

## 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.

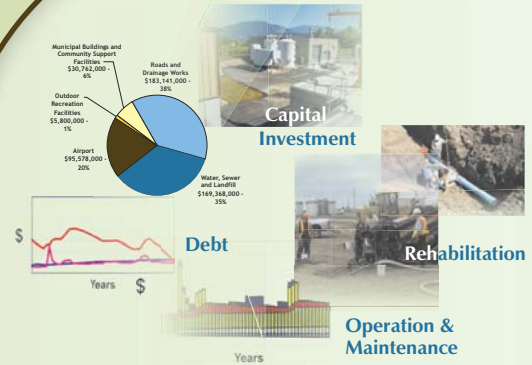
## Model Results

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.

# 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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For further information:

Please contact: Ian Rose-Innes, P.Eng. at our North Vancouver Office.

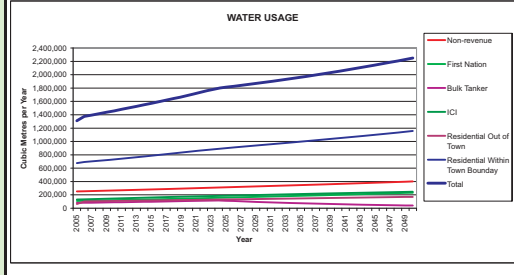
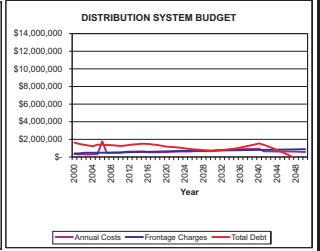
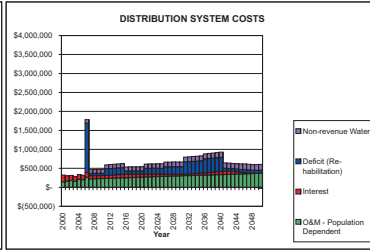
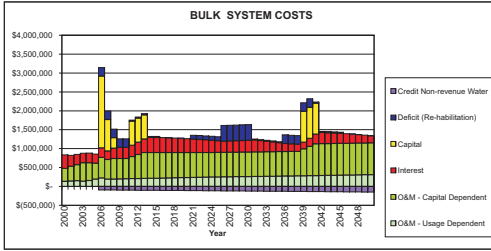
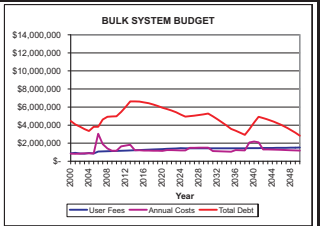
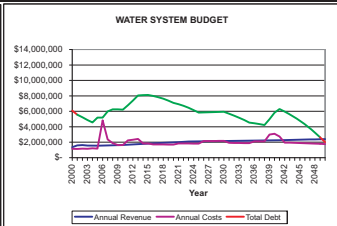
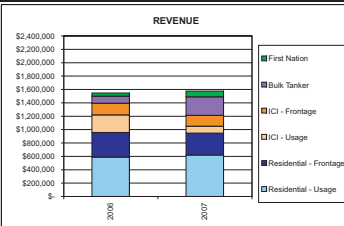
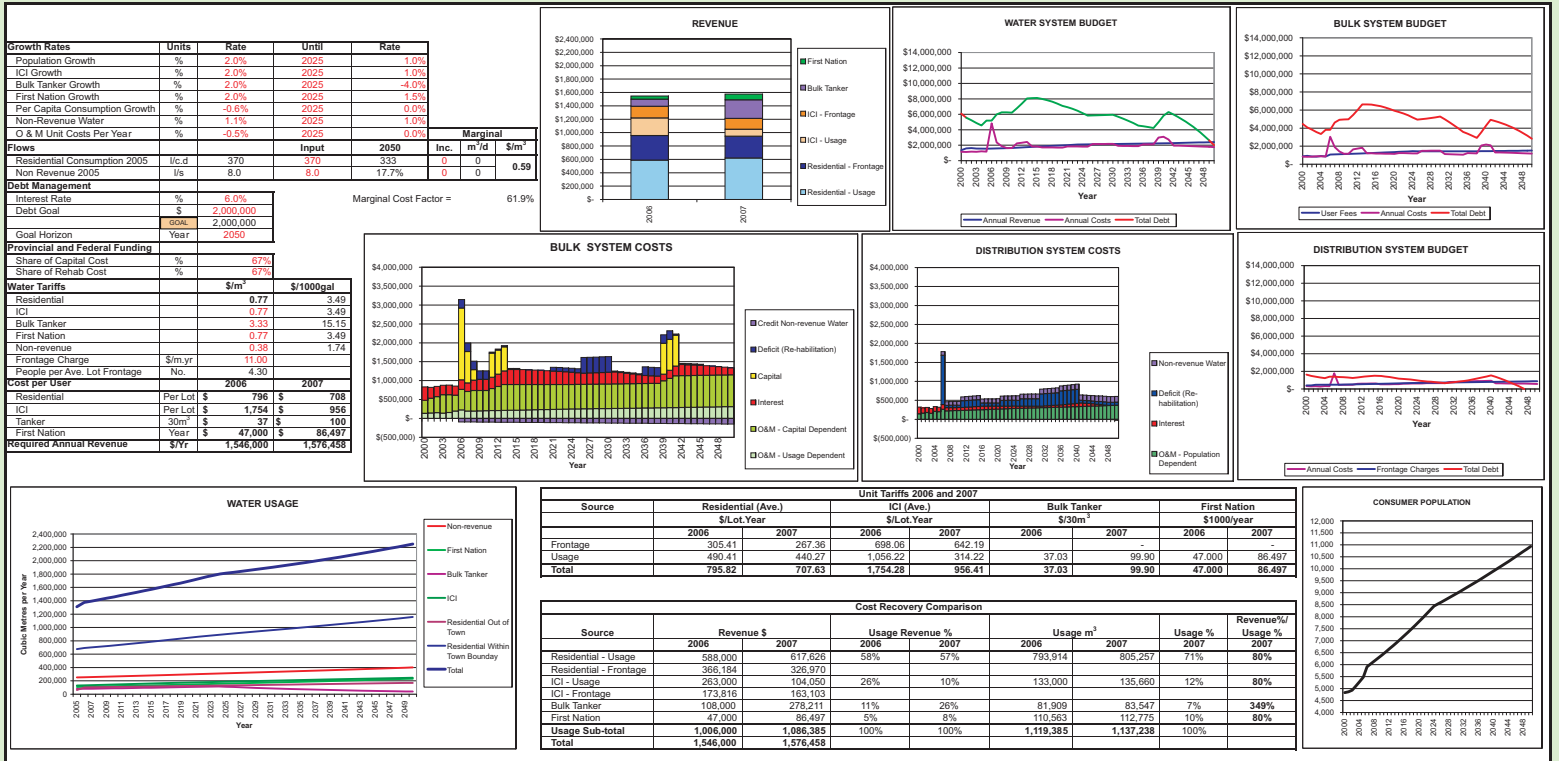
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# Municipal Utility Financial Sustainability: Example of Water System Cost Model



