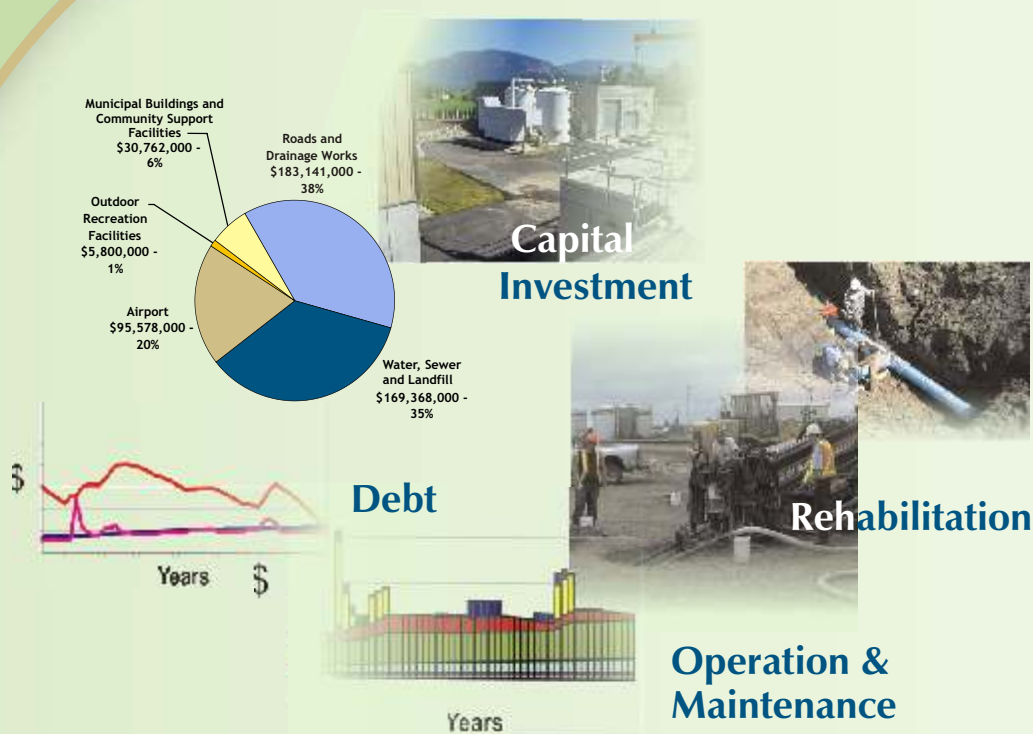


Municipal Utility Financial Sustainability

Financial Model for Water and Sewer Systems



This model allows a utility to:

- Determine long-term capital and operating costs.
- Set tariffs to achieve sustainable service delivery.



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Municipal Utility Financial Sustainability: Example of Water System Cost Model

Growth Rates	Units	Rate	Until	Rate
Population Growth	%	2.0%	2025	1.0%
ICI Growth	%	2.0%	2025	1.0%
Bulk Tanker Growth	%	2.0%	2025	-4.0%
First Nation Growth	%	2.0%	2025	1.5%
Per Capita Consumption Growth	%	-0.6%	2025	0.0%
Non-Revenue Water	%	1.1%	2025	1.0%
O & M Unit Costs Per Year	%	-0.5%	2025	0.0%

Flows		Input	2050	Inc.	m ³ /d	\$/m ³
Residential Consumption 2005	l/c.d	370	333	0	0	0.59
Non Revenue 2005	l/s	8.0	17.7%	0	0	

Debt Management		
Interest Rate	%	6.0%
Debt Goal	\$	2,000,000
Goal Horizon	Year	2050

