

**Minutes – Standing Policy Committee on Finance – July 6, 2015**

**REPORTS**

**Item No. 6                      Water Supervisory Control And Data Acquisition (SCADA) Upgrade  
Financial Status Report No. 2 for the Period from February 1, 2015  
to April 30, 2015**

**STANDING COMMITTEE DECISION:**

The Standing Policy Committee on Finance concurred in the recommendation of the Winnipeg Public Service as follows:

1.        That the report be received as information.
2.        That the next status report be deferred from the currently scheduled October 8, 2015 Standing Policy Committee on Finance to November 26, 2015 as there is not expected to be significant change in the project status during the currently scheduled reporting period.

**Minutes – Standing Policy Committee on Finance – July 6, 2015**

DECISION MAKING HISTORY:

Moved by Councillor Gillingham,

That the recommendation of the Winnipeg Public Service be concurred in.

Carried

## ADMINISTRATIVE REPORT

**Title:** WATER SUPERVISORY CONTROL AND DATA ACQUISITION (SCADA) UPGRADE FINANCIAL STATUS REPORT NO. 2 FOR THE PERIOD FROM FEBRUARY 1, 2015 TO APRIL 30, 2015

**Critical Path:** THE STANDING POLICY COMMITTEE ON FINANCE

### AUTHORIZATION

Author	Department Head	CFO	CAO
G. K. Patton, P. Eng. Manager of Engineering Services	C. W. Carroll, P. Eng. Acting Director, Water and Waste Department	M. Ruta, CFO	D. McNeil, CAO

### RECOMMENDATIONS

1. That this report be received as information.
2. That the next status report be deferred from the currently scheduled October 8, 2015 Standing Policy Committee on Finance to November 26, 2015 as there is not expected to be significant change in the project status during the currently scheduled reporting period.

### REASON FOR THE REPORT

Administrative Directive No. FM-004 requires quarterly reporting to the Standing Committee on Finance.

### EXECUTIVE SUMMARY

This report is to provide a quarterly update on the status of the Water Supervisory Control and Data Acquisition (SCADA) Upgrade Project. This capital project is financed from the approved 2014-2015 Capital Budget for Water Supervisory Control and Data Acquisition (SCADA) Upgrades.

### IMPLICATIONS OF THE RECOMMENDATIONS

The proposed Regional Supervisory Control and Data Acquisition (SCADA) upgrade option will depend on the results of the life cycle cost analysis currently underway.

The next report will be deferred by five weeks from the currently scheduled October 8, 2015 Standing Policy Committee on Finance to November 26, 2015. During the next reporting period a request for proposal to engage a consultant for detailed design will be developed. It is not anticipated that this request for proposal will be ready for tender within the next regularly

scheduled reporting period. A return to quarterly reporting will be evaluated at the time of the next report.

## **HISTORY**

### **DISCUSSION:**

#### **1. MAJOR CAPITAL PROJECT STEERING COMMITTEE**

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

Diane Sacher, Director of Water and Waste  
Clive Wightman, Director, Community Services  
Marc Pittet, Acting Director, Planning, Property and Development  
Jason Ruby, Manager of Capital Projects  
Moirra Geer, Manager of Finance and Administration, Water and Waste  
Geoff Patton, Manager of Engineering, Water and Waste  
Rob Carroll, Project Manager, Water and Waste

#### **2. DESCRIPTION OF PROJECT**

The Water Services Division utilizes a Regional SCADA control system to operate, control and monitor processes at the Shoal Lake Intake Facility, regional pumping and booster stations, and the Deacon Chemical Feed Facility. The Regional SCADA provides automated control and visualization of the water supply and distribution system to operators on a 24/7 basis so they can control and monitor these processes. The Regional SCADA system is made up of instrumentation, remote communication equipment and specialized computer hardware with customized software, such as Programmable Logic Controllers (PLCs). The regional pumping and booster stations as well as the water supply intake at Shoal Lake are controlled locally via PLCs and are monitored remotely via the City's Regional SCADA.

