Agenda - Council - April 26, 2006

Report - Standing Policy Committee on Infrastructure Renewal and Public Works - April 11, 2006

Item No. 3 Dugald Sewer Rehabilitation - Change to Project
File WS

STANDING COMMITTEE RECOMMENDATION:

On April 19, 2006, the Executive Policy Committee concurred in the recommendation of the Standing Policy Committee on Infrastructure Renewal and Public Works and submits the following to Council:

1. That the Dugald Sewer Rehabilitation Project be amended to accommodate additional wastewater flow and construction cost increases at an estimated cost of $4.0 million funded from sewer utility retained earnings.

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 Infrastructure Renewal and Public Works - April 11, 2006

DECISION MAKING HISTORY:

EXECUTIVE POLICY COMMITTEE RECOMMENDATION:

On April 19, 2006, the Executive Policy Committee concurred in the recommendation of the Standing Policy Committee on Infrastructure Renewal and Public Works and submitted the matter to Council.

STANDING COMMITTEE RECOMMENDATION:

On April 11, 2006, the Standing Policy Committee on Infrastructure Renewal and Public Works concurred in the administrative recommendation and submitted the matter to the Executive Policy Committee and Council.

RE: DUGALD SEWER REHABILITATION – CHANGE TO PROJECT

FOR SUBMISSION TO: The Standing Policy Committee on Infrastructure Renewal and Public Works

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

REPORT DATE: March 23, 2006

RECOMMENDATION(S):

That the Dugald Sewer Rehabilitation Project be amended to accommodate additional wastewater flow and construction cost increases at an estimated cost of $4.0 million funded from sewer utility retained earnings.

Report Summary

KEY ISSUES: Council approval is required to amend the Dugald Sewer Rehabilitation project.

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:

Policy Implications

X	No
	Yes - Comment(s)

Environmental Implications

X	No
	Yes - Comment(s)

Human Resources Implications

X	No
	Yes - Comment(s)

Financial Implications

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

Comment: $4.0 million will need to included in the 2007 Capital Budget.

REPORT

REASON:

Council approval is required to amend the Dugald Sewer Rehabilitation project.

HISTORY:

Funds in the amount of $5,500,000.00 are included in the 2003 – 2005 Capital Budgets for the Dugald Interceptor Rehabilitation.

On June 10, 2003 the Standing Policy Committee on Public Works approved a request to transfer funds in amount of $500,000.00 from the Dugald Interceptor Rehabilitation to the Warde Avenue Interceptor Sewer Extension to cover a shortfall in funding.

DISCUSSION:

Background:

In 2002 the entire Dugald Sewer from McFadden Road to Lagimodiere Boulevard (see attached map) was cleaned and inspected. The inspection revealed the concrete sewer was severely deteriorated from hydrogen sulphide attack. Low flows in the existing oversized sewer caused less than desirable flow velocity which resulted in heavy accumulations of sediment in the sewer. Based on the anticipated rehabilitation required, funds in the total amount of $5,500,000.00 (including burdens), were included in the 2003 – 2005 Capital Budgets for the work.

Preliminary Engineering:

In 2004 an engineering study to investigate upgrading options for the Dugald Sewer and to project future flows from the contributing areas was completed. The study determined that current population projections and land use would result in a peak design flow contribution of approximately 510 l/s to the Dugald Sewer which was significantly lower than the 1200 l/s that the sewer was originally designed for. The study recommended replacement of the Dugald Sewer with a smaller sewer sized to provide the proper flow velocity to suit the flow projections.

The study further recommended that the North East Interceptor extension be routed down Bournais Drive to Dugald Road. The Dugald Sewer which previously flowed east to west from McFadden Road to a temporary connection to the Mission Sewer District at Lagimodiere Boulevard would then be designed to flow west from McFadden Road to Bournais Drive and east from Lagimodiere Boulevard to Bournais Drive.

