Minute No. 763
Report - Standing Policy Committee on Public Works - October 11, 2005

Item No. 1 **Grant to Lake Winnipeg Research Consortium for 2005, 2006 and 2007**
File FG

COUNCIL DECISION:

Council concurred in the recommendation of the Standing Policy Committee on Public Works and adopted the following:

1. That a grant to the Lake Winnipeg Research Consortium (LWRC) be approved in 2005 in the amount of $50,000.00 and that subsequent grants of $50,000.00 in each of the years 2006 and 2007 be approved subject to adoption of the annual Operating Budget in those years.

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

Report - Standing Policy Committee on Public Works - October 11, 2005

DECISION MAKING HISTORY:

Moved by Councillor Eadie,

That the recommendation of the Standing Policy Committee on Public Works be adopted by consent.

Carried

EXECUTIVE POLICY COMMITTEE RECOMMENDATION:

On October 19, 2005, the Executive Policy Committee concurred in the recommendation of the Standing Policy Committee on Public Works and submitted the matter to Council:

STANDING COMMITTEE RECOMMENDATION:

On October 11, 2005, the Standing Policy Committee on Public Works concurred in the administrative recommendation and submitted the matter to the Executive Policy Committee and Council.

RE: GRANT TO LAKE WINNIPEG RESEARCH CONSORTIUM (LWRC) FOR 2005, 2006 AND 2007.

FOR SUBMISSION TO: Standing Policy Committee on Public Works

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

REPORT DATE: August 30, 2005

RECOMMENDATION(S):

1. That a grant to the Lake Winnipeg Research Consortium (LWRC) be approved in 2005 in the amount of $50,000 and that subsequent grants of $50,000 in each of the years 2006 and 2007 be approved subject to adoption of annual Current Estimates in those years.

REPORT SUMMARY

KEY ISSUES: Grants to outside organizations require Council approval.

IMPLICATIONS OF THE RECOMMENDATION(S):

General Implications

	None
X	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): By providing financial support to Lake Winnipeg Research Consortium (LWRC), the City organization will benefit from the knowledge gained from scientific research conducted on Lake Winnipeg. Other organizations supported by the City, such as the Lake Winnipeg Stewardship Board and the Red River Basin Commission, will also benefit from applied research to support the development of scientifically sustainable actions within the watershed to protect the health of Lake Winnipeg.

Policy Implications

X	No
	Yes – Comment(s):

Environmental Implications

	None
X	Yes – Comment(s): Scientific research conducted on Lake Winnipeg will provide important information on the influence of land management practices and hydrology on water quality dynamics that are relevant to the planned major capital projects associated with biological nutrient removal at the City's three wastewater treatment plants.

Human Resources Implications

X	No
	Yes – Comment(s):

Financial Implications

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

Comment(s): Funding will come from the Sewer Utility Operating Budget.

REPORT

REASON FOR THE REPORT:

Grants to outside organizations require Council approval.

HISTORY:

- In August 2001, the Lake Winnipeg Research Consortium (LWRC) was incorporated and includes participants from academic, federal, provincial and private agencies.
- On September 21, 2001, the Canada/Manitoba Economic Development Partnership Agreement announced funding in the amount of $326,000 to support repairs and capital investment the Canadian Coast Guard Ship (CCGS) Namao to permit scientific research by the Lake Winnipeg Research Consortium (LWRC) on Lake Winnipeg.
- In October 2001, Manitoba Conservation released a discussion paper entitled "Building a Sustainable Future - Water: A Proposed Strategic Plan for Manitoba"
- In November, 2002, The Manitoba Clean Environment Commission (CEC) submitted a nutrient management strategy public consultation proposal to the Minister of Conservation.
- Clean Environment Commission (CEC) public hearings were held from January 20 to 23, 2003 and January 27 to 28, 2003, and reconvened from April 14 to 16, 2003 to review the City of Winnipeg's wastewater systems and improvement plans.
- On February 18, 2003, the Province of Manitoba announced the Lake Winnipeg Action Plan to help protect Lake Winnipeg. The plan also established the creation of a Lake Winnipeg Stewardship Board.
- On April 21, 2003 the Minister of Conservation released Manitoba's Water Strategy which sets out plans to protect the province's water resources by developing new nutrient management zones to protect water quality.
- In August 2003, the conduct of the 2003 Clean Environment Commission (CEC) hearings that resulted in report to the Minister that contained the following recommendation under Nutrient Management Strategy:

  "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.
- On May 14, 2005, the Water Stewardship Minister announced an additional $150,000 in provincial funding for water quality research on Lake Winnipeg in collaboration with partners in the Lake Winnipeg Research Consortium.

