Appendix D

EPCOR WATER SERVICES INC.

Return on Common Equity Memorandum

February 16, 2021

TABLE OF CONTENTS

1.0 OVERVIEW

1. In the 2017-2021 PBR application for Water and Wastewater, both EPCOR Water Services Inc.'s (EWSI) rate of return expert and Grant Thornton (GT), the City of Edmonton's (City) consultant, recognized that:

   i) EWSI's business risks are greater than the average Alberta electric and gas utility[1], and

   ii) It is reasonable to add a risk premium to the Alberta Utility Commission's generic cost of capital to derive the allowed return on equity for EWSI.

2. The Utility Committee observed that prior PBR decisions had not specifically quantified the appropriate risk premium and suggested that EWSI work with City Administration to quantify the risk premium in advance of the next PBR application.

3. In mid-2019, EWSI and City Administration began discussions towards developing an approach to quantify an appropriate risk premium. This culminated in the development of a formal "Request for Information" (RFI) that was circulated to the consulting community. The intent of the RFI was to seek guidance and input from industry experts to fully define the risk premium approach. The RFI defined the risk premium approach as identifying and most importantly quantifying the various risk factors that support the need for an equity risk premium for EWSI above the Alberta Utility Commission's approved generic cost of capital.

4. The information from the RFI was planned to be used in seeking approval of the final approach from the Utility Committee and to inform the eventual "Request for Proposal" (RFP). The RFP would then be issued to select a consultant to complete the actual assessment and quantification of the risks and the development of the return on equity recommendation.

5. The RFI submissions were received in January, 2020. Unfortunately, only two firms responded. Neither response adequately defined a method that would lead to the intended outcome of quantifying the various risk factors. Subsequent conversations with the consultants revealed that the quantified risk premium approach, while theoretically sound, is difficult to enact as there is no basis to adequately quantify and justify the risk factors. At best, the assessment could be completed with business risks being identified and aggregated into larger "buckets" and then the associated risk premium subjectively determined. Both consultants indicated that this approach is not an established

[1] Page 143, Grant Thornton, EPCOR Performance Based Regulation 2017-2021 Filing Review, December 22, 2016.

industry practice. Based on these discussions, EWSI concluded that reliance on more traditional approaches (Capital Asset Pricing Model, Discounted Cash Flows and Risk Premium Model) for the determination of a proposed return on equity was warranted.

6. In previous applications, EWSI contracted an external industry expert to develop such an analysis based on accepted financial approaches and financial market conditions at the time. However, with the onset of the global COVID 19 pandemic and the associated impact on financial markets, EWSI determined that traditional approaches to determining a return on equity were not appropriate for the 2022-2024/2026 applications. The fiscal and monetary policies introduced to diminish the economic impact of the pandemic resulted in changes to financial market data used to estimate common equity rates of return and impacted the viability of the traditional approaches.

7. EWSI instead proposes that an update of Grant Thornton's 2016 analysis (used to set the 2017-2021 PBR term's common equity return) be used to establish the 2022-2024/2026 PBR common equity rate of return (ROE). A formulaic extension of this approach is seen as the most straightforward approach and best aligns with the City's desire to determine a risk premium to the Alberta Utility Commission's generic cost of capital to derive the allowed rate of return on equity for EWSI. The update to this approach is fully detailed in a subsequent section of this Memorandum. EWSI has also provided commentary to document the differences in the risk profile of EWSI's businesses in relation to those regulated by the AUC to justify the risk premium over the generic allowed return on equity and to satisfy Utility Committee's original request to the greatest degree possible.

2.0 BACKGROUND

2.1 Cost of Capital Composition

8. "Cost of Capital" is a fundamental concept in both financial theory and public utility regulation. At the highest level, cost of capital is an opportunity cost, meaning that investing in any asset (or security) implies a foregone opportunity to invest in an alternative asset (or security). For any investment to make financial sense, the expected return of that investment must be equal to the return available in other investments assuming that both investments are of comparable risk. Because investments with similar risks should offer similar returns, the opportunity cost of an investment should equal the return available on an investment of comparable risk. The higher (or lower) the risk, the higher (or lower) the investor's expected return.

9. From a utility perspective, total cost of capital is a central component of the revenue requirement. In most instances, the total cost of capital is the combination of the cost of debt, the cost

of common equity and the capital structure (the allowed percentage of debt and equity). The rate of return is developed from the cost of capital by weighting each of these components by the allowed capital structure to derive the weighted average cost of capital (WACC)[2]. Generally, regulators focus their reviews on the cost of equity and the capital structure while debt rates are generally determined by financial market information.

2.2 The Fair Return Standard

10. Under the PBR's constructs, EWSI is allowed to recover the operating expenses and depreciation deemed reasonable in the rates approval process as well as a fair return on the assets utilized in providing service to rate-payers. The assets utilized is the rate base or, in other words, the amount of property deemed to be "used and useful" in providing service. The concept of a fair return is defined within the EPCOR Edmonton Regulated Utilities Bylaw (Bylaw 12294) which stipulates in the Guiding Objectives through which rates will be assessed:

> EPCOR is entitled to a reasonable margin of profit from operations in relation to the provision of utility services within the boundaries of the city of Edmonton (S. 5a Bylaw 12294, September 12, 2017).

11. The principles that underlie a "reasonable margin of profit" or a "fair rate of return" for any regulated utility have been established through both regulatory and legal proceedings. The Supreme Court of Canada, in Northwestern Utilities v. City of Edmonton (1929) found:

> By a fair return is meant that the company will be allowed as large a return on the capital invested in the enterprise (which will be net to the company) as it would receive if it were investing the same amount in other securities possessing an attractiveness, stability and certainty equal to that of the company's enterprise.

12. This concept, known as the Fair Return Standard has been interpreted many times in both the US and Canada. In Canada, the National Energy Board provided its interpretation of the standard in its RH-2-2004 Phase II Decision and more recently reinforced that interpretation in its Trans Quebec & Maritimes Pipeline Inc. RH-1-2008 Decision.

[2] While often used interchangeably, "rate of return" and "cost of capital" are distinct and actually represent two separate concepts. Rate of return refers to an *ex post* accounting concept that is effectively the return earned on an asset (rate base on the regulatory environment). It is measure of profitability that is usually determined through accounting records. Cost of capital is an *ex ante* economic and financial concept of expected or required return. It is an opportunity cost must be estimated from economic and financial data, rather the measured.

> The Board is of the view that the fair return standard can be articulated by having reference to three particular requirements. Specifically, a fair or reasonable return on capital should:
>
> - be comparable to the return available from the application of the invested capital to other enterprises of like risk (the comparable investment standard);
> - enable the financial integrity of the regulated enterprise to be maintained (the financial integrity standard); and
> - permit incremental capital to be attracted to the enterprise on reasonable terms and conditions (the capital attraction standard).
>
> In the Board's view, the determination of a fair return in accordance with these enunciated standards will, when combined with other aspects for the Mainline's revenue requirement, result in tolls that are just and reasonable.

13. In its 2009 Generic Cost of Capital Order, The Ontario Energy Board interpreted the standard by indicating that all three requirements must be met, and that none ranks in priority to the others.

> The Board affirms its view that the Fair Return Standard frames the discretion of the regulator, by setting out the three requirements that must be satisfied by the cost of capital determinations of the tribunal. Meeting the standard is not optional; it is a legal requirement. Notwithstanding this obligation, the Board notes that the Fair Return Standard is sufficiently broad that the regulator that applies it must still use informed judgement and apply its discretion in the determination of a rate regulated entity's cost of capital.
>
> … all three standards or requirements (comparable investment, financial integrity, and capital attraction) must be met and none ranks in priority to the others. The Board agrees with the comments made to the effect that the cost of capital must satisfy all three requirements which can be measured through specific test and that focusing on meeting the financial integrity and capital attraction test without giving adequate comparability to the comparability to the comparable investment test is not sufficient to meet the [Fair Return Standard].

