



Water & Sewer Budgets
2008

The City of Kenora, Ontario, Canada

Budget Discussion

System Information

Budget Overview

Discussion Items

Detailed Budget
Schedules

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Water & Sewer Operations

The City's water & sewer operations provide clean drinking water, and treatment of waste water, to the majority of the City's residents. Today, however, significant pockets of the City remain un-serviced by these operations. Provision of servicing to these areas has been too costly to implement without funding through senior levels of government.

The City, since its inception on 1 January 2000, has run its Water & Sanitary Sewer operations as a separate utility, funding operations fully through user fees. For 2007, the City's water operations treated and distributed about 2.90 million cubic meters of clean water with a sewage treatment volume of 3.17 million cubic meters for the same period.

The City's operations are staffed by a complement of 17 full time employees. In addition, the City uses staff from its roads department to supplement water & sewer staffing as required for all excavations and water tank truck delivery.

With the City accepting the maintenance and replacement of grinder pumps a significant increase in workload has been experienced by the department. The department is operating under pressure due to continued increases in legislated standards, as well as a staff shortages encountered in providing a 24/7 operation.

Safe Drinking Water Act - What Does it Mean to the City?

The Safe Drinking Water Act came into effect in 2002. This Act was as a result of the Walkerton Inquiry, following the Walkerton tragedy in May 2000. As outlined in Section 1, the purposes of this Act are as follows:

1. To recognize that the people of Ontario are entitled to expect their drinking water to be safe.
2. To provide for the protection of human health and the prevention of drinking-water health hazards through the control and regulation of drinking-water systems and drinking-water testing.

The Ministry of the Environment (MOE) has contracted with the Canadian Standards Association (CSA) to develop a draft Drinking Water Quality Management Standard (DWQMS). According to information provided by the CSA, the DWQMS is being developed in accordance with a key recommendation of the Walkerton Inquiry, which was for *"municipal water systems to adopt quality management systems leading to improved operation, by adhering to a drinking water quality management standard"*.

All municipalities that own municipal residential drinking water systems will be required to have a Municipal Drinking Water License. There are two mandatory requirements for receiving this license. The first is the existence of an operational plan for the drinking water system developed in accordance with the guidelines provided within the DWQMS. The second is ensuring that an accredited operating authority is responsible for system operations.

The Safe Drinking Water Act places increased requirements, and related costs, as a result of the additional works / requirements / compliances contained within the Act. While the City already has some fairly stringent processes and monitoring in place in our existing systems, there are additional requirements under the Act that must be implemented, the costs of which must be paid through user fees. Major impacts include:

- ❑ Compliance / inspections and enforcement – The City is now required to perform increased levels of internal audit. In addition, there will be increased Ministry inspections to ensure City compliance with the new legislated requirements.

System Information

Water & Sewer Operations

Safe Drinking Water Act – What Does it Mean to the City?

Safe Drinking Water Act - What Does it Mean to the City? (Cont.)

- ❑ Increased training requirements – There are increased training requirements for staff to meet the new license specifications for water treatment and distribution. Water Treatment staff require 40 hours of training per year with 14 of these hours being continuing education units (CEU), while distribution staff require 35 hours, 12 CEU and 23 on the job training. Sewage Treatment Plant staff require 40 hours on the job training.
- ❑ Changes under Reg. 170 of the Safe Drinking Water Act have made it mandatory for the City to test for lead in drinking water. The City must sample sixty (60) residences, six (6) non-residences and twelve (12) representative points in the distribution system. The sampling must take place between December 15, 2007 to April 15, 2008, and June 15, 2008 to October 15, 2008 and the corresponding periods in every subsequent twelve (12) month period. Not more than ten (10) percent of the samples taken can exceed half the standard for lead, before the City may apply for reduced sampling.
- ❑ Self-Supported through User Fees – The City is required to operate its water & sewer utility as a self-sufficient entity – one that cannot be reliant on the tax base of the municipality. The full cost of providing water services includes the source protection costs, operating costs, financing costs, renewal and replacement costs and improvement costs associated with extracting, treating and / or distributing water to the public. It is recognized that, for the most part, the City of Kenora has been operating its water & sewer system on a full user fee basis for a number of years. These fees, however, have not included a component related to the long-term viability of the system's infrastructure.