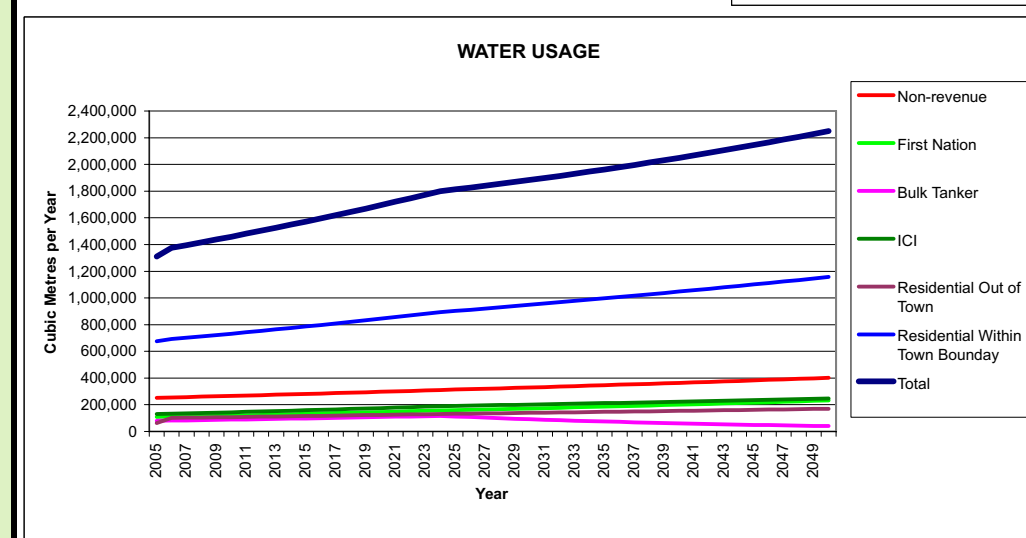
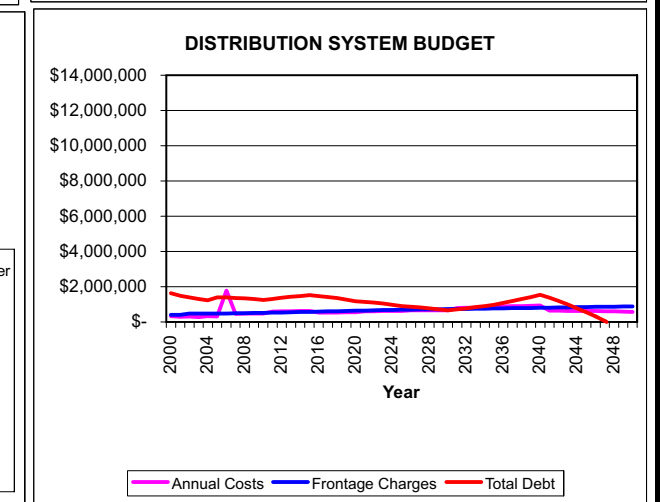
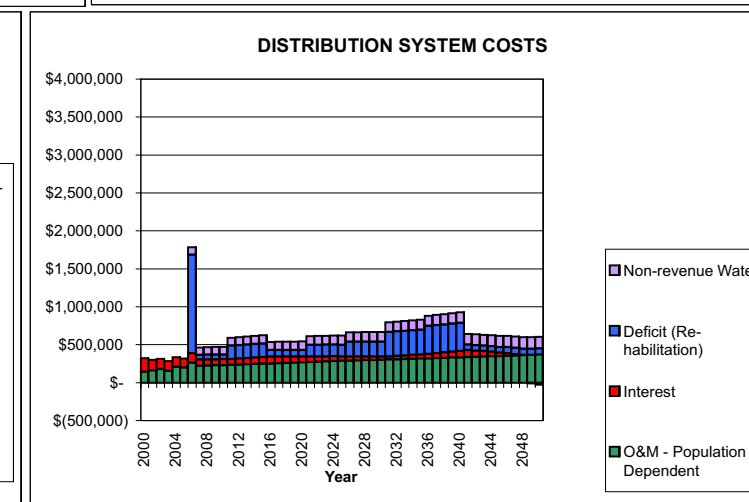
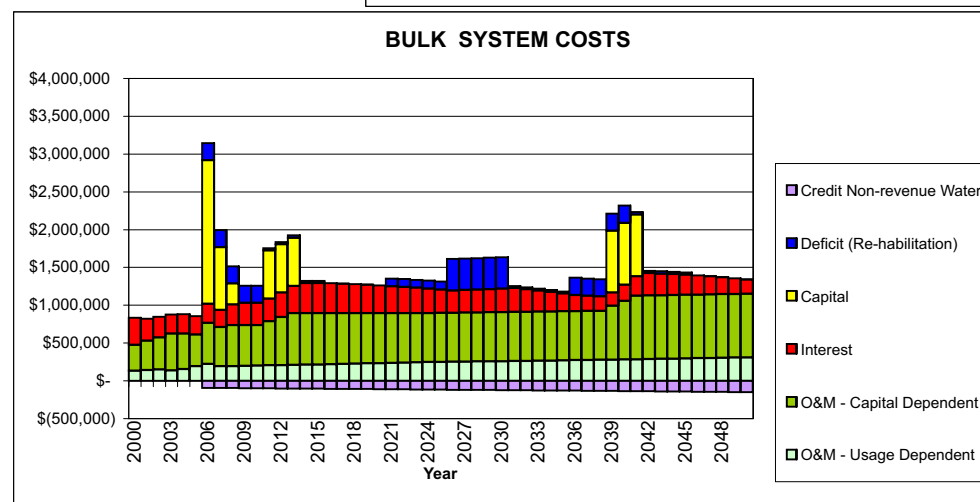
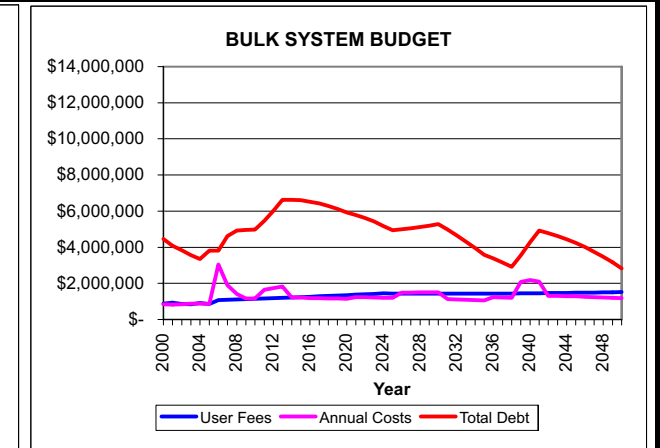