14. Whether the fair return standard has been met is normally assessed by the determination of the required returns by investors for investments of comparable risk. In other words, for a given level of risk, there is a corresponding return that investors expect or they will place capital elsewhere. That

return is often referred to as the "opportunity cost" or the "investor required" return. A fair return must be set at that opportunity cost. In addition, the return must be sufficient to maintain the utility's credit metrics in order to maintain the organization's credit rating and provide assurances to lenders that debt obligations can be met. The fair return must also be sufficient to attract capital on reasonable terms. Ultimately, it is the risk assessment that is central in the determination of the fair return.

2.3 Risk in a Regulated Utility

15. The risk of a regulated utility can be assessed from two primary perspectives: business risk and financial risk. Business risk encompasses the specific attributes and circumstances of the utility's operations. This includes customers served, nature of the services provided, size of service territory, impact of weather and climate on the business, volume and demand risk, economic conditions, etc. In a regulated environment, business risk also includes regulatory risk as determined by both the manner prudently incurred costs are recovered as well as the timelines over which that occurs. Regulatory risk is generally determined by the regulatory constructs established by the regulator. Business risks result in variability in both cash flow and earnings that impact the ability to recover costs and earn the awarded fair return.

16. Financial risk relates primarily to the manner in which a business is financed or, in other words, the relative percentage of debt and equity in the capital structure. Businesses with a higher level of debt are generally viewed as riskier as they require a higher level of net income to cover the interest obligations. As debt holders take precedence in payment, risk to equity shareholders is increased.

17. For a regulated utility, risks can be both long-term and near-term in nature. Near-term risks are often seen in year over year variability in earnings. Given the typical long lived aspects of regulated assets, longer term risks associated with any impaired ability to recover on and of capital for these assets is also present. Regulated utilities assume additional risks not normally seen in other businesses based on their obligation to serve. Unlike other businesses, regulated utilities must provide service at all times including responding to unexpected asset failures and operational issues that are specific to the asset base of the utility. Regulated businesses must also make the required capital investments to maintain their level of service irrespective of the underlying economic conditions and cost of external funds.

3.0 RISK COMPARISON EWSI VS. AUC

18. In the 2017-2021 PBR application, EWSI's cost of capital expert (Sussex Economic Advisors, LLC) and Grant Thornton, the City's expert, recognized that EWSI's risk is greater than the gas and

electric utilities regulated by the AUC. Sussex also concluded that water and wastewater treatment utilities experience greater levels of business risk relative to natural gas and electric utilities[3]. Grant Thornton indicated that their evidence of greater business risk was conflicting and could not support or refute that conclusion[4]. However, both consultants were aligned in the risk comparison of EWSI's PBR with that of the AUC. This is noted in Grant Thornton's commentary as follows:

> We have considered the elements of EWSI's PBR in contrast to the Alberta Utilities PBR's and concur with the findings of the Sussex Report regarding the EWSI PBR having greater inherent risk compared to other Alberta Utilities[5].

19. As a result of these conclusions, both consultants concluded that a risk premium above the AUC generic was warranted. Even though the risks were not specifically individually quantified in the 2017-2021 proceeding, Sussex concluded a 2.2% premium was warranted, while Grant Thornton concluded a 1.83% premium was warranted, both using transition cost of capital studies.

20. The following discussion presents the major risk factors that contribute to EWSI bearing more risk than an electricity or gas utility regulated by the AUC. The risks are described as distinct from one another, but it is recognized that there is often some degree of overlap among the various risks. For example, the risk associated with water being a consumable product overlaps with the risk of changing regulations intended to ensure the safety of the product. Further, when risks are realized, their actual impacts are often inter-related and may combine to increase the overall impact or they may counteract one other, depending upon the circumstances and economic conditions at the time. The challenge in adequately defining the risks and their distinct underlying drivers is the primary reason that quantification of individual risks is not an established practice.

3.1 Business Risk

3.1.1 Water is a Consumable Product Risk

21. While all utility products are seen as essential to life, only water is actually ingested by the end user. It is incumbent upon the water utility to ensure that appropriate processes and procedures are maintained to provide proper treatment and that the product remains safe and within strict regulatory guidelines. This challenge is compounded by high variability in the source water, depending on

[3] Page 20, Sussex Economic Advisors, Opinion and Report on the Rate of Return, June 6, 2016.

[4] Page 142, Grant Thornton, EPCOR Performance Based Regulation 2017-2021 Filing Review, December 22, 2016.

[5] Page 143, Grant Thornton, EPCOR Performance Based Regulation 2017-2021 Filing Review, December 22, 2016.

weather, time of year and other non-controllable factors. Irrespective of these changes, EWSI is required to maintain the quality and safety of the final product.

As an example, in the summer of 2019, higher than average precipitation resulted in increased surface run off and ultimately unusually high colour in the river. EWSI had to respond to these changes by increasing chemical use (alum and caustic soda) well above historic and planned levels. In addition to absorbing the costs resulting from these types of event, which appear to be becoming more frequent, EWSI must also ensure the operational changes are continually made to maintain water quality.

22. In addition to the consumable product risk, EWSI also bears the risk associated with the collection and treatment of the resulting wastewater. Due to its nature, wastewater has health and safety concerns that must be carefully managed in order to protect both the public and EWSI's employees. As its end product is of paramount importance to the health and well-being of its customers, EWSI bears more risk than is seen in the electric and gas utilities as it ultimately bears responsibility for the safety of the product.

3.1.2 Health and Environmental Regulations Risk

23. All three EWSI utilities are faced with increasingly stringent health and/or environmental standards as determined by regulatory agencies. In most cases, these changes necessitate additional capital investment to meet the new requirements in addition to process and reporting changes to ensure adherence to the standards. As an environmental example, in 2009 Environment Canada enforcement of the Federal Fisheries Act determined that a discharge of any chlorinated water to any water body frequent by fish would be a contravention of the act and subject to significant penalties (fines and more). This compelled EWSI to build and operate de-chlorination systems for waste streams at both water treatment plants and to implement de-chlorination procedures in distribution and transmission and drainage when water is released from pipes. Since that time, this regulatory change has resulted in increased capital and operating costs.

24. Compared to electric and gas utilities, EWSI faces additional risk due to higher frequency of regulatory changes for both environmental and public health standards placing increased pressure on cash flow to fund new infrastructure as well as complete upgrades to existing assets to meet those regulations.

3.1.3 Revenue Risk

25. Water consumption is subject to considerable short-term variation, particularly in the summer months where weather patterns impact outdoor use. Additionally, water consumption over the long-term has continued to decline on a per capita basis over the last 10-20 years. The decline can be associated with a number of things including highly efficient appliances and effective conservation measures. Electricity and gas consumption is also subject to variation, driven primarily by broader economic factors as well as weather. While all utilities bear some revenue variability due to variation in consumption, the extent to which that variability impacts the profitability and risk profiles of the business is markedly different.

26. EWSI's rate structure is comprised of a very high portion of volumetric rates indicating the revenue fluctuates with changes in consumption. In contrast, electric and gas utilities in Alberta have a much lower percentage of volumetric rates implying that their revenues fluctuate less for a given level of consumption changes as a result of their greater percentage of fixed revenue. A critical factor in determining the impact of the consumption variations on revenue is the proportion of revenues derived from fixed rates (per customer, per meter or capacity charges) relative to the proportion of revenue derived from variable rates (consumption charges). For EWSI, the combination of a high percentage of fixed costs, which are not connected with consumption, and a lower percentage of fixed rates, means that consumption changes result in considerable risk of increased variability of earnings.

27. Table 3.1.3-1 below presents the percentage of fixed revenue as a percentage of total revenue for Alberta Utilities. EWSI data is presented for the individual utilities, the simple average of those results as well as for Total EWSI which is determined by the three utilities combined. This latter number normalises for the differing size of the utilities and is seen as the most representative. As illustrated, EWSI averaged 15.1% fixed revenue in 2014-2017, prior to the Drainage Services transfer. The percentage of fixed revenue then increased to 31.37% over the 2018 and 2019 period given that Drainage Services stormwater rates are 100% fixed. In contrast, the gas and electric utilities averaged 71.9% fixed revenue over the 2014-2019 period. Transmission utilities have not been included in this analysis as their revenue is not determined by direct charges to consumers and would be considered 100% fixed.