The new Act ensures that the liability related to operating a municipal water system is placed directly on the operating authority, which, for the City of Kenora, is ultimately the City itself, and its Council. Ensuring compliance with the legislation should be a key concern to each Member of Council, as well as every employee involved with the water system operations.

Existing Water & Sewer Infrastructure

Infrastructure related to the City's Water & Sewer operations includes over 143 km of water mains and services and 136 km of sanitary sewer mains, as well as both water and sewage treatment plants. Unique to Kenora from many other Northern municipalities, the City's topological layout requires 5 water booster stations, 60 sewage pumping stations and maintenance of over 400 grinder pumps, adding both to the complexity and costs related to maintaining the Kenora distribution systems. In addition, the City is also responsible for the ongoing repair and maintenance, as well as eventual replacement, of over 6,000 water meters within its water system.

The replacement of utility mains infrastructure is based on deteriorated piping, requiring replacement due to both age and capacity. Sanitary mains can be televised to determine remaining useful life. At present, the City has televised approximately 80% of these mains. Unfortunately, the City is unable to televise water mains, the replacement of which must be based on the age of the infrastructure and the number of repairs required.

The City currently has some mains infrastructure that is in excess of 100 years old. The estimated current expected lifespan of mains infrastructure is only 50 years. This represents a significant area of risk for the City. The consequence of not repairing our municipal infrastructure will only lead to a complete failure of it.

A detailed analysis related to the existing City water & sewer infrastructure, excluding vehicles and equipment, as well as expected useful life and ongoing capital requirements to maintain the system has been included on the following page. This analysis does not account for the significant portion of the City that remains un-serviced by the City's water & sewer operations. Based on the analysis, it is evident that increased funding will be required to maintain the City infrastructure to a safe standard.

System Information

Safe Drinking Water Act – What Does it Mean to the City? (Cont.)

Existing Water & Sewer Infrastructure

City of Kenora
Water & Sewer Operations
Estimated Future Annualized Capital Needs

(in thousands of dollars)

	Km / Quantity	Replacement Cost	Useful Life	Annualized Cost
Major Capital Assets - Water System				
Water Treatment Plant		\$ 20,000	50	\$ 400
Water Booster Stations	5	3,000	50	60
Water Storage Tanks	3	3,000	50	60
Water Mains - Includes:	131 km	52,400	50	1,048
Water Services	12.4 km	4,960	50	99
Water Valves	1,510			
Fire Hydrants	550			
Water Meters	6,150	1,845	25	74
		83,360		1,667
Major Capital Assets - Sewer System				
Sewage Treatment Plant		\$ 15,000	50	\$ 300
Sewage Pumping Stations	60	9,000	50	180
Sewage Grinder Pumps	411	1,233	12	103
Sewer Mains - Includes:	136.5 km	40,950	50	819
Gravity Main			50	-
Force Main				
Low Pressure Main				
Services				
Sanitary Manholes	1,650			
		66,183		1,402
Combined System Requirements		\$ 149,543		\$ 3,069

Kenora's Water & Sewer System – How Does it Compare?

In 2000, Ontario municipalities began participating in a new program of performance measurement – the Municipal Performance Measurement Program (MPMP). Specifically, municipalities provided the Ministry of Municipal Affairs and Housing with performance measurement information. In 2001, the first results were published.

Kenora's ranking in the area of water and sewer provides some insight as to the efficiency of Kenora's system in comparison to other northern municipalities as follows:

	2006	2005	2004	2004 MPMP * Reporting
Sewage				
Operating costs for the collection, treatment and disposal of wastewater / megalitre	\$ 747.25	\$ 521.14	\$ 501.08	Range = 168 - 576 Median = 406 Higher costs
Number of wastewater main backups per 100 kilometers of wastewater main	24.82	35.77	5.86	Range = 0 - 215 Median = 8.2
Water				
Operating costs for the treatment and distribution of drinking quality water / megalitre	\$ 702.17	\$ 636.13	\$ 636.83	Range = 126 - 649 Median = 527 Higher costs
Number of Breaks in Water Mains per 100 kilometers of water main pipe	9.92	14.5	6.11	Range = 1 - 38 Median = 19

* 2004 MPMP information is the most recent information available at time of printing this budget document.