- On June 29, 2005, the Department of Fisheries and Oceans (DFO), through a Contribution Agreement with the LWRC, assured that financial assistance up to a maximum of $450,000 would be available for retrofitting the Namao to meet Transport Canada certification standards.

DISCUSSION:

Nutrients and Lake Winnipeg

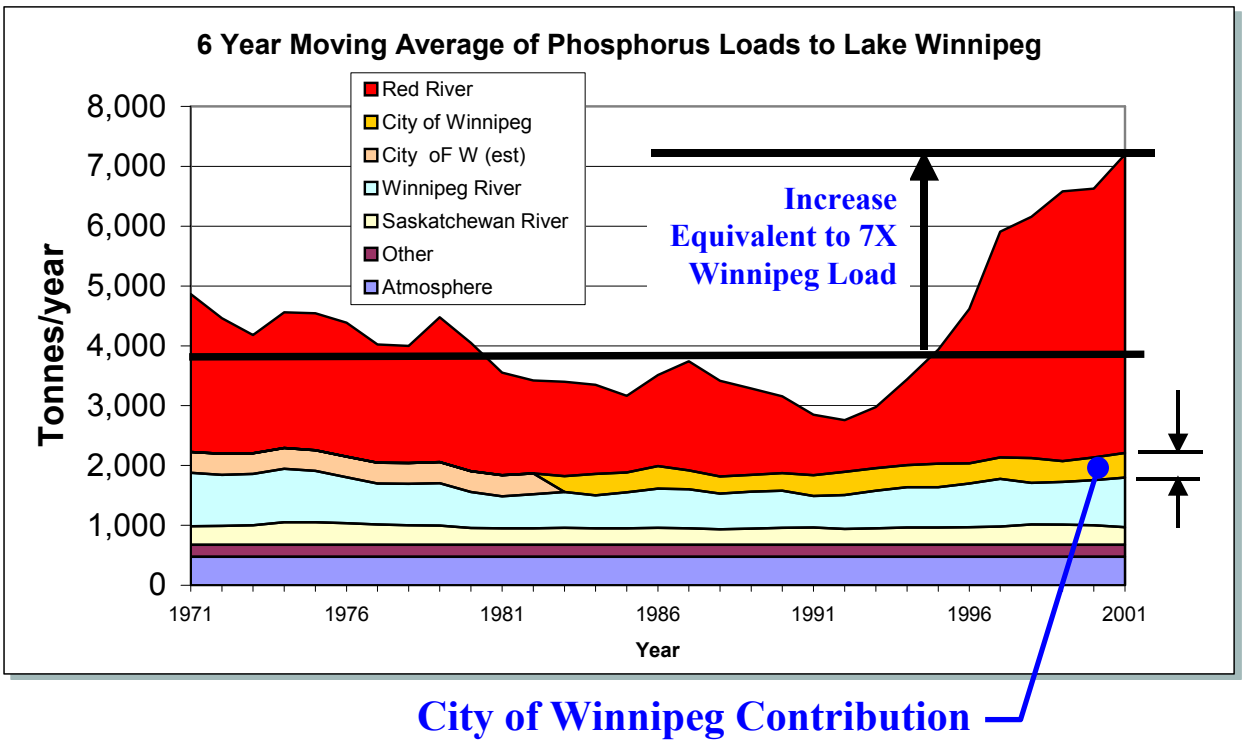
Lake Winnipeg is a highly valued Manitoba resource. There is concern that Lake Winnipeg's water quality is deteriorating due to excessive nutrient loadings. Nutrients enter the watershed from many sources, including agricultural runoff, rural and urban drainage, and treated wastewater. Recently, various agencies have raised public awareness as to concerns regarding water quality trends in Lake Winnipeg. There have been reports of large increases in algae growth over the past 30 years, and measured increases in total phosphorus and nitrogen concentrations in the Lake. Some researchers have reported changes in trends in the algae composition to less desirable blue-green algae. Further, there have been anecdotal reports of decreasing water quality from the public. This clearly is a growing public concern with respect to a deterioration of water quality and a likely correlation with trends in nutrient loadings to the Lake.

The City of Winnipeg discharges treated wastewater into the Assiniboine and Red Rivers, which ultimately contribute nutrients to Lake Winnipeg. From 1994-2001, the City of Winnipeg discharges contributed about 5.7% (or 3600 tonnes per year) of the nitrogen load and about 6.7% (or 390 tonnes per year) of the phosphorous load to Lake Winnipeg.[1] While the total load of these nutrients to Lake Winnipeg increases with precipitation, the loading from the City of Winnipeg is relatively constant. Since this period was a relatively wet period the percentage of load from the City was lower than it would be during average conditions.

A review of the annual loading to Lake Winnipeg confirms that the City of Winnipeg nutrient contribution has not changed significantly over the past 25 years, indicating that the increased loading is from other sources in the watershed. Generally it is believed that phosphorous is more important than nitrogen in promoting algae blooms. Figure 1 depicts the phosphorus contribution from known sources on an annual basis for the period of 1970 to 2001.

[1] *"A Preliminary Estimate of Total Nitrogen and Total Phosphorous Loadings to Streams in Manitoba, Canada* Manitoba Conservation Report No. 2002-04, November 2002

Figure 1: Comparison of Nutrient Loads to Lake Winnipeg



The Department's estimate indicates that the loading of phosphorous in recent years to the Lake may have increased as much as 75% from the loadings that were prevalent in the 1970s. This 75% increase correlates to several years of much higher than average runoff in the Red River Basin. It is important that sound scientific information be gathered now to understand the condition of Lake Winnipeg and the effectiveness of actions being proposed to protect the health of Lake Winnipeg.

Winnipeg's Wastewater Improvements

In response to direction received from the Province, the City of Winnipeg is preceding with nutrient control measures to achieve a city-wide reduction of 13% nitrogen and 10% phosphorus in its treated effluent by the end of 2006. The estimated capital cost to upgrade the wastewater treatment processes to achieve this reduction is estimated at about $55 million. The estimated cost to implement nutrient removal upgrades at all three wastewater treatment plants to meet regulatory compliance limits being set by Manitoba Conservation is estimated to cost over $300 million in capital cost. The Water and Waste Department is working cooperatively with the Province of Manitoba on the implementation of advanced wastewater treatment processes, known as biological nutrient removal (BNR), to achieve specified compliance limits. The City of Winnipeg is also an active member on the Lake Winnipeg Stewardship Board and contributes to other initiatives related to this valuable resource. The City recognizes that taking such positive actions are important steps towards protecting the long-term health of Lake Winnipeg.

Lake Winnipeg Research Consortium Mandate and Goals:

The Lake Winnipeg Research Consortium (LWRC) was founded in August 1998 to facilitate scientific research on Lake Winnipeg following evidence of water quality deterioration related to the 1997 Red River flood. The LWRC was incorporated in Manitoba in 2001. Membership in the LWRC has many agencies representing various government and university departments, and corporate and stakeholder groups. The LWRC has access to a great number of highly educated scientists that can be directed to gather specific information to better understand the current situation, the factors influencing the changes, actions that could prove to be effective in the near and far term, and a method for monitoring the effectiveness of actions employed.

The primary goal of the LWRC is to facilitate scientific research on Lake Winnipeg to gain a better understanding of the biological, chemical and physical processes that are critical to its well-being.

Benefits of City of Winnipeg Involvement:

The City of Winnipeg is one of the largest urban centers in the Lake Winnipeg watershed and prominent amongst our Canadian and American neighbours. There is an expectation that Winnipeg as one of the largest stakeholders in the basin should provide a significant level of funding to support scientific research conducted by the LWRC on Lake Winnipeg. The City of Winnipeg as a participant in the LWRC would have timely access to related research relevant to current and other water quality issues facing the City. Involvement at this critical juncture in time would clearly demonstrate to the public and regulatory authorities that the City is committed to the ecological well-being of Lake Winnipeg and prepared to take timely action to support science-based research. Future participation will assist in fulfilling the recommendations of the Clean Environment Commission on public and stakeholder communication.

Knowledge gained from scientific investigations conducted by the LWRC can be transparently provided to demonstrate that actions that are being taken to protect the health of the local Rivers and Lake Winnipeg are scientifically supportable and warranted. This information will help to confirm the need for advanced wastewater treatment to reduce nitrogen and phosphorous, as well as the ecological benefits and financial implications. Funding of the LWRC to undertake applied scientific research provides the City of Winnipeg the opportunity to demonstrate to its citizens its ongoing commitment to take responsible actions to protect the local Rivers and Lake Winnipeg.

The LWRC also provides an opportunity to dialogue with provincial officials outside of regular communication channels about issues facing the Department on water service delivery, wastewater treatment, land drainage, and flood protection. One of the LWRC directors is an active member of in the Lake Winnipeg Stewardship Board and co-chair of the science committee.

Funding Contribution:

Major contributors to the Lake Winnipeg research consortium from 1999 up to and including 2004 include:

- $634,000 Manitoba Hydro
- $589,500 Department of Fisheries And Oceans
- $326,000 Western Economic Diversification/Manitoba Intergovernmental Affairs
- $228,000 Manitoba Conservation
- $140,000 Canadian Space Agency
- $132,000 Canadian Coast Guard
- $100,000 Natural Resources Canada
- $ 90,000 Manitoba Water Stewardship
- $ 48,000 Environment Canada, Habitat Stewardship Program
- $ 18,000 Environment Canada, Atmospheric Monitoring Division
- $ 15,600 University Of Manitoba (NSERC)
- $ 15,000 Fish Futures Inc.
- $ 10,000 Manitoba Pork Council
- $ 10,000 Manitoba Environment

Based on the past and current contributions from other agencies and jurisdictions since the inception of the Lake Winnipeg Research Consortium, it is recommended that an amount of $50,000 be provided as annual funding commencing in 2005 through to 2007. Contribution for 2006 and 2007 would be subject to adoption of annual Current Estimates in those years.

The source of funding will come from the Sewer Utility operating budget.

FINANCIAL IMPACT:

The following financial impact statement for this project has been prepared in accordance with the recommendation adopted by Council on December 13, 2000.

Financial Impact Statement

Date: August 26, 2005

Project Name: **First Year of Program** **2005**

PARTICIPANT FUNDING OF THE LWRC FOR THE YEARS 2004 TO 2007 INCLUSIVE

	2005	2006	2007	2008	2009
Capital					
Capital Expenditures Required					
Less: Existing Budgeted Costs					
Additional Capital Budget Required	$ -	$ -	$ -	$ -	$ -
Funding Sources:					
Debt - Internal					
Debt - External					
Grants (LWRC Participant Funding)	50,000	50,000	50,000		
Reserves, Equity, Surplus					
Other - Enter Description Here					
Total Funding	$ 50,000	$ 50,000	$ 50,000	$ -	$ -
Total Additional Capital Budget Required	$ -				
Total Additional Debt Required	$ -				
Current Expenditures/Revenues					
Direct Costs	$ 50,000	$ 50,000	$ 50,000		
Less: Incremental Revenue/Recovery					
Net Cost/(Benefit)	$ 50,000	$ 50,000	$ 50,000	$ -	$ -
Less: Existing Budget Amounts	50,000	50,000	50,000		
Net Budget Adjustment Required	$ -	$ -	$ -	$ -	$ -

Additional Comments: Funding will come from the Sewer Utility Retained Earnings.

Moira L. Geer C.A.
Manager of Finance & Administration

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

N/A

THIS REPORT SUBMITTED BY:

Department: Water and Waste
Division: Engineering
Prepared by: M. A. Shkolny, P. Eng., and N. T. Szoke, P. Eng.
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