The estimated cost for the sewer replacement in Dugald Road from McFadden Road to Lagimodiere Boulevard including 2 wastewater pumping stations based on 2003 construction

costs was approximately $5,150,000.00 (including burdens). Based on this estimate, funding in the Capital Budget from 2002 for the Dugald Sewer of $5,500,000.00 was considered adequate.

Detailed Design:

Detailed design of the Dugald Sewer replacement was started in early 2005 based on flow projections and sewer sizing contained in the engineering study completed in 2004.

During the detailed design, the following changes in flow development added approximately 280 l/s more flow to the Dugald Sewer than was projected in the 2004 engineering study.

- In response to anticipated development pressure for new housing, future development land use and population densities for South Transcona and Cantebury Park South (see attached map) were increased to that of typical urban development resulting in a peak design flow increase of approximately 91 l/s. Previous 2004 projections had been based on large lot rural residential development.
- Detailed design for the new water treatment plant east of the floodway provided that waste flow be directed to the Dugald Sewer resulting in a peak flow increase of 44 l/s. This had not been identified in the previous 2004 study. This flow will include spent water from the treatment process and sanitary waste flow.
- Revisions to the future development plans for the Transcona Yards Industrial Neighbourhood north of Dugald Road resulted in a peak design flow increase of approximately 30 l/s.
- An allowance for wet industrial flow in the St. Boniface Industrial Park area resulting in a peak design flow increase of approximately 115 l/s.

The sewer design was revised as follows to accommodate the above changes in projected development and associated peak flow contributions.

- Extend the Dugald Sewer approximately 1,250 metres further east to Murdock Road to facilitate the connection of the forcemain from the water treatment plant and the development of the Cantebury Park South Area of Transcona (see attached map).
- Increase the sewer sizes from Murdock Road to Bournais Drive to accommodate the increased peak flows expected from residential densities assumed for South Transcona.
- Increase pipe size from Mazenod Road to Bournais Drive to accommodate peak flow expected from wet industrial development in the St. Boniface Industrial Park.

Cost Estimate:

The impact on cost for the design revisions is summarized in the following table.

	Sewer Design Cost Comparisons **(2003 Dollars)**				
	East of Bournais		West Of Bournais		
	Pipe Sizes	Cost	Pipe Sizes	Cost	Increase
2003 Design	375mm dia. – 1,900m 525mm dia. – 1,285m Total length = 3,185m 1 - Pumping station	$ 780,000 $ 780,000 $ 800,000	250mm dia. – 1,835m 750mm dia. – 470m Total length = 2,295m 1 – Pumping station	$ 600,000 $ 390,000 $ 800,000	
	Total =	$2,360,000	Total =	$1,790,000	$4,150,000
2006 Design	450mm dia. – 1,280m 600mm dia. – 780m 750mm dia. – 2,400m Total length = 4,460m	$ 715,000 $ 570,000 $2,430,000	375mm dia. – 900m 900mm dia. – 450m Total length = 1,350m 1 – Pumping station	$ 665,000 $ 645,000 $ 800,000	
	Total =	$3,715,000	Total =	$2,110,000	$5,825,000
			Total cost increase **(2003 Dollars)**=		$1,675,000

Further to the increase in cost due to the above scope changes, construction costs have increased by approximately 30% from 2003 to 2005 and are projected to increase by 10% from current pricing to project completion. These increases are attributed to an active marketplace, a shortage of skilled workers and an increase in material costs.

The impact on cost due to construction cost increase is summarized in the following table.

	Construction Cost Increase Comparisons (including burdens)		
	East of Bournais	West Of Bournais	Total
2003 Prices	$3,715,000	$2,110,000	$5,825,000
2006 Prices	$5,200,000	$2,950,000	$8,150,000
Increase	$1,485,000	$ 840,000	$2,325,000

The total increase to the cost of the project due to scope changes and the cost of construction from 2003 is approximately $4.0 million.

The Dugald Sewer replacement project was broken into 4 phases for construction contracts. The revised cost estimates based on 2006 prices with a 10% inflation allowance will be as follows.

