failure could materially affect public health, fire protection, regional service, environmental compliance or system performance, and update the inventory annually and following material events or new information. Maintain a dedicated view of critical infrastructure risks within the Utility risk register that includes failure scenarios, condition confidence, inspection status, redundancy, controls and mitigations, and residual risk.
- **Recommendation 7: Treat and report water loss as a core asset-management, capacity, and resilience key performance indicator (KPI).** Include water loss in asset-management plans, risk

reporting, budgets, rate submissions and performance dashboards as an indicator of asset health, capacity, cost and resilience. Use leak locations, service-line leakage, pressure anomalies and recurring failures to directly inform renewal, replacement, pressure management, cathodic protection and maintenance priorities. Publish an annual water audit and fund the accelerated water loss program as an execution program.

- **Recommendation 8: Enhance asset management planning.** Develop asset-specific integrity plans addressing deterioration mechanisms, inspection requirements, information confidence, redundancy, intervention thresholds, emergency strategies and funded actions for Tier 1 assets. Track each action's owner, due date, funding, delivery status, risk-reduction objective, consequences of delay and links to risk, work-order, capital and reporting systems. Regularly review and update asset management plans (AMPs), and revise them promptly when material condition, risk, service, regulatory, or growth information changes. Consolidate asset characteristics, design information, condition, inspection and work history, failure modes, risk, renewal plans, remaining-life assumptions and data-confidence ratings.
- **Recommendation 9: Establish a risk-control effectiveness and monitoring response standard.** Define the specific risks reduced by monitoring, inspection, repair, replacement, redundancy and other controls, and prevent partial or temporary controls from being treated as complete mitigation. Consider causes identified through root cause analyses of failures and near misses. Require escalation based on the potential consequence of failure, even where probability is low or uncertain. Define who may accept risk at each consequence level and require documentation of the rationale, controls, remaining exposure, review date and oversight requirements.
- **Recommendation 10: Adopt an asset–risk–budget protocol and annual budget reconciliation.** Require material budgets, rate proposals, capital deferrals and operating-resource decisions to identify their service, lifecycle, funding and residual-risk implications and the authority accepting any remaining risk.
- **Recommendation 11: Prepare an annual Integrated Resource Plan delivery plan.** Translate the Integrated Resource Plan, asset-management plans, the risk register and water-loss strategy into funded annual work packages with clear ownership, dependencies, schedules, budgets and risk-reduction milestones. This will require the City to strengthen its capital project execution and delivery-capacity discipline, and link staff resources to asset integrity and capital delivery. Report Utility capital budgets, actual spending, carry-forward, and under-delivery using its capital investment groupings, including Maintenance/Replacement, Service Enhancement, Growth, and Transformative groupings.
- **Recommendation 12: Implement a service–risk–cost dashboard, and publish an annual Utility performance and risk report.** Provide leadership, the Oversight Board and Council with an integrated view of critical risks, overdue actions, inspections, water loss, maintenance backlog, capital delivery, resources, rates, reserves, debt and accepted residual risks. Publicly report service performance, asset condition, water loss, regulatory compliance, finances, capital delivery, residual risks and progress against risk-reduction commitments, subject to legitimate confidentiality and security restrictions.

1.4 Financial management findings and recommendations

The Utility persistently delivered less capital work than Council had approved, and rates had been established to support. Between 2006 and 2024, actual capital expenditures were, on average, approximately 35% below approved capital budgets. Capital investment also compared unfavourably with national infrastructure benchmarks and did not keep pace with inflation and population growth.

The evidence does not establish that spending the full approved budgets would necessarily have prevented the BPSFM failures, or that the approved investment levels were themselves sufficient. It does establish a sustained gap between planned and delivered capital work that increased long-term asset and service risk and likely contributed to infrastructure deterioration.

The Inspection examined the Utility's rate setting process and the financing of its infrastructure investment. The intent of this line of examination was to determine if rates or financing unduly constrained investment in capital

infrastructure. In the process of completing the examination, the Inspection noted significant departures from generally accepted utility practices.

- **Recommendation 13: Evaluate current levels of investment in capital maintenance.** Demonstrate that capital-maintenance investment is sufficient to sustain approved service and reliability standards and reduce the likelihood of critical failures, based on lifecycle plans, asset condition and risk.
- **Recommendation 14: Adopt a utility model for rate setting.** The City should align its rate setting and financial management practices with industry practice and consider adopting a utility model.

1.5 Response to Raftelis report and post-incident reforms demonstrate irregularity in governance

In 2015–2016, the City commissioned Raftelis to complete an independent review that identified structural weaknesses in the Water Utility and listed clearer financial accountability and independent expert governance as priorities one and two. Yet five of Raftelis' nine priority recommendations—including those two, standalone audited financial statements, reform of the return-on-equity transfer and comprehensive long-term projections—were consciously excluded from the material presented to Council. Senior Administration, led by City Manager Jeffrey Fielding, debated the recommendations, while Mayor Naheed Nenshi and his Chief of Staff were included in an advance briefing stream and were sent the draft-final report; there is no evidence it was provided to other councillors. Although the evidence does not establish that the Mayor directed or knowingly approved the omissions, the Mayor's Office was part of a pre-Council briefing and consultation process in which it was informed while Council collectively was not. The handling of the review was irregular, improper and improvident: Administration was entitled to disagree with Raftelis, but not to prevent Council from considering major governance choices. A decade later, the Independent Review Panel and this Inspection independently identified many of the same institutional safeguards, underscoring the continuing significance of the governance and financial-accountability issues Raftelis had identified.

- **Recommendation 15:** Adopt a formal disposition process for independent recommendations. Council should adopt a corporate policy identifying which independent reviews, audits and technical reports across City functions require formal reporting because they raise material public safety or service risks, substantial financial or capital implications, or significant questions about governance or Council-approved policy. For each review meeting those criteria, the Chief Administrative Officer (CAO) should provide the responsible Council committee with its material findings and a written response to each material recommendation, stating whether it is accepted, rejected or deferred, with reasons, an accountable executive, a timetable and any residual risk. The full review should be available to councillors, subject to lawful confidentiality and privilege. A central registry should track these recommendations, implementation and evidence of closure, with periodic reporting to Council. Council should decide matters within its authority, while the CAO remains responsible for operational implementation. The Water Utility Oversight Board should be consulted on how the policy applies to Utility reviews within its mandate.

Post-failure reforms should be considered carefully. The reforms now being advanced or recommended are critical utility controls.

- **Recommendation 16: Establish a reform implementation assurance framework.** Manage post-failure reforms through an integrated framework that assigns ownership, milestones, budgets, expected risk reduction, reporting requirements and independent verification.
- **Recommendation 17: Define evidence-based closure criteria for reforms.** Consider a reform complete only when there is evidence that the resulting control is operating effectively and is integrated into planning, budgeting, risk escalation, delivery and oversight processes.

- **Recommendation 18: Conduct periodic asset-management and IRP practice audits.** Regularly assess whether asset-management plans are current, information is reliable, risks and deferrals are properly escalated, lifecycle work is delivered and residual risks are accepted at the appropriate level.
- **Recommendation 19: Report reform progress based on risk reduction.** Measure implementation by whether residual risk has decreased, remained unchanged or increased, rather than by completion of activities such as drafting policies, establishing committees or developing dashboards.

1.6 Considerations for the City

The BPSFM failures created an urgent need to repair and stabilize a specific asset, but the larger lesson is that the Utility requires governance arrangements designed for its scale, complexity, risk and public-service responsibilities. The Independent Review Panel recommended placing the Utility in an arm's-length municipally controlled corporation (MCC). This Inspection strongly supports that recommendation on its merits. An MCC governed by an independent, skills-based fiduciary board and led by a single accountable chief executive would provide sustained expert oversight, integrated long-term asset and financial planning, clearer accountability for service and risk, and standalone financial and performance reporting.

An MCC could be established as a standalone Water Utility corporation or through integration with ENMAX. On the evidence presently available, the Inspector regards ENMAX integration as the preferred long-term end state if an independent assessment establishes that it can deliver strong water-specific governance, safe and reliable service, and value for ratepayers at acceptable cost, risk and time. ENMAX's established utility platform and corporate capabilities could reduce duplication and support a more direct path to mature governance. Its capacity to assume the Utility, the scale of any efficiencies, and the necessary water-specific safeguards remain to be demonstrated. An ENMAX structure would also require review and, if pursued, renegotiation of the existing shareholder agreement to define Council's rights, water-specific accountability and financial protections.

- **Recommendation 20: Establish arm's-length Utility governance and decide the corporate end state on a defined timetable.** The City should proceed toward an arm's-length MCC with an independent, skills-based fiduciary board, an accountable chief executive, standalone audited financial statements and public performance reporting. Council should incorporate this recommendation into its existing third-party MCC options review. The consultant should assess a fully developed standalone Water Utility MCC and a defined ENMAX integration option against common criteria, with advice from the Water Utility Oversight Board. The consultant's independent findings should be submitted through Executive Committee directly to Council by the fourth quarter of 2027, with the Oversight Board receiving them at the same time. The Minister of Municipal Affairs should be invited to designate a liaison for process oversight and advice on provincial matters, without directing the findings or making Council's choice. Council should identify its proposed end state by June 2028 and target a final corporate decision by the end of 2028, following the required public and statutory processes. ENMAX is the Inspector's conditional preferred long-term option, but the consultant should apply the same criteria and evidentiary standard to both options. Council should give reasons for its choice based on the comparative evidence and the consultant's findings, including how it weighed the material advantages and disadvantages of each feasible option. An ENMAX transfer would require satisfactory shareholder-agreement amendments and resolution of the legal, financial, regulatory, operational, workforce and infrastructure-readiness conditions identified in Section 6.

1.7 Considerations for the Province

The Inspection also identifies gaps extending beyond Calgary. The Province may wish to consider whether Alberta's legislative framework provides sufficient oversight of critical municipal infrastructure and large municipal utilities. The principal issues include the absence of defined service and reliability expectations for critical municipal infrastructure, limited requirements for transparent and participatory utility rate-setting, and insufficient guidance concerning the financial and regulatory information that municipal councils should provide to ratepayers.

1.8 Priority and sequencing of recommendations

The recommendations contained in this report comprise an integrated management system. Implementation of the recommendations should be measured by whether the City can show that residual risk is being reduced, unfunded risks are visible, capital delivery is aligned with risk, operating capacity supports asset integrity, and Council, Water Utility Oversight Board (WUOB), and Utility leadership receive the information needed to make informed decisions.

The timing and sequencing of recommendations should be based, in part, on their anticipated impacts, dependencies and urgency. The Inspection recommends that the City sequence the implementation of Recommendations 1–19 over 24 months. Some recommendations can begin immediately, while others will require output from asset inventories, risk registers, data systems, governance structures, budget decisions, or other sources before they can be fully implemented.

The City should immediately advance Recommendation 20 as a separate MCC initiative, using the independent options work Council has already directed. The consultant should compare a standalone Water Utility MCC with a defined ENMAX integration option and report through Executive Committee to Council by the fourth quarter of 2027. Council should identify a proposed end state by June 2028 and target a final corporate decision by the end of 2028, following the required public and statutory processes. This initiative should proceed in parallel with Recommendations 1–19, whose implementation should not await the corporate decision or any subsequent transfer.

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2 Introduction

On March 12, 2026, the Minister of Municipal Affairs in the province of Alberta appointed David Goldie to conduct an inspection of the management, administration and operations of the City of Calgary (the City or Calgary) with respect to the BPSFM. (1) The Inspection was ordered by the Minister of Municipal Affairs under section 571 of the MGA and was in response to critical failures on the BPSFM in 2024 and 2025. A copy of the Ministerial Order is provided in Appendix A: Ministerial Order.

2.1 Inspection objectives

The Ministerial Order defines three primary objectives for the Inspection. These objectives and their components are listed in Table 1 along with the sections of the report that address each.

TABLE 1: MINISTERIAL ORDER AND RELATED REPORT SECTIONS

Objectives of Ministerial Order	Report section
1) Conduct an inspection of the management, administration, and operations of the City with respect to the BPSFM.	4. Key Findings and Recommendations 5. Assessment by Criteria
2) During the course of the inspection, review: a) city records and documents, and the findings from previous reports published from 2004 onwards by independent review panels on the Bearspaw South Feeder Main (BPSFM), and any other evidence the inspector deems appropriate to: i) assess whether the findings and recommendations of any previous reports that addressed underlying causes of BPSFM failures were acted upon; ii) evaluate the effectiveness of the implementation of the recommendations; iii) review current and historical information flow between operational staff, senior administration, external contractors, municipal council, and any other relevant parties; iv) review decision making timelines, including when issues were identified, escalated, acted upon, or deferred; v) review risk assessment and reporting processes, including how risks were communicated and monitored; vi) review internal controls, policies and oversight mechanisms, and whether they were adequate to identify or prevent the failures; vii) review accountability structures, including clarity of authority, delegation, and supervisory responsibility; b) the division of roles, duties, and responsibilities of city staff and council governance, management, and oversight of BPSFM following the 2004, McKnight Boulevard feeder main break and subsequent risk analysis; i) review decisions by City of Calgary council, council committees, and administration; ii) review coordination and communication between city administration and engineering contractors; c) identify systemic or isolated obstacles to corrective actions of the management of the BPSFM, if any; and d) develop recommendations for future governance and/or administrative improvements for the City of Calgary, including information-handling practices, escalation protocols, and oversight frameworks.	5. Assessment by Criteria. See 2.3.1 Inspection evaluation criteria for a mapping of evaluation criteria to the specific components of Objective 2.
3) As part of the inspection, the inspector shall also inspect any other matters or issues that he determines to be necessary to prepare the report.	6. Considerations for the City 7. Considerations for the Province

2.2 Inspection scope

The scope of this Inspection included:

- Conducting 50 interviews with current and former City employees and elected officials, as well as interviews with industry subject matter experts and members of the City's Independent Review Panel that reviewed the BPSFM circumstances. See Appendix B: Interviewees for a list of interviewees.
- Collection, collation and review of 58,260 documents provided by the City and related sources.
- Assessment of findings against evaluation criteria.
- Preparation of the Inspection report, including the development of recommendations for the Minister's consideration.

Alberta's MGA Section 574(1) states that if "the Minister considers that a municipality is managed in an irregular, improper or improvident manner, the Minister may by order direct the council [or] the chief administrative officer... to take any action that the Minister considers proper in the circumstances.". (2) Findings in this report have been identified as being irregular, improper or improvident. Definitions for these terms were provided by the Ministry of Municipal Affairs during its initial briefing with the Inspector and are identified in Table 2 below. Descriptions in this report using the terms "irregular, improper and improvident" are the Inspector's evaluative findings, and should not be interpreted as a statutory determination or order by the Minister under MGA section 574.

TABLE 2: DEFINITIONS FOR IRREGULAR, IMPROPER AND IMPROVIDENT (3)

Term	Definition
Irregular	Not according to established principles, procedures, or law; not normal; not following the usual rules about what should be done.
Improper	Deviating from fact, truth, or established usage; unsuitable; not appropriate; not conforming to accepted standards of conduct.
Improvident	Lacking foresight; taking no thought of future needs; spendthrift; not providing for or saving for the future; not wise or sensible regarding money.

The principal review period for the Inspection extends from the 2004 McKnight Boulevard feeder main failure to June 30, 2026. Historical financial analysis was based primarily on completed year-end financial information through December 31, 2024. This cut-off was established at the outset of the Inspection to provide a complete and consistent basis for the long-term financial analysis at a time when 2025 year-end information may not have yet been sufficiently finalized for that purpose. Information received subsequently, including 2025 actual results and 2026 interim information, was considered where material and is identified separately where used.

The Inspection also considered material developments occurring after June 30, 2026 where they were relevant to the current state of the Utility or to recommendations. Such developments are treated as subsequent events and are not retrospectively incorporated into assessments of historical practices unless specifically stated. Current-state information received through September 28, 2026 is reflected where relevant in this report.

The Inspection necessarily examines historical management, administration and decision-making in order to understand the circumstances that contributed to the Bearspaw South Feeder Main failures and the broader governance and performance issues identified in this report. The City has undertaken significant corrective actions since the failures and following the Independent Panel's report. Those actions are relevant to the current state of the Utility and to the Minister's consideration of what further actions, if any, may be appropriate. They do not, however, alter findings concerning historical decisions, governance arrangements or practices during the period examined.

The City was provided with the full draft report and given an opportunity to identify factual inaccuracies, provide additional or clarifying information, and state any concerns regarding the report. Key individuals identified in the report were separately provided with relevant excerpts and an opportunity to comment on matters relating to them. The information and responses received through these processes were considered by the Inspector.

2.3 Methodology

The Inspection was conducted between March and October 2026 and was organized in five phases as shown in Figure 1.

FIGURE 1: INSPECTION PHASES



1. **Initiate:** The objective of this phase was to confirm scope, objectives, and approach for the engagement.
2. **Prepare:** The objective of this phase was to organize and analyze the information required to support the review.
3. **Inspect**: The objective of this phase was to conduct a detailed review of available evidence against the established evaluation criteria.
4. **Consider**: The objective of this phase was to assess the findings and evidence gathered during the review against the established evaluation criteria.
5. **Report**: The objective of this phase was to consolidate the results of the review into writing and supporting presentation materials.

The Inspection relied on both document review (including emails) and interviews. Documents were reviewed to identify relevant events, decisions, approvals, risks, asset management records, financial and capital planning materials, governance documents, policies, and prior recommendations. Interviews were used to understand how processes operated in practice, including how information flowed, how roles and accountabilities were understood, how issues were escalated, and how decisions were made. Additionally, the inspector utilized contracted subject matter advisors with expertise in water and wastewater engineering, asset management and utility governance.

The Inspection used an evaluation framework to identify deviations from accepted practice that are relevant to the Ministerial Order. Evaluation criteria were organized across three primary domains: Governance, Asset Management and Financial management. The criteria were developed for the Inspection as a means to assess the City's practices related to the items identified in the Ministerial Order. The criteria are based on the scope of the Ministerial Order and informed by accepted industry practice as identified by the Inspector and the subject matter advisors, and as reflected in asset management standards such as ISO 55000 and the Federation of Canadian Municipalities Guidelines, and utility rate setting practices as defined by the American Water Works Association.

This approach enabled the Inspection to assess not only what occurred in relation to the BPSFM, but also to determine whether the broader practices of the City's Water Utility (Utility) were designed and operating effectively to identify, escalate, fund, and address critical infrastructure risk.

2.3.1 Inspection evaluation criteria

The evaluation criteria and their linkage to the Ministerial Order are provided in the following tables. The criteria pertain to governance, asset management and financial management. The tables show how each criterion links to one or more of the requirements under the Ministerial Order.

TABLE 3: GOVERNANCE CRITERIA

Dimension	Criteria	Link to Ministerial Order
Direction Setting	**1.** Service levels and acceptable risk are clearly defined and approved by Council or a committee of Council charged with regulating the Utility (collectively referred to as Council throughout the balance of this framework)	• MO 2(a)(v) - risk assessment and reporting processes, including communication and monitoring • MO 2(a)(iv) - escalation/action/deferral timelines • MO 2(d) - oversight frameworks

Dimension	Criteria	Link to Ministerial Order
Direction Setting	**2.** New Councils are briefed about the service levels and acceptable risks.	• MO 2(a)(iii) - information flow to Council • MO 2(b) - Council governance/oversight roles • MO 2(d) - future oversight frameworks
Direction Setting	**3.** A risk assessment, consistent with industry practice, is maintained that assesses the potential impact and probability of failures.	• MO 2(a)(v) - risk assessment and reporting processes, including communication and monitoring • MO 2(a)(iv) - escalation/action/deferral timelines • MO 2(d) - oversight frameworks
Direction Setting	**4.** The risk assessment is amended to reflect new information (e.g., results from condition assessments).	• MO 2(a)(v) - risk assessment and reporting processes, including communication and monitoring • MO 2(a)(iv) - escalation/action/deferral timelines • MO 2(d) - oversight frameworks
Direction Setting	**5.** Risk assessment is compared against acceptable risk. Variances are reported to Council and are used to inform capital maintenance planning.	• MO 2(a)(v) - risk assessment and reporting processes, including communication and monitoring • MO 2(a)(iv) - escalation/action/deferral timelines • MO 2(d) - oversight frameworks
Resourcing	**1.** Council is presented with sufficient information to inform rate setting and approval of capital expenditures. At a minimum, information provided includes risks and service levels, operating costs, required revenue and its allocations, prioritized capital costs, and capital financing.	• MO 2(b)(i) - decisions by Council, committees and administration • MO 2(a)(iv) - decision-making timelines • MO 2(a)(v) - risks communicated/monitored • MO 2(a)(vi) - internal controls and oversight
Resourcing	**2.** Council decisions are reflective of its role as rate regulator and consider the reliability of services, the necessity of planned capital expenditures (prudence), the reasonableness of required revenue and rates, the appropriate use of debt, and the fair return on rate base.	• MO 2(b)(i) - decisions by Council, committees and administration • MO 2(a)(iv) - decision-making timelines • MO 2(a)(v) - risks communicated/monitored • MO 2(a)(vi) - internal controls and oversight
Resourcing	**3.** Regulator decisions pertain to the Utility in isolation and are not influenced by broader City priorities or financial constraints.	• MO 2(b)(i) - decisions by Council, committees and administration • MO 2(a)(iv) - decision-making timelines • MO 2(a)(v) - risks communicated/monitored • MO 2(a)(vi) - internal controls and oversight
Oversight	**1.** Council receives performance reports at least quarterly to monitor service levels, risk, and financial performance.	• MO 2(a)(iii) - information flow to Council • MO 2(a)(v) - risk reporting/monitoring • MO 2(a)(vi) - oversight mechanisms • MO 2(d) - information-handling and oversight frameworks

Dimension	Criteria	Link to Ministerial Order
Oversight	**2.** Council reporting is accurate, transparent and objective.	• MO 2(a)(iii) - information flow to Council • MO 2(a)(v) - risk reporting/monitoring • MO 2(a)(vi) - oversight mechanisms • MO 2(d) - information-handling and oversight frameworks
Oversight	**3.** Leadership receives performance reports at least monthly to monitor asset condition, performance against service levels and acceptable risk, status against lifecycle plan, status of capital maintenance and rehabilitation.	• MO 2(a)(v) - risk assessment and reporting processes, including communication and monitoring • MO 2(a)(iv) - escalation/action/deferral timelines • MO 2(d) - oversight frameworks
Oversight	**4.** Leadership reporting is accurate, transparent and objective.	• MO 2(a)(iii) - information flow to senior administration • MO 2(a)(v) - risk communication/monitoring • MO 2(a)(vi) - oversight mechanisms
Oversight	**5.** Unacceptable performance is identified, and remedial actions are documented and executed.	• MO 2(a)(iv) - issues identified, escalated, acted upon or deferred • MO 2(a)(vi) - controls/oversight to identify or prevent failures • MO 2(c) - obstacles to corrective actions • MO 2(d) - escalation protocols
Accountability	**1.** Roles, responsibilities and accountabilities for and between Council and Administration are clear with respect to the Utility.	• MO 2(a)(vii) - accountability structures, clarity of authority, delegation and supervisory responsibility • MO 2(b) - division of roles, duties and responsibilities • MO 2(b)(ii) - coordination and communication with engineering contractors
Accountability	**2.** Roles, responsibilities and accountabilities for functions within the Utility are clear.	• MO 2(a)(vii) - accountability structures, clarity of authority, delegation and supervisory responsibility • MO 2(b) - division of roles, duties and responsibilities • MO 2(b)(ii) - coordination and communication with engineering contractors
Accountability	**3.** There are individuals who are solely accountable for the performance of the Utility overall and its constituent functions.	• MO 2(a)(vii) - accountability structures, clarity of authority, delegation and supervisory responsibility • MO 2(b) - division of roles, duties and responsibilities • MO 2(b)(ii) - coordination and communication with engineering contractors
Accountability	**4.** Delegations of authority are documented and include timelines for revisiting.	• MO 2(a)(vii) - accountability structures, clarity of authority, delegation and supervisory responsibility • MO 2(b) - division of roles, duties and responsibilities • MO 2(b)(ii) - coordination and communication with engineering contractors

Dimension	Criteria	Link to Ministerial Order
Accountability	**5.** There is no evidence to suggest that individuals overstep their roles and responsibilities, including any delegated authorities.	• MO 2(a)(vii) - accountability structures, clarity of authority, delegation and supervisory responsibility • MO 2(b) - division of roles, duties and responsibilities • MO 2(b)(ii) - coordination and communication with engineering contractors
Accountability	**6.** The organization structure promotes communication and collaboration within the Utility. Spans of control and layers are not excessive, the structure does not promote silos, and functions that must work most collaboratively share common oversight.	• MO 2(a)(vii) - accountability structures, clarity of authority, delegation and supervisory responsibility • MO 2(b) - division of roles, duties and responsibilities • MO 2(b)(ii) - coordination and communication with engineering contractors
Accountability	**7.** Failures in accountability are addressed through investigations and performance management.	• MO 2(a)(vii) - accountability structures, clarity of authority, delegation and supervisory responsibility • MO 2(b) - division of roles, duties and responsibilities • MO 2(b)(ii) - coordination and communication with engineering contractors
Responsiveness	**1.** Policies exist to promote reporting of concerns identified by City employees.	• MO 2(a)(iii) - information flow • MO 2(a)(iv) - issues identified, escalated, acted upon or deferred • MO 2(a)(vi) - policies/internal controls/oversight • MO 2(c) - obstacles to corrective action • MO 2(d) - escalation protocols
Responsiveness	**2.** Formal channels exist to support reporting of employee concerns.	• MO 2(a)(iii) - information flow • MO 2(a)(iv) - issues identified, escalated, acted upon or deferred • MO 2(a)(vi) - policies/internal controls/oversight • MO 2(c) - obstacles to corrective action • MO 2(d) - escalation protocols
Responsiveness	**3.** Policies within the Utility and the City require escalation of risks to service levels.	• MO 2(a)(iii) - information flow • MO 2(a)(iv) - issues identified, escalated, acted upon or deferred • MO 2(a)(vi) - policies/internal controls/oversight • MO 2(c) - obstacles to corrective action • MO 2(d) - escalation protocols
Responsiveness	**4.** The Utility has a process to track and escalate known deficiencies or elevated risks to service levels (issues). The process includes escalation to Council.	• MO 2(a)(iv) - issues identified, escalated, acted upon or deferred • MO 2(a)(vi) - controls/oversight to identify or prevent failures • MO 2(c) - obstacles to corrective actions • MO 2(d) - escalation protocols

Dimension	Criteria	Link to Ministerial Order
Responsiveness	**5.** The Utility has a process to prioritize and address issues identified.	• MO 2(a)(iii) - information flow • MO 2(a)(iv) - issues identified, escalated, acted upon or deferred • MO 2(a)(vi) - policies/internal controls/oversight • MO 2(c) - obstacles to corrective action • MO 2(d) - escalation protocols
Responsiveness	**6.** Critical issues are addressed within an appropriate timeframe (i.e., in time to avoid diminished service levels, or as soon as possible to return to target service levels).	• MO 2(a)(iv) - issues identified, escalated, acted upon or deferred • MO 2(a)(vi) - controls/oversight to identify or prevent failures • MO 2(c) - obstacles to corrective actions • MO 2(d) - escalation protocols
Responsiveness Cases	**1.** The City developed an action plan to address recommendations from past reviews and documented rationale for deviations.	• MO 2(a)(i) - previous recommendations acted upon • MO 2(a)(ii) - effectiveness of implementation • MO 2(c) - obstacles to corrective actions • MO 2(d) - future governance/administrative improvements
Responsiveness Cases	**2.** The City established governance and oversight specific to the implementation of the recommendations.	• MO 2(a)(i) - previous recommendations acted upon • MO 2(a)(ii) - effectiveness of implementation • MO 2(c) - obstacles to corrective actions • MO 2(d) - future governance/administrative improvements
Responsiveness Cases	**3.** Actions were or are aligned and sufficient to address the recommendations within a timeframe that reflects their urgency.	• MO 2(a)(i) - previous recommendations acted upon • MO 2(a)(ii) - effectiveness of implementation • MO 2(c) - obstacles to corrective actions • MO 2(d) - future governance/administrative improvements
Responsiveness Cases	**4.** Remedial actions are adequately funded and resourced and do not jeopardize the Utility's ongoing operations and capital maintenance.	• MO 2(a)(iv) - issues identified, escalated, acted upon or deferred • MO 2(a)(vi) - controls/oversight to identify or prevent failures • MO 2(c) - obstacles to corrective actions • MO 2(d) - escalation protocols
Responsiveness Cases	**5.** Progress to complete the actions is monitored. Delays are assessed and addressed.	• MO 2(a)(i) - previous recommendations acted upon • MO 2(a)(ii) - effectiveness of implementation • MO 2(c) - obstacles to corrective actions • MO 2(d) - future governance/administrative improvements

Dimension	Criteria	Link to Ministerial Order
Responsiveness Cases	**6.** Completed actions were sufficient to address the issues that gave rise to the recommendations.	• MO 2(a)(i) - previous recommendations acted upon • MO 2(a)(ii) - effectiveness of implementation • MO 2(c) - obstacles to corrective actions • MO 2(d) - future governance/administrative improvements

TABLE 4: ASSET MANAGEMENT CRITERIA

Dimension	Criteria	Link to Ministerial Order
Asset Planning	**1.** A comprehensive lifecycle plan existed for the BPSFM, and for water and wastewater infrastructure more generally.	• MO 2(a)(vii) - accountability structures, clarity of authority, delegation and supervisory responsibility • MO 2(b) - division of roles, duties and responsibilities • MO 2(b)(ii) - coordination and communication with engineering contractors
Asset Planning	**2.** Risk-based condition assessments were conducted, and results were used to inform capital maintenance planning and to update the lifecycle plan.	• MO 2(a)(v) - risk assessment/reporting processes • MO 2(a)(iv) - new issues identified, escalated, acted upon or deferred • MO 2(c) - obstacles to corrective action
Asset Planning	**3.** The lifecycle plan was communicated and used for capital maintenance planning.	• MO 2(a)(v) - risk assessment and reporting processes • MO 2(a)(iv) - decision-making timelines for identified/deferred issues • MO 2(b) - governance, management and oversight of BPSFM following 2004 break and risk analysis • MO 2(c) - obstacles to corrective action
Portfolio Planning	**1.** A capital maintenance plan exists and is informed by the lifecycle plan and condition assessments.	• MO 2(a)(v) - risk assessment/reporting processes • MO 2(a)(iv) - new issues identified, escalated, acted upon or deferred • MO 2(c) - obstacles to corrective action
Portfolio Planning	**2.** Capital maintenance is prioritized based on risk and service levels.	• MO 2(a)(iv) - when issues were escalated, acted upon or deferred • MO 2(a)(v) - risk communication and monitoring • MO 2(b)(i) - decisions by Council/committees/administration • MO 2(c) - obstacles to corrective action
Portfolio Planning	**3.** High-priority capital maintenance is prioritized over growth capital.	• MO 2(a)(iv) - when issues were escalated, acted upon or deferred • MO 2(a)(v) - risk communication and monitoring • MO 2(b)(i) - decisions by Council/committees/administration • MO 2(c) - obstacles to corrective action

Dimension	Criteria	Link to Ministerial Order
Portfolio Planning	**4.** Investment in capital maintenance is in line with industry averages.	• MO 2(a)(iv) - when issues were escalated, acted upon or deferred • MO 2(a)(v) - risk communication and monitoring • MO 2(b)(i) - decisions by Council/committees/administration • MO 2(c) - obstacles to corrective action
Maintenance	**1.** Construction and rehabilitation projects were undertaken in accordance with the capital plan and budget.	• MO 2(a)(iv) - action/deferral timelines • MO 2(a)(vi) - internal controls and oversight mechanisms to identify/prevent failures • MO 2(b)(ii) - coordination and communication with engineering contractors • MO 2(c) - obstacles to corrective action
Maintenance	**2.** Construction and rehabilitation projects were completed within planned timeframes.	• MO 2(a)(iv) - action/deferral timelines • MO 2(a)(vi) - internal controls and oversight mechanisms to identify/prevent failures • MO 2(b)(ii) - coordination and communication with engineering contractors • MO 2(c) - obstacles to corrective action
Maintenance	**3.** An operating maintenance plan existed for the BPSFM, and for water and wastewater infrastructure more generally.	• MO 2(a)(vii) - accountability structures, clarity of authority, delegation and supervisory responsibility • MO 2(b) - division of roles, duties and responsibilities • MO 2(b)(ii) - coordination and communication with engineering contractors
Maintenance	**4.** Operating maintenance is completed as planned.	• MO 2(a)(iv) - action/deferral timelines • MO 2(a)(vi) - internal controls and oversight mechanisms to identify/prevent failures • MO 2(b)(ii) - coordination and communication with engineering contractors • MO 2(c) - obstacles to corrective action

TABLE 5: FINANCIAL MANAGEMENT CRITERIA

Dimension	Criteria	Link to Ministerial Order
Capital Funding	**1.** A long-term capital plan exists that reflects the capital maintenance plan and identifies sources of funding (reserves/equity and debt).	• MO 2(b)(i) - Council/committee/administration decisions • MO 2(a)(iv) - action/deferral timelines • MO 2(a)(v) - risk communication and monitoring • MO 2(a)(vi) - controls and oversight • MO 2(c) - obstacles to corrective action

Dimension	Criteria	Link to Ministerial Order
Capital Funding	**2.** The long-term capital plan includes contingencies for unplanned maintenance.	• MO 2(b)(i) - Council/committee/administration decisions • MO 2(a)(iv) - action/deferral timelines • MO 2(a)(v) - risk communication and monitoring • MO 2(a)(vi) - controls and oversight • MO 2(c) - obstacles to corrective action
Capital Funding	**3.** The long-term capital plan uses metrics to test the viability of the plan (e.g., debt/revenue and debt servicing ratios; impact on rate).	• MO 2(b)(i) - Council/committee/administration decisions • MO 2(a)(iv) - action/deferral timelines • MO 2(a)(v) - risk communication and monitoring • MO 2(a)(vi) - controls and oversight • MO 2(c) - obstacles to corrective action
Capital Funding	**4.** The Utility is able to access funding required for high-priority maintenance and renewal in the year required, and for medium-priority maintenance and renewal no later than one year after the planned year.	• MO 2(b)(i) - Council/committee/administration decisions • MO 2(a)(iv) - action/deferral timelines • MO 2(a)(v) - risk communication and monitoring • MO 2(a)(vi) - controls and oversight • MO 2(c) - obstacles to corrective action
Capital Funding	**5.** For determining a return on rate base, the Utility is using a capital structure that aligns with industry practice.	• MO 2(a)(vii) - accountability structures, clarity of authority, delegation and supervisory responsibility • MO 2(b) - division of roles, duties and responsibilities • MO 2(b)(ii) - coordination and communication with engineering contractors
Capital Funding	**6.** Cash surpluses due to non-cash expenditures are accumulated in a capital reserve to fund replacement capital.	• MO 2(b)(i) - Council/committee/administration decisions • MO 2(a)(iv) - action/deferral timelines • MO 2(a)(v) - risk communication and monitoring • MO 2(a)(vi) - controls and oversight • MO 2(c) - obstacles to corrective action
Capital Funding	**7.** The Utility has identified a target level of reserve based on the capital plan plus contingencies, and the Utility or City has a mechanism to fund the reserve.	• MO 2(b)(i) - Council/committee/administration decisions • MO 2(a)(iv) - action/deferral timelines • MO 2(a)(v) - risk communication and monitoring • MO 2(a)(vi) - controls and oversight • MO 2(c) - obstacles to corrective action
Capital Funding	**8.** Dividends (if applicable) are only paid to the City where the Utility is a) earning a rate of return, and b) able to finance planned capital investments.	• MO 2(b)(i) - Council/committee/administration decisions • MO 2(a)(iv) - action/deferral timelines • MO 2(a)(v) - risk communication and monitoring • MO 2(a)(vi) - controls and oversight • MO 2(c) - obstacles to corrective action

Dimension	Criteria	Link to Ministerial Order
Capital Expenditures	**1.** Capital budgets are expended within the budget years.	• MO 2(a)(iv) - decision-making and deferral timelines • MO 2(a)(vi) - controls and oversight mechanisms • MO 2(b)(i) - Council/committee/administration decisions • MO 2(c) - obstacles to corrective action
Capital Expenditures	**2.** Capital expenditures are within an acceptable variance of budgeted amounts.	• MO 2(a)(iv) - decision-making and deferral timelines • MO 2(a)(vi) - controls and oversight mechanisms • MO 2(b)(i) - Council/committee/administration decisions • MO 2(c) - obstacles to corrective action
Capital Expenditures	**3.** Capital budget performance is monitored by Leadership and Council. Significant variances are escalated to Council and remedial action is taken.	• MO 2(a)(iv) - decision-making and deferral timelines • MO 2(a)(vi) - controls and oversight mechanisms • MO 2(b)(i) - Council/committee/administration decisions • MO 2(c) - obstacles to corrective action
Revenue	**1.** Required revenue reflects the full cost of the Utility, and if applicable, a return on rate base.	• MO 2(b)(i) - rate, revenue and administrative decisions • MO 2(a)(iv) - decision timelines and deferrals • MO 2(a)(vi) - controls/oversight • MO 2(a)(iii) - information flow with relevant parties • MO 2(d) - future information-handling and oversight improvements
Revenue	**2.** The Utility does not rely upon municipal access fees or franchise fees that are collected and paid to the City.	• MO 2(b)(i) - rate, revenue and administrative decisions • MO 2(a)(iv) - decision timelines and deferrals • MO 2(a)(vi) - controls/oversight • MO 2(a)(iii) - information flow with relevant parties • MO 2(d) - future information-handling and oversight improvements
Revenue	**3.** Variances between required revenue, actual revenue and actual costs are "trued up" in future years.	• MO 2(b)(i) - rate, revenue and administrative decisions • MO 2(a)(iv) - decision timelines and deferrals • MO 2(a)(vi) - controls/oversight • MO 2(a)(iii) - information flow with relevant parties • MO 2(d) - future information-handling and oversight improvements

Dimension	Criteria	Link to Ministerial Order
Revenue	**4.** Off-site levies and payment in lieu of contributed capital are used for growth.	• MO 2(b)(i) - rate, revenue and administrative decisions • MO 2(a)(iv) - decision timelines and deferrals • MO 2(a)(vi) - controls/oversight • MO 2(a)(iii) - information flow with relevant parties • MO 2(d) - future information-handling and oversight improvements
Revenue	**5.** A process to allocate required revenue to regional customers and City customers exists and generally follows industry practice.	• MO 2(a)(iii) - information flow with relevant parties • MO 2(b)(i) - administrative decisions • MO 2(d) - information-handling and oversight improvements

2.4 Sources of information

2.4.1 Documents

Documents included Council and committee materials, administrative records, policies, plans, studies, reports, correspondence, emails, financial and budget materials, asset management and capital planning information, risk and oversight records, records related to the Independent Review Panel, and other materials relevant to the governance, financial management, and asset management matters considered in the Inspection.

