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Date: November 14, 2017
To: Mayor and Council
Author: Kevin Girard
RE: Bridge and Culvert Inspections Report
Report No.: MS 2017-54

AIM

To provide Council with an update on the Bridge and Culvert Inspections Report.

BACKGROUND

In 2013, Dillon Consulting was obtained to conduct a bridge and culvert needs study which was completed in 2015. This study summarized the findings of the inspections conducted and identified improvements to the structures that were deficient or will become deficient within a ten year span.

As part of the *Highway Traffic Act (Section 123(2))* and the *Bridges Act (Section 2)*, regulations are outlined for municipal structures. Under the *Public Transportation and Highway Improvement Act*, inspections and evaluations of bridges shall conform to standards set out by the Ministry of Transportation in the following manuals (or equivalent):

- Structure Manual
- Structure Rehabilitation Manual
- Drainage Manual
- Roadside Safety Manual
- OPSS for Roads and Municipal Services
- Ontario Structure Inspection Manual (OSIM)
- Highway Traffic Act
- Ontario Highway Bridge Design Code (OHBDC)

The Town currently has an inventory of thirty-eight (38) bridges and twenty-three (23) culverts over the span three (3) metres as defined in the *Ontario Structure Inspection Manual (OSIM)*. The Town of Kingsville is responsible for ensuring that these structures

are in good repair. This is completed by conducting regular bridge inspections biennially in accordance with the *Ontario Structure Inspection Manual (OSIM)*.

Municipal Services had procured a consulting engineer through the Town's RFP process and carried out the work in accordance with council resolution 454-2017 as follows:

454-2017

Moved by Councillor Thomas Neufeld

Seconded by Councillor Tony Gaffan

Council approves Administration to proceed with the tendering for services to complete a Bridge and Culvert Study; and Council approves the transfer from the Development Charges Reserve in the amount of \$16,750 to be applied against the cost of the Bridge and Culvert Study.

CARRIED

DISCUSSION

Keystone Bridge Management has completed and filed with Municipal Services the Bridge and Culvert Inspections, which identifies the capital and maintenance needs for Town structures over the span of three metres. A total of 61 structures were evaluated of which 38 were considered bridges and 23 were culverts with an average age of approximately 41.3 years.

From the report, approximately \$3 million is required in capital investment to continue to maintain the structural inventory in good serviceable condition over the next ten years. It was identified that there is a backlog of approximately \$1 million in immediate capital needs. In the period from 20 years hence to 40 years there will be a need to replace almost \$13 million in road structure assets.

In comparison to the bridge and culvert needs study completed by Dillon in 2015, table 1 shows the updated capital expenses required for the Town owned structures.

	2015 Dillon Report	2017 Keystone Report
1-5 years rehab	\$ 966,000	\$ 1,139,000
1-5 years replace	\$ 955,000	\$ 1,333,000
1-5 years total	\$ 1,921,000	\$ 2,472,000
6-10 years rehab	\$ 976,000	\$ -
6-10 years replace	\$ 1,610,000	\$ 572,000
6-10 years total	\$ 2,586,000	\$ 572,000
Overall Total	\$ 4,507,000	\$3,044,000

Table 1: Comparing Reports

As you can see from the above table, the lack of capital funding to structures in accordance with the recommendation of the 2015 Dillon report has left certain structures in disrepair, which lead to an increased rate of deterioration. These structures will require capital funding in order to keep them in safe and operational condition. The structures outlined in Keystone's 1-5 year category are as follows:

Suggested Capital Year	Bridge I.D.	Name	Work	Estimated Cost
2018	5	Orton Road Drain Culvert	Rehab	\$ 36,000
	14	Rd 10 Bridge Patterson Drain	Replace	\$ 302,000
	18	Rd 11 Bridge Ruscom River	Rehab	\$ 259,000
	42	Maddox Drain Culvert	Rehab	\$ 24,000
	503	Mill Creek Scratch Wagle Drain Culvert	Replace	\$ 359,000
2019	24	Rd 3W Bridge E Branch 47 Drain	Rehab	\$ 208,000
	32	Cedar Island Bridge	Rehab	\$ 48,000
	52	Jasperson Lane Bridge	Rehab	\$ 329,000
2020	25	Rd 3W Bridge Centre Branch 47 Drain	Rehab	\$ 169,000
	30	Rd 5W Bridge W Townline Drain	Rehab	\$ 42,000
	46	Old No. 5 Drain S Talbot Rd	Replace	\$ 330,000
2021	26	Rd 3W Bridge Nelson Drain	Replace	\$ 342,000
2022	50	Mill Creek Bridge	Rehab	\$ 24,000
			Total	\$ 2,472,000

Table 2: 1-5 Year Summary

In terms of the overall depreciation of Town owned structures, the bridge assets are presently depreciating at a rate of approximately \$290k per year. Whereas, the culvert assets are depreciating at a rate of \$140k per year.

A total of 98.1% of the inspected structures have a Bridge Condition Index (BCI) greater than 70 out of 100. The remaining five structures have BCI values between 56.6 and 70. The ministry of Transportation Ontario's goal is to maintain at least 80% of its structures with a BCI greater than or equal to 70 out of 100.

Attached to this report is the executive summary, covering report and network reports prepared by Keystone Bridge Management. Individual structure reports can be viewed at the Municipal Services Office.

An updated report will be required biennially for these structures, as mandated in the *Ontario Structure Inspection Manual (OSIM)*. Therefore, the Town will be required to have updated inspections completed by the end of 2019.

LINK TO STRATEGIC PLAN

To promote a safe community.

To become a leader in sustainable infrastructure renewal and development.

FINANCIAL CONSIDERATIONS

Using the data from the report, the Municipal Services department will schedule the capital needs in the department's capital budget forecast. These capital needs will result in budget requests in line with the 5-year capital forecast.

The maintenance needs as identified by Keystone will be funded by the Public Works operations budget.

CONSULTATIONS

Keystone Bridge Management
Municipal Services Department

RECOMMENDATION

That Council receives the 2017 Bridge and Culvert Inspections report.

Respectfully submitted,

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