

*Sensational!*



## Report # 2013-96

To: Mayor and Council

From: Vanessa Bernicky

Date: August 20, 2013

Committee of the Whole Date: August 26, 2013

Title: 2013 Bridge OSIM (Ontario Structure Inspection Manual) Report

---

For Direction

For Information

For Adoption

Attachment 4 pages

**Recommendation: THAT Council review the attached 2013 Bridge OSIM Report and provide staff with direction.**

---

### **Background:**

As per Ministry of Transportation's Ontario Structural Inspection Manual (OSIM), all bridges/structures must be inspected bi-annually by a Structural Engineer. Ontario is the only province in Canada to legislate a requirement that provincial bridge inspections occur every two years and are conducted by or under the supervision of a professional engineer. The Town of Smiths Falls issued an RFP in the spring of 2013 and was awarded to the Greer Galloway Group Inc.

### **Purpose:**

To ensure that bridges/structures meet the required specifications outlined by the Ministry of Transportation. And to determine extent of repairs necessary to meet those specifications siting applicable timelines to complete works.

### **Budget/Financial Implications:**

Dependent on work undertaken – see summary below:

Council Report  
 Corporation of the Town of Smiths Falls

Structure	Recommended Work	Budget Estimate	Timing of Work
Confederation Drive			
	Environmental assessment	\$75,000	Within 1 to 5 years
	Bridge replacement (Based on new substructure and new single lane superstructure with pedestrian walkway)	\$2,500,000	Within 1 to 5 years
North Pedestrian Bridge			
	Repair base of abutment walls and centre pier	\$350,000	Within 1 year
	Replace handrails	\$5,000	Within 1 year
	Replace structure	\$550,000	Within 1 year
Central Pedestrian Bridge			
	Replace handrails	\$11,000	Urgent
	Repair abutments and wingwalls	\$250,000	Urgent
	Replace structure	\$375,000	Urgent
South Pedestrian Bridge			
	Permanently repair undermining of abutments	\$150,000	Within 1 year
Beckwith Street Stone Arch Bridge			
	Repair undermining of north abutment	\$120,000	Urgent
Old Sly's Road Fixed Bridge			
	Repair scaling and spalling on abutment walls	\$30,000	Within 1 to 5 years

**Consultations:**

Greer Galloway Group Inc., L. McKimm, Manager of Planning & Sustainable Growth

**Existing Policy:**

**Analysis and Options:**

Urgent has been defined by Structural Engineer, Quan Tan, P.Eng., as : Urgent means engineering works/investigations done now and the actual repairs/replacements to be done this fall or first of next year. Due to structural component of the stone arch bridge being masonry in nature, there is a major concern for movement and potential instability of the arch. Therefore the stone arch structure should be addressed now.

Prices for pedestrian structures appear to be excessive. We have confirmed with Engineering firm that the prices provided were for all aspects of replacement: investigations, environmental requirements, permits, design, dewatering, removal and replacement.

We may want to consider placing structures similar to the pedestrian bridge located south of the Combined Locks and in the vicinity of the long shed adjacent to River Street.

Council Report  
Corporation of the Town of Smiths Falls

Note: There is a copy of the report on structural analysis of all bridges in the Engineering office for review. The report details what is happening with each component of our bridges.

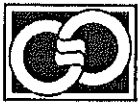
Respectfully Submitted:

Approved for agenda by CAO:

\_\_\_\_\_  
V. Bernicky  
Engineering

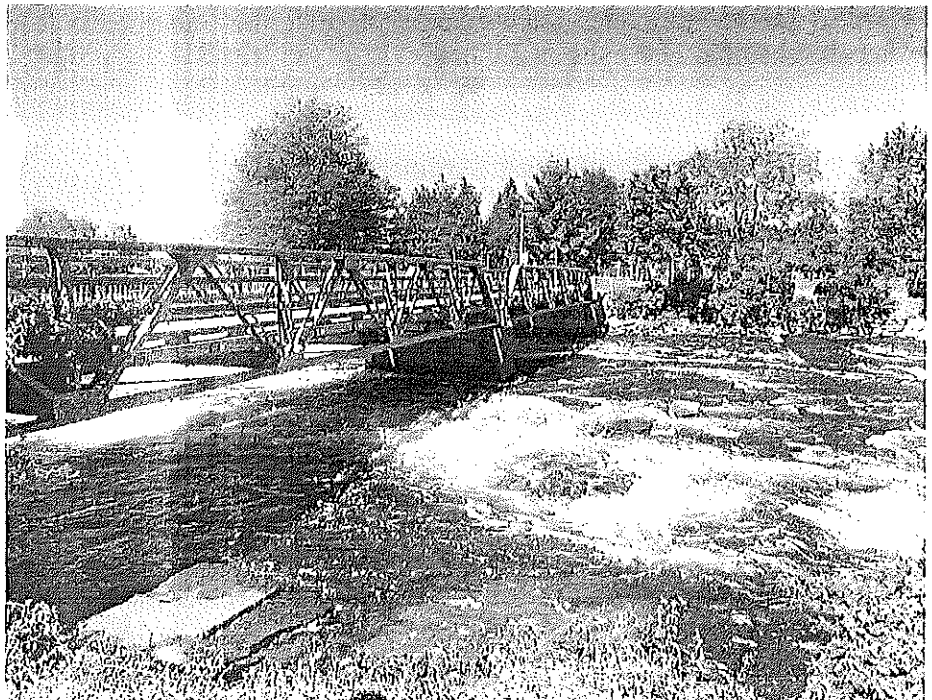
\_\_\_\_\_  
L. McKimm  
Manager

  
\_\_\_\_\_  
S Fournier  
Acting CAO



THE GREER  
GALLOWAY  
GROUP INC.  
ENGINEERS  
PLANNERS

## TOWN OF SMITH FALLS 2013 BRIDGE OSIM REPORT



1620 Wallbridge Loyalist Road

R.R. #5

Belleville, Ontario

K8N 4Z5

Telephone

(613) 966-3068

Facsimile  
(613) 966-3087

E-Mail  
belleville@greergalloway.com

Prepared for:

Town of Smiths Falls  
77 Beckwith St. N. P.O. Box 695  
Smith Falls, Ontario  
K7A 4T6

Prepared by:

THE GREER GALLOWAY GROUP INC.  
ENGINEERS AND PLANNERS  
1620 Wallbridge-Loyalist Rd.  
Belleville, Ontario  
K8N 4Z5

## 1.0 Introduction

The Greer Galloway Group Inc. (GGG) was retained by the Town of Smith to perform visual inspections of six (6) vehicular bridges, four (4) pedestrian bridges and two (2) culverts in accordance with the latest edition of the Ontario Structural Inspection Manual (OSIM).

This report provides a summary of the inspection results and recommended repair/rehabilitation/replacement items.

## 2.0 Inspection Results and Recommendations

The bridge inspections were conducted by Ms. Jennifer Young, EIT and Ms. April Chamberlain under the direction of Mr. Quan Tan, P.Eng of The Greer Galloway Group Inc. on June 4, 2013. Below is a summary of the recommended work based on priority. A summary of the corresponding budget cost estimates can be found in Table 1.

The highest priority structure is the Confederation Drive Bridge. Noted deteriorations include localized severe corrosion in the steel truss structure, deterioration to abutment bearing seats, localized deterioration to concrete abutments, and localized deterioration to the timber deck. As outlined in the previous 2011 Load Assessment Report, prepared by Greer Galloway, the existing superstructure cannot be economically rehabilitated to provide an unrestricted load capacity. It is therefore recommended that the bridge be replaced. To accomplish this goal, it is recommended that an Environment Assessment and replacement design be completed to bring the project to a "construction ready" status to take advantage of future funding applications. The structure should be replaced within the next 2 years.

The second priority structure is the Beckwith Street Stone Arch Bridge. There is significant localized undermining of the north abutment wall. During the 2013 inspection the undermining could not be thoroughly assessed but is assumed to have worsened since the previous inspection. For an arch structure, undermining of the footing can have a significant impact on the stability of the arch. Therefore, it is recommended that the undermining be repaired immediately.

The third priority structures are the pedestrian bridges. The water level during our inspection limited viewing of the abutment walls at all three structures. However, the 2011 OSIM report indicated that all the pedestrian bridge abutment walls were severely undermined and should be repaired. Temporary repairs were completed to the south pedestrian bridge in 2012, however it was recommended that permanent repairs or complete structure replacement be completed by 2014. Based on the 2011 OSIM inspection, it is recommended that the Town repair the abutments at all structures within the next year. The collapsed wing wall on the central pedestrian bridge should also be repaired immediately. Consideration should also be given to updating the pedestrian bridge handrails to meet current code requirements. Based on the water elevation during the 2011 winter inspection, it is recommended that future OSIM inspections be completed during the winter when the abutments are more exposed. Cost estimates have been included for replacing the north and central structures as an alternative to repair.

The fourth priority is the abutments on Old Sly's Road Fixed Bridge. Scaling and spalling on the abutment walls should be repaired to prevent further deterioration. It is recommended that these repairs be done in the next 1 to 5 years.

**TABLE 1**

Structure	Recommended Work	Budget Estimate
Confederation Drive	environmental assessment	\$75,000
	bridge replacement (based on new substructure and new single lane superstructure with pedestrian walkway)	\$2,500,000
North Pedestrian Bridge	repair base of abutment walls and center pier	\$350,000
	replace handrails	\$5,000
	replace structure	\$550,000
Central Pedestrian Bridge	replace handrails	\$11,000
	repair abutments and wingwalls	\$250,000
	replace structure	\$375,000
South Pedestrian Bridge	permanently repair undermining of abutments	\$150,000
Beckwith Street Stone Arch Bridge	repair undermining of north abutment	\$120,000
Old Sly's Road Fixed Bridge	repair scaling and spalling on abutment walls	\$30,000

### 3.0 General Recommendations

Based on the inspection information, we recommend the following course of action.

1. Act on all recommendations noted in this report and in individual OSIM reports.
2. Clean all structures on an annual basis. The cleaning program should include the removal of winter sand and debris from the bridge deck, bearing seats, curbs, control joints, drains holes, and removal of birds' nests from the substructure as well as any channel obstructions.
3. Conduct follow-up inspections in 2015.

4. Establish an infrastructure plan identifying priorities and budgets to guide annual municipal budgeting processes for the repair and maintenance of bridges and culverts.
5. Continue project development to have “construction ready” (ready for tender) projects to take advantage of funding opportunities.

Respectfully Submitted



Quan Tan, P.Eng.  
Senior Structural Engineer