Agenda – Executive Policy Committee - September 21, 2006

REPORTS

Item No. 6 **South End Water Pollution Control Centre Upgrading and Expansion Project**
File WS-7.3

STANDING COMMITTEE RECOMMENDATION:

On September 12, 2006, the Standing Committee on Fiscal Issues recommended that the South End Water Pollution Control Centre (SEWPCC) Upgrading and Expansion Project be forwarded to the Executive Policy Committee to consider alternative project delivery methods that might be more economical.

DECISION MAKING HISTORY:

STANDING COMMITTEE RECOMMENDATION:

On September 12, 2006, the Standing Committee on Fiscal Issues concurred in the administrative recommendation and received the report dated September 5, 2006 as information.

STANDING COMMITTEE RECOMMENDATION:

On September 12, 2006, the Standing Committee on Fiscal Issues recommended that the South End Water Pollution Control Centre (SEWPCC) Upgrading and Expansion Project be forwarded to the Executive Policy Committee to consider alternative project delivery methods that might be more economical.

RE: SOUTH END WATER POLLUTION CONTROL CENTRE (SEWPCC) UPGRADING & EXPANSION FINANCIAL STATUS REPORT NO. 3 FOR THE PERIOD FROM APRIL 1, 2006 TO JULY 31, 2006

FOR SUBMISSION TO: THE STANDING COMMITTEE ON FISCAL ISSUES

ORIGINAL REPORT SIGNED BY: Barry D. MacBride, P.Eng.
Water and Waste Department

REPORT DATE: September 5, 2006

RECOMMENDATION(S): That this report be received as information.

REPORT SUMMARY

KEY ISSUES:

- This project is necessary to meet the conditions of an Environment Act License issued by Manitoba Conservation on March 3rd, 2006 that include:
  - Year round effluent disinfection
  - Effluent limits for nitrogen and phosphorous
  - Completed construction and commissioning by December 31, 2012.

- This project is also necessary to provide additional wastewater treatment capacity to accommodate growth in the catchment area of the SEWPCC that services South Winnipeg. The current plant is almost operating at its capacity of 60 ML/d and needs to be expanded to 70 ML/d based on a 25-year population projection.

- The most recent cost estimates for this project indicate that the estimated cost has risen to over $200 Million from the previous estimate of $124.46 Million. Reasons for this include additional project scope definition resulting from preliminary engineering assessments, and cost escalations due to a highly active construction industry in Western Canada since 2004. The additional scope items include, pumping, screening, grit removal, primary clarification, wet weather treatment, disinfection, outfall piping, and associated site works. At the completion of preliminary design in October 2006, the scope of associated work will be more developed, and a more accurate project budget estimate will be prepared. It is expected that project scope and budget will be revised and refined as engineering progresses through its design stages.
- The cost estimates are very preliminary at this time as it is difficult to provide an accurate cost estimate for construction work that will take place 3 to 4 years from now.

IMPLICATIONS OF THE RECOMMENDATION(S):

General Implications

X	None
	For the organization overall and/or for other departments
	For the community and/or organizations external to the City of Winnipeg
	Involves a multi-year contract

Comment(s):

Policy Implications

X	No
	Yes – Comment(s):

Regulatory Implications

X	None
	Eliminates or reduces regulatory impact
	Proposes regulatory impact

Environmental Implications

X	None
	Yes – Comment(s): The project will improve effluent quality and further protect the water quality and aquatic environments of the Red River and Lake Winnipeg.

Human Resources Implications

X	None
	Yes – Comment(s): Additional staffing will be required as the project nears completion

Financial Implications

X	Within approved current and/or capital budget
	Current and/or capital budget adjustment required

Comment(s): Approved Capital Funding for this project is in the amount of $4,250,000. There is a requirement for future approvals of an estimated amount of $199,000,000 in future Capital Budgets to complete funding for the project.

REPORT

REASON FOR THE REPORT:

At its meeting held on December 16, 1999, City Council adopted a policy whereby all Capital projects with a total estimated cost of $10 million or more be submitted by the associated Civic Department to the Standing Committee on Fiscal Issues for review and recommendation prior to any bid solicitation being issued.

