Agenda – Council – September 28, 2011

Report – Standing Policy Committee on Infrastructure Renewal and Public Works – September 13, 2011

Item No. 3 New Capital Project – Flood Manual Upgrade

On September 21, 2011, the Executive Policy Committee laid the matter over for 30 days.

Report – Standing Policy Committee on Infrastructure Renewal and Public Works – September 13, 2011

DECISION MAKING HISTORY:

EXECUTIVE POLICY COMMITTEE RECOMMENDATION:

The Executive Policy Committee laid the matter over for 30 days.

STANDING COMMITTEE RECOMMENDATION:

On September 13, 2011, the Standing Policy Committee on Infrastructure Renewal and Public Works concurred in the recommendation of the Winnipeg Public Service and submitted the matter to the Executive Policy Committee and Council.

ADMINISTRATIVE REPORT

Title: **FLOOD MANUAL UPGRADE**

Critical Path: **Standing Policy Committee on Infrastructure Renewal and Public Works - Executive Policy Committee - Council**

AUTHORIZATION

Author	Department Head	CFO	CAO
M. Shkolny, P. Eng. Manager of Engineering	B. D. MacBride, P. Eng Director of Water and Waste	M Ruta Chief Financial Officer	D Joshi Chief Operating Officer

RECOMMENDATIONS

1. That the Flood Manual Upgrade project under the Water and Waste – General Capital Fund Land Drainage and Flood Control Service be approved as a new capital project in 2011, outside of the normal Capital Budget process.

2. That funds in the amount of $1,940,000.00 from the Non-Specified Account – Land Drainage (Account No. 003 181000 200652 20700000NS) be utilized to fund the Flood Manual Upgrade project.

3. That the Proper Officers of the City be authorized to do all things necessary to implement the intent of the foregoing.

REASON FOR THE REPORT

Council approval of the proposed Flood Manual Upgrade project as a new capital project outside of the normal process and the project funding source is required.

IMPLICATIONS OF THE RECOMMENDATIONS

Funds in the amount of $1,940,000.00 are available in the Non-Specified Capital Account – Land Drainage

HISTORY

Following the 1997 flood, the City of Winnipeg identified that to improve its ability to promptly and adequately respond to elevated river level events a comprehensive Flood Manual should be developed. The last time that the City had experienced a flood of 1997 magnitude was in 1966 (pre-Floodway) when levels reached 26.2 ft James (in 1997 levels reached 24.5 ft James). Between the completion of the Floodway in 1968 and the 1997 flood, river levels during flood conditions only exceeded 19 ft James Ave on two occasions. Over this 30 year time frame, the City lost the institutional knowledge on what to do during a major flood. A new Flood Manual that captured the knowledge gained from the 1997 flood was viewed as a way to address this issue.

Funding for the development of a new Flood Activity / Emergency Information System was subsequently approved by Council in the 1999, 2000 and 2002 Capital Budgets in the amount of $2,400,000. In 2004 and 2005 there were two approved budget increases and the final budget on the project was $2,564,909.

In 2000, the Water and Waste Department engaged Professional Engineering Services (UMA and KGS) to develop a “state of the art” GIS based Flood Manual. The key component of the Flood Manual is a method to calculate the water level profile on all our rivers for a variety of flow conditions. The entire City’s flood fighting activities such as gate closures, pump activations, sandbag dike erections, etc. are then identified to correspond to the calculated profile.

The new Flood Manual was completed in 2003 and placed into active use in the Spring of 2004. The new Flood Manual has proved itself invaluable in fighting a number of floods since then; during the summer of 2005, spring of 2006, and the flood of 2009 which was further complicated by ice conditions. In each case the rivers rose quickly and the City had limited lead time to mobilize its flood fighting efforts.

The new Flood Manual is a “living” document that is updated annually by our Flood Manual consultants based on changes in the City’s flood protection systems. These updates typically include pump placements, new gate chambers to isolate our sewer systems from the river, new secondary or primary dikes and general operational knowledge that necessitate refinements to the Flood Manual.

In 2010, a new capital project for a significant upgrade the City’s Flood Manual was added to the 5-year capital budget for the years 2014 and 2015. The upgrade is required because the upper limit of the Flood Manual is the City’s legislated flood protection level, a level just slightly greater than the level experienced in 1997. Through consultation with the Province and review of the Floodway operating rules the City expects that it will experience river levels in excess of 1997 flood levels for floods of a 1:150 year magnitude even with the expanded Floodway. Therefore the City needs to raise the upper limit of the Flood Manual to identify the additional flood fighting activities required at high river levels.