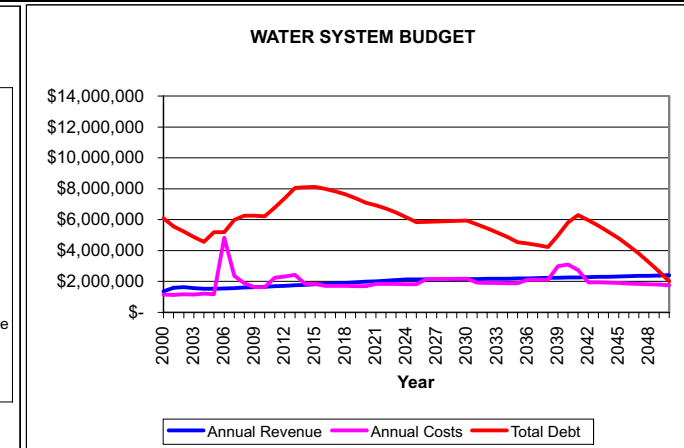
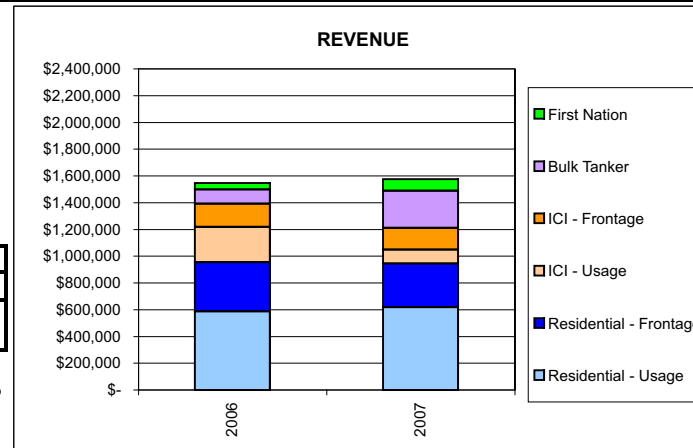
Provincial and Federal Funding		
Share of Capital Cost	%	67%
Share of Rehab Cost	%	67%