Table 3.1.3-1
Alberta Utilities - Percentage of Fixed Revenue[6]

		A	B	C	D	E	F	G	H
		2014	2015	2016	2017	2018	2019	2014-17 Average	2018-2019 Average
1	**EPCOR Water Services Inc.**								
2	Water	14.2%	14.0%	14.9%	15.0%	14.1%	14.3%	14.5%	14.2%
3	Wastewater	16.0%	16.2%	17.0%	16.9%	16.3%	16.8%	16.5%	16.5%
4	Drainage	N/A	N/A	N/A	N/A	54.8%	56.1%	N/A	55.4%
5	Average	15.1%	15.1%	15.9%	16.0%	28.4%	29.1%	15.5%	28.7%
6	Total EWSI	14.7%	14.7%	15.5%	15.6%	30.8%	31.8%	15.1%	31.3%
7									
8	**Electric and Gas Utilities**								
9	EPCOR E-Dis	72.9%	72.9%	72.9%	72.9%	75.2%	75.2%	72.9%	75.2%
10	ATCO E-Dis	73.0%	73.0%	73.0%	73.0%	68.5%	68.5%	73.0%	68.5%
11	Enmax E-Dis	73.3%	73.3%	73.3%	73.3%	75.9%	75.9%	73.3%	75.9%
12	Fortis E-Dis	86.1%	86.1%	86.1%	86.1%	83.9%	83.9%	86.1%	83.9%
13	Atco Gas	71.2%	71.2%	71.2%	71.2%	70.9%	70.9%	71.2%	70.9%
14	Alta Gas	55.3%	55.3%	55.3%	55.3%	56.4%	56.4%	55.3%	56.4%
15	Average	72.0%	72.0%	72.0%	72.0%	71.8%	71.8%	72.0%	71.8%

28. As its revenue is primarily based on volumetric rates, EWSI experiences higher revenue volatility than is seen in a gas or electric utility. As a result EWSI bears greater risk of revenue volatility.

3.1.4 Capital Recovery Risk - Depreciation

29. Water and wastewater utility assets typically have longer lives than electric and gas utilities. The resulting lower depreciation rates mean that reliance on depreciation as one of the sources of internal cash flow is lower. In addition, the longer capital recovery period results in water and wastewater utilities facing greater risk from inflation which result in a higher replacement cost per dollar of net plant. In many instances, especially as assets age and approach end of life, increased risk in operating those assets is seen as a result of unexpected asset failures or additional operational costs to inspect assets or to perform maintenance.

30. Table 3.1.4-1 below presents the Composite Lives of Assets for Alberta Utilities. Composite Life equals the Mid-year Plant in Service divided by the Annual Depreciation, and is the average number of years assets are expected to last. As above, EWSI data is presented for the individual utilities and for Total EWSI which is determined by the three utilities combined in order to normalize for the differing size of the utilities.

[6] Source: EWSI financial statements and AUC filings. 2015/2016/2018 or 2019 rate applications have been used to extrapolate the level of fixed revenue for AUC regulated utilities.

31. As illustrated, Total EWSI averaged 46.1 years in 2014-2017, prior to the Drainage Services transfer. This then increased to 57.3 years over the 2018 and 2019 period given that Drainage assets are predominately pipes which have a longer life than water or wastewater plant assets. In contrast, the Alberta gas and electric utilities averaged 32.6 years over the 2014-2019 period.

Table 3.1.4-1
Alberta Utilities – Composite Life[7]

		A	B	C	D	E	F	G	H
		2014	**2015**	**2016**	**2017**	**2018**	**2019**	**2014-17 Average**	**2018-19 Average**
1	**EPCOR Water Services Inc**								
2	Water	49.3	50.2	52.5	51.7	52.8	52.5	50.9	52.7
3	Wastewater	38.7	38.4	34.6	34.7	33.5	32.3	36.6	32.9
4	Drainage	n/a	n/a	n/a	n/a	65.2	66.4	n/a	65.8
5	Average	44.0	44.3	43.6	43.2	50.5	50.4	43.7	50.4
6	Total EWSI	45.9	46.3	45.8	46.4	57.2	57.4	46.1	57.3
7									
8	**Electric and Gas Utilities**								
9	EPCOR - EDI	32.4	31.9	31.3	31.1	31.0	31.4	31.7	31.2
10	EPCOR - ETI	39.5	38.7	37.8	37.9	46.5	46.1	38.5	46.3
11	ATCO E-Dis	31.8	38.7	34.8	44.5	35.6	37.5	37.5	36.5
12	ATCO E-Tran	31.8	38.7	34.8	44.5	35.6	37.5	37.5	36.5
13	Enmax E-Dis*	30.7	30.5	30.2	29.6	29.5	30.4	30.2	30.0
14	Enmax E-Tran	26.8	37.0	35.0	35.4	34.9	35.5	33.6	35.2
15	Fortis E-Dis *	24.5	25.6	24.2	24.4	25.4	25.7	24.7	25.6
16	Atco Gas	27.2	27.3	27.4	27.9	26.4	28.1	27.5	27.3
17	Alta Gas	32.1	32.8	31.9	35.2	34.9	26.5	33.0	30.7
18	Alta Link	28.6	29.5	28.1	30.7	30.7	31.3	29.2	31.0
19	Average	30.5	33.1	31.6	34.1	33.1	33.0	32.3	33.0

32. As a result of the longer asset lives, EWSI bears greater risk than the gas and electric utilities regulated by the AUC.

3.1.5 Level of Contributed Assets Risk

33. EWSI utilities, particularly Drainage, have a greater percentage of contributed assets. These are assets that are not paid for by ratepayers though rates, and are typically constructed by third parties and transferred to EWSI ownership at commissioning. Once these assets are transferred, EWSI is obligated to operate, manage and maintain the assets. The utility assumes all liabilities in exactly the same manner as rate-funded assets. Operationally, EWSI makes no distinction between the two asset types. However, EWSI does not earn a return on equity on contributed assets. Further, any variability in operational costs are borne strictly by the utility, with no RoE compensation for the variability. As a result, EWSI bears greater risk than is seen in electric and gas utilities.

[7] Source: EWSI financial statements and AUC filings.

34. Table 3.1.5-1 below presents the historic cumulative percentage of contributed assets for EWSI and AUC regulated gas and electric utilities. This table details Mid Year Net Contributed Assets as a percentage of the Gross Mid Year Rate Base (net mid year property plus working capital and materials and supplies). EWSI data is presented for the utilities individually and combined or as Total EWSI which normalises for the differing size of the utilities and is seen as the most representative for comparison.

35. As illustrated, Total EWSI averages 27.8.8% contributed assets over 2015 to 2017, which then increases to an average of 52.8% contributed in 2018 and 2019 with the addition of Drainage (which has 68.5% contributed assets). In contrast, the AUC regulated utilities average 15.9% over 2015-2019. Overall, EWSI has a far higher level of contributed assets compared to electric and gas utilities in Alberta, particularly with the addition of Drainage Services.

Table 3.1.5-1
Alberta Utilities – Percentage of Contributed Assets[8]

		A	B	C	D	E	F	G
		2015	**2016**	**2017**	**2018**	**2019**	**2015-17 Average**	**2018-19 Average**
1	**EPCOR Water Sevices Inc.**							
2	Water Services	32.4%	32.6%	32.7%	32.2%	31.9%	32.6%	32.1%
3	Wastewater Treatment	7.9%	6.9%	6.2%	5.5%	4.9%	7.0%	5.2%
4	Drainage	n/a	n/a	n/a	68.6%	68.5%	n/a	68.6%
5	Average	20.1%	19.8%	19.4%	35.5%	35.1%	19.8%	35.3%
6	Total EWSI	28.0%	27.9%	27.7%	52.8%	52.7%	27.8%	52.8%
7								
8	**Electric and Gas Utilities**							
9	EPCOR - EDI	13.2%	12.0%	11.1%	11.2%	11.3%	12.1%	11.2%
10	EPCOR - ETI	8.6%	8.3%	8.0%	7.8%	7.9%	8.3%	7.8%
11	ATCO Electric - Distribution	24.9%	25.2%	24.6%	24.1%	23.7%	24.9%	23.9%
12	ATCO Electric - Transmission	8.2%	8.8%	9.2%	9.3%	9.3%	8.7%	9.3%
13	Enmax Electric - Distribution	22.4%	22.6%	23.1%	22.5%	21.8%	22.7%	22.2%
14	Enmax Electric - Transmission	26.3%	25.1%	26.8%	27.4%	26.4%	26.1%	26.9%
15	FortisAlberta - Distribution	14.5%	13.6%	12.9%	12.5%	12.3%	13.7%	12.4%
16	ATCO Gas - Distribution	17.6%	17.2%	16.7%	16.3%	16.2%	17.2%	16.3%
17	AltaGas	20.4%	18.5%	16.7%	15.5%	14.5%	18.5%	15.0%
18	AltaLink Transmission	10.8%	9.0%	8.9%	9.2%	9.4%	9.6%	9.3%
19	Average	16.7%	16.0%	15.8%	15.6%	15.3%	16.2%	15.4%

36. The AUC has provided its view that increased levels of contributions or Contributions in Aid of Construction (CIAC) increases risk. This view was expressed in decisions resulting from utilities proposing a management fee to compensate them for their contributed assets. In its 2011 Generic Cost of Capital decision, the AUC commented as follows:

[8] Source: EWSI financial statements and AUC filings.

