



**Water and Wastewater System
Financial Plan**
The Corporation of the City of Markham

Financial Plan No.: 021-301

*Prepared in accordance with
the Safe Drinking Water Act
and its associated regulations.*

BACKGROUND

As of the end of 2017, the City of Markham provides water and wastewater services to approximately 80,000 residential and 2,100 non-residential customers. Development pressures, changing economic conditions, and an increasing demand by the public for a responsible approach to managing water resources requires a detailed evaluation of the planning and financing of water and wastewater operations. In addition, recent changes to maintenance standards and testing practices have put pressure on municipalities to conform to provincial health and safety standards.

The legislative framework under which water services are managed in Ontario has also changed with the introduction of the *Safe Drinking Water Act, 2007 (SDWA)*. *Ontario Regulation 453/07* of the *SDWA* requires public providers of water and wastewater services to submit a Financial Plan to the Ministry of Municipal Affairs and Housing which:

- accounts for the inventory of the tangible capital assets required to provide the services;
- assesses the revenue and expenditures of providing the services; and
- describes how the provider intends to fund the cost of providing the services.

The Financial Plan is intended to provide information relating to the financial stability of the water and wastewater systems. This information forms the basis for a strategy to ensure the safe and reliable delivery of water and wastewater services over the long-term. The Financial Plan must be for a period of at least six years and should be approved by a resolution that is passed by Council.

In response to the *SDWA* and *O.Reg 453/07*, Markham submitted its first Financial Plan for the water and wastewater systems in June 2010. There is a requirement to apply for the renewal licence by February 12, 2019 and one of the requirements is the submission of an updated Financial Plan.

The Financial Plan proactively includes the wastewater services, although the current legislation does not require wastewater services to be included.

The Financial Plan is developed based on the comprehensive water and wastewater Reserve Study that was undertaken in 2018. The Study has been and will continue to be updated annually. The reserve study utilizes full-cost accounting and considers the full cost of providing water and wastewater services. The Study also includes provisions for financing the annual operations, the ongoing rehabilitation and eventual replacement of the City's extensive inventory of water and wastewater assets. The Reserve Study incorporates a 25-year planning horizon and establishes a strategy for funding the water and wastewater services at the City of Markham, ensuring the required funding for the planning period is available and avoids the need for borrowing. While the reserve study

utilizes the replacement costs, the Financial Plan utilizes the historical depreciated costs that were compiled in conformance to the Public Sector Accounting Boards legislation of governments accounting of Tangible Capital Assets (TCA).

The Financial Plan, which is derived from the Reserve Study has considered the financial impacts of the drinking water system including all ongoing operating and capital requirements. The cash flows projected from operating activities that are based on full-cost accounting, combined with the reserves available provides a reasonable assurance of the financial viability of the water and wastewater system operations at the City.

The Financial Plan is prepared for a seven-year planning period. The current plan covers the years 2018 to 2024.

The Financial Plan is prepared using the most accurate information available at the time of publication. The estimates are based on current technical and financial requirements and may be subject to change. Actual results could differ from these estimates.

**CITY OF MARKHAM
WATERWORKS DEPARTMENT**

STATEMENT OF FINANCIAL POSITION

<i>As at December 31</i>	Actual	Projection						
<i>(All dollar amounts are in \$000)</i>	2017	2018	2019	2020	2021	2022	2023	2024
Financial Assets								
Cash and Cash Equivalents	71,765	80,592	78,059	83,448	87,679	91,237	99,129	108,396
Unbilled Charges	9,378	10,470	11,213	12,017	12,308	12,805	13,321	13,855
Accounts Receivables	9,297	10,664	11,291	12,122	12,433	12,972	13,519	14,074
Total Financial Assets	90,440	101,727	100,563	107,587	112,420	117,014	125,969	136,325
Financial Liabilities								
Accounts Payable	44,461	48,931	53,074	57,563	58,907	61,233	63,651	66,166
Debentures	0	0	0	0	0	0	0	0
Total Financial Liabilities	44,461	48,931	53,074	57,563	58,907	61,233	63,651	66,166
Net Financial Assets / (Debt)	45,980	52,796	47,489	50,024	53,513	55,781	62,317	70,159
Change in Financial Assets		6,816	(5,307)	2,536	3,489	2,268	6,536	7,841
Non-Financial Assets								
Tangible Capital Assets	705,921	690,159	695,627	712,003	721,016	729,614	740,728	748,842
<i>Under Construction</i>	230	999	2,067	1,311	1,253	1,486	1,164	1,121
<i>Additions</i>	0	8,989	18,605	11,796	11,274	13,370	10,474	10,090
<i>Donations</i>	0	11,381	11,475	11,573	11,667	11,758	11,860	11,966
<i>Write Downs</i>	0	0	0	0	0	0	0	0
<i>Disposals</i>	0	0	0	0	0	0	0	0
Inventories of Supplies	0	0	0	0	0	0	0	0
Prepaid Expenses	0	0	0	0	0	0	0	0
Total Non-Financial Assets	706,151	711,527	727,774	736,683	745,209	756,227	764,225	772,018
Change in Tangible Capital Assets		5,376	16,247	8,909	8,527	11,018	7,998	7,793
Accumulated Surplus	752,130	764,323	775,262	786,707	798,723	812,008	826,542	842,177

