Agenda - Executive Policy Committee - November 19, 2003

REPORTS

Item No. 2 2004 Water and Sewer Utility Rates
File WW-2.3

STANDING COMMITTEE RECOMMENDATION:

On November 12, 2003 The Standing Policy Committee on Public Works did not concur in the administrative recommendation and recommends to Executive Policy Committee:

1. That the administrative report be received as information.

2. That the matter be referred to the Executive Policy Committee for discussion with the Provincial Government in order to determine other funding alternatives.

3. That the Executive Policy Committee and the Administration work with the Province of Manitoba to extend the implementation schedule (particularly for nutrient removal) and provide a more realistic time frame in order to reduce City of Winnipeg consumer concerns with respect to the Water and Sewer Utility Rate increase.

4. That a Council Seminar be held to consider the 2004 Water and Sewer Utility Rates prior to the meeting of Council scheduled to be held on November 26, 2003.

DECISION MAKING HISTORY:

STANDING COMMITTEE RECOMMENDATION:

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4. That a Council Seminar be held to consider the 2004 Water and Sewer Utility Rates prior to the meeting of Council scheduled to be held on November 26, 2003.

RE: 2004 WATER AND SEWER UTILITY RATES

FOR SUBMISSION TO: Standing Policy Committee on Public Works

ORIGINAL REPORT SIGNED BY: Director of Water and Waste Department

REPORT DATE: November 5, 2003

RECOMMENDATIONS:

1. That the sewer rates, based on water used, be increased to $3.11 from $2.73 per 100 cubic feet effective January 1, 2004, which rate includes 55 cents per 100 cubic feet for the Environmental Projects Reserve (27.6 cents in 2003).

2. That the City Solicitor be instructed to prepare the necessary By-Laws for submission to Council at the November 26, 2003 meeting.

REPORT SUMMARY

KEY ISSUES

An aggressive capital and operating plan has been developed based on the direction provided in a letter from Manitoba Conservation. The Water and Waste Department has prepared a rate model that reflects the first ten year projected cost of improvements to the wastewater treatment and collection systems. These costs include:

$451 million in capital costs over the next ten years
- $251 million for Nutrient Removal
- $96 million for Combined Sewer Overflow
- $63 million for biosolids-alternative handling and disposal
- $21 million for Centrate Treatment
- $15 million for Disinfection
- $5 million for other CEC recommendations (licensing, public consultation/notification, environmental management system)

$287 million in associated operating costs over the next ten years.
- $154 million in debt servicing for debt needed to finance the new infrastructure
- $77 million increase in contributions to the Environmental Projects Reserve
- $56 million in operating and maintenance costs for the new infrastructure

This ten year plan envisions:
- a combined (total water and sewer) rate increase of 7% in 2004
- a total combined water and sewer rate increase of 53% over the next six years
- total borrowing of $102 million in water and $274 million in sewer

IMPLICATIONS OF THE RECOMMENDATIONS:

General implications

- ☐ **no**
- ☒ **for the organization overall and/or for other departments**
- ☒ **for the community and/or organizations external to the City**
- ☐ **involves a multi-year contract**

Comment:
The combined water and sewer rate will increase by 7% in 2004.

Policy implications:

- ☒ **No**
- ☐ **Yes**

Comment:

Environmental Implications:

- ☐ **No**
- ☒ **Yes**

Comment:
Includes improvement in the City's wastewater system, including nutrient removal and combined sewer overflows.

Human Resource Implications:

- ☒ **No**
- ☐ **Yes**

Comment:

Financial implications:

- ☐ **within approved current and/or capital budget**
- ☒ **current and/or capital budget adjustment required**

Comment:
The sewer rate plan calls for an increase of 14% in the sewer rate in each of the next three years in response to direction given by Manitoba Conservation.

REPORT - 2004 WATER AND SEWER UTILITY RATES

REASON FOR THE REPORT:

A letter from Manitoba Conservation dated September 26, 2003 (Appendix I) requires the rapid acceleration of planned improvements in wastewater treatment, especially the removal of nutrients by 2008, which will require significant increases to the sewer rate.

Changes to the sewer rates require Council approval in the form of a by-law.

HISTORY

See Appendix A for the history of Water and Sewer rates for the past ten years.

The last time City Council approved an increase in the water and sewer rates was in 2000. In 2001, Council approved a water rate increase that was offset by a sewer rate decrease and the combined rate did not change.

In 2002, the water and sewer rates remained unchanged. The 2002 rate model indicated a requirement for an increase in the combined water and sewer rate in 2004 and 2008. The rate increases were required due to the introduction of additional transfers to the General Revenue Fund of $3.9 million per year combined with reduced consumption.

In 2003, there were no changes to the water and sewer rates.

On December 11, 2002, City Council approved the submission to the province of a wastewater improvement plan including nutrient removal and combined sewer overflow control over a 50-year time period.

DISCUSSION

Water Rate

For 2004 the water rates will remain at the 2003 levels.

- $2.75 per 100 cu. ft. from 0 - 9,600 cu. ft./quarter (Block 1)
- $2.27 per 100 cu. ft. from 9,601 - 96,000 cu. ft./quarter (Block 2)
- $1.79 per 100 cu. ft. over 96,001 cu. ft./quarter (Block 3)

This includes 47.25 cents per 100 cubic feet for the Water Treatment Reserve in 2004 (39.50 cents in 2003), 39.40 cents in 2005 and 2006. There are no provisions for the Aqueduct Rehabilitation Reserve as 2003 was the final year for contributions.

The water rate is not expected to change for 2005 and 2006. Due to the combined effects of reduced consumption and increased transfers to the General Revenue Fund the water rate is forecast to increase beginning 2007.

The water treatment plant is to be commissioned in 2007 in accordance with Council's long term plan to finance and build a plant to ensure safe drinking water.

Sewer Rate

For the year 2004, the sewer rate will increase by 14%, from $2.73 to $3.11 per 100 cubic feet. The contribution to the environmental reserve fund will be increased to $14 million per year from the current $7 million. The sewer rate is expected to further increase each year, up to 2009, to provide the necessary funds to implement and manage the revised wastewater programs.

The sewer utility rate projections include significant changes to both the operating and capital programs, unlike the water utility whose operating and capital plans have not seen notable change. Increases to the sewer rate are necessary due to several variables:

- Provincial Requirements. At the Clean Environment Commission (CEC) hearings in 2003, the Department tabled Council's wastewater system capital investment plans to address environmental issues over the next 50 years. The City's priorities were based on discussions with the province wherein the City was told that nutrient control was not an immediate concern and that the Province was conducting a study of nutrient control alternatives. According to a Provincial report[1] presented at the hearings, Winnipeg wastewater contributed 6% of the total nitrogen load and 7% of the total phosphorus load to Lake Winnipeg, from 1994-2001.

  While the hearings were still in progress, the Minister of Conservation announced a Lake Winnipeg Action Plan that would see nutrient loads to Lake Winnipeg reduced by 10-13% to 1970 levels.

  The CEC report[2] recommended that: *"The City of Winnipeg should be directed to plan for the removal of nitrogen and phosphorus from its municipal wastewaters, and to take immediate steps in support of the nutrient reduction targets established for Lake Winnipeg* [10% phosphorus reduction and 13% nitrogen reduction]. *The City's nutrient removal plan should be a key element of a licence review hearing to be scheduled within two years."*[Recommendation 6].

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1 Bourne, A., N. Armstrong, and G. Jones. 2002. A preliminary estimate of total nitrogen and total phosphorus loading to streams in Manitoba, Canada. Water Quality Management Section. Manitoba Conservation Report No. 2002 - 04.

2 Clean Environment Commission, August 2003, Better Treatment, Taking Action to Improve Water Quality. Report on Public Hearings, City of Winnipeg Wastewater Collection and Treatment Systems

In a subsequent letter to the City of Winnipeg dated September 26, 2003 (Appendix I) on implementation of this recommendation, the Province indicated that: *"Limits will be included in the licence or licences that will require implementation of nutrient controls at the South End Water Pollution Control Centre (SEWPCC) by November 2006. . . In addition, the licence or licences will require similar nutrient controls to be implemented at the North End Water Pollution Control Centre (NEWPCC) and the West End Water Pollution Control Centre (WEWPCC) by November 2008, subject to review following completion of the Nutrient Management Strategy."* This is a very aggressive schedule.