In total, the Inspection received 58,260 documents and records. These include 81 documents provided by Siegfried Kiefer, Chair of the Independent Review Panel, and 7,488 documents initially provided by the City of Calgary. As the Inspection progressed and additional information needs were identified, further requests were issued to the City. In response to Supplemental Inquiry No. 1, the City provided 49,962 documents. In response to Supplemental Inquiry No. 2, the City provided 641 documents and 72 documents in response to Supplementary Inquiry No. 3. An additional 16 documents were provided outside of the information requests.

2.4.2 Interviewees

The Inspection included 50 interviews, and process sessions were conducted as part of the review, involving 49 individuals across current and former City Administration, elected officials, external advisors, independent review participants, and subject matter stakeholders. The interviewee group included senior City leadership, operational and infrastructure executives, water services and utilities delivery personnel, finance, legal, enterprise risk management, internal audit, capital planning, engineering, and project delivery representatives. The review also included perspectives from current and former elected officials, including Mayors and councillors, as well as former City officials with experience in utility governance, water resources, financial management, infrastructure planning, and asset management. External perspectives were obtained from individuals with relevant experience in municipal utilities, independent review work, technology, governance, and comparative municipal practices. A detailed list of interviews, dates, participants, and roles is provided in Appendix B: Interviewees.

2.5 Acknowledgements

The Inspector acknowledges the cooperation of The City of Calgary in coordinating and responding to the Inspection's requests for information, data and records. Particular thanks are extended to Heather Johnson, who served as the City's liaison and facilitated those responses. The Inspector also thanks all individuals who participated in interviews for their time, participation and cooperation.

3 Calgary’s Water Utility

The Utility must be understood as both a physical system and an institutional enterprise. In Calgary, the Utility comprises the municipal water, wastewater and stormwater systems and their associated infrastructure and services, together with the people, plans, finances, controls and decision-making arrangements required to sustain them. The Utility is municipally owned and rate-supported, but it is not a separate legal corporation; for much of the period relevant to this inspection, the Utility’s work was distributed across several City departments and business units. (4) (5) (6)

3.1 Scope of Utility services

Calgary’s Utility comprises three distinct but interdependent service lines. Each has a different hydraulic purpose and regulatory risk profile, yet all three rely on common capabilities in engineering, operations, asset management, capital delivery, finance, procurement, environmental protection, emergency management, information technology and public communication. (5) (7) (8) (9) Each service line is necessary to meet the City’s service objectives for the treatment and delivery or collection of water, wastewater and stormwater.

Unless otherwise indicated, the term “Utility” in this report refers collectively to these three service lines, and findings and recommendations directed to the Utility apply to all three.

- **Drinking water treatment and supply** is the source-to-tap system. It includes source-water protection; raw-water intakes on the Bow and Elbow systems; the Bearspaw and Glenmore water treatment plants; high-lift pumps; large transmission mains or feeder mains; treated-water reservoirs; pressure zones; distribution mains; valves, hydrants and customer connections; water-quality monitoring; and emergency response. It must deliver potable water continuously and maintain adequate pressure and volume for public health, daily life, commerce and firefighting.

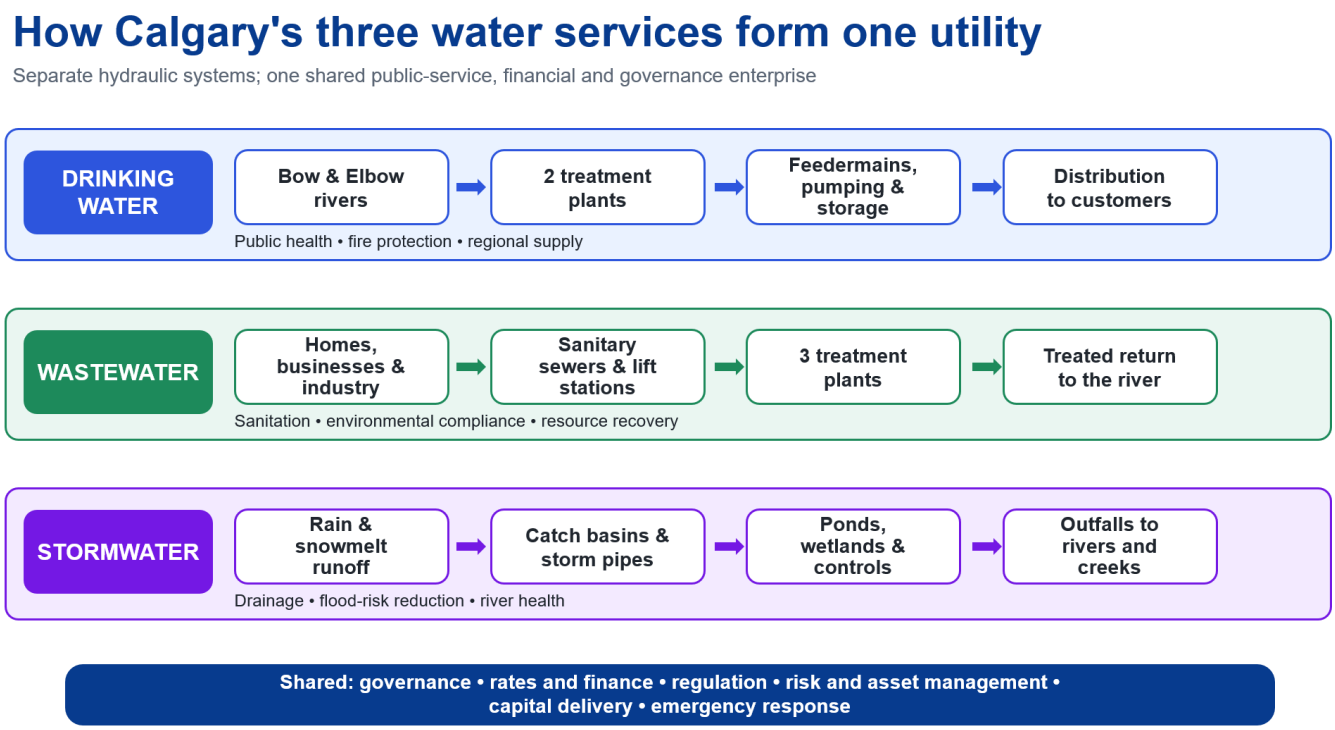
  The BPSFM is a critical component of this system. It is a large-diameter transmission pipeline (feeder main) that carries treated drinking water from the Bearspaw Water Treatment Plant in northwest Calgary into the City's distribution system. The pipeline supplies a significant portion of Calgary's potable water. (9) (10)

- **Wastewater collection and treatment** is the drain-to-river system. Sanitary wastewater from homes, businesses and industry is collected and conveyed primarily by gravity, with lift stations and force mains where required—to the Bonnybrook, Fish Creek and Pine Creek wastewater treatment plants. Treatment protects public health and the receiving environment before treated effluent is returned to the river system; solids and biogas streams also support resource-recovery functions. (9) (11)

- **Stormwater management** is the rain-to-river system. Rainfall and snowmelt are collected through surface drainage and catch basins, conveyed in a separate storm-pipe network, slowed or treated through wet ponds, dry ponds, constructed wetlands and low-impact-development features, and discharged through outfalls to rivers and creeks. Most stormwater does not pass through a wastewater treatment plant, making source control, sediment management, flood protection and river health central to the service. (9) (12)

Water is withdrawn from the Bow and Elbow watersheds, treated and distributed, used by customers, collected as wastewater, treated again and returned to the river system. Stormwater moves on a parallel path that directly affects flood exposure, river quality and the same source waters on which the city depends. The service lines are physically different, but they are managed as one utility because they share customers, funding mechanisms, technical capabilities, regulatory interfaces and long-term infrastructure decisions. The diagram below illustrates the scope of the Utility. (5) (9)

FIGURE 2: CALGARY'S THREE WATER SERVICE CHAINS AND THEIR SHARED CAPABILITIES



3.2 Scale, geography and regional role

Calgary's Utility is one of the City's largest public-service enterprises. The 2026 Corporate Asset Management Plan assigns current replacement values of approximately $32.4 billion to potable-water infrastructure, $33.6 billion to wastewater infrastructure and $23.7 billion to stormwater infrastructure. Together, the three classes total approximately $89.6 billion, which is approximately 58% of The City's reported $155.4 billion infrastructure portfolio. Current replacement value is not a forecast repair bill; it is the estimated cost of replacing assets with modern equivalents that provide the same service. (7) The replacement value of the Utility's infrastructure is provided in Table 6.

TABLE 6: UTILITY INFRASTRUCTURE VALUE

Asset class	2026 current replacement value	Share of City asset portfolio
Potable water	$32.4 billion	20.8%
Wastewater	$33.6 billion	21.6%
Stormwater	$23.7 billion	15.2%
Combined Utility	$89.6 billion	57.7%

The total system includes two drinking-water treatment plants, more than 5,350 kilometres of drinking-water pipe, three wastewater treatment plants and more than 5,000 kilometres of wastewater pipe. The Independent Review Panel described the combined water, wastewater and stormwater network as exceeding 16,000 kilometres and serving more than 1.8 million residents of the Calgary Metropolitan Area. Calgary's stormwater system includes more than 200 wet ponds, more than 100 dry ponds and more than 800 outfalls, in addition to catch basins, pipes, wetlands, dams and other controls. (10) (7) (6) (11) (12)

The potable system relies on two river systems. The Bow River and Bearspaw Water Treatment Plant provide nearly 60 per cent of Calgary's water, while the Elbow River, Glenmore Reservoir and Glenmore Water Treatment Plant provide the balance. Treated water from the plants is interconnected through transmission mains, pump stations and storage reservoirs. That interconnection provides operational flexibility, but the ability of one plant and its conveyance network to

support the system when the other is unavailable depends on demand, treatment capacity, transmission capacity, reservoir levels, asset condition and system configuration. (6) (13) (10)

Calgary's elevation varies by almost 300 metres, so the distribution network is divided into pressure zones created by reservoir elevations, pump stations and pressure-reducing valves. Excessive pressure can increase leakage and stress infrastructure; insufficient pressure can impair customer service and fire protection. Calgary's topography therefore adds operating complexity and makes pumping, storage, isolation, controls and hydraulic modelling integral to reliable service. (10)

The Utility also has a regional role. Calgary currently provides bulk water and/or wastewater service to Airdrie, Chestermere, Tsuut'ina Nation, Strathmore, Cochrane, portions of Rocky View County, Spruce Meadows and an industrial customer. Calgary generally delivers bulk water to, or receives wastewater at, the city boundary; the regional customer owns and operates its local systems outside Calgary. Regional rates are intended to recover the full cost of service, and Calgary does not currently provide regional stormwater service. (14)

3.3 Utility as a public service

A water utility is a continuous-service critical-infrastructure system. It cannot normally stop operating while assets are inspected, repaired or replaced. Drinking water must remain safe and pressurized; wastewater must continue to be collected and treated; stormwater assets must be available when rainfall, snowmelt or river conditions create demand. Failure can affect public health, fire protection, hospitals, homes and businesses, regional partners, environmental compliance, transportation corridors and public confidence. (7) (6) (8)

The assets are also long-lived and largely hidden. Treatment plants, pump stations and reservoirs can remain in service for decades, but their condition is largely observable. Pipe deterioration occurs under variable soil, loading, pressure and operating conditions. The condition of pipes is not readily observable, and pipes are difficult to inspect, leading to potential unseen risks. Utilities therefore rely on design and construction records, work history, inspections, monitoring, failure data, hydraulic models, engineering judgement and risk analysis. Because those methods are imperfect, reliability also depends on redundancy, isolation capability, emergency plans, spare parts, trained operators and the ability to deliver capital work before residual risk becomes intolerable. (7) (15) (6) (8) (13)

The three service lines are operationally interdependent even where their pipes and treatment processes are separate. Drinking-water failures can constrain fire protection and regional supply. Wastewater failures can create public-health and environmental consequences and may require bypass or emergency storage. Stormwater failures can flood buildings and transportation corridors and damage receiving waters. All three services compete for specialized staff, shutdown windows, engineering capacity, procurement support and capital funding. The public service is therefore created by the combination of physical infrastructure and the institution that plans, operates, funds, regulates and renews it. (5) (7) (6)

3.4 Governance, regulation and funding

City Council is the governing body of the municipality and is responsible for developing and evaluating municipal policies and programs, ensuring that the powers, duties and functions of the municipality are appropriately carried out, and exercising those powers, duties and functions assigned to it by legislation. These responsibilities include governance decisions within Council's authority concerning municipal policy, service outcomes, rates, budgets, bylaws and other matters of material public policy or financial consequence. The Chief Administrative Officer (CAO) is the administrative head of the municipality and is responsible for implementing Council's policies and programs, advising and informing Council on the operations and affairs of the municipality, and exercising the administrative authorities assigned by legislation, bylaw or Council delegation. Council may delegate powers and functions where permitted but does not exercise powers or perform duties that legislation assigns to the CAO. (2)

Applied to the Water Utility, this distinction means that Council is responsible for governance decisions falling within its statutory and policy authority, while the CAO and Administration are responsible for managing Utility operations and determining how Council-approved outcomes are delivered within law, policy and delegated authority. Operational and technical decisions generally remain with Administration. However, where a matter requires Council authority, or materially affects matters for which Council is responsible — including approved service outcomes, rates, budgets, major policy direction or other material governance choices — Administration is responsible for providing Council with sufficient information to exercise that role. Matters requiring new funding, rate changes, bylaws or changes to Council-approved policy or authority return to Council. (2) (16) (17) (18)

In 2026, the City created the Water Utility Oversight Board (WUOB), which added an expert-advisory layer to this municipal governance model. Bylaw 7M2026 established the WUOB as a five-member committee of Council whose members cannot be current members of Council or Administration. Its mandate covers utility integrity and sustainability, governance, financial performance and rate setting, infrastructure planning, asset management, lifecycle funding, key risks and compliance. It may request reports, review long-range financial and asset-management plans, examine material capital deferrals or scope reductions, commission special studies and make recommendations to Council. Its role is advisory and expressly does not extend to operational decision-making. (4)

The Utility also operates within federal, provincial and municipal law. Alberta Environment and Protected Areas regulates drinking-water, wastewater and storm-drainage facilities through legislation, licences, approvals, standards and reporting requirements. Specified facilities must be operated by certified water and wastewater operators. Water withdrawals are constrained by provincial licences and river-management requirements. Within Calgary, the Utility, Wastewater and Stormwater bylaws govern service, metering, discharges, prohibited substances, restrictions and related powers. Professional engineering work is governed through The City's Association of Professional Engineers and Geoscientists of Alberta (APEGA) permit and professional-practice system. (8) (10) (19)

Water treatment and supply, wastewater collection and treatment and stormwater management are rate-supported services. The City states that customer rates and service charges fund the three services and that the Utility does not receive property-tax funding. Rates support operations, maintenance, renewal and expansion; growth-related infrastructure can also be supported through off-site levies, debt and reserves. For utility infrastructure, debt servicing and reserve funding are supported through utility revenues and are not funded through property taxes. (6) (9)

3.5 2022 City organization realignment

The 2022 corporate realignment grouped similar functions across the City and further distributed Utility functions that had previously been held within a more utilities-focused senior leadership structure. As a result, core Utility functions were distributed across several departments and business units. A new Acting Chief Operating Officer (COO) – Water Utility role and a Water Utility Transformation Program were created in 2026; however, the June 2026 corporate organization chart still shows functions being performed in the departments within which they operated following the 2022 reorganization. (20) (21)

TABLE 7: UTILITY ORGANIZATION

Function	Principal organizational department after realignment	Role in the utility value chain
Operations and maintenance	Operational Services / Water Services	Treatment-plant and network operations; planned and corrective maintenance; water distribution; wastewater and stormwater operations; customer and regulatory work; incident response.
Asset planning and project development	Infrastructure Services / Capital Planning & Business Services, Project Development and related engineering functions, Environmental Risk & Resilience, Community Planning, City and Regional Planning	Condition assessment; asset-management planning; system and growth planning; feasibility and option analysis; investment planning; project definition and handover.
Capital design and construction	Infrastructure Services / Utilities Delivery	Detailed design, procurement, construction, commissioning and handover of water, wastewater and stormwater capital projects; management of consultants and contractors.
Growth, watershed and development interfaces	Planning & Development Services	Population and growth forecasts; city and regional planning; environmental risk and resilience; source-water, land-use and development interfaces.
Finance and procurement	Corporate Planning & Financial Services / Finance and Supply Management	Rates, budgets, reserves, debt, financial policy, reporting, cost allocation, procurement and corporate performance processes.
Corporate enabling and assurance	People, Innovation and Collaboration Services (PICS), Law, Legislative Services and	Information technology, human resources, occupational health and safety, communications, law, security, emergency management, enterprise risk and other support.

Function	Principal organizational department after realignment	Role in the utility value chain
	Security (LLSS), and other shared functions	

Cross-functional governance was intended to connect these organizational departments. The administrative committee was established in 2022 under the name Utility Accountability Committee (UAC) and was subsequently renamed the Water Accountability Committee (WAC). The supplied interview record confirms that this was a name change only, not the creation of a separate successor committee. For clarity, this report uses “Water Accountability Committee (formerly Utility Accountability Committee)” on first reference and reserves “UAC” for contemporaneous records that used the former name. (5) (22) (17) (18) (16)

The 2022 terms of reference gave the WAC a broad mandate for financial oversight, regulatory assurance, service direction and strategic resource planning across water, wastewater and stormwater. It oversaw three service teams: Water Treatment and Supply, Wastewater Collection and Treatment, and Stormwater Management. The WAC was not directly supported by the Water Utility Management Network. Managers and leads did support WAC through three service teams: Drinking Water, Wastewater, Stormwater. This work focused on escalating risks/issues and getting WAC oversight on priorities. The original terms of reference used consensus decision-making, with unresolved matters documented and escalated to the appropriate General Manager. (5)

Following realignment in 2022, all Utility-related managers were brought together twice a year to focus on information sharing and networking. The cross-functional One Water project team included managers and leaders. By 2025, the renamed WAC was using the same core mandate while focusing on Utility and service governance, an integrated One Water strategic plan, and Utility financial planning and reporting. The Q2 2025 record shows WAC reviewing the proposed 2026–2035 capital plan, requesting clearer service objectives and maintenance forecasts, and approving changes to the process for water-funded positions. Interview evidence indicates that, before appointment of the Acting COO, the committee used a short biweekly connection, a monthly meeting and periodic strategic sessions, with escalation to General Managers and executive leadership where required. (22) (16) (17) (18)

These mechanisms provided a way to coordinate a matrix organization. They did not, however, create the same authority relationship as a single executive with direct accountability for end-to-end Utility performance. The future role, authority and reporting relationship of WAC after completion of the dedicated Utility department design have not been established in the supplied current-state documents. (20) (23) (24) (25) (5) (6)

3.6 Current structure: a hybrid model as of July 2026

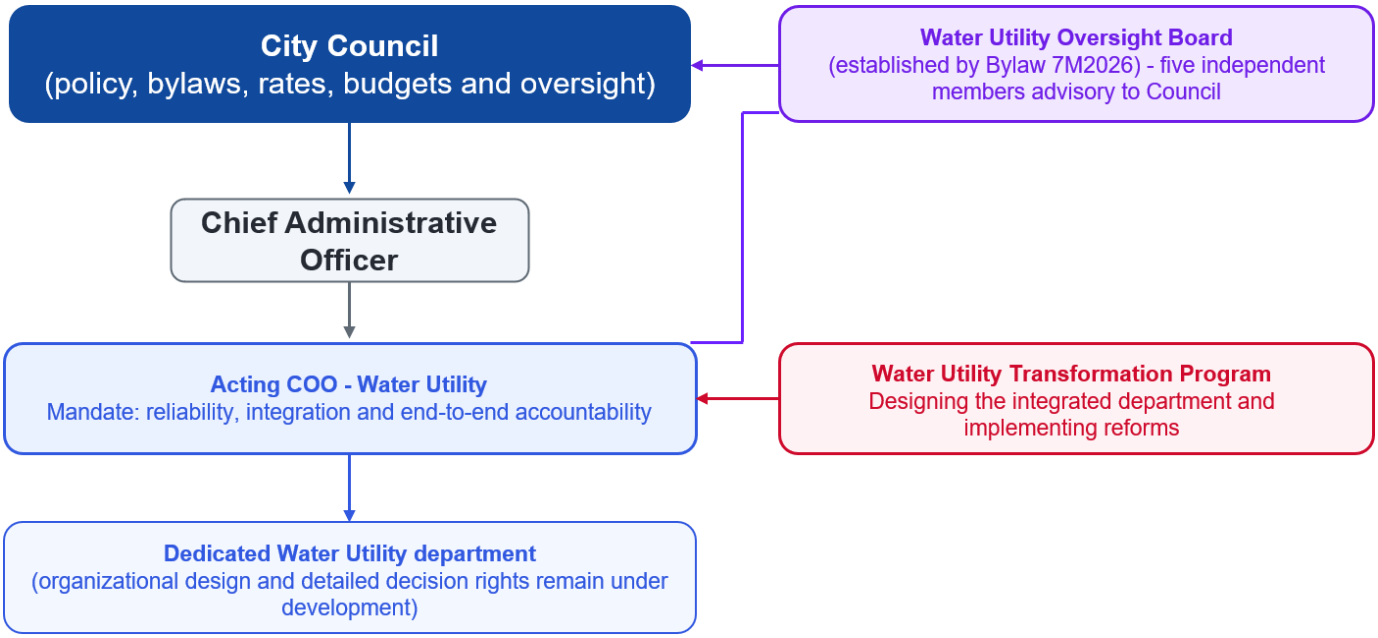
Calgary’s current state is best described as a hybrid and transitional model. The distributed functional organization remains visible, while new executive leadership, transformation capacity and external oversight are being layered onto it. The following changes are sufficiently established to include in the report: (4) (20) (23) (24) (25)

- Michael Thompson was appointed Acting Chief Operating Officer – Water Utility effective June 22, 2026, for an 18-month term. The published mandate for this role is to improve system reliability and operational performance, strengthen integration across planning, capital delivery and operations, establish clear end-to-end accountability and advance the Independent Review Panel recommendations. (20) (23)
- The June 2026 corporate chart also identifies Heather Johnson as Director, Water Utility Transformation Program. In a June 9, 2026, public update, The City stated that it was bringing its water-related functions together into a new, integrated Utility department and that organizational design work was underway. This establishes the announced direction and design activity; it does not establish that functional transfers or final reporting lines have been completed. (20) (23) (24)
- Bylaw 7M2026 has resolved the legal design of the WUOB: it is a five-member, independent, advisory committee of Council with defined information, review and reporting powers, no operational authority, at least four meetings per year, an annual work plan and an annual Utility Oversight Report. Recruitment and appointment remained underway at the current-state date, with the first meeting publicly targeted for December 2026. (4) (25)

- The City reported using an interim executive or advisory forum during the transition to support timely decisions and escalation of risks. The supplied materials do not confirm whether that forum's mandate changed after the Acting COO appointment. (24) (25)

Figure 3 provides a summary of the current governance and organization structure of the Utility. Solid blue and black arrows show established top-level accountability. The purple connector shows communication and flow of information between the COO, Water Utility and the Water Utility Oversight Board, as approved in Bylaw 7M2026, and does not assert a reporting relationship. The red arrow identifies the Utility Transformation Program and does not assert a final reporting relationship.

FIGURE 3: SIMPLIFIED GOVERNANCE AND ORGANIZATION STRUCTURE

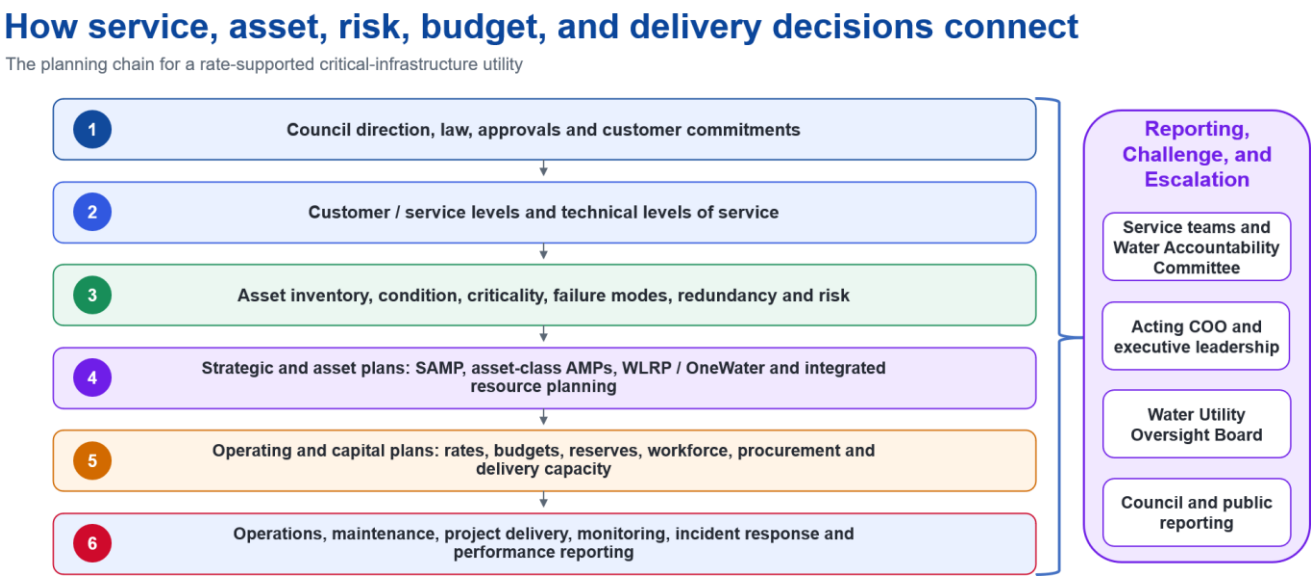


The most accurate report language is therefore neither that Calgary still has only the 2022 decentralized model nor that the dedicated department and WUOB are fully operational. The legal oversight model and top-level accountable executive are now established, but the final allocation of functions, solid-line reporting relationships, delegated authorities, WAC's future role and the WUOB's membership and operating practices remain in transition. (4) (20) (23) (24) (25)

3.7 Utility service, asset, risk and investment planning

The Utility's planning system can be understood as a chain. City Council sets municipal priorities and service expectations, while regulators establish legal and regulatory requirements. Together, these frameworks shape public outcomes that water utilities are expected to deliver. Customer and technical levels of service translate those outcomes into measurable performance; asset information and risk analysis identify where the system may fail to deliver; strategic and asset plans identify interventions; operating and capital plans assign money and people; operations and project delivery carry out the work; and reporting creates feedback and accountability. Breaks in that chain can leave a sound technical recommendation without funding, a funded project without delivery capacity, or a deferred project without explicit acceptance of the residual risk. (7) (15) (6) (13) Figure 4 shows the City's intended line of sight from public outcomes to day-to-day delivery and back through reporting and oversight.

FIGURE 4: THE SERVICE-ASSET-RISK-FUNDING CHAIN



The 2026 Corporate Asset Management Plan (CAMP) provides the corporate-level view of asset inventory, condition, risk and funding needs. It reports that Water Services has customer/service and technical level-of-service measures with targets for potable water, wastewater and stormwater, and it introduces a more consistent City-wide consequence-of-failure calibration. However, it also states that an explicit organization-wide risk tolerance has not yet been formally defined and identifies continuing improvement needs in governance, service definition, data integration, risk and resilience, and the Strategic Asset Management Plan. (7)

The CAMP, Strategic Asset Management Plan (SAMP) and asset-class Asset Management Plans (AMPs) perform different functions. The CAMP is a corporate roll-up and decision-support tool; it does not replace asset-class plans or Council budget approvals. A SAMP should translate policy and organizational objectives into asset-management objectives, governance expectations, risk appetite and decision rules. AMPs should then identify asset-specific condition, performance, risk, inspection, maintenance, renewal and investment actions. Long-range and integrated resource planning should coordinate those asset needs with growth, source-water constraints, service standards, affordability and major system redundancy over a 20- to 30-year horizon. (7) (6)

The November 2025 Transmission Main AMP is marked “DRAFT” and focuses primarily on the most critical transmission mains. The City has confirmed that the major transmission mains and valves AMP V1 2025 Critical has been issued, which is to be updated annually, due January 1 of each year. It identifies 102 mains, uses consequence, condition and redundancy in prioritization, and establishes inspection and technical-level-of-service targets. It also defers less-critical assets, related valve condition work and some service outcomes to later versions and leaves some repair criteria to be defined. It is therefore evidence of an evolving asset-class planning discipline but does not provide evidence that the full Utility-wide AMP, SAMP, integrated resource plan and action-tracking system are complete and approved. (15)

TABLE 8: SUMMARY OF UTILITY CAPITAL PLANNING INSTRUMENTS

Planning instrument	Principal purpose	Current-state reading for this report
Service objectives and levels of service	Define the customer outcomes and asset performance the Utility is expected to deliver.	Targets are reported for all three Water Services asset classes, but the complete Council-approved hierarchy and departure authorities should still be validated.
SAMP / asset-management strategy	Set asset-management objectives, governance, risk appetite and decision rules across the portfolio.	The 2026 CAMP identifies this as an area still being strengthened; final approval status of Utility-specific and corporate SAMPs should be confirmed.
Asset-class AMPs	Translate condition, criticality and failure risk into inspections, maintenance, renewal, redundancy and investment actions.	A draft Transmission Main AMP has been supplied; approval status and completeness of the full AMP suite and action trackers remain to be confirmed.

Planning instrument	Principal purpose	Current-state reading for this report
Long-range / integrated resource plans (IRP)	Coordinate growth, capacity, source water, renewal, resilience and affordability over decades.	WLRP work exists and OneWater/IRP development is described; a final approved Utility-wide IRP has not been supplied.
Capital and operating plans / budgets	Assign funding, people, procurement and delivery capacity to implement plans.	The 10-year and four-year planning processes are active; the report's findings assess whether risk reduction and delivery were consistently linked to budget decisions.
Operations, work management and reporting	Execute maintenance and projects, monitor performance and feed results back into plans and oversight.	Work-order, project and governance reporting mechanisms exist; integrated Utility-wide action and residual-risk tracking remain central issues.

3.8 Brief organizational and service history

The form of Calgary's Utility has changed over time. The chronology matters because the report examines decisions made under different organizational arrangements and should not apply the current structure retrospectively. It also shows that execution and escalation challenges cannot be attributed to the 2022 realignment alone. The realignment is relevant because it changed how Utility functions were coordinated, but the asset-management, inspection, capital-delivery, and risk-escalation issues examined in this report existed across more than one organizational model. (6) (21) A high-level summary of key changes is provided in Table 9 below.

TABLE 9: SUMMARY OF UTILITY CHANGES

Period	Organizational development	Context and significance
2004–2008/09	Line-of-service organization	Drinking water and wastewater/stormwater were organized in service-focused groups led by directors reporting to a common utilities general manager. The 2004 McKnight Feeder Main rupture increased attention to large-diameter concrete pipe and feeder main condition.
2008/09–early 2020s	Business integration and "one water" functional model	The Utility moved toward treating water as one resource. Water Resources held planning, regulatory, customer and infrastructure functions, while Water Services held operations; both remained under utilities-focused senior leadership.
Approximately 2017 onward	Cross-functional service teams and operational coordination	Service teams for drinking water, wastewater and stormwater coordinated technical and service work. In 2021, BPSFM inspection was handled through the Water Operational Coordination Committee; WAC did not yet exist.
2020–2022	City-wide organizational realignment	The realignment grouped like functions across the City. In 2022, planning, asset management, capital delivery, operations, finance and supporting functions were distributed across several departments and business units.
September 2022	UAC established, later renamed WAC (2025)	The Utility Accountability Committee was created to coordinate the distributed model. Its later change to Water Accountability Committee was a name change only.
June 2024	First BPSFM rupture and emergency response	The rupture triggered city-wide restrictions and exposed the consequence of losing a high-capacity, low-redundancy transmission asset. Technical, professional-practice and independent reviews followed.
December 2025–January 2026	Second rupture and Independent Review Panel report	A second failure increased urgency. The Panel recommended stronger risk and asset-integrity processes, refreshed AMPs and an IRP, a dedicated department, segmented financial statements and an independent WUOB.

Period	Organizational development	Context and significance
February–July 2026	Water Transformation Program and hybrid organization	Council enacted the WUOB bylaw; The City created a Water Utility Transformation Program and appointed an Acting COO. Detailed department design, WUOB appointments and operating practices remained in progress at the current-state date.

City-supplied context also identifies periods of financial and workforce restraint that affected the Utility, including rate decisions, off-site levy shortfalls, zero-based reviews, hiring constraints and corporate savings programs between 2008 and 2021. Those matters are relevant to the report's financing and management findings, but they should be presented as part of the evidentiary record and assessed alongside Council decisions, actual budgets, capital delivery and asset-risk outcomes rather than treated as a complete causal explanation on their own. (22)

3.9 Recent changes in governance and asset management

In addition to the organizational and governance changes described above, the City has advanced a number of reforms following the 2024 and 2025 BPSFM failures and the Independent Review Panel report. These measures are relevant to the current state of the Utility. Many remain in implementation, and their longer-term effectiveness and durability cannot yet be assessed. Material initiatives underway at the time of this report include (26):

- Risk management and escalation: Water Executive and Water Leadership forums have been established with regular consideration of Utility risks. A monthly Water Utility Risk Report consolidates risks across drinking water, wastewater and stormwater, while an Asset Management Activities Dashboard provides executive visibility into asset-management activity and high-consequence assets. Implementation of the Independent Panel recommendations is also reported regularly to Utility leadership and quarterly to Council.
- Asset-management practices: The City has accelerated work on asset condition, risk and investment planning, including creation of a PCCP expert task force, completion of the 2026 Corporate Asset Management Plan and further work intended to address information gaps and improve planning for high-consequence assets.
- Water-loss reduction: An Accelerated Water Loss Program is underway focusing on improved measurement, increased proactive leak identification and repair, and accelerated renewal and maintenance. The City is also implementing an Advanced Metering Infrastructure program intended to improve measurement and assist in identifying and prioritizing leakage and renewal needs.
- System reliability and redundancy: Work is underway on BPSFM reinforcement and replacement, improvements to redundancy at the Bearspaw Water Treatment Plant, and acceleration of the North and South Calgary water-servicing projects. These initiatives are intended to reduce single-point-of-failure and capacity risks identified following the BPSFM failures.
- Financial transparency and capital delivery: The City has begun preparing segmented Utility financial statements, which are being reviewed monthly by Water Leadership, with a stated objective of external auditability by the end of 2027. The City also reports materially increased capital delivery and spending following efforts to improve execution of the Utility capital program.
- Implementation accountability and Council reporting: The post-failure implementation program uses identified workstreams, milestones and executive accountabilities, with a single executive point of accountability through the COO Water Utility and regular reporting to Council. Public progress reports on implementation of the Independent Panel recommendations have been provided throughout 2026.

These changes, while important, do not alter the historical findings. It is too early to assess whether implementation has materially reduced the risk of future failures. As a result, the Inspection did not focus on these changes other than to assess whether the City is being responsive to recent failures.

3.10 Guide to terms used in this report

Table 10 provides definitions devised specifically for this report and key technical terms used therein.

TABLE 10: DEFINITIONS OF KEY TERMS

Term	Meaning in this report
Feeder main / transmission main	A large-diameter pipe that moves treated water from a treatment plant or major storage or pumping point into the broader network. Its failure can affect a much larger area than a local distribution-main break.
Level of service	The defined outcome the Utility is expected to provide—for example, safe water, adequate pressure, regulatory compliance, drainage performance or the ability to meet a specified demand when a major asset is unavailable.
Redundancy	Alternative capacity or routing that allows service to continue when a critical plant, pipe, pump, power supply or other component is unavailable. Redundancy reduces consequence; it does not prevent deterioration.
Criticality / consequence of failure	The significance of an asset to service and the scale of harm if it fails, including public-health, safety, environmental, regulatory, financial and service impacts.
Asset management / asset integrity	The coordinated use of condition, performance, risk, cost and lifecycle information to decide when to inspect, maintain, rehabilitate, replace or add redundancy.
Capital maintenance versus growth capital	Capital maintenance renews or rehabilitates existing assets and reduces accumulated risk. Growth capital adds capacity for population or development. One project may serve both purposes.
Residual risk	The risk that remains after monitoring, operating controls, repair or other mitigation. Continued operation, deferred inspection or delayed replacement may require explicit acceptance by the appropriate authority.
Resilience	The ability to absorb a failure or extreme event, continue essential service and recover within an acceptable time. It depends on redundancy, storage, isolation, emergency response, trained people and repair capability as well as condition.

These terms and the concepts they represent are connected: condition information and inspection findings inform criticality and risk; defined levels of service determine what performance is acceptable; asset plans identify interventions; operating and capital plans fund them; delivery reduces risk; and governance determines who decides, who is accountable and when unresolved residual risk must be escalated. (7) (15) (6) (13) (27)

4 Key Findings and Recommendations

The overall key finding is that the Bearspaw South Feeder Main failure was the result of many underlying and contributing failures. The City's reporting, management accountability and Council oversight mechanisms neither properly accounted for nor resulted in timely decisions relating to accumulated reliability, redundancy, leakage, capital delivery and governance risks.

Additional and related key findings and recommendations from the Inspection are presented in this section. Together, the findings paint a picture of insufficient critical water infrastructure inspections, weak asset-risk discipline, failure to convert plans into action, ineffective Council oversight, fragmented management accountability, and a specific missed opportunity from the 2015/2016 Raftelis review to enhance governance. Collectively, the findings comprise the substantive matters pertaining to Objectives One and Two of the Ministerial Order.

4.1 Governance

Governance, in this section, refers to the structures, reporting practices, decision rights, escalation pathways and accountability mechanisms through which Council, committees, senior Administration and Utility management oversaw the Utility. The focus is not whether the City had technical staff, asset data, engineering reports or planning documents. The evidence indicates that it did. The governance question is whether that information was reliably converted into clear decisions, accountable action, risk acceptance, funding choices and transparent reporting.

The evidence suggests, with the exception of the 2015–2016 Raftelis review, that the City's governance challenge was institutional rather than personal. Council was not expected to be a technical water infrastructure body, and Council did receive information over time about rates, budgets, business plans, capital programs and risks. The issue is that the oversight model did not consistently provide a focused, Utility-specific and risk-based line of sight between technical risk, capital execution, service reliability, rate impacts and accountability for action.

The City's own materials recognize the Utility as a distinct and complex enterprise: a self-supported, highly regulated utility delivering water, wastewater and stormwater services through interconnected planning, building and operating functions across several departments (Utility Accountability Committee Terms of Reference, 2022). That structure required more than ordinary municipal reporting. It required integrated reporting that connected asset condition, redundancy, leakage, service levels, risk tolerance, capital delivery, rate impacts and the consequences of deferral.

External comparators point in the same direction. Effective Utility Management frameworks, Organization for Economic Co-operation and Development water governance principles and regulated utility board-governance models all emphasize clear roles, policy-relevant data, financial transparency, independent challenge, risk oversight and regular performance monitoring. Calgary was not required to follow any one of these models, but such models illustrate the type of governance discipline expected for a technically complex critical infrastructure utility.