> 495. *Nonetheless, even though the management fee proposed by the Utilities is not warranted, the Commission agrees with the Utilities that CIAC-funded assets contribute to business risk. In general, business risk would be expected to rise in proportion to assets. The Commission agrees with the Utilities that, without an increase in equity, CIAC-funded assets would cause an increase in financial risk and operating leverage risk. As outlined in Section 5 above, it has been the practice of the Commission and its predecessor to adjust for any differences in risk among the utilities by adjusting their individual equity ratios. The Commission has reaffirmed its adherence to this approach in this decision.* [9].

37. In her testimony on the cost of capital for EWSI's 2012-2016 PBR Application, Ms. McShane explained the need for compensation on contributed assets as follows:

> *EWSI has the obligation to manage, operate and replace, bear all the liabilities for and face business risks related to assets that are financed by CIAC. By failing to provide any compensation (margin or return) on assets that are funded by CIAC, the current regulatory model effectively requires EWSI to provide valuable services and assume risks on a significantly larger asset base than it is rewarded for. Some form of compensation for providing service and bearing the risks of ownership, operation and management of those assets should be afforded EWSI.*[10]

3.1.6 Determination of Return on Equity Risk

38. The City's PBR process is based on 5 year terms (with 3 year terms in this application as a one-time measure to stagger future applications) with EWSI's rate of return on equity fixed for that entire period. In contrast, the AUC's rate of return is adjusted more frequently based on their generic cost of capital proceedings. As EWSI is effectively "locked in" to the established return on equity irrespective of changes to the underlying financial market drivers and conditions, this represents an additional risk to EWSI.

[9] Alberta Utilities Commission, *Decision 2011-474*, December 8, 2011, Paragraph 495, page 92.

[10] Page 84, Opinion on Cost of Debt, Capital Structure and Return on Equity for EPCOR Water Services Inc., Prepared by Kathleen C. McShane, Foster Associates Inc., April 2011.

3.1.7 Debt Recovery Risk

39. Under EWSI's PBR Framework, the risk of interest rate fluctuations relative to forecast is entirely borne by EWSI and is not passed on to its customers. Under the AUC PBR Framework, Alberta electric and gas distribution utilities pass on interest rate risk to their customers through rate adjustments. As such, this risk factor represents another component of the EWSI risk premium above the AUC's Generic Cost of Capital

3.1.8 Adjustment Factor Risks (Y, Z and K Factors)

40. A component of any PBR structure, including both the AUC's and EWSI's, are adjustment factors that allow rate increases outside of the i-x formula. As these factors mute the incentive mechanisms that are inherent within a PBR structure, the circumstances where they are approved are generally limited. These factors do serve to mitigate risk to some degree and a discussion of them is included here for completeness. However, as is noted below, EWSI has not reached a definitive conclusion as to the relative risk implications between the AUC's PBR and EWSI's PBR from an adjustment factor perspective given the different manners in which the adjustment factors are applied and both PBR structures require the utility to bear various capital and operating cost forecast risks.

41. Once the PBR application is approved, EWSI bears the risk resulting from changes from the underlying capital and operating cost forecasts. There are no deferral accounts or other mechanisms that allow EWSI to recover operating cost increases. Significant and unexpected differences between actual and forecast costs which are outside of EWSI's control such as power or chemical costs, interest rates, etc. are therefore borne by EWSI. Similarly, EWSI bears capital forecast risk for all projects including both City and developer determined projects, where the capital expenditure is not subject to EWSI's internal control. EDTI bears growth risk as well, as there are no mechanism to go back and collect additional funding if there is greater system growth than initially projected.

42. The single adjustment factor in EWSI's PBR is the non-routine adjustment process. This process does allow some exogenous costs to be recovered but they must be either directed by the City or EWSI must demonstrate that the reason for the additional costs are beyond its control. In addition to these criteria, the defined financial materiality threshold must also be met. That is, once other qualifying criteria are met, a non–routine adjustment must demonstrate an annual revenue impact of greater than $500,000 in order to qualify. In the case of capital projects, this represent a very high threshold.

43. As an example, for a typical pipe project, a $500,000 revenue requirement is derived only when a $17.75 million capital expenditure is reached (assuming a 40 year depreciation rate, current

debt and equity rates and current franchise fees). Any capital variance under this level, including projects directed by the City or resulting from developer activities, is borne by EWSI. In the current PBR term, the Network Private Development Transmission Main program is projected to exceed the $14.4 million approved budget by $11.2 million for a total projected expenditure of $25.6 million over 2017-2021. Since developers determine both the timing of their projects and the areas to be developed, expenditures on this program have proven difficult to forecast and the resulting overage is borne by EWSI. As the overage is below the non-routine financial threshold, EWSI has no ability to seek compensate for the additional capital expenditures and this represents a considerable risk.

44. The AUC adjustment mechanisms consists of Y, Z and K factors which allow recovery of certain qualifying costs and flow-through items above the i-x mechanism. In effect, these adjustments allow a utility to recover the costs associated with unforeseen events. These factors are defined as follows:

- **Y factor -** Y factor costs are costs that are flowed through to customers. For costs to be eligible for Y factor treatment, all of the following criteria must be met:
  (i) The costs must be attributable to events outside management's control.
  (ii) The costs must be material. They must have a significant influence on the operation of the distribution utility; otherwise the costs should be expensed or recognized as income, in the normal course of business.
  (iii) The costs should not have a significant influence on the inflation factor in the PBR formulas.
  (iv) The costs must be prudently incurred.
  (v) All costs must be of a recurring nature.

  Examples of costs allowed under the Y factor adjustment include: AESO costs, AUC assessment fees, intervener costs, costs associated with Commission-directed tariff billing and load settlement changes and property, business and linear taxes. The primary driver for inclusion of these costs is that they can vary significantly year to year and are outside of the utility's control.

- **Z factor -** Z factors allow for an adjustment to a distribution utility's rates to account for a significant financial impact (either positive or negative) of an exogenous event outside of the control of the utility and for which the utility has no other reasonable opportunity to recover the costs within the PBR formula. The following criteria are used to evaluate whether the impact of an exogenous event qualifies for Z factor treatment:

(i) The impact must be attributable to some event outside management's control.

(ii) The impact of the event must be material. It must have a significant influence on the operation of the distribution utility; otherwise the impact should be expensed or recognized as income, in the normal course of business.

(iii) The impact of the event should not have a significant influence on the inflation factor in the PBR formula.

(iv) All costs claimed as an exogenous adjustment must be prudently incurred.

(v) The impact of the event was unforeseen.

- **K factors** – K factors, also referred to as Capital Trackers, allow for adjustments for certain types of capital that cannot reasonably be covered by the i-x formula. Only projects that meet the following criteria are eligible for capital tracker treatment: The project must be a type of project that the distribution utility had not previously undertaken and the project must also be required by a third party. In addition, the project must have a material effect on the company's finances. AUC approval of a capital tracker occurs subsequent to the costs being incurred and any revenue requirement impact is subject to true-up.