Phase 1 - Sewer from McFadden Road to Bournais Drive	$4,200,000.00
Phase 2 – Sewer from McFadden Road to Murdock Road	$1,000,000.00
Phase 3 – Sewer from Terracon Place to Bournais Drive.	$1,750,000.00
Phase 4 – Wastewater pumping station at Mazenod Road.	$1,200,000.00
Sub-total:	$8,150,000.00

Note:

Approximately $400,000.00 of the Phase 2 contract works will be funded from the water treatment plant budget to cover the cost to oversize and extend the sewer to Murdock Road to accommodate flow from the water treatment plant.

Financial Status:

Construction cost:	$8,150,000.00
Less contribution from water treatment plant:	$ 400,000.00
Adjusted construction costs:	$7,750,000.00
Estimated engineering (12%):	$ 925,000.00
Estimated finance (2%):	$ 150,000.00
Estimated finance (1%):	$ 75,000.00
Estimated total project cost:	$8,900,000.00

The Financial Status of the Dugald Interceptor Rehabilitation project is as follows:

Approved Capital		$5,500,000.00
Transfer to Warde Ave Interceptor	$ 500,000.00	
Previous Expenditures	$ 100,000.00	
Estimated project costs:	$8,900,000.00	
Sub-total	$9,500,000.00	$9,500,000.00
Estimated Funding Shortfall		$4,000,000.00

The department will also be seeking in the future to recover some of the costs of the sewer along Dugald Road from local improvement levies on fronting properties and over-sizing costs from developers when they connect to the sewer.

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Subject to Council's approval of this adjustment to scope in the Dugald Interceptor project, the additional funding requirement of $4.0 million will be submitted for Council approval with the 2007 Capital Estimates to be funded from the Sewer Utility Retained Earnings.

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: March 17, 2006

Project Name: **First Year of Program** **2007**

DUGALD SEWER REHABILITATION - CHANGE TO PROJECT

	2007	2008	2009	2010	2011
Capital					
Capital Expenditures Required	$ 4,000,000	$ -	$ -	$ -	$ -
Less: Existing Budgeted Costs	-	-	-	-	-
Additional Capital Budget Required	$ 4,000,000	$ -	$ -	$ -	$ -
Funding Sources:					
Debt - Internal	$ 4,000,000	$ -	$ -	$ -	$ -
Debt - External	-	-	-	-	-
Grants (Enter Description Here)	-	-	-	-	-
Reserves, Equity, Surplus	-	-	-	-	-
Other - Enter Description Here	-	-	-	-	-
Total Funding	$ 4,000,000	$ -	$ -	$ -	$ -
Total Additional Capital Budget Required	$ 4,000,000				
Total Additional Debt Required	$ 4,000,000				
Current Expenditures/Revenues					
Direct Costs	$ 104,250	$ 400,000	$ 400,000	$ 400,000	$ 400,000
Less: Incremental Revenue/Recovery	104,250	-	-	-	-
Net Cost/(Benefit)	$ -	$ 400,000	$ 400,000	$ 400,000	$ 400,000
Less: Existing Budget Amounts	-	-	-	-	-
Net Budget Adjustment Required	$ -	$ 400,000	$ 400,000	$ 400,000	$ 400,000

Additional Comments: It is recommended that funding in the amount of $4,000,000.00 be included in the 2007 Capital Budget for the work and be financed by the sewer utility retained earnings.