The CEC also recommended that the Combined Sewer Overflow (CSO) control program be completed over the next 20-25 years; as opposed to the City's plan to undertake these capital works over a 50-year timeframe. The Province indicated in their letter that the City will have to complete this program *"sooner than recommended"*.

The financial rate model reflects the ten year projected cost of the resulting improvements to the wastewater treatment and collection systems

$451 million in capital costs over the next ten years
- $251 million for Nutrient Removal
- $96 million for Combined Sewer Overflow
- $63 million for biosolids-alternative handling and disposal
- $21 million for Centrate Treatment
- $15 million for Disinfection
- $5 million for other CEC recommendations (licensing, public consultation/notification, environmental management system)

$287 million in associated operating costs over the next ten years
- $154 million in debt servicing costs to service borrowing of $274 million
- $77 million increase in the Environmental Projects Reserve levy to fund additional capital
- $56 million in additional operating and maintenance costs for corresponding programs and infrastructure

It is important to note the scope of what the City is being asked to do. By 2008, the City will construct a $214 million water treatment plant, spend $251 million on nutrient control and make significant progress on other projects. Over the ten-year period, the $451 in sewer projects and the $214 million for water treatment total $665 million. This is the financial size of the floodway project only much more complicated. The City is asked to complete its own projects at the same time as other major public projects such as the floodway itself and Wuskwatim are being built. This level of work is unprecedented. In fact, despite the provincial requirement to complete it, the Department does not believe that the capacity exists within the City and within the consultant and construction community to complete this work on this schedule.

The Department has replied to the letter from the Assistant Deputy Minister asking that the schedule be reviewed to allow for the limited resources available. Even if the schedule is lengthened considerably, a rate increase in 2004 and for several years thereafter is required.

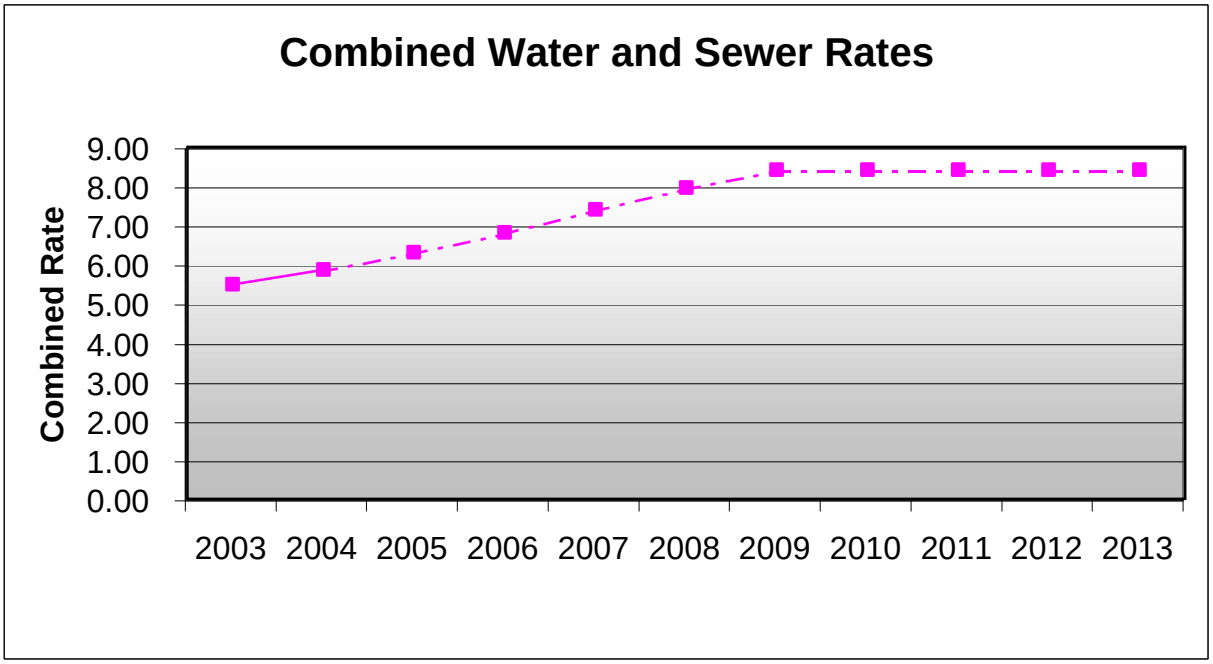
- Property tax reassessment. Reassessment of the wastewater treatment facilities has resulted in significant increases in property taxes paid by the sewer utility. Total costs over the ten years are estimated at $90 million.

- Sales volume. Over the past several years there has been a decrease in consumption. While a reduction in sales volume is positive for reducing long term capital costs, in the short-term rate increases are required.

- Transfers to the General Revenue Fund**.** In the late 1980s, the transfers to the General Revenue Fund were calculated as 10% of the utilities' base sales. In the 1990s, the subsidization of the tax-supported program expanded to include funding for the Fire Hydrant and Land Drainage programs. In 2002 the utilities were asked to contribute an additional $3.9 million. Beginning 2004, in recognition of the property tax reassessment, the sewer utility's transfer was reduced by $1 million. The ten year rate plan estimates a total of $99 million in transfers to the General Revenue Fund for the sewer utility.

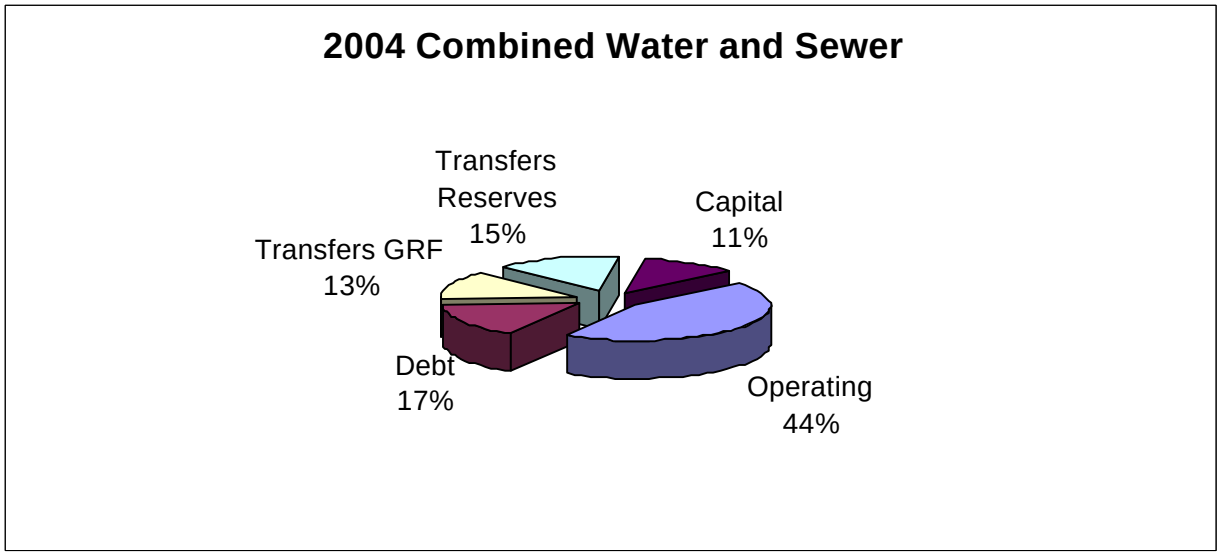
Combined Water and Sewer Rates

The 2004 water and sewer rate model estimates a continued combined rate increase over a six year period to 2009. At this point, the recommendation is for 2004 rates only. The 10 year rate model is updated every year with changes in program requirements and assumptions. For example changes to the project schedule could occur, or the "New Deal" may be put in place which could reduce the requirement for transfers to the general revenue fund.



The combined water and sewer rate is proposed to increase by 7% in 2004, from $5.48 to $5.86 per 100 cubic feet. Individually, the water rates are to remain unchanged while the sewer rate is to increase by 14%, from $2.73 to $3.11 per 100 cubic feet.

For 2004, the following represents the major cost categories contributing to the water and sewer rates. Total costs are forecast at $170 million, including $19 million for retained earnings funded capital projects.



Reserves:

The City has established reserves to fund and plan for large and complex capital projects. Notable revisions to reserve contributions include:

Water Treatment Plant Reserve (Appendix B): This reserve will fund one-half of the cost of a Water Treatment program. New technology has allowed the Department to introduce ultraviolet disinfection to the treatment program. Total cost of the water treatment plant is estimated at $214 million, an increase of $10 million from the original conceptual design. The increase in project cost does not impact the water rates as funding is provided from the combined effects of a staged implementation plan and delayed debt financing.

Environmental Projects Reserve (Appendix C): This reserve funds environmental projects to improve river quality. The sewer rate has historically contributed 27.6 cents per 100 cubic feet (of water used) to the reserve. The resulting $7 million annual reserve contribution was sufficient to fund planned projects.

The Environmental Projects Reserve must be increased to support the wastewater treatment improvement program as directed by Manitoba Conservation. Beginning 2004, the environmental projects capital program is forecast to be $451 million over the next ten years. In addition, there are ongoing costs to operate the new facilities and service the debt that will be required to fund these capital improvements. Contributions to the reserve will double to approximately $14 million per year and continue at that level until 2012. The reserve contribution will increase to $21

million per year beginning 2013 to provide for future programs. In addition, under this rate plan the Department will require borrowing authority for $274 million over the next 10 years.

Transfers to the General Revenue Fund

In 2004, the water and sewer utilities' transfers to the General Revenue Fund are estimated at $21.4 million ($22 million for 2003) or 14.3% of volume sales.

The utilities will also contribute an estimated $10.3 million to the General Revenue Fund as follows:

- General government charges of $1.1 million.
- Municipal taxes estimated at $3.7 million and school taxes estimated at $5.5 million (based on 2003 property tax assessments). While the City of Winnipeg is not assessed school taxes, the Department transfers an equivalent to the school tax.

Financial Projection Risks

The detailed financial projections and rate plans are contained in Appendices D (Water) and E (Sewer). There are several variables that can affect the financial projection and resulting water and sewer rates.

1. Consumption. Consumption is forecast to be flat over the next ten years. Consumption projections are based on the assumptions found in the Water Planning Model and incorporate the effects of historical patterns. If actual consumption is less than plan, this could cause a rate increase (conversely, actual consumption greater than plan could effect a rate decrease). Historical figures indicate that there has been a reduction in consumption over the past several years and the 2004 rate model reflects the longer term effects of this decline (See Appendix F for six year history).

2. Frontage levy. No reduction to the level of frontage levy funding (approximately $26 million per annum) for the water main and sewer renewal programs. Any reduction in frontage levy would require an increase in rates to maintain utility infrastructure and an increase in property taxes to maintain the land drainage infrastructure, including the basement flood relief program.

3. Working capital position. The utilities target to maintain a minimum combined working capital position of 11% of the combined water and sewer sales on an annual basis. The purpose of the working capital reserve is to provide medium-term stability and the ability to absorb losses in any given year when consumption falls short of anticipated levels and/or unforeseen emergency funds are required. The working capital reserve is comprised of current assets (cash and accounts receivable) net of current liabilities (current accounts payable), cash or near cash items that can readily absorb unexpected fluctuations.

4. Rate structure. The 2004 rate model does not contemplate any major changes to the existing rate structure. Council has requested that the Department report on a cost-of-service rate

model along with the effects of winter cost averaging for summer consumption. The Department will report back once the implementation of a new billing system is complete.

5. Capital Investment. Capital investment is based upon the Department's best estimate of improvements that are required. Many items can influence the capital program expenditure, including changes in market price, the introduction of new technology and availability of consultant and contractor resources. In addition, for the sewer utility, the planned risk assessments which will be completed in 2004 may indicate that further investment is required.

6. Economic development. The City's economic climate can have significant impact on the utilities' financial plan. The addition or deletion of a major customer could effect a change in rates due to the consumption and sales revenue associated with the utilities' large volume users. Currently the top fifty customers account for approximately 10% of the combined water and sewer sales revenue.

7. New legislation. Environmental and public health concerns are driving more stringent standards in the water and wastewater industry. The further introduction of new legislation could cause increased rates through the operating and capital costs associated with compliance.

8. Capacity. A number of labour intensive projects are planned for the Department and for the City as a whole. The consulting, construction and engineering community may reach a capacity such that the amount of work required could surpass the ability of the community to meet the timelines.

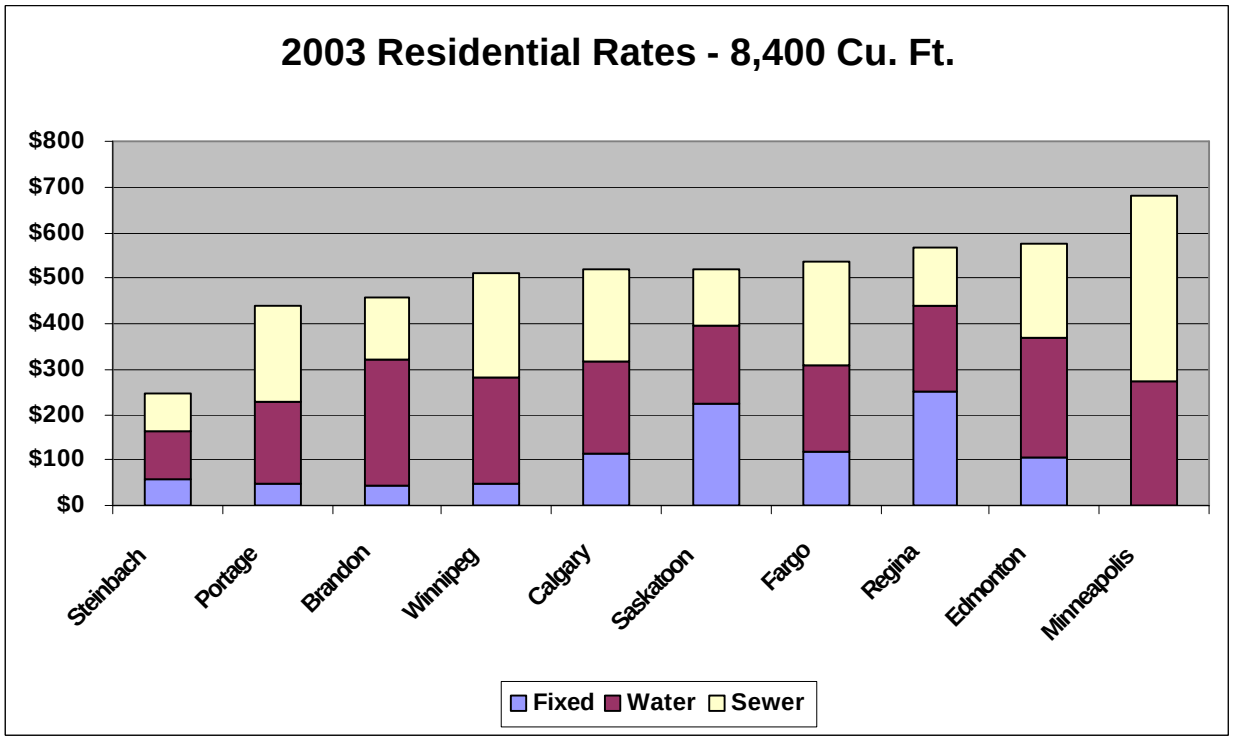
The Water and Sewer Utilities adhere to a set of operating principles that can be found in Appendix G. Appendix H illustrates the impact of the rate strategy on various sample customers.