The governance findings that follow should be understood as two connected observations. First, Council and committee oversight depended heavily on Administration's selection, framing and escalation of issues, without a sufficiently independent Utility-specific mechanism to test whether material risks and trade-offs had been fully exposed. Second, within Administration, accountability and escalation pathways did not consistently ensure that known or knowable Utility risks were translated into decisions, delivery commitments, formal risk acceptance or timely Council-facing reporting.

4.1.1 Council and committee oversight of the Utility

Council and committee oversight of the Utility was limited by the absence of a structured governance model that gave Council regular, integrated and independently tested visibility into Utility risk, reliability, financial sustainability and capital execution.

The evidence indicates that Council and the applicable Council committee received significant information about Utility rates, budgets, business plans, capital programs and corporate risks. The concern is not that Council received no information. The concern is that information was not consistently presented as an integrated Utility-governance picture.

The Independent Review Panel reached a similar conclusion. It found that Council lacked the visibility and expert support needed to provide effective oversight; that reporting to Council was periodic and high-level; and that Council had limited

access to independent technical expertise to evaluate complex trade-offs among service, cost and reliability (6). That conclusion is consistent with the inspection evidence.

A water utility involves governance choices that are not merely technical or operational. Changes to redundancy standards, acceptance of residual risk above tolerance, material capital deferrals, changes to rate design, and decisions to continue dividend payments while reserves are below target all involve choices about reliability, affordability, risk and intergenerational equity. Those choices should not remain embedded inside technical, financial or capital processes.

The evidence suggests that some of these matters were not elevated in a way that allowed Council to understand and decide on the trade-offs. For example, the Panel found that system redundancy standards shifted from Average Day Demand to Typical Day Demand in 2011, and back to Average Day Demand in 2021, without being brought forward for review in a way that reflected the significance of the reliability, capital planning and service implications. (6)

Similarly, rate-design decisions were not consistently framed as regulatory decisions balancing revenue sufficiency, reliability, affordability, risk and rate stability. The Panel identified the 2023 shift toward greater variable-rate recovery as an example of a decision that increased revenue exposure during periods of reduced consumption, such as the restrictions following the BPSFM incident, and that should have received expert oversight and senior utility leadership review. (6)

Interview evidence also indicates that Council and committee members were highly dependent on Administration's framing. One former committee member described the committee's role as receiving reports, asking questions and relying on utility experts, rather than independently evaluating whether the Utility was being effectively managed. (28) Other interview evidence indicates that rate, asset and reliability issues were not always brought together in a way that allowed Council to understand the reliability consequences of affordability decisions. (29)

Capital underspending is a further example. The issue was not simply whether Council was told that capital budgets were not fully spent. The governance question is whether Council was told, in a clear and recurring way, what capital under-delivery meant for asset condition, inspection backlogs, deferred renewal, system resilience, accumulated risk and future rate impacts. The Independent Review Panel found that the Utility achieved its planned annual capital targets within 5% only twice between 2003 and 2024, and that chronic capital under-delivery contributed to resilience risk. (6)

The leakage issue illustrates a similar weakness in internal escalation. The Panel found that water loss increased from 17% in 2015 to 22% in 2024, compared with an estimated peer median of approximately 12%. (6) Interview evidence indicates that the significance of leakage became more visible to some elected officials through external stakeholder pressure rather than through internal reporting that clearly framed it as a Utility performance, capacity and risk issue. (29)

The handling of independent reviews also raises a governance concern. The Panel identified a 2015 Raftelis review that recommended improved financial transparency and an independent oversight body. Those recommendations were not implemented (6). Interview evidence further indicates that governance and financial-management recommendations from Raftelis were not formally presented to Council or tracked through a transparent accept/reject/implement process. (30) (31)

The City had internal comparators for stronger governance discipline. Its model governance documents for wholly owned subsidiaries contemplated regular review of strategic plans, business plans, budgets, risk reports and key performance indicators, supported by structured reporting calendars and governance roles. The City affirmed that as the Utility was an internal service, not an independent wholly owned subsidiary, it did not have the same Council-facing governance architecture before the incident but did provide business plans, budgets, performance measures and other items to Council for review as part of corporate processes.

The City's later Water Risk Report shows a more mature direction. It was designed to give leadership visibility on key water service risks, enable WAC oversight through transparent cross-functional reporting, define ownership and accountability, support risk-tolerance discussions, and create an escalation mechanism when mitigations or controls lag (32). That type of reporting is useful, but it also underscores the earlier gap: Council did not consistently receive integrated Utility-specific reporting that connected risk, reliability, cost, service and capital execution.

Council cannot effectively oversee a critical infrastructure utility if material choices are presented as isolated rate, budget, capital or technical matters. Decisions about redundancy, rate design, reserve levels, dividend payments, inspection deferrals and capital re-sequencing are governance decisions because they determine what level of risk the public is carrying and what cost will be imposed on future ratepayers.

A general-purpose municipal council can govern such a Utility only if the system provides structured visibility and independent challenge. Without that structure, Council may approve budgets and rates without understanding the reliability trade-offs embedded in those approvals. It may also remain unaware that risks are being accepted by default through delay, under-delivery or non-escalation.

Recommendation 1: Establish a Council-approved reserved-matters protocol for Utility governance.

The City should adopt a Council-approved protocol identifying Utility matters that must be reviewed by the WUOB or equivalent expert oversight body and brought to Council, or formally acknowledged by Council, before being implemented or accepted.

Reserved matters should include:

- changes to redundancy, resilience or service-reliability standards;
- material changes to rate-design assumptions affecting revenue sufficiency or financial resilience;
- acceptance of residual risk above approved tolerance;
- deferral of inspections, renewal or mitigations for high-consequence assets;
- material capital-delivery delays affecting reliability or risk mitigation;
- departures from approved reserve, debt, dividend, return-on-equity or other financial resilience targets;
- non-implementation or deferral of material recommendations from independent reviews, audits or expert reports.

This recommendation does not duplicate the Panel's recommendation to establish the WUOB. It specifies the decisions that should not remain solely within Administration's internal processes once the WUOB exists.

Recommendation 2: Require service-cost-risk decision briefs for material Utility decisions.

The City should provide a standardized service-cost-risk decision brief for material Utility reports, budgets, rate proposals, capital re-sequencing decisions, reliability-standard changes, and risk-acceptance decisions.

The brief should identify:

- the decision requested;
- the service reliability implications;
- the rate, funding or reserve implications;
- the residual risk being accepted;
- the impact on redundancy, resilience or regulatory compliance;
- the consequences of deferral;
- the alternatives considered;
- the accountable executive owner;
- the WUOB or independent expert advice received;
- the date by which the matter will return for review.

This recommendation is intended to ensure that Council is not presented with cost, rate, capital or technical issues in isolation. It would also make explicit when Council is being asked to accept a reliability or resilience trade-off.

This finding should not be read as a conclusion that Council ignored clear warnings. The evidence more strongly supports the conclusion that the governance system did not reliably put the right warnings, trade-offs and independent advice in front of Council in a form that enabled effective oversight.

It should also not be read as criticism of individual councillors for lacking technical expertise. Elected officials are not expected to personally evaluate pipe condition, hydraulic redundancy or inspection technologies. They are expected to set policy, approve rates and budgets, establish risk tolerance and hold Administration accountable. To do that, they require integrated and independently tested information.

Finally, the Panel's structural recommendations remain foundational. The reserved-matters protocol, service-cost-risk decision briefs and recommendation disposition register are intended to make those reforms operational and durable. If the WUOB is replaced by another oversight mechanism, these controls should still be implemented.

The absence of a structured Utility-specific oversight model that gave Council regular, integrated, and independently tested visibility into risk, reliability, financial sustainability, and capital execution departed from good governance practices for a critical infrastructure utility. It also reflected insufficient foresight because Council was not consistently positioned to understand the long-term service, reliability, and ratepayer consequences of decisions about rates, capital delivery, redundancy, reserves, and residual risk. This finding indicates the City's practices were **Irregular** and **Improvident**.

4.1.2 Management accountability and escalation

Management of the Utility suffered from fragmented accountability and weak escalation pathways for a business requiring disciplined execution, asset reliability and system resilience.

The evidence indicates that the Utility had experienced staff, technical processes and significant planning work. The weakness was not simply a lack of technical knowledge. The more significant governance issue was that technical risk knowledge, planning work, asset-management findings and external recommendations did not always become clear executive decisions, funded and scheduled actions, formal risk-acceptance records or accountable escalation.

The Panel found that the Utility's management structure lacked a single accountable leader for end-to-end outcomes and that core Utility functions were split across multiple departments. This Inspection treats that finding as relevant to the post-2022 governance environment, but not as a complete causal explanation for the BPSFM failures. The record also shows that execution, inspection, capital-delivery, and escalation challenges existed before the 2022 realignment. It also found that the first person with full visibility across the Utility was the CAO, who had responsibility for many other portfolios. (6) This inspection evidence is consistent with that finding, while recognizing that accountability and execution challenges predated the 2022 realignment.

Before 2022, the Utility had clearer senior Utility leadership in some respects. However, the evidence indicates that execution and escalation challenges still existed. After the 2022 realignment, responsibility for water planning, operations, capital delivery, finance, growth, asset management and corporate risk was spread across multiple business units and departments. The Utility Accountability Committee and later Water Accountability Committee were intended to coordinate across that structure, but a coordinating committee is not the same as a single executive with authority and accountability for end-to-end Utility outcomes. (5)

There is substantial evidence that technical risk was identified over time. The 2013 Asset Risk Report identified the need to document mitigation gaps, refine condition assessment programs based on high-risk areas, review critical parts inventory, and review whether inspection and renewal budgets were adequate to keep pace with deterioration. (17) (33) The 2018 Water Long Range Plan risk-based value analysis identified major system risks, including not achieving typical day demand if one plant failed, not meeting maximum day demand with both plants, and an event shutting down a critical part of the distribution system. (13)

The management concern is that this type of information did not reliably produce timely action or escalation. The Panel found that BPSFM inspections recommended in 2017, 2020 and 2022 were deferred or redirected, with unclear escalation accountability and timelines. (6) That pattern reflects a management system in which high-consequence risk mitigation could be delayed without sufficiently clear executive ownership, recovery planning or consequence.

Capital under-delivery is the clearest example. Interview evidence indicates that underspending was known within the Utility and at higher levels, but that there were limited consequences for failure to deliver capital plans or risk-mitigation

work on schedule. (30) (34) The Panel's capital-spending analysis confirms that this was not a one-off variance but a long-running pattern. (6)

The issue is not that a utility must spend every budgeted dollar regardless of circumstances. The issue is that, in a utility, capital delivery often represents the delivery of inspection, renewal, redundancy, risk mitigation and growth-capacity commitments. Persistent under-delivery can therefore mean that risk reduction is not occurring when expected. If capital reporting treats under-delivery only as a financial variance, Council and senior Administration may not see the reliability consequence.

The City had already recognized, at a corporate level, that effective project management requires clear business cases, project progress reporting, quality assurance, risk management, procurement planning, communication and accountability for delivery. (35) The Utility's experience indicates that those disciplines were not consistently sufficient to ensure delivery of risk-mitigation work for critical water infrastructure.

The City Auditor model provides another internal comparator. The City Auditor reports to Council through Audit Committee and tracks Administration's action on audit recommendations through recurring reporting (36) (37). The evidence does not show a comparable management-owned tracking process for all significant Utility reviews, risk mitigations and remedial actions across the period reviewed.

The 2025 Water Risk Report reflects a more mature current direction. It describes the need to define ownership and accountability, set risk tolerance, establish escalation when mitigations or controls lag, and identify areas requiring increased focus, resources or attention. (32) That direction is appropriate, but it also confirms the nature of the earlier management gap.

A critical infrastructure utility requires disciplined management accountability. Technical staff can identify vulnerabilities, consultants can make recommendations and committees can discuss risks, but risk remains effectively unmanaged unless someone is accountable for deciding, funding, scheduling, delivering and escalating unresolved issues.

Distributed structures can increase this risk if they are not paired with clear decision rights, escalation protocols, and accountable risk owners. Where planning, asset management, capital delivery, operations, finance, and risk reporting sit in different organizational units, unresolved issues can persist not because no one has any responsibility, but because no single accountable authority is required to force closure. Matrix coordination can support collaboration, but it can also normalize deferral where decision rights are unclear.

This is why the Panel's recommendations for a dedicated Utility department, COO of Water, Risk Lead, segmented financial statements, and WUOB are important. Those structural reforms should be understood as mechanisms to improve accountability, reporting, and decision discipline. They are not, by themselves, proof that the 2022 realignment caused the BPSFM failures, nor will they be sufficient unless they change how risks are owned, funded, escalated, and closed. This inspection does not repeat those recommendations as new recommendations. Instead, the recommendations below focus on the additional accountability controls needed to ensure that the structural reforms lead to changed behaviour.

Recommendation 3: Tie high-consequence risk mitigations to executive performance and escalation triggers.

The City should identify mitigation actions for high-consequence Utility risks to be assigned to named executives or senior leaders and incorporated into their performance objectives.

Where a mitigation action, inspection, capital project, recommendation or accepted-risk review falls materially behind schedule, the responsible executive should be required to provide a recovery plan to the COO of Water, CAO and WUOB. If residual risk remains above tolerance, the matter should be escalated to Council under the reserved-matters protocol.

The recovery plan should identify:

- the missed milestone or delayed action;
- the risk consequence of the delay;
- the revised delivery date;

- interim controls;
- required funding or resourcing;
- unresolved cross-functional barriers;
- the accountable executive owner;
- whether Council is being asked to accept residual risk.

This recommendation complements the Panel's COO and Risk Lead recommendations by making risk mitigation a performance and accountability obligation, not only a planning or reporting exercise.

Recommendation 4: Report capital under-delivery by risk consequence, not only by financial variance.

The City should prepare Utility capital reporting to distinguish among savings, timing delays, procurement constraints, project-readiness issues, technical deferrals, capacity constraints, re-scoping and cancellation.

For capital work linked to high-consequence risks, the report should identify:

- the risk the project or program was intended to mitigate;
- the reliability, resilience or regulatory consequence of delay;
- the revised mitigation date;
- interim controls;
- cumulative delay from the original commitment date;
- whether the delay affects an approved service level or risk tolerance;
- the accountable executive owner and recovery plan.

This recommendation goes deeper than general capital-delivery reporting. It is intended to prevent capital underspending from appearing benign where it actually represents deferred risk mitigation.

Recommendation 5: Provide the WUOB with independent analytical capacity.

The City should provide the WUOB access to independent technical, financial, regulatory and asset-management advice when reviewing high-consequence risks, major capital programs, rate submissions, residual-risk acceptance or disputed management assumptions.

The WUOB should have authority and budget to request independent studies or audits where consequence is high, uncertainty is material, or management and oversight bodies disagree. This is consistent with the Panel's WUOB framework, which gives the WUOB a role in independent oversight, review of financial, operational and risk-related matters, and commissioning special studies or technical reviews.

This finding should not be read as concluding that no one in the Utility understood infrastructure risk. The documentary record shows that technical staff and consultants identified important risk concepts over time. The issue is that the management system did not consistently ensure that those risks were escalated, owned, resourced, delivered and reported in a way that supported effective executive and Council oversight.

The 2022 realignment should be treated as one important development within a longer-running accountability problem, not as the sole cause. The evidence suggests that execution and escalation challenges existed before 2022, while the post-2022 model increased the need for explicit decision rights and end-to-end accountability.

Post-incident reforms are relevant but not yet conclusive. The Panel's recommended reforms and the City's current work on governance, risk ownership, segmented financial reporting, organizational design and the WUOB are directionally responsive. Their effectiveness will depend on whether they create durable accountability, independent challenge and transparent reporting, rather than adding another reporting layer to the same underlying decision model.

The reliance on fragmented accountability, committee coordination, and unclear escalation pathways for unresolved critical-infrastructure risks departed from established management principles for a Utility of this scale and consequence. It also reflected inadequate foresight because known or knowable risks were not consistently owned, resourced, delivered, escalated, and reported in a manner that protected long-term service reliability. This finding indicates the City's practices were **Irregular** and **Improvident**.

4.2 Asset management

This section distinguishes between the existence of lifecycle planning and management tools and their effectiveness as controls. The City had asset-management plans, risk processes, capital planning tools and capable technical staff. The findings are not that these elements were absent. The findings are that, for critical water infrastructure, they did not consistently operate as a disciplined system that converted known or knowable high-consequence risks into inspection, mitigation, redundancy, funded execution, escalation and explicit residual-risk acceptance.

The City should not be criticized simply because it operates a large, aging and technically complex Utility. Aging buried infrastructure, difficult-to-inspect PCCP, imperfect condition data, growth pressure and competing capital priorities are common challenges for Canadian water utilities. National data show that a meaningful share of potable-water transmission pipes in Canada are in poor, very poor or unknown condition, and APEGA's post-failure practice review concluded that PCCP failures are common across North America and that preventing a PCCP rupture is not assured even with monitoring and predictive technologies in place (38) (8)

The appropriate question is therefore not whether the City could have guaranteed that the BPSFM would never fail. It could not. The question is whether Calgary's asset-management, risk, inspection, redundancy, capital-delivery, financial and reporting practices were commensurate with the scale and consequence of the risks that were known or knowable. Calgary can fairly be assessed against its own policy framework, which required holistic, systematic, systemic, risk-based, optimal, sustainable, integrated and aligned asset-management practices, and which warned that non-compliance could compromise safe and reliable infrastructure, service delivery, growth planning and alignment between AMPs, capital plans and financial decisions. (39)

4.2.1 The BPSFM failure was a sentinel event

The BPSFM failure should be treated as an indicator of broader Utility residual risk. The potable-water evidence is the most direct. Before the 2024 failure, Calgary had already identified classes of critical assets whose failure could affect system-level service: large feeder mains, pump stations, valves, pressure zones, treatment-plant components and transmission bottlenecks.

The 2017 Water Network Tactical Asset Management Plan (TAMP) recognized that watermains larger than 400 mm, or feeder mains, were not included in the ordinary watermain risk model because of limited break-history data, even though any feeder main break would have much greater financial and social impact than a smaller-main failure. It also recorded that the 2015 feeder main analysis combined function, known condition, material, soil information, failure probability and cost consequence, and that 18 feeder mains were identified as most critical because they served regional partners, had limited redundancy, or had other high-consequence characteristics. (40)

The same TAMP identified catastrophic failure of large-diameter concrete feeder mains as a reliability risk, noting that concrete feeder mains tend to fail catastrophically and can have immediate, widespread impacts on City infrastructure and nearby private property. The TAMP also stated that without accurate feeder main condition information, it is difficult to schedule preventative maintenance and avoid catastrophic breaks. (40)

The 2021 WLRP materials show that the broader vulnerability was not limited to BPSFM. They identified single-source pump stations that were the only water source to their pressure zones, with failure resulting in no flow except in limited pressure-reducing valve (PRV)-backup circumstances. They also identified specific vulnerable facilities, including BP South Feeder STN004, BP NW Feeder STN020, North Hill Pump STN023 and STN024, and noted that STN024's associated feeder main could not be isolated without disrupting service to a large number of residents (41).

The 2011/2018 WLRP vulnerability work similarly identified critical pump stations and feeder mains based on population served, redundancy and the importance of moving water from treatment plants into the transmission system. It selected Bearspaw Water Treatment Plant (BPWTP) South Feeder, Glenmore Water Treatment Plant (GMWTP) South Feeder, Glenmore feeder main from Blackfoot Trail to 52 Street SE, and the Downtown feeder main for vulnerability assessment. (13)

This residual-risk concern also extended to treatment capacity. The WLRP risk-based value analysis identified major water-system risks including not achieving Typical Day Demand (TDD) if one plant failed, not meeting Maximum Day Demand (MDD) with both plants, and an event shutting down a critical part of the distribution system. It recommended Bearspaw and Glenmore plant firming programs and transmission improvements to improve reliability and redundancy. (13)

Comparative context reinforces rather than weakens this conclusion. Montréal also experienced a major PCCP/C301-type main failure in 2024, and Hamilton identified a significant leak in its largest PCCP watermain through routine inspection and testing. These incidents show that PCCP and large-main risks are not unique to Calgary. They also show why critical-main management requires redundancy, inspection access, condition-based intervention, contingency planning and the ability to maintain service when a major main is removed from service (6).

A critical utility can perform adequately in normal operating conditions while carrying unacceptable residual risk in failure conditions. The BPSFM incident exposed this distinction. The relevant question was not simply whether one failed pipe segment could be repaired. It was whether the Utility had enough redundancy, inspection access, isolation capability, treatment capacity, emergency response capability and capital-delivery discipline to maintain acceptable service if a critical asset was unavailable.

The BPSFM failure was therefore a sentinel event. It showed that known or knowable high-consequence risks were not consistently being converted into inspection, mitigation, redundancy, delivery commitments and visible residual-risk decisions. Discussions with members of the Independent Review Panel confirmed that other critical assets in the system currently present high residual risk because their condition is not well known and, in some cases, redundancy is insufficient.

The following recommendations are intended to operationalize asset management as a management system. They focus on identifying critical assets, connecting asset condition to risk, linking risk to budgets and delivery, and reporting whether risk is actually being reduced.

Recommendation 6: Establish and maintain a Tier 1 critical asset inventory and risk register.

The City should develop and maintain:

- An inventory of Utility assets whose failure could materially affect public health, fire protection, regional service, environmental compliance, system performance, or service restoration.
- A dedicated view of critical infrastructure risks within a Utility risk register, so leadership, the Oversight Board, and Council can see the highest-consequence risks, their status, and whether action is on track. The Utility risk register should include condition confidence, inspection status, redundancy, controls and mitigations, and residual risk. The register should clearly distinguish measures that temporarily manage risk from measures that permanently reduce or remove the underlying exposure.
- Practical failure-scenario plans for Tier 1 assets, including expected service impacts, emergency operating response, recovery constraints, and escalation requirements.

This finding should not be read as a conclusion that every Utility asset was unsafe or poorly managed. The finding is narrower: the BPSFM failure revealed a broader class of high-consequence residual risks that required stronger asset-integrity, redundancy, escalation and execution controls. Immediate measures such as repairs, pressure management, monitoring and soil testing may reduce near-term risk, but they should be distinguished from permanent risk reduction.

The Utility's failure to manage known or knowable high-consequence residual risks in a manner commensurate with the BPSFM's criticality reflected inadequate foresight and long-term stewardship. The issue was not that the City could guarantee that BPSFM would never fail, but that its approach did not adequately account for the future service, redundancy, resilience, and ratepayer consequences of operating with unresolved critical-infrastructure exposure. This finding indicates the City's practices were **Irregular** and **Improvident**.

4.2.2 Water loss is a visible indicator of asset performance

Calgary's water-loss record is a material asset-management indicator. The City's current public reporting states that water loss due to leaks was 23% in 2025, that losses have ranged between 20% and 24% since 2019, and that Calgary's 2025 Infrastructure Leakage Index was 4.8. The City's target is Infrastructure Leakage Index (ILI) 3, or 15%, by 2030. (42)

This issue was visible before the BPSFM failure. The 2021 Water Long Range Plan stated that non-revenue water had increased from lows near 10% in the 1990s and early 2000s to current rates above 20%, and that this was not an economical or environmental approach to Utility management. (41)

American Water Works Association (AWWA) practice supports treating this as an asset-management issue. AWWA describes water-loss control as utility accountability: reliably auditing water supplies and implementing controls to minimize system losses. AWWA also describes its Free Water Audit Software as the industry-standard tool for conducting a top-down water balance and assessing water-loss KPIs. (43) (44)

Water loss is not simply a conservation or accounting issue. It is a utility-health signal. It reflects the condition and management of pipes, joints, service connections, meters, pressure zones, production measurement, repair response and leak-detection capability.

In Calgary, leakage also affects resilience and growth. Every megalitre lost must still be withdrawn, treated, pumped and transmitted. In a constrained system, water loss consumes capacity that could otherwise support reliability, drought resilience, fire protection, regional customers, and growth. Calgary's elevated ILI and sustained 20–24% loss range therefore support a finding that distribution-system renewal, leak detection, metering, pressure management, and maintenance required stronger, sustained attention.

Recommendation 7: Treat and report water loss as a core asset-management, capacity, and resilience KPI.

The City should:

- Report water loss as an indicator of asset health, operating cost, treatment and transmission capacity, licence headroom, growth capacity, drought resilience, and future capital need. Water loss should be included in AMPs, risk reporting, budget submissions, rate submissions, and performance dashboards. Water-loss and demand-management assumptions should also feed into the IRP, because they affect treatment capacity, transmission capacity, supply planning, growth, and timing of future capital investment.
- Publish an annual water audit using recognized industry methodology (for example the AWWA/IWA methodology), and use the results to inform renewal, maintenance, metering, pressure-management, and investment decisions.
- Ensure leak, pressure, metering, and service-line data directly inform renewal, replacement, pressure-management, and maintenance priorities.
- Fund the accelerated water loss program as an execution program.

Water loss should not be treated as proof of a single cause. Non-revenue water includes physical leakage, apparent losses, metering accuracy, billing issues and data-quality limitations. Calgary's sustained 20–24% loss range, together with elevated ILI, is a material asset-management signal requiring systematic measurement, reporting and funded corrective action.

The sustained level of water loss, and the failure to treat that trend as a funded asset-management, capacity, and reliability signal before the BPSFM incident, reflected inadequate foresight and long-term Utility stewardship. The Utility's approach did not adequately account for the sustainability, service-capacity, and ratepayer consequences of elevated system losses. This finding indicates the City's practices were **Improvident**.

4.2.3 City asset-management not sufficiently operationalized

The record shows that Calgary had asset-management programs and concepts before the BPSFM failure. The 2017 Water Network TAMP described Water's asset-management framework as intended to realize optimum value across the

asset lifecycle, make the right investments at the right time, manage risks, improve reliability, extend asset life and inform capital and operating investments. (40)

The same record shows the maturity gap. The TAMP cautioned that physical condition did not tell the whole story: an asset could be in good physical condition while still having high criticality due to functional condition or other factors (40). It also described itself as a “snapshot in time” and stated that it required sustainment, annual budget-cycle review, refinement over time, and amendment when service levels, available resources or budget decisions changed. The TAMP was expected to become an important input for determining budgets and providing direction for future investments. (40)

The TAMP also identified improvement work still required to make asset management more decision-useful: continuing feeder main inspections to complete baseline assessments, improving operations and maintenance (O&M) cost categorization, reviewing performance measures for investment decision-making, developing remaining-life methods, and improving understanding of funding gaps based on deterioration models. (40)

The City’s corporate asset-management materials similarly show that the City had the right framework but knew it had not fully matured. The 2017 Corporate Asset Management Plan stated that Calgary had been building asset-management capability since 2004 and aligning practices with ISO 55001, but it also identified common improvement needs: better inventory and work-management systems, improved condition and criticality data, better communication between strategic and operational levels, improved service metrics, better investment-planning systems and improved risk understanding and decision-making. (45)

Asset-management practices in other Canadian provinces serve as fair comparators. Ontario Regulation 588/17: Asset Management Planning for Municipal Infrastructure requires municipalities to assess asset condition, identify lifecycle activities, estimate capital and operating costs, identify available funding and funding shortfalls, and explain how risks will be managed if required lifecycle activities are not undertaken (46). BC’s Asset Management for Sustainable Service Delivery Framework similarly emphasizes long-term planning, proactive management of assets such as pipes and treatment plants, and trade-offs between desired services and available resources. (47)

For critical infrastructure, asset management must be more than a planning exercise. It must function as an operating control over assets whose failure could materially affect public health, fire protection, environmental compliance, regional customers, or citywide service. It should answer not only “what condition is this asset in?” but also “how confident are we, what happens if it fails, when must it be inspected, what happens if inspection is not possible, what mitigation is funded, who owns it, and when does residual risk escalate?”

The comparative context makes this a fair criticism. Generally, Canadian municipal asset-management practices increasingly expect lifecycle activities, service levels, funding, risk and residual-risk management to be connected. Calgary had adopted that logic in its own policies. Its deficiency was that those principles were not consistently operationalized for the Utility’s most consequential assets.

Recommendation 8: Enhance asset management planning.

The City should enhance its AMPs and asset management processes to:

- Identify the specific inspection, monitoring, renewal, redundancy, and intervention requirements for Tier 1 assets. These asset-integrity plans should be treated as core inputs to the Integrated Resource Plan, so that asset condition, inspection requirements, redundancy needs, and intervention thresholds are reflected in long-term capital sequencing, operating requirements, and rate planning.
- Track AMP actions through owners, timelines, funding status, delivery status, and links to risk and budget decisions.
- Regularly review and update AMPs, and revise them promptly when material condition, risk, service, regulatory, or growth information changes.
- Maintain one authoritative record for each Tier 1 asset, including key condition, inspection, work history, risk, renewal, and data-confidence information. Low confidence in the condition of a high-consequence asset should itself trigger inspection, monitoring, mitigation, or formal residual-risk acceptance.

This finding does not dismiss Calgary’s existing asset-management work. The City had meaningful programs, including feeder main inspection, pump-station condition assessment, main-break tracking, cathodic protection and replacement programs. The finding is that these programs did not mature into a sufficiently enforceable critical-asset integrity discipline for assets whose failure could materially affect the Utility’s level of service.

The failure to translate the City's asset-management framework into enforceable critical-asset controls departed from established asset-management principles and procedures. It also reflected inadequate foresight because the City's plans and policies did not consistently become the inspection, mitigation, renewal, redundancy, escalation, and funded-action controls needed to provide for future Utility service and reliability. This finding indicates the City's practices were **Irregular** and **Improvident**.

4.2.4 Utility's risk framework not effective

The 2011/2018 feeder main vulnerability materials show both awareness and limitation. They distinguished reliability, vulnerability and resiliency as separate concepts. Reliability was defined as the likelihood that the system would maintain a specified level of service during a specified time horizon; vulnerability as the shortfall in meeting the specified level of service during a failure; and resiliency as the ability to recover. (13)

For the WLRP, only vulnerability was assessed because reliability and resiliency required significant additional data and effort. The vulnerability work assessed selected single-failure scenarios and whether the system could meet Typical Day Demand. It used a simplified binary metric: either the system could meet Typical Day Demand, or it could not. (13)

That work was valuable, but it was not a complete critical-infrastructure risk system. It did not, by itself, establish failure probability, inspection confidence, repair duration, emergency logistics, operational constraints, residual risk or the governance decision required if the consequence was unacceptable.

AWWA standards provide relevant sector context. AWWA G440 establishes emergency-preparedness expectations for water, wastewater and reclaimed-water utilities, including the ability to respond to emergencies, restore normal operations and minimize disruption of lifeline services such as public health, fire protection and sanitation. (48) AWWA J100 addresses risk and resilience management for water and wastewater systems, including assessment of consequences, vulnerabilities and likelihood as the basis for allocating limited resources to reduce risk and improve resilience. (49)

Low-probability/high-consequence risks are often under-managed because conventional risk matrices can make them appear less urgent than more frequent, lower-impact risks. For critical infrastructure, that is insufficient. If the consequence of failure is severe and condition data are incomplete, a low or uncertain likelihood estimate should not prevent escalation.

A critical-infrastructure risk framework should include consequence gates. If failure would materially affect Average Day Demand (ADD), fire protection, hospitals, regional customers, public health, environmental compliance or restoration time, the risk should trigger inspection, mitigation, redundancy planning, emergency response planning or explicit residual-risk acceptance.

Recommendation 9: Establish a risk-control effectiveness and monitoring response standard.

The City should define what qualifies as an effective risk control and distinguish partial, temporary, and permanent controls. Where monitoring is used for critical assets, the City should define the thresholds, decision authority, and required response actions, including inspection, repair, operating restrictions, escalation, and public communication where appropriate.

Risk assessments should be informed by root causes of failure and near misses, which could include technical, organizational, governance, resourcing, and decision-making causes, and incorporate lessons into plans, procedures, risk registers, budgets, and training.

The City should require escalation based on the potential consequence of failure, even where probability is low or uncertain. Finally, the City should define who may accept residual risk at each consequence level, and require documented rationale, review timelines, and oversight where material risks remain.

This finding should not be framed as "the City ignored risk." The record shows risk assessment activity. The concern is that the risk framework did not consistently force high-consequence, uncertain-probability risks into timely inspection, mitigation, redundancy, emergency planning and senior residual-risk acceptance.

The failure to ensure that high-consequence, uncertain-probability risks triggered inspection, mitigation, escalation, emergency planning, or formal residual-risk acceptance departed from established risk-management principles for critical

infrastructure. It also reflected inadequate foresight because the Utility did not consistently provide for the future service and reliability consequences of severe but uncertain risks. This finding indicates the City's practices were **Irregular** and **Improvident**.

4.2.5 Utility did not effectively translate plans/risk into action

The Utility had substantial planning materials. The 2017 TAMP, WLRP materials, vulnerability assessments, Water Loss Strategy and capital-maintenance programs identified asset condition, redundancy, water-loss, growth, O&M and capital needs.

The 2017 TAMP included capital-maintenance programs for 2015 to 2022, including main replacement, cathodic protection, feeder main leak detection, pump-station and reservoir capital maintenance, feeder main replacement, meters, watermain condition assessment and research, and other projects. (40)

The TAMP also recognized the need to link investment to risk and service. It stated that Water's challenge was to find the optimal blend of performance, whole-life cost, risk and proposed expenditures. It also recognized that financial information changed because investment plans and prioritization changed. (50)

On the O&M side, the TAMP identified a material data gap: available O&M cost information was not presented in the most valuable manner, and insufficient funding year after year could reduce preventive maintenance and increase unplanned maintenance and asset failures. It recommended continued work on lifecycle costing, forecasting tools and better cost data for O&M activities. (50)

The City's own Asset Management Policy also linked AM Plans to financial planning. It required asset-management planning to link to diligent financial planning and stated that the output of AM Plans should become inputs into infrastructure investment planning affecting both capital and operating budgets. (39)

The gap was not the absence of planning. It was the inconsistent conversion of planning into funded, scheduled, monitored and accountable risk reduction.

Peer practice provides useful context. Toronto Water's rate-supported 2023 budget separated its 10-year capital plan into state-of-good-repair, service-improvement, growth and compliance categories, including $7.632 billion for state of good repair, $5.138 billion for service improvement, $1.989 billion for growth and $782 million for compliance (51). Metro Vancouver's Drinking Water Management Plan identifies priorities including resilience to earthquakes and extreme weather, renewal of aging infrastructure, responsible planning for population growth, fiscal responsibility, conservation, source-water protection and workforce expertise. (52)

A long-range plan only reduces risk if it becomes delivery. For critical infrastructure, the relevant question is not whether a project appeared in a plan. The question is whether the risk was reduced on the planned timeline, whether delay was justified, whether interim mitigation was adequate, and whether residual risk was accepted by the right decision-maker.

Capital underspending should therefore be treated as a governance risk, not merely a budget variance. If approved capital is not spent, near-term rate or debt pressure may fall, but the physical risk may remain. Similarly, if operating capacity is insufficient to support inspection, leak detection, valve maintenance, condition assessment, commissioning and project delivery, the capital plan may not be executable even if money is nominally approved.

A further weakness in the planning-to-execution chain was the absence of a clear and consistent distinction between growth capital and renewal capital in the reviewed planning, budgeting, and reporting materials. This made it difficult to determine whether capital spending was expanding the system to serve new demand or sustaining the existing system for current customers. It also made it difficult to assess whether renewal needs were being deferred, whether growth capital displaced renewal capital, whether capital under-delivery affected growth, renewal, or both, and whether rates were sufficient to maintain existing Utility assets over the long term.

Recommendation 10: Adopt an asset–risk–budget protocol and annual budget reconciliation.

The City should require material budget, rate, capital deferral, and operating-resource decisions to identify their service, lifecycle, funding, and residual-risk implications and the authority accepting any remaining risk. Each annual Utility budget or rate submission should reconcile approved capital and operating funding to the AMPs,

the Integrated Resource Plan, the risk register, and the water-loss program, and should identify unfunded needs, delivery-capacity gaps, and accepted residual risks.

Recommendation 11: Prepare an annual Integrated Resource Plan delivery plan.

The City should translate the Integrated Resource Plan, AMPs, the critical risk register, and the water-loss strategy into annual funded work packages with clear ownership, dependencies, schedules, budgets, and risk-reduction milestones. The annual plan should report whether delivery remains aligned with the IRP and should identify any funding, operating-capacity, or delivery-capacity gaps that affect the timing of risk reduction.

This will require the City to assess delivery capacity before approving major Utility capital programs, including engineering, project management, procurement, contractor capacity, shutdown windows, permitting, operating support, and commissioning resources. Where delivery capacity is constrained, the City should disclose the effect on risk reduction, schedule, budget, and service outcomes.

Capital plans should identify the operating resources needed to inspect, deliver, commission, operate, and maintain assets, and should report operating-resource constraints as asset-integrity risks.

The City should consistently report Utility capital budgets, actual spending, carry-forward, and under-delivery using its capital investment groupings, including Maintenance/Replacement, Service Enhancement, Growth, and Transformative groupings. Mixed-purpose projects should be allocated across categories where appropriate.

Capital underspending or carry-forward is not inherently evidence of mismanagement. It may reflect tender savings, permitting, land acquisition, procurement timing, project readiness, scope refinement or cash-flow timing. The governance issue is whether deferral or under-delivery left high-consequence risk unresolved without clear interim mitigation, escalation and acceptance.

The failure to convert known planning, asset-management, and risk information into funded, scheduled, and accountable risk reduction reflected inadequate foresight and weak long-term stewardship. It left known or knowable critical-infrastructure risks unresolved in a manner that was not commensurate with the Utility's future service obligations or ratepayer interests. This finding indicates the City's practices were **Improvident**. They were also **Irregular** because established planning and asset-management processes did not consistently produce the decisions, delivery commitments, and residual-risk acceptances those processes were intended to support.

4.2.6 Asset-management did not connect service levels, residual risk, operating capacity, capital delivery

The City's policy framework required integrated decision-making. The Asset Management Policy described asset management as an ISO 55000-aligned system linking key elements and practices to manage risk and opportunity and to balance cost, risk and performance. (39) It required systemic, risk-based, optimal, sustainable and integrated principles, including investment decisions based on trade-offs between service level, risk and cost. (39)

The 2017 CAMP used the same logic. It stated that asset management should be integrated into business planning and service delivery processes, and that asset-management principles include holistic, systematic, systemic, risk-based, optimal, sustainable, integrated and aligned decision-making. (45)

But the Corporate Asset Management Plan also identified weaknesses in adopting risk-based methodologies for asset-investment prioritization, slow execution of the Integrated Infrastructure Risk Management Framework, data gaps in condition and performance information, and information that did not always sufficiently influence infrastructure status at a strategic level or drive investment allocation and decision-making. (45)

Financial and rate-setting context reinforces the point. AWWA's financing, accounting and rates policy states that water and wastewater utilities should be self-sustaining enterprises supported by cost-of-service rates, that revenues should be sufficient to pay O&M, fund and finance capital, maintain reserves and preserve assets at desired service levels, and that

utilities should provide at least annual public information about financial condition and revenues needed to maintain service and assets. (53)

EPCOR provides a nearby governance comparator. EPCOR operates Edmonton's water and wastewater collection systems under performance-based regulation, submits projected plans to City Council to set future rates, and frames the model as creating incentives to reduce costs while maintaining established performance levels and accountability for reliable service (54). Metro Vancouver's performance dashboard provides another comparator: it provides a centralized view of service performance indicators, showing year-over-year performance in relation to objectives or industry benchmarks where available. (55)

A Utility decision is rarely only a financial decision or only an engineering decision. A rate decision affects revenue sufficiency. An operating constraint can affect inspections, leak detection, valve maintenance and emergency preparedness. A capital delay can leave a critical asset vulnerable. A water-loss trend can consume treatment and transmission capacity. These effects must be visible together.

