

**Minutes - Standing Policy Committee on Infrastructure Renewal and Public Works -
September 12, 2006**

REPORTS

**Minute No. 161 West End Water Pollution Control Centre (WEWPCC) Process
Upgrading: Biological Nutrient Removal (BNR) and Disinfection
System Enhancements Financial Status Report No. 6 for the Period
from February 1, 2006 to July 31, 2006
File WS-7**

STANDING COMMITTEE DECISION:

The Standing Policy Committee on Infrastructure Renewal and Public Works concurred in the administrative recommendation and received the matter as information.

**Minutes - Standing Policy Committee on Infrastructure Renewal and Public Works -
September 12, 2006**

DECISION MAKING HISTORY:

Moved by Councillor Thomas,

That the administrative recommendation be concurred in.

Carried

RE: WEST END WATER POLLUTION CONTROL CENTRE (WEWPCC) PROCESS UPGRADING: BIOLOGICAL NUTRIENT REMOVAL (BNR) AND DISINFECTION SYSTEM ENHANCEMENTS FINANCIAL STATUS REPORT NO. 6 FOR THE PERIOD FROM FEBRUARY 1, 2006 TO JULY 31, 2006

FOR SUBMISSION TO: THE STANDING COMMITTEE ON FISCAL ISSUES AND
THE STANDING POLICY COMMITTEE ON
INFRASTRUCTURE RENEWAL AND PUBLIC WORKS

ORIGINAL REPORT SIGNED BY: Barry D. MacBride, P. Eng.

REPORT DATE: September 5, 2006

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

REPORT SUMMARY

KEY ISSUES:

- Manitoba Conservation issued Environment Act Licence No. 2669 on September 3, 2004, revised Environment Act Licence No. 2669 E on April 12, 2005 and revised Environment Act Licence No. 2669 ER on August 17, 2005, for the West End Water Pollution Control Center.
- This project is necessary to meet the following requirements of this licence.
 - year round effluent disinfection
 - new effluent limits for nitrogen and phosphorous
 - complete the construction and commissioning of the upgraded wastewater plant by December 31, 2006
- Tenders for the BNR Upgrade have closed and an award is being recommended to the Standing Policy Committee on Infrastructure Renewal and Public Works by separate report.
- The project will not be completed by December 31, 2006. The tendering of the Ultraviolet (UV) Disinfection Facility has been postponed. Completion of the BNR facility is expected to be October 2008, which is 22 months beyond the date specified in the licence.
- A request for an extension of the completion deadline will be filed with Manitoba Conservation following award of the BNR construction contract.
- The delay in tendering of the UV disinfection facility creates a risk for non-compliance with the licence. This risk is considered acceptable given ongoing testing of an alternate strategy to comply with the licence.

IMPLICATIONS OF THE RECOMMENDATION(S):

General Implications

- 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

- No
- Yes - Comment(s):

Regulatory Implications

- None
- Eliminates or reduces regulatory impact
- Proposes regulatory impact

Comment(s):

Environmental Implications

- None
- Yes

Comment(s): Nutrient reduction at the WEWPCC, in concert with reduction of nitrogen and phosphorus at the NEWPCC in the centrate sidestream, will meet the interim nutrient reduction targets established for Lake Winnipeg by the Province in February 2003.

Human Resources Implications

- No
- Yes

Comment(s): Additional staff will be required to operate and maintain the expanded facility.

Financial Implications

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

Comment(s): This report identifies a projected funding shortfall of \$3.038 million. The estimated shortfall has been submitted in the 2007 Capital Budget. UV disinfection funds are available for projected construction contingencies.

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:

- 1993 On February 24, Council approved the 1993 Capital Budget that included \$250,000 for disinfection. This capital was carried forward and re-approved by Council in the 2000 Supplementary Capital Estimates.
- 2003 On December 16, Council adopted the 2004 Capital Budget that included \$6,102,000.00 for Nutrient Removal - WEWPCC and \$3,398,000.00 for Wastewater Disinfection - WEWPCC.
- 2004 On December 13, Council adopted the 2005 Capital Budget and that included \$16,200,000.00 for Nutrient Removal - WEWPCC.
- 2006 On March 22, Council approved a recommendation for the transfer of surplus cash flow forecasted funds of \$6,015,000.00 from the NEWPCC Outfall Capacity and Flood Protection Upgrade Project to the WEWPCC Biological Nutrient Removal and Disinfection Projects.
- 2006 On April 11, the Standing Committee on Fiscal Issues received as information Financial Status Report No. 5 for the WEWPCC Process Upgrading: Biological Nutrient Removal and Disinfection System Enhancements.