The Regional SCADA is comprised of server hardware and software that are approaching end of life. Further, the PLCs at the aforementioned locations have also reached the end of their useful life and are no longer produced by their manufacturer.

The project objective is to upgrade the Regional SCADA and PLCs to ensure timely replacement of end of life hardware and software. The Regional SCADA and PLCs are essential for the supply and distribution of drinking water. The delivery method for the Regional SCADA and PLC upgrade project will likely be design-bid-build, however this will be further evaluated upon the completion of the Regional SCADA life cycle cost analysis.

#### **3. RISKS AND RISK MITIGATION STRATEGIES**

An ongoing risk management strategy has been implemented for the project encompassing a proactive process of identifying and assessing project risk, defining appropriate risk handling strategies and plans, and monitoring those actions to completion.

Formal risk and opportunity analyses of the project are scheduled to be performed by the project team at major milestones as the project progresses.

#### **4. CURRENT PROJECT STATUS**

A preliminary design for the PLC upgrades was completed in 2013. This predesign was undertaken in conjunction with the predesign of power reliability upgrades required at the pumping stations.

The existing Regional SCADA system is a Telvent system whereas the Water Treatment Plant utilizes a Wonderware SCADA system. Two upgrade options for the Regional SCADA system are currently being evaluated as part of the ongoing Regional SCADA Life Cycle Cost Analysis. The first upgrade option would maintain the separate Telvent and Wonderware systems with the Regional SCADA being upgraded to the latest Telvent offering. The second upgrade option being evaluated involves the migration of the existing Regional SCADA Telvent system into the Water Treatment Plant's Wonderware SCADA system. This evaluation will include analysis of support agreements and hardware and software costs over a 25 year period and will recommend an upgrade option. The Life Cycle Cost Analysis report is currently being finalized, however preliminary indications are that migration of the Regional SCADA system to Wonderware is the preferred option. The final report is anticipated to be complete by June 2015.

#### **5. ISSUES/RISKS REQUIRING FURTHER ATTENTION**

##### **Cost Risk**

The cost estimate of \$9 million for engineering and construction for the PLC upgrade work is based on a Class 3 estimate prepared as part of the preliminary design with an expected accuracy range of between -20% to +30%.

The cost estimate of \$3.3 million for the Regional SCADA upgrade is based on a Class 5 cost estimate with an expected accuracy range of between -50% and +100%. The cost estimate for the Regional SCADA upgrade will be refined as part of the life cycle cost analysis currently underway.

It is AACE International accepted practice that cost estimates are adjusted as design progresses.

##### **Schedule**

The PLC upgrades will be undertaken in conjunction with power reliability upgrades required at the pumping stations in order to reduce pumping station shut-down times and potentially reduce design and construction costs. Any design or construction delays related to the power reliability upgrades have the potential to affect the schedule of the PLC upgrades. As station shut downs will only be permitted during periods of low demand and as no more than two stations will be upgraded at one time (to minimize potential risk to the distribution system), design issues can be dealt with in advance of or between station upgrades. Construction issues will be minimized through careful construction planning. Further, lessons learned through the sequential station upgrading will be applied to succeeding upgrades.

## 6. FINANCIAL ANALYSIS

The status of current Requests for Proposal and Bid Opportunities are as follows:

Request for Proposal or Bid Opportunity	Description	Current Status	Contract Value (GST and MRST extra as applicable)
RFP 224-2012	PLC Replacement and Power Reliability Upgrades Preliminary Design	Complete	\$315,562.96
Sole Source Consultant Assignment 307-2012	Equipment Identification Standard and Electrical Design Guide Development	Complete	\$46,947.84
Consultant assignment under \$35,000	Regional SCADA Life Cycle Cost Analysis	Awarded, Ongoing	\$35,000.00