45. A comparison of AUC PBR adjustment factors to EWSI's PBR is presented in Table 3.1.6-1 below:

Table 3.1.6-1

Comparison of AUC Y, Z and K Factors to EWSI PBR

	A	B
AUC Adjustment Factors	**AUC PBR**	**EWSI PBR**
1 Y-Factor	Similar to a deferral account mechanism and used to flow through certain recurring costs to customers.	No deferral account mechanisms.
2 Z-Factor	Adjustment mechanism for exogenous events meeting certain criteria including a defined materiality threshold	Non–routine adjustment mechanism for exogenous events meeting the NRA criteria including a defined materiality threshold.
3 K-Factor	Utilities bear the forecast risk on all capital expenditures except those under K-factor. The K-factor is an adjustment mechanism for supplementary capital funding for capital that qualifies for capital tracker treatment. All other capital is funded by under the Commission's approved K-bar mechanism which sets a provides a revenue requirement for capital based on the level of capital additions at a level that is consistent with the amount deployed between 2013 and 2016.	All EWSI capital is based on forecast costs. Utilities bear the forecast risk for capital expenditures except in limited circumstances where capital expenditures qualify for a NRA.

46. When assessing the risk mitigation impact of adjustment mechanisms between the AUC PBR and EWSI's PBR, it must be recognized that, while similar, the PBR structures are not identical and treat a number of areas differently. The AUC PBR structure is comparatively new and some of the basic tenets have changed from the 1st iteration to the current 2nd iteration. Additionally, one key difference is that the AUC method for determining revenue requirement is based on historical costs while EWSI's is based on forecast cost. These considerations complicate a direct determination of the risk mitigation impacts of the adjustment mechanisms, given the differences in approaches to capital, materiality thresholds and considerations unique to the specific situation at the time when the various adjustments are applied. Despite these limitations, EWSI contends that the availability of adjustment mechanisms reduces a utility's risk.

3.2 Financial Risk

47. As noted above, Financial Risk relates primarily to the manner in which a business is financed or, in other words, the relative percentage of debt and equity in the capital structure. Businesses with a higher level of debt are generally viewed as riskier as they require a higher level of net income to cover the interest obligations. As debt holders take precedence in payment, risk to equity shareholders is increased.

48. The deemed capital structure of EWSI and Alberta gas and electric utilities are generally within the same range, with AUC regulated utilities carrying slightly more debt (gas and electrics average 37% equity compared to EWSI at 40% equity). On an equivalent basis, investors would view these higher debt levels as carrying greater risk. It is noted, however, that the AUC process adjusts the capital structure to recognize risk differences among the utilities, as opposed to changing the return on equity awarded, and investors would not assess capital structure and returns on equity separately.

3.3 Summary

49. Overall, EWSI contends that the risk profile it assumes under a PBR structure is higher than that of electric and gas utilities regulated by the AUC and a ROE risk premium over the AUC generic is warranted. Based on the preceding analysis, EWSI is risker on the aspects of:

- Public health risk of consumable product;
- Health and environmental risk;
- Revenue risk;
- Capital recovery risk;

- Contributed asset risk; and
- Fixed return on equity and cost of debt risk.

50. In other aspects, a definitive conclusion was not reached. Specifically, EWSI and AUC regulated utilities appear to have similar risks on PBR adjustment factors, but the final result would depend on the specific circumstances at the time the adjustment was determined. AUC has somewhat higher financial risk due to higher average deemed debt ratios (37% vs. 40%). On balance, there are several risk factors that are higher for EWSI compared to the electric/gas utilities and some of these risk factors are substantially greater. As will be demonstrated below, the risk of EWSI's business has increased since the 2017-2021 period with the inclusion of Drainage and therefore a proposed 1.83% risk premium represents the low end of an acceptable range.

4.0 COMMON EQUITY RATES OF RETURN FOR THE 2022-2024/2026 PERIOD

4.1 Overview

51. The City of Edmonton determined that a 10.175% common equity rate of return was reasonable for EWSI for the 2017–2021 PBR term. This decision was based, in part, on evidence submitted by EWSI and reports prepared by Grant Thornton (GT) and Mr. W. J. Beckett (WJB) in 2016.

52. EWSI proposes that an update of Grant Thornton's 2016 analysis be used to address the 2022 – 2024/2026 PBR common equity rate of return. EWSI believes this is the most straightforward approach and best aligns with the City's desire to determine a risk premium to the Alberta Utility Commission's generic cost of capital to derive the allowed rate of return on equity for EWSI. The following topics will be addressed to provide additional background and rationale to support this proposal.

- Impact of the Global Pandemic.
- The Relationship Between Risk Premiums and Bond Yields.
- Updating the Grant Thornton Analysis · Pre-Pandemic Conditions.
- Updating the Grant Thornton Analysis · Consensus 2022 Conditions.
- EWSI's Proposal to Moderate Drainage Rate Increases.
- Summary of Conclusions.

4.2 Impact of the Global Pandemic

53. In late February/early March 2020, investors and share markets reacted negatively to announcements surrounding the COVID-19 global pandemic. Many countries, including Canada,

began to "lock down" their economies; and federal governments and central banks used fiscal and monetary policy initiatives to diminish the economic devastation of the lockdowns on citizens and businesses.

54. These unprecedented changes lead to a number of questions regarding the impact to traditional approaches to the determination of a rate of return on common equity. Specifically: What is the qualitative impact of these changes on data used to estimate capital costs and appropriate common equity rates of return? Will the consequences of these lockdowns persist for some while or prove to be a short-term phenomenon? How should the impact of the global pandemic be reflected in estimated capital cost rates? Or should it be reflected in them at all? These questions are addressed in the following section.

Impact of the Pandemic *on Data Used to Estimate Capital Cost Rates*

55. There are virtually no financial ratios, interest rates or other capital cost inputs or indicia which have remained stable throughout 2020, making reliance on these "roller coaster" 2020 data problematic in applying traditional methods for estimating capital cost rates.

56. In *Decision 24110-D01-2020* (released October 13, 2020), the Alberta Utilities Commission (the Commission) refers on several occasions to the impact of the global pandemic on capital markets.

> Subsequent to evidence being filed, the Commission received a motion on March 17, 2020, from the Office of the Utilities Consumer Advocate (UCA) requesting that the proceeding be suspended in light of the extraordinary turmoil and uncertainty in financial markets at the time on account of the COVID-19 pandemic. The UCA requested a six-month suspension with an opportunity for all parties to update their evidentiary submissions thereafter. On March 19, 2020, the Commission suspended the proceeding and indicated that it would review and reassess its decision every 30 to 60 days, unless circumstances changed dramatically and called for earlier action.[11]
>
> The Commission's last communication with registered parties in this proceeding was on August 7, 2020, at which time the Commission acknowledged that all parties, except for the Consumers' Coalition of Alberta, maintained their positions

[11] *Decision 24110-D01-2020*, paragraph 5.

> that the ongoing COVID-19 pandemic and related economic and financial market uncertainty/volatility continued to preclude the immediate successful resumption of the proceeding.[12]
>
> The partially developed record, combined with the unprecedented and ongoing turmoil in global financial markets, provided no reasonable basis for the Commission to extend its previous GCOC findings on a *final* basis for 2021, without regulatory due process.[13]

57. The increased uncertainty associated with economic prospects, Government deficits and increased capital market volatility have increased investors' required rates of return in 2020 compared to, say, 2019. Because public utility common equity rates of return are based largely on investors' required market rates of return with an adjustment for common equity flotation costs, it follows that fair rates of return under conditions prevailing in 2020 are higher than fair rates of return under the conditions prevailing in 2019.

What Will Be the Duration of the Pandemic's Impact?

58. Will the pandemic's economic impact be short-term? Will we return to the world of late 2019? Or will the pandemic affect capital markets and elevate required market rates of return for some time to come?

59. At this time, there is no reasonably definitive answer to any of these questions.

Should the Impact of the Pandemic Be Reflected In Estimated Capital Cost Rates?

60. If the pandemic continues to exert upward pressure on capital cost rates for some while, it would then be appropriate to reflect these new conditions in costs of capital for regulatory purposes. Alternatively, if the pandemic's impact largely dissipates – especially between now and when EWSI's 2022–2026 PBR period begins – then it would be more appropriate to rely on estimates that exclude the impact of the pandemic.