DISCUSSION:

MAJOR CAPITAL PROJECTS STEERING COMMITTEE

Administrative policy for projects with capital costs exceeding \$10 million requires the formation of a Major Capital Projects Committee. This committee has been formed and its members are as follows:

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

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

DESCRIPTION OF PROJECT

The intent of this project is to upgrade the existing WEWPC to meet the effluent limits set out in Manitoba Conservation Environment Act Licence No. 2669 ER. This is to be achieved by modifying the current secondary processes to achieve Biological Nutrient Removal (BNR) and year round disinfection.

As part of the BNR upgrade the project work includes the following new installations:

- Two Dissolved Air Flotation (DAF) thickeners.
- Two polymer makeup systems
- Two primary sludge fermenters with covers
- One secondary clarifier with mechanism and cover
- One thermal oxidizer odour control system;

And the following renovations:

- Two existing aeration tanks to reconfigure as BNR bioreactors including aeration equipment, new internal walls and a new electrical room
- Replacement of the mechanisms of two existing secondary clarifiers with new mechanisms.
- Upgrade to electrical supply system and services, to the distributed control systems (DCS) and the HVAC systems.

To achieve year round disinfection, a new UV disinfection facility has been designed as part of this project. However, we have met the licence requirements 12 out of the last 14 months by continuing the current operating practice of routing plant effluent through the existing WEWPC ponds, with only slightly elevated results in January and March. Therefore the department is reviewing operating strategies and less costly upgrade options to meet the year-round limits with the objective of eliminating the need for the UV facility.

The schedules for the construction phases of the project revised as of July 31, 2006 are listed in the table below:

DESCRIPTION	START	COMPLETION
UV Disinfection Facility	On-Hold	
BNR Upgrade Facilities	September 2006	July 2008
BNR Upgrade Commissioning	August 2008	October 2008

RISK & RISK MITIGATION STRATEGIES

Risk management services during the course of the project were contracted with CSC Project Management Services with the last Risk Analysis update being completed in December 2005.

Current risk mitigating activities include:

- Continuous budget and forecast monitoring.
- Constant communication with consultant and contractors to keep abreast of new and developing issues/risks.
- Identifying, planning and reacting to opportunities and threats to the project cost and schedule.

In addition, an itemized list of risks identified by the Project team has recently been reviewed and updated. This list identifies specific actions, accountabilities, and target completion dates. This system will ensure that the risks are being managed and cleared and will also accommodate any new risk items and appropriate action steps required.

In an effort to mitigate rising construction costs due to labour shortages and on the advice of general contractors, the overall project construction schedule was extended by an additional 4 months. In addition, to mitigate the affects of an active construction market and to ensure competitive bidding, the bid close date was extended to accommodate bidders.

CHANGES FROM LAST REPORT

- The BNR upgrade design was completed and issued for tender April 26, 2006 as Bid Opportunity No. 21-2006.
- Bid Opportunity No. 21-2006 closed July 21, 2006 and the following bids were received:
 - Bird Construction Company \$25,190,105
 - M.D. Steele Construction Ltd. \$26,676,182
 - PCL Constructors Canada Inc. \$26,700,000
 - Pre-tender Estimate \$21,400,000
- Award of the construction contract to the low bidder, Bird Construction, will be recommended to the Standing Policy Committee on Infrastructure Renewal and Public Works on September 12, 2006.
- The tendering and construction of the Disinfection Facility is still on hold. The department is reviewing operating strategies and less costly upgrade options to meet the year-round limits with the objective of eliminating the need for the UV facility.

ISSUES/RISKS REQUIRING FURTHER ATTENTION

a) UV Disinfection

The design of the UV disinfection facility is complete and can be put out for bids on short notice. Should it be determined that the pond operation is not suitable to meet coliform effluent limits specified by the Licence, the WEWPCC operation would not be in full compliance until a UV disinfection facility is built.

With the anticipated award of the BNR Contract at the higher bid amount, there will not be sufficient funds available if it is determined that a UV Disinfection facility is required. Therefore additional capital funds have been requested for 2007 to cover the projected deficit.

b) Schedule

The overall project is expected to be complete October 2008. This is 9 months later than the last report and 22 months later than the date stipulated in Environment Act Licence No. 2669 ER for the WEWPCC. The additional 9 months in schedule growth was driven by engineering design duration, cost mitigation, and the effect of the Water Treatment Bid Opportunity on the General Contractor's ability to bid this contract. The Water and Waste Department has been dialoguing with the province with regards to not achieving the dates stipulated in the licence. An official request to extend the compliance dates will be made to Manitoba Conservation once the construction contract is awarded.

c) Canada Strategic Infrastructure Funding

The Department is currently in the 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 is anticipated to be done by the end of 2006.

d) Construction

A full time Consultant Contract Administrator will be on-site for the duration of construction and commissioning. Earth Tech has developed and will be implementing an administration manual to address the following requirements:

- Pre-construction meetings
- Review meetings
- Change orders
- Progress payments
- Quality control
- Contractor submittals
- Site memos
- Communication protocol
- Shop drawing processing procedure

To ensure fiscal control, any construction change will be administered through the Contemplated Change Notice and Contract Change Order process with appropriate approvals required before work is authorized.