**CITY OF MARKHAM
WATERWORKS DEPARTMENT**

STATEMENT OF FINANCIAL OPERATIONS

<i>(All dollar amounts are in \$000)</i>	2018	2019	2020	2021	2022	2023	2024
Accumulated Surplus - Beginning of Period	752,130	764,323	775,262	786,707	798,723	812,008	826,542
Revenues							
Water Rates	127,974	135,492	145,460	149,192	155,660	162,222	168,888
User Charges	1,505	1,520	1,535	1,550	1,566	1,581	1,613
Other	669	592	626	672	689	765	860
Donations (Contributions from developers)	11,463	11,724	11,992	12,261	12,529	12,814	13,106
Total Revenues	141,610	149,327	159,613	163,675	170,444	177,383	184,467
Expenses							
Amortization	(16,175)	(16,561)	(17,010)	(17,448)	(17,921)	(18,390)	(18,832)
Interest	0	0	0	0	0	0	0
Operating Costs	(113,242)	(121,826)	(131,159)	(134,212)	(139,238)	(144,459)	(150,000)
Total Expenses	(129,417)	(138,387)	(148,168)	(151,659)	(157,159)	(162,849)	(168,832)
Annual Surplus / (Deficit)	12,193	10,939	11,444	12,016	13,285	14,534	15,635
Accumulated Surplus / (Deficit) - End of Period	764,323	775,262	786,707	798,723	812,008	826,542	842,177

**CITY OF MARKHAM
WATERWORKS DEPARTMENT**

STATEMENT OF CASH-FLOWS

<i>(All dollar amounts are in \$000)</i>	2018	2019	2020	2021	2022	2023	2024
OPENING CASH & CASH EQUIVALENTS	71,765	80,592	78,059	83,448	87,679	91,237	99,129
OPERATING ACTIVITIES							
Revenues							
Water Rates	127,974	135,492	145,460	149,192	155,660	162,222	168,888
User Charges	1,505	1,520	1,535	1,550	1,566	1,581	1,613
Change in Unbilled Charges	(1,093)	(742)	(804)	(291)	(497)	(516)	(534)
Change in Accounts Receivables	(1,367)	(626)	(831)	(311)	(539)	(547)	(555)
Total Revenues	127,019	135,643	145,360	150,140	156,190	162,741	169,411
Expenses							
Operating	(113,242)	(121,826)	(131,159)	(134,212)	(139,238)	(144,459)	(150,000)
Finance Charges	0	0	0	0	0	0	0
Change in Accounts Payable	4,471	4,143	4,488	1,344	2,326	2,419	2,515
Total Expenses	(108,772)	(117,683)	(126,670)	(132,868)	(136,912)	(142,040)	(147,485)
Net Change in Cash from Operating Activities	18,247	17,959	18,690	17,273	19,279	20,701	21,926
CAPITAL ACTIVITIES							
Acquisition of Tangible Capital Assets	(10,089)	(21,084)	(13,926)	(13,714)	(16,409)	(13,574)	(13,519)
Surplus Funds from Closed Capital	0	0	0	0	0	0	0
Proceeds from Sales of Tangible Capital Assets	0	0	0	0	0	0	0
Net Change in Cash from Capital Activities	(10,089)	(21,084)	(13,926)	(13,714)	(16,409)	(13,574)	(13,519)
INVESTING ACTIVITIES							
Net Change in Cash from Investing Activities	669	592	626	672	689	765	860
Net Change in Cash and Cash Equivalents	8,827	(2,533)	5,389	4,231	3,558	7,892	9,267
CLOSING CASH & CASH EQUIVALENTS	80,592	78,059	83,448	87,679	91,237	99,129	108,396

STATEMENT OF FINANCIAL POSITION

The statement of financial position presents the Waterworks department's assets, liabilities and equity as at the end of each reporting period.

Financial Assets

Financial Assets are the resources controlled by the organization as a result of past events and from which future economic benefits are expected to flow to the organization. Financial assets include items such as cash and cash equivalents, unbilled charges, and accounts receivables. The opening value of cash and cash equivalents is consistent with the combined opening balances of waterworks reserves and reserve funds for 2018.

Projections of unbilled charges and accounts receivables are based on historical trends. Unbilled charges and accounts receivables are a percentage of annual sales.

Liabilities

Liabilities are financial obligations to outside organizations or individuals that are the result of transactions or events that occurred on or before the end of the accounting period. Liabilities include long-term debentures and accounts payable.

Projections of accounts payable are based on the historic averages. The City of Markham's Waterworks department does not currently hold any long-term debentures nor is it a consideration within the planning period.

Non-Financial Assets

Tangible Capital Assets

Tangible capital assets (TCA) are non-financial assets having physical substance that:

- are held for use in the production or supply of goods and services, for rental to others, for administrative purposes for the development, construction, maintenance or repair of other tangible capital assets;
- have useful economic lives extending beyond an accounting period;
- are used on a continuing basis; and
- are not for resale in the ordinary course of operations (PS 3150.05).

Assets are categorized as equipment, vehicles or infrastructure related to water and wastewater servicing and then further categorized based on function. Recording methods and accounting treatments differ between asset categories as some are recorded individually as single assets, while the majority of assets are grouped into asset pools. An

asset pool is a grouping of many related assets that is recorded as a single asset. The individual assets within each pool usually have like characteristics or are part of a complex network system, and have similar useful lives.

The value for Tangible Capital Assets in 2017 is the net book value of all tangible capital assets related to the City of Markham's water and wastewater system. The tangible capital assets value in each year of the projection includes additions, donations, write downs and disposals from the prior year but not those from the current year.

Depreciation is calculated using the straight-line depreciation method, and assumes a zero residual value. Assets are added to the asset inventory using the "half-year rule". All assets being put into service within the fiscal year will be recorded in the asset inventory with an in-service date of July 1 regardless of actual service date. Accordingly, in their first year, 6 months depreciation will be charged against new assets.

The net book value of all water and wastewater tangible capital assets is outlined in *Table 1*. The net book value represents the value of all assets (in thousands of dollars) as of January 1, 2018.

Table 1 Net Book Value of In-Service Tangible Capital Assets <i>As at January 1, 2018</i>		
Category 1	Category 2	(\$000)
Equipment	O&M Tools and Equipment	507.3
Infrastructure	Drinking Water Distribution System	392,086.0
	Sanitary Sewage Collection System	309,508.8
	Sanitary Sewage Pumping Stations	3,266.0
	Vehicles	Licensed Vehicles
Total In-Service Tangible Capital Assets		705,921

Tangible Capital Assets – Under Construction

Also, referred to as "Work-in-Progress", this value represents expenditures related to tangible capital assets, which are not yet in service. It is estimated that 10% of all tangible capital assets added through City operations will be under construction at year-end.

Tangible Capital Assets – Additions

The value for tangible capital asset additions represents the value of assets acquired by the City through the capital program net of the half-year depreciation. This includes new assets and also replacements for existing assets which have reached the end of their life-cycle. It is estimated that the City will add \$85 million of infrastructure to the water and wastewater system over the planning period.

Tangible Capital Assets – Donations (developer contributions)

Tangible capital asset donations are the infrastructure the City has assumed from developers as part of the subdivision assumption process. The asset value from donations for each year is based on the historical average value of infrastructure required to service a single household, applied incrementally to the growth projection. The estimated value of assets required to service a single household is \$4,200 and \$3,700 for wastewater and water services, respectively.

Tangible Capital Assets – Write Downs

A write down is used to reflect a partial impairment in the value of an asset. An asset may be written-down in instances where they may be stolen, lost, destroyed or become obsolete. Alternatively, if a reduction in the value of an asset is objectively estimated and is expected to be permanent, then the value would also be written down. There are no anticipated write downs within the planning period.

Tangible Capital Assets – Disposals

Disposal costs related to the replacement of water or wastewater infrastructure is captured within the cost of the new asset. There is no gain or loss anticipated from the disposal of tangible capital assets forecast within the planning period.

Inventories of Supplies and Prepaid Expenses

Inventories of supplies and prepaid expenses are accounted for in operating expenditures since all payments are assumed to be current.

STATEMENT OF FINANCIAL OPERATIONS

The statement of financial operations outlines the annual revenues, expenses, income (annual surplus) and accumulated surplus (the total of financial and non-financial assets) of the City of Markham's Waterworks Division.

Revenues

The annual revenues are categorized by their sources: water rates, user charges, donations, and other sources.

Water and Wastewater Rates

Water rate revenues are forecast based rates determined through our annual reserve fund study. The total annual revenue is the product of the applicable rates and the forecast consumption. Water and wastewater rates are updated April 1st of each year.

User Charges

Revenues derived from user charges include payment for services such as water on-off fees, water meter installation fees, and water sampling/testing. Annual projections of these revenues are based on historical averages.

Donations (developer contributions)

Donations from developers take the form of infrastructure assumed by the City through the subdivision process. The value for accounting purposes is equivalent to the value of tangible capital asset donations described under the statement of financial position.

Other Sources

Revenue from other sources is primarily earnings from investments (i.e. Revenues resulting from the investment of reserves and reserve funds).

Expenses

Amortization

Amortization expenses are the annual depreciation value of tangible capital assets in service. The annual amortization expenses by asset category for the planning period are outlined in *Table 2*.

Table 2
Amortization Expenses by Asset Category
(all dollars amounts are in \$000)

CATEGORY 1	CATEGORY 2	2018	2019	2020	2021	2022	2023	2024
Equipment	O&M Tools and Equipment	137.7	118.1	88.9	66.2	50.1	43.1	38.3
Infrastructure	Drinking Water Distribution System	8,586.1	8,780.1	9,071.1	9,381.0	9,704.4	10,041.6	10,364.3
	Sanitary Sewage Collection System	7,101.7	7,184.0	7,263.9	7,344.9	7,420.6	7,499.2	7,579.0
	Sanitary Sewage Pumping Stations	129.8	129.8	132.4	134.9	134.9	136.2	137.3
	Vehicles Licensed Vehicles	189.6	209.9	210.5	220.7	235.1	223.7	214.8
TOTAL AMORTIZATION EXPENSE		16,145	16,422	16,767	17,148	17,545	17,944	18,334

Interest

Interest expenses are the costs related to borrowing. There are no interest expenses as the Waterworks Division does not currently hold or anticipate any debentures within the planning period.

Operating Costs

Costs related to the operation of the water and wastewater systems include purchases of water, sewerage service, billing and administration, and staffing.

STATEMENT OF CASH-FLOWS

The statement of cash-flows provides information about the changes in cash and cash equivalents of the City of Markham's Waterworks Division within each reporting period. The statement outlines changes from operating activities, investing activities and financing activities.

Opening Cash and Cash Equivalents

The opening balance of the statement of cash-flows represents the opening balance of the Waterworks Division's reserves and reserve funds.

Operating Activities - Revenues

Water and Wastewater Rates

Water rate revenues are forecast based rates determined through our annual reserve fund study. The total annual revenue is the product of the applicable rates and the forecast consumption. Water and wastewater rates are updated April 1st of each year.

User Charges

Revenues derived from user charges include payment for services such as water on-off fees, water meter installation fees, and water sampling/testing. Annual projections of these revenues are based on historical averages.

Change in Unbilled Charges/Accounts Receivable

Changes in unbilled charges and accounts receivable is calculated based on the current year unbilled charges/accounts receivable less prior year unbilled charges/accounts receivable and represent changes in cash received.

Operating Activities - Expenses

Operating

All other costs related to providing water and wastewater services are summarized under this heading. Costs related to the operation of the water and wastewater system includes purchases of water, sewerage service, billing and administration, and staffing.

Finance Charges

Finance charges are the costs related to borrowing. There are no finance charges as the Waterworks department does not currently hold or anticipate any debentures within the planning period.

Change in Accounts Payable

Change in accounts payable is calculated based on the current year accounts payable less prior year accounts payable and represent changes in cash expended.

Capital Activities

Acquisition of Tangible Capital Assets

This value represents the cash applied towards the funding of tangible capital assets. This includes the cost of new assets, and the rehabilitation and replacement of existing assets.

Proceeds from Sales of Tangible Capital Assets

The asset disposal process is controlled by Purchasing by-law 2004-341, Part V, Disposal of Personal Property. There are no sales of tangible capital assets anticipated to occur within the planning period.

Investing Activities

Net investing transactions are the earnings from investment of reserves and reserve funds.

Closing Cash and Cash Equivalents

The closing balance of the statement of cash-flows represents the opening balance and all financial transactions throughout the fiscal year. This becomes the opening balance for the subsequent year.