HISTORY:

2001 February	Council adopted the 2001 Capital Budget. Contained in this Capital Budget were funds in the amount of $200,000 for the Capacity Study / Preliminary Engineering - SEWPCC.
2002 February	Council adopted the 2002 Capital Budget. Relevant projects and budget amounts approved in the 2002 Capital Budget are: Primary Clarifier Expansion – South End Water Pollution Control Centre (SEWPCC) ($250,000); High River Level (Flood) Protection – SEWPCC ($300,000) and Capacity Study/ Preliminary Engineering – SEWPCC ($300,000).
2003 December	Council adopted the 2004 Capital Budget. Contained in this Capital Budget were funds in the amount of $600,000 for the Capacity Study / Preliminary Engineering - SEWPCC.
2004 December	Council adopted the 2005 Capital Budget and 2006 to 2010 Five- Year Forecast. Contained in the Capital Budget were funds in the amount of $1,600,000 for the Capacity Study/ Preliminary Engineering – SEWPCC.
2006 February	Council adopted the 2006 Capital Budget and the 2007 to 2011 Five Year Forecast. The relevant project and budget amount approved in the 2006 Capital Budget is: • Capacity Study Preliminary Engineering – SEWPCC ($1,000,000) The relevant projects and budget amounts contained in the 2007 to 2011 Five Year Forecast

are:

- 2007, 2009 and 2010 – Nutrient Removal – SEWPCC ($93,610,000)
- 2007 and 2008 – SEWPCC Expansion ($23,700,000)
- 2007 and 2008 – High River Level Flood Protection – SEWPCC ($2,900,000)

2006 April 11 — Financial Status Report #2 was received as information at the Standing Policy Committee on Fiscal Issues.

DISCUSSION:

MAJOR CAPITAL PROJECT STEERING COMMITTEE

Administrative policy for projects with capital cost exceeding $10 million requires formation of Major Capital Project Steering Committee. The Committee has been formed and its members are:

- Barry D. MacBride – Director, Water and Waste and Chair
- Mike Ruta - Corporate Controller
- Bill Larkin – Director, Public Works
- Harry Finnigan – Director, Planning Property and Development

The Committee has reviewed this report and recommended that the report be sent to Fiscal Issues Committee.

DESCRIPTION OF PROJECT

An Environment Act License No. 2716 for the SEWPCC was issued by Manitoba Conservation on March 3, 2006. The completion date of December 31, 2012 is specified in the license. The upgrading at the SEWPCC is to include the reduction of nitrogen, phosphorous, biochemical oxygen demand, and total suspended solids from the SEWPCC effluent as well as the inclusion of year-round effluent disinfection.

Additionally, expansion of the SEWPCC treatment capacity will be required to accommodate population growth in the service area of the SEWPCC. The license specifies flow and loading limits to the SEWPCC that will eventually be exceeded as increased development occurs within the plant's contributing service area. Therefore future growth will be taken into consideration for the SEWPCC upgrade.

RISKS AND RISK MITIGATION STRATEGIES

A formal risk analysis of the project has yet to be undertaken. The analysis will take place at the conclusion of the conceptual engineering stage.

The major risk at this time is the project budget requirement. The current budget estimate for the total upgrading and expansion project at the SEWPCC is approximately $200 million. There is a large uncertainty in this budget estimate because it is based on early conceptual engineering evaluations and will evolve as additional engineering assessment and design takes place. At the completion of preliminary engineering (October 2006), the treatment process options and capacity of the facility will be more defined and permit the scope of the associated work to be better developed. The budget estimate will be revised based on this new information and construction market trends.

In addition to the budget scope being refined, the active construction market will have a significant impact on the project cost. Although completion is not scheduled until 2012, construction is expected to start in 2009. Surveys of local construction market indicate high activity for at least the next five years. The Department and

the consultant team will be monitoring market conditions to determine project delivery methods that will minimize cost impacts.

CHANGES FROM LAST REPORT

The increase in project costs due to construction cost escalation and additional project scope definition based on early preliminary engineering assessments are the notable changes since the last report. Early estimates indicate that project budget requirements could exceed the current budget allocation by more than $80 Million. The following provides the changes since the last report:

- The consultant has started work on the preliminary engineering, and prepared the following technical memorandums:
  - BNR Process Options
  - Early Opinion of Probable Cost
  - Populations and Flow Projections
  - Influent Characterization
  - Cost Comparisons of Alternative Levels of Treatment
- These reports have confirmed that:
  - Capacity needs to be expanded to treat additional flows from population growth within the service area.
  - Project scope must be expanded to include pumping, screening, grit removal, primary clarification, disinfection, outfall piping, and associated site works.
  - 100% of the flow received at the plant must be treated rather than by-passing during peak wet weather flows as currently practiced.
  - Estimated budget needs to be increased for construction escalation and additional scope reasons.

