



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

Financial Plan No.: 021-301

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

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BACKGROUND

As of the end of 2009, the Town of Markham provides water and wastewater services to approximately 74,000 residential and 2,300 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*, the Town of Markham has prepared a Financial Plan for the water and wastewater systems. The Financial Plan has proactively included the wastewater services, although the current legislation has no requirement for wastewater services to be included in the Financial Plan. The inclusion of wastewater services is anticipated as the *SDWA* also requires municipalities to develop a full-cost recovery plan once the regulations governing the *Sustainable Water and Sewer Systems Act, 2002* are in place. At the time of this report, the regulations governing the *Sustainable Water and Sewer Systems Act, 2002* have not yet been released.

The Town of Markham is well prepared for compliance to the legislation due to the comprehensive water and wastewater Reserve Study that was undertaken in 2007. 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 Town'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 Town of

Markham, ensuring the required funding for the planning period is available and avoids the need for borrowing.

The data from the reserve study forms the basis of the Financial Plan. Since the Reserve Study has considered the financial impacts of the drinking water system that include all ongoing operating and capital activities the Financial Plan also accounts for these impacts with differences in the presentation of tangible capital assets only. 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 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 Town.

The Financial Plan is prepared for a six-year planning period.

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.

**TOWN OF MARKHAM
WATERWORKS DEPARTMENT**

STATEMENT OF FINANCIAL POSITION

<i>As at December 31</i> <i>(All dollar amounts are in \$000)</i>	2009	2010	2011	2012	2013	2014	2015
Financial Assets							
Cash and Cash Equivalents	9,431	8,112	7,417	4,988	4,156	5,140	7,918
Unbilled Charges	7,118	9,352	11,070	12,149	13,325	14,257	15,246
Accounts Receivables	7,702	6,246	6,476	7,128	7,819	8,410	9,541
Total Financial Assets	24,252	23,710	24,964	24,264	25,300	27,807	32,705
Financial Liabilities							
Accounts Payable	22,803	15,469	18,111	22,271	24,970	25,510	24,851
Debentures	0	0	0	0	0	0	0
Total Financial Liabilities	22,803	15,469	18,111	22,271	24,970	25,510	24,851
Net Financial Assets / (Debt)	1,449	8,241	6,853	1,994	960	2,297	7,853
Change in Financial Assets		6,792	(1,389)	(4,859)	(1,034)	1,337	5,556
Non-Financial Assets							
Tangible Capital Assets	685,334	672,320	690,615	711,472	726,512	741,647	756,972
<i>Under Construction</i>	1,003	948	1,147	1,405	1,391	1,382	1,373
<i>Additions</i>	0	8,534	10,326	12,644	12,519	12,442	12,357
<i>Donations</i> <i>(developer contributions)</i>	0	22,799	23,333	14,916	15,117	15,328	15,549
<i>Write Downs</i>	0	0	0	0	0	0	0
<i>Disposals</i>	0	0	0	0	0	0	0
Inventories of Supplies	0	0	0	0	0	0	0
Prepaid Expenses	0	0	0	0	0	0	0
Total Non-Financial Assets	686,337	704,601	725,422	740,437	755,538	770,799	786,252
Change in Tangible Capital Assets		18,264	20,820	15,015	15,101	15,261	15,453