In 2007, the City had either billed or accounted for 2.053 million cubic metres of water. Actual flows from the plant for this same period were 2.895 million cubic metres. The City currently has a total of 143.4 km of water mains and water services combined. The difference between water flows from the plant and the remaining water not accounted for, or "water loss" represents an average loss of 16,085 litres / km / day. The international benchmark for water loss is as follows:

- ❑ 10,000 litre loss / km / day is rated as "excellent"
- ❑ 20,000 litre loss / km / day is rated as "good"

Based on this information, it appears that the City was still within the acceptable standards for water loss for 2007 given the City's existing water infrastructure. It should be noted, however, that the litre loss / km / day number for the City has been increasing steadily over the past few years.

2008 Budget Highlights

The 2008 operating budget projects total combined revenues of \$4.9 million and expenditures of \$4.0 million, resulting in a system operating surplus of approximately \$.9 million before local improvement revenues and capital expenditures. Proposed capital expenditures for 2008 are \$5.3 million, with significant reductions in the proposed capital expenditures for the following four years. The 2008 capital expenditures are exaggerated primarily due to the carry forward of two major projects approved in 2007 as follows:

- ❑ Main St. Rehabilitation program (\$2.0 million), to be funded two thirds through COMRIF
- ❑ Courthouse to Norman Main Waterworks rehabilitation (\$2.2 million) planned to be funded through long term debt

There was an additional \$112,000 combined representing three smaller projects also carried forward from 2007. A chart outlining proposed system capital expenditures over the next five years is shown to the right.

Leak Detector Program

The City has introduced a new leak detection program, commencing with the 2008 capital budget. The leak detection program involves an electronic device that measures sound vibrations within the distribution system to determine where leakages may occur within certain points.

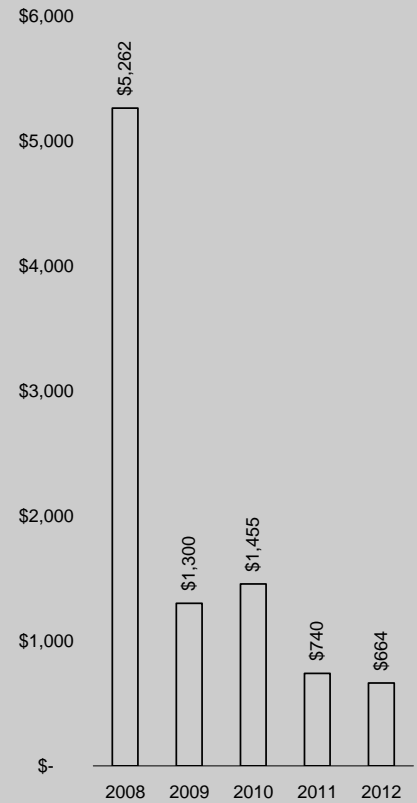
This program is intended to take a proactive approach in the location of water leaks within the distribution system. The City currently has 131 km of water mains, 1,500 plus valves and 6,000 plus water services. Each of these has the potential of causing leakage within the distribution system. Based on the City’s current water loss calculations, the City has experienced losses of over 40% at times. This high loss percentage was attributed to large mains leakages within the system. In general, the system should operate within a 12 – 15% loss factor on average, although the average 2007 water loss was closer to 30%. The City presently uses a reactive approach to the location of the leakage. The leak detection program would assist the City in confirming that the distribution system has as minimal loss as possible.

Actual and Projected System Funding Available

The accumulated water & sewer system surpluses have come under increased pressures during the post-amalgamation period. There has been a significant variance between the actual revenues received and the projected revenues following the metering of the City’s water system. The estimate of metered rates included a non-billable water factor of 35% - partly due to conservation that would naturally occur due to the metering of water, and partly due to system losses, such as water line flushing, hydrant use, bleeders, water main breaks, etc. Unfortunately, the actual impacts have been significantly higher than originally anticipated. The City has already been required to adjust its water and sewer rates on more than one occasion to offset this.

In addition, this problem has been compounded by the new regulations and requirements related to water treatment in the Province, which have provided the City with significant, ongoing costs.