61. To avoid placing reliance on capital cost estimates that may be unduly inflated by temporary pandemic conditions which will not apply during the PBR period, EWSI proposes that the City and its

[12] *Decision 24110-D01-2020*, paragraph 7.
[13] *Decision 24110-D01-2020*, paragraph 10.

advisors exclude the adverse impact of the pandemic by assuming that conditions will return to "normal" by the time EWSI's 2022–2026 PBR period commences. This exclusion is practically accomplished in this Memorandum by avoiding the use of post-2019 data.[14] The exclusion of post-2019 information also addresses the data stability problems described above. In short, this approach does not capture the greater uncertainties, risks and higher capital costs that prevail in 2020 on the assumption that these higher capital costs will have moderated by the time EWSI's 2022 rates come into effect.

4.3 The Relationship Between Risk Premiums and Bond Yields

62. An understanding of the relationship between risk premiums and bond yields is an important prerequisite to updating GT's 2016 analysis in respect of EWSI's common equity rate of return. As a result of the differential taxation of interest versus dividends/capital gains, risk premiums tend to compress as bond yields rise and expand as bond yields decline. Another way of expressing the same phenomenon is that common equity rates of return rise by less than the increase in bond yields and decline by less than the decrease in bond yields. To illustrate, if bond yields rise by 1%, then common equity rates of return will tend to rise by less than 1%; and if bond yields decline by 1%, then common equity rates of return will tend to decline by less than 1%.

63. Historically, Canadian regulators have assumed that the degree to which common equity rates of return vary as interest rates decline or rise is in the approximate range of 75% – 80%, with the focus at 75%.[15] Thus, if bond yields decline by 1%, then the tendency is for common equity rates of return

[14] Inasmuch as the pandemic gripped capital markets starting in the first quarter of 2020, the final quarter of largely pre-pandemic conditions is the fourth quarter of 2019.

[15] In *Decision 2004-052*, the Alberta Energy and Utilities Board adopted an Annual Adjustment Mechanism for rate of return that assumed a 75% compression/expansion factor (see *Decision 2004-052*, page 32). The Board stated that: "…most parties favored an adjustment formula with the ROE changing by 75% of the change in the forecast long-Canada bond yield, provided that the Board accepted their starting positions on ROE. The Board also notes Dr. Evan's evidence that a change based on 75% of the change in the long-term Canada bond yield is driven by the differential tax rates between bonds and equity." (*Decision 2004-052*, page 31) A survey conducted at the time Dr. Evans' evidence was prepared in the proceeding that led to *Decision 2004-052* indicates that a 75% compression/expansion factor was used by the National Energy Board (*Decision RH-2-94*, March 1995, pages 30-33), the Ontario Energy Board (*Draft Return on Equity Guidelines*, March 1997, pages 1-2) and the Quebec Regie de l'energie (*Re Gaz Metropolitain*, February 10, 1999, pages 48-50). An 80% compression/expansion factor was used by the Newfoundland Board of Commissioners of Public Utilities (*Re Newfoundland Power Inc.*, July 31, 1998, pages 105-106) and the Public Utilities Board of Manitoba (*Order 49/95*, May 5, 1995, pages 50-52). The situation in British Columbia is not as clear. In *Return on Common Equity for a Benchmark Utility*, August 26, 1999, page 24, the British Columbia Utilities Commission adjusted "one-for-one" at bond yields of 6.0%

to decline by 0.75% - i.e., risk premiums expand by 0.25%. And if bond yields rise by 1%, then the tendency is for common equity rates of return to rise by 0.75% - i.e., risk premiums contract by 0.25%. The rationale for the expansion/compression of risk premiums is the maintenance of constant after-tax risk premia for taxable investors. Attachment A to this Memorandum provides hypothetical examples of this phenomenon using Alberta and Ontario 2020 income tax rates.

64. The analyses in the next two parts of this Memorandum assumes that common equity rates of return vary by 75% of the change in bond yields. This is consistent with the views of the Alberta Energy and Utilities Board and most Canadian regulators.

4.4 Update the Grant Thornton Analysis – Pre-Pandemic Conditions

65. In 2016, GT prepared an *EPCOR Performance Based Regulation Filing Review*. In light of the practical limitations and concerns with applying traditional rate of return methods in the current pandemic environment and in an effort to avoid controversy, EWSI has updated the analysis in the GT Report to reflect the 2019 pre-pandemic generic cost of capital determined by the Alberta Utilities Commission and bond yield changes, having regard for the compression and expansion of risk premiums.

66. EWSI proposed an ROE of 10.5% in the 2017-2021 PBR application[16]. This represented a decrease of 0.375% from the 2012-2016 application approved amount of 10.875%. GT noted that an ROE of 10.5% represented a risk premium of 2.20% above the AUC generic of 8.3% at that time. Their conclusions indicated they viewed that an appropriate risk premium is within a range of .08% to 0.66% lower than the 2.20%[17]. This would result in a risk premium range of 1.54% to 2.12% with a mid point of 1.83%. Both the EWSI and GT analysis was based on 3 different methods and supporting data. The Utility Committee ultimately determined a risk premium of 1.875% for the 2017-2021 PBR term. This

or below and at 80% of the change in bond yields for bond yields above 6.0%. The BCUC subsequently elected not to use a rate of return adjustment formula and then reinstated a new formula in *Re Generic Cost of Capital Proceeding*, May 10, 2013, page 90. The new formula assumed a compression/expansion factor of 50% *vis-à-vis* yields on long-term Government of Canada bonds subject to a "floor" of 3.8% on the bond yield. However, the formula also included a 50% adjustment for changes in the spread between yields on long-term public utility bonds and long-term Government of Canada bonds.

[16] Three methods were applied to determine the rate of return include Capital Asset Pricing Model (CAPM), Discounted Cash Flow (DCF) and Risk Premium Model (RPM). The recommendations for EWSI's return on equity were derived from the results of applying each of these methods to both the US water utility proxy group and the Canadian utility proxy group.

[17] GT Report, page 145.

was the same risk premium as was determined for the 2012-2016 PBR term and EWSI believes was based on GT comment that "We have not identified additional risks or considerations that would warrant an increase in the risk premium from the 2012 PBR[18]."

67. For the 2017-2021 update of the GT approach, EWSI has used a risk premium of 1.83% as it was based on three formal methods and is more supportable than carrying a single point estimate from a prior period forward. EWSI believes, however, that the risk of the overall business has increased since the 2017-2021 period and a 1.83% risk premium represents the low end of an acceptable range. The inclusion of the Drainage business in the 2022-2026 PBR period with the same 40% common equity ratio as the Water and Wastewater businesses implies that EWSI's investment risks are higher today than they were in 2016.[19] Thus, the appropriate premium *vis-à-vis* the Commission's generic cost of capital is no less than 1.83% today.

68. In *Decision 22570-D01-2018*, the Commission found that an 8.5% common equity rate of return was reasonable for test years 2018, 2019 and 2020.[20] All things equal, the indicated common equity rate of return for EWSI based on the GT Report and the 8.5% for generic Alberta utilities is therefore 10.33% (= 8.5% + 1.83%). However, the Commission's 8.5% in *Decision 22570-D01-2018* was predicated on a 2.3% yield on long-term Government of Canada bonds.[21] In contrast, the 2019 pre-pandemic yield on long-term Government of Canada bonds is 1.8%.[22] The lower 2019 bond yield suggests that a downward adjustment should be made to the 10.33% common equity rate of return but with recognition given to the fact that risk premiums expand as bond yields decline.

[18] GT Report, page 145.

[19] The Drainage business has a longer capital recovery period, a greater proportion of non-productive contributed assets (i.e., not paid for by rate payers) and higher operating leverage (cash operating costs to total revenue) than the Water and Wastewater businesses. Thus, the addition of the Drainage business to the EWSI portfolio increases EWSI's overall business risk profile. If the Drainage assets are financed with the same 40% common equity ratio as the Water and Wastewater businesses, it then follows that the investment risks – the combination of business and financial risks – have increased. The assumption of a 40% common equity ratio for EWSI's overall operations is consistent with the September 3, 2020 DBRS rating report (see Appendix C – EWSI Credit Report) that states: "Over the long-term, DBRS Morningstar expects leverage for EWSI to be at the approved capital structure of 60% debt."