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

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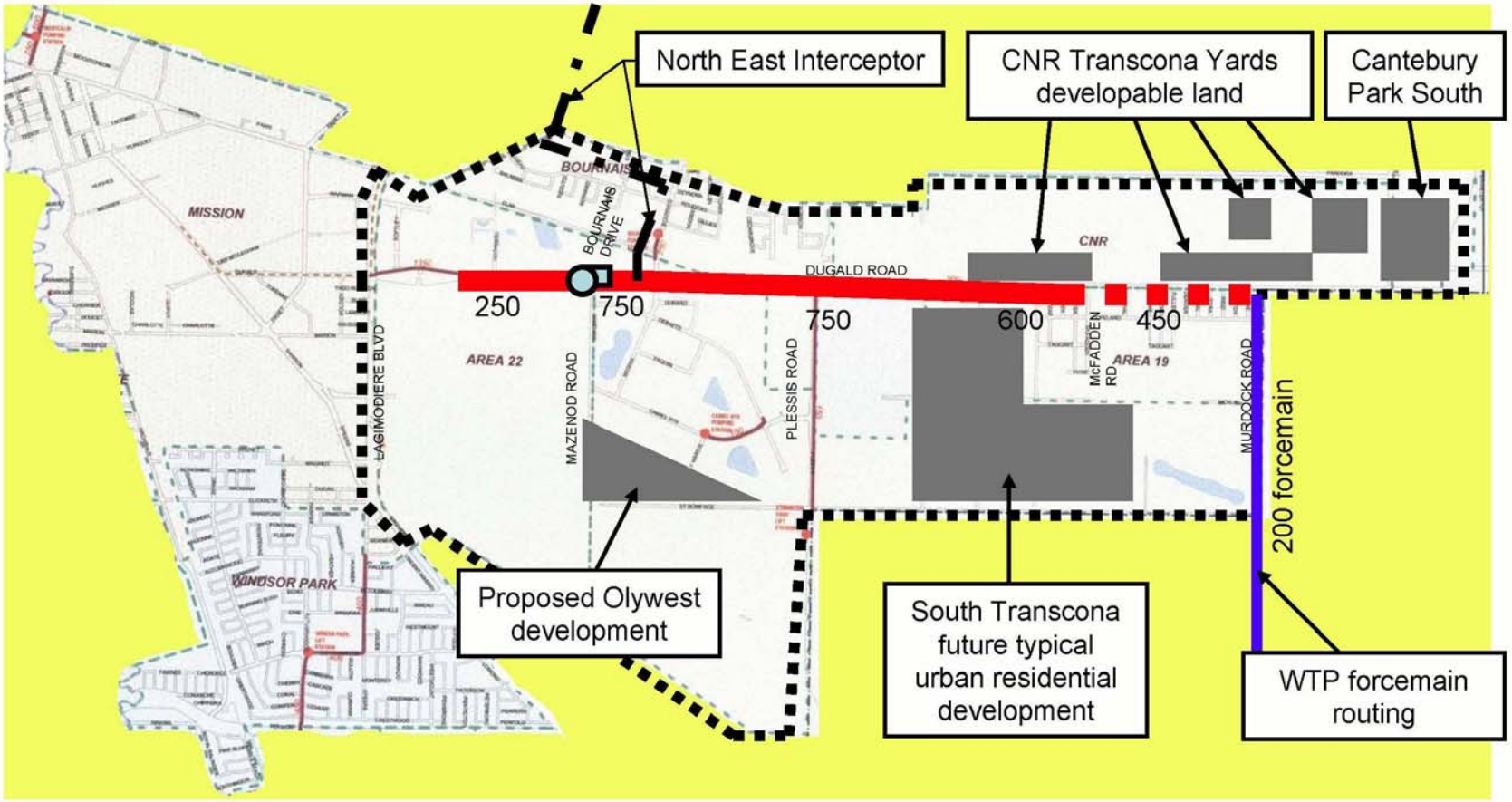
IN PREPARING THIS REPORT THERE WAS CONSULTATION WITH AND CONCURRENCE BY: N/A

THIS REPORT SUBMITTED BY:

Water and Waste Department
Engineering Division
Prepared by: T. Whiteside, C.E.T.
File No. WW/S-669

Dugald Sewer Replacement: Recommended Design



Service catchment area

Proposed Dugald Interceptor

WTP forcemain

Dugald Interceptor extension to service WTP