

## **COMMITTEE OF THE WHOLE - NOVEMBER 15, 2004**

### **2004 ANNUAL REPORT ON INFRASTRUCTURE - MUNICIPAL STRUCTURES**

#### **Recommendation**

The Commissioner of Engineering and Public Works recommends:

1. That this report on the current status of Municipal Structures be received as information, and;
2. That the recommendations in this report be referred to the 2005 Capital Budget deliberations.

#### **Purpose**

The purpose of this report is to provide the Council with an annual report on the current inventory, value and condition of our Municipal Structures.

#### **Background - Analysis and Options**

The Infrastructure Management Systems section of the Engineering and Public Works Department is responsible for infrastructure records, data and data management and strategic analysis related to the City's civil infrastructure.

It is our intent to report annually to Council on the current inventory, value and condition of all classes of civil infrastructure including but not limited to roads, pipes, structures, stormwater management ponds, street lighting and traffic appurtenances. This report focuses on Municipal Structures which consist of Bridges and Culverts with a span greater than 1.2 metres.

City Staff undertake the inspection and condition assessment of all Municipal Structures every 2 years in accordance with the Highway Traffic Act (Section 123(2)) and the Bridges Act (Section 2) following the Municipal Bridge and Culvert Appraisal Manual published by the Ministry of Transportation and the Municipal Engineers Association. This can result in activities such as Maintenance and Capital Projects and Load Limit Restrictions. For example, we recently enacted a Load Restriction Bylaw on Bridge No. 014401, Humber River on King-Vaughan Road, Item 7 of Report No. 68 and By-Law Number 296-2004 to limit vehicle loading to 12 tonnes.

Our current inventory consists of 59 concrete and 47 steel structures for a total of 106 structures. The age of these structures varies from 2 to 97 years. The total replacement value of all Bridges and Culverts is estimated at \$18,508,000 and \$8,388,000 respectively with a grand total value of \$26,896,000. We suspect that this value will be higher through further data collection and research.

The estimated value by material make-up of Bridges and Culverts are captured in the following table:

Type	Number	Replacement Value
Concrete Bridges	29	\$ 15,106,000
Steel Bridges	6	<u>\$ 3,402,000</u>
Total for Bridges	35	\$ 18,508,000
Concrete Culverts	30	\$ 5,632,000
Steel Culverts	41	<u>\$ 2,756,000</u>
Total for Culverts	71	\$ 8,388,000

Grand Total	106	\$ 26,896,000

The following recommendations, in order of priority, were noted through our latest appraisal:

*Further Engineering Investigation*

Structure No.	Location	Recommended Engineering Investigation	Est. Cost for Budgeting Purposes
<u>Bridges</u>			
002001	Huntington Road, 0.3 km N. of Kirby Road	Deck Condition Survey	\$10,000
012001	Kirby Road, 0.61 km E. of Hwy 27	Deck Condition Survey	\$10,000

*Structure Replacements*

Structure No.	Location	Reason for Improvement
<u>Bridges</u>		
118707	208 Centre St Dwy, 0.55 km W. of Yonge St	Replace Due to Condition
008601	Humber Br. Trail, 0.4 km E. of Hwy 27	Replace Due to Condition
011601	Kirby Road, 0.2 km E. of Huntington Rd	Replace Due to Condition
014401	King-Vaughan Rd, 1.0 km W. of Kipling Ave	Replace Due to Condition & Narrow
290401 *	Langstaff Rd, 1.2 km E. of Hwy 27	Scheduled for replacement due to road construction
245801	William St Railway Underpass, 0.1 km E. of Kipling Ave	Replace to eliminate width & sidewalk deficiencies
<u>Culverts</u>		
116601	Clarkhaven St, 0.01 km S. of Thornridge Dr	Replace Due to Condition
185601	Peelar Rd, 0.1 km E. of Jane St	Replace Due to Condition
117001	Thornridge Dr, 0.1 km W. of Clarkhaven St	Replace Due to Condition
116003	Charles St, 0.1 km S. of Thornridge Dr	Replace Due to Condition
013202	Kirby Rd, 0.2 km W. of Jane St	Replace Due to Condition
000801	Huntington Rd, 1.65 km N. of Hwy 7	Replace Due to Condition

Note: \* Submitted for consideration in DRAFT 2005 Capital Budget.

The total cost of needs can be summarized by the following table:

STRUCTURE CONSTRUCTION AND REHABILITATION NEED SUMMARY - 2004 (COST IN THOUSANDS OF DOLLARS)					
Description	Now Needs	1-5 Year Needs	Now + 1-5 Year Needs	6-10 Year Needs	Total Needs
Existing Bridges	\$ 2,898	\$1,343	\$ 4,241		\$ 4,241
Existing Culverts	265	687	952	5	957

<b>Total Rehabilitation Needs</b>	<b>\$ 3,163</b>	<b>\$ 2,030</b>	<b>\$ 5,193</b>	<b>\$ 5</b>	<b>\$ 5,198</b>
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There are also a number of normal structure maintenance items identified, typically consisting of guide rail, fence, handrail and retaining wall repair and debris removal, of which our own forces will address.

*Discussion*

We note that given the recommendation to replace 12 bridges and culverts, generally, the overall condition our structures is satisfactory and there is no concern for public safety. The structures noted for replacement are generally in remote, rural areas or cater to very low volume vehicular activity.

The Infrastructure Management Systems Section is currently seeking out more detailed methods of assessing our structures and we expect to have in place for the 2006 Reporting Year and Capital Budget deliberations, a comprehensive, diverse and detailed appraisal of our structures.

Other than works proposed in the DRAFT 2005 Capital Budget, it is recommended that programming of any other substantive works be deferred until a new Bridge Management System is established.

**Relationship to Vaughan Vision 2007**

This report is consistent with the priorities previously set by Council and the necessary resources have been allocated and approved.

**Conclusion**

That this report on the current status of Municipal Structures be received as information and that the recommendations in this report be referred to the 2005 Capital Budget deliberations.

**Attachments**

None.

**Report prepared by:**

Denny S. Boskovski, Infrastructure Management Systems Supervisor, ext. 3105

Respectfully submitted,

Bill Robinson, P. Eng.  
Commissioner of Engineering and Public Works

Gary Carroll, P. Eng.  
Director of Engineering Services

DSB:mc