Without integrated service-risk-cost reporting, affordability, reliability and resilience trade-offs remain implicit. Decision-makers may see rates, capital budgets, asset condition and risk in separate reports without seeing how a decision in one area changes residual risk in another.

The lack of a consistent growth / renewal distinction also weakened service-risk-cost reporting. Without separating capital that expands the system from capital that sustains the existing system, decision-makers could not readily determine whether rates and budgets were funding growth, renewal, or a combination of both.

Compared with utility financial and reporting practice, Calgary's weakness was the lack of integrated service-risk-cost transparency. Rate stability and affordability are legitimate objectives, but they should not obscure whether revenues and operating capacity are sufficient to maintain assets and reduce critical risk.

Recommendation 12: Implement a service–risk–cost dashboard, and publish an annual Utility performance and risk report.

The City should provide Utility leadership, the Oversight Board, and Council, where appropriate, with an integrated view of critical risks, asset condition, water loss, maintenance backlog, capital delivery, operating capacity, rates, reserves, debt, and accepted residual risks. The dashboard should also show progress against the IRP, including changes in forecast investment need, key delivery milestones, unfunded or deferred IRP work, and the service or residual-risk implications of material departures from the IRP.

The City should publish an annual report on Utility service performance, asset condition, water loss, regulatory compliance, finances, capital delivery, residual risks, and progress against risk-reduction commitments, subject to legitimate confidentiality and security limitations.

This finding does not require Council to receive engineering-level detail on every asset. Council's role is governance. The reporting requirement is that Administration translate technical and financial information into decision-useful statements of service consequence, residual risk, cost and required action.

The failure to connect service levels, residual risk, operating capacity, capital delivery, and rate impacts in decision-useful reporting departed from the City's established integrated asset-management principles. It also reflected inadequate foresight because decision-makers were not consistently able to see how present budget, rate, operating, and delivery choices affected future Utility service, reliability, and ratepayer exposure. This finding indicates the City's practices were **Irregular** and **Improvident**.

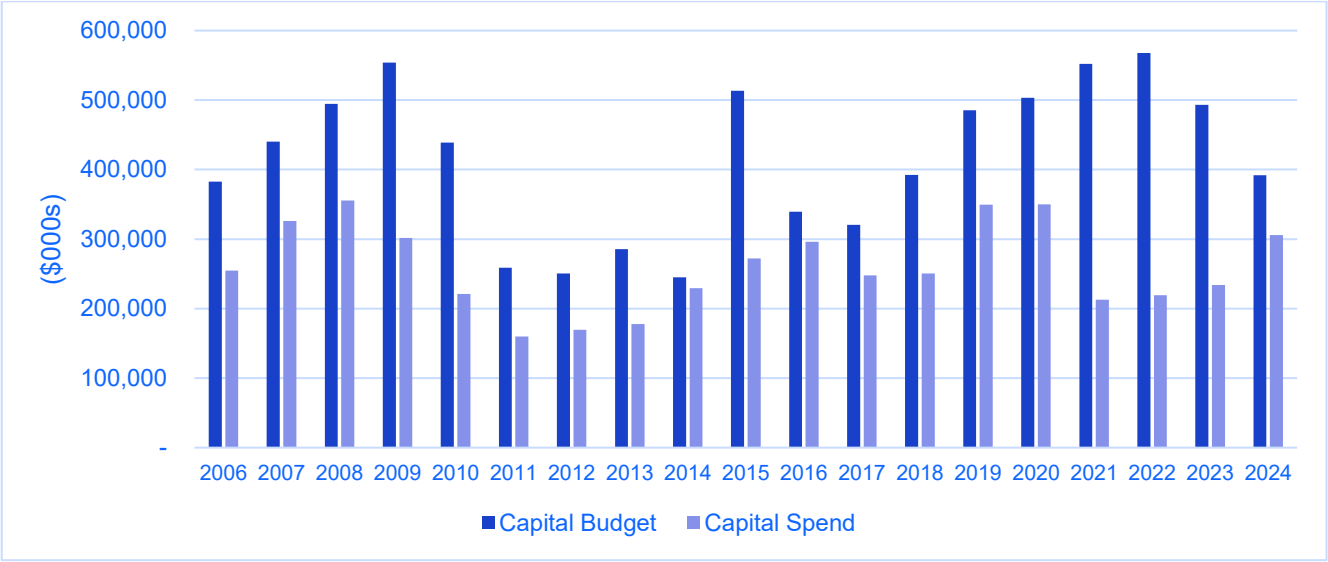
4.3 Financial management

4.3.1 Capital investment below plan

The Utility's investment in capital infrastructure was not constrained by rates or approved capital budgets. Rather, in most years, the Utility significantly underspent its capital budget. Over the period 2006–2024, the Utility underspent its capital allotment by an average of approximately 35% (56). The City has indicated that at year-end 2025, the Water Utility had a

97% spend rate, spending $516.2 million of the approved $531.7 million budget, with just $15 million carried forward to 2026. The City also indicated that the capital spend to the end of August 2026 was approximately $693 million on a total capital budget of approximately $1,502 million with a projected expenditure to year-end of 96%, or $1,440 million. This reflects progress in Administration's efforts to improve overall capital spending and maximize available budget (57).

FIGURE 5: ANNUAL CAPITAL EXPENDITURE COMPARED WITH APPROVED CAPITAL BUDGET (56)



The Utility established its rates based on the capital budget, and funding was available for the planned capital investment. While it is unlikely that historical rates would have accommodated a significantly higher level of investment in capital, the Inspection did not find evidence that Council-approved rates and budgets impeded the Utility's ability to invest more in its capital program.

Recommendations to address the Utility's repeated inability to spend its capital budget are provided in Section 4.2.5. The City's demonstrated inability to execute planned capital projects in the timeframe in which they were planned jeopardized the long-term sustainability of Utility services and demonstrates **Improvidence**.

4.3.2 Capital investment below expectations

It is not determinable whether spending its annual capital budget would have been sufficient to maintain the reliability of the Utility infrastructure and avoid the BPSFM failure. The appropriateness of the Utility's investment can only be determined by the state of the infrastructure relative to its desired service levels and risk assessment. However, had the Utility spent its annual budget, it would have compared more favourably with national averages, and growth in population and inflation.

Table 11 below shows the replacement value of the Utility's infrastructure in 2020, the most recent estimate available for which actual expenditure data is available. For reference, it also shows 2026 replacement values. Table 12 following compares the Utility's annual investment in maintaining its infrastructure with national averages and industry targets (58).

TABLE 11: REPLACEMENT VALUE OF UTILITY INFRASTRUCTURE ($000S)

Component	Replacement Value	
	2020 (59)	**2026** (7)
Water		
Non-linear	$ 5,740,000	$ 7,053,200
Linear	$18,600,000	$25,316,700
Wastewater		
Non-linear	$ 3,720,000	$ 3,831,200
Linear	$16,020,000	$29,784,500

Component	Replacement Value	
	2020 (59)	**2026** (7)
Stormwater		
Non-linear	$ 1,560,000	$ 3,853,600
Linear	$13,930,000	$19,807,900
Total Non-linear	$11,020,000	$14,738,000
Total Linear	$48,550,000	$74,909,100
Total Replacement Value	**$59,570,000**	$89,647,100

In 2020, the Utility spent approximately 63% of the national average expenditure on water utility infrastructure as reported in the Canadian Infrastructure Report Card (2019) (58). The average capital expenditure over the five years leading up to and including 2020, as well as the average of the four years following 2020 (2025 data is not included in this historical benchmark analysis) were 54% and 44% of the national average. This analysis compares the Utility's total capital expenditure, which includes growth capital, to the industry average for sustaining capital (i.e., excluding growth capital). The comparison would be even more stark if the Utility's growth capital were excluded.

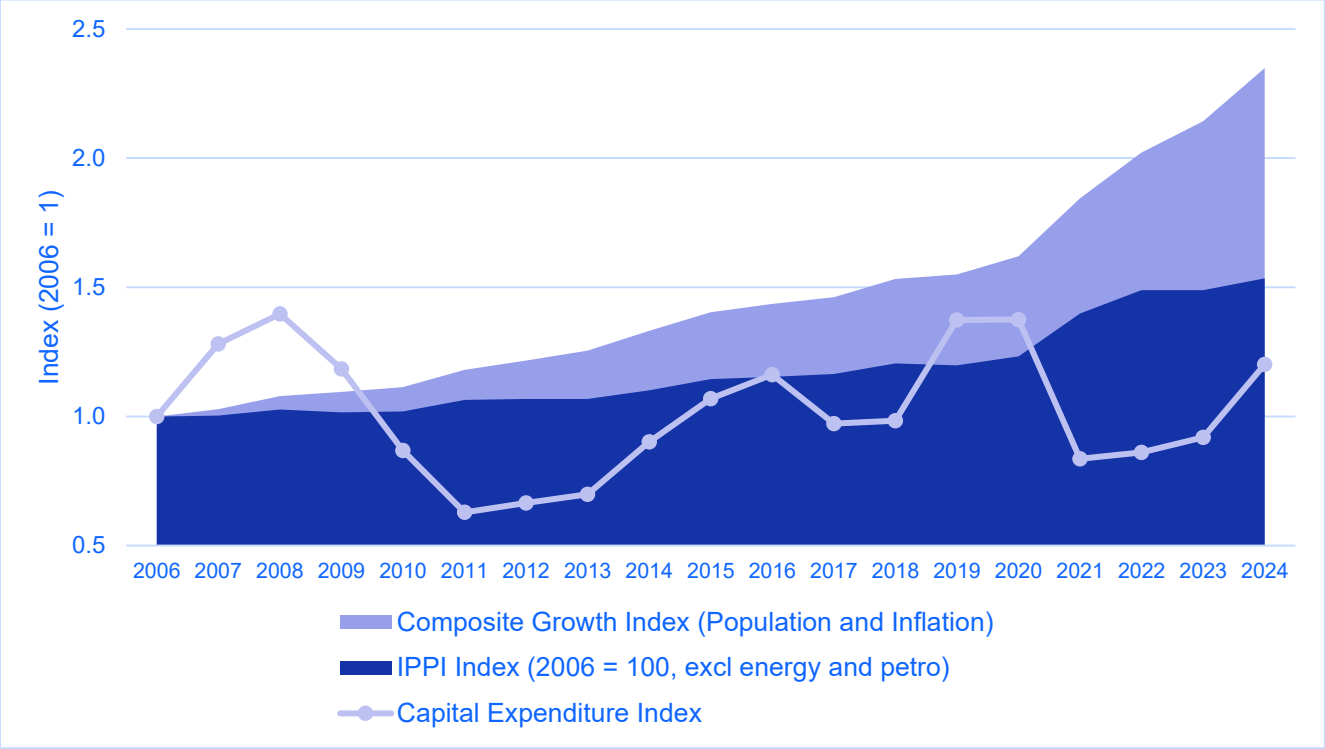
TABLE 12: COMPARISON OF UTILITY CAPITAL EXPENDITURES TO INDUSTRY BENCHMARKS ($000S)

	Utility	Comparable Annual Investment based on Industry Values		
	Replacement Value	**Average Investment**	**Target Investment - Low**	**Target Investment - High**
Non-linear Infrastructure				
Industry Averages and Targets (% of replacement value) (58)		1.1%	1.7%	2.5%
Replacement Value and Comparable Annual Investment Levels. (59)	$11,020,000	$121,220	$187,340	$275,500
Linear Infrastructure				
Industry Averages and Targets (% of replacement value) (58)		0.9%	1.0%	1.1%
Linear Replacement Value and Comparable Annual Investment Levels. (59)	$48,550,000	$436,950	$485,500	$534,050
	$59,570,000	$558,170	$672,840	$809,550
Utility Actual Total Capital Expenditure	**Actual % of Replacement**	**Comparable Utility Spend**	**Comparable Utility Spend**	**Comparable Utility Spend**
2020 Actual (56) and % of replacement value	0.6%	$350,208	$350,208	$350,208
2016–2020 Annual Average (56) and % of replacement value	0.5%	$298,819	$298,819	$298,819
2021–2024 Annual Average (56) and % of replacement value	0.4%	$243,073	$243,073	$243,073
Actual Capital Expenditure as a % of Benchmarks				
2020 Actual		63%	52%	43%
2016–2020 Annual Average		54%	44%	37%
2021–2024 Annual Average		44%	36%	30%

However, on average, the industry invests less in sustaining capital than it targets. The Utility's annual capital expenditures drop to 30%–50% when compared to industry target rates for linear and non-linear infrastructure. Again, the comparisons would be lower still if growth capital were removed from the Utility's annual expenditures.

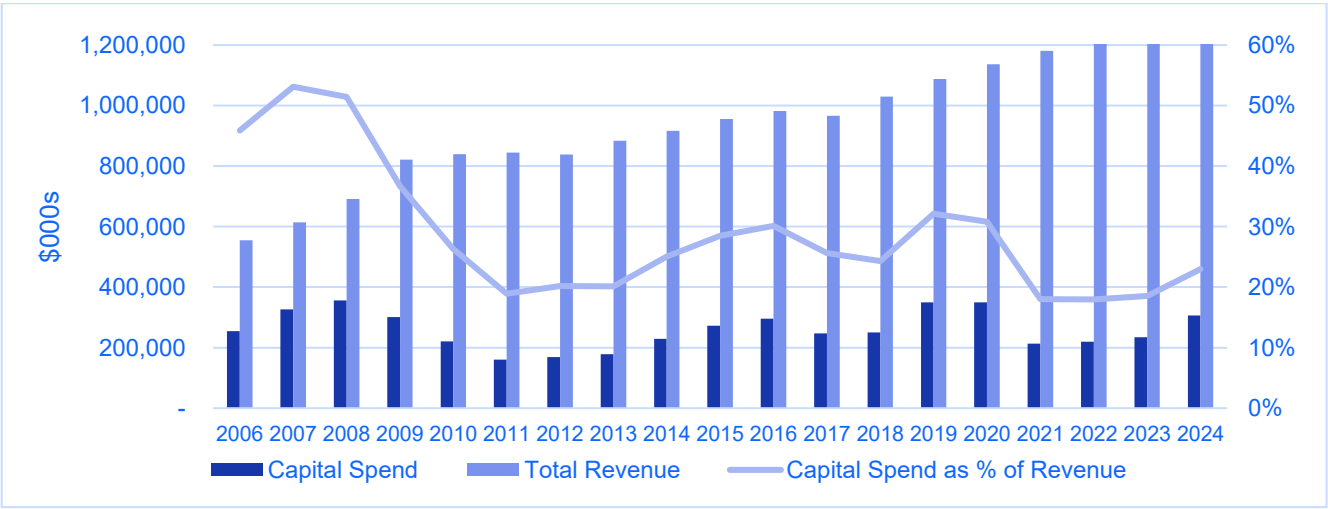
The Utility's annual capital expenditures have lagged inflation and population growth. Population growth is a proxy for Utility growth and for the City's capacity to pay for utility services. Figure 6 shows that annual capital expenditures fluctuated between 2006–2024 and did not demonstrate a pattern of sustained growth. Over the same period, City population and Statistics Canada Industrial Product Price Index (IPPI) grew by a combined 134%. Annual capital expenditures more closely approximated, but fell short of, IPPI on its own.

FIGURE 6: INDEXED ANNUAL CAPITAL EXPENDITURE COMPARED WITH IPPI AND A COMPOSITE GROWTH INDEX (IPPI AND POPULATION) (56)



Finally, annual capital expenditures have not kept pace with the Utility's own revenues. Figure 7 below compares the Utility's annual capital expenditures with revenue from 2006–2024.

FIGURE 7: ANNUAL CAPITAL EXPENDITURE COMPARED WITH UTILITY REVENUES (56)



As a percentage of revenue, annual capital expenditures have fallen from approximately 46% in 2006 to approximately 23% in 2024 (56). In the years 2021 to 2023, capital expenditures were less than 20% of revenue (56). On average over time, mature utilities would be expected to exhibit more consistent capital expenditures relative to revenue.

Compared with industry benchmarks, population and inflation drivers, and revenue growth, the Utility appears to have significantly underinvested in its capital infrastructure. Such underinvestment may have been a contributing factor to high water leakage rates and successive critical failures. Underinvestment in capital infrastructure can result in reduced service levels and low reliability. Underinvestment can also result in significant rate escalation when the Utility needs to address urgent repairs and catch up on its capital maintenance program. This can negatively impact the affordability of utility services.

Recommendation 13: Evaluate current levels of investment in capital maintenance.

The Utility should demonstrate that it is investing sufficiently in capital maintenance programs to maintain service levels, and reduce risk of critical failures. As presented in recommendations pertaining to asset management, the amount of required investment should be driven by target service and reliability standards, asset lifecycle plans and asset condition assessments. This evaluation should be performed against the IRP and refreshed AMPs, not only against historical budgets or affordability targets.

The City's apparent underinvestment in Utility infrastructure jeopardized the long-term sustainability of Utility services and demonstrates **Improvidence**.

4.3.3 Utility financial practices: incidental findings

The Inspection examined the Utility's rate setting process and the financing of its infrastructure investment. The intent of this line of examination was to determine if rates or financing unduly constrained investment in capital infrastructure. As was noted in the previous section, the Inspection found no evidence that investment was significantly constrained due to available funding.

In the process of completing the examination, the Inspection noted significant departures from generally accepted utility practices, including rate setting principles described in the American Water Works Association (AWWA) M1 Manual: Principles of Water Rates, Fees and Charges. The City claims to follow the AWWA principles in its rate setting. (60) These departures can be considered **Irregular**. These findings are listed in Table 13 below along with reference to accepted practice.

TABLE 13: COMPARISON OF INCIDENTAL FINDINGS WITH ACCEPTED PRACTICE

Incidental Finding	Accepted Practice
The Utility follows a cash-needs approach and includes a return on equity in its rates. (61) Capital expenditures are funded by debt, ratepayer contributions and reserves, which are primarily funded by surpluses in rates collected. The City does not typically contribute to capital expenditures, and as such, does not contribute equity to capital investments. The inclusion of a return on equity in the cash-needs approach results in the Utility charging ratepayers for the use of their own equity. A 2016 independent consultant's report recommended that the Utility eliminate the return on equity payment to the City. (62)	There are two commonly recognized approaches to water utility rate setting: cash-needs approach and utility approach. A cash-needs approach includes the cash portion of capital expenditures. Under a utility model, ratepayers are not charged for the cash portion of capital expenditures. (63) Under the cash-needs approach, the cash portion of capital expenditures is that which is not funded by debt or reserves. As reserves are also funded from rates, the equity portion of capital expenditures is essentially funded by ratepayers. As such, the cash-needs approach does not include a return on equity in rates. (63) Under the utility model, a utility funds the equity portion of capital expenditures and recovers the investment over time through depreciation expenses. The utility earns a return on its equity invested. (63)
Prior to 2021, the return on equity included in rates was a fixed amount of $42.5 million. (56) While this amount approximated a return on equity calculation, it was not derived annually based on a deemed capital structure and annually adjusted benchmark return such as that provided annually by the Alberta Utilities Commission. (61) It was noted in the previous finding that it is	Return on equity is a calculated value that is incorporated into each rate application. Accepted practice is to apply approved or published return on equity rates to a similarly published or industry-accepted deemed capital structure. Utilities in Alberta commonly reference the Alberta Utilities Commission for return on equity and capital structure. (63) (64)

Incidental Finding	Accepted Practice
inappropriate for the Utility to include a return on equity. However, if it were to include a return, it would be expected that the return would be calculated annually.	
Starting in 2021, the return on equity includes an amount equal to a payment formerly described as a "franchise fee." (56) (61) The decision to do so was made following the City receiving legal advice. (65) With the inclusion of the franchise fee, the return on equity amount included in rates is no longer reflective of a return on equity. It is notable that the April 2024 cost of service study performed by independent consultants described a typical calculation for return on equity and then stated that "Projections for 2021–2026 return on equity (ROE) transfers to the City were calculated and provided by Finance." (61) The Utility is not transparent about its calculation and justification for the revised return on equity amount.	The American Water Works Association manual on rate setting states that "Payments made to a municipality's general fund should reimburse the general fund for the necessary cost of goods and/or services required by the water utility to provide the water service." (63)
All of the return on equity is transferred to the City's general revenue. The Utility does not retain earnings to build equity. (56) The Utility is not retaining surplus generated from its return on equity to finance future capital requirements.	Under the utility model, earnings are derived predominantly from the return on equity portion of rates with all other costs recovered through rates without profit. The cash-needs approach does not typically generate earnings except as may be used to fund reserves. (63) Common practice among utilities is to withhold a portion of earnings to build equity. Dividends are paid from earnings that are in excess of the amount a utility needs to finance capital requirements. (66)
The Utility does not maintain separate financial statements. (67) A 2016 independent consultant's review of the Utility's financial practices recommended that the Utility establish independent financial reporting to increase transparency. (62) This recommendation was not accepted by Administration. (67) It is difficult for ratepayers and other interested parties to confirm that the Utility used proceeds appropriately, that any over- or under-collection of required revenue remained within the Utility, and that the Utility has equity to justify its use of a return on equity.	It is common practice for utilities to provide transparent financial reporting that clearly shows the use of proceeds from ratepayers, as well as the capital invested in the utility. (68) (63)
The Utility demonstrated a pattern of collecting revenues in excess of its required revenue. (56) Surplus collection of revenues appears to have flowed through the Utility's Sustainment Reserve and to have been used to finance future projects. (56) While surplus revenue appears to have been retained within the Utility and used to fund future investment, the Utility frequently collected revenue in advance of its requirements.	It is not good practice, except in specific, defined circumstances, for utilities to follow a pattern of collecting more revenue than required. Even if the overcollection relative to required revenue is reinvested in the utility, it represents a payment in advance that is not justified. The AWWA states that "…projections are intended to forecast, as nearly as practicable, the future levels of revenue and revenue requirements so that the utility may make adequate, but not excessive, adjustments in rate and other revenue sources in a timely manner." (63)

Recommendation 14: Adopt a utility model for rate setting.

The City should align its rate setting and financial management practices with industry practice and consider adopting a utility model.

These findings were also considered in the development of Section 7.2, which discusses potential legislative enhancements to improve regulatory oversight and financial discipline for municipal utilities.

4.4 Response to Raftelis report and post-incident reforms demonstrate irregularity in governance

4.4.1 2015–2016 Raftelis Water Utility Financial and Governance Review

1. The review, its purpose and why it mattered

The Raftelis review was an independent examination of the finances, management and governance of Calgary's water, wastewater, drainage and reclaimed-water utilities commissioned by City Administration. At the time, the utilities reported through the City's Utilities and Environmental Protection Department (UEP), led by General Manager Robert Pritchard. The City retained Raftelis, a specialist utility advisory firm, to assess the utilities' current and projected financial risk on a standalone basis and recommend how that risk should be managed. Its mandate expressly included the existing financial plan and policies, alternative business and governance models, the financial-management structure, transfers to the City, and standalone financial reporting. (69) (62)

Raftelis was selected through a competitive process that began in January 2015. City procurement materials described the firm as North America's largest utility-focused consulting practice and emphasized its depth of utility experience. The review was extensive. Work began in April 2015 and included interviews with key stakeholders in UEP, the City's finance organization, Chief Financial Officer Eric Sawyer and City Manager Jeffrey Fielding. The review continued through 2015 and into the first quarter of 2016, when the final report was issued. (62) (70)

The review took place while the City was managing substantial utility debt, a large program of growth and asset renewal, and pressure to keep rates affordable. The 2011 Utilities Financial Plan had already called for a course correction to restore financial sustainability. (27) The 2014 Water Infrastructure Investment Plan then identified approximately $3.5 billion of required investment over ten years to maintain assets, meet regulatory obligations, preserve service reliability and accommodate growth. (71)

Raftelis did not portray the utilities as poorly run. It recognized strong operations, planning and engineering and assessed overall standalone financial risk as moderate or better. It nevertheless identified structural weaknesses that could undermine long-term decision-making: financial accountability was divided between the UEP General Manager and the corporate finance organization; Council lacked a dedicated expert utility-governance body; the utilities did not prepare auditable standalone financial statements; and important financial policies and transfers required reconsideration. These were not secondary observations. Raftelis listed changes to the financial-management structure and governance structure as its first and second priorities. (62)

The importance of the Raftelis review lies in both what it found and how those findings were handled. Its findings could have enabled Council to consider whether an essential, technically complex and capital-intensive utility required clearer executive accountability, dedicated financial expertise, transparent financial reporting and independent expert oversight. (62) Senior members of Administration discussed those issues, and the mayor and Chief of Staff were included in the advance briefing process. The draft-final report was sent to them, but there is no evidence that it was sent to other councillors. (72) Council instead received a narrower account focused on selected financial-policy changes. Five of the nine priority recommendations—including Raftelis' first and second priorities—were consciously excluded from Council reporting. (62) (73) (30) (67) (18) The evidence does not establish a coordinated plan to conceal the report or a direction from the mayor (74) (75) (76); it does establish conscious administrative selection and a material information imbalance between the Mayor's Office and Council as a whole.

The result was a missed opportunity to improve utility governance and a failure in the flow of material information to Council. The handling was irregular because a significant independent review was circulated and summarized selectively (62) (73) (72); improper because Administration's preferences displaced Council's opportunity to consider major governance and policy choices; and improvident because material recommendations addressing the Utility’s long-term governance, financial accountability and stewardship were not brought to Council for consideration or otherwise subject to a documented disposition process. The later identification of substantially similar safeguards by the Independent Review Panel and this Inspection is not the basis for that finding. Rather, it demonstrates the continuing institutional significance of issues that Raftelis had identified a decade earlier. (6)

2. The nine priority recommendations and what Council was told

Raftelis listed nine principal recommendations. Table 14 provides a simplified summary, shows whether each recommendation appeared in the 2016 Water and Wastewater Utilities Financial Plan Progress Report presented to the Utilities and Corporate Services (UCS) Committee, and identifies its later institutional relevance to the Independent Review Panel report and this Inspection. (62) (6) (73)

TABLE 14: RAFTELIS RECOMMENDATIONS REPORTED TO COUNCIL

Priority	Simplified Raftelis Recommendations	Disclosure to UCS/Council	Comparison to Independent Review Panel Report Recommendations	Comparison to Inspection Recommendations in this Report
1	Create a dedicated senior finance and administration function within UEP, reporting directly to the UEP General Manager and responsible for accounting, budgeting, rates and levies, debt and financial analysis.	**NOT PROVIDED**	A dedicated utility department, COO and embedded finance/controller functions.	**Recommendation 20** - place the Utility within a single-purpose MCC/ENMAX structure with dedicated management, financial accountability and board oversight. The City was also developing a dedicated Utility department and COO structure at the time of the Inspection
2	Establish an independent public utility commission to provide expert governance and support, while Council retained approval of budgets and rates.	**NOT PROVIDED**	An expert Water Utility Oversight Board (WUOB) and a preferred long-term expert board.	**Recommendations 1, 5 and 20.** Recommendation 1 reserves material Utility decisions for WUOB and Council consideration. Recommendation 5 gives the WUOB access to independent technical, financial, regulatory and asset-management expertise. Recommendation 20 would ultimately place the Utility under an independent, skills-based corporate board.
3	Create a capital reserve to protect against capital expenditures exceeding the assumptions used to set rates.	**PROVIDED IN SUMMARY**	Supports stronger funding and reserve discipline; less directly connected to Independent Review Panel's core governance reforms.	No direct equivalent recommendation
4	Remove the fixed $2-billion debt limit and use a minimum debt-service-coverage ratio to assess sustainable debt.	**PROVIDED IN SUMMARY**	A financial-policy measure; less directly connected to Independent Review Panel's central governance findings.	No direct equivalent recommendation
5	Set the sustainment reserve using 120 days of operating and maintenance expense rather than 10% of revenue.	**PROVIDED IN SUMMARY**	Supports financial resilience; less directly connected to Independent Review Panel's central governance findings.	No direct equivalent recommendation
6	Eliminate the return-on-equity transfer to the City and replace it with a payment based on equivalent municipal taxation of above-ground utility assets.	**NOT PROVIDED**	Aligned with Independent Review Panel's emphasis on transparent cost-based rates, transfers and stronger economic regulation.	**Recommendations 1, 2 and 12**. Recommendation 1 makes departures from dividend, return-on-equity and other financial-resilience targets reserved matters. Recommendations 2 and 12 require the rate, funding, transfer and long-term risk implications of such decisions to be presented transparently.

Priority	Simplified Raftelis Recommendations	Disclosure to UCS/Council	Comparison to Independent Review Panel Report Recommendations	Comparison to Inspection Recommendations in this Report
7	Prepare annual auditable standalone financial statements for each utility service as though each were a self-supporting entity.	**NOT PROVIDED**	Segmented and ultimately standalone utility financial statements.	**Recommendations 12 and 20.** Recommendation 12 requires annual public reporting of Utility finances, performance, capital delivery and risk. Recommendation 20 would carry the principle further through an independently assessed MCC structure, with the choice between a standalone MCC and a defined ENMAX option left to Council.
8	Continue specified financial policies, including full cash funding of maintenance capital, debt-service coverage and the long-term 60/40 debt-equity target.	**PARTIALLY PROVIDED**	Supports long-term funding discipline, but was not a principal Independent Review Panel governance reform.	**Recommendations 10, 12 and 13.** These recommendations link lifecycle requirements and capital-maintenance sufficiency to budgets, rates, debt, reserves, capital delivery and residual risk. They support the same objective of long-term financial discipline without adopting each Raftelis financial-policy prescription.
9	Include comprehensive pro forma projections in the report to Council, reflecting final off-site levy changes and all Raftelis recommendations.	**NOT PROVIDED**	Aligned with Independent Review Panel's call for integrated long-term planning linking condition, risk, investment and rates.	**Recommendations 2, 10, 12 and 15.** These require material decisions to disclose their service, cost, funding and risk implications; reconcile budgets with asset and risk plans; provide integrated forward-looking reporting; and formally disclose and dispose of every material independent recommendation.

The pattern matters. The five omitted recommendations—1, 2, 6, 7 and 9—were not minor technical details. They included Raftelis' number one and two priorities: a dedicated utility finance structure and independent expert governance. Council was also not told that Raftelis recommended ending the existing return-on-equity transfer, preparing standalone audited financial statements, and providing comprehensive projections reflecting all of the consultant's recommendations. Priority 8 appeared only in part. (62) (73)

3. How the recommendations were handled within the City

The structural recommendations were neither obscure nor overlooked. The documentary and interview record shows that they were known and actively discussed at the highest levels of Administration and presented to the mayor and his office. Pritchard, who supported the structural and governance changes proposed by Raftelis, presented governance options to City Manager Jeffrey Fielding, Chief Financial Officer Eric Sawyer, and the mayor and his office. (72) (30) These included options such as a utility commission, a wholly owned subsidiary, an investor-owned utility and continuation of the status quo. The draft-final report was emailed to Fielding, Sawyer, Mayor Nenshi and Chief of Staff Chima Nkemdirim in late November 2015, followed by further internal discussions. (72) (30) (67) (18) The final report was completed in early 2016 (62).

The second interviews with Pritchard and Fielding were conducted under solemn affirmation. (30) (74) Pritchard testified that he strongly supported two linked recommendations: a more robust utility-governance model and a dedicated finance executive reporting within UEP. He viewed the existing division of responsibility as ambiguous and was concerned about who would be accountable if the utilities encountered financial difficulty. According to Pritchard, Fielding initially listened but ultimately had neither the appetite nor the interest to pursue governance change, while Sawyer opposed moving the utility finance function under the UEP General Manager. (30)

The evidence indicates a broader administrative process rather than a single decision made at one moment. A Financial Governance Steering Committee oversaw aspects of the review and follow-up. Gillian Skeates stated that Pritchard directed which Raftelis recommendations were included in the committee summary and that she understood the Council report was to contain only recommendations with which Administration agreed. She said Fielding could, in practice, prevent matters he did not support from proceeding. Kathy Davies Murphy independently recalled being told by Skeates

that the governance component would not be shared with Council. Skeates confirmed that Sawyer opposed eliminating the return-on-equity transfer. (67) (18)

Pritchard's evidence is consistent with the central features of that account. He acknowledged that the governance recommendations were not included in Council reporting because Fielding and Sawyer would not support advancing them. He said the May 2016 report to UCS was a financial-policy update and therefore not the place for governance recommendations, although the return-on-equity recommendation was also omitted at the Chief Financial Officer (CFO)'s direction. He nevertheless continued to press Fielding for a separate governance discussion with Council and testified that it became clear no such discussion would occur. (30)

Fielding recalled little of these events, despite records of his Raftelis interview, multiple emails and several meetings with Pritchard over a period of months. His evidence is nevertheless significant in two respects. First, he accepted that, as City Manager, he was ultimately accountable for reports submitted by Administration to committee and Council, and he acknowledged receiving the final Raftelis report. Second, he defended the general practice of filtering consultant recommendations: Administration would develop its own advice, and recommendations it did not consider useful to Council's decision-making did not necessarily need to be disclosed. He did not regard it as problematic that the mayor and his office received the report and related advice while other councillors did not. (74)

That reasoning confuses Administration's right to recommend with Council's right to govern. Administration did not have to endorse every Raftelis recommendation. It could have disclosed all nine, identified those it supported, and argued forcefully against those it considered impractical, undesirable or inconsistent with the City's direction. It could also have organized a separate report or meeting on governance rather than including those issues in the scheduled financial-policy update. What it could not properly do was remove major Council-level choices from an extensive independent review and present the remaining subset as the consultant's financial-policy recommendations.

The explanation that the Raftelis review was commissioned internally rather than directed by Council and therefore did not need to be fully disclosed is not persuasive. Who commissioned the work did not determine the importance of its conclusions. Once an independent specialist proposed changes to Council's governance of an essential utility, major transfers to the City, standalone financial reporting and senior financial accountability, those issues were no longer merely internal management advice. They were material to Council's stewardship responsibilities.

The disagreement was significant enough to influence Pritchard's decision to retire soon after the Raftelis review and the subsequent reporting to Council. He testified that the City's refusal to support the governance and other policy changes he favoured was a major factor in that decision. (30)

4. Analysis of Administration's actions

The report to Council materially changed the character of the Raftelis review. It described the consultant as having been asked to assess financial risk and recommend changes to financial policy. It did not fairly disclose that Raftelis had also examined governance and management structure, listed those structural reforms first and second, and prompted senior Administration to debate and decline to advance them. The description was incomplete in a way that favoured the status quo. (62) (73)

The process was irregular. Although a Financial Governance Steering Committee oversaw aspects of the review and follow-up, the evidence does not show a transparent recommendation-by-recommendation response provided to Council; a documented explanation for rejecting the priority structural recommendations; a commitment to return with a separate governance report; or a tracking mechanism showing how all nine recommendations were accepted, rejected, deferred or resolved. The full report circulated among senior administrators and the mayor and his office, but not to the committee charged with utility oversight or to Council collectively. (72) (67) (18)

The process was improper because senior Administration effectively decided which governance choices Council was permitted to see. Section 201 of the MGA assigns Council responsibility for developing and evaluating municipal policies and programs. Sections 205 and 207 make the Chief Administrative Officer accountable to Council and responsible for advising and informing it on municipal operations and affairs. Those provisions do not require Administration to transmit every consultant recommendation without analysis. Administration must exercise judgment about what information Council needs. In this case, however, the omitted material went to the heart of Council's oversight role. The recommendations should have been disclosed and debated, with Administration free to explain why it agreed or disagreed. (2)

The conduct was also improvident. The omitted recommendations addressed safeguards a large utility requires over decades: clear executive and financial accountability, independent technical and financial challenge, standalone financial

visibility, transparent rate and transfer policies, and long-term projections linking policy choices to future utility conditions. Rejecting or deferring those safeguards without Council deliberation preserved short-term organizational convenience at the expense of long-term resilience.

No coordinated plan to conceal the report needs to be proved. The evidence establishes conscious selection: Pritchard directed the recommendations included in the summary; Skeates understood that only financial recommendations accepted by Administration were to be reported; Davies Murphy recalled being told that the governance component would not be shared; and Pritchard testified that Fielding and Sawyer would not support advancing the structural recommendations. Skeates also recalled that Sawyer opposed the recommended elimination of the return-on-equity transfer. Whether described as filtering, advice or administrative judgment, the practical effect was the same: material recommendations were withheld from the governing body. (30) (67) (18)

5. Analysis of the Mayor and Mayor's Office

The Mayor’s Office was included in the advance briefing process concerning the Raftelis review. City records identify presentations prepared for the mayor that conveyed Raftelis’ favourable assessment that UEP was professionally managed and that governance change was not required to mitigate any then-identified quantifiable financial risk. At the same time, those materials described recommended governance alternatives and the potential benefits of a revised model and expressly identified obtaining the “Mayor’s opinion to inform how we proceed” as part of the process. The draft-final report was subsequently sent directly to Mayor Nenshi and Nkemdirim. Pritchard recalled meeting with the mayor and his office at which draft recommendations were discussed, although Nkemdirim could not confirm the particular meetings reflected in the briefing materials or any feedback provided by the Mayor’s Office. This evidence establishes that the Mayor’s Office was given advance access to the governance issues and was included in the related consultation process, but it does not establish that Mayor Nenshi or his office directed the subsequent exclusion of any recommendations from Council reporting. (72) (30) (76) (75)

No evidence shows that it was sent to other councillors. (72) That created a serious and irregular information imbalance within a council whose authority is collective. The mayor had no unilateral authority to accept or reject utility-governance recommendations on Council's behalf. (2) Some advance briefing and agenda management is appropriate, but recommendations of this significance should have entered the formal Council process.