Weekly site meetings will also be held and minuted by Earth Tech and attended by Bird Construction Company, major subcontractors, and City personnel.

FINANCIAL ANALYSIS

Tenders issued and pending as of the date of this report are as follows. No additional tenders are anticipated at this time.

TENDERS ISSUED

Tender Number	Issued to	Description	Budget	Tender Price	\$ Variance	% Variance
602-2005	ABS Pumps Corp	Aeration Equip Supply	213,075	213,075	-	0.0%
21-2006	Bird Construction Co	BNR Upgrade	19,388,180	25,190,105	5,801,925	29.9%
	Total		19,601,255	25,403,180	5,801,925	29.6%

TENDERS TO BE ISSUED

Estimated Date of issue	Description	Budget
Unknown	UV Facility	2,704,520
Total		2,704,520

Total Tendered Amount & Un-issued Pre-tender Estimate	\$ 22,305,775
Items Not Issued by Tender	3,914,225
Increase in Budget as Approved by Council	6,015,000
Increase in Budget tabled in 2007 Capital Budget	3,038,000
Total Budget	<u><u>\$ 35,273,000</u></u>

Project Funding

The approved capital and projected budget deficit are as follows:

PROJECT FUNDING

Year	Approved Capital	Actual + Projected Cashflows	Cumulative Capital Budget Remaining
Up to			
2003	520	-	520
2004	9,500	34	9,986
2005	16,200	1,580	24,606
(1) 2006	6,015	4,331	26,290
2007	-	18,816	7,474
(2) 2008	-	10,512	(3,038)
Total	32,235	35,273	(3,038)

- (1) Council approved transfer of funds from other projects
(2) Submitted in the 2007 Capital Budget
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Financial Analysis

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

Internal Consultation With and Concurrence By: N/A

External Consultation with: N/A

THIS REPORT SUBMITTED BY:

Water and Waste Department
Engineering Division
Prepared by: J. Veilleux, P. Eng.
File No. S-596-100-03

**APPENDIX 1
CAPITAL PROGRAM
As of July 31, 2006**

Project Component	Capital Budget				Capital Expenditure Forecast					Surplus (Deficit) From Revised Budget ³	Variance Last Report	Change in Variance ³
					Actual Costs		Projected Costs					
	Original ¹	Council Approved Change - March 22, 2006 ²		Revised	To July 31, 2006	2006	2007	2008	Forecast			
A Conceptual Engineering	\$ 724,500	\$ -	\$ -	\$ 724,500	\$ 720,130	\$ 4,370	\$ -	\$ -	\$ 724,500	\$ -	\$ -	\$ -
B Detailed Engineering	1,842,800	-	-	1,842,800	1,429,632	413,168	-	-	1,842,800	-	-	-
C Contract Admin/Commissioning	1,330,000	-	-	1,330,000	3,020	256,980	751,350	361,170	1,372,520	(42,520)	-	(42,520)
D UV Disinfection Facilities⁴	2,704,520	-	-	2,704,520	-	-	2,850,000	2,850,000	5,700,000	(2,995,480)	-	(2,995,480)
E Nutrient Removal Facilities	19,388,180	6,015,000	-	25,403,180	-	2,888,000	15,214,500	7,300,680	25,403,180	-	-	-
F Permits, COC Insurance, Misc.	230,000	-	-	230,000	3,965	226,035	-	-	230,000	-	-	-
	\$ 26,220,000	\$ 6,015,000	\$ -	\$ 32,235,000	\$ 2,156,747	\$ 3,788,553	\$ 18,815,850	\$ 10,511,850	\$ 35,273,000	\$ (3,038,000)	\$ -	\$ (3,038,000)

Notes:

¹ Council approval for total budget of \$26.22 million. Distribution of component costs have been estimated by Water and Waste Department.

² Transfer of Funds

³ Variance from budget due to increased capital costs

⁴ UV Disinfection included for forecast purposes but project may be delayed or deleted