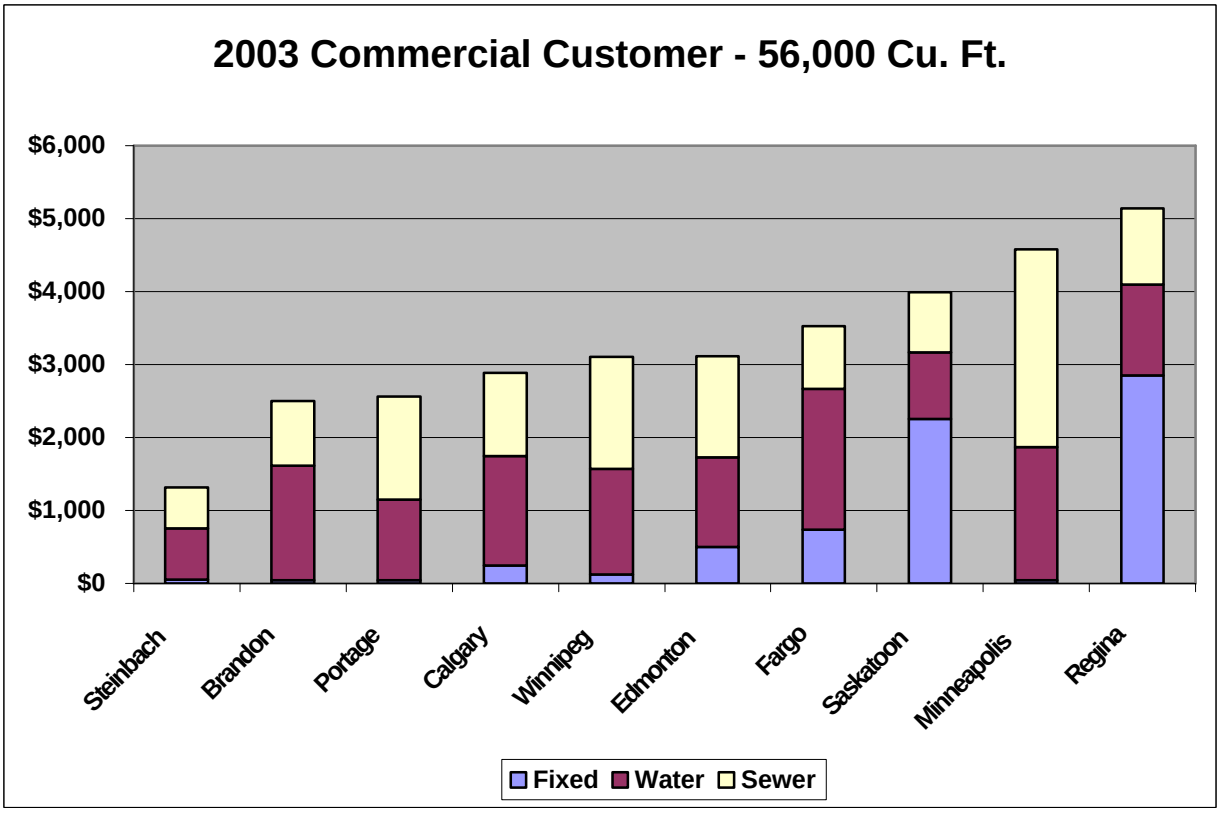
Competitiveness (based on 2003 rates)

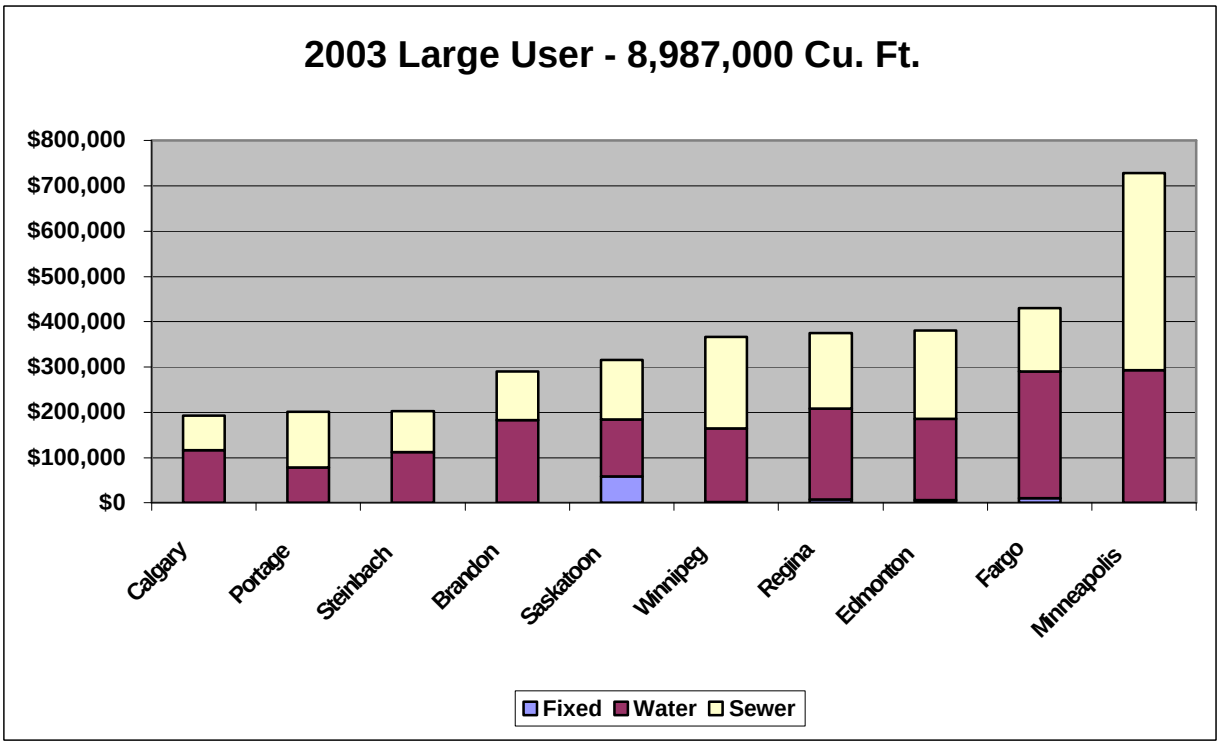
Winnipeg's combined water and sewer rates are competitive to other cities of similar size. For example, from 2000 to 2003, Winnipeg has not increased the combined water and sewer rates. The following table illustrates Winnipeg's competitiveness (2003 rates; Block 1 customers; 8,400 cubic feet consumption):

Residential Customers

	Steinbach	PLAP	Brandon	Winnipeg	Calgary	Saskatoon	Fargo	Regina	Edmonton	Minneapolis
Fixed	56.00	47.28	43.80	48.40	113.64	225.60	116.77	250.50	105.00	
Water	105.17	181.03	278.88	231.00	204.61	172.20	188.96	187.91	263.03	273.71
Sewer	84.24	210.86	132.72	229.32	201.23	122.64	230.89	130.68	207.87	406.23
	$245.41	$439.17	$455.40	$508.72	$519.48	$520.44	$536.62	$569.09	$575.89	$679.93




2003 Commercial Customer - 56,000 Cu. Ft.
$6,000
$5,000
$4,000
$3,000
$2,000
$1,000
$0
Steinbach
Brandon
Portage
Calgary
Winnipeg
Edmonton
Fargo
Saskatoon
Minneapolis
Regina
Fixed
Water
Sewer


2003 Large User - 8,987,000 Cu. Ft.
$800,000
$700,000
$600,000
$500,000
$400,000
$300,000
$200,000
$100,000
$0
Calgary
Portage
Steinbach
Brandon
Saskatoon
Winnipeg
Regina
Edmonton
Fargo
Minneapolis
Fixed
Water
Sewer

FINANCIAL IMPACT

The 2004 rates and financial plans for water and sewer and utilities are contained in Appendices D and E. These plans are reflected in the utilities' Current and Capital Estimates and as such, a financial impact statement has not been prepared.