**TOWN OF MARKHAM
WATERWORKS DEPARTMENT**

STATEMENT OF FINANCIAL OPERATIONS

<i>(All dollar amounts are in \$000)</i>	2010	2011	2012	2013	2014	2015
Accumulated Surplus / (Deficit) at Beginning of Period	687,786	704,731	724,857	737,442	751,712	767,956
Revenues						
Water Rates	66,802	77,711	85,533	93,827	100,916	107,925
User Charges	495	1,078	1,100	1,122	1,144	1,167
Other	59	53	50	0	0	0
Donations (developer contributions)	22,967	23,846	15,719	16,154	16,606	17,075
Total Revenues	90,323	102,688	102,402	111,103	118,666	126,167
Expenses						
Amortization	(14,260)	(14,739)	(15,191)	(15,653)	(16,143)	(16,581)
Interest	0	0	0	0	0	0
Operating Costs	(59,119)	(67,824)	(74,625)	(81,180)	(86,280)	(91,355)
Total Expenses	(73,379)	(82,563)	(89,816)	(96,833)	(102,423)	(107,937)
Annual Surplus / (Deficit)	16,944	20,126	12,585	14,270	16,244	18,231
Accumulated Surplus / (Deficit) at End of Period	704,731	724,857	737,442	751,712	767,956	786,187

**TOWN OF MARKHAM
WATERWORKS DEPARTMENT**

STATEMENT OF CASH-FLOWS

<i>(All dollar amounts are in \$000)</i>	2010	2011	2012	2013	2014	2015
CASH & CASH EQUIVALENTS at beginning of period	9,431	8,112	7,417	4,988	4,156	5,140
Operating Transactions						
Revenues						
Water Rates	66,802	77,711	85,533	93,827	100,916	107,925
User Charges	495	1,078	1,100	1,122	1,144	1,167
Total Revenues	67,297	78,790	86,633	94,949	102,061	109,093
Expenses						
Operating	(59,119)	(67,824)	(74,625)	(81,180)	(86,280)	(91,355)
Finance Charges	0	0	0	0	0	0
Total Expenses	(59,119)	(67,824)	(74,625)	(81,180)	(86,280)	(91,355)
NET OPERATING TRANSACTIONS	8,178	10,966	12,008	13,769	15,781	17,738
Capital Transactions						
Acquisition of Tangible Capital Assets	(9,557)	(11,713)	(14,487)	(14,601)	(14,797)	(14,959)
Proceeds from Sales of Tangible Capital Assets	0	0	0	0	0	0
NET CAPITAL TRANSACTIONS	(9,557)	(11,713)	(14,487)	(14,601)	(14,797)	(14,959)
Investing Transactions						
Investment Acquisitions	(3,925)	(2,112)	(1,417)	0	0	0
Investment Disposals	3,984	2,165	1,467	0	0	0
NET INVESTING TRANSACTIONS	59	53	50	0	0	0
Financing Transactions						
Proceeds from Debentures	0	0	0	0	0	0
Debenture Repayment	0	0	0	0	0	0
NET FINANCING TRANSACTIONS	0	0	0	0	0	0
INCREASE / (DECREASE) IN CASH & CASH EQUIVALENTS	(1,319)	(694)	(2,430)	(832)	983	2,778
CASH & CASH EQUIVALENTS at end of period	8,112	7,417	4,988	4,156	5,140	7,918

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 2010.

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 Town 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 & 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 categories of water and wastewater tangible capital assets, the attributed useful life (in years) and recording method are outlined in *Table 1*.

Table 1					
TANGIBLE CAPITAL ASSET CATEGORIES					
CATEGORY 1	CATEGORY 2	CATEGORY 3	USEFUL LIFE (years)	RECORDING METHOD	
Equipment	O&M Tools and Equipment		9	Pooled (by year)	
Infrastructure	Drinking Water Distribution System		60	Pooled (by year)	
	Sanitary Sewage Collection System		85	Pooled (by year)	
	Sanitary Sewage Pumping Station	Architecture		50	Single Asset (by station)
		Building Mechanical		25	Single Asset (by station)
		Building Structure		100	Single Asset (by station)
		Civil – Fence & Pavement		20	Single Asset (by station)
		Civil – Underground Parking		100	Single Asset (by station)
		Electrical		50	Single Asset (by station)
		Instrumentation & Control		15	Single Asset (by station)
		Machinery		50	Single Asset (by station)
		Process Mechanical		25	Single Asset (by station)
		Substructure – Concrete		100	Single Asset (by station)
Substructure – Misc. Metals		50	Single Asset (by station)		
Vehicles	Licensed Vehicles		7	Pooled (by year)	

The value for Tangible Capital Assets in 2009 is the net book value of all tangible capital assets related to the Town 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 2*. The net book value represents the value of all assets (in thousands of dollars) as of January 1, 2010.