[20] Alberta Utilities Commission, *Decision 22570-D01-2018*, August 2, 2018, Paragraph 500, page 104. In its recently-released *Decision 24110-D01-2020*, the Commission did not provide a detailed rate of return analysis. Nevertheless, the 8.5% common equity rate of return from *Decision 22570-D01-2018* was extended through 2021 on a final basis. See *Decision 24110-D01-2020*, Paragraphs 14 and 20.

[21] Alberta Utilities Commission, *Decision 22570-D01-2018*, August 2, 2018, Paragraph 299, page 65.

[22] The average of the daily 2019 yields reported by the Bank of Canada for Series V39056 is 1.80%.

69. The indicated common equity rate of return for EWSI is currently no less than 9.95% based on a 75% risk premium compression/expansion factor, the Commission's 8.5% 2019 generic cost of capital, GT's 1.83% risk premium from 2016 and the change in bond yields subsequent to the Commission's decision. The 9.95% should be regarded as a minimum, because it does not consider the increased business risks of the Drainage business, which was not part of EWSI's asset portfolio when the GT Report was prepared.

70. The formal calculations that lead to the 9.95% conclusion are set out in Table 4.4-1 below.

Table 4.4-1
Indicated Common Equity Rate of Return
Based on Grant Thornton 2016 EWSI Risk Premium,
AUC 2019 Generic Rate of Return,
2019 Pre-Pandemic Long-Term Bond Yield
And 75% Risk Premium Compression/Expansion Factor

2019 Yield on Long-Term Government of Canada Bond	1.80%
Less: Yield on Long-Term Government of Canada Bond in *Decision 22570-D01-2018*	(2.30%)
Bond Yield Change	(0.50%)
x 75% Compression/Expansion Factor	x 0.75
Change in Common Equity Rate of Return	(0.38%)
AUC 2019 Generic Cost of Capital	8.50%
Plus: Grant Thornton 2016 Premium for EWSI Risk	1.83
Less: Change in Common Equity Rate of Return	(0.38)
Indicated Common Equity Rate of Return Based on Pre-Pandemic Conditions	9.95%

4.5 Updating the Grant Thornton Analysis Consensus 2022 Conditions

71. The analysis in Table 4.4-1 is based on the Commission's 8.50% generic rate of return and long-term Government of Canada bond yields during the pre-pandemic conditions of 2019. EWSI proposes the City and its advisors accept this approach for reasons set out in the discussion of the *Impact of the Global Pandemic*.

Alternatively, however, EWSI observes that the same result coincidentally arises from using the Commission's 8.5% 2021 generic rate of return from *Decision 24110-D01-2020* and an analysis of consensus 2022 yields on long-term Government of Canada bonds.

72. Based on the October 12, 2020 issue of *Consensus Forecasts*, the consensus yields on ten-year Government of Canada bonds are 1.10% (October 2021), 1.60% (December 31, 2022), 2.00% (December 31, 2023), 2.40% (December 31, 2024), 2.70% (December 31, 2025) and 2.90% (December 31, 2026). The average 2022 ten-year yield on Government of Canada bonds from the *Consensus Forecasts* survey is 1.35%. The relevance of 2022 is that it is the first year of the PBR period.

73. Yields on long-term Government of Canada bonds are typically higher than yields on ten-year bonds. The difference – the "maturity premium" – varies with market conditions. In *Decision 22570-D01-2018*, the Commission remarked: "…the spread between 10-year and 30-year GOC bonds is likely to be lower than the historical average by some 50 bps that the Commission has accepted in past GCOC decisions."[23] Thus, the Commission indicates that the "historical average" maturity premium has been approximately 50 basis points; however, the Commission adopted an unspecified lower maturity premium in *Decision 22570-D01-2018*. A reasonable inference is that this lower maturity premium was in the range of 0 – 50 basis points. More recently, differences between yields on long-term and ten-year Government of Canada bonds have exceeded the 50 basis points historical average.[24]

74. Giving equal weight to the 50 basis points historical average, the 25 basis points midpoint of the 0 – 50 basis points range and the current yield difference of 59 basis points, the indicated average maturity premium is 45 basis points.

[23] *Decision 22570-D01-2018*, Paragraph 297, page 65.

[24] Based on Bank of Canada data for the five trading days ending October 29, 2020, the average maturity premium is 59 basis points.

75. The sum of the 1.35% consensus 2022 yield on ten-year Government of Canada bonds and the 45 basis points maturity premium is 1.80%. Coincidentally, the 1.80% is the same as the actual average yield on long-term Government of Canada bonds for 2019. Thus, the assumption that investors expect that long-term bond yields will return to 2019 pre-pandemic levels by 2022 is supported by an independent analysis of those expectations as captured in the *Consensus Forecasts* survey.

76. The indicated common equity rate of return for EWSI from this alternative analysis is 9.95% as shown in Table 4.5-1.

Table 4.5-1
Indicated Common Equity Rate of Return
Based on Grant Thornton 2016 EWSI Risk Premium,
AUC 2021 Generic Rate of Return,
2022 Consensus Long-Term Bond Yield
And 75% Risk Premium Compression/Expansion Factor

Consensus 2022 Yield on Long-Term Government of Canada Bond	1.80%
Less: Yield on Long-Term Government of Canada Bond in *Decision 22570-D01-2018*	(2.30%)
Bond Yield Change	(0.50%)
x 75% Compression/Expansion Factor	x 0.75
Change in Common Equity Rate of Return	(0.38%)
AUC 2021 Generic Cost of Capital	8.50%
Plus: Grant Thornton 2016 Premium for EWSI Risk	1.83
Less: Change in Common Equity Rate of Return	(0.38)
Indicated Common Equity Rate of Return Based on Consensus 2022 Bond Market Conditions	9.95%[25]

4.6 EWSI's Proposal to Moderate Drainage Rate Increase

77. EWSI acquired the Drainage business in 2017 and has been striving to improve service dependability, the quality of asset maintenance and the profitability of the business while not exposing

[25] The analysis in Table 4.5-1 uses a 1.35% consensus 2022 yield on ten-year Government of Canada bonds as the point of departure. Appendix C, however, reports a sharp increase in the consensus yield over the 2022-2026 period. The annual average yields rise from 1.35% in 2022 to 1.80% in 2023, 2.20% in 2024, 2.55% in 2025 and 2.80% in 2026. The average yield on ten-year Government of Canada bonds for the 2022 – 2026 PBR period is 2.14%. The addition of a 45 basis points

customers to overly-aggressive rate increases. EWSI proposes to continue this program throughout the 2022–2026 PBR period; and in its effort to balance the need to replace failing infrastructure with moderate rate increases, EWSI proposes to accept a 5.50% common equity rate of return on its "Base" Drainage operations in 2022 and ramp up the return on equity in a linear fashion by 1.1% per year to achieve a 9.95% fair return on equity by 2026.[26]

78. The impact on EWSI's consolidated rate of return from moderating rate increases in this fashion is shown in Table 4.6-1.

Table 4.6-1
Business Unit and Consolidated Rates of Return on Common Equity
2022–2026

	Year	A Water	B Wastewater	C Drainage Base	D Drainage SIPR/CORe	E Drainage Consolidated	F Total Consolidated
1	2022	9.95%	9.95%	5.50%	9.95%	5.85%	7.97%
2	2023	9.95%	9.95%	6.61%	9.95%	7.09%	8.52%
3	2024	9.95%	9.95%	7.73%	9.95%	8.13%	9.01%
4	2025	9.95%	9.95%	8.84%	9.95%	9.07%	9.48%
5	2026	9.95%	9.95%	9.95%	9.95%	9.95%	9.95%
6	2022-2026	9.95%	9.95%	7.83%	9.95%	8.19%	9.05%

Note: Calculations are based on forecast 2022–2026 annual rate bases and Drainage rates of return calculated using the method described above.