Source	Residential (Ave.)		Unit Tariffs 2006 and 2007		Bulk Tanker		First Nation	
	\$/Lot.Year		ICI (Ave.)		\$/30m <sup>3</sup>		\$/1000/year	
	2006	2007	2006	2007	2006	2007	2006	2007
Frontage	305.41	297.36	698.06	642.19				
Usage	490.41	440.27	1,056.22	914.22	37.03	99.90	47,000	86,497
<b>Total</b>	<b>795.82</b>	<b>707.63</b>	<b>1,754.28</b>	<b>956.41</b>	<b>37.03</b>	<b>99.90</b>	<b>47,000</b>	<b>86,497</b>

Source	Revenue \$		Usage Revenue %		Usage m <sup>3</sup>		Usage %		Revenue%/ Usage %	
	2006	2007	2006	2007	2006	2007	2007	2007	2007	2007
	Residential - Usage	588,000	617,626	58%	57%	783,914	805,257	71%	80%	
Residential - Frontage	368,184	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	279,211	11%	26%	81,909	83,547	7%	349%		
First Nation	47,000	86,497	5%	8%	110,563	112,775	10%	80%		
<b>Usage Sub-total</b>	<b>1,006,000</b>	<b>1,086,385</b>	<b>100%</b>	<b>100%</b>	<b>1,119,385</b>	<b>1,137,238</b>	<b>100%</b>			
<b>Total</b>	<b>1,546,000</b>	<b>1,576,458</b>								