The interviews did not establish that Mayor Nenshi gave guidance to Fielding or others about what should be reported. Nenshi did not recall the report, the meetings, or any substantive discussion with Fielding or Sawyer. Pritchard testified that he took no direction from the mayor on the content of Council reporting and did not remember a strong mayoral opinion. Fielding likewise recalled no guidance. Nkemdirim said the Mayor's Office did not pre-vet or approve Administration's reports and recalled no administrative recommendation to change the utility's governance. (30) (74) (76) (75)

The absence of a remembered instruction does not make the Mayor's Office irrelevant to the information flow. Fielding testified that consulting the Mayor's Office on proposals that might go to committee and Council was normal practice. Pritchard described the mayor as someone who offered important views but generally expected Administration to bring forward a firm proposal. Nkemdirim confirmed regular briefings by the City Manager and general managers and explained that the Mayor's Office normally relied on Administration's presentations rather than underlying reports. Taken together, this evidence shows that the Mayor and his Office were included in the pre-Council briefing and consultation process concerning whether and how the governance proposals would be advanced. The record does not permit the extent of any influence exercised by the Mayor’s Office over the ultimate reporting decision to be determined. The evidence does not establish that Mayor Nenshi directed or knowingly approved that decision. (30) (72) (74) (76) (75)

Mr. Nenshi's own evidence underscores why this matter should have reached Council. He accepted that governance structure was within Council's authority and that significant consultant recommendations would typically be summarized for Council, although Administration might filter or summarize technical material. He said that major governance recommendations should not be buried in a financial-policy report and that, if Administration deemed them important, they would have come forward in a separate report. No separate governance report was brought. Raftelis presented nine priority recommendations. Collectively, they addressed governance, financial accountability, reserves, debt policy, transfers to the City, standalone financial reporting and comprehensive long-term projections. In the Inspector's assessment, each recommendation was material to Council's governance and long-term financial stewardship of an essential utility. All nine should therefore have been clearly disclosed to Council, accompanied by Administration's position on each, regardless of whether Administration supported them. Although some agenda-setting by Administration, including consultation with the Mayor’s Office, is unavoidable and appropriate, it did not justify selectively presenting only part of this integrated package of material advice. (62) (76) (75)

6. The direct link to this inspection and the Independent Review Panel

Several key recommendations from this inspection and the Independent Review Panel closely align with recommendations identified by Raftelis a decade earlier that were ultimately rejected. (62) (30) (67) (73) (6)

Table 14 shows that the strongest parallels concern the five Raftelis recommendations that were not disclosed to Council: dedicated utility financial leadership, independent expert oversight, reform of the return-on-equity transfer, standalone financial statements and comprehensive forward-looking projections. The later recommendations are not identical, but they address many of the same underlying weaknesses in accountability, independent challenge, financial transparency and long-term planning.

Raftelis' first listed priority was to place a dedicated senior finance and administration function within the Utility, reporting to its General Manager. (62) The Independent Review Panel subsequently recommended a dedicated Utility department under a single Chief Operating Officer, supported by embedded finance resources and a dedicated controller. (6) This inspection does not repeat that organizational recommendation because the City was already developing a dedicated Utility department and COO structure. (23) (24) However, Recommendation 20 would carry the principle further by placing the Utility within a single-purpose MCC structure potentially under ENMAX, with dedicated management, financial accountability and board oversight.

The alignment is also strong with respect to independent expert governance. Raftelis recommended a public utility commission while retaining Council's authority over rates and budgets. (62) The Independent Review Panel recommended an expert Water Utility Oversight Board as an immediate measure and an MCC governed by an expert board as the preferred long-term model. (6) Recommendations 1 and 5 of this inspection are intended to make such oversight effective by identifying material decisions that must be reviewed by the Water Utility Oversight Board and Council, and by giving the Board access to independent technical, financial, regulatory and asset-management expertise. Recommendation 20 similarly contemplates eventual oversight by an independent, skills-based corporate board.

Raftelis' recommendation for auditable standalone financial statements also closely anticipated later conclusions. (62) The Independent Review Panel recommended segmented and ultimately standalone Utility financial statements. (6) Recommendation 12 of this inspection requires annual public reporting of Utility finances, performance, capital delivery and risk, while Recommendation 20 would result in separate audited financial statements within an MCC structure. These approaches differ in form, but all seek to provide decision-makers and ratepayers with clearer visibility into the Utility's financial condition and performance.

The comparison concerning the return-on-equity transfer is less direct. Raftelis recommended eliminating the transfer and replacing it with a payment based on equivalent municipal taxation of above-ground Utility assets. (62) The Independent Review Panel emphasized transparent cost-based rates, transfers and stronger economic regulation. (6) This inspection does not recommend abolishing the return-on-equity transfer. Instead, Recommendations 1, 2 and 12 would require decisions concerning dividends, return on equity and other financial-resilience measures to be treated as material governance matters and presented transparently with their implications for rates, funding, capital requirements and long-term risk. The common principle is transparency and disciplined regulatory consideration, not necessarily adoption of the same transfer methodology.

Raftelis' ninth listed priority—comprehensive projections reflecting the off-site levy changes and all of its recommendations—also has a clear functional counterpart in both later reviews. (62) The Independent Review Panel called for integrated long-term planning linking asset condition, risk, investment and rates. (6) Recommendations 2, 10 and 12 of this inspection require material decisions to disclose their service, cost, funding and risk implications, reconcile budgets with asset and risk plans, and provide integrated forward-looking reporting. Recommendation 15 addresses the additional governance failure revealed by the Raftelis episode by requiring independent recommendations to be disclosed, formally accepted, rejected or deferred, and tracked through implementation or closure.

The comparisons should not be overstated. Raftelis was principally a financial, management and governance review; the Independent Review Panel examined the causes and systemic implications of a major infrastructure failure; and this inspection addresses a broader set of governance, asset-management, financial-management and implementation controls. Raftelis did not identify the condition of the Bearspaw South Feeder Main or prescribe the inspection, asset-integrity and risk-escalation measures later recommended. Nor does this inspection adopt every specific Raftelis financial-policy recommendation. The significance lies in the repeated identification, across reviews with different mandates, of the need for clearer executive accountability, independent expert scrutiny, transparent Utility finances and stronger integration of long-term plans, funding and risk.

These comparisons turn the 2015–2016 episode from a historical reporting deficiency into a consequential missed reform opportunity. Calgary was advised before the failure that its utility governance and financial-management structure warranted change. (62) Senior Administration considered those issues, and the Mayor and the Mayor's Office were included in the briefing stream, but the recommendations were rejected without putting them before Council. (72) (30) (67) A decade later, after a major infrastructure failure exposed systemic weaknesses, independent reviews recommended many of the same institutional safeguards—now with greater urgency and at far greater financial and public cost. (6)

Between 2007 and 2013, the City explored the Calgary Regional Water and Wastewater Corporation (CRWWC), a wholly owned subsidiary intended to provide regional water and wastewater services outside the city's boundaries. The proposal advanced through several years of due diligence to the point that the CRWWC was incorporated, although Council ultimately directed in 2013 that work on the entity be discontinued and regional services continued instead through bilateral servicing agreements. The initiative concerned the structure through which regional services would be provided, rather than the governance of Calgary's core water utility. It nevertheless demonstrates that Council had previously been prepared to consider, and substantially advance, alternative corporate structures involving water services. While it cannot be known what Council would have decided had the Raftelis recommendations been presented to it, the CRWWC experience reinforces that those recommendations concerned substantive policy choices that Council could reasonably have considered. (57)

7. Conclusion

The Raftelis review gave the City an informed opportunity to address structural weaknesses before they became embedded for another decade. Although the evidence does not establish that the mayor directed or knowingly approved the omissions, the Mayor and the Mayor's Office were part of a pre-Council briefing and consultation process in which they were informed while Council collectively was not.

Administration was entitled to disagree with Raftelis. It should not have prevented Council from considering major recommendations on utility governance, financial accountability, transfers, standalone reporting and long-term financial projections. Full disclosure, accompanied by a candid administrative response, would have preserved both Administration's advisory role and Council's governing role. The approach taken instead displaced Council deliberation, had the effect of preserving the status quo, and left no formal accountability for recommendations that were rejected or deferred.

Recommendation 15: Adopt a formal disposition process for independent recommendations. Council should adopt a corporate policy identifying which independent reviews, audits and technical reports across City functions require formal reporting because they raise material public safety or service risks, substantial financial or capital implications, or significant questions about governance or Council-approved policy. For each review meeting those criteria, the CAO should provide the responsible Council committee with its material findings and a written response to each material recommendation, stating whether it is accepted, rejected or deferred, with reasons, an accountable executive, a timetable and any residual risk. The full review should be available to councillors, subject to lawful confidentiality and privilege. A central registry should track these recommendations, implementation and evidence of closure, with periodic reporting to Council. Council should decide matters within its authority, while the CAO remains responsible for operational implementation. The Water Utility Oversight Board should be consulted on how the policy applies to Utility reviews within its mandate.

The conduct was **Irregular**, **Improper** and **Improvident**: irregular in its selective information process, improper in its displacement of Council's role, and improvident because material recommendations concerning the Utility's long-term governance, financial accountability and stewardship were rejected or deferred without Council deliberation or a documented disposition process. The later Independent Review Panel reforms and recommendations of this Inspection address many of the same institutional issues. That correspondence demonstrates the enduring significance of matters Raftelis had identified a decade earlier.

4.4.2 Post-failure reforms are necessary and corroborate the nature of the pre-failure deficiencies

Post-failure reforms should be considered carefully. The fact that reforms were adopted after a failure does not, by itself, establish that earlier decisions were deficient or that they caused the failure. However, where reforms directly correspond to gaps previously identified in the record, they are relevant corroborating evidence.

The reforms now being advanced or recommended — stronger risk and asset-integrity processes, refreshed AMPs, an IRP, a dedicated Utility department, segmented financial statements, expert oversight, accelerated redundancy capital and water-loss acceleration — are mainstream critical-utility controls. AWWA's standards environment includes utility-management standards for emergency preparedness, risk and resilience, distribution systems, water conservation and efficiency, wastewater collection and stormwater management. (77)

The reform package also aligns with gaps visible in Calgary's own documents: the need for better asset condition and performance data, risk-based prioritization, links between AMPs and financial planning, living asset-management plans, improved O&M cost data, water-loss controls, and clearer service-risk-cost trade-offs. (50) (45) (41) (78)

The Independent Review Panel's recommendations point in the same direction, including strengthened risk and asset-integrity processes, refreshed AMPs, an IRP, a dedicated Utility department and independent expert oversight. That alignment is useful, but the finding does not depend on the Panel's report. It rests on the underlying planning, asset-management, risk and financial records. (6)

The reform package is best understood as a movement toward improved practice. It should not be treated as hindsight proof that every pre-failure decision was unreasonable. However, the reforms correspond to controls that were already identified or supported by Calgary's own policies, TAMPs, water-loss materials, vulnerability assessments and peer utility practice.

The system should not be regarded as fixed. Several residual risks will persist for years, including BPSFM exposure until redundancy is completed, treatment-plant single points of failure, water-loss reduction, long-range capacity constraints, wastewater vulnerabilities and stormwater execution risks. Reform adoption is not the same as reform effectiveness.

Recommendation 16: Establish a reform implementation assurance framework.

Manage post-failure reforms through an integrated framework that assigns ownership, milestones, budgets, expected risk reduction, reporting requirements and independent verification. The assurance framework should include IRP completion, adoption, stewardship, update cadence, annual budget reconciliation, and evidence that IRP outputs are being used in capital, operating, rate, and residual-risk decisions.

Recommendation 17: Define closure criteria for every reform.

Consider a reform complete only when there is evidence that the resulting control is operating effectively and is integrated into planning, budgeting, risk escalation, delivery and oversight processes. For the IRP, closure should require more than completion of a planning document. It should require evidence that the IRP is approved, owned, periodically updated, reconciled to annual budgets and rates, and used to sequence capital and operating work.

Recommendation 18: Conduct periodic asset-management and IRP practice audits.

Regularly assess whether asset-management plans are current, information is reliable, risks and deferrals are properly escalated, lifecycle work is delivered, residual risks are accepted at the appropriate level, and the Integrated Resource Plan is being used to guide capital sequencing, operating requirements, rate planning, and annual delivery.

Recommendation 19: Report reform progress based on risk reduction. Measure implementation by whether residual risk has decreased, remained unchanged or increased, rather than by completion of activities such as drafting policies, establishing committees or developing dashboards.

5 Assessment by Criteria

The following section provides the Inspection's assessment of the degree to which the City demonstrated the evaluation criteria over the principal review period ending June 30, 2026. This section comprises detailed findings for matters pertaining to Objective Two of the Ministerial Order. See 2.3.1 Inspection evaluation criteria for a mapping of the evaluation criteria to the specific components of Objective Two. Detailed criterion-level findings, including supporting evidence, are provided in Appendix C: Findings by Criteria.

In addition to the assessment presented in this section, the Inspection identified a number of changes that the City is making in response to the Independent Review Panel report issued in January 2026. For example:

- Initiated a review of the organization structure of the Utility, with an objective to consolidate all core utility functions in one department;
- Established the Water Utility Oversight Board (WUOB), which adds an expert-advisory layer to its oversight of the Utility; and
- Appointed Michael Thompson as the Acting Chief Operating Officer of the Utility.

While these changes align with recommendations from the Independent Review Panel report, it was not yet possible to assess the results of the changes at the time of the Inspection.

The Inspection assessed the City's practices against each criterion and determined the degree to which each criterion was met using the following definitions:

Generally met	The criterion was substantively demonstrated, although secondary limitations or caveats may exist.
Partially met	Some relevant process, evidence, or practice existed, but the criterion was not fully demonstrated across the relevant time period, scope, or decision pathway.
Not met	The evidence shows that the core intention of the criterion was not satisfied.
Not demonstrated	Reviewed records did not contain enough evidence to determine that the criterion was met, but also did not contain sufficient contrary evidence to support a definitive Not Met finding. This assessment is not a favourable finding; it identifies an evidentiary or documentation gap.

5.1 Governance

TABLE 15: SUMMARY OF GOVERNANCE EVALUATION

Criteria	Assessment	Summary Finding
Direction Setting		
1. Service levels and acceptable risk are clearly defined and approved by Council or a committee of Council charged with regulating the Utility (collectively referred to as Council throughout the balance of this framework)	**Not Met**	Service-level and risk concepts existed, but the reviewed record did not show a clear Council-approved Utility service-level and acceptable-risk framework.

Criteria	Assessment	Summary Finding
2. New Councils are briefed about the service levels and acceptable risks.	**Partially Met**	Council onboarding occurred, but systematic Utility-specific briefing on service levels, critical assets and acceptable risk was not evidenced across the review period.
3. A risk assessment, consistent with industry practice, is maintained that assesses the potential impact and probability of failures.	**Partially Met**	Multiple risk-assessment mechanisms existed, but a continuous Utility-wide framework covering impact and probability across the full review period was not evidenced.
4. The risk assessment is amended to reflect new information (e.g., results from condition assessments).	**Partially Met**	Current processes can update risks, but historical updates from condition, inspection and operating information were not consistently evidenced.
5. Risk assessment is compared against acceptable risk. Variances are reported to Council and are used to inform capital maintenance planning.	**Not Met**	Current reporting includes water risk levels. However, there is no recurring Utility-specific risk variance reporting to Council before the BPSFM events that linked actual risk levels to approved risk tolerance and requested Council decisions on out-of-tolerance conditions.
Resourcing		
1. Council is presented with sufficient information to inform rate setting and approval of capital expenditures. At a minimum, information provided includes risks and service levels, operating costs, required revenue and its allocations, prioritized capital costs, and capital financing.	**Partially Met**	Council received rate and capital information, but not a complete service-risk-cost package linking capital delivery and residual risk to rates.
2. Council decisions are reflective of its role as rate regulator and consider the reliability of services, the necessity of planned capital expenditures (prudence), the reasonableness of required revenue and rates, the appropriate use of debt, and the fair return on rate base.	**Partially Met**	Council considered rates and financial metrics, but reliability, prudence, risk and lifecycle implications were not consistently integrated.
3. Regulator decisions pertain to the Utility in isolation and are not influenced by broader City priorities or financial constraints.	**Not Met**	Utility decisions were not shown to be insulated from City-wide budget, debt and affordability priorities.
Oversight		
1. Council receives performance reports at least quarterly to monitor service levels, risk, and financial performance.	**Partially Met**	Recurring corporate reporting existed, but quarterly integrated Utility performance reporting was not evidenced historically.
2. Council reporting is accurate, transparent and objective.	**Partially Met**	Formal reporting existed, but pre-incident reporting did not consistently communicate asset risk, capital under-delivery, lifecycle consequences and residual risk.
3. Leadership receives performance reports at least monthly to monitor asset condition,	**Partially Met**	Current leadership reporting is stronger, but historical monthly integrated Utility performance reporting was not evidenced.

Criteria	Assessment	Summary Finding
performance against service levels and acceptable risk, status against lifecycle plan, status of capital maintenance and rehabilitation.		
4. Leadership reporting is accurate, transparent and objective.	**Partially Met**	Current reporting includes project and risk information, but historical transparent decision records for key residual risks were not evidenced.
5. Unacceptable performance is identified, and remedial actions are documented and executed.	**Not Met**	Auditor tracking and current post-incident tracking exist, but a management-owned Utility remedial-action register was not evidenced.
Accountability		
1. Roles, responsibilities and accountabilities for and between Council and Administration are clear with respect to the Utility.	**Partially Met**	Council and Administration roles were formally distinguished, but end-to-end Utility accountability shifted and was not consistently mapped.
2. Roles, responsibilities and accountabilities for functions within the Utility are clear.	**Partially Met**	Internal role structures existed, but role clarity changed over time and was not evidenced through a comprehensive Utility accountability matrix.
3. There are individuals who are solely accountable for the performance of the Utility overall and its constituent functions.	**Partially Met**	Earlier periods had clearer Utility GM accountability, but the post-2022 distributed model lacked single end-to-end Utility accountability.
4. Delegations of authority are documented and include timelines for revisiting.	**Partially Met**	Delegations and escalation paths existed, but a complete, periodically reviewed Utility delegation matrix was not evidenced.
5. There is no evidence to suggest that individuals overstep their roles and responsibilities, including any delegated authorities.	**Not Met**	The Raftelis incident shows senior Administration selectively reported material utility-governance recommendations, displacing Council's opportunity to consider them; the Mayor's Office received information not provided to Council as a whole.
6. The organization structure promotes communication and collaboration within the Utility. Spans of control and layers are not excessive, the structure does not promote silos, and functions that must work most collaboratively share common oversight.	**Partially Met**	Coordination mechanisms existed, but the distributed structure did not consistently demonstrate timely cross-functional decision-making.
7. Failures in accountability are addressed through investigations and performance management.	**Not Met**	Corporate audit and performance mechanisms existed, but systematic investigation or consequences for Utility accountability failures were not evidenced.
Responsiveness		
1. Policies exist to promote reporting of concerns identified by City employees.	**Generally Met**	Employee concern-reporting policies existed.
2. Formal channels exist to support reporting of employee concerns.	**Generally Met**	Formal employee concern channels existed through audit and whistleblower processes.

Criteria	Assessment	Summary Finding
3. Policies within the Utility and the City require escalation of risks to service levels.	**Partially Met**	Current risk-escalation processes exist, but pre-failure escalation of BPSFM-level service risk was not evidenced.
4. The Utility has a process to track and escalate known deficiencies or elevated risks to service levels (issues). The process includes escalation to Council.	**Partially Met**	Current issue and risk tracking processes exist, but consistent pre-incident escalation of known deficiencies to Council was not evidenced.
5. The Utility has a process to prioritize and address issues identified.	**Partially Met**	Capital and risk prioritization processes existed, but a Utility-wide non-capital issue-resolution process was not evidenced.
6. Critical issues are addressed within an appropriate timeframe (i.e., in time to avoid diminished service levels, or as soon as possible to return to target service levels).	**Partially Met**	Emergency response capacity was shown, but critical Utility issues were not consistently resolved before service impacts.
Responsiveness - Cases		
1. The City developed an action plan to address recommendations from past reviews and documented rationale for deviations.	**Partially Met**	Post-BPSFM action planning is evident, but comparable action planning for earlier significant reviews before the 2024 BPSFM failure was not evidenced.
2. The City established governance and oversight specific to the implementation of the recommendations.	**Partially Met**	Implementation governance exists following the 2024 BPSFM incident, but comparable governance for pre-incident reviews was not evidenced.
3. Actions were or are aligned and sufficient to address the recommendations within a timeframe that reflects their urgency.	**Partially Met**	Current actions are directionally aligned, but sufficiency and timely completion have not been demonstrated.
4. Remedial actions are adequately funded and resourced and do not jeopardize the Utility's ongoing operations and capital maintenance.	**Partially Met**	Current resourcing increased, but historical remedial actions were not evidenced to be consistently or adequately resourced.
5. Progress to complete the actions is monitored. Delays are assessed and addressed.	**Partially Met**	Current monitoring is stronger for BPSFM and capital delivery, but historical delay-management was not consistently evidenced.
6. Completed actions were sufficient to address the issues that gave rise to the recommendations.	**Not Met**	Effectiveness of completed actions has not yet been demonstrated.

5.2 Asset Management

TABLE 16: SUMMARY OF ASSET MANAGEMENT EVALUATION

Criteria	Assessment	Summary Finding
Asset Planning		
1. A comprehensive lifecycle plan existed for the BPSFM, and for water and wastewater infrastructure more generally.	**Partially Met**	System-level lifecycle planning existed, but a comprehensive BPSFM and portfolio lifecycle plan across the review period was not evidenced.
2. Risk-based condition assessments were conducted, and results were used to inform capital maintenance planning and to update the lifecycle plan.	**Not Met**	Risk-based assessments existed, but the BPSFM condition assessment was not completed before rupture and lifecycle plans were not updated in time.
3. The lifecycle plan was communicated and used for capital maintenance planning.	**Partially Met**	Lifecycle planning informed budgets in concept, but the current handoff and investment process was still being formalized.
Portfolio Planning		
1. A capital maintenance plan exists and is informed by the lifecycle plan and condition assessments.	**Partially Met**	Capital-maintenance planning components existed, but a complete formal plan consistently linked to lifecycle and condition data was not evidenced.
2. Capital maintenance is prioritized based on risk and service levels.	**Partially Met**	Risk and service-level prioritization concepts existed, but consistent portfolio-wide application was not demonstrated.
3. High-priority capital maintenance is prioritized over growth capital.	**Not Met**	No formal rule or consistent evidence demonstrated that high-priority maintenance is taking priority over growth capital.
4. Investment in capital maintenance is in line with industry averages.	**Not Met**	Capital-maintenance investment was not evidenced to be in line with industry averages.
Maintenance		
1. Construction and rehabilitation projects were undertaken in accordance with the capital plan and budget.	**Not Met**	Capital under-delivery was well established, and the magnitude of annual variances supports that rehabilitation delivery deviated from budgeted plans. Correspondence reviewed between the City and its contractors did not indicate systemic issues with coordination or communication.
2. Construction and rehabilitation projects were completed within planned timeframes.	**Not Met**	Chronic capital underspending, and lack of program- and project-level reporting, indicate the rehabilitation program overall suffered schedule delays from planned completion targets.
3. An operating maintenance plan existed for the BPSFM, and for water and wastewater infrastructure more generally.	**Generally Met**	A formal operating maintenance planning and monitoring framework existed for drinking-water distribution assets, including documented maintenance plans, routine activities, and dashboards tracking maintenance targets.
4. Operating maintenance is completed as planned.	**Generally Met**	Dashboards showed that the majority of targeted operating maintenance activities were completed by year-end.

5.3 Financial Management

TABLE 17: SUMMARY OF FINANCIAL MANAGEMENT EVALUATION

Criteria	Assessment	Summary Finding
Capital Funding		
1. A long-term capital plan exists that reflects the capital maintenance plan and identifies sources of funding (reserves/equity and debt).	**Generally Met**	The Utility maintained a long-term capital plan for much of the Inspection period.
2. The long-term capital plan includes contingencies for unplanned maintenance.	**Generally Met**	The Utility does not maintain a dedicated capital reserve. Rather, the Utility funds unplanned capital expenditures through unspent capital budget and available debt capacity.
3. The long-term capital plan uses metrics to test the viability of the plan (e.g., debt/revenue and debt servicing ratios; impact on rate).	**Generally Met**	Capital plans were tested against financial targets.
4. The Utility is able to access funding required for high-priority maintenance and renewal in the year required, and for medium-priority maintenance and renewal no later than one year after the planned year.	**Generally Met**	The Inspection did not find evidence of high-priority capital expenditures being delayed due to funding constraints.
5. For determining a return on rate base, the Utility is using a capital structure that aligns with industry practice.	**Partially Met**	The Utility uses a deemed capital structure to calculate its return on rate base. However, there was no evidence that the City invested equity in the Utility. Ratepayers fund the equity portion of capital expenditures.
6. Cash surpluses due to non-cash expenditures are accumulated in a capital reserve to fund replacement capital.	**Generally Met**	This criterion assumes a utility approach to setting rates. The Utility follows a cash-needs rate-setting approach, which does not include depreciation. The cash component of capital expenditures is collected from ratepayers.
7. The Utility has identified a target level of reserve based on the capital plan plus contingencies, and the Utility or City has a mechanism to fund the reserve.	**Generally Met**	The Utility has a target for its operating fund, the Sustainment Reserve, but does not maintain a capital reserve. See criterion 2 above.
8. Dividends (if applicable) are only paid to the City where the Utility is a) earning a rate of return, and b) able to finance planned capital investments.	**Not Met**	The City collects a dividend that significantly exceeds its rate of return.
Capital Expenditures		
1. Capital budgets are expended within the budget years.	**Not Met**	The Utility frequently underspent its annual capital budget within the intended year. However, the Utility spent 94% of its capital budget in 2024, which could indicate it has implemented changes to its capital planning or delivery practices. However, the City indicated that the capital spend to the end of August 2026 was $692.5 million on a total capital budget of $1,502.1 million with a projected expenditure to year-end of 96%, or $1,440 million, indicating practice improvements.

Criteria	Assessment	Summary Finding
2. Capital expenditures are within an acceptable variance of budgeted amounts.	**Not Met**	The Utility frequently underspent its annual capital budget within the intended year. However, the Utility spent 94% of its capital budget in 2024, which could indicate it has implemented changes to its capital planning or delivery practices.
3. Capital budget performance is monitored by Leadership and Council. Significant variances are escalated to Council and remedial action is taken.	**Not Met**	While there was evidence of variances being reported and some in-year budget adjustments, there was no evidence that the repeated variances were investigated and remedial action taken to address them.
Revenues		
1. Required revenue reflects the full cost of the Utility, and if applicable, a return on rate base.	**Generally Met**	Regular cost of service reviews reflected the full cost of the Utility.
2. The Utility does not rely upon municipal access fees or franchise fees that are collected and paid to the City.	**Generally Met**	When the Utility collected municipal access fees, they were transferred to the City.
3. Variances between required revenue, actual revenue and actual costs are "trued up" in future years.	**Generally Met**	The Utility does not perform a formal true-up calculation; however, surplus revenues appear to be retained within the Utility and indirectly offset future-year rates.
4. Off-site levies and payment in lieu of contributed capital are used for growth.	**Partially Met**	Off-site levies and payment in lieu of contributed capital were used as growth-related funding sources, and reviewed documentation notes that the 2016 bylaw moved to 100% recovery for Greenfield growth-related costs. However, the evidence does not demonstrate that these sources fully funded growth, were consistently matched to specific growth projects or fully recovered growth costs.
5. A process to allocate required revenue to regional customers and City customers exists and generally follows industry practice.	**Generally Met**	A revenue allocation process existed through cost-of-service studies, customer-class rate calculations, user-pay principles and Regional Customer rate requirements, with references to industry practice and AWWA principles. However, reviewed documentation does not independently demonstrate how required revenue was allocated between Regional and City customers in each year or whether allocations consistently reflected cost causation.

6 Considerations for the City

The Independent Review Panel investigating the systemic factors that led to the 2024 failure of the BPSFM recommended that the City establish an arm's-length MCC for the Utility. (6) This Inspection strongly supports that recommendation. Calgary's water, wastewater and stormwater services are essential, technically complex and capital-intensive. They depend on disciplined stewardship of long-lived assets, sustained investment and clear accountability for reliability, risk, service and financial performance. The governance model should be designed specifically for those demands. The findings in this section relate to Objective Three of the Ministerial Order.

An MCC governed by an independent, skills-based fiduciary board would provide a single chief executive accountable for Utility performance, continuous expert oversight, dedicated long-term asset and financial planning, and standalone reporting. Council would retain its public-policy role and its responsibilities as shareholder, together with any regulatory responsibilities assigned to it under the eventual structure. The extent and exercise of Council's shareholder rights would need to be defined in the corporation's governing arrangements. The board and chief executive would have a sustained mandate focused on safe, reliable and financially prudent Utility service. The Water Utility Oversight Board is a valuable interim advisory measure, but an advisory body does not provide the decision-making authority or fiduciary accountability of a corporate board.

These are inherent merits of the MCC model. They apply whether the Utility is established as a standalone MCC or ultimately integrated with ENMAX. Table 18 summarizes how the model fits the Utility's enduring governance requirements.

TABLE18: UTILITY GOVERNANCE REQUIREMENTS AND MCC BENEFITS

Governance requirement	Merit of the MCC model
Clear accountability for overall Utility performance.	A chief executive would have defined responsibility for service, risk, capital and financial outcomes and would report directly to a fiduciary board.
Sustained oversight informed by utility, infrastructure, financial, regulatory and risk expertise.	A skills-based board could be selected for the expertise needed to test plans, challenge performance and oversee prudent stewardship on a continuing basis.
Integrated asset, risk, maintenance and capital decisions across long asset lives.	The board could require a unified asset-management strategy, explicit treatment of residual risk, stable lifecycle funding and regular reporting on delivery and outcomes.
Transparent finances, rate setting and performance reporting for Council and ratepayers.	Standalone audited statements, cost-of-service analysis, dedicated capital plans and public performance reporting would make service, affordability, funding and risk choices more visible.

A standalone Water Utility MCC could provide the governance benefits described above. Integration with ENMAX could provide those benefits through an established utility enterprise, while allowing the Utility to draw on existing corporate capabilities. ENMAX has experience with capital-intensive network businesses and established functions in finance, treasury, risk management, internal controls, procurement, technology and other areas. A standalone MCC would need to develop or obtain many of those functions. Sharing an existing platform may reduce duplication and help establish mature corporate governance sooner. The extent of any savings, financing advantage or improvement in performance remains to be demonstrated.

On the evidence presently available, the Inspector regards ENMAX integration as the preferred long-term end state if an independently assessed structure can deliver strong water-specific governance, safe and reliable service, and value for ratepayers at acceptable cost, risk and time. This is a conditional judgment about the potential of the option. It is not a conclusion that the required structure and terms already exist. ENMAX's experience in electricity does not itself establish water, wastewater, stormwater or public-health expertise, or the capacity to assume the Utility's employees, assets and capital program. Those matters require detailed assessment.

The corporate structure is especially important. An ENMAX option must identify which entity would own and operate the Utility, how its board and executive would be accountable for water performance, and how Council would obtain

appropriate visibility and exercise its shareholder responsibilities. Separate water accounts and audited reporting, safeguards against cross-subsidization, a suitable rate-setting framework, and clear arrangements for public-health, environmental and regional obligations would be necessary. The assessment must also consider the effects on ENMAX's existing businesses and commitments. Municipal ownership alone does not settle these questions.

The City has already initiated the appropriate route for resolving the issue. In February 2026, Council directed a third-party consultant to examine Water Utility MCC options, work with the Water Utility Oversight Board on an evaluation framework, prepare an implementation plan and report to Executive Committee by the fourth quarter of 2027. This Inspection's recommendation should be incorporated into that work rather than create a parallel review. At a minimum, the consultant should develop a credible standalone MCC option and a sufficiently defined ENMAX integration option to permit a meaningful comparison. Other feasible structures may be considered where they offer a material difference in governance or outcomes.

The options should be assessed against common criteria established at the outset, including service reliability; public-health and environmental obligations; asset stewardship and capital delivery; water-specific expertise; governance, accountability and Council's shareholder rights; regulatory arrangements; rates and value for ratepayers and taxpayers; financing and effects on the City and ENMAX; workforce and regional commitments; and the cost, risk and timing of implementation. The consultant should test the assumptions and material uncertainties for each option, including whether proposed safeguards and transaction terms are achievable. ENMAX should provide operational and financial information and an indication of structures and terms it would be willing to explore. The City should provide the equivalent information needed to assess a standalone corporation and the present arrangements. Both should have an opportunity to identify factual errors in material concerning them. The consultant should retain responsibility for the evaluation and conclusions.

Council should approve the consultant's final terms of reference, following advice from the Water Utility Oversight Board. The consultant's report should be submitted without alteration through Executive Committee to Council, with the Oversight Board receiving it at the same time. Administration should be able to present its advice and response separately. Given the provincial interest in critical infrastructure and the statutory framework for MCCs, the Minister of Municipal Affairs should be invited to designate a liaison for process oversight. That liaison could receive the terms of reference and milestone reports, identify provincial legal or regulatory questions, and receive the consultant's final report. This role would support a complete and timely assessment without directing the consultant's findings or displacing Council's decision-making responsibility.

An ENMAX structure would also require a careful review and, if that option proceeds, renegotiation of the existing shareholder agreement. The assessment should identify the rights and protections needed for water-utility governance, the amendments required to provide them, the effects on existing ENMAX obligations, and whether the City and ENMAX could agree on workable terms. It should examine asset ownership, reserves, debt, liabilities, contracts, licences, water rights, employees, pensions and shared services, together with the consequences for urgent infrastructure work. A finding that integration is attractive in principle would not be sufficient if necessary terms or safeguards cannot be secured.

The fourth quarter of 2027 is a reasonable deadline for the independent options report and implementation plan. Council should identify its proposed corporate end state by June 2028, allowing time to consider the consultant's work and the Oversight Board's advice. The City should then complete the required public and statutory processes, with a target of making the final corporate decision by the end of 2028. If a material issue prevents either decision on that timetable, Council should identify the issue, the work needed to resolve it and a revised decision date. Council's decision should explain the comparative evidence, the consultant's recommendation and the reasons for selecting the proposed structure, including how it weighed the material advantages, disadvantages and implementation risks identified for each feasible option. If Council selects a structure different from that recommended by the consultant, it should explain the reasons for doing so.

Recommendation 20: Establish arm's-length Utility governance and decide the corporate end state on a defined timetable.

The City should proceed toward establishing the Utility as an arm's-length MCC governed by an independent, skills-based fiduciary board and led by a chief executive accountable for Utility performance. The eventual corporation should have dedicated asset, risk and capital plans, standalone audited financial statements, and regular public reporting on service, reliability, investment and financial outcomes. The final structure should be selected through the independent options work already directed by Council and the applicable public and statutory processes.

Council should incorporate the requirements in this recommendation into the mandate of its third-party MCC consultant. After receiving advice from the Water Utility Oversight Board, Council should approve a framework that compares a fully developed standalone Water Utility MCC with a defined ENMAX integration option against common criteria. The consultant should obtain information and test feasible arrangements with the City and ENMAX, while retaining responsibility for its assessment and conclusions. Its unaltered findings and implementation plan should be submitted through Executive Committee directly to Council by the fourth quarter of 2027, with the Oversight Board receiving them at the same time. The Minister of Municipal Affairs should be invited to provide a designated liaison for process oversight and advice on provincial matters, without directing the assessment or making the corporate choice.

ENMAX should be examined as the Inspector's conditional preferred long-term end state because its existing utility platform may offer governance and operating advantages. The consultant should apply the same criteria and evidentiary standard to ENMAX integration and a standalone MCC; neither outcome should be predetermined. Council should identify its proposed end state by June 2028 and target a final corporate decision by the end of 2028, after the required public and statutory steps. Council should give reasons grounded in the independent assessment for the structure it selects, including how it considered the consultant's recommendation and the material advantages, disadvantages and implementation risks identified for each feasible option. If Council selects a structure different from that recommended by the consultant, it should explain the reasons for doing so. Council should also identify any material issue that requires an extension, together with a revised decision date.

Before an ENMAX transfer, the City and ENMAX would need to negotiate satisfactory amendments to the shareholder agreement and resolve the legal and corporate structure, Council's shareholder rights, water-specific board and executive accountability, financial separation, rate-setting and regulatory arrangements, and the effects on ENMAX's existing obligations. Before transfer under either MCC structure, the City should satisfactorily address asset ownership and condition; reserves, debt and liabilities; contracts, licences and water rights; workforce and pensions; public-health and environmental duties; regional agreements and growth servicing; and continuity of urgent inspection, renewal and redundancy work. The implementation plan should establish staged milestones and independent checks of service readiness. If Council remains the economic regulator, it should act through a dedicated utility regulatory committee supported by independent technical, financial and legal advice, with clear separation among its regulatory, shareholder and broader policy responsibilities.

7 Considerations for the Province

Many of the findings of the Inspection were allowed to occur in part due to weaknesses in the oversight of critical infrastructure and ratepayers' rights. This section identifies potential areas where provincial legislation or policy changes could strengthen oversight and reduce risk of similar issues arising within the City or another Alberta municipality. The findings in this section relate to Objective Three of the Ministerial Order.

7.1 Improved oversight over critical infrastructure

The successive BPSFM failures demonstrate the importance of maintaining critical infrastructure for the health, well-being and prosperity of Calgarians and Albertans. Municipalities own and are responsible for maintaining a significant amount of the Province's critical infrastructure, including water and wastewater infrastructure, major bridges, and in some cases, electrical infrastructure. Electrical infrastructure is regulated under North American reliability standards. However, there are no similar reliability or service standards for other types of critical municipal infrastructure.

7.2 Improved oversight over municipal utilities

The Inspection identified that the City did not provide sufficient oversight over the Utility's asset management and financial management practices. Insufficient oversight of a utility creates a risk that ratepayers' interests are not adequately protected.

When a municipality elects to deliver utility services, such as water and wastewater services, in a manner that is not tax-supported, it creates two distinct interest groups—ratepayers and taxpayers. Each has different interests and rights. While there is significant overlap between taxpayers and ratepayers, there are differences, particularly where a municipal utility serves ratepayers beyond its municipal boundaries.

Councils' responsibilities are bifurcated: the responsibility to taxpayers, and more broadly, the residents and businesses of their municipalities; and the responsibility to ratepayers as the regulators of their utilities. Taxpayers' interests are protected through the electoral process, mandated public processes such as public Council meetings, and access to information such as budgets and financial reports. Budgets and taxes are debated publicly, and taxpayers are able to intervene.

Ratepayers' interests are intended to be protected by a regulator, which represents their interests in overseeing utilities. Regulators are required to protect the interests of ratepayers for necessary services that are delivered by a natural monopoly, regardless of the owner of the monopoly. Good regulatory processes are transparent, providing information to ratepayers that enables them to assess the reasonableness and fairness of rates, and raise concerns prior to decisions being made.

This Inspection identified deficiencies in the regulatory oversight of the Utility (4.1.1 Council and committee oversight of the Utility), and rate setting and financial management practices that were not consistent with industry standards (4.3.3 Utility financial practices: incidental findings). Such findings suggest that ratepayers' interests were not effectively represented by the municipal regulator (Council). The MGA does not provide sufficient guidance on suitable regulatory practices to address the Inspection findings.

Table 19 lists the potential gaps in the MGA's ability to effectively regulate municipal utilities. It also suggests potential enhancements to address the gaps. The enhancements focus on achieving desired outcomes and do not provide specific guidance about the form of potential legislative change.

The Province should retain an ability to refer a large, high-risk or persistently non-compliant utility to the AUC for targeted or full regulation in the event that MGA enhancement proves insufficient.