79. EWSI recognizes the current economic climate is creating financial hardship for many customers and is voluntarily reducing the applied-for rate of return for Drainage Services in this Application. As a result of accepting a rate of return on equity on base operations that is far lower than the fair return, EWSI has reduced costs to ratepayers by over $66 million for the 2022-2024 PBR term. SIRP and CORe differ significantly from the programs included in the base revenue requirements, because of their size, complexity and duration which contributes to higher levels of business and execution risks. EWSI is proposing a fair return of 9.95% return on equity for these two major strategic

maturity premium leads to a consensus yield on long-term Government of Canada bonds for the 2022 – 2026 PBR period of 2.59% (= 2.14% + 0.45%). If the 2022 – 2026 2.59% yield on long-term Government of Canada bonds were used in the Table 2 analysis rather than the 2022 value of 1.80%, then EWSI's indicated common equity rate of return would rise to 10.55% (= 8.50% + 1.83% + ((2.59% - 2.30%) x 75%)).

[26] Base Drainage operations do not include capital expenditures in respect of the Storm Water Integrated Resource Plan and the Corrosion and Odour Reduction Strategy. A 9.95% common equity rate of return is used to develop revenue requirements for the Storm Water Integrated Resource Plan and the Corrosion and Odour Reduction Strategy.

initiatives which will require significant capital expenditures for which EWSI must receive a fair return and be in a financial position to obtain debt financing at reasonable terms.

80. Three conclusions are drawn from the data in Table 3. First, with the exception of the 2026 rate of return, each of the forecast consolidated rates of return in the final column are less than the 9.95% indicated common equity rates of return from Tables 1 and 2.

81. Second, the average consolidated rate of return of 9.05% is materially less than the 9.95% from Tables 1 and 2 and provides a premium above the Commission's 8.50% generic cost of capital of approximately 50 basis points, whereas the premium for EWSI's risks from the GT Report is 1.83%.

82. Third, the 9.05% is modest in the context of straightforward market-derived 2019 benchmarks. To illustrate, the 2019 average and median earnings-price ratios of the five Tier 1 chartered banks including a traditional 50 basis points flotation allowance are 9.8% and 9.5% respectively. These earnings-price ratios understate the benchmark cost applicable to EWSI for two reasons. First, the 2019 average and median market-to-book ratios for the banks were 154% and 140% respectively; and the earnings-price ratio understates the investors' required rate of return if the market-to-book ratio is greater than 1.0.[27] Second, EWSI is undeniably exposed to greater investment risks than the Tier 1 chartered banks.[28]

4.7 Summary of Conclusions

83. The appropriate common equity rate of return for EWSI's 2022–2026 PBR period should conservatively reflect pre-pandemic conditions rather than the higher capital cost rates arising from the greater uncertainties and risks in 2020. This approach avoids needless controversy about the longevity of the pandemic and the use of highly-variable 2020 data which render the reliable estimation of capital cost rates extraordinarily difficult if not entirely problematic. Use of pre-pandemic 2019 data is consistent with the assumption that capital market conditions will "normalize" prior to 2022.

[27] Gordon, Myron J. and Eli Shapiro, "Capital Equipment Analysis: The Required Rate of Profit," *Management Science,* 1956, pages 107-108.

[28] Although this Memorandum gives no weight to 2020 post-pandemic data, the current (October 29, 2020) average and median earnings-price ratios for the Tier 1 chartered banks including the traditional 50 basis points flotation allowance are 9.5% and 9.2% respectively with average and median market-to-book ratios of 114% and 110% respectively. The indicated cost of capital based on Tier 1 bank earnings-price ratios is therefore greater than 9.2-9.5%. Thus, irrespective of whether 2019 or 2020 data are used, the 9.02% five-year average consolidated rate of return is less than the indicated cost of capital based on Tier 1 bank benchmarks.

84. EWSI has updated the analysis in the 2016 GT Report to reflect the most recent generic cost of capital determined by the Alberta Utilities Commission and recent bond yield changes, having regard for the compression and expansion of risk premiums. The compression and expansion of risk premiums as bond yields rise and decline is well-accepted in regulatory circles.

85. Based on a 75% risk premium compression/expansion factor, the Commission's 8.5% generic cost of capital, GT's 1.83% risk premium from 2016 and the 2019 pre-pandemic bond yields, the indicated common equity rate of return for EWSI is currently no less than 9.95%. The 9.95% should be regarded as a minimum, because it does not reflect the increased business risks of the Drainage business. Drainage was not part of EWSI's asset portfolio when the GT Report was prepared.

86. Alternatively, EWSI undertook a similar analysis using the 8.5% generic rate of return approved by the Commission for 2021 pursuant to *Decision 24110-D01-2020* and a consensus long-term Government of Canada bond yield for 2022 developed from data reported by *Consensus Forecasts.* Coincidentally, the alternative analysis also leads to a 9.95% indicated common equity rate of return for EWSI.

87. Finally, in an effort to moderate Drainage rate increases, EWSI proposes that the common equity rate of return for "Base" Drainage operations be established at 5.50% for 2022 and "ramped up" in a linear fashion by 1.1% per year to achieve a 9.95% fair return by 2026. Based on this plan, the forecast five-year average common equity rate of return for EWSI's consolidated operations is 9.05%.

88. The 9.05% is materially less than the 9.95% indicated common equity rate of return from the updated GT analyses. Moreover, with the exception of the final year, the EWSI consolidated rates of return for each year of the PBR period are all less than 9.95%.

89. The 9.05% is also modest when tested by reference to the 2019 average and median earnings-price ratios of the Tier 1 chartered banks of 9.8% and 9.5% respectively.[29] For reasons set out earlier in this Memorandum these earnings-price ratios understate the benchmark cost applicable to EWSI.

[29] Including a traditional 50 basis points flotation allowance.

Attachment A
EPCOR Water Service Inc.
Hypothetical Examples of Risk Premium Compression/Expansion
Using 2020 Marginal Tax Rates

	Alberta Taxable Investors		Ontario Taxable Investors	
	Over $314,928	**$97,069 - 131,220**	**Over $220,000**	**$97,069 - 150,000**
Tax on Interest	48.00%	36.00%	53.53%	43.41%
Tax on Capital Gains	24.00%	18.00%	26.76%	21.70%
Tax on Eligible Dividends	31.71%	15.15%	39.34%	25.38%
Pre-Tax Equity Rate of Return	10.00%	10.00%	10.00%	10.00%
Less: Pre-Tax Debt Rate of Return	(4.00%)	(4.00%)	(4.00%)	(4.00%)
Pre-Tax Risk Premium	6.00%	6.00%	6.00%	6.00%
After-Tax Equity Rate of Return	7.21%	8.34%	6.70%	7.65%
Less: After-Tax Debt Rate of Return	(2.08%)	(2.56%)	(1.86%)	(2.26%)
After-Tax Risk Premium	5.13%	5.78%	4.84%	5.38%
Assume that Bond Yields Decline by 1% · Pre-Tax Debt Rates of Return Decline from 4.00% to 3.00%				
Pre-Tax Debt Rate of Return	3.00%	3.00%	3.00%	3.00%
After-Tax Debt Rate of Return	1.56%	1.92%	1.39%	1.70%
Plus: After-Tax Risk Premium	5.13%	5.78%	4.84%	5.38%
After-Tax Equity Rate of Return	6.69%	7.70%	6.23%	7.08%
Pre-Tax Equity Rate of Return	9.28%	9.23%	9.31%	9.26%
Less Pre-Tax Debt Rate of Return	(3.00%)	(3.00%)	(3.00%)	(3.00%)
Pre-Tax Risk Premium	6.28%	6.23%	6.31%	6.26%
Change in Pre-Tax Equity Rate of Return	(0.72%)	(0.77%)	(0.69%)	(0.74%)
divided by: Change in Pre-Tax Debt Rate of Return	(1.00%)	(1.00%)	(1.00%)	(1.00%)
Risk Premium Compression/Expansion Factors	72.08%	76.72%	69.41%	74.01%

Note: The equity rate of return tax calculations assume that 50% of the income is derived from dividends and 50% of the income is derived from capital gains. The impact of varying this proportion is not material.

Source: The 2020 combined Federal/Provincial tax rates are taken from www.taxtips.ca.