Projected Capital Water & Sanitary Sewer Expenditures (in thousands of dollars)



Budget Overview

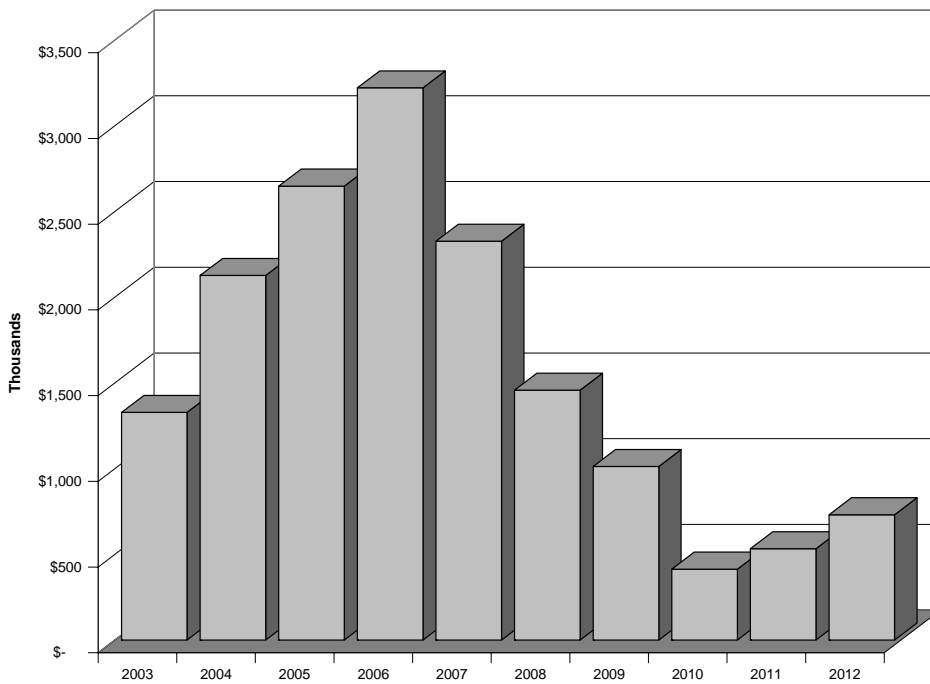
2008 Budget Highlights

Leak Detector Program

Actual and Projected System Funding Available

Actual and Projected System Funding Available (Cont.)

The following table outlines the actual water & sewer accumulated system funding available, for the past five years, as well as projected over the next five-year period. On a forward basis, based on the current proposed five year capital program, system funding is expected to bottom out in 2010, with modest increases expected each year thereafter. This is primarily due to higher than average level capital expenditures being incurred in the years 2008 through 2010. It should be noted, however, that the planned capital program continues to not adequately address the City’s annual capital spending requirement for water & sewer, currently estimated at over \$3.07 million annually as outlined previously.



Budget Overview

Actual and Projected System Funding Available (Cont.)

Proposed Rate Structure

There continues to be a shortfall in ongoing water & sewer system operations as a means of funding ongoing system capital requirements. This still holds true even if the City were able to secure 67% funding from senior levels of government on all major related projects. Options open to the city for this are few – reduce service levels and / or expenditures, or increase revenues.

A review of the City's existing infrastructure indicates a serious under spending with regards to the replacement of our aging water & sewer systems. The system is not currently generating sufficient net operating revenues to fund ongoing capital requirements. In addition, existing staffing shortages within the department have created further operational and maintenance deficiencies, prohibiting the implementation of any form of preventative maintenance program. To compound this problem, new legislated requirements dictate increased service requirements for the City. Based on current operations, the City cannot cut expenditures without compromising the safety and integrity of the water & sewer operations, or the quality of the water produced. It is evident that service level reductions or decreased water & sewer related expenditures are not viable options for the City.