TABLE 19: POTENTIAL GAPS AND MGA ENHANCEMENTS

	Potential Gap	Potential MGA Enhancements	Desired Outcome
1	There are no legislated service levels or reliability standards for critical infrastructure.	The MGA could require municipalities to demonstrate that they are managing critical infrastructure in accordance with service and reliability standards. Regulation could require reporting on integrated resource plans, infrastructure risk (including utility risk registers), condition and renewal plans.	• Improved development and stewardship of critical assets, and reduced failures
2	Municipal utility capital, operating expenses, required revenue and rates are not required to be deliberated: a) separately from the municipality's budget; and b) in an integrated manner such that the impacts on ratepayers of capital, operating and rate allocation decisions are transparent.	The MGA could require that regulators of municipal utilities (Councils) provide an opportunity for ratepayers to participate in a prescribed public process related to planned capital expenditures and rates in a meeting or series of meetings that are dedicated to utility regulation.	• Improved transparency and accountability over rate setting and capital investments
3	Municipal utilities are not required to follow utility rate setting principles.	The MGA could require municipal utilities to follow a utility approach to rate design and adhere to well-established rate-setting principles such as those provided by the AWWA.	• Improved discipline in rate setting and reduction in practices contrary to accepted practice
4	Ratepayers are not able to appeal rate structure decisions if they suspect rates are not being set following established practices.	The MGA could provide a more comprehensive review mechanism(s) for municipal utility rate-setting, including review of rate structures, revenue requirements, capital plans, cost allocation, transfers between the utility and municipality, and compliance with prescribed rate-setting principles. The MGA could enable municipal ratepayers to appeal rate structure decisions.	• Increased accountability in rate regulation • Administrative fairness (duty of fairness)
5	Municipal regulators are not selected based on their expertise and are not obligated to seek technical expertise related to utility infrastructure and performance, financing and rates.	The MGA could require municipal regulators to demonstrate that they have accessed appropriate technical advice (e.g., experts in utility infrastructure and rate regulation) necessary to protect the interests of ratepayers.	• Increased oversight and regulatory effectiveness • Improved discipline in rate setting and reduction in practices contrary to accepted practice
6	Municipal utilities are not obligated to use rate revenue exclusively for the purpose of delivering the utility service.	The MGA could require municipal utilities to use all rate revenue for the purpose of the utility. No funds should accrue to the municipality except for payments for the cost of services and a dividend on equity in excess of the utility's need to finance future capital investment. For transparency on this matter, the MGA could require municipalities to publish segregated financial statements for their utilities.	• Greater assurance that rate revenue is used solely for the purpose it was collected, or at a minimum, for the benefit of ratepayers
7	Municipal utilities are not required to segregate utility capital expenditures from other municipal capital expenditures for the purpose of capital planning. There is a risk that non-utility capital could be prioritized over utility capital. Yet, utility capital is funded separately by ratepayers.	The MGA could require that municipal utilities segregate capital budgeting for municipal utilities from general municipal budgeting. Utility-funded capital projects should never be evaluated against tax-funded projects.	• Prioritization of rate-funded utility infrastructure based on its benefits to ratepayers without risk of curtailment due to tax-funded priorities

	Potential Gap	Potential MGA Enhancements	Desired Outcome
8	Municipal utilities are not required to account for variances in revenue collected in excess of required revenue. Surplus resulting from excess collections is not required to remain in the utility or be returned to ratepayers.	The MGA should require that municipal utilities report variances between collected and required revenue, and ensure that excess revenue is reinvested in the utility or returned to ratepayers. For transparency on this matter, the MGA could require municipalities to publish segregated financial statements for their utilities.	• Improved transparency and accountability over rate setting • Greater assurance that rate revenue is used solely for the purpose it was collected, or at a minimum, for the benefit of ratepayers
9	It is general practice that municipal utilities approximate the deemed capital structure set by regulators such as the AUC. MGA regulations establish municipal debt limits that include the revenue and debts of municipal utilities that are operated by a municipal department. This could result in municipal utilities' debt being constrained by the broader municipal debt limit. Similarly, utility debt is supported by ratepayers, and should not be available to support the broader municipal debt limits.	The MGA regulations could revise the municipal debt limit regulation to exclude utility rate revenue and debt attributable to utilities. This may require regulating a minimum equity thickness that is consistent with the deemed capital structure. This matter would be enabled if the MGA required municipalities to publish segregated financial statements for their utilities.	• Appropriate financing of utility infrastructure based on regulatory guidance and rate revenues without risk of curtailment due to municipal debt limits

8 Recommendation Priorities and Sequencing

The recommendations in this report should not be implemented as a flat list of actions. They are intended to operate as an integrated management system. The City will want to develop a comprehensive implementation plan in response to this report. This section offers guidance on how the City might prioritize and sequence the recommendations.

8.1 Frameworks for prioritization and sequencing

8.1.1 Prioritization framework

The timing and sequencing of recommendations should be based, in part, on their priority. Priority could be considered in terms of the anticipated impact of the recommendation, its dependencies or its urgency. Each of these factors is defined in Table 20.

TABLE 20: DEFINITION OF PRIORITIZATION FACTORS

Factor	Description
Anticipated impact	The extent to which the recommendation reduces high-consequence service, safety, environmental, regulatory, financial, or reputational risk. Whether the recommendation improves Council, WUOB, executive, or public visibility into material Utility risk, spending, performance, and residual risk.
Dependencies / critical path	Whether the recommendation enables other recommendations, decisions, reports, or controls.
Urgency	Whether delay prolongs material residual risk, affects the next budget or rate cycle, or misses an implementation window.

For consistency, the Inspection uses the priority descriptions provided in Table 21. The priority assigned to the recommendation reflects the highest-ranking factor or factors (impact, dependencies, or urgency).

TABLE 21: PRIORITY DEFINITIONS

Priority	Meaning
High High-priority recommendations should begin immediately.	The recommendation: • Addresses material residual risk or improves governance and oversight (impact); • Enables other recommendations (dependencies); or • Is required for near-term governance, budget, rate, capital, or risk decisions (urgency).
Medium Medium-priority recommendations could follow implementation of high-priority recommendations.	The recommendation: • Is important to sustained implementation (impact) • Depends on foundational work, requires additional information (dependencies), or • Is less time-sensitive than high-priority actions (urgency).
Low Low priority does not mean unimportant. Low-priority recommendations should follow once enabling controls are in place.	The recommendation: • Enhances or solidifies the management system established by the high- and medium-priority recommendations (impact); • Depends on completion of earlier actions (dependencies); and • Is not time sensitive (urgency).

8.1.2 Sequencing framework

The recommendations could be sequenced in implementation waves or timeframes as suggested in Table 22. This sequencing recognizes that some recommendations can begin immediately, while others require the outputs from asset inventories, risk registers, data systems, governance structures, budget decisions, or IRP before they can be fully implemented.

TABLE 22: POTENTIAL IMPLEMENTATION WAVES AND TIMEFRAMES

Wave	Timeframe	Purpose
Wave 1 — Mobilize and build foundations	0–6 months	• Assign ownership, confirm governance, define implementation methodology, and establish interim controls. • Identify critical assets, establish core governance and risk controls, define escalation and residual-risk acceptance, and launch implementation assurance.
Wave 2 — Connect plans to budgets and delivery	6–12 months	• Link asset-management plans, the IRP, the risk register, water-loss strategy, capital delivery, operating resources, budgets, rates, and reporting.
Wave 3 — Operationalize and expand	12–24 months	• Expand asset-integrity planning, dashboarding, delivery planning, water-loss execution, asset records, and Utility-wide integration.

8.2 Priority and sequencing of recommendations

Table 23 summarizes the priority and sequencing of Recommendations 1–19.

TABLE 23: RECOMMENDATIONS PRIORITY AND SEQUENCING

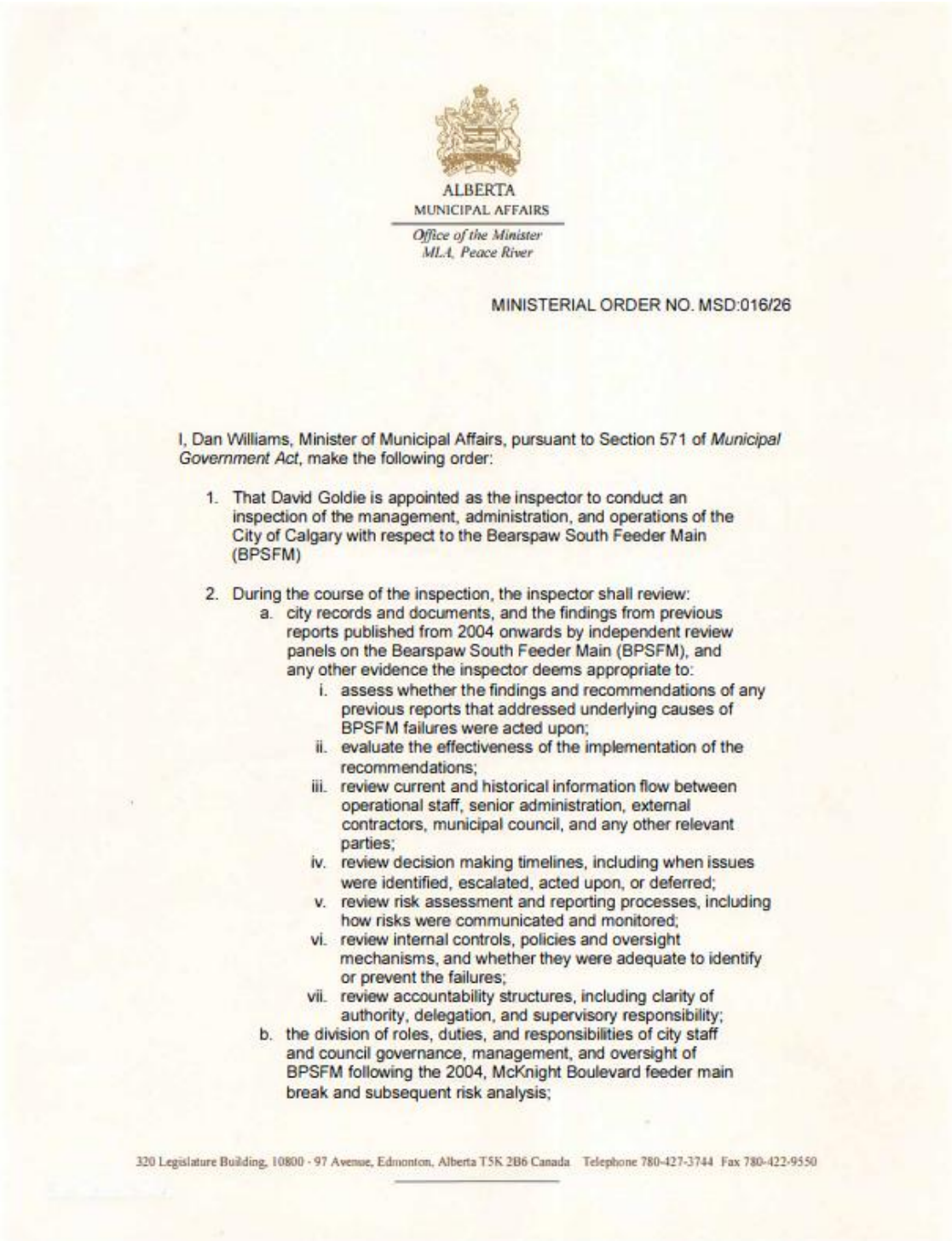
#	Recommendation	Priority	Key dependencies	Wave 1 0–6 mo	Wave 2 6–12 mo	Wave 3 12–24 mo
1	Council-approved reserved-matters protocol	High	Rec. 5			
2	Service-cost-risk decision briefs	High	Recs. 1, 6, 10, 12			
3	Executive accountability for high-consequence risk mitigation	High	Recs. 6, 8			
4	Report capital under-delivery by risk consequence	High	Recs. 10, 11, 12			
5	WUOB independent analytical capacity	High	WUOB establishment			
6	Tier 1 critical asset inventory and risk register	High	None	High-risk assets	Remaining assets	Remaining assets
7	Water loss as asset-management, capacity, and resilience KPI	High	Recs. 8, 11			
8	Enhanced asset management planning	High	Recs. 1, 6			
9	Risk-control effectiveness and monitoring response standard	Medium	Recs. 6, 8			
10	Asset–risk–budget protocol and annual budget reconciliation	High	Recs. 3, 6, 9, 11			
11	Annual Integrated Resource Plan delivery plan	High	Recs. 6, 7, 8, 10			
12	Service–risk–cost dashboard and reporting	High	Recs. 6, 7, 8, 10, 11			
13	Evaluate current levels of capital-maintenance investment	High	Recs. 8, 10, 11			
14	Adopt a utility model for rate setting.	High	None			
15	Formal disposition process for independent recommendations	High	None			
16	Reform implementation assurance framework	High	Rec. 15			

#	Recommendation	Priority	Key dependencies	Wave 1 0–6 mo	Wave 2 6–12 mo	Wave 3 12–24 mo
17	Evidence-based closure criteria for reforms	High	Recs. 15, 16			
18	Periodic asset-management practice audits	Medium	Recs. 8, 10, 11, 12			
19	Report reform progress based on risk reduction	Medium	Recs. 12, 15, 16			

In parallel with Recommendations 1–19, the City should continue its separate MCC initiative under Recommendation 20 through the independent consultant process already directed by Council. The consultant should compare a standalone Water Utility MCC with a defined ENMAX integration option and submit its findings and implementation plan without alteration through Executive Committee directly to Council by the fourth quarter of 2027, with the Water Utility Oversight Board receiving them at the same time. Municipal Affairs should be invited to provide a liaison for process oversight and advice on provincial matters. Council should identify its proposed end state by June 2028 and target a final corporate decision by the end of 2028, subject to the required public and statutory processes. Establishment or transfer may take longer and should not delay implementation of Recommendations 1–19.

The recommendations contained in this report comprise an integrated management system. Implementation of the recommendations should be measured by whether the City can show that residual risk is being reduced, unfunded risks are visible, capital delivery is aligned with risk, operating capacity supports asset integrity, and Council, WUOB, and Utility leadership receive the information needed to make informed decisions.

Appendix A: Ministerial Order



ALBERTA
MUNICIPAL AFFAIRS
Office of the Minister
MLA, Peace River

MINISTERIAL ORDER NO. MSD:016/26

I, Dan Williams, Minister of Municipal Affairs, pursuant to Section 571 of *Municipal Government Act*, make the following order:

1. That David Goldie is appointed as the inspector to conduct an inspection of the management, administration, and operations of the City of Calgary with respect to the Bearspaw South Feeder Main (BPSFM)

2. During the course of the inspection, the inspector shall review:
   a. city records and documents, and the findings from previous reports published from 2004 onwards by independent review panels on the Bearspaw South Feeder Main (BPSFM), and any other evidence the inspector deems appropriate to:
      i. assess whether the findings and recommendations of any previous reports that addressed underlying causes of BPSFM failures were acted upon;
      ii. evaluate the effectiveness of the implementation of the recommendations;
      iii. review current and historical information flow between operational staff, senior administration, external contractors, municipal council, and any other relevant parties;
      iv. review decision making timelines, including when issues were identified, escalated, acted upon, or deferred;
      v. review risk assessment and reporting processes, including how risks were communicated and monitored;
      vi. review internal controls, policies and oversight mechanisms, and whether they were adequate to identify or prevent the failures;
      vii. review accountability structures, including clarity of authority, delegation, and supervisory responsibility;
   b. the division of roles, duties, and responsibilities of city staff and council governance, management, and oversight of BPSFM following the 2004, McKnight Boulevard feeder main break and subsequent risk analysis;

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i. review decisions by City of Calgary council, council committees, and administration;
ii. review coordination and communication between city administration and engineering contractors;

c. identify systemic or isolated obstacles to corrective actions of the management of the BPSFM, if any; and
d. develop recommendations for future governance and/or administrative improvements for the City of Calgary, including information-handling practices, escalation protocols, and oversight frameworks.

3. As part of the inspection, the inspector shall also inspect any other matters or issues that he determines to be necessary to prepare the report.

Dated at Edmonton, Alberta, this 12 day of March, 2026.

Dan Williams
Minister of Municipal Affairs

Appendix B: Interviewees

This appendix summarizes the interviews and process sessions conducted as part of the Inspection. The interviews were used to supplement the documentary record, clarify relevant events and practices, and obtain perspectives from individuals with knowledge of the City's governance, administration, financial management, asset management, operations, infrastructure planning, risk management, and Council oversight. The appendix identifies the interview date, topic or purpose, interviewee or participants, and role or affiliation. Where information was not available in the interview notes, this is noted in the table.

#	Date	Interview / Session	Interviewee(s) / Participants
1	Mar. 20, 2026	Initial conversation regarding Independent Review Panel work	**Siegfried Kiefer**, Chair, Independent Review Panel
2	Mar. 30, 2026	Comparative discussion on Toronto Water governance and accountability	**Lou Di Gironimo**, Toronto Water
3	Apr. 2, 2026	Discussion regarding Green Line governance and City infrastructure decision-making	**Don Fairbairn**, former Chair, Calgary Green Line Board
4	Apr. 6, 2026	Discussion regarding WaterSMART and the Independent Review Panel report	**Kim Sturgess**, WaterSMART Solutions Ltd.
5	Apr. 9, 2026	Discussion regarding City management, Green Line, and audit committee observations	**Steve Allan**, former head of Calgary Economic Development; sports infrastructure project adviser
6	Apr. 13, 2026	Follow-up regarding panel advisory work and utility issues	**Siegfried Kiefer**, Chair, Independent Review Panel
7	Apr. 30, 2026	Follow-up regarding post-2024 incident response and residual risk	**Siegfried Kiefer**, Chair, Independent Review Panel
8	May 1, 2026	Governance, decision-making, Council oversight, and accountability process session	**David Duckworth**, Chief Administrative Officer, The City of Calgary **Stuart Dalgleish**, Chief Operating Officer, The City of Calgary **Doug Morgan**, General Manager, Operational Services, The City of Calgary **Nancy MacKay**, Director, Water Services, The City of Calgary **Anne Cataford**, Director, Utilities Delivery, The City of Calgary **Debra Hamilton**, General Manager, Planning and Development Services, The City of Calgary **Michael Thompson**, General Manager, Infrastructure Services, The City of Calgary
9	May 1, 2026	Response to past reviews and corrective-action follow-through process session	**Stuart Dalgleish**, Chief Operating Officer, The City of Calgary **Heather Johnson**, Director, Water Transformation Program, The City of Calgary **Doug Morgan**, General Manager, Operational Services, The City of Calgary **Michael Thompson**, General Manager, Infrastructure Services, The City of Calgary
10	May 1, 2026	Utility finance, funding model, budget performance, and revenue/rates process session	**Les Tochor**, Chief Financial Officer, The City of Calgary **Aaron Brown**, City Treasurer and Deputy Chief Financial Officer, The City of Calgary **Greg Wiebe**, Deputy Director, Portfolio Finance, The City of Calgary **Gillian Skeates**, Finance Manager supporting Water Services, Waste and Recycling Services, and Utilities Delivery, The City of Calgary
11	May 4, 2026	Risk management, escalation, and response to performance issues process session	**Sajjan Chugani**, Manager, Enterprise Risk Management, The City of Calgary **Liz Ormsby**, City Auditor, The City of Calgary **Michael Thompson**, General Manager, Infrastructure Services, The City of Calgary
12	May 4, 2026	Asset lifecycle planning, maintenance prioritization, and capital delivery process session	**Michael Thompson**, General Manager, Infrastructure Services, The City of Calgary **Steve White**, Manager, Asset Management Planning, The City of Calgary **Monica Bramley**, Manager, Utilities Project Development, The City of Calgary **Anne Cataford**, Director, Utilities Delivery, The City of Calgary

#	Date	Interview / Session	Interviewee(s) / Participants
			Ryan Kidd, Deputy Director, Drinking Water and Water Services, The City of Calgary
13	May 19, 2026	Interview regarding growth forecasting, utility planning, UAC/WAC, and the 2015–2016 financial review	**Kathy Davies Murphy**, Director, City and Regional Planning; former Water Utility program manager, The City of Calgary
14	May 19, 2026	Interview regarding capital project development, water infrastructure capacity, and the North and South Calgary Water Servicing projects	**Sarah Huber**, Director, Project Development, The City of Calgary
15	May 20, 2026	Interview regarding capital delivery, risk reporting, and capital-budget performance	**Anne Cataford**, Director, Utilities Delivery, The City of Calgary
16	May 20, 2026	Interview regarding Water Services operations, asset management, utility finance, and the Bearspaw South Feeder Main	**Dan Limacher**, former Director, Water Services; former General Manager, Utilities and Environmental Protection, The City of Calgary
17	May 20, 2026	Interview regarding capital project delivery, capital-budget performance, and the North Calgary Water Servicing project	**Tanner Fellinger**, Deputy Director, Utilities Delivery, The City of Calgary
18	May 20, 2026	Group interview regarding the Independent Review Panel's findings on governance, risk, finance, asset management, and Council oversight	**Siegfried Kiefer**, Chair, Independent Review Panel **Bob Kerr**, member, Independent Review Panel **Michael Crothers**, member, Independent Review Panel **Stephen Stanley**, member, Independent Review Panel **Nancy Foster**, member, Independent Review Panel **Gordon Engbloom**, member, Independent Review Panel **Wayne Taylor**, member, Independent Review Panel
19	May 21, 2026	Interview regarding historical utility engineering, organizational accountability, asset ownership, and capital prioritization	**Brian Maksymetz**, former City water utility engineer and project manager
20	May 22, 2026	Interview regarding legal risk, escalation, Council confidentiality, water licensing, and the 2015–2016 financial review	**Jill Floen**, General Manager, Law, Legislative Services and Security; City Solicitor and General Counsel, The City of Calgary
21	May 22, 2026	Interview regarding the Independent Review Panel process, risk culture, WAC, and post-incident response	**Lori Kerr**, Senior Corporate Liaison, Utility Review; liaison to the Independent Review Panel, The City of Calgary
22	May 22, 2026	Interview regarding Water Services, risk governance, maintenance, funding, and regulatory licensing	**Nancy MacKay**, Director, Water Services; Chair, Water Accountability Committee, The City of Calgary
23	May 22, 2026	Interview regarding asset management, capital planning and delivery, and the 2015–2016 financial review	**Rob Spackman**, former Director, Water Resources, The City of Calgary
24	May 25, 2026	Interview with former Chief Administrative Officer	**Owen Tobert**, former Chief Administrative Officer, The City of Calgary
25	May 25, 2026	Interview with former councillor	**Ward Sutherland**, former Councillor; former Chair, Utilities and Corporate Services Committee, The City of Calgary
26	May 25, 2026	Interview regarding engineering, capital planning, and asset management	**Ryan Vanderputten**, Chief Engineer and Director, Capital Planning and Business Services, The City of Calgary
27	May 26, 2026	Interview regarding infrastructure planning, stage gating, water resources, and capital investment	**François Bouchart**, former Director, City Capital Priorities and Investment, The City of Calgary
28	May 27, 2026	Interview with former City Manager regarding City governance and the 2015–2016 financial review	**Jeffrey Fielding**, former City Manager and Chief Administrative Officer, The City of Calgary
29	May 27, 2026	Interview regarding the utility financial model and the 2015–2016 financial review	**Gillian Skeates**, Finance Manager supporting Water Services, Waste and Recycling Services, and Utilities Delivery, The City of Calgary
30	May 28, 2026	Interview regarding executive governance, accountability, and operational follow-through	**Stuart Dalgleish**, Chief Operating Officer, The City of Calgary
31	May 29, 2026	Interview regarding Operational Services, utility governance, and corrective-action follow-through	**Doug Morgan**, General Manager, Operational Services, The City of Calgary

#	Date	Interview / Session	Interviewee(s) / Participants
32	May 29, 2026	Interview with councillor regarding Council oversight and utility governance	**André Chabot**, Councillor, The City of Calgary
33	June 1, 2026	Interview regarding utility finance and the 2015–2016 financial review	**Carla Male**, former Chief Financial Officer and City Treasurer, The City of Calgary
34	June 1, 2026	Interview with Mayor and former councillor regarding Council oversight and utility governance	**Jeromy Farkas**, Mayor; former Councillor, The City of Calgary
35	June 1, 2026	Interview regarding water licensing, watershed strategy, planning, and capital-budget issues	**Harpreet Sandhu**, former City watershed strategy leader
36	June 1, 2026	Interview regarding Infrastructure Services, capital planning, and utility governance	**Michael Thompson**, General Manager, Infrastructure Services, The City of Calgary
37	June 2, 2026	Interview with former Mayor regarding Council oversight, risk reporting, and utility governance	**Jyoti Gondek**, former Mayor and former Councillor, The City of Calgary
38	June 2, 2026	Interview regarding Chief Administrative Officer accountability and utility governance	**David Duckworth**, Chief Administrative Officer, The City of Calgary
39	June 3, 2026	Interview with councillor regarding committee oversight and utility governance	**Peter Demong**, former Councillor, The City of Calgary
40	June 3, 2026	Interview regarding Utilities and Environmental Protection and the 2015–2016 financial review	**Rob Pritchard**, former General Manager, Utilities and Environmental Protection, The City of Calgary
41	June 4, 2026	Interview regarding flood resilience, watershed planning, climate, and water security	**Carolyn Bowen**, former Manager, Watershed Planning; former Director, Climate and Environment, The City of Calgary
42	June 5, 2026	Interview with former Mayor regarding Council oversight and utility governance	**Naheed Nenshi**, former Mayor, The City of Calgary
43	June 19, 2026	Panel follow-up regarding provincial utility oversight, regulatory implications, and lessons from the Inspection	**Siegfried Kiefer**, Chair, Independent Review Panel **Stephen Stanley**, member, Independent Review Panel
44	June 25, 2026	Interview regarding utility finance leadership, governance options, and the 2015–2016 financial review	**Beng Koay**, former Chief Financial Officer, The City of Calgary
45	July 8, 2026	Interview regarding the 2015–2016 financial review, governance options, and Council reporting	**Katherine Trajan**, former Executive Advisor to the General Manager, Utilities and Environmental Protection, The City of Calgary
46	July 13, 2026	Follow-up interview regarding the 2015–2016 financial review, governance recommendations, and Council reporting	**Gillian Skeates**, Finance Manager supporting Water Services, Waste and Recycling Services, and Utilities Delivery, The City of Calgary
47	July 14, 2026	Second interview under affirmation regarding the 2015–2016 financial review, governance options, and Council reporting	**Jeffrey Fielding**, former City Manager and Chief Administrative Officer, The City of Calgary
48	July 16, 2026	Second interview under affirmation regarding the 2015–2016 financial review, governance options, and related communications	**Rob Pritchard**, former General Manager, Utilities and Environmental Protection, The City of Calgary
49	July 20, 2026	Interview regarding Mayor's Office briefings, the 2015–2016 financial review, and Council reporting	**Chima Nkemdirim**, former Chief of Staff to Mayor Naheed Nenshi
50	July 21, 2026	Follow-up interview regarding the 2015–2016 financial review, governance options, and Council reporting	**Kathy Davies Murphy**, Director, City and Regional Planning; former Water Utility program manager, The City of Calgary

Appendix C: Findings by Criteria

This appendix assesses the degree to which the City demonstrated the evaluation criteria over the period examined by the Inspection, from the 2004 McKnight Boulevard feeder main failure through June 30, 2026. The assessments are therefore not intended to represent a point-in-time rating of the City's practices on June 30, 2026. Where relevant, the assessment rationale recognizes post-failure measures implemented or underway by that date. Developments occurring after June 30, 2026 and brought to the Inspector's attention during review of the draft report are identified as subsequent developments where material; they provide current-state context but do not alter the assessment of historical practices unless specifically stated. A summary of material post-failure reforms and subsequent developments reported by the City through September 28, 2026 is provided in Section 3.9.

The Inspection assessed the City's practices against each criterion and determined the degree to which each criterion was met using the following definitions:

Generally met	The criterion was substantively demonstrated, although secondary limitations or caveats may exist.
Partially met	Some relevant process, evidence, or practice existed, but the criterion was not fully demonstrated across the relevant time period, scope, or decision pathway.
Not met	The evidence shows that the core intention of the criterion was not satisfied.
Not demonstrated	Reviewed records did not contain enough evidence to determine that the criterion was met, but also did not contain sufficient contrary evidence to support a definitive Not Met finding. This assessment is not a favourable finding; it identifies an evidentiary or documentation gap.

Governance

Criteria	Assessment over Review Period	Assessment Rationale
Direction Setting		
1. Service levels and acceptable risk are clearly defined and approved by Council or a committee of Council charged with regulating the Utility (collectively referred to as Council throughout the balance of this framework)	**Not Met**	The criterion was not met over the review period. The reviewed record shows that service-level and risk concepts existed in City budget, rate, asset-management, risk-reporting and planning instruments. However, it does not demonstrate that Council consistently approved a clear Utility-specific framework addressing the material service outcomes, risk tolerances, funding and rate implications, and governance matters falling within Council's authority. Nor does it demonstrate that the CAO and Administration maintained an integrated supporting framework of technical standards, operating requirements and escalation protocols across the review period. City-wide capital asset reporting, general budget approval and administrative risk processes were not equivalent to an integrated Utility governance and administrative framework. Post-incident risk reporting and governance changes in place by June 30, 2026 represent progress but do not establish that the criterion was consistently met during the period assessed. **Supporting Evidence:** **1.** Council/Administration accountability was described as Council setting service levels, risk tolerance and budget, and Administration deciding delivery methods. (16)

Criteria	Assessment over Review Period	Assessment Rationale
		2. The Water Risk Report defines water service risks and includes risk level, appetite/tolerance, target risk and response status by risk. (32) 3. The UAC Terms of Reference state that the Utility is a self-supported, regulated entity made up of three services and requires interconnections of plan, build and operate functions. (5) 4. The Inspection found no evidence of a Council-approved Utility-specific service-level/risk-tolerance framework covering the entire 2004–present review period, nor evidence that Capital Asset Management Plan alone constituted approval of utility service levels or acceptable risk.
2. New Councils are briefed about the service levels and acceptable risks.	**Partially Met**	Council onboarding occurred, but systematic Utility-specific briefing on service levels, critical assets and acceptable risk was not evidenced across the review period. Council members received general onboarding, lunch-and-learns, tours and one-on-one briefings. After the 2025 election and subsequent BPSFM events, the City also provided or advanced Water Utility orientation. However, the evidence does not show that, across the review period, each new Council systematically received Water Utility-specific onboarding on critical assets, redundancy, acceptable utility risk, service-level obligations, asset-condition risk and rate/risk trade-offs. **Supporting Evidence:** 1. The CAO described four-year Council onboarding/orientation, lunch-and-learns, external speakers, one-on-one CAO meetings and CFO/CAO budget briefings with Council members. (16) 2. The CAO stated that Council tours include infrastructure such as water treatment plants so councillors can see services in action. (16) 3. City participants stated that, with the new Council, a Water Utility orientation was moved forward after the feeder main break, so Council had grounding in finance and the utility before receiving the independent panel report. (16) 4. The Inspection found no evidence of a repeatable Council onboarding curriculum for the full review period that covered Water Utility service levels, acceptable risk, critical linear assets, redundancy, lifecycle obligations and capital-rate trade-offs.
3. A risk assessment, consistent with industry practice, is maintained that assesses the potential impact and probability of failures.	**Partially Met**	Multiple risk-assessment mechanisms existed, but a continuous Utility-wide framework covering impact and probability across the full review period was not evidenced. The City maintained multiple risk-assessment mechanisms over the review period, including asset-specific risk assessments, service-line water risk reporting and corporate risk management. The current Council policy and guidance are referred to as Integrated Risk Management (IRM), while the operating function is Enterprise Risk Management (ERM). The evidence does not show that the current IRM/ERM framework existed from 2004; rather, the current Council IRM policy is dated 2020 and IRM Administrative Guidelines are dated 2021. (79) Earlier evidence shows Water Utility asset-risk work,

Criteria	Assessment over Review Period	Assessment Rationale
		including a 2013 Asset Risk Report and technical assessments, but not a continuous end-to-end IRM/ERM framework for the entire period. **Supporting Evidence:** **1.** The 2013 Asset Risk Report states that identifying critical assets and asset risk was an ongoing part of the water business and that condition and risk assessments were to direct reinvestment to higher-risk assets. (33) **2.** The current ERM process includes service risk registers prepared every six months, departmental analysis, principal corporate risk updates, Executive Leadership Team (ELT) review and Audit Committee/Council reporting. (79) **3.** The ERM manager stated that the City's ERM processes are based on ISO 31000:2018. (79) **4.** The Inspection found no evidence that the present IRM/ERM framework was in place for the full 2004–present review period or that all water asset risk assessments were consistently assessed against Council-approved utility service levels.
4. The risk assessment is amended to reflect new information (e.g., results from condition assessments).	**Partially Met**	Current reporting includes Water Utility risk levels. However, the reviewed record does not demonstrate recurring Utility-specific risk-variance reporting before the BPSFM events that consistently compared actual risks with applicable risk tolerances, informed capital-maintenance planning and escalated material out-of-tolerance conditions to the appropriate administrative authority or, where required, to Council. Current evidence shows variance-oriented reporting through Water Utility risk levels, appetite and tolerance information, risk targets, the Capital Asset Management Plan and the 10-year capital planning process. However, the reviewed record does not show that Water Utility risks were consistently compared against applicable acceptable-risk parameters and reported through documented decision processes across the full review period. Nor does it show that matters exceeding delegated administrative authority or materially affecting Council-approved service outcomes, rates, budgets or policy were consistently brought to Council. **Supporting Evidence:** **1.** The Water Risk Report states that it is intended to identify significant water service risks, provide WAC oversight, define ownership and support escalation where mitigation or controls lag. (32) **2.** The Water Risk Report identifies drinking-water risks such as insufficient infrastructure to meet water demand and infrastructure reliability as High risk with a Reduce posture and target risk levels. (32) **3.** The ERM process requires services to prepare service risk registers every six months for analysis and roll-up. (79) **4.** The Inspection found no evidence of a complete historical log showing BPSFM inspection, condition or operational changes

Criteria	Assessment over Review Period	Assessment Rationale
		being consistently reflected in amended Water Utility risk ratings and escalated to Council or ELT before the failures.
5. Risk assessment is compared against acceptable risk. Variances are reported to Council and are used to inform capital maintenance planning.	**Not Met**	Current reporting includes water risk levels. However, there is no recurring Utility-specific risk variance reporting to Council before the BPSFM events that linked actual risk levels to approved risk tolerance and requested Council decisions on out-of-tolerance conditions. Current evidence shows variance-oriented reporting through water risk levels, appetite and tolerance information, risk targets, the Capital Asset Management Plan, and the 10-year capital planning process. However, the reviewed record does not show that Water Utility risks were consistently compared against Council-approved acceptable risk and reported as variances for Council decision across the full review period. **Supporting Evidence:** **1.** The Water Risk Report includes current risk level, appetite/tolerance, target risk, response posture and status for water service risks. (32) **2.** Interview evidence states that CAMP provides oversight of infrastructure condition, changes and trends, while the 10-year capital plan identifies needs across all assets including utility assets. (16) **3.** Administration stated that the CAMP and 10-year capital plan feed into the four-year budget process and are intended to allow Council discussion of investment, operating and rate impacts before budget approval. (16) **4.** The Inspection found no evidence of a recurring Water Utility-specific risk variance report to Council before the BPSFM events that linked actual risk levels to approved risk tolerance and requested Council decisions on out-of-tolerance conditions.
Resourcing		
1. Council is presented with sufficient information to inform rate setting and approval of capital expenditures. At a minimum, information provided includes risks and service levels, operating costs, required revenue and its allocations, prioritized capital costs, and capital financing.	**Partially Met**	Council received rate and capital information, but not a complete service-risk-cost package linking capital delivery and residual risk to rates. Council received rate-setting and capital information through cost-of-service analysis, four-year budget cycles, annual adjustments, rate bylaws, financial metrics and capital plans. The evidence also identifies information limitations relevant to Council decision-making: capital envelopes were used in past cycles to avoid over-collecting where capital delivery lagged; unspent capital was carried forward rather than always re-rationalized; ROE replaced the previous franchise fee/dividend structure; and over/under-collections flowed through the sustainment reserve. These facts should be part of the finding because they affect whether Council had sufficiently transparent information on rate-setting, capital deliverability and utility financial position. **Supporting Evidence:** **1.** The finance interview states that each cycle begins with a cost-of-service analysis completed by an external consultant. Historical

Criteria	Assessment over Review Period	Assessment Rationale
		expenditure is used to set revenue requirements, and requirements are allocated to customer classes. (60) **2.** The City's Excel-based rate model includes operating expenditure, debt obligations, cash-funded capital, non-rate revenue, reserve contributions and return on equity. (60) **3.** Finance stated that capital envelopes were used for the 2015–2018 and 2019–2022 cycles to avoid over-collecting from customers where detailed capital delivery could not be to avoid collecting rates for planned capital expenditure that might not occur. (60) **4.** Finance stated that unspent capital budget is carried forward to the following year and that, if cash-funded, the cash remains in the reserve; if debt-funded, borrowing does not occur until expenditures are incurred. (60) **5.** Finance described the ROE calculation: 40% equity share applied to net rate base multiplied by 8.5%, with the 8.5% derived from an AUC generic cost of capital decision. (60) **6.** The Inspection found no evidence that Council consistently received a utility-specific annual analysis quantifying over-collection amounts, capital-delivery under-spend, resulting reserve balances and residual asset risk in one integrated decision package.
2. Council decisions are reflective of its role as rate regulator and consider the reliability of services, the necessity of planned capital expenditures (prudence), the reasonableness of required revenue and rates, the appropriate use of debt, and the fair return on rate base.	**Partially Met**	Council considered rates and financial metrics, but reliability, prudence, risk and lifecycle implications were not consistently integrated. The evidence supports that Council considered utility rates, financial plans, debt, reserves and customer bill impacts. However, the Inspection did not find consistent evidence that rate-regulator decisions were framed as a Water Utility-specific balance of affordability, reliability, asset condition, risk tolerance, intergenerational equity and financial sustainability throughout the review period. The rate model and financial policies supported sustainability, but the evidence does not show that capital-delivery shortfalls and asset-risk consequences were consistently transparent in rate decisions. **Supporting Evidence:** **1.** Finance stated that rate increases are approved by Council as part of the planning cycle and that annual adjustments can include operating, capital and rate changes. (16) **2.** The finance team stated that financial metrics monitored include debt-to-equity, debt service coverage, cash financing of maintenance capital, reserve levels, customer bill impact and outstanding debt relative to the corporation. (16) **3.** Historical budget materials state that business plans and budgets were designed to improve transparency by linking service costs to service levels and outcomes and connecting long-term goals to short-term spending. (80) **4.** The Inspection found no evidence of a consistent Council decision framework for utility rates that explicitly integrated asset-condition