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Moira L. Geer, C.A.
Manager of Finance and Administration

APPENDICES

The following appendices are attached as additional information:

APPENDIX A	Water and Sewer Rates - Ten Year History
APPENDIX B	Water Treatment Plant Reserve projections
APPENDIX C	Environmental Projects Reserve 23 year projection
APPENDIX D	Waterworks System Fund - Ten year financial projection of revenue, expenditures and working capital based on the recommendations contained in this report
APPENDIX E	Sewage Disposal System Fund - Ten year financial projection of revenue, expenditures and working capital based on the recommendations contained in this report
APPENDIX F	Water Consumption Six year Historical Summary 1997 - 2002
APPENDIX G	Water and Sewer Utility - Principles of Operation
APPENDIX H	Impact of the Water and Sewer recommendations on sample customers January 1st, 2004
APPENDIX I	Letter dated September 26, 2003 from Serge Scrafield, Assistant Deputy Minister Manitoba Conservation to Barry MacBride, Director of Water and Waste, City of Winnipeg.

IN PREPARING THIS REPORT THERE WAS CONSULTATION WITH AND CONCURRENCE BY: N/A

THIS REPORT SUBMITTED BY:

Water and Waste Department
Finance and Administration Division
Prepared by: Moira Geer, Lucy Szkwarek
Date: November 5, 2003
File No: 010-07-20-01-00 and 010-07-20-02-00

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APPENDIX A

CITY OF WINNIPEG - WATER AND WASTE DEPARTMENT
History of Water and Sewer Utility Rates
1994 - 2003

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Water Rates (per 100 cu ft)										
Block 1 (< 9,600 cu ft)	$1.55	$1.70	$1.89	$2.10	$2.32	$2.54	$2.70	$2.75	$2.75	$2.75
Block 2 (9,600 - 96,000 cu ft)	$1.23	$1.37	$1.54	$1.72	$1.91	$2.10	$2.22	$2.27	$2.27	$2.27
Block 3 (> 96,000 cu ft)	$0.90	$1.03	$1.18	$1.33	$1.50	$1.65	$1.74	$1.79	$1.79	$1.79
Sewer Rates (per 100 cu ft)										
Volume Rate	$2.05	$2.29	$2.56	$2.83	$2.83	$2.80	$2.78	$2.73	$2.73	$2.73
Combined Rate (Block 1)	**$3.60**	**$3.99**	**$4.45**	**$4.93**	**$5.15**	**$5.34**	**$5.48**	**$5.48**	**$5.48**	**$5.48**

APPENDIX B

Water Utility
Water Treatment Plant Reserve
$000s

Year	Annual Capital Expenditure	Contribution to Reserve		Balance at end of year	
		Volume Rate [1]	Debt	Debt	Reserve
to 1998	1,750	7,091	0	0	5,341
1998	324	9,640	0	0	14,657
1999	261	12,024	0	0	26,420
2000	36	13,109	0	0	39,493
2001	316	13,850	0	0	53,027
2002	316	12,722	0	0	65,433
2003	8,308	10,739	0	0	67,864
2004	22,352	12,321	0	0	57,833
2005	86,700	10,417	25,000	25,000	6,550
2006	84,000	10,086	68,000	93,000	637
2007	9,637	0	9,000	102,000	(0)
Total	**214,000**	**112,000**	**102,000**		

[1] Includes interest

APPENDIX C

Sewer Utility
Environmental Projects
$000s

Year	Annual Capital Expenditure	Contribution to Reserve		Balance end of year	
		Volume Rate [1]	Debt	Debt	Reserve
to 1998	2,987	8,658			5,671
1998	1,286	5,732			10,117
1999	5,403	6,659			11,373
2000	792	7,678			18,259
2001	453	7,898			25,704
2002	935	7,511			32,280
2003	4,770	7,675			35,185
2004	39,678	14,603		0	10,110
2005	57,070	14,146	35,000	35,000	2,186
2006	81,034	14,034	66,000	101,000	1,185
2007	75,835	14,084	62,000	163,000	1,434
2008	97,468	14,089	83,000	246,000	1,055
2009	19,516	14,037	6,000	252,000	1,576
2010	35,724	14,047	22,000	274,000	1,899
2011	14,763	14,054			1,190
2012	14,819	14,040			410
2013	15,481	21,060			5,989
2014	8,206	21,171			18,954
2015	24,858	21,431			15,527
2016	25,743	21,362			11,146
2017	26,126	21,275			6,295
2018	26,379	21,178			1,093
2019	27,318	28,022			1,797
2020	27,725	28,036			2,108
2021	26,851	28,042			3,299
2022	26,660	28,066			4,705
2023	27,044	28,094			5,755
2024	27,282	28,115			6,588
2025	25,199	28,132			9,521
2026	30,000	28,190			7,712
Total	**797,406**	**531,118**	**274,000**		

[1] Includes interest

APPENDIX D

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WATERWORKS SYSTEM FUND
Financial Projection 2004 to 2013

Waterworks System	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Revenue										
Sales Revenue	58,368	59,993	60,486	71,261	77,884	83,275	84,403	84,427	84,427	84,427
Non Rate Revenue	4,692	4,770	4,862	5,035	5,319	5,628	5,883	6,221	6,576	6,727
Aqueduct Rehabilitation Reserve	0	0	0	0	0	0	0	0	0	0
Water Treatment Reserve	11,720	10,349	10,080	0	0	0	0	0	0	0
Total Revenue	**74,780**	**75,111**	**75,428**	**76,296**	**83,203**	**88,903**	**90,286**	**90,648**	**91,003**	**91,154**
Expenditures										
Operating	31,243	32,947	33,215	45,994	47,029	48,084	49,161	50,259	51,379	52,521
Debt Service	9,705	10,499	14,870	17,624	18,524	18,823	18,888	19,223	19,574	19,149
Other Corporate Expenses	5,743	5,743	5,743	5,743	5,743	5,743	5,743	5,743	5,743	5,743
Transfer to Aqueduct Rehabilitation Reserve	0	0	0	0	0	0	0	0	0	0
Transfer to Water Treatment Reserve	11,720	10,349	10,080	0	0	0	0	0	0	0
Transfer to General Revenue Fund	11,354	11,354	11,354	11,354	11,354	11,354	11,354	11,354	11,354	11,354
Total Expenditures	**69,765**	**70,892**	**75,262**	**80,715**	**82,650**	**84,004**	**85,146**	**86,579**	**88,050**	**88,767**
Surplus(Deficit) for the year	5,015	4,219	166	(4,419)	553	4,899	5,140	4,070	2,952	2,386
Opening Working Capital	20,448	22,167	22,873	19,028	9,362	6,584	7,982	9,368	9,638	8,790
Appropriated to Capital	(3,709)	(3,535)	(3,960)	(7,660)	(3,345)	(3,500)	(3,800)	(3,800)	(3,800)	(3,800)
Other Changes in Working Capital	413	22	(51)	2,414	13	0	45	0	0	0
Ending Working Capital	22,167	22,873	19,028	9,362	6,584	7,982	9,368	9,638	8,790	7,376
Working Capital as a % of Sales	**38%**	**38%**	**31%**	**13%**	**8%**	**10%**	**11%**	**11%**	**10%**	**9%**
Water treatment reserve	0.473	0.394	0.394	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Overall Water Rate Block 1	**2.75**	**2.75**	**2.75**	**2.93**	**3.16**	**3.41**	**3.41**	**3.41**	**3.41**	**3.41**
Overall Rate Increase Block 1	**0.00%**	**0.00%**	**0.00%**	**6.55%**	**7.85%**	**7.91%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**
Long-Term Debt Projection										
New debt, Water Treatment Plant		25,000	68,000	9,000						
Debt outstanding, closing year end balance	**35,942**	**56,582**	**118,899**	**121,238**	**113,858**	**106,146**	**98,200**	**89,893**	**81,207**	**72,347**

APPENDIX E

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SEWAGE DISPOSAL SYSTEM FUND
Financial Projections 2004 TO 2013