Another reason for a major upgrade to the Flood Manual is that the programming language that runs the Flood Manual is outdated and is no longer supported by Microsoft and requires updating to City Information Technology standards. As per Administrative Standards related to Information Technology acquisition, the department is preparing an “Information Systems Business Case” that will outline the business rationale for the proposed software solutions.

Last December provincial forecasters were expecting an upper decile flood that was at the upper limit of the Flood Manual. Working with our Flood Manual consultants the Public Service was assessing

what would be required if we exceeded the upper limit level in the Flood Manual and contingency plans were put into place. The City was fortunate that there were no major precipitation events in April and snowmelt was gradual such that the City only experienced a more manageable flood event this year.

To capture the flood planning work that was done this winter the Public Service is proposing to advance the upgrade of the Flood Manual from 2014 to commence in 2011 such that updates will be largely completed for the Spring 2014. Further with the continued wet weather cycle, the probability of extreme events like 1997 or greater dictate that the Flood Manual update be given a higher priority such that its upper range of functionality is expanded sooner.

The estimated cost of the project is $1,940,000. Included in this cost is: Flood Manual software and programming upgrades - $440,000; elevation data through Light Detection and Ranging (LiDAR) coverage of the City and construction of contour maps along rivers within City boundaries - $200,000; detailed engineering analysis and planning to prescribe the various flood fighting tasks at a higher upper flood level elevation in the Flood Manual - $1,100,000, and contingencies - $200,000.

The benefits of completing the work at this time are:

- An upgraded Flood Manual that runs on the latest computer software.
- A Flood Manual that has a higher upper limit to prescribe the flood fighting activities that need to be done for floods greater than a 1997 flood
- There is no certainty when the next large flood greater than a 1997 flood will occur, the City is vulnerable until the Flood Manual is updated; undertaking this work sooner reduces the City's overall flood risk.

The City's state-of-the-art Flood Manual has visibly demonstrated its worth to the citizens of Winnipeg since going into operation in 2004 the proposed upgrade will improve on this readiness and provide a higher level of flood fighting knowledge to the City.

The financial status of the Non-Specified Capital Account – Land Drainage.

Authorized Capital		$1,940,462.00
Amount of Previous Awards Or Expenditures	$ 0.00	
Amount of this Recommendation	$1,940,000.00	
Total Estimated Cost	$1,940,000.00	$1,940,000.00
Estimated Residual for Remaining Projects		$ 462.00

FINANCIAL IMPACT

Financial Impact Statement

Date: August 5, 2011

Project Name:
FLOOD MANUAL UPGRADE

First Year of Program **2011**

	2011	2012	2013	2014	2015
Capital					
Capital Expenditures Required	$ 1,940,000	$ -	$ -	$ -	$ -
Less: Existing Budgeted Costs	1,940,000	-	-	-	-
Additional Capital Budget Required	$ -	$ -	$ -	$ -	$ -
Funding Sources:					
Debt - Internal	$ -	$ -	$ -	$ -	$ -
Debt - External	-	-	-	-	-
Grants (Enter Description Here)	-	-	-	-	-
Reserves, Equity, Surplus	-	-	-	-	-
Other - Enter Description Here	-	-	-	-	-
Total Funding	$ -	$ -	$ -	$ -	$ -
Total Additional Capital Budget Required	$ -				
Total Additional Debt Required	$ -				
Current Expenditures/Revenues					
Direct Costs	$ -	$ -	$ -	$ -	$ -
Less: Incremental Revenue/Recovery	-	-	-	-	-
Net Cost/(Benefit)	$ -	$ -	$ -	$ -	$ -
Less: Existing Budget Amounts	-	-	-	-	-
Net Budget Adjustment Required	$ -	$ -	$ -	$ -	$ -

Additional Comments: Funds recommended for transfer are available in the Land Drainage Non-Specified capital account.

"Original signed by Lucy Szkwarek, C.G.A."
Lucy Szkwarek, C.G.A.
Acting Manager of Finance and Administration

gp
5-Aug-01

CONSULTATION

In preparing this report there was consultation with:

Corporate Support Services

SUBMITTED BY

Water and Waste Department
Engineering Division
Prepared by: G. Mohr, P.Eng.
Date: August 22, 2011
File No.: 020-08-09-09-00

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