Criteria	Assessment over Review Period	Assessment Rationale
		risk, capital deliverability and acceptable service risk across the full review period.
3. Regulator decisions pertain to the Utility in isolation and are not influenced by broader City priorities or financial constraints.	**Not Met**	Utility decisions were not shown to be insulated from City-wide budget, debt and affordability priorities. Council approves City budgets, utility rates and capital plans, but the Inspection found no evidence that Council approves a separate Water Utility capital budget in isolation from the City-wide capital program. Utility capital is embedded in City-wide budget and capital-management processes, while utility rates and financial plans are utility-specific. Therefore, the finding should not state that regulatory decisions are fully isolated; it should state that the evidence does not demonstrate isolated utility capital approval. **Supporting Evidence:** **1.** Governance interview evidence states that Council approves service levels, budgets and rates, while Administration determines delivery within approved budgets and policies. (16) **2.** The capital planning process described in interviews identifies four City-wide investment categories: maintenance and renewal, service growth, population growth and transformative projects. (16) **3.** Finance stated that the City manages debt in totality at the City/entity level rather than as a separate utility debt limit after the fixed debt-limit period. (16) **4.** The Inspection found no evidence of Council approval of a separate standalone Water Utility capital budget isolated from City priorities, corporate debt capacity, affordability considerations and City-wide capital prioritization.
Oversight		
1. Council receives performance reports at least quarterly to monitor service levels, risk, and financial performance.	**Partially Met**	Recurring corporate reporting existed, but quarterly integrated Utility performance reporting was not evidenced historically. Council receives recurring corporate reporting, including quarterly CEO/accountability reporting, Audit Committee risk reporting and capital/infrastructure reporting. The evidence does not establish that Council received quarterly, integrated Water Utility-specific reporting across service levels, asset condition, financial performance and capital plan performance for the full review period. Current reporting is materially stronger than the historical evidence reviewed. **Supporting Evidence:** **1.** The CAO stated that previous CFO accountability reporting occurred twice a year and that current CEO quarterly reports cover service levels, performance and risk. (16) **2.** Corporate risk reporting goes to Audit Committee twice a year and flows to Council. (16) **3.** Infrastructure Services reports twice a year to Infrastructure Planning Committee and Council on risks and highlighted projects,

Criteria	Assessment over Review Period	Assessment Rationale
		with public project map metrics for schedule, finance and scope (17). **4.** The Inspection found no evidence of consistent quarterly Water Utility-specific Council reporting across the entire period that integrated service-level results, financial performance, asset condition, risk status and capital delivery.
2. Council reporting is accurate, transparent and objective.	**Partially Met**	Formal reporting existed, but pre-incident reporting did not consistently communicate asset risk, capital under-delivery, lifecycle consequences and residual risk. Council reporting was supported by formal budget, rate, risk and capital processes, but much of the evidence is City-wide, budget-oriented or planning-oriented rather than utility-specific performance reporting. Council reporting did not consistently provide complete Water Utility-specific transparency on asset risk, capital under-delivery, lifecycle consequences and rate implications before the BPSFM events. **Supporting Evidence:** **1.** The governance interview states that Council received infrastructure-risk reporting through Audit Committee and CAMP/10-year capital plan processes. (16) **2.** Finance evidence shows that budget/rate materials existed, but capital envelopes were used in two cycles, and unspent capital was carried forward, which limited visibility of deliverability versus plan unless separately analyzed. (16) **3.** The Water Risk Report now provides transparent water service risk information, but it is a 2025 document and cannot establish historical reporting quality. (32) **4.** The Inspection found no evidence that pre-incident Council reports consistently and transparently integrated Water Utility asset-condition risk, under-spend, lifecycle consequences and residual risk for Council decision.
3. Leadership receives performance reports at least monthly to monitor asset condition, performance against service levels and acceptable risk, status against lifecycle plan, status of capital maintenance and rehabilitation.	**Partially Met**	Current leadership reporting is stronger, but historical monthly integrated Utility performance reporting was not evidenced. Leadership receives monthly or more frequent reporting through project-management tools, capital-delivery meetings, finance reporting and weekly Water Utility senior meetings. Historical evidence is weaker. The Inspection found evidence of senior-management awareness of capital under-spend and some asset-risk planning, but no evidence of a consistent monthly leadership package covering Water Utility asset condition, service levels, finance, capital delivery and remedial actions throughout the review period. **Supporting Evidence:** **1.** Delivery leadership stated that project managers maintain project risk registers and risk logs in a project management system that can roll up risks at program and portfolio levels. (17)

Criteria	Assessment over Review Period	Assessment Rationale
		2. Current capital delivery includes monthly meetings on performance and a project tool that tracks schedule, finance, risks and issues at portfolio level. (17) **3.** Anne Cataford stated that higher levels were aware of under-spend through monthly EIR reporting and that percent spend was one metric in that report. (34) **4.** The Inspection found no evidence of a full historical monthly leadership report for the Water Utility that integrated asset condition, service levels, risk, financial performance, capital-plan progress and remedial action status.
4. Leadership reporting is accurate, transparent and objective.	**Partially Met**	Current reporting includes project and risk information, but historical transparent decision records for key residual risks were not evidenced. Leadership reporting includes project risk, schedule, financial, and performance information. However, the reviewed record does not support a conclusion that leadership reporting was consistently accurate, transparent, and objective across the full review period. In particular, the reviewed record does not show transparent pre-incident decision records documenting BPSFM residual risk, mitigation options, accepted risk, decision authority, and schedule. **Supporting Evidence:** **1.** The project management tool tracks expenditures, risks, issue identification and milestones and can roll information up to program and portfolio levels. (17) **2.** For BPSFM replacement, monthly reporting is provided to a Bearspaw oversight committee including Alberta government officials, covering schedule, risk, safety, finance and performance. (17) **3.** A 2026 technical memorandum identifies prioritized pipe segments and recommends urgent repair or replacement of Tier A and Tier B segments. (81) **4.** The Inspection found no evidence that pre-incident leadership reporting consistently documented BPSFM residual risk, mitigation options, accepted risk and accountable decisions in a transparent decision record.
5. Unacceptable performance is identified, and remedial actions are documented and executed.	**Not Met**	Auditor tracking and current post-incident tracking exist, but a management-owned Utility remedial-action register was not evidenced. The City Auditor has formal recommendation tracking, but auditor tracking is not the same as management-owned remedial action. For management-controlled reviews, the reviewed record shows substantially stronger post-incident tracking by June 30, 2026, but inconsistent remedial-action governance over the earlier period examined. The City developed a post-BPSFM implementation plan and reporting structure, but the reviewed record does not show a comparable management action plan or tracking process for the 2016 financial and governance review or earlier Water Utility risk work.

Criteria	Assessment over Review Period	Assessment Rationale
		Supporting Evidence: **1.** The City Auditor bylaw requires quarterly reporting to Audit Committee on audit performance and status of Administration action on recommendations. (82) **2.** The City Auditor described formal recommendation tracking in audit software, quarterly Audit Committee reporting, completion tracking and reporting where Administration accepts residual risk. (79) **3.** Post-BPSFM implementation plan updates include recommendation/action, deliverable date and status. (16) **4.** Interview evidence on the Raftelis financial/governance review indicated that financial policy elements were incorporated but the governance elements were not evidenced as being tracked through a management action plan. (18) (83) **5.** The Inspection found no evidence of a comprehensive management-owned remedial-action register covering Water Utility reviews and deficiencies across the full review period.
Accountability		
1. Roles, responsibilities and accountabilities for and between Council and Administration are clear with respect to the Utility.	**Partially Met**	Council and Administration roles were formally distinguished, but end-to-end Utility accountability shifted and was not consistently mapped. Council sets the "what" and Administration determines the "how." However, Water Utility accountabilities shifted materially over the review period. UAC/WAC evidence is limited to the period in which those administrative structures existed and must not be treated as Council-committee evidence. The Inspection found no evidence of a stable, end-to-end Water Utility accountability model covering the full 2004–present period. **Supporting Evidence:** **1.** Council's role was described as setting services, outcomes, exact service levels, risk tolerance and budget, while Administration decides how services are provided. (16) **2.** UAC Terms of Reference state that the UAC is governance for the self-supported Water Utility and is built on pre-2022 cross-functional governance. (5) **3.** The WAC was put in place in June 2022 after restructuring, while service teams existed about five years earlier. (16) **4.** The Inspection found no evidence of a single documented Council-Administration accountability map for the Water Utility spanning 2004–present, including changes from line-of-service, functional and matrix structures.
2. Roles, responsibilities and accountabilities for functions within the Utility are clear.	**Partially Met**	Internal role structures existed, but role clarity changed over time and was not evidenced through a comprehensive Utility accountability matrix. From 2004 to 2008/09, water was organized by line of service under directors and a GM; from 2008/09, the utility became functionally

Criteria	Assessment over Review Period	Assessment Rationale
		organized; and in 2022 the broader realignment dispersed utility functions across multiple business units and directors, with WAC established to coordinate. UAC/WAC cannot support conclusions outside its timeframe. The evidence supports current coordination structures but also supports a finding that the post-2022 structure required committee coordination because accountabilities were distributed. **Supporting Evidence:** **1.** Interview evidence describes the 2004–2008/09 line-of-service structure, the 2008/09 functional utility structure and the 2022 realignment that spread the utility across seven or eight directors. (16) **2.** The UAC TOR describes responsibilities for financial oversight, service direction, regulatory compliance, risk management and strategic resourcing. (5) **3.** Nancy MacKay described risk owners, sponsors and mitigations across departments in the matrix organization. (84) **4.** The Inspection found no evidence of a comprehensive role/accountability matrix for planning, delivery, operations, finance, regulatory and risk functions across the full review period. **5.** The Inspection found that WAC was put in place in June 2022 following restructuring and functionally replaced the earlier UAC/service-team coordination model; however, the Inspection did not find evidence that the WAC TOR expressly encompassed all UAC TOR responsibilities across the full 2004–present review period.
3. There are individuals who are solely accountable for the performance of the Utility overall and its constituent functions.	**Partially Met**	No single executive accountability for end-to-end Utility performance was evidenced in the distributed model. Earlier periods had clearer utility GM accountability, but the post-2022 distributed structure relied on committee coordination and escalation rather than a single executive accountable for end-to-end Water Utility performance across planning, delivery, operations, finance and risk. The current reform direction toward a dedicated Water Utility COO responds to this accountability gap. **Supporting Evidence:** **1.** Governance interview evidence states that operational functions are accountable at the COO level, while finance and enabling functions are at the CAO level. (16) **2.** The City described seven or eight directors participating in WAC after 2022 realignment. (16) **3.** Brian Maksymetz stated that ownership of the transmission pipeline had evaporated and that planning, engineering and operations were separated with distributed accountability. (85) **4.** The Inspection found no evidence of one Water Utility executive accountable for end-to-end performance during the post-2022 structure before current reforms.

Criteria	Assessment over Review Period	Assessment Rationale
4. Delegations of authority are documented and include timelines for revisiting.	**Partially Met**	Delegations and escalation paths existed, but a complete, periodically reviewed Utility delegation matrix was not evidenced. Delegations and decision paths exist through bylaws, Council policies, UAC/WAC consensus processes and escalation to GMs/ELT/Council. However, the reviewed evidence does not show a comprehensive, periodically reviewed Water Utility delegation matrix covering service-level, risk-tolerance, rate, capital prioritization, condition-assessment, deferral and remedial-action decisions across the review period. **Supporting Evidence:** **1.** Governance interviews state that utility bylaws contain delegations and powers for different directors and that Council approves those bylaws. (16) **2.** The UAC TOR describes consensus decision-making, escalation and reporting to General Managers. (5) **3.** The Project Management Framework implementation report identified the need for a common business-case standard and project-management framework to support capital governance. (35) **4.** The Inspection found no evidence of a complete Water Utility delegation-of-authority matrix with review timelines that applied continuously from 2004 to present.
5. There is no evidence to suggest that individuals overstep their roles and responsibilities, including any delegated authorities.	**Not Met**	The criterion was not met. The Inspection did not identify a substantiated pattern of Water Utility personnel routinely overstepping documented roles or delegated authorities. However, the criterion is not limited to systemic patterns. Section 4.4.1 identifies a specific and material exception involving the 2015–2016 Raftelis Water Utility Financial and Governance Review. Raftelis was retained to examine the finances, management, and governance of Calgary's water, wastewater, drainage, and reclaimed-water utilities. Its mandate included alternative business and governance models, financial-management structure, transfers to the City, and standalone financial reporting. Raftelis listed changes to the financial-management structure and governance structure as its first and second priorities. Senior Administration consciously selected which Raftelis recommendations Council would see. Five of Raftelis' nine priority recommendations, including its number one and two priorities, standalone audited financial statements, reform of the return-on-equity transfer, and comprehensive long-term projections, were omitted from the material presented to Council. Council instead received a narrower account focused on selected financial-policy changes. Administration was entitled to disagree with Raftelis and to recommend against any of its proposals. It was not entitled to remove major Council-level governance choices from the formal Council process and present the remaining subset as the consultant's financial-policy recommendations. That approach displaced Council's opportunity to consider material governance, financial-accountability, and oversight choices for an essential utility. The draft-final Raftelis report and related governance briefing materials were provided to senior Administration and to the Mayor and Chief of

Criteria	Assessment over Review Period	Assessment Rationale
		Staff, but there is no evidence that the report was provided to other councillors or to Council collectively. The evidence does not establish that the Mayor directed or knowingly approved the omissions. It does establish a material information imbalance in which the Mayor's Office was informed while Council as a whole was not. This incident is sufficient to demonstrate that the criterion was not met. The finding does not require a broader pattern of role overreach. The role boundary that was crossed was the boundary between Administration's advisory role and Council's governing role. **Supporting Evidence:** **1.** Interview evidence indicates Mr. Pritchard spoke directly to the Mayor about the financial/governance review, but also stated that he reported through the City Manager/CFO and did not take direction from the Mayor on Council reporting. (30) **2.** Law leadership stated that legal or high-risk matters are escalated through managers, senior legal leadership, the City Solicitor and, where necessary, to the City Manager/executive team or Council. (86) **3.** Governance interviews describe Council as decision-maker and Administration as responsible for providing professional advice and implementing Council direction. (16) **4.** The Inspection did not find a coordinated plan to conceal the report, or a direction from the Mayor to omit the recommendations. The finding rests on conscious administrative selection and a material information imbalance between the Mayor's Office and Council as a whole.
6. The organization structure promotes communication and collaboration within the Utility. Spans of control and layers are not excessive, the structure does not promote silos, and functions that must work most collaboratively share common oversight.	**Partially Met**	Coordination mechanisms existed, but the distributed structure did not consistently demonstrate timely cross-functional decision-making. The organizational structure included coordination mechanisms, including UAC/WAC and service-team processes. However, the existence of those forums does not, by itself, demonstrate that the structure consistently promoted timely cross-functional decision-making or avoided silos. The reviewed record supports that the post-2022 matrix model distributed accountability across multiple functions and required additional coordination and escalation mechanisms. **Supporting Evidence:** **1.** WAC was established in June 2022 after restructuring, while service teams had existed for about five years beforehand. (16) **2.** The UAC TOR states that the UAC operates by consensus and provides escalation for functional, departmental or service conflicts. (5) **3.** Brian Maksymetz stated that engineering, planning and operations were separated and that distributed accountability eroded technical focus. (85)

Criteria	Assessment over Review Period	Assessment Rationale
		4. Current evidence describes weekly senior water utility meetings and service-team/WAC mechanisms to coordinate and escalate issues. (16) (79) **5.** The Inspection found no evidence that UAC/WAC, by itself, demonstrated organizational effectiveness or that the matrix structure consistently promoted timely decisions before the BPSFM events. **6.** The Inspection found that WAC was put in place in June 2022 following restructuring and functionally replaced the earlier UAC/service-team coordination model; however, the Inspection did not find evidence that the WAC TOR expressly encompassed all UAC TOR responsibilities across the full 2004–present review period.
7. Failures in accountability are addressed through investigations and performance management.	**Not Met**	Corporate audit and performance mechanisms existed, but systematic investigation or consequences for Utility accountability failures were not evidenced. The City has corporate audit, whistleblower, and performance-management mechanisms, but the reviewed record does not show that Water Utility accountability failures were systematically investigated and addressed through management performance processes. Reporting, audit follow-up, and risk tracking are relevant controls, but they are not the same as accountability enforcement. **Supporting Evidence:** **1.** The City Auditor's Office completes audits and the whistleblower program and has 19 FTE, two deputy city auditors, eight senior auditors and three senior data analytics auditors. (79) **2.** The City Auditor bylaw gives the auditor a mandate to assist Council through Audit Committee and conduct risk-based assurance, advisory and follow-up activities. (82) **3.** Auditor recommendation follow-up is reported to Audit Committee, but that is separate from management performance accountability. (79) **4.** The Inspection found no evidence that Water Utility management accountability failures were systematically addressed through investigations, disciplinary action, performance management or consequences for chronic capital under-delivery.
Responsiveness		
1. Policies exist to promote reporting of concerns identified by City employees.	**Generally Met**	Employee concern-reporting policies existed. Policies and programs exist to promote employee concern reporting, including the City Auditor's whistleblower program and Audit Committee oversight. The existence of those mechanisms is supported, but the Inspection found no evidence that they were used to surface or resolve the specific Water Utility governance, BPSFM or capital-delivery concerns relevant to this audit before the failures. **Supporting Evidence:**

Criteria	Assessment over Review Period	Assessment Rationale
		1. The City Auditor stated that the City Auditor's Office completes audits and the City's whistleblower program. (79) **2.** The City Auditor bylaw provides for assurance, advisory and reporting activities to Audit Committee. (82) **3.** Whistleblower materials show that a 2024 concern was referred to senior leaders and could support the post-mortem process. (87) **4.** The Inspection found no evidence that employee concern-reporting policies produced a documented pre-failure escalation of BPSFM governance or asset-risk concerns.
2. Formal channels exist to support reporting of employee concerns.	**Generally Met**	Formal employee concern channels existed through audit and whistleblower processes. Risk registers, capital prioritization tools and operational issue lists should not be used as evidence for this employee-concern criterion because they are management risk/issue tools, not employee-concern channels. **Supporting Evidence:** **1.** The City Auditor's Office is responsible for audits and the whistleblower program. (79) **2.** Whistleblower correspondence confirms an option to forward a report without identity disclosure and to involve the reporter further if useful to the post-mortem. (87) **3.** The City Auditor bylaw provides independent access and Audit Committee reporting, supporting formal channels for audit and concern oversight. (82) **4.** The Inspection found no evidence that formal employee concern channels were used to raise BPSFM or broader Water Utility governance concerns before the relevant events.
3. Policies within the Utility and the City require escalation of risks to service levels.	**Partially Met**	Current risk-escalation processes exist, but pre-failure escalation of BPSFM-level service risk was not evidenced. The Utility has current processes for capital planning, stage-gating, service-team escalation, risk reporting, and project risk tracking. However, the reviewed record does not show that known deficiencies were consistently escalated for decision through documented options, residual risk, owners, actions, and decision records across the full review period. **Supporting Evidence:** **1.** IRM/ERM processes require service risk registers and roll-up to departmental and executive levels every six months (79). **2.** The 2013 Asset Risk Report described critical asset risk assessment and risk-based reinvestment. (33)

Criteria	Assessment over Review Period	Assessment Rationale
		3. The APEGA report reviewed engineering governance and the BPSFM rupture, including asset management, monitoring, maintenance and engineering decision-making scope. (8) **4.** The Inspection found no evidence of a documented pre-failure escalation decision stating that BPSFM risk exceeded acceptable utility service risk and required ELT or Council decision.
4. The Utility has a process to track and escalate known deficiencies or elevated risks to service levels (issues). The process includes escalation to Council.	**Partially Met**	Current issue and risk tracking processes exist, but consistent pre-incident escalation of known deficiencies to Council was not evidenced. The Utility has current processes for capital planning, stage-gating, service-team escalation, risk reporting and project risk tracking. However, known deficiencies were not consistently escalated for decision through documented options, residual risk, owner/action and decision records across the review period. **Supporting Evidence:** **1.** The UAC TOR includes consensus decision-making and escalation to General Managers for conflicts and issues. (5) **2.** Project delivery uses risk registers and project management tools to track project risks and issues at project, program and portfolio levels. (17) **3.** The 2026 technical memo identifies prioritized BPSFM pipe segments and requests funding for repair/replacement under the feeder main replacement annual program. (81) **4.** The Inspection found no evidence of a consistent pre-incident issue-escalation log for known BPSFM deficiencies with residual risk, decision options, accountable owner, target dates and escalation outcome.
5. The Utility has a process to prioritize and address issues identified.	**Partially Met**	Capital and risk prioritization processes existed, but a Utility-wide non-capital issue-resolution process was not evidenced. Capital prioritization exists, but capital prioritization is not the same as issue prioritization. The evidence shows asset, risk and project prioritization processes; it does not show a separate utility-wide process for prioritizing and resolving governance, management or employee-raised issues independent of the capital budget process. **Supporting Evidence:** **1.** Current capital planning uses categories such as maintenance and renewal, service growth, population growth and transformative projects, with projects run through evaluation criteria. (16) **2.** Asset lifecycle planning includes condition assessment, risk assessment, technical asset management plans, investment plans and handover documents. (17) **3.** The Project Management Framework implementation report identifies business-case standards, project-management framework and risk analysis for capital governance. (35)

Criteria	Assessment over Review Period	Assessment Rationale
		4. The Inspection found no evidence of a utility-wide non-capital issue-prioritization and resolution process that tracked management issues from identification through closure.
6. Critical issues are addressed within an appropriate timeframe (i.e., in time to avoid diminished service levels, or as soon as possible to return to target service levels).	**Partially Met**	Emergency response capacity was shown, but critical Utility issues were not consistently resolved before service impacts. The City demonstrated emergency response capacity and post-incident action after the BPSFM failures. However, the reviewed record does not support a conclusion that critical Water Utility issues were consistently addressed within appropriate timeframes before service impacts occurred. The record supports that critical asset risks, inspection needs, and capital-delivery constraints were not always escalated and resolved before material service impacts. **Supporting Evidence:** **1.** The BPSFM After Action Inspection debrief deck identified roles/responsibilities, H2OC process/functionality, resourcing, preparedness/technology and communications themes, and contemplated an action planner board and AAR report. (88) **2.** Post-BPSFM asset management changes included Tier 1 PCCP inspection every five years, Tier 2 every ten years, soils assessments and third-party engineering advice. (17) **3.** Delivery interviews identified historical capital under-spend, resource constraints, leadership oversight limitations and project delays/deferrals. (89) **4.** The Inspection found no evidence that critical utility risks were consistently addressed within risk-appropriate timeframes before they resulted in service impact.
Responsiveness - Cases		
1. The City developed an action plan to address recommendations from past reviews and documented rationale for deviations.	**Partially Met**	Post-BPSFM action planning is evident, but comparable action planning for earlier significant reviews before the 2024 BPSFM failure was not evidenced. The City developed action planning for the post-2024 BPSFM response, including after-action review work and later implementation planning. However, the reviewed record does not demonstrate a consistent formal action-plan process for earlier material reviews or known issues, including 2004-era feeder main risk work and the 2016 Raftelis governance review. The reviewed record also does not consistently show documented rationale where earlier recommendations were modified, deferred, or not implemented. **Supporting Evidence:** **1.** The 2013 Asset Risk Report shows asset-risk assessment activity and risk-based reinvestment logic but does not evidence a complete formal action plan for 2004-era feeder main issues. (33) **2.** The BPSFM debrief deck shows an “after action review” action planner and report process after the 2024 rupture. (88)

Criteria	Assessment over Review Period	Assessment Rationale
		3. Post-incident leadership described a 27-point implementation plan and quarterly reporting to Council after the independent review. (16) **4.** The Inspection found no evidence of a management-owned action plan tracking 2016 Raftelis governance recommendations through assignment, due dates, status and closure.
2. The City established governance and oversight specific to the implementation of the recommendations.	**Partially Met**	Implementation governance exists following the 2024 BPSFM incident, but comparable governance for pre-incident reviews was not evidenced. Implementation governance was established for the post-2024 BPSFM response through senior oversight, Council reporting, advisory transition and project-specific reporting. The evidence does not show comparable implementation governance for earlier reviews or identified issues, including 2004-era feeder main risk work and the 2016 utility financial/governance review. **Supporting Evidence:** **1.** Post-review implementation included Council direction to bring forward an implementation plan, later Council approval of recommendations, resource requests and quarterly progress updates. (16) **2.** BPSFM replacement includes monthly reporting to a Bearspaw oversight committee with Alberta officials on schedule, risk, safety, finance and performance. (17) **3.** The Water Accountability Committee meets twice a month/monthly and quarterly strategic sessions, with reports/escalations to GMs and senior water utility meetings. (16) **4.** The Inspection found no evidence of standing implementation governance for earlier Water Utility remedial actions before the BPSFM events.
3. Actions were or are aligned and sufficient to address the recommendations within a timeframe that reflects their urgency.	**Partially Met**	Actions implemented or underway by June 30, 2026 were directionally aligned with identified deficiencies, but their sufficiency, effectiveness and timely completion had not yet been demonstrated. Post-incident actions are directionally aligned with identified BPSFM response, asset-management, inspection and resilience issues, including changed PCCP inspection frequency, soils assessments, third-party advice and increased resources. The evidence is insufficient to conclude that actions are complete or sufficient, and it does not show that earlier recommendations were executed within risk-appropriate timeframes. **Supporting Evidence:** **1.** Post-BPSFM actions include revised PCCP inspection frequency, soils assessments and third-party engineering support. (17) **2.** Technical recommendations in 2026 prioritized Tier A and Tier B pipe segment repair/replacement and continued monitoring of prioritized pipes. (81)

Criteria	Assessment over Review Period	Assessment Rationale
		3. The APEGA practice review examined engineering diligence and utility oversight but had scope limitations and did not itself validate management execution sufficiency. (8) **4.** The Inspection found no evidence that earlier review recommendations, including 2016 financial/governance recommendations, were fully executed, validated and closed within a documented timeframe.
4. Remedial actions are adequately funded and resourced and do not jeopardize the Utility's ongoing operations and capital maintenance.	**Partially Met**	Current resourcing increased, but historical remedial actions were not evidenced to be consistently or adequately resourced. The City sought additional post-incident capital and operating resources and described increased asset-management, delivery, and operations staffing. Historical evidence, however, shows capital under-delivery, resource constraints, and headcount constraints during parts of the review period. Post-incident resourcing improvements do not demonstrate that remedial actions were consistently funded and resourced during the earlier period examined. **Supporting Evidence:** **1.** Post-incident Council resource requests included more than $600 million in capital and approximately $21 million in operating resources for implementation. (16) **2.** Infrastructure Services stated the 2026 utilities capital budget was approaching $1.5 billion and that delivery and asset-management staffing had increased. (17) **3.** Anne Cataford identified historical under-spend and indicated there were no repercussions for under-spending the capital budget. (34) **4.** Nancy MacKay stated that rates were kept flat and no net growth in headcount constrained operating staff for about seven years. (84) **5.** The Inspection found no evidence that historical remedial actions were consistently fully resourced to address utility risks before service impacts.
5. Progress to complete the actions is monitored. Delays are assessed and addressed.	**Partially Met**	Current monitoring is stronger for BPSFM and capital delivery, but historical delay-management was not consistently evidenced. BPSFM and capital-delivery work includes monthly/quarterly reporting, project-management tools, risk/issue logs and Council/provincial oversight for specific projects. Historical monitoring of delays and recommendation follow-up was less evident, especially for earlier utility financial/governance recommendations and chronic capital under-delivery. **Supporting Evidence:** **1.** Project managers use a project management system to track expenditures, risks, issues and milestones, with roll-up to program and portfolio levels. (17)

Criteria	Assessment over Review Period	Assessment Rationale
		2. BPSFM replacement is reported monthly to a Bearspaw oversight committee. (17) **3.** Auditor recommendation follow-up exists for audit recommendations but does not cover all management reviews or incident actions. (82) (79) **4.** The Inspection found no evidence of consistent historic delay-management for Water Utility reviews, 2016 financial/governance recommendations or long-standing capital under-delivery.
6. Completed actions were sufficient to address the issues that gave rise to the recommendations.	**Not Met**	The effectiveness of completed actions in resolving the issues giving rise to the recommendations has not yet been demonstrated. It is too early to conclude that current actions fully address the issues that gave rise to the BPSFM events and broader governance concerns. As of June 30, 2026, several actions remained underway or had only recently been implemented, and their effectiveness had not yet been validated over an operating cycle. Earlier actions following 2004-era risk work and the 2016 utility financial/governance review were not evidenced as fully completed, validated and effective. **Supporting Evidence:** **1.** The City described ongoing quarterly implementation reporting and adjustments to the implementation plan, indicating current work remains active. (16) **2.** Current asset-management process formalization, SAMP/customer-level-of-service integration and 10-year needs standardization were described as ongoing or evolving. (17) **3.** The Water Risk Report includes active high water risks with Needs Attention status, showing that current mitigations had not yet reduced those risks to target levels. (32) **4.** The Inspection found no evidence of validated effectiveness testing for completed actions addressing the 2004-era feeder main issues, 2016 financial/governance review governance elements or underlying BPSFM governance issues.

Asset management

Criteria	Assessment over Review Period	Summary Finding
Asset Planning		
1. A comprehensive lifecycle plan existed for the BPSFM, and for water and wastewater infrastructure more generally.	**Partially Met**	System-level lifecycle planning existed, but a comprehensive BPSFM and portfolio lifecycle plan across the review period was not evidenced. The City had system-level asset-management and lifecycle planning documents, including the 2017 Water Network TAMP, feeder main vulnerability work, and later post-incident transmission-main asset-management planning. Those documents show that lifecycle planning existed in concept, and that BPSFM was part of broader risk, criticality, vulnerability, and tactical assessment work. However, the reviewed record does not demonstrate that a current, comprehensive, asset-

Criteria	Assessment over Review Period	Summary Finding
		specific lifecycle plan was maintained for BPSFM across the review period. Nor does the record demonstrate a complete lifecycle plan for potable water, wastewater, and stormwater infrastructure that consistently linked condition, risk, service level, operating requirements, renewal, redundancy, funding, and delivery. **Supporting Evidence:** **1.** The 2017 Water Network TAMP stated that Water had developed an asset management framework to ensure cost-effective lifecycle management of existing and future assets and to make the right investments at the right time. (40) **2.** The 2017 Water Network TAMP stated that TAMPs were intended to inform decisions on levels of service and future capital and operating investments and to align with the Corporate Asset Management Policy, Corporate Asset Management Strategy, and Water Infrastructure Investment Plan. (40) **3.** The 2018 Linear Infrastructure feeder mains Vulnerability Assessment identified the BP WTP South Feeder as one of four feeder mains selected for vulnerability assessment and recommended further review of standardized criteria and failure-analysis methodologies. (90) **4.** The 2025 draft Transmission Mains Asset Management Plan identified Bearspaw South as a hypercritical Tier 1 transmission main with no redundancy and a population served of 517,728. (91) **5.** The May 4, 2026 asset lifecycle planning interview stated that a 2017 technical asset management plan existed for the entire system and that current asset management plans get to individual assets such as individual feeder mains. (17) The Independent Review Panel implementation materials recommended refreshed AMPs for all major infrastructure classes and a centralized asset management database so AMPs can act as a single source of truth for asset condition. (6)
2. Risk-based condition assessments were conducted, and results were used to inform capital maintenance planning and to update the lifecycle plan.	**Not Met**	Risk-based assessments existed, but the BPSFM condition assessment was not completed before rupture and lifecycle plans were not updated in time. The City had risk-based condition assessment processes and BPSFM was included in criticality, vulnerability and tactical assessment work. However, BPSFM was identified as a high-priority or critical transmission asset, and the condition assessment was not completed before the rupture. As a result, the assessment results were not available to inform any BPSFM lifecycle planning, capital maintenance planning, renewal timing, or redundancy decisions before the failure. The reviewed record also indicates that earlier risk methods did not sufficiently elevate high-consequence failure scenarios, which weakened the link between condition assessment, lifecycle planning, and capital maintenance. **Supporting Evidence:** **1.** The 2017 TAMP described an asset hierarchy and indicators including physical condition, financial valuation, and historical

Criteria	Assessment over Review Period	Summary Finding
		performance that can support asset evaluations and scheduling of inspection and maintenance. (40) **2.** The 2017 TAMP stated that the highest risk values were found on concrete feeder mains and showed the City's most critical feeder mains. (40) **3.** The 2017 TAMP stated that feeder main condition data was being gathered with a focus on critical feeder mains and that inspection information would refine prioritization of replacements and repairs. (40) **4.** The 2018 Linear Infrastructure feeder mains Vulnerability Assessment stated that critical feeder mains were identified using criteria including capacity, single long dead-end service, downtown supply, regional supply, and poor condition identified through inspection. (90) **5.** APEGA reported that BPSFM was part of criticality, vulnerability, and tactical assessments and that the City used strategic, data-driven risk management with engineering involvement. (8) **6.** APEGA reported that BPSFM was the top priority for condition assessment in 2022, but that the assessment was not complete at the time of rupture. (8) **7.** A November 2025 BPSFM update stated that a 2024 baseline condition assessment had been completed, the steel assessment was delayed, and the next step was to develop and deliver the comprehensive lifecycle plan based on condition ranking. (92) **8.** The May 4, 2026 interview stated that current lifecycle assessment programs start with condition assessments of major assets, followed by risk assessment and Tier 1-to-Tier 5 categorization, and that BPSFM is classified as a Tier 1 asset. (17)
3. The lifecycle plan was communicated and used for capital maintenance planning.	**Partially Met**	Lifecycle planning informed budgets in concept, but the current handoff and investment process was still being formalized. Lifecycle, risk, and asset-management information was communicated through technical, planning, and governance channels, including TAMPs, investment-planning processes, long-range infrastructure planning, UAC/WAC processes during their respective time periods, and technical memoranda. However, the reviewed record does not demonstrate that lifecycle planning was consistently integrated into critical decision-making or capital maintenance planning for BPSFM and other high-consequence assets across the review period. The current process for moving technical assessments into AMPs, investment plans and handover documents appears to be stronger, but was still being formalized in 2026. **Supporting Evidence:** **1.** The 2017 TAMP stated that TAMPs were intended to inform decisions on levels of service and future capital and operating investments. (40) **2.** The 2017 TAMP stated that it would document activities required to deliver performance, whole-life cost and risk, and proposed

Criteria	Assessment over Review Period	Summary Finding
		expenditures, and include financial investments to address risks and improve asset performance. (40) **3.** The Investment Planning process identified WMT review, Council budget approval, yearly communication of approved budgets and adjustments, yearly investment review, and production of the 10-year capital forecast. (93) **4.** The Long-Range Infrastructure Planning process identified interdivisional support, communication, coordination, annual review of the 10-year capital forecast, and reprioritization when required. (93) **5.** Current interview evidence stated that technical assessments become asset management plans, which create investment plans and handover documents for operations or utility delivery. (17) **6.** Current interview evidence stated that investment plans feed into the 10-year needs list, the 10-year plan, and the four-year budget. (17) **7.** Current interview evidence stated that the asset lifecycle process was being documented and was not formalized at that time. (17) **8.** The Independent Review Panel materials recommended that AMPs form a core input to an IRP, which would inform capital planning and project sequencing. (6)
Portfolio Planning		
1. A capital maintenance plan exists and is informed by the lifecycle plan and condition assessments.	**Partially Met**	Capital-maintenance planning components existed, but a complete formal plan consistently linked to lifecycle and condition data was not evidenced. The City had capital-maintenance planning components, including the Asset Management Policy, replacement and rehabilitation planning processes, the 2017 Water Network TAMP, and later post-incident transmission-main asset-management planning. These materials show that lifecycle planning, inspections, risk analysis, service levels and performance information were intended to inform capital maintenance. However, the reviewed record does not demonstrate a complete and consistently maintained Water Utility capital-maintenance plan that linked lifecycle plans, condition assessments, risk ranking, funding, delivery status and residual risk for BPSFM and other critical assets across the full review period. **Supporting Evidence:** **1.** The Asset Management Policy requires AM Plans to constitute inputs into the Infrastructure Investment Planning process that influences both capital and operating budgets. (39) **2.** The Replacement & Rehabilitation Planning process identifies strategic asset management planning, inspections, risk analysis, service levels, performance measures, and performance assessment as key requirements. (94)

Criteria	Assessment over Review Period	Summary Finding
		3. The 2017 Water Network TAMP describes lifecycle management, renewal planning, and capital maintenance programs, including a list of capital maintenance projects and projected spend. (40) **4.** The 2025 draft Transmission Mains AMP includes risk analysis, condition ratings, TLOS targets, and a budget summary for assessment, monitoring, repairs/replacements, and valve replacement. (91) **5.** A November 2025 BPSFM update states that a baseline condition assessment was completed in 2024 and that the next step was to develop and deliver a comprehensive lifecycle plan based on condition ranking. (92) **6.** The May 4, 2026 lifecycle planning interview stated that the asset lifecycle process was being documented and was not formalized at that time. (17)
2. Capital maintenance is prioritized based on risk and service levels.	**Partially Met**	Risk and service-level prioritization concepts existed, but consistent portfolio-wide application was not demonstrated. City policy and planning documents required capital maintenance to be prioritized using risk, service level, and cost-benefit considerations. The 2017 Water Network TAMP, Water Risk Report, and draft Transmission Mains AMP show that risk, consequence, likelihood, redundancy, and service effects were part of asset-management thinking. However, the reviewed record does not include portfolio-level prioritization outputs showing how specific capital maintenance candidates were scored, ranked, and selected across the Water Utility based on risk and service levels. The evidence therefore supports the existence of prioritization concepts, but not consistent, demonstrated application across the portfolio. **Supporting Evidence:** **1.** The Asset Management Policy requires resources, expenditures and priorities to be focused based on risk and cost/benefit, and requires investment decisions based on service level, risk, and cost trade-offs. (39) **2.** The 2017 Water Network TAMP states that the watermain risk model uses previous break data, physical condition, material, size, location, corrosion potential, and customer impacts to prioritize infrastructure investments. (40) **3.** The 2025 draft Transmission Mains AMP sets a risk formula using likelihood of failure, consequence of failure, and redundancy factor; it states that higher risk scores will be prioritized for assessment. (91) **4.** The Water Risk Report identifies Infrastructure Reliability Risk within the Drinking Water System as High and includes mitigations tied to asset management plans, condition assessments, major capital projects, linear infrastructure replacement, maintenance/capital delivery, preventative maintenance, emergency response plans, and critical parts review. (32) **5.** The May 4, 2026 lifecycle planning interview stated that condition assessments are followed by risk assessment and Tier 1-to-Tier 5