In recent years, the City has performed analysis of water & sewer rates from other municipalities. Unfortunately, the City was unable to obtain a rate comparison from a municipality that faces the same type of challenges related to topography, with related costs, as Kenora must face in delivering these services. In addition, a number of the municipalities have not moved to metered rates, making the comparison difficult at best, and not necessarily reliable, and therefore was not done again for 2008. Based on these past rate reviews, it was evident that Kenora water & sewer rates are high in comparison with other municipalities surveyed. In addition, Kenora has increased its water & sewer rates several times during the period since water meter implementation. These rate changes were done as follows:

- ❑ A two phase rate increase, representing a cumulative 39% increase in rates, implemented 20% effective 1 June 2003, and an additional 16% effective 1 January 2004.
- ❑ A further 6% increase effective 1 January 2005.

The City also reviewed and updated water & sewer related charges for a number of miscellaneous type services such as water turn on / off and sewer rodding in the 2005 budget process. These charges, with the exception of water delivery charges, were adjusted to more accurately reflect the actual costs incurred for providing those services, also effective 1 January 2005. The water delivery charges continue to be an outstanding issue that needs to be addressed. The operations department is currently tracking costs related to water delivery versus the offsetting revenues generated from this service, and will be providing Council with a recommended amended rate structure for this service during 2008.

Under the new sustainability legislation, the City is required to develop an operational plan for the infrastructure deficit of its water distribution system. This plan is required to be in place by 2010. It is expected that resulting impacts to our ratepayers through user fee increases will be significant. In the interim, the City has not included any changes to water and sewer rates as part of the 2008 budget process. Potential rate changes will need to be evaluated once the City's water & sewer operational plan has been completed, current target date of 2009.

Budget Overview

Proposed Rate Structure

Water Meter Program

By December 31, 2010, Kenora Hydro is required to have smart meters installed and working for all their residential customers. Kenora Hydro is currently involved in an RFP for the provision and implementation of smart meters within their service territory. They will be selecting the successful vendor from an RFP process in 2008, based on approvals by the Minister of Energy. As part of the RFP, one of Kenora Hydro's requirements for respondents was the ability for the integration of water meter readings should the City chose to pursue this. While it is not a requirement that the City converts to automated water reading, the system put in by Kenora Hydro will be capable of providing that service provided that the City performs the necessary upgrades / conversions to the existing water meters. As Kenora Hydro currently reads the City's water meters, should the City not pursue this option, there will be a requirement to find another resource for reading water meters, whether contract or in house staff. This issue is not currently addressed in the City's water & sewer budgets.

Ongoing System Sustainability

Under the Safe Drinking Water Act, the municipality is required to ensure that its water & sewer operations function on a full user pay basis, one that is sufficient to fund not only ongoing operations but also current and future capital requirements to maintain the system in accordance with legislated standards. There is an evident funding shortfall for ongoing capital, as well as a staffing shortage within these operations. There is currently no long-range replacement plan for the existing treatment and distribution systems.

By 2009, the City is mandated to be in compliance with the new Public Sector Accounting Board (PSAB) standards, which requires the tracking, capitalizing and amortizing of all major tangible capital assets. This change in accounting standards, combined with the new operational plan required commencing in 2010, will likely have a significant impact on the budgeting process for the City's water & sewer department.

Potential Risks

The water and sewer treatment plants operate 24 hours per day, 365 days per year. The staffing complement for these facilities is only scheduled for 8 hours per day, 7 days a week. These plants are not manned outside of this 8-hour period. To provide effective cover off within these plants for a 24/7 operation would require an additional 7 staff per plant, representing a significant incremental cost for the City. This is not currently a recommended option, although it may become required pending legislated developments.

The water and sanitary sewer distribution systems operate 24 hours per day. These systems are only manned 8 hours per day. Staff members are on call to handle emergency repairs as required.

Other potential risks related to the City's water & sewer systems include:

- ❑ Water Shed Source Protection – the Ontario Government will be initiating the Source Protection Plan which will make the City responsible to identify and resolve any potential hazards within an outlined area of the City's drinking water intake. Some of the potential hazards will be the septic systems on Coney Island, Rat Portage sewage lagoons, Kenora Golf Club (pesticides), or any of the industrial locations located upstream.
- ❑ Reduction of Ammonia and Chlorine Residuals for Sewage Treatment Plant Effluent Outflows – the Federal Government will be requiring that the effluent discharge concentration amounts be significantly reduced from current levels (from .5 to .05 parts per million).

Discussion Items

Water Meter
Program

Ongoing System
Sustainability

Potential Risks