Water Tariffs		\$/m ³	\$/1000gal
Residential		0.77	3.49
ICI		0.77	3.49
Bulk Tanker		3.33	15.15
First Nation		0.77	3.49
Non-revenue		0.38	1.74
Frontage Charge	\$/m.yr	11.00	
People per Ave. Lot Frontage	No.	4.30	

Cost per User		2006	2007
Residential	Per Lot	\$ 796	\$ 708
ICI	Per Lot	\$ 1,754	\$ 956
Tanker	30m ³	\$ 37	\$ 100
First Nation	Year	\$ 47,000	\$ 86,497

Required Annual Revenue	\$/Yr	1,546,000	1,576,458
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Marginal Cost Factor = 61.9%

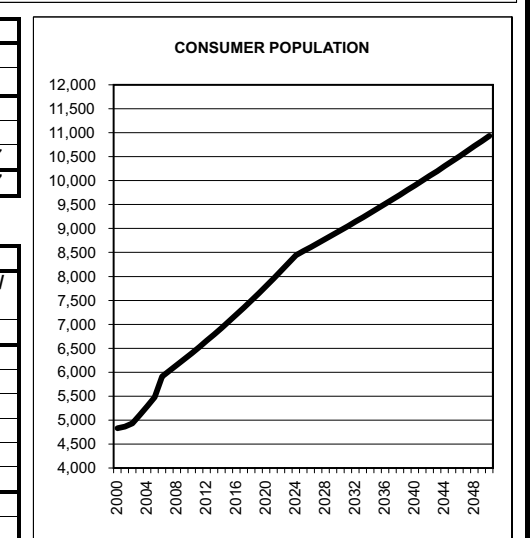


Unit Tariffs 2006 and 2007

Source	Residential (Ave.)		ICI (Ave.)		Bulk Tanker		First Nation	
	\$/Lot.Year		\$/Lot.Year		\$/30m ³		\$/1000/year	
Frontage	305.41	267.36	698.06	642.19	-	-	-	-
Usage	490.41	440.27	1,056.22	314.22	37.03	99.90	47.000	86.497
Total	795.82	707.63	1,754.28	956.41	37.03	99.90	47.000	86.497

Cost Recovery Comparison

Source	Revenue \$		Usage Revenue %		Usage m ³		Usage %	Revenue%/ Usage %
	2006	2007	2006	2007	2006	2007		
Residential - Usage	588,000	617,626	58%	57%	793,914	805,257	71%	80%
Residential - Frontage	366,184	326,970						
ICI - Usage	263,000	104,050	26%	10%	133,000	135,660	12%	80%
ICI - Frontage	173,816	163,103						
Bulk Tanker	108,000	278,211	11%	26%	81,909	83,547	7%	349%
First Nation	47,000	86,497	5%	8%	110,563	112,775	10%	80%
Usage Sub-total	1,006,000	1,086,385	100%	100%	1,119,385	1,137,238	100%	
Total	1,546,000	1,576,458						



Model Capability

- The model calculates the cost of capital improvements required to serve a growing population and the associated operation and maintenance costs. It also assesses the investment required for the rehabilitation of ageing assets. These costs are integrated with the interest charges needed to service the investment debt to determine the cost each year and the total cost over a chosen period.
- The calculation of revenue utilizes consumption by the various consumer groups together with rates and population growth projections to calculate the annual revenues over the chosen analysis period. Frontage tariffs are calculated separately, taking account of growth over time. Non-revenue water usage can also be taken into account.
- The model provides separate accounts for the bulk system and the distribution or collection system. This allows adjustment of the frontage tariffs to cover the distribution or collection system costs and the consumption tariff to cover the cost of the bulk system. This feature is most useful in demonstrating to purchasers of bulk services that they are being equitably charged. Similarly, consumers within the municipality can be assured that the frontage tariffs are equitable and appropriate to their circumstances.
- The two accounts are integrated and user tariff rates adjusted to converge on a chosen debt in a future year. The model also allows the calculation of the marginal cost of consumption or discharge over any period. This is vital to determine the cost/benefit of proposed interventions in the system to create additional capacity or effect demand management.
- The model is flexible, allowing the user to vary many parameters and, in so doing, to understand the relative and absolute importance of each.
- The model facilitates communication between engineering and financial managers, councilors and the public on required tariffs.
- Study grant funding can be obtained to supplement the cost of preparing model data.

Model Results

By utilizing this model, managers are equipped to:

- Achieve financial sustainability of their utility over the long term.
- Justify the tariffs applied to the services rendered.
- Demonstrate the equity of the tariff structure.

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