Criteria	Assessment over Review Period	Summary Finding
		categorization, and that a stage-gating committee evaluates both growth and maintenance capital. (17)
3. High-priority capital maintenance is prioritized over growth capital.	**Not Met**	No formal rule or consistent evidence demonstrated that high-priority maintenance is taking priority over growth capital. The reviewed record shows that maintenance, renewal, growth, service, regulatory, and transformational investments were considered through investment planning, long-range planning, stage-gating, and Council budget processes. However, the record does not demonstrate a binding rule or consistently applied decision framework requiring high-priority capital maintenance, particularly high-consequence critical-asset work, to take priority over growth capital. The record also does not include prioritization outputs showing that such a rule was applied in practice when capital maintenance and growth competed for funding or delivery capacity. **Supporting Evidence:** **1.** The Investment Planning process is intended to identify investment options and strategically justify and prioritize projects for all capital and operating activities. (93) **2.** The Investment Planning process identifies inputs including capital/operating budget requests, rates analysis, identified problems or opportunities, WMT review, and Council budget approval, and identifies investment strategy prioritization as a key requirement. (95) **3.** The Long-Range Infrastructure Planning process includes annual review of the 10-year capital forecast and reprioritization when required. (95) **4.** The May 4, 2026 lifecycle planning interview stated that both growth and maintenance capital go through a stage-gating committee for evaluation and funding recommendations. (17) **5.** The May 1, 2026 governance interview stated that current capital planning uses investment categories of maintenance and renewal, service growth, population growth, and transformative projects, and that Council ultimately decides where to invest funds. (16) **6.** The May 1, 2026 finance interview stated that capital investment drivers include growth, maintenance, service level increase, and regulatory, and that infrastructure planning and delivery are responsible for prioritization. (60)
4. Investment in capital maintenance is in line with industry averages.	**Not Met**	Capital-maintenance investment was not evidenced to be in line with industry averages. **Supporting Evidence** The Utility capital expenditures were below industry benchmarks and targets and did not keep pace with inflation and population growth. (58) (56)
Maintenance		
1. Construction and rehabilitation projects were undertaken in	**Not Met**	It was not possible to determine whether construction and rehabilitation projects were completed in accordance with the approved capital plan and budget. The well-established capital under-delivery could not be

Criteria	Assessment over Review Period	Summary Finding
accordance with the capital plan and budget.		broken down into its component parts (programs, projects) to determine the extent rehabilitation programs were affected. It can be inferred by the magnitude of the annual variances that the actual delivery of rehabilitation projects deviated from the budgeted plans. Reviewed correspondence between the City and various contractors appeared routine and not indicative of broader issues that would negatively affect project outcomes. **Supporting Evidence** **1.** Quarterly reports on business plans and budgets were reviewed. These reports were prepared for Council. They reported high-level budgets and measures (e.g., "Wastewater, Waterworks") but did not break down the spending analysis into programs or projects. The reports reflect a chronic underspend of capital throughout the review period. **2.** Various emails were reviewed showing correspondence between the City and its contractors performing rehabilitation projects. The emails covered timing, scheduling and oversight requirements and appeared in line with reasonable communication expectations of contractual oversight.
3. Construction and rehabilitation projects were completed within planned timeframes.	**Not Met**	Evidence reviewed indicated that the Utility had a chronic issue of capital underspending, and did not supply detailed reporting on program and project level spending to Council to help explain where within the capital program the variances occurred. Although it is certainly possible that some rehabilitation projects were completed on time, it is apparent that the program overall suffered scheduling delays from planned completion targets. **Supporting Evidence** **1.** Quarterly reports on business plans and budgets were reviewed. These reports were prepared for Council. They reported high-level budgets and measures (e.g., "Wastewater, Waterworks") but did not break down the spending analysis into programs or projects. The reports reflect a chronic underspend (and therefore delay) of capital throughout the review period.
2. An operating maintenance plan existed for the BPSFM, and for water and wastewater infrastructure more generally.	**Generally Met**	The City has established and implemented a formal operating maintenance planning and monitoring framework for drinking water distribution assets. This includes documented maintenance plans, routine inspection and maintenance activities, and a dashboard for tracking maintenance targets. **Supporting Evidence** **1.** On September 27, 2019, the City initiated its operating maintenance planning program for drinking water distribution assets. The objective was to assess whether the appropriate maintenance activities were being performed at the right time and location. The initial scope included distribution water mains, valves, hydrants, service connections, and chambers. Meters and cross-connections, feeder mains or pipelines, and cathodic protection assets were excluded from the initial scope. (96) **2.** Beginning in 2020, the City developed and implemented a formal operations and maintenance plan for its drinking water distribution assets. (97) (98) (99)

Criteria	Assessment over Review Period	Summary Finding
		3. The City maintained documented evidence of routine inspection and maintenance activities performed on feeder main assets. (100) (101) **4.** The City developed and used a monthly dashboard to monitor operating maintenance targets and track performance for water distribution assets. (102) (103) (104)
3. Operating maintenance is completed as planned.	**Generally Met**	The City used a dashboard to monitor the completion of planned operating maintenance activities. The year-end results reviewed indicate that the majority of targeted maintenance activities were completed by the end of the applicable reporting period. **Supporting Evidence** **1.** Year-end maintenance dashboards showed that most of the City's targeted operating maintenance activities were completed by year-end. (102) (103) (104)

Financial management

Criteria	Assessment over Review Period	Summary Finding
Capital Funding		
1. A long-term capital plan exists that reflects the capital maintenance plan and identifies sources of funding (reserves/equity and debt).	**Generally Met**	The Utility maintained a long-term capital plan for much of the Inspection period. The 2008–2017 capital plan and the 2015–2024 Water Infrastructure Investment Plan (WIIP) exist, both of which addressed capital maintenance investment and broad funding assumptions. The 2015–2024 WIIP identified a 10-year investment requirement inclusive of maintenance and used a funding mix of approximately 60–80 percent debt and 20–40 percent cash. Subsequent 2023–2026 materials included capital spending plans and funding from reserves and debt, but did not demonstrate continuous utility-specific long-term capital planning across the full review period or a comparable utility-specific plan for the early 2004–2008 years. **Supporting Evidence:** **1.** Long-term utility capital planning existed for portions of the 2004–2024 review period, including the 2008–2017 capital plan and the 2015–2024 Water Infrastructure Investment Plan, both of which addressed capital maintenance investment and broad funding assumptions. (105) (106) (71) **2.** The 2015–2024 WIIP identified a 10-year investment requirement of approximately $3.5 billion for Water, Wastewater and Drainage, categorized investments under maintain assets, regulatory and environmental protection, service and growth, and identified a broad funding mix of approximately 60–80 percent debt and 20–40 percent cash. (71) **3.** The 2023–2026 rate and budget materials included capital spending plans, DSCR testing, sustainment reserve targets, rate

Criteria	Assessment over Review Period	Summary Finding
		impacts, off-site levy shortfall discussion, and utilities capital funding from reserves and debt. (107) (108) **4.** A comparable utility-specific plan was not identified for the early 2004–2008 review years, and continuous utility-specific long-term capital planning was not demonstrated across the full 2004–2024 period.
2. The long-term capital plan includes contingencies for unplanned maintenance.	**Generally Met**	The Utility does not maintain a dedicated capital reserve. Rather, the Utility funds unplanned capital expenditures through unspent capital budget and available debt capacity. The 2015–2024 WIIP did not identify a discrete unplanned-maintenance contingency, and later planning materials used debt-service coverage capacity, including a DSCR target of 1.80, as a contingency tool for unexpected capital requirements. The Sustainment Reserve was not documented as a dedicated capital reserve based on unplanned replacement needs, and the available evidence does not show that the recommended dedicated capital reserve was adopted and funded. **Supporting Evidence:** **1.** The 2015–2024 WIIP did not identify a discrete unplanned-maintenance contingency, while later planning materials used debt-service coverage capacity, including a DSCR target of 1.80, as a contingency tool for unexpected capital requirements. (71) (109) (110) **2.** Later financial policy materials identified higher DSCR capacity as a way to maintain debt capacity for unexpected capital requirements, which indicates reliance on borrowing capacity as a contingency mechanism. (111) (110) **3.** The Sustainment Reserve was documented as a reserve for operating flexibility, revenue fluctuation, cash-flow risk and annual operating and capital budget expenditure needs, rather than as a dedicated capital reserve based on unplanned replacement needs. (112) (110) (113) **4.** The Utility Sustainment Reserve was created to consolidate utility reserves and accommodate cash-flow variations to meet operating and capital budget expenditure needs, not as a dedicated capital-plan contingency reserve. (112) **5.** The 2016 Raftelis review recommended establishing a dedicated capital reserve equal to 25 percent of average annual capital expenditures, and the 2016 progress report stated that further analysis and policy engagement were required before that recommendation could be considered. (62) (73) **6.** Updated Utility Review data including stormwater indicates that the Sustainment Reserve met the stated target in only 2 of 14 years from 2011–2024, meeting it in 2022 and 2023 before falling below target again in 2024. (114)
3. The long-term capital plan uses metrics to test the viability of the	**Generally Met**	Capital plans were tested against financial targets. Starting in 2011, the Utility targeted a 60 percent debt / 40 percent equity (calculated) requirement together with requirements related to

Criteria	Assessment over Review Period	Summary Finding
plan (e.g., debt/revenue and debt servicing ratios; impact on rate).		debt service ratios, cash financing of maintenance capital, debt-term, rate impact and sustainment reserve targets. The Utility' debt averaged approximately 59 percent between 2011 and 2024, and was within +/- 5% of target in 10 of 14 years. The City-calculated ROE was cumulatively below an 8.5 percent return on the deemed 40 percent equity base over 2011–2024, while the Sustainment Reserve met its stated target only in 2022 and 2023. **Supporting Evidence:** **1.** Financial planning documents from 2011 onward used viability metrics, including a deemed 60/40 debt-to-equity structure, DSCR targets, cash financing of maintenance capital, debt-term targets, rate impacts and sustainment reserve targets. (111) (110) **2.** The 2018 financial plan used DSCR, cash financing of maintenance capital, 60/40 debt-to-equity monitoring and sustainment reserve targets to test financial policy compliance. (110) **3.** The 2020 financial policy matrix identified a minimum DSCR target of 1.6 times, 100 percent cash financing of maintenance capital, a 60/40 debt-to-equity target, debt terms up to 25 years and a 120-day sustainment reserve target. (109) (111) **4.** The evidence indicates that the DSCR target changed over time, including later materials that increased the target to 1.80 for contingency capacity before the 2020 policy update continued a lower minimum DSCR target of 1.6 times. (111) **5.** Between 2011 and 2024, the Utility's debt averaged 59 percent and was within 5% of its target in 10 of 14 of those years (114) **6.** Data indicates the City-calculated ROE totaled approximately $832.6 million over 2011–2024 compared with approximately $1.50 billion at an 8.5 percent return on the deemed 40 percent equity base, a cumulative shortfall of approximately $667.6 million; the Sustainment Reserve met its stated target only in 2022 and 2023 before falling below target again in 2024. (114) **7.** The 2023–2026 rate materials show Water, Wastewater and Stormwater capital investment, DSCR, sustainment reserve, rate adjustment, off-site levy shortfall and rate-driver impacts. (107)
4. The Utility is able to access funding required for high-priority maintenance and renewal in the year required, and for medium-priority maintenance and renewal no later than one year after the planned year.	**Generally Met**	The Inspection did not find evidence of high-priority capital expenditures being delayed due to funding constraints. The evidence supports that funding mechanisms existed, including rates, reserves, off-site levies and debt, and analysis of available data indicates that the target to cash finance 100 percent of identified capital maintenance projects was achieved from 2015–2024. No evidence was identified that access to funding was the cause of delays, cancellations or non-delivery of capital maintenance projects. However, available capital budget-to-actual data indicates capital underspending, which points to delivery and timing issues rather than demonstrated funding inaccessibility.

Criteria	Assessment over Review Period	Summary Finding
		Supporting Evidence: **1.** The City has a policy to cash finance 100 percent of identified capital maintenance projects, and analysis of available data indicates that this target was achieved from 2015–2024. (110) (114) **2.** Funding mechanisms for planned capital include rates, reserves, off-site levies and debt. (107) (61) **3.** Updated Utility Review data indicates cumulative capital budget less actual/source capital spend of approximately $2.06 billion through 2024, including approximately $1.36 billion from 2011–2024; average capital spend was approximately 78.5 percent of budget in the budget years tested, and budget exceeded actual/source spend in 18 years. (114) **4.** The 2024 Drinking Water Distribution Maintenance Plan stated that 2023 maintenance generally fell short of already reduced targets due mainly to resource shortages and competing work demands, and that annual maintenance had been falling since 2020; this evidence identifies delivery and resourcing constraints, but does not identify access to funding as the cause of missed maintenance targets. (115)
5. For determining a return on rate base, the Utility is using a capital structure that aligns with industry practice.	**Partially Met**	The Utility uses a deemed capital structure to calculate its return on rate base. However, there was no evidence that the City invested equity in the Utility. Ratepayers fund the equity portion of capital expenditures. The evidence indicates that the utility used a deemed 60/40 debt-to-equity capital structure for rate-setting and return-on-equity purposes, and an 8.5 percent ROE was selected with reference to Alberta Utilities Commission guidance. Analysis of available data indicates actual balance-sheet debt share averaged approximately 58.6 percent from 2011–2024 and was within the 60 percent target plus or minus 5 percent in 10 of 14 years tested. The City-calculated ROE was cumulatively below an 8.5 percent return on the deemed 40 percent equity base over 2011–2024. **Supporting Evidence:** **1.** The evidence indicates that the utility used a deemed 60/40 debt-to-equity capital structure for rate-setting and return-on-equity purposes, and an 8.5 percent ROE was selected with reference to Alberta Utilities Commission guidance. (62) (116) (61) (27) **2.** The 2011 Utilities Financial Plan described the 60/40 debt-to-equity target as standard industry practice for regulated utilities in Alberta and across Canada and as confirmed by AUC regulatory rulings. (27) **3.** The Raftelis review supported the 60 percent debt / 40 percent equity capital structure. (62) **4.** The 2024 COSS states that ROE transfers are calculated as an 8.5 percent ROE based on a deemed 60/40 debt-to-equity capital structure and that the 8.5 percent return is pegged to AUC guidance. (61)

Criteria	Assessment over Review Period	Summary Finding
		5. Data indicates actual balance-sheet debt share averaged approximately 59 percent from 2011–2024 and was within the 60 percent target plus or minus 5 percent in 10 of 14 years tested. (114) **6.** Data indicates that the City-calculated ROE totaled approximately $832.6 million over 2011–2024 compared with approximately $1.50 billion at an 8.5 percent return on the deemed 40 percent equity base, a cumulative shortfall of approximately $667.6 million; 2024 was also below the 8.5 percent benchmark. (114) **7.** Notwithstanding that debt levels approximated the deemed capital structure, there is no evidence that the equity portion was funded by the City. The cash expenditure of capital projects is collected directly from ratepayers. (114)
6. Cash surpluses due to non-cash expenditures are accumulated in a capital reserve to fund replacement capital.	**Generally Met**	This criterion assumes a utility approach to setting rates. The Utility follows a cash-needs rate-setting approach, which does not include depreciation. The cash component of capital expenditures is collected from ratepayers. The data indicates that amounts were transferred to a reserve. The evidence does not fully trace the source of the reserve transfers or demonstrate that the amounts were used exclusively for replacement capital. **Supporting Evidence:** **1.** The City has cash-financed maintenance and replacement capital. (110) (61) **2.** The 2018 financial plan stated that the Utility had achieved the target of cash financing 100 percent of capital maintenance projects since 2015. (110) **3.** The 2024 COSS identifies cash-financed capital as a rate revenue requirement and states that it includes expenditures funded by available cash or reserves, including capital maintenance and replacement. (61) **4.** Sustainment Reserve is described as supporting operating flexibility, revenue fluctuation and cash-flow risk, rather than as a reserve tied specifically to replacement capital requirements. (112) (110) **5.** Available data indicates that actual/source rate revenue exceeded the reconstructed rate requirement by approximately $1.29 billion over 2004–2024 and $1.28 billion over 2011–2024. These amounts represent cumulative differences between actual rate revenue and the calculated cash-needs revenue requirement; they do not, by themselves, identify cash transferred to a reserve. Positive annual variances occurred in 16 of 21 years during 2004–2024. (114) **6.** Capital budget exceeded actual/source capital spending by approximately $2.06 billion cumulatively through 2024, including approximately $1.36 billion during 2011–2024. This is a capital-budget timing variance and may reflect project deferrals, timing or

Criteria	Assessment over Review Period	Summary Finding
		scope changes; it is not evidence, on its own, of an equivalent cash balance or reserve contribution (56) (114). **7.** The criterion is generally met under the Utility's cash-needs rate-setting approach. Rather than collecting depreciation and accumulating the resulting non-cash surplus, the Utility included cash-financed maintenance and replacement capital directly in its rate revenue requirement. (56) **8.** Raftelis recommended establishing a dedicated capital reserve equal to 25 percent of average annual capital expenditures, and the 2016 progress report stated that further analysis and policy engagement were required for that recommendation. (62) (73) This would have required additional revenue to be collected from ratepayers.
7. The Utility has identified a target level of reserve based on the capital plan plus contingencies, and the Utility or City has a mechanism to fund the reserve.	**Generally Met**	The Utility has a target for its operating fund, the Sustainment Reserve, but does not have a target capital reserve. See criterion 2 above. A reserve target and funding mechanism were identified, but the Sustainment Reserve target was based on operating metrics rather than on the capital plan plus contingencies, and the reserve was not funded consistently to its stated target. The target was based on 10 percent of revenues and, from 2019 onward, 120 days of operating expenses. Analysis of available data indicates the reserve met its stated target only in 2022 and 2023 before falling below target again in 2024. **Supporting Evidence:** **1.** A reserve target and funding mechanism were identified, but the available evidence indicates that the Sustainment Reserve target was based on operating metrics rather than on the capital plan plus contingencies, and that the reserve was not funded consistently to its stated target. (110) (117) (112) (111) **2.** The target was based on 10 percent of revenues and later 120 days of operating expenses, rather than on quantified capital-plan requirements plus contingency allowances. (112) **3.** The Utility Sustainment Reserve was created to consolidate three prior reserves and accommodate cash-flow variations for operating and capital budget expenditures. (112) **4.** The Utility Sustainment Reserve is funded through surpluses in utility rate revenue collected from ratepayers, including planned or budgeted rate-funded contributions and annual operating budget variances, as well as investment income. (112) **5.** The 2020 financial policy matrix sets the sustainment reserve target at 120 days of annual operating expenditures, and the 2024 COSS states that incremental annual contributions are required to maintain the reserve funding level equal to 120 days of O&M. (111) (61) **6.** The Sustainment Reserve met the stated target in only 2 of 14 years from 2011–2024, meeting the 120-day O&M benchmark in

Criteria	Assessment over Review Period	Summary Finding
		2022 and 2023 before falling below target again in 2024 at approximately 91.5 days. (114) **7.** The 2025 High Priority Action Report response states that the Water line of service reserve balance was below target and that the target would be rebuilt by 2028; it also identifies a one-time transfer from the Fiscal Stability Reserve to support this rebuild, indicating that the funding mechanism included a one-time corporate reserve transfer in addition to ongoing rate-funded contributions. (6) **8.** Raftelis recommended establishing a separate capital reserve. (62) **9.** There is no evidence that a target exists for a capital reserve. The purpose and use of a capital reserve was not specified.
8. Dividends (if applicable) are only paid to the City where the Utility is a) earning a rate of return, and b) able to finance planned capital investments.	**Not Met**	The City collects a dividend that significantly exceeds its rate of return. **Supporting Evidence:** **1.** The evidence supports that the City moved from fixed dividends and franchise fees to a combined "ROE payment." (27) (111) (110) (61) **2.** With the inclusion of the franchise fee, the return on equity amount included in rates is no longer reflective of a return on equity. **3.** It is notable that the April 2024 cost of service study performed by independent consultants described a typical calculation for return on equity and then stated that "Projections for 2021–2026 ROE transfers to the City were calculated and provided by Finance." (61) **4.** Total payments to the City, including ROE and franchise or transfer payments, totaled approximately $1.87 billion over 2004–2024 and approximately $1.36 billion over 2011–2024. (114) **5.** The 8.5 percent ROE value has not changed, while AUC guidance has changed. This should be linked to the Utility Accountability Committee Terms of Reference, which identifies financial oversight responsibilities including adherence to Council-approved utility financial policies, the MGA, and the Alberta Utilities Commission. (5)
Capital Expenditures		
1. Capital budgets are expended within the budget years.	**Not Met**	The Utility frequently underspent its annual capital budget within the intended year. However, the Utility spent 94% of its capital budget in 2024, which could indicate it has implemented changes to its capital planning or delivery practices. Analysis of available capital budget-to-actual data indicates cumulative capital underspending of approximately $2.06 billion through 2024 and approximately $1.36 billion from 2011–2024. Between 2006 and 2024, the Utility spent, on average, 65% of its capital budget. Current budget materials indicate improvement and alignment of annual capital budgets to expected project cash flows, but the evidence reviewed

Criteria	Assessment over Review Period	Summary Finding
		does not yet demonstrate that improvements have resolved budget-year expenditure performance across multiple years. **Supporting Evidence:** **1.** A 2008 document stated that approximately half of the capital budget approved for each year was carried forward due to project delays. (118) **2.** Cumulative capital budget less actual/source capital spend of approximately $2.06 billion through 2024 and approximately $1.36 billion from 2011–2024; average capital spend was approximately 78.5 percent of budget in the budget years tested (114) **3.** Budget exceeded actual/source capital spend in 18 budget years. (114) **4.** A comparison of prior-year unspent amounts to subsequent capital budgets indicates that unspent budget was not mechanically rolled forward in full; rather, annual capital budgets appear to have been reassessed even though cumulative underspending persisted. (114) **5.** Current budget materials indicate improvement, including a reported 94 percent capital spend rate in 2024 and alignment of annual capital budgets to expected project cash flows, but the evidence reviewed does not yet demonstrate that improvements have resolved budget-year expenditure performance across multiple years (119) **6.** Interview evidence states that unspent capital budget is carried forward to the following year, cash funding stays in the reserve and debt funding is not borrowed until expenditures occur. (60) **7.** Water's 2017/2018 TAMP states that historical capital program reporting had been measured against the WIIP, but that the baseline did not appropriately portray capital program status or actual delivery and financial capacity limitations. (50) **8.** Quarterly reports show capital budget status was reported during the year, including City-wide capital spending percentages in 2009. (120) (121) (122)
2. Capital expenditures are within an acceptable variance of budgeted amounts.	**Not Met**	The Utility frequently underspent its annual capital budget within the intended year. However, the Utility spent 94% of its capital budget in 2024, which could indicate it has implemented changes to its capital planning or delivery practices. Capital expenditures were not consistently within an acceptable variance of budgeted amounts, and no specific acceptable variance threshold was identified for this analysis. The City has variance-control mechanisms and recent corrective budget adjustments, but analysis of available data indicates persistent historical budget-to-actual variances, including cumulative capital budget less actual/source capital spend of approximately $2.06 billion through 2024 and approximately $1.36 billion from 2011–2024. **Supporting Evidence:**

Criteria	Assessment over Review Period	Summary Finding
		1. Cumulative capital budget less actual/source capital spend was approximately $2.06 billion through 2024 and approximately $1.36 billion from 2011–2024; average capital spend was approximately 78.5 percent of budget in the budget years tested (114) **2.** Budget exceeded actual/source capital spend in 18 budget years in the updated Utility Review data. (114) **3.** The 2024 result in the updated Utility Review data shows actual/source capital spend of approximately $379.8 million against a capital budget of approximately $391.8 million, or approximately 96.9 percent of budget, which indicates recent improvement but does not offset the persistent historical variance (114) **4.** The City has variance-control mechanisms, including stage-gating, monthly capital project/program financial and progress reporting, capital budget adjustments, relinquishments, net-zero transfers and mid-cycle budget approvals. (50) (123) These have not demonstrated material and sustained improvements. **5.** Water introduced a stage-gating framework in June 2016 to improve accountability for capital investment decisions and expenditure authorizations within the affordable envelope, including review of project status, justification, risk analyses, proposed cash flow and requested funding. (50) **6.** The 2024 Mid-Cycle Adjustments included $143.5 million in capital relinquishments, $1.889 billion in capital increases and $175.5 million in net-zero transfers to better align for capital delivery. (123)
3. Capital budget performance is monitored by Leadership and Council. Significant variances are escalated to Council and remedial action is taken.	**Not Met**	While there was evidence of variances being reported and some in-year budget adjustments, there was no evidence that the repeated variances were investigated and remedial action taken to address them. Evidence was identified that the WIIP and capital budget were provided to Council for approval and tracking, and that the City has mechanisms for quarterly accountability reporting, annual budget adjustments and Council approval of capital budgets and budget changes. However, persistent cumulative capital underspending through 2024 indicates that approval and tracking alone do not demonstrate that significant capital variances were escalated or resolved in-year across the full review period. **Supporting Evidence:** **1.** Evidence was identified that the WIIP and capital budget were provided to Council for approval and tracking, and the City has long-standing mechanisms for quarterly accountability reporting, annual budget adjustments and Council approval of capital budgets and budget changes. (124) (125) (50) **2.** Updated Utility Review data indicates cumulative capital budget less actual/source capital spend of approximately $2.06 billion through 2024 and approximately $1.36 billion from 2011–2024. (114)

Criteria	Assessment over Review Period	Summary Finding
		3. A diagnostic carry-forward test indicates that actual budgets do not behave like full backlog carry-forward; annual capital budgets appear to be reassessed rather than mechanically increased by prior underspends. (114) **4.** Historical quarterly reports included capital budget reporting, including City-wide capital spending and department-level spending percentages. (120) (121) (122) **5.** The 2009 Q2 Utilities & Environmental Protection section identified favourable utility variances related to delayed contractual work and reduced interest charges from delayed capital borrowing, and it reported capital budget status and project-specific comments, including requested deferrals. (121) **6.** Current evidence shows escalation through the 2024 Mid-Cycle Adjustments, which asked Council to approve capital budget adjustments, operating budget adjustments, carry-forward, user fee/rate adjustments and borrowing bylaws, and included relinquishments, increases and net-zero transfers to better align for capital delivery. (123) **7.** Interview evidence indicates that current capital project reporting includes variance reporting, schedule and budget reporting, accountability reporting, deviation reporting and a separate finance-led reporting process. (17) **8.** Approval and tracking alone do not demonstrate that significant capital variances were escalated or resolved in-year. **9.** The evidence supports governance-level monitoring and recent Council escalation of significant 2024 capital pressures, but it does not fully demonstrate effective historical escalation, project-level closure, or resolution of recurring capital-delivery variances across the full review period.
Revenues		
1. Required revenue reflects the full cost of the Utility, and if applicable, a return on rate base.	**Generally Met**	Regular cost of service reviews reflected the full cost of the Utility. The evidence generally supports that required revenue reflected the full cost of the utility, including O&M, debt principal and interest, cash-financed capital, ROE/payment amounts and deductions for non-rate revenues, while outside City customers used a different basis that included O&M, depreciation and return on rate base. Analysis of available data indicates cumulative actual/source rate revenue exceeded the calculated revenue requirement over both the 2004–2024 and 2011–2024 periods, but the evidence does not provide a year-by-year reconciliation for every year and customer class. **Supporting Evidence:** **1.** The 2011 financial plan states that Water and Wastewater are to be self-sustaining and that all costs are to be recovered through user rates, levies, fees and non-tax sources; it also states that rates must cover all expenses and generate net income for capital reinvestment and a dividend to the City. (27)

Criteria	Assessment over Review Period	Summary Finding
		2. From 2018 onward, required revenue was calculated using O&M, debt interest, debt principal, cash-financed capital, ROE and franchise or transfer payments, less non-rate revenues, which reflects a full-cost cash-basis revenue requirement rather than a depreciation-based accounting requirement. (61) **3.** The 2024 COSS defines Water and Wastewater revenue requirements as including O&M, debt servicing net of usable off-site levy funding, cash-financed capital, ROE transfers, reserve transfers and non-rate revenues. (61) **4.** For outside City customers, the identified basis differed and included O&M expenses, depreciation expense and a return on rate base. (126) **5.** Actual/source rate revenue exceeded the calculated revenue requirement by approximately $1.29 billion over 2004–2024, with positive annual variances in 16 of 21 years (114). **6.** The 2022 cost recovery strategy shows proposed 2026 cost recovery below 100 percent for certain inside-city classes, including General Service, Irrigation and General Service Effluent, while Residential Unmetered remained materially above 100 percent. (127) **7.** Prior to 2018, the required revenue calculation was less clear, with planning materials describing required revenue as the amount needed to fund planned operating and capital expenditures and meet Utilities financial targets. (128) **8.** The evidence supports the design of the revenue requirement methodology and cumulative revenue recovery, but it does not provide a year-by-year reconciliation demonstrating that actual collected revenue fully recovered actual costs for every year and customer class.
2. The Utility does not rely upon municipal access fees or franchise fees that are collected and paid to the City.	**Generally Met**	When the Utility collected municipal access fees, they were transferred to the City. The historical treatment and later change in presentation are material to transparency and owner-transfer analysis, including the 2021 change that incorporated those amounts into the ROE/payment line rather than showing them separately. The evidence supports transfer of these amounts to the City, rather than a finding that the utility improperly retained them as operating or capital funding. **Supporting Evidence:** **1.** The 2011 financial policy framework included a 10 percent franchise fee payable by Water and Wastewater to the City and fixed annual dividends to the City. (27) **2.** The 2016 financial review reported Water and Wastewater-related franchise fees and ROE transfers totaling $92.428 million in 2014, with total transfers projected at $108.150 million in 2018. (62) **3.** From 2004–2020, available financial data identifies franchise fees or municipal access/transfer payments as a separate component of the revenue requirement; from 2021 onward, those amounts

Criteria	Assessment over Review Period	Summary Finding
		were no longer shown separately and were incorporated into the ROE/payment line. (61) **4.** The 2024 COSS states that the transfer method changed in 2021 to an 8.5 percent ROE for Water and Wastewater and describes the pre-2021 approach as including lump-sum dividends and 10 percent franchise fees. (61) **5.** Interview evidence indicates that the franchise-fee change followed legal advice and Council approval of an updated financial plan for 2021 rates onward. (60) **6.** The evidence supports the historical fee structure and the documented 2021 change, but current policy language, rate-setting schedules and accounting evidence would be required to confirm the continuing absence of a separately charged municipal access or franchise fee after the change. **7.** Over the full 2004–2024 review period, franchise/transfer payments totaled approximately $740.5 million, and total payments to the City including ROE totaled approximately $1.87 billion. (114) **8.** Evidence supports transfer of these amounts to the City rather than a finding that the utility improperly retained them as operating or capital funding. (114)
3. Variances between required revenue, actual revenue and actual costs are "trued up" in future years.	**Generally Met**	The Utility does not perform a formal true-up calculation; however, surplus revenues appear to be retained within the Utility and indirectly offset future-year rates. No evidence was identified of a formal true-up mechanism for City ratepayers that directly reconciles actual/source rate revenue, calculated required revenue and actual costs, and adjusts future rates for the difference. However, the Sustainment Reserve functions as an indirect true-up mechanism because excess revenue and operating variances are retained for the benefit of utility customers in future years. Regional Customer true-up mechanisms are more formally documented. **Supporting Evidence:** **1.** No evidence was identified of a general true-up mechanism that reconciles actual/source rate revenue to calculated required revenue and returns or recovers the difference through future rates for all customers. **2.** Documents show rate revenue and capital budget recasts, but the evidence reviewed does not demonstrate that these were a formal true-up mechanism with future rates adjusted to reconcile over- or under-recovery. (129) **3.** The 2019 cost-of-service study documents an annual true-up comparing actual rate revenue requirements with received revenues and reflecting differences in subsequent year billing, and

Criteria	Assessment over Review Period	Summary Finding
		the 2024 cost-of-service study identifies true-up methodology as part of the Regional Customer ratemaking scope. (116) (61) **4.** Interview evidence states that budget and rate impacts may be adjusted when revenues or expenditures differ, but that not every variance results in a rate adjustment. (60) **5.** Analysis of available data from 2004–2024 indicates rate revenue may have exceeded required revenue by an average of approximately $61 million a year. (114) **6.** The evidence supports specific reserve transfers, funding allocations and a Regional Customer true-up, but it does not show an annual true-up policy, formula or variance reconciliation schedule for City ratepayers that systematically returns or recovers actual revenue/cost variances through future rates. **7.** The Sustainment Reserve functions as an indirect true-up mechanism because excess utility rate revenue, annual operating budget variances and investment income are retained in the reserve and available for future utility operating and capital budget needs. (112)
4. Off-site levies and payment in lieu of contributed capital are used for growth.	**Partially Met**	Off-site levies and payment in lieu of contributed capital were used as growth-related funding sources, and reviewed documentation notes that the 2016 bylaw moved to 100% recovery for Greenfield growth-related costs. However, the evidence does not demonstrate that these sources fully funded growth, were consistently matched to specific growth projects or fully recovered growth costs. **Supporting Evidence:** **1.** The evidence supports that off-site levies and contributed capital were used as growth-related funding sources, including documents stating that off-site levies recover growth-related infrastructure costs and that the 2016 bylaw moved from 50 percent to 100 percent recovery. (110) (130) **2.** The 2016 off-site levy report states that Greenfield rates were calculated to capture 100 percent of the proportionate share of costs attributable to new growth and that off-site levies help fund water, sanitary sewer, storm drainage and other growth-related infrastructure. (131) **3.** The 2018 indicative rates report states that off-site levies are charged based on Water, Wastewater and Stormwater investments required for growth and are intended to pay 100 percent of principal and interest costs for infrastructure to service new growth. (132) **4.** The 2018 indicative rates report states that lower-than-forecast land development created a sizeable shortfall in off-site levy revenue relative to growth investments, with the shortfall funded by utility rate revenue. (132) **5.** The 2020 Off-site Levy Annual Report states that negative levy balances for Water Distribution, Wastewater Collection, Wastewater Treatment Plant and the Shepard Stormwater

Criteria	Assessment over Review Period	Summary Finding
		Watershed were temporarily mitigated by utility rate revenue and expected to be recovered from future levy collections. (133) **6.** The 2024 cost-of-service study shows that off-site levy funding is used to reduce debt servicing revenue requirements, with levy payments used to fund principal and interest on growth-related debt. (61) **7.** Over the full 2004–2024 review period, off-site levy/development revenue totaled approximately $878.0 million and contributed assets/outside revenue totaled approximately $314.3 million; together these represented approximately $1.192 billion, or about 85.0 percent of the approximately $1.403 billion of total non-rate revenue identified for the period. (114)
5. A process to allocate required revenue to regional customers and City customers exists and generally follows industry practice.	**Generally Met**	A revenue allocation process existed through cost-of-service studies, customer-class rate calculations, user-pay principles and Regional Customer rate requirements, with references to industry practice and AWWA principles. However, reviewed documentation does not independently demonstrate how required revenue was allocated between Regional and City customers in each year or whether allocations consistently reflected cost causation. **Supporting Evidence:** **1.** Evidence supports that a revenue allocation process exists through cost-of-service studies, customer class rate calculations, a user-pay philosophy and regional customer rate requirements. (110) (61) (27) (134) **2.** For outside City customers, the identified basis included O&M expenses, depreciation expense and a return on rate base. (126) **3.** The 2014 Water and Wastewater Cost of Service Study states that cost-of-service analysis is a utility best practice every five to ten years and is used to allocate costs equitably to customer classes in proportion to the demands they place on the system. (128) **4.** The 2014 cost-of-service study identifies cost drivers and references AWWA meter service and meter capacity equivalency factors as industry standards. (128) **5.** The 2019 cost-of-service study states that it documents final cost allocations, rate design decisions and the basis of agreement for Outside City Regional customers, and it states that Regional Customer rate revenue requirements use a utility basis including O&M, depreciation and return on rate base. (116) **6.** The 2024 cost-of-service study identifies Regional Customer methods for water loss, inflow and infiltration, loadings, true-up methodology and projection of inside-city and Regional Customer servicing demands. (61) **7.** The 2024 cost-of-service study states that rate revenue requirements are distributed across customer classes in a fair and equitable manner reflecting usage characteristics, followed by rate design to collect targeted revenue requirements. (61)

Criteria	Assessment over Review Period	Summary Finding
		8. The available financial analysis for 2004–2024 primarily tests total required revenue, non-rate revenue and rate-revenue recovery; it does not independently demonstrate how required revenue was allocated between regional customers and City customers or whether those allocations reflected cost causation in each year. (114) **9.** Executed regional contracts, schedules or rate appendices would be required to confirm contractual adoption of the methodology.

Appendix D: Acronyms and defined terms

Term	Definition
Council	Council or a committee of Council charged with regulating the Utility, as applicable for this review.
WAC	Water Accountability Committee (formerly Utility Accountability Committee).
Service level	The defined performance or service expectation approved for Utility-delivered services.
Acceptable risk / risk tolerance	The approved level of risk that the Utility is prepared to accept while achieving service levels.
Capital maintenance	Capital work required to maintain, renew, rehabilitate, or replace assets to sustain service and risk outcomes.
Risk-based value analysis	A methodology for prioritizing options or projects based on risk, value, and related evaluation criteria.

Acronym	Definition
ADD	Average Day Demand / Average Daily Demand
AECOM	AECOM Canada Ltd. / AECOM Canada ULC / AECOM, the engineering consulting firm
AFO	Acoustic Fibre Optic monitoring
AM	Asset management
AMP	Asset Management Plan
AMI	Advanced Metering Infrastructure
APEGA	Association of Professional Engineers and Geoscientists of Alberta
ASCE	American Society of Civil Engineers
AUC	Alberta Utilities Commission
AWWA	American Water Works Association
BC	British Columbia
BCG	Boston Consulting Group
BP	Bearspaw
BPSFM	Bearspaw South Feeder Main
BPWTP	Bearspaw Water Treatment Plant
CAMP	Corporate Asset Management Plan
CAO	Chief Administrative Officer
CEMA	Calgary Emergency Management Agency
CFO	Chief Financial Officer
CMMS	Computerized Maintenance Management System
CNAM	Canadian Network of Asset Managers
COO	Chief Operating Officer
COS	Cost of Service
DMA	District Metered Area
DSM	Demand Side Management
ELT	Executive Leadership Team
EM	Electromagnetic
ENMAX	ENMAX Corporation
EPCOR	EPCOR Utilities Inc.
ERM	Enterprise Risk Management
EY	Ernst & Young
FCM	Federation of Canadian Municipalities

Acronym	Definition
GIS	Geographic Information System
GMWTP	Glenmore Water Treatment Plant
HPAR	High Priority Action Report
HSE	Health, Safety and Environment
ILI	Infrastructure Leakage Index
IRP	Integrated Resource Plan
ISO	International Organization for Standardization
KPI	Key Performance Indicator
MCC	Municipally Controlled Corporation
MDD	Maximum Day Demand
ML	Megalitre / million litres
MLD	Million litres per day / megalitres per day
MNP	MNP LLP
NCWS	North Calgary Water Servicing project
NCWSS	North Calgary Water Servicing Strategy
O&M	Operations and Maintenance
PCCP	Prestressed Concrete Cylinder Pipe
PBR	Performance-Based Regulation
PRV	Pressure Reducing Valve
RCA	Root Cause Analysis
RACI	Responsible, Accountable, Consulted, Informed
SAMP	Strategic Asset Management Plan
SCADA	Supervisory Control and Data Acquisition
SCWS	South Calgary Water Servicing project
TAMP	Tactical Asset Management Plan
TDD	Typical Day Demand
UAC	Utility Accountability Committee
WAC	Water Accountability Committee
WLRP	Water Long Range Plan
WTP	Water Treatment Plant
WUOB	Water Utility Oversight Board
WWTP	Wastewater Treatment Plant

Appendix E: Citations[1]

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[1] "s.n." stands for the Latin phrase *sine nomine*, meaning "without a name." It is used when there was no publisher, or the publisher's name is unknown.

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