Sewage Disposal System	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Revenue										
Sales Revenue	65,957	76,014	88,740	100,246	108,700	114,169	115,023	115,023	115,023	115,023
Non Rate Revenue	4,796	4,822	4,461	4,745	5,041	5,383	5,333	5,922	6,572	5,529
Environmental Projects Reserve	13,899	13,944	13,990	14,061	14,061	14,016	14,016	14,016	14,016	21,052
Total Revenue	**84,652**	**94,780**	**107,191**	**119,051**	**127,802**	**133,569**	**134,372**	**134,962**	**135,611**	**141,604**
Expenditures										
Operating	29,930	31,771	34,449	36,543	37,480	38,435	42,909	49,273	50,464	52,479
Debt Service	18,614	18,934	20,262	25,969	32,513	52,903	53,313	39,387	40,177	35,598
Other Corporate Expenses	8,588	10,282	10,282	10,282	10,282	10,282	10,282	10,282	10,282	10,282
Transfer to Environmental Projects Reserve	13,899	13,944	13,990	14,061	14,061	14,016	14,016	14,016	14,016	21,052
Transfer to General Revenue Fund	10,034	9,917	9,917	9,917	9,917	9,917	9,917	9,917	9,917	9,917
Total Expenditures	**81,065**	**84,847**	**88,900**	**96,772**	**104,252**	**125,553**	**130,438**	**122,875**	**124,856**	**129,328**
Surplus(Deficit) for the year	3,587	9,932	18,291	22,279	23,550	8,015	3,935	12,086	10,755	12,276
Opening Working Capital	7,821	(4,391)	(6,002)	(6,577)	3,886	8,060	5,706	7,133	9,021	9,715
Appropriated to Capital	(15,834)	(11,249)	(17,199)	(9,850)	(9,300)	(9,800)	(10,000)	(10,000)	(10,000)	(10,000)
Other Changes in Working Capital	35	(295)	(1,667)	(1,966)	(10,076)	(569)	7,492	(198)	(62)	2,740
Ending Working Capital	(4,391)	(6,002)	(6,577)	3,886	8,060	5,706	7,133	9,021	9,715	14,730
Working Capital as a % of Sales	**-7%**	**-8%**	**-7%**	**4%**	**7%**	**5%**	**6%**	**8%**	**8%**	**13%**
Environmental Reserve Charge	0.550	0.550	0.550	0.550	0.550	0.550	0.550	0.550	0.550	0.550
Overall Sewer Rate	**3.11**	**3.55**	**4.05**	**4.47**	**4.79**	**5.00**	**5.00**	**5.00**	**5.00**	**5.00**
Overall rate increase/(decrease)	**13.92%**	**14.15%**	**14.08%**	**10.37%**	**7.16%**	**4.38%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**
Long-Term Debt Summary										
New debt, Environmental Projects	0	35,000	66,000	62,000	83,000	6,000	22,000	0	0	0
Debt outstanding, closing year end balance	**56,709**	**85,177**	**144,160**	**196,120**	**265,793**	**254,218**	**258,863**	**240,175**	**220,966**	**203,182**

APPENDIX F

WATER CONSUMPTION HISTORICAL SUMMARY - 000s GALLONS
Consumption for volume sales (excludes standpipe)

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B-1 SALES	1997	1998	1999	2000	2001	2002
January	903,597	810,783	821,931	831,380	801,656	876,961
February	699,832	632,012	686,466	680,216	654,591	620,700
March	781,436	767,492	763,391	758,647	747,005	768,535
April	833,091	796,016	818,561	790,161	826,841	803,207
May	624,882	657,822	666,027	686,032	673,964	665,609
June	767,815	805,235	799,673	902,067	767,123	790,454
July	873,051	924,992	927,065	981,311	849,050	960,142
August	786,186	804,412	784,359	743,338	741,022	761,990
September	849,192	848,878	829,197	772,084	859,102	856,568
October	883,311	946,381	906,724	824,164	965,309	831,251
November	745,030	724,133	710,007	689,014	738,590	662,225
December	769,443	788,713	758,809	747,260	821,073	772,730
Total	**9,516,866**	**9,506,869**	**9,472,210**	**9,405,674**	**9,445,326**	**9,370,372**

B-2 SALES	1997	1998	1999	2000	2001	2002
January	341,727	303,164	318,717	310,487	309,390	342,561
February	345,401	339,151	337,426	342,212	320,493	293,732
March	247,565	273,847	250,387	265,185	245,104	276,281
April	290,886	282,267	267,168	280,253	320,751	308,196
May	338,285	311,398	343,653	323,220	344,120	337,517
June	216,498	237,316	246,325	250,325	242,352	224,977
July	317,192	330,580	327,753	333,668	329,190	365,064
August	385,969	379,012	362,658	379,563	350,348	345,719
September	286,723	293,024	247,023	305,175	277,549	300,375
October	346,233	377,210	377,891	326,255	443,628	359,114
November	350,893	364,077	373,842	345,176	365,758	318,420
December	240,144	244,511	270,708	257,387	254,680	253,449
Total	**3,707,516**	**3,735,557**	**3,723,551**	**3,718,906**	**3,803,363**	**3,725,405**

B-3 SALES	1997	1998	1999	2000	2001	2002
January	291,866	295,327	348,742	267,287	221,279	193,635
February	273,494	228,912	312,489	213,172	191,856	199,970
March	168,816	203,134	104,530	185,755	185,126	138,922
April	248,115	306,863	306,294	234,648	227,242	235,043
May	268,289	222,997	194,127	236,943	223,285	249,468
June	132,244	139,964	238,274	138,755	112,734	115,750
July	299,356	334,517	209,178	302,471	282,364	341,669
August	354,838	342,652	252,974	266,899	254,438	279,939
September	173,291	178,499	278,374	192,008	169,016	179,995
October	416,556	442,681	352,163	279,214	382,924	334,719
November	231,587	301,648	274,705	301,776	289,609	212,831
December	194,249	117,817	173,978	186,582	180,823	147,169
Total	**3,052,701**	**3,115,011**	**3,045,828**	**2,805,510**	**2,720,696**	**2,629,110**
TOTAL B1-B3	**16,277,083**	**16,357,437**	**16,241,589**	**15,930,090**	**15,969,385**	**15,724,887**

APPENDIX G

WATER AND SEWER UTILITY
PRINCIPALS OF OPERATION

1. Self-Supporting Utilities. The Utilities do not receive subsidies from the mill rate.

2. Cost of Service Rates. Customers pay water and sewer rates, which represent the operating and capital costs of providing the utility services.

3. Debt Servicing. The Utilities' revenues are sufficient to service the Utilities' long-term debt.

4. Working Capital Reserves - Water and Sewer Utilities. The Water and Sewer Utilities maintain working capital reserves to protect the Utilities' financial position and prevent significant rate fluctuations that may otherwise result from a decline in consumption or major unforeseen expenditures. On an annual basis, the Utilities strive to maintain a minimum combined working capital position of 11% of the combined Water and Sewer sales.

5. Ten Year Financial Plan - Water and Sewer Utilities. Rates in the Water and Sewer Utilities are planned over a ten-year time frame to mitigate the effects of year over year fluctuations and to coincide with the longer term infrastructure development and renewal planning.

6. Transfers to the General Revenue Fund. The Water and Sewer Utilities transfer funds to the General Revenue Fund in the form of:
   - a percentage of sales revenue, net of capital reserves, as a return to the City on ownership of the Utilities
   - additional general provisions to meet the City's financial targets
   - support to the Fire Hydrant and Land Drainage programs - these transfers fund 100% of the costs of these programs, with the exception of the debt servicing costs in the Land Drainage program
   - other contributions such as the equivalent to property taxes and general government charges

7. Capital Reserve Funds. The Utilities establish reserves to fund major capital projects. The pay-as-you-go capital program is more economical than traditional debt financing, which equates to lower rates for our customers. In addition, for specific and cost intensive projects, the Department has developed a strategy whereby a portion of the project is funded through reserves and a portion through debt financing. This strategy facilitates an equitable approach for short and long term funding support.