Net Book Value of In-Service Tangible Capital Assets			Table 2	
<i>As at January 1, 2010</i>				
Category 1	Category 2	Category 3	(\$000)	
Equipment	O&M Tools and Equipment		218.9	
Infrastructure	Drinking Water Distribution System		376,208.8	
	Sanitary Sewage Collection System		306,459.4	
	Sanitary Sewage Pumping Stations	Architecture		55.8
		Building Mechanical		30.6
		Building Structure		232.6
		Civil access area		0.0
		Civil - Fence and Pavement		18.5
		Civil - Underground Piping		220.0
		Electrical		216.7
		Instrumentation & Control		126.9
		Machinery		10.4
		Process Mechanical		186.9
		Substructure - Concrete		509.0
Substructure - Misc. Metals		61.7		
Vehicles	Licensed Vehicles		778.0	
Total In-Service Tangible Capital Assets			685,334.3	

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. There are no anticipated tangible capital assets under construction in each year of the planning period, as the capital program does not currently include projects with an expectation of being ongoing over multiple years.

Tangible Capital Assets – Additions

The value for tangible capital asset additions represents the value of assets acquired by the Town 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 Town will add \$80 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 Town 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 \$3,370 and \$5,000 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 Town of Markham's Waterworks Department.

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 1 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 Town 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 3*.

Interest

Interest expenses are the costs related to borrowing. There are no interest expenses as the Waterworks Department 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.

Table 3**Amortization Expenses by Asset Category**

(all dollars amounts are in \$000)

CATEGORY 1	CATEGORY 2	CATEGORY 3	2010	2011	2012	2013	2014	2015	
Equipment	O&M Tools and Equipment		46.42	46.23	35.06	22.55	20.23	18.86	
Infrastructure	Drinking Water Distribution System		7,506.76	7,820.85	8,122.34	8,405.26	8,666.91	8,927.97	
	Sanitary Sewage Collection System		6,490.72	6,659.63	6,826.59	6,976.04	7,131.31	7,290.38	
	Sanitary Sewage Pumping Stations	Architecture		1.48	1.48	1.48	1.48	1.48	1.48
		Building Mechanical		1.99	1.99	1.99	1.99	1.99	1.99
		Building Structure		2.68	2.68	2.68	2.68	2.68	2.68
		Civil access area							
		Civil - Fence and Pavement		2.92	2.92	2.92	2.92	2.92	1.54
		Civil - Underground Piping		5.42	5.42	5.42	5.42	5.42	5.42
		Electrical		6.64	6.64	6.64	6.64	6.64	6.64
		Instrumentation & Control		18.10	14.46	14.46	13.17	11.89	11.89
		Machinery		0.28	0.28	0.28	0.28	0.28	0.28
		Process Mechanical		18.76	20.46	21.37	22.29	22.29	22.29
		Substructure - Concrete		6.12	6.12	6.12	6.12	6.12	6.12
Substructure - Misc. Metals		1.87	1.82	1.82	1.82	1.82	2.39		
Vehicles	Licensed Vehicles		149.82	148.15	142.05	184.63	260.79	279.54	
TOTAL AMORTIZATION EXPENSE			14,260	14,739	15,191	15,653	16,143	16,579	

STATEMENT OF CASH-FLOWS

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

Cash & Cash Equivalents – Beginning of Period

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

Operating Transactions - 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 1 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.

Operating Transactions - 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.

Capital Transactions

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 Transactions

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

Financing Transactions

There are no proceeds from debentures or debenture repayments as the Waterworks Department does not currently hold or anticipate any debentures within the planning period.

Cash & Cash Equivalents – End of Period

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.