Future major Requests for Proposal and Bid Opportunities are:

- Request for Proposal – Detailed Design, Programming and Contract Administration for PLC, Regional SCADA and Power Reliability Upgrades
- Bid Opportunity – Regional SCADA Upgrade
- Bid Opportunity – PLC and Power Reliability Upgrades (may be split into multiple Bid Opportunities)

### Project funding

The approved capital and 2015 projected budget are as follows:

YEAR	CAPITAL PROGRAM	ACTUAL + PROJECTED CASH FLOWS	CUMULATIVE CAPITAL BUDGET REMAINING
2015 To Date	8,400,000	400,939	7,999,061
Remainder 2015		693,268	7,305,793
2016	3,900,000	6,715,531	4,490,262
2017		1,433,466	3,056,796
2018		929,699	2,127,097
Total Costs Remaining to Complete		2,127,097	0
Total	12,300,000	12,300,000	

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

The Water SCADA upgrade project is funded by retained earnings.

## 7. ANTICIPATED PROGRESS DURING NEXT REPORTING PERIOD

The next stage of the project is to issue and award the Request for Proposal for Detailed Design, Programming and Contract Administration for PLC, Regional SCADA and Power Reliability Upgrades. It is not anticipated that this RFP will be ready for posting by the end of the next regularly scheduled reporting period. It is recommended that the reporting period be extended. The status of this work will be included in the next status report.

## FINANCIAL IMPACT

**Financial Impact Statement**

**Date:**

**June 8, 2015**

**Project Name:**

**WATER SUPERVISORY CONTROL AND DATA ACQUISITION (SCADA) UPGRADE  
FINANCIAL STATUS REPORT NO. 2 FOR THE PERIOD FROM FEBRUARY 1, 2015  
TO APRIL 30, 2015**

**COMMENTS:**

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

"Original signed by M. L. Geer, CA"

Moira L. Geer, C. A.

Manager of Finance and Administration

## CONSULTATION

**In preparing this report there was consultation with:**

N/A

## OURWINNIPEG POLICY ALIGNMENT

This report is in accordance with the OurWinnipeg policies through providing clean, safe, reliable, sustainable drinking water.

OurWinnipeg Reference: City Building

## SUBMITTED BY

Water and Waste Department  
Engineering Services Division  
Prepared by: R. Carroll, P. Eng.  
File No. W-761  
Date: June 29, 2015

**APPENDIX 1**  
**As at April 30, 2015**

Components	COSTS			PROJECTED COSTS TO COMPLETE					TOTAL	VARIANCE	NOTE	
	Approved Budget To Date <sup>1</sup>	Costs submitted this report	Total Costs Incurred to Date ( to April 30, 2015 )	2015	2016	2017	2018	Total Costs Remaining to Complete	Total Project Cost	Variance from Budget ( Unfavourable )		
<b>A PROFESSIONAL SERVICES</b>	5,502,339	\$24,850	\$400,939	\$693,268	\$3,817,870	\$341,466	\$62,199	186,597	0	5,502,339	0	<sup>2</sup>
<b>B CONSTRUCTION</b>	6,797,661	0	0	0	2,897,661	1,092,000	867,500	1,940,500	0	6,797,661	0	
<b>TOTALS</b>	<b>12,300,000</b>	<b>\$24,850</b>	<b>\$400,939</b>	<b>\$693,268</b>	<b>6,715,531</b>	<b>1,433,466</b>	<b>929,699</b>	<b>2,127,097</b>	<b>0</b>	<b>12,300,000</b>	<b>0</b>	

Percentage Complete 3%

<sup>1</sup> Total budget of \$12,300,000 for the Water SCADA Upgrade Project; Distribution of costs to Components A) and B) was done by the Water and Waste Department.

<sup>2</sup> Professional Services include Professional Engineering Services (preliminary design, life cycle cost analysis, detailed design, programming and contract administration), overhead and administration charges.