APPENDIX H

CUSTOMER IMPACT ANALYSIS

Annual Basis

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	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Residential 5/8" meter											
8,400 cu.ft. Water	2.75	2.75	2.75	2.75	2.93	3.16	3.41	3.41	3.41	3.41	3.41
Sewer	2.73	3.11	3.55	4.05	4.47	4.79	5.00	5.00	5.00	5.00	5.00
Total Volume Rate	**5.48**	**5.87**	**6.31**	**6.81**	**7.40**	**7.95**	**8.41**	**8.41**	**8.41**	**8.41**	**8.41**
FQC	**12.10**	**12.10**	**12.10**	**12.10**	**12.10**	**12.10**	**12.10**	**12.10**	**12.10**	**12.10**	**12.10**
	$508.52	$541.09	$577.87	$620.33	$669.72	$716.06	$755.10	$755.10	$755.10	$755.10	$755.10
Overall $ Change	0.00	32.58	36.78	42.47	49.38	46.33	39.04	0.00	0.00	0.00	0.00
Overall % Change	0.00%	6.41%	6.80%	7.35%	7.96%	6.92%	5.45%	0.00%	0.00%	0.00%	0.00%
Small Restaurant 1" meter											
56,000 cu.ft. Water	2.27	2.27	2.27	2.27	2.44	2.67	2.92	2.92	2.92	2.92	2.92
Sewer	2.73	3.11	3.55	4.05	4.47	4.79	5.00	5.00	5.00	5.00	5.00
Total Volume Rate	**5.00**	**5.38**	**5.82**	**6.32**	**6.91**	**7.46**	**7.92**	**7.92**	**7.92**	**7.92**	**7.92**
FQC	**15.92**	**15.92**	**15.92**	**15.92**	**15.92**	**15.92**	**15.92**	**15.92**	**15.92**	**15.92**	**15.92**
	$2,909.05	$3,124.06	$3,369.19	$3,646.41	$3,979.44	$4,287.72	$4,546.29	$4,546.29	$4,546.29	$4,546.29	$4,546.29
Automatic Car Wash 2" meter											
326,400 cu.ft. Water	1.79	1.79	1.79	1.79	1.96	2.19	2.44	2.44	2.44	2.44	2.44
Sewer	2.73	3.11	3.55	4.05	4.47	4.79	5.00	5.00	5.00	5.00	5.00
Total Volume Rate	**4.51**	**4.90**	**5.34**	**5.84**	**6.42**	**6.98**	**7.44**	**7.44**	**7.44**	**7.44**	**7.44**
FQC	**30.28**	**30.28**	**30.28**	**30.28**	**30.28**	**30.28**	**30.28**	**30.28**	**30.28**	**30.28**	**30.28**
	$15,367.81	$16,637.76	$18,066.35	$19,676.25	$21,591.07	$23,404.92	$24,916.62	$24,916.62	$24,916.62	$24,916.62	$24,916.62
Large Restaurant 3" meter											
626,000 cu.ft. Water	1.79	1.79	1.79	1.79	1.96	2.19	2.44	2.44	2.44	2.44	2.44
Sewer	2.73	3.11	3.55	4.05	4.47	4.79	5.00	5.00	5.00	5.00	5.00
Total Volume Rate	**4.51**	**4.90**	**5.34**	**5.84**	**6.42**	**6.98**	**7.44**	**7.44**	**7.44**	**7.44**	**7.44**
FQC	**107.81**	**107.81**	**107.81**	**107.81**	**107.81**	**107.81**	**107.81**	**107.81**	**107.81**	**107.81**	**107.81**
	$28,204.31	$31,616.73	$34,356.57	$37,443.06	$41,104.68	$44,619.60	$47,520.95	$47,520.95	$47,520.95	$47,520.95	$47,520.95
Hotel 3" meter											
1,182,800 cu.ft. Water	1.79	1.79	1.79	1.79	1.96	2.19	2.44	2.44	2.44	2.44	2.44
Sewer	2.73	3.11	3.55	4.05	4.47	4.79	5.00	5.00	5.00	5.00	5.00
Total Volume Rate	**4.51**	**4.90**	**5.34**	**5.84**	**6.42**	**6.98**	**7.44**	**7.44**	**7.44**	**7.44**	**7.44**
FQC	**107.81**	**107.81**	**107.81**	**107.81**	**107.81**	**107.81**	**107.81**	**107.81**	**107.81**	**107.81**	**107.81**
	$54,342.79	$58,902.67	$64,079.42	$69,910.13	$76,818.12	$83,470.27	$88,954.26	$88,954.26	$88,954.26	$88,954.26	$88,954.26
Foundry 4" meter											
8,987,600 cu.ft. Water	1.79	1.79	1.79	1.79	1.96	2.19	2.44	2.44	2.44	2.44	2.44
Sewer	2.73	3.11	3.55	4.05	4.47	4.79	5.00	5.00	5.00	5.00	5.00
Total Volume Rate	**4.51**	**4.90**	**5.34**	**5.84**	**6.42**	**6.98**	**7.44**	**7.44**	**7.44**	**7.44**	**7.44**
FQC	**136.53**	**136.53**	**136.53**	**136.53**	**136.53**	**136.53**	**136.53**	**136.53**	**136.53**	**136.53**	**136.53**
	$406,829.75	$441,491.00	$480,826.62	$525,123.88	$577,537.05	$628,164.39	$669,849.87	$669,849.87	$669,849.87	$669,849.87	$669,849.87

Manitoba

Conservation

Environmental Stewardship Division
123 Main Street, Suite 160
Winnipeg MB R3C 1A5
CANADA

http://www.gov.mb.ca

September 26, 2003

Mr. Barry MacBride, Director
Water and Waste Department
City of Winnipeg
1500 Plessis Road
Winnipeg MB R2C 5G6

Dear Mr. MacBride:

IMPLEMENTATION OF CEC RECOMMENDATIONS

Thank you for meeting with us on Monday, September 15, 2003 to discuss implementation of the Clean Environment Commission's (CEC) recommendations in its recent report on the City's wastewater treatment and collection system. As we mentioned, it is our intention to reflect the recommendations provided by the CEC in an Environment Act licence or licences. We anticipate providing you with a final licence or licences by the end of the year which will be subjected to public review within two years. In this regard and as we discussed, please find attached a brief overview of the direction that we anticipate providing in this licence or licences and of other related matters. We look forward to continued discussions with you on how best to implement these recommendations.

Should you have any questions, please feel free to contact me at the above address, by calling (204) 945-7107, or e-mail at scrafield@gov.mb.ca.

Sincerely,

Serge Scrafield
Assistant Deputy Minister
Environmental Stewardship Division

c: Larry Strachan

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September 26, 2003

PROVINCE PROVIDES WINNIPEG WITH PLAN FOR IMPROVING WASTE WATER SYSTEM

\- - -

Plan Designed to Meet and Exceed Clean Environment Commission's Recommendations

A new waste water treatment plan for the City of Winnipeg will improve water quality in the Red River and Lake Winnipeg, Conservation Minister Steve Ashton said today.

"This plan describes how the province intends to implement the recommendations of the Clean Environment Commission from its August 2003 report on the city's waste water facilities," said Ashton. "We need to act on these recommendations and so does the city."

Directions and expectations for waste water collection and treatment and upgrades for Winnipeg's three waste water treatment facilities are outlined in the plan. The province will issue a licence or licences under the Environment Act by the end of the year which will reflect the commission's recommendations and which are consistent with the province's Lake Winnipeg Action Plan. The licences will be subject to a public review in two years.

Public reviews will be conducted every three years thereafter until the provincial government is satisfied that further reviews are not necessary. The licences will require the city to prepare a comprehensive environmental impact statement following provincial guidelines.

The Environment Act licence or licences will require the city to:

- Complete the city's plan to control combined sewer overflow events even sooner than recommended by the commission. The CEC recommended that the city implement their plan within 20 to 25 years.
- Meet waste water effluent standards at the three treatment facilities based on the Manitoba Water Quality Standards, Objectives and Guidelines that are expected from similar facilities in Manitoba, including limits for ammonia.

- more -

- Ensure nutrient removal at the South End Water Pollution Control Centre within three years to meet the initial targets identified in the Lake Winnipeg Action Plan. Full nutrient removal, including the North End and West End facilities, will be required within five years.

Other commission recommendations directed towards the province or jointly directed towards the city, provincial and federal governments will be completed through partnerships and planning, Ashton said.

- 30 -

Manitoba Conservation's Plan for Implementation of Recommendations from CEC Report on City of Winnipeg Wastewater Facilities (August 8, 2003)

Manitoba Conservation will implement the following recommendations through the Environment Act licencing process:

Recommendation: If *Environment Act* licences are issued for Winnipeg's three water pollution control centres, these licences should be issued on an 'interim' basis only.

Implementation: Under the Environment Act, there is no specific allowance for an "interim" licence. The Department anticipates issuing a licence or licences containing timelines for review, thus meeting the intention of the CEC recommendation.

Recommendation: The 'interim' *Environment Act* licences for Winnipeg's three water pollution control centres should be reviewed again in two years and every three years thereafter.

Implementation: It is the Department's intention to issue a licence or licences for the City of Winnipeg facilities that contain clauses requiring review within two years, then subsequently every three years until it is determined that less frequent reviews would be acceptable.

Recommendation: Manitoba Conservation should establish 'interim' effluent limits for Winnipeg's three water pollution control centres in accordance with Manitoba's *Water Quality Standards, Objectives and Guidelines.*

Implementation: The licence or licences for the City of Winnipeg facilities will contain terms, limits, and conditions derived from the Manitoba Water Quality Standards, Objectives, and Guidelines (MWQSOG). Limits for bacteria, biochemical oxygen demand (BOD), total suspended solids (TSS), and ammonia will be based upon the MWQSOG and are anticipated to be similar to the following:

(a). BOD: 25 mg/L as CBOD (5-day).
(b). *E. coli*: 200 organisms/100 mL (it is anticipated that this will be applied in all months rather than only during the recreational season). Limits may also be established for total coliforms (1500 organisms/100 mL).
(c). TSS: 30 mg/L.
(d). Ammonia: as per MWQSOG with assimilative capacity based upon allocation of 75 % and minimum design flows based upon period of record.

Recommendation: The City of Winnipeg should be directed to prepare a comprehensive Environmental Impact Statement prior to the review of its three water pollution control centre 'interim' *Environment Act* licenses.

Implementation: The licence or licences will require the City to submit an Environmental Impact Statement as part of the two-year review. Guidelines for preparation of this Environmental Impact Statement will be issued by the Department as soon as possible.

Recommendation: The City of Winnipeg should be directed to plan for the removal of nitrogen and phosphorus from its municipal wastewaters, and to take immediate steps in support of the nutrient reduction targets established for Lake Winnipeg. The City's nutrient removal plan should be a key element of a licence review hearing to be scheduled within two years.

Implementation: Limits will be included in the licence or licences that will require implementation of nutrient controls at the South End Water Pollution Control Centre (SEWPCC) by November 2006. Discharge limits will be based upon application of Best Practicable Technology to achieve 1 mg/L phosphorus and 10 mg/L nitrogen. This will satisfy the overall goals identified in the Lake Winnipeg Action Plan.

In addition, the licence or licences will require similar nutrient controls to be implemented at the North End Water Pollution Control Centre (NEWPCC) and West End Water Pollution Control Centres (WEWPCC) by November 2008, subject to review following completion of the Nutrient Management Strategy.

Recommendation: The City of Winnipeg should be directed to shorten the timeframe to complete its combined sewer overflow plan from the proposed 50 years to a 20 to 25-year period.

Implementation: Clauses will be developed to implement the City's combined sewer overflow (CSO) plan sooner than recommended, and will include timelines for systematic, step-wise progress based upon the main elements of the City's plan.

Recommendation: The City of Winnipeg should be directed to take immediate action to reduce combined sewer overflows by instrumenting outfalls, adjusting weirs, accelerating combined sewer replacement, advancing the pilot retention project and undertaking other reasonable measures to reduce combined sewer overflows within two years.

Implementation: Clauses will be developed to achieve implementation of this recommendation by March 2006.

Recommendation: The City of Winnipeg should be directed to develop and implement a notification system to inform the public whenever there is a release of raw sewage from any source into the Red and/or Assiniboine rivers. This public notification system should be operational by the beginning of the 2004 summer recreation season.

Implementation: Clauses will be developed to implement this recommendation.

Recommendation: The City of Winnipeg should be directed to proceed with disinfection of wastewaters at the North End Water Pollution Control Centre without delay, and should routinely test for pathogens in all wastewater discharges.

Implementation: Clauses will be developed to implement this recommendation. It is envisaged that clauses will also be included that require routine monitoring and reporting. Testing for pathogens would be included in such clauses. A list of specific pathogens will be developed in consultation with Manitoba Health officials. Implementation of disinfection at the NEWPCC will be required prior to the 2005 recreation season.

Recommendation: The City of Winnipeg should be directed to complete risk and criticality assessments at Winnipeg's three water pollution control centres by April 2004 and implement recommendations arising from such assessments to minimize the risk of future spills of untreated sewage.

Implementation: Clauses will be developed to implement this recommendation.

Recommendation: The City of Winnipeg should be directed to increase the number of parameters measured in its influent and effluent streams to include contaminants of concern such as heavy metals, organochlorines, endocrine disrupting substances and pharmaceuticals.

Implementation: Clauses will be included for routine monitoring and reporting. Such clauses will include a specific list of contaminants of concern.

Recommendation: The City of Winnipeg should be directed to implement changes to Winnipeg's Sewer By-Law that would expand the list of restricted substances, prevent disposal of contaminants of concern, encourage treatment at source, improve enforcement of the By-Law and increase penalties for violations.

Implementation: Clauses will be developed to reflect this recommendation. Timeline for completion is expected to be within two years. It is noted that maximum penalties for violations are specified in provincial legislation through the City of Winnipeg Act. Maximum penalties will be reviewed.

Recommendation: The City of Winnipeg should be directed to stop the practice of disposing of landfill leachate at its water pollution control centres within a period of eighteen months.

Implementation: Clauses will be included to reflect this recommendation in order to achieve the goal of eliminating disposal of leachate at the City's water pollution control centres. It is noted however, that leachate is similarly disposed at other municipal wastewater treatment facilities in the province. It is likely that the City will need to participate in a systematic, province-wide approach to achieve the goal of this recommendation and therefore, time limits for implementation may need to be developed accordingly.

Recommendation: The City of Winnipeg should be directed to immediately begin development and implementation of an Environmental Management System for Winnipeg's three water pollution control centres with a completion date of no later than April 2005 with major components of the management system implemented much sooner.

Implementation: Clauses will be included to implement this recommendation. The City expects registration to occur by April 2005.

Recommendation: The City of Winnipeg should be directed to prepare a public consultation plan for Winnipeg's wastewater collection and treatment systems for approval by Manitoba Conservation by April 2004.

Implementation: Clauses will be developed to achieve implementation of this recommendation within eight months.

Manitoba Conservation will implement the following recommendations through mechanisms outside of the Environment Act licencing process:

Recommendation: Manitoba Conservation should accelerate the schedule to complete the Nutrient Management Strategy for Southern Manitoba by December 2004.

Implementation: Manitoba Conservation has committed to accelerating the schedule to complete the Nutrient Management Strategy by December 2004.

Recommendation: The City of Winnipeg should be strongly encouraged to develop and implement a permanent public education program to improve awareness of Winnipeg's wastewater collection and treatment systems, and to foster public involvement in activities focusing on water conservation and pollution prevention at source.

Implementation: Implementation of this recommendation will be the subject of discussions between Manitoba Conservation and the City.

Recommendation: The City of Winnipeg should be encouraged and assisted by the Province, in cooperation with the federal government, to immediately begin developing and implementing a meaningful consultation program with Aboriginal communities concerning the continued operation and future development of its wastewater collection and treatment systems.

Implementation: Implementation of this recommendation will be achieved through discussions among Manitoba Conservation, City, and Canada.

Recommendation: A cooperative, cost-shared environmental research and monitoring program involving the City of Winnipeg, Province of Manitoba, and the federal government should be established for the Red and Assiniboine rivers and Lake Winnipeg.

Implementation: Implementation of this recommendation will be achieved through discussions among Manitoba Conservation, City, and Canada. It is anticipated that a workshop will be convened with key representatives to identify what is required, what is presently being done, identify gaps, then agree on a plan to cooperatively address research and monitoring gaps.