ISSUES/RISKS REQUIRING FURTHER ATTENTION

a) Licence requirements and design conditions

There are significant implications associated with Manitoba Conservation's license requirements that contain "not to exceed" limits on biochemical oxygen demand (BOD) and total suspended solids (TSS). These not to exceed limits are much more stringent than more widely accepted limits based on monthly averages used in other jurisdictions. To meet the not to exceed limits at all times, a larger facility must be constructed than that required to meet the monthly average limits. These license requirements have to potential to significantly increase the cost of the proposed SEWPCC project. The Department will undertake discussions with Manitoba Conservation to have the BOD and TSS limits based on a 30-day rolling average basis, consistent with the averaging basis used for compliance with nitrogen and phosphorus effluent limits set forth in the Environment Act Licence for this plant.

b) Collection system investigations

The Department is currently undertaking an Inflow and Infiltration (I&I) Study for the SEWPCC service area under a separate assignment. Extraneous inflows entering the collection and conveyance systems during snow melt and rainfall conditions result in large episodic peak flows to the SEWPCC. Aside from stressing the sewer systems, these large and intense peak flows require additional wet weather treatment capacity to comply with Environment Act Licence conditions. The primary goal of the I&I Study is to find and reduce these extraneous flows where possible and cost effective. Reduction of extraneous flows may reduce the capacity required at the SEWPCC for wet weather treatment and the overall expansion and upgrade costs.

c) Cost Risks

The total estimated project cost is $203.25, which includes $32 million for future construction costs escalations from 2006 until the project is constructed and commissioned in December 2012. Cost

uncertainty is likely the order of - 35% to +50% and is typical at this early stage of engineering assessment. The budget estimates are very preliminary and will be subject to change based on revised estimates as engineering work progresses. Alternative project delivery mechanisms will need to be investigated in the future, including such options as Private Public Partnerships opportunities.

d) Canadian Strategic Infrastructure Funding (CSIF).

The Department is currently in process of developing the contribution agreement with Canada and Manitoba. In addition, an Environmental Assessment of the project components is being undertaken in accordance with the Canadian Environmental Assessment Act which will include public communication elements. Actual funding will not flow until both the Contribution Agreement and the Environmental Assessment are completed which are expected to be completed by the end of 2006.

FINANCIAL ANALYSIS

Financial analysis of tenders is not applicable at this stage in the project. No tenders have been issued, only the assignment of the preliminary and conceptual engineering phases, plus scope changes, of the total project have been awarded in the amount of $3.35 million. Further tender packages will depend on evaluation of project delivery options.

Project funding

The approved capital and projected budget deficit are as follows:

PROJECT FUNDING

Year	Capital Program	Actual + Projected Cashflows	Cumulative Capital Budget Remaining
Up to [1] 2005	3,250,000	720,326	2,529,674
[1] 2006	1,000,000	1,969,674	1,560,000
[1] 2007	11,400,000	8,560,000	4,400,000
[1] 2008	22,800,000	4,000,000	23,200,000
[1] 2009	34,488,000	50,000,000	7,688,000
[1] 2010	51,522,000	73,000,000	(13,790,000)
2011		64,000,000	(77,790,000)
2012	-	1,000,000	(78,790,000)
Total	124,460,000	203,250,000	(78,790,000)

[1] Capital Budget approved by Council

[2] Program requirements approved by Council and included in the 2006 Capital Budget

[3] Program requirements approved by Council and included in the 2007 Capital Budget

A summary of the budget to forecast comparison is contained in Appendix 1.

FINANCIAL IMPACT:

As this report is submitted for informational purposes only, there is no financial impact associated with this recommendation.

Manager of Finance & Administration

IN PREPARING THIS REPORT THERE WAS:

Internal Consultation With and Concurrence By: not applicable

External Consultation with: N/A

THIS REPORT SUBMITTED BY:

Department: Water and Waste
Division: Engineering
Prepared by: A.H. Permut, P. Eng., and N. T. Szoke, P. Eng.
File No.: 020-17-08-25-01

APPENDIX 1
CAPITAL PROGRAM in $ 000's
As of July 31, 2006

Project Component		Capital Budget	Capital Expenditure Forecast									Surplus (Deficit)	Variance Last	Change in Variance
			Actual Costs	Projected Costs							Total			
		Original	To July 31, 2006	2006	2007	2008	2009	2010	2011	2012	Forecast	From Revised Budget	Report	
A	Prelim/Concept Engineering	$ 3,250	$ 720	$ 1,970	$ 560						$ 3,250	$ -		$ -
B	Functional/Detailed Design	$ 8,780			8,000	4,000	3,400				15,400	$ (6,620)		(6,620)
C	Contract Admin/Commission	$ 7,100					3,400	4,800	3,400	1,000	12,600	(5,500)		(5,500)
D	Nutrient Removal Upgrade	$ 82,530					13,200	60,950	60,600		134,750	(52,220)		(52,220)
E	Expansion & Flood Protection	$ 22,800					30,000	7,250			37,250	(14,450)		(14,450)
		$ 124,460	$ 720	$ 1,970	$ 8,560	$ 4,000	$ 50,000	$ 73,000	$ 64,000	$ 1,000	$ 203,250	$ (78,790)	$ -	$ (78,790)

Notes: