

# ANDREWSVILLE BRIDGE

## SUMMARY OF EVENTS FROM 2005 TO 2022

### Definitions:

LC= Lanark County

PW= Public Works

LCPW= Lanark County Public Works

LCC= Lanark County Council

LCPWC= Lanark County Public Works Committee

UCLG= United County of Leeds & Grenville

UCLGC= United County of Leeds & Grenville Council

### 2005

- In 2005, McCormick Rankin Corporation (MRC) was retained by LCPW to inspect multiple bridges and provide recommendations, which included the Andrewsville Bridge.
- The resulting Investigation and Recommended Rehabilitation Report recommended (**Appendix A**):
  - Replacing the asphalt overlaid wood deck; upgrading the bridge and approach railings; and repairing the substructure,
  - Completing a structural evaluation of the trusses to confirm their condition and estimate their remaining service life, and
  - Completing immediate repairs to the stringers at the west abutment.

### 2006

- Parks Canada was consulted with regarding the proposed options in the rehabilitation report and commented that they would not contribute to the remedial work on the bridge as the bridge was not required for them to access their facilities (**Appendix B**).

### 2007

- In January of 2007, LCPW presented the Investigation and Rehabilitation report to LCC, outlining the below 5 options and recommending a Public Information Centre (PIC) be held to seek the public's input on the future of the bridge (**Appendix B**):
  - Option 1. Do nothing,
  - Option 2. Deck Replacement and Substructure repairs, \$85K
  - Option 3. Option 2, plus replace bridge railing, \$400K
  - Option 4. Replace existing structure with a single lane bridge, \$850K
  - Option 5. Replace existing structure with a two-lane bridge, \$1.65M
- The LCPWC adopted the motion to proceed with a PIC and to present the results in June 2007.
- In March of 2007, a Structural Evaluation Report (**Appendix B**) was completed that recommended the rehabilitation of the bridge to extend the service life for 10-15 years or close the bridge to vehicular traffic. The report also confirmed the need for the 5-tonne load posting.
- On May 17, 2007, a PIC was held at the Merrickville Community Hall to seek public input on the future of the Andrewsville Bridge.
  - Thirty-six (36) members of the public registered at the PIC and thirty-three (33) written comments were received within two weeks of the event.

- The results of the PIC indicate that the users of the Andrewsville Bridge are overwhelmingly in favour of repairing the structure.
- Prior to proceeding with a rehabilitation strategy, a Cultural Heritage Evaluation Report (CHER) was required (**Appendix B**).
  - The (CHER) was submitted on July 9<sup>th</sup>, 2007 to the Ministry of Culture (MOC).
  - The CHER concluded that “the historical value of the bridge itself is minimal and that any historical value is associated with the nearby Rideau Canal”.
  - the MOC responded, advising that “sympathetic modifications” (minor repairs to ensure public safety) to the structure would be permitted if they did not alter the character of the structure. The MOC has also indicated that major modifications or the replacement or relocation of the structure cannot proceed until a heritage impact assessment is completed by a qualified heritage consultant.
- LCPWC passed a motion at its meeting held on October 3, 2007 (**Appendix B**) to proceed with Option 2 in the following year (2008), which included a deck replacement and substructure repairs, to extend the life of the structure for 5 years, at which point further decisions on future of the bridge are to be made.
- The UNESCO designation of the Rideau Canal, as a World Heritage Site in 2007, was a factor in LCC’s decision to forgo a long-term plan for the bridge. There was also an expectation that a future Federal/Provincial grant program could be used to offset the costs to rehabilitate or to replace the bridge.

## **2008**

- A Contract was awarded to Lischer Construction Inc. for \$85,864.00 to complete the work: Wooden deck and curb replacement; and repairs to the stringers, bearing seats and ballast walls (**Appendix C**).

## **2012**

- In January of 2012, LCPW presented to the LCPWC (**Appendix D**), recommending LCC render a decision on the future of the bridge before a failure and abrupt closure is required, which included 5 options:
  - Option 1. Do nothing.
  - Option 2. Rehabilitate the bridge.
  - Option 3. Replace the bridge.
  - Option 4. Close the bridge to vehicular traffic now.
  - Option 5. Close the bridge to vehicular traffic when the bridge reaches the end of its service life.
- The Director of LCPW recommended an evaluation of the bridge be completed to determine its remaining service life, and to close the bridge to vehicles and remain open for pedestrians only when the bridge reaches its end of life.
- LCC approved proceeding with the evaluation and deferred the decision to close the bridge.
- The evaluation was completed in March of 2012 (**Appendix D**) and recommended \$50,000 of repairs during the summer of 2012 to keep the bridge open and noted

“that there is significant risk to the County continuing to operate the Andrewsville Bridge”.

- On May 4th, 2012, at the request of Parks Canada, the Andrewsville Bridge was closed to vehicular traffic when a loaded transport truck illegally used the crossing, damaging the adjacent Parks Canada swing bridge at Nicholson’s Lock, and necessitating the closure of both bridges, to effect repairs. Although there was no visible damage to the Andrewsville Bridge, Lanark County hired MRC to inspect the bridge.
- MRC’s Emergency Inspection of the Andrewsville Bridge on May 9th, 2012 (**Appendix D**) identified evidence of distress in some of the truss members, which was not there in March 2012. The report concluded that the bridge can remain serviceable at the existing 5-tonne load limit, but a load trespass may result in failure.
- The Wardens, the Chairs of the Public Works Committees, the CAOs and the Engineers for the two Counties met in Merrickville on May 22nd, 2012, to review the Consultant’s recommendations. In the interests of public safety and fiscal prudence, the Meeting Participants agreed that a Joint Report, recommending the closure of the Andrewsville Bridge, to vehicular traffic, should be presented to both Councils as soon as possible. The Participants also agreed that notwithstanding the anticipated reopening of the Parks Canada swing bridge, at Nicholson’s Lock, that the Andrewsville Bridge should remain closed to vehicular traffic, pending the completion of the required Environmental Assessment Process and Public Consultation. The Participants further agreed that a Public Meeting should be held, in August, at the Montague Township Municipal Office.
- The joint report recommending permanent closure of the bridge was presented to the LCPWC on June 6, 2012 (**Appendix D**), and the Committee approved the motion (PW-2012-052) to proceed with spending the \$50K that was required to repair the bridge to extend its service life and to explore full replacement with anticipated potential future funding from the government. This motion was later deferred by LCC at their meeting on June 27, 2012, and defeated at their meeting on September 26, 2012.
- UCLGC decided to defer the decision to close the bridge at its meeting on June 21, 2012 until after a PIC is completed, and that the bridge remains temporarily closed until a decision is made.
- LCC at its meeting on June 27, 2012 (**Appendix D**), decided to defer the decision on the future of the Andrewsville Bridge until Lanark County and the United Counties of Leeds and Grenville have hosted a joint Public Consultation meeting, which was scheduled for August 30th, 2012 at the Rosedale Hall in Montague Township, and that the bridge remain temporarily closed until a final decision is made.
- The PIC was held at the Rosedale Hall, in Montague Township, from 5 to 7 pm, on August 30th, 2012. About 130 members of the public attended. The Public Consultation began with a 30 minute Presentation by Bill Bohne (**Appendix D**), the Consulting Engineer from McCormick Rankin Corporation, who has been assigned to this Project since 2005.
  - Bill Bohne’s presentation included updated pricing for each alternative as follows:
    - \$50,000 every ten years if the bridge is closed to vehicular traffic.

- \$50,000 - 100,000 for minor repairs to reopen the bridge, with additional expenditures of the same amount every 3 to 5 years.
  - \$2 million for a major rehabilitation, including strengthening the structure to accommodate 10 tonne loads. The feasibility, scope and cost of the rehabilitation could change if the structure receives a "Heritage" Designation.
  - \$3 to \$3.5 million to replace the bridge. The feasibility, scope and cost of the replacement could change if the structure receives a "Heritage" Designation.
- Members of the public were overwhelmingly in favour of reopening the Bridge, as soon as it was safe to do so, and maintaining the crossing, at Andrewsville, in the future.
- LCPW presented the results of the PIC and updated pricing to the LCPWC on September 19, 2012 (*Appendix D*).
- A recorded vote took place at the September 26, 2012 LCC meeting (*Appendix D*) regarding the motion to proceed with a the \$50,000 investment for each County, required to repair the bridge and was defeated
- At their October 24<sup>th</sup>, 2012, Meeting, LCC tasked LCPW to determine the process to close the Andrewsville Bridge to vehicular traffic, which was presented to the LCPW committee on November 7.
- The following motions were passed at the November 7, 2012 LCPW Committee Meeting (*Appendix D*):
  - **Motion #PW-2012-104**

"**THAT**, the Council of Lanark County agree to the following position in regards to the Andrewsville Bridge;

**THAT**, Lanark County agrees to provide a maximum of \$50,000, to be matched by funding from the United Counties of Leeds and Grenville over four years to allow traffic under five tonnes in weight on the Andrewsville Bridge; and

**THAT**, funding be sought outside the levy for replacement of the Andrewsville Bridge including Provincial and Federal Governments, Parks Canada and other agencies as well as community fundraising; and

**THAT**, in the event of a lack of non-levy funding to support the bridge, that further deterioration beyond Lanark County's contribution of \$50,000 over four years for a total of \$100,000 invested by the two counties, that Lanark County shall recommend reconsideration of options by Lanark County and the United Counties of Leeds and Grenville."

- **Motion #PW-2012-105**

"**THAT**, if adequate funding for the Andrewsville Bridge is not obtained over the five years, that the bridge be closed."

- LCPWC approved a motion to proceed with the repairs to the Andrewsville bridge in 2013, giving the CAO authority to award a contract being less than or equal to \$100,000 at its meeting on December 5, 2012 (*Appendix D*), which was adopted by LCC at its meeting on December 19, 2012.

## 2013

- Tender for repairs to the bridge (*Appendix E*) including the installation of overhead height restriction barriers was advertised in early January and closed on January 31, 2013, with Crains Construction being the low bidder, in the amount of \$47,200.
  - 2.5m height restriction barriers were selected to prevent tandem trucks and larger vehicles from crossing while allowing regular pickup trucks.
  - Repair costs totalled \$65,109, which included engineering and contract supervision.
  - Repairs were completed on February 28, 2013.
- The bridge was opened to vehicular traffic in March 2013.

## 2015

- Bi-annual inspection (*Appendix F*) completed by Jewel Engineering included recommendations to rehabilitate the bridge within 5 years. Due to high water levels, inspection of the floor beams underneath the structure was limited.

## 2016

- To renew the dialogue on the condition and future of the Andrewsville Bridge, report PW-13-2016 (*Appendix G*) was present to LCPWC on April 27, 2016.
  - The report included a letter of advice from Keystone Bridge Management recommending immediately replacing the stringers at the extreme west end to maintain the 5-tonne load limit and completing an enhanced inspection using waders and ladders to confirm the condition of the remaining floor system.
  - The replacement of the west stringers could be accommodated using the balance of the committed funds from 2012.
  - The report also provided the following options:
    - Option 1 (recommended): Lanark and Leeds Grenville each contribute an additional \$60K on top of the original \$50K committed back in 2012 over a twelve year period commencing Nov 2016 to allow traffic to continue to use the bridge under a load limit of 5-tonnes.
    - Option 2: no further commitment of money made and close the bridge when further repairs are required in the future.
    - Option 3: repairs required approved and completed on a case-by-case basis.
    - Option 4: The Counties download the bridge to the two local Municipalities.
  - The LCPWC selected Option 1, contingent upon the agreement by Leeds & Grenville committee, each contributing an additional \$60K over the next 12 years, which was also passed by LCC later that night.
  - UCLGC passed a motion at its meeting on July 5, 2016 to match the \$60K investment over the next 12 years (*Appendix G*).

- Contract PW-C-58-2016 (**Appendix G**) for the replacement of the west stringers was awarded to Willis Kerr for \$36,347 on July 19, 2016 with work being completed in early August.
- Keystone Bridge Management provided the enhanced wading inspection report to the County of Lanark in August 2016 (**Appendix G**).
  - The report recommended closing the bridge to traffic over the winter so that de-icing salts no longer contaminate the steel floor system.
  - The report also recommended painting the floor beams and bottom chords of the trusses.

## **2017**

- Bi-annual inspection completed by Keystone Bridge Management (**Appendix H**) noted perforations in the east stringers and severe decay in the timber curbs. The inspection recommended closing the bridge during the winter months.

## **2018**

- Keystone Bridge Management completed another enhanced wading inspection on August 9, 2018 (**Appendix I**).
  - The report recommended closing the bridge to traffic on an annual basis, from Dec 1 to March 31 to prevent de-icing salts from being tracked onto the bridge and further deteriorating the steel structure.
  - The report also recommended replacing the timber deck and stringers on the east approach and the timber curb on the entire bridge.
- LCPW presented the findings of the enhanced inspect to the LCPWC on September 26, 2018 (**Appendix I**).
  - A By-law was passed (2018-41) (**Appendix I**) approving recommendation to close the bridge to traffic on an annual basis from December 1<sup>st</sup> to March 31<sup>st</sup> to prolong the lifespan of the bridge.
  - Authorization was provided to proceed with the work on the east span and timber curbs.
- Contract C-63-2018 (**Appendix I**) was awarded to DW Building Restoration Services in the amount of \$66,286 to replace the timber deck and stringers on the east span and curbs on the entire structure.
  - Work was completed during the winter closure, completing in 2019.

## **2019**

- Keystone Bridge Management completed another regular bi-annual inspection and did not find any more required repairs (**Appendix J**).

## **2021**

- Updated enhanced wading inspection completed on July 5, 2021 (**Appendix K**) by Keystone Bridge Management services.
  - Results of the inspection included the following:
    - 2 large perforations in the webs of main girders discovered. The structural steel continues to deteriorate despite the winter months closure.
    - A structural evaluation was completed to ensure the 5-tonne load posting was adequate, which it was.

- The report recommended closing the bridge within 5 years.
- The report also recommended completing an EA assessment to investigate future options of the bridge.
- LCPW presented the results of the inspection to the LCPWC on August 25, 2021 (**Appendix K**).
  - The reports detailed the balance of remaining funds that were allocated in 2012 and 2016 to keep the bridge open until 2028 was only \$11,217 total.
  - The report presented the following options:
    - Option 1: Complete a Municipal Class Environmental Assessment to investigate the preferred future option of the bridge
    - Option 2: Work within existing allocated funds, conducting yearly inspections until the inspection recommends closing the bridge to traffic
    - Option 3: Proceed with closing the bridge.
  - The LCPWC agreed to proceed with Option 1 using Public Works existing Engineering budget.
- Contract C-58-2021 was awarded to Jewel Engineering for \$39,945 on December 3, 2021, to complete the EA Assessment.

## **2022**

- Notice of Study commencement issued on April 13, 2022 (**Appendix L**).
- Notice of Public Consultation issued on November 1, 2022 (**Appendix L**).
  - Public Consultation in the form of a virtual public consultation centre (PCC) was available on the County of Lanark's website for comment until December 2, 2022.

# APPENDIX A



# Andrewsville Bridge Site No. 015-0013



## Investigation and Recommended Rehabilitation Report

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## EXECUTIVE SUMMARY

The Andrewsville Bridge, located on Main Street in the hamlet of Andrewsville, is a two span, single lane, simply supported structure. The bridge is composed of two separate structures: a steel through truss with timber deck, and a timber deck on rolled steel girder structure. The exposed surface of the substructure is currently concrete; however, the concrete is likely a refacing over the original masonry.

The bridge is in poor condition. The asphalt is in poor condition with several wide transverse cracks, alligator cracks, medium progressive edge cracking and potholes. The timber deck is in fair condition with localized areas requiring replacement. The steel truss is in poor to fair condition with scattered light corrosion throughout. The steel below the deck is in poor to fair condition as the stringers at the west abutment have severe web section loss. The steel roller bearings are in poor condition and are severely corroded. The pier and abutments are in poor condition with extensive scaling, delaminations, spalls and widespread alkali-aggregate reaction. The bridge railing and approach guiderail are substandard.

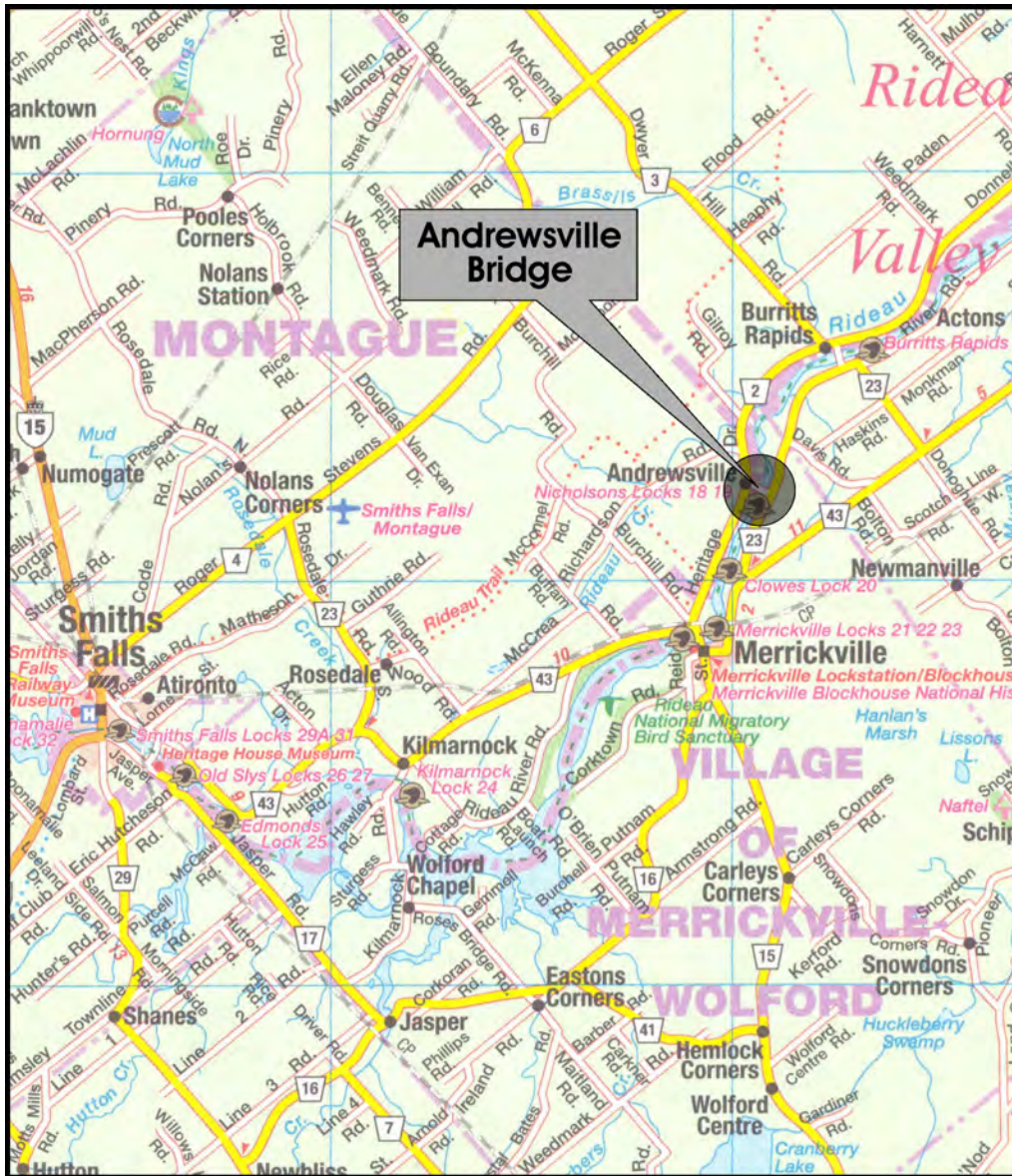
It is recommended that the webs of three of the stringers in the truss span at the West Abutment be strengthened by replacing a section of the deteriorated stringer. It is further recommended that this work be undertaken in the fall of 2005. The cost for this work is estimated to be \$7,000.00.

The bridge is 88 years old and is nearing the end of its service life. Five rehabilitation and replacement alternatives were investigated, and it was determined that a single lane structure is adequate to meet future traffic requirements, and that structure replacement (estimated cost of \$850,000) is not recommended at this time. It is recommended that the service life of the structure be extended with a major rehabilitation within the next few years. Work under this rehabilitation will include, but not be limited to, the following:

- Abrasive blast clean and recoat the structural steel;
- Remove the existing timber deck and construct a new timber deck;
- Install a crash-tested PL-1 barrier railing on the bridge;
- Remove and repair all deteriorated concrete in the substructure;
- Jack the bridge and replace all bearings with elastomeric bearings;
- Construct a reinforced concrete slab-on-grade on the east approach stone retaining walls;
- Upgrade the approach railing systems to meet current code requirements.

The cost for this rehabilitation is estimated to be \$400,000.00.

### KEY PLAN



| Inventory Data:              |  |
|------------------------------|--|
| Structure Name               | Andrewsville Bridge                      |
| MTO Region                   | Eastern                                  |
| MTO District                 | Kingston                                 |
| County                       | Lanark                                   |
| Township                     | Montague                                 |
| Structure Type               | Steel Truss, wood deck on steel girders  |
| Total Deck Area              | 236.80 (sq.m)                            |
| Total Deck Length            | 47.79 (m)                                |
| No. of Spans                 | 2  |
| Span Lengths                 | 38.545 m, 9.245 m                        |
| Main Highway                 | County Rd. 2 On <input type="checkbox"/> |
| Owner                        | County of Lanark                         |
| AADT                         | -  |
| Inspection Route Sequence    |  |
| Interchange Structure Number |  |
| Overall Structure Width      | 5.343 (m)                                |
| Roadway Width                | 4.460 (m)                                |

| Historical Data:  |            |
|---|------------|
| Year Built  | 1915       |
| Evaluation Year   |            |
| Latest Biennial Inspection  | 2004       |
| Last Condition Survey   |            |
| Current Load Limit  | 5.0 tonnes |
| Last BridgeMaster Inspection  |            |
| Last Underwater Inspection  |            |
| Rehab. History: (Date/description)<br>1963 – timber deck and curb replaced. |            |

| Field Inspection Information: |                    |
|-------------------------------|--------------------|
| Date of Inspection:           | June 9, 2005       |
| Inspector:                    | Bill Bohne, P.Eng. |
| Others in Party:              | Nathan Bakker, EIT |
| Weather:                      | Sunny and humid    |
| Temperature:                  | 30°C               |

| Additional Investigations Required: | Priority |        |        |
|-------------------------------------|----------|--------|--------|
|                                     | None     | Normal | Urgent |
| Detailed Deck Condition Survey:     |          | X      |        |
| DART Survey:                        |          | X      |        |
| Detailed Coating Condition Survey:  |          | X      |        |
| Underwater Investigation:           |          | X      |        |
| Fatigue Investigation:              |          | X      |        |
| Seismic Investigation:              |          | X      |        |
| Structure Evaluation:               |          | X      |        |

## **1.0 INTRODUCTION**

McCormick Rankin Corporation (MRC) was retained by the County of Lanark to undertake the inspection and detailed design for the rehabilitation of the Andrewsville Bridge (MTO Site No. 015-0013). The first phase of the assignment includes a total station survey of the structure and approach roadways, a delamination survey of all exposed concrete components, the evaluation and analysis of rehabilitation alternatives, and the preparation of a preliminary General Arrangement drawing detailing the rehabilitation work to be completed.

This report summarizes the results of the field investigation, including photographs, recommendations for rehabilitation and studies as required and preliminary cost estimates. Photographs of existing conditions and significant areas of deterioration are included in Appendix A. A preliminary General Arrangement drawing is included in Appendix B. A description and history of the structure, a summary of significant findings, and a discussion of recommended rehabilitations and cost estimates are detailed in Sections 2 through 5 inclusive.

## **2.0 STRUCTURE DESCRIPTION AND HISTORY**

The Andrewsville Bridge spans the Rideau River in the hamlet of Andrewsville, located between Merrickville and Burritts Rapids. Constructed in 1918, it is comprised of two simply supported structures: a 38.5 m steel modified Warren truss and a 9.2 m long steel girder (Photographs 1 and 2). The deck on both spans is 52 mm x 152 mm (2" x 6") transverse timbers laid on their sides. The timber deck has an asphalt topping and a 152 mm x 152 mm timber curb. The substructure consists of two concrete abutments and one concrete pier founded on spread footings on bedrock. In its current configuration, the structures permit one lane of traffic, with oncoming traffic yielding to vehicles on the bridge (Photograph 4). The west approach through the town of Andrewsville is two lanes. The embankment on the east approach is a single lane comprised of two dry stone retaining walls approximately 70 m in length (Photograph 3). The road continues as a two lane roadway to the east of the embankment where it crosses the Rideau Canal at Nicholsons Locks (approximately 500 m from the Andrewsville Bridge).

Information on previous rehabilitations of the Andrewsville Bridge is limited. Records indicate that the timber deck was replaced in 1963 with creosote-treated jack pine timbers. Field observations on the condition of the substructure indicate that the original substructure was likely masonry that was later refaced with concrete, but there are no records to substantiate this observation.

## **3.0 SUMMARY OF SIGNIFICANT FINDINGS**

### **3.1 General**

The truss structure is posted at 5 tonnes, and the posted speed limit across both structures is 10 km/hr. The west approach is tangent to the structures and there is a sharp horizontal curve just past the limits of the stone retaining wall at the east approach (Photograph 5). The width of the travelled lane across the structures is approximately 4400 mm.

### **3.2 Superstructure**

The timber deck is in fair to poor condition. The timbers are connected to the stringers with steel clip angles (Photograph 18). At many of these clip angles, the timbers have separated (Photograph 9), permitting runoff through the timbers. The runoff has removed the protective creosote in these locations, and there is evidence of brown and white rot in the timbers (Photographs 10, 11, 12). The asphalt wearing surface has also failed in these locations (Photographs 7 and 8). The deck has separated from the steel stringers in several locations and the timbers were observed to deflect upwards under traffic loads. There is evidence of numerous previous repairs to the asphalt over the expansion joints (Photograph 6).

The steel truss is in fair condition, with widespread light corrosion and minor section loss throughout. The structural steel in the truss is typically in better condition above deck than below deck. The below deck steel floor system consists of longitudinal stringers and transverse floorbeams, which are suspended below the bottom chord in the truss span (Photograph 13) and tie into the exterior girder in the short span (Photograph 17). The steel floor systems are generally in fair condition, with the exception of the stringers at the West Abutment, which exhibit very severe section loss (Photographs 19 and 20).

Lateral bracing for the steel floor system is provided by square iron bars that are anchored to, and pass through, the floorbeams (Photographs 15 and 16). The bracing is in fair to poor condition.

The truss bearings are fixed steel bearing plates at the pier and nested roller bearings at the West Abutment. The north roller bearing is in poor condition (Photographs 21 and 22), and the south roller bearing is in fair to good condition (Photograph 23). The longitudinal stringers on the truss do not tie into the transverse floorbeams at the bearings, but are individually supported on brick bearing pads (Photograph 24). The short span is fixed at both ends.

### **3.3 Substructure**

The abutments and pier are in poor condition with extensive scaling, delaminations, spalls, deterioration, and alkali-aggregate reaction (Photographs 27, 26, 28, 29). The bearing seats are similarly delaminated, severely scaled and disintegrated at the pier and East Abutment (Photographs 31 and 32). The East Abutment ballast wall exhibits severe deterioration (photograph 30) and undermining of the north bearing plate (Photograph 25). Based on field observations, it appears that the existing substructure, likely masonry, has been encased in concrete (Photograph 32). However, further investigation would be required to confirm visual observations. The top of the footings were exposed and wide cracks, delamination, and spalls were noted throughout.

The severe deterioration of the substructure components is consistent with the deterioration typical when masonry structures are encased in concrete. It is therefore likely that the existing substructure was constructed of masonry shafts with concrete bearing seats and ballast walls (see Photographs 31 and 32).

### **3.4 Miscellaneous Components**

The bridge railing, consisting of 3 x 50 mm diameter hollow tubular steel sections mounted to the truss members exhibits extensive light to medium corrosion and has been damaged in several locations (Photograph 4). The bridge railing is substandard with respect to current code requirements.

The fills in the east approach are retained by an ungrouted masonry retaining wall (photograph 3). The wall is in fair to poor condition. The wall has settled on the south side, which has deformed the guiderail (Photograph 34).

Similar to the bridge railing, the approach railing is substandard and has been damaged in several locations. On the east approach, the railing posts are cast into concrete blocks that sit on an ungrouted masonry wall (Photograph 3).

The curb on the deck consists of 152 mm x 152 mm timbers (Photograph 33), and is in fair to good condition.

## **4.0 REHABILITATION ALTERNATIVES AND RECOMMENDATIONS**

### **4.1 Short Term Rehabilitation**

Three of the stringers supported on the West Abutment exhibit very severe deterioration and it is recommended that they be repaired immediately by removing a 600 mm long section of the deteriorated stringer and replacing it with a section of S200x27. A complete scope of work for, and details of, the repair may be found in Appendix B.

### **4.2 Long Term Rehabilitation**

The selection of any long-term rehabilitation methodology for the Andrewsville Bridge must address the following concerns:

- The existing bridge is in fair to poor condition, is a single lane structure, and is nearly 90 years old;
- The structure is posted for 5 tonnes, but there are no records to indicate when this posting was implemented, nor if any structural evaluation was undertaken to determine this posting;
- The bridge railing system is connected directly to the truss members, and likely could not withstand any significant impact, which could result in significant damage to or complete failure of the truss;
- The existing timber deck is exhibiting severe deterioration and is more than 40 years old;
- The substructure is masonry encased in concrete, and the condition of the masonry cannot be determined without extensive destructive testing;
- The east approach alignment is substandard;
- The approach guiderail is substandard, and the configuration of the approach will not permit upgrading of the approach without significant widening (including reconstruction of the existing stone walls at the east approach).



The Canadian Highway Bridge Design Code (CHBDC) and the MTO Structural Financial Analysis Manual indicate that the assumed service life of a bridge is 75 years. Given the age of the structure and the extent of deterioration, the next major rehabilitation would typically involve replacement of the structure. However, due to the low traffic volume (AADT = 200) and the severe load posting, it is anticipated that the service life of the bridge can be extended by approximately 10 years with the rehabilitation of the primary components. Accordingly, both replacement and rehabilitation alternatives have been considered. A summary of the advantages and disadvantages of each alternative is detailed in Table 1.

### ***Alternative 1 – Do Nothing***

Although this is the least expensive alternative (no capital outlay in the near future other than the stringer repairs detailed in Section 4.1), potential liability issues with the bridge and approach railings are not addressed. The continued deterioration of the timber deck will eventually result in punch-trough failures, which could close the bridge until repairs are effected. Accordingly, this alternative is not recommended.

### ***Alternative 2 Replace Timber Deck, Upgrade Bridge Railing, Repair Substructure***

In this alternative, the timber deck is replaced in kind and the concrete substructure is repaired. The bridge is jacked and the existing bearings are replaced with elastomeric bearings. The existing railing is removed and replaced with a Performance Level 1 (PL-1) railing system from the MTO publication “Crash Tested Bridge Railings” which is anchored to the new timber deck. A structural evaluation is undertaken to determine the required load posting.

The advantage of this alternative is that the potential for severe damage or total collapse of the structure due to impact damage is addressed, and the service life of the structure is extended with the repairs to the deck and substructure. The primary disadvantage is that the potential liability issues with the substandard approach railing are not addressed.

### ***Alternative 3 Replace Timber Deck, Upgrade Bridge and Approach Railings, Repair Substructure***

This alternative is similar to Alternative 2 with the addition of upgrades to the approach guiderail system. The new approach railing system cannot be anchored into the existing masonry wall, so a reinforced concrete slab will be constructed over the entire width of the approach fills, and the railing system will be anchored to the slab. All potential liability concerns are addressed with this alternative. However, it represents a significant outlay of capital for a single lane structure. In addition, the construction of the approach slab will necessitate closure of the bridge for a prolonged period of time.

### ***Alternative 4 New Single Lane Structure***

In this alternative, the existing structure is replaced with a single lane slab-on-girder structure (MTO Guidelines for the Design of Bridges on Low Volume Roads permits the construction of new single lane bridges on roads with AADT < 400). The east approach fills are reconstructed to meet current code requirements. This alternative represents a significant outlay of capital for a

low volume road. In addition, the widened fills and required wall reconstruction on the east approach may have detrimental environmental impacts on the watercourse.

#### ***Alternative 5 New Two Lane Structure***

In this alternative, the existing bridge is replaced with a two lane slab-on-girder bridge. This alternative resolves all geometric and structural concerns, but requires significant widening of the east approach.

It is our understanding, through discussions with the Counties of Lanark and Leeds & Grenville, that it is unlikely that the approach roadways will be widened to two lanes in the near future. The bridge over the Rideau Canal to the east of the Andrewsville Bridge is a single lane structure, and no long-term widening of this bridge is planned. Accordingly, this alternative is not recommended.

### **4.3 Recommended Rehabilitation**

It is recommended that the Andrewsville Bridge be rehabilitated in accordance with Alternative 3. This alternative addresses all structural deficiencies and potential liability concerns while extending the service life of the structure and minimizing impacts to the watercourse associated with structure replacement. A detailed breakdown of the work included in the alternative is summarized in Section 5.0 – Cost Estimates, and a preliminary General Arrangement drawing is included in Appendix B. It is our understanding that the County of Lanark is considering implementing Alternative 2 and accepting the liability associated with maintaining the east approach as is.

However, prior to the implementation of any rehabilitation alternative, it is strongly recommended that a structural evaluation be undertaken on the bridge to determine the actual load posting on the structure. The recommended rehabilitation requires a significant outlay of funds (approximately \$400,000), and it is prudent to ensure that the existing structure will meet the current and intended use of the bridge for the next decade.

| <b>Table 1 – Rehabilitation Alternatives</b> |  |  |  |                                |
|--|--|--|--|--------------------------------|
| <b>Alt.</b>                                  | <b>Description</b>   | <b>Advantages</b>  | <b>Disadvantages</b>   | <b>Estimated Cost (\$2005)</b> |
| 1  | <ul style="list-style-type: none"> <li>• Maintenance repairs as required.</li> </ul>   | <ul style="list-style-type: none"> <li>• Minimal outlay of capital in 2006</li> </ul>  | <ul style="list-style-type: none"> <li>• Deficiencies in structure and approaches are not addressed</li> <li>• Actual capacity of structure is not known</li> <li>• Potential risk to the County due to deficiencies is not addressed</li> </ul>   | -                              |
| 2  | <ul style="list-style-type: none"> <li>• Remove and replace existing asphalt and timber deck</li> <li>• Install PL-1 crash tested bridge railing system</li> <li>• Repairs to the structural steel as required</li> <li>• Remove rollers and replace with elastomeric bearing pads</li> <li>• Repair deteriorated concrete in piers and abutments</li> </ul> | <ul style="list-style-type: none"> <li>• Least expensive of rehabilitation alternatives</li> <li>• Service life of structure is extended through deck replacement and substructure repairs</li> <li>• Potential for structure collapse due to vehicular impact is mitigated by installation of bridge railing system</li> </ul>  | <ul style="list-style-type: none"> <li>• Substandard approach railing and potential liability due to the railing is not addressed</li> <li>• Poor approach alignment not addressed</li> <li>• Actual capacity of structure is not known</li> </ul> | \$85,000                       |
| 3  | <ul style="list-style-type: none"> <li>• Same repairs as detailed in Alternative 2 above</li> <li>• Construct concrete slab-on-grade on east approach fills</li> <li>• Construct a crash-tested railing system on approach slab</li> </ul>   | <ul style="list-style-type: none"> <li>• Service life of structure is extended through deck replacement and substructure repairs</li> <li>• Potential for structure collapse is avoided by installation of bridge railing system</li> <li>• Approach railings meet current code requirements</li> <li>• Potential for liability associated with bridge collapse and approach railing failure is addressed</li> </ul> | <ul style="list-style-type: none"> <li>• Significant outlay of capital for a structure with limited remaining service life</li> <li>• Poor approach alignment not addressed</li> </ul>   | \$400,000                      |
| 4  | <ul style="list-style-type: none"> <li>• Replace existing structure with single lane structure</li> <li>• Construct a concrete slab on east approach fills and upgrade guiderail</li> </ul>  | <ul style="list-style-type: none"> <li>• Structural and guiderail deficiencies addressed</li> </ul>  | <ul style="list-style-type: none"> <li>• Significant outlay of capital for a single lane bridge</li> <li>• Potential environmental impacts due to minor widening</li> </ul>  | \$850,000                      |
| 5  | <ul style="list-style-type: none"> <li>• Replace existing structure with two lane structure</li> <li>• Widen east approach to permit two lanes of traffic</li> <li>• Upgrade approach guiderail</li> </ul>   | <ul style="list-style-type: none"> <li>• All deficiencies addressed</li> </ul>   | <ul style="list-style-type: none"> <li>• Two lane bridge not required</li> <li>• Significant outlay of capital</li> <li>• Potential environmental impacts due to significant widening</li> </ul>   | \$1,650,000                    |

## 5.0 COST ESTIMATES

Cost estimates for the rehabilitation alternatives discussed in Section 4.0 are tabulated below. All costs are in 2005 dollars. For the duration of the rehabilitation, the structure would be closed, which will result in a detour of approximately 10 km.

It is estimated that a structural evaluation of the Andrewsville Bridge would cost approximately \$8,000.00.

| <b>Table 2 – Upgrading Bridge Railing and Approach Guiderail</b> |                |                 |                          |                  |
|--|----------------|-----------------|--------------------------|------------------|
| <b>Description</b>   | <b>Unit</b>    | <b>Quantity</b> | <b>Unit Cost</b>         | <b>Item Cost</b> |
| Traffic Control  | L.S.           | -               | -                        | \$5,000          |
| Removal of Existing Timber Deck and Asphalt                      | L.S.           | -               | -                        | \$10,000         |
| Timber Replacement   | L.S.           | -               | -                        | \$45,000         |
| Jacking Bridge Deck  | L.S.           | -               | -                        | \$5,000          |
| Bearing Modifications (removal of rollers, installation of pads) | L.S.           | -               | -                        | \$10,000         |
| Concrete Removals, Partial Depth Type C                          | m <sup>3</sup> | 5.5             | \$3,500.00               | \$19,250         |
| Concrete Repairs, Formed Surfaces                                | m <sup>3</sup> | 4.6             | \$2,000.00               | \$9,200          |
| Concrete Refacing  | m <sup>3</sup> | 4.0             | \$1,000.00               | \$4,000          |
| Recoating Structural Steel (including environmental protection)  | L.S.           | -               | -                        | \$50,000         |
| Concrete in Approach Slab  | m <sup>3</sup> | 45              | \$1,000.00               | \$45,000         |
| Reinforcing Steel  | t              | 3.1             | \$1,800.00               | \$5,580          |
| Coated Reinforcing Steel   | t              | 3.1             | \$2,400.00               | \$7,440          |
| Bridge Railing System  | m              | 96              | \$700.00                 | \$67,200         |
| Steel Beam Guiderail   | m              | 140             | \$85.00                  | \$11,900         |
| Steel Beam Guiderail with Channel                                | m              | 40              | \$115.00                 | \$4,600          |
|  |                |                 | <b>Subtotal</b>          | <b>\$304,170</b> |
|  |                |                 | <b>Contingency (15%)</b> | <b>\$45,626</b>  |
|  |                |                 | <b>Total</b>             | <b>\$350,000</b> |
|  |                |                 | <b>Engineering (15%)</b> | <b>\$50,000</b>  |
|  |                |                 | <b>Rounded Total</b>     | <b>\$400,000</b> |

Report Prepared By:

Report Reviewed By:

Bill Bohne, P.Eng.

Michel Vachon, P.Eng.

***APPENDIX A***  
***SITE PHOTOGRAPHS***



Photograph 1: North elevation of Andrewsville Bridge.



Photograph 2: Detail of truss span and slab on girder span.



Photograph 3: North elevation of east stone retaining wall.



Photograph 4: View across truss span, looking east.



Photograph 5: View of east approach, looking east from East Abutment.



Photograph 6: East expansion joint, looking south.





Photograph 7: View of west expansion joint, looking east.



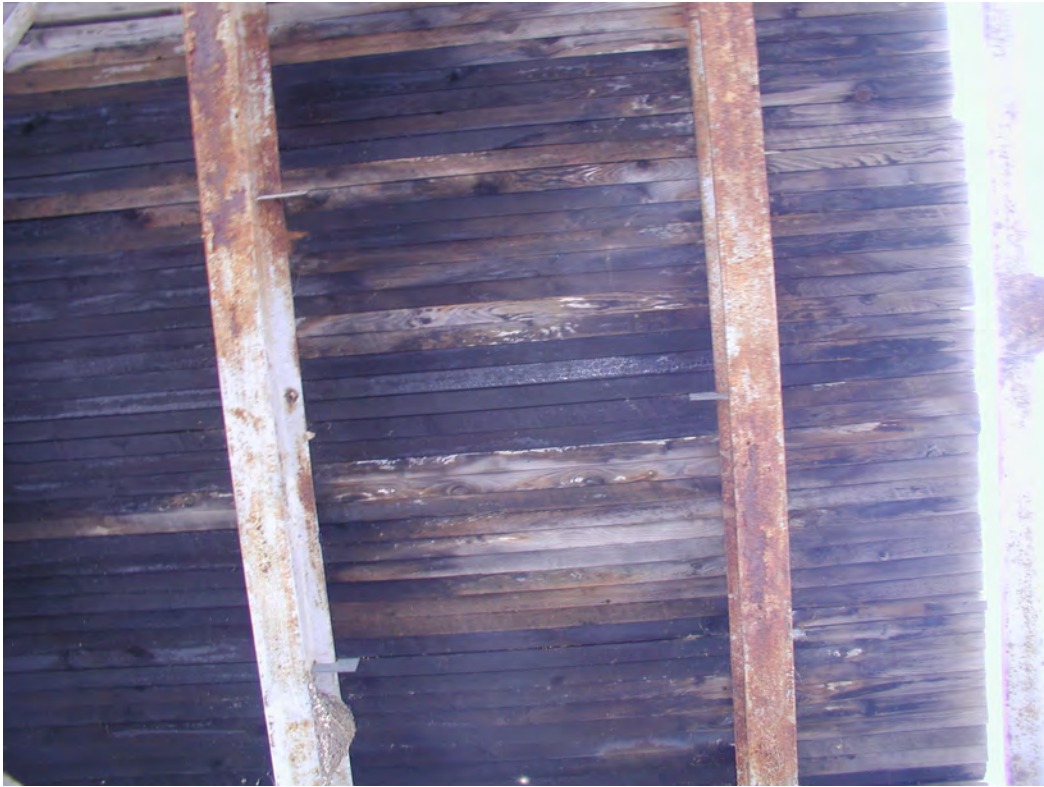
Photograph 8: Detail of asphalt deterioration on timber deck.



Photograph 9: Detail of deteriorated asphalt showing gap between underlying timbers.



Photograph 10: Typical condition of underside of deck.



Photograph 11: Exterior stringers typically exhibit more corrosion than interior stringers.



Photograph 12: Creosote is generally missing on timbers in locations of gaps, which have allowed penetration of water.



Photograph 13: Configuration of below-deck structural steel in truss span.



Photograph 14: View of longitudinal stringers and deck just west of pier.



Photograph 15: Detail of cross-bracing as it passes through the web of the floorbeam.



Photograph 16: Detail of cross-bracing connection at floorbeam.



Photograph 17: Configuration of below-deck structural steel in slab-on-girder span.



Photograph 18: Detail of clip attaching deck to stringer,



Photograph 19: Very severe section loss in web of middle stringer, West Abutment.



Photograph 20: Section loss and crack in web of exterior stringer, West Abutment.



Photograph 21: Bearing configuration at West Abutment.



Photograph 22: Detail of deterioration of north roller bearing, West Abutment.





Photograph 23: Detail of south roller bearing at West Abutment.



Photograph 24: Detail of bearing pads on interior girders, East and West Abutments.



Photograph 25: North bearings at pier. Note undermining of east bearing.



Photograph 26: Face of West Abutment is characterized by extensive scaling, delaminations, and alkali-aggregate reaction. Condition of face of East Abutment is similar.



Photograph 27: Elevation of south wingwall at West Abutment.



Photograph 28: Deterioration of west face of pier nosing. Note extensive deterioration and alkali-aggregate reaction. Condition of east face is similar.



Photograph 29: Condition of east face of pier. Condition of west face is similar.



Photograph 30: Detail of deterioration of ballast wall of East Abutment, north side.



Photograph 31: Deterioration of bearing seat and ballast wall, East Abutment.



Photograph 32: Detail of top of East Abutment, showing concrete encasement. West Abutment similar.



Photograph 33: Detail of curb on timber deck.



Photograph 34: Deformed railing on south side of east approach retaining wall as a result of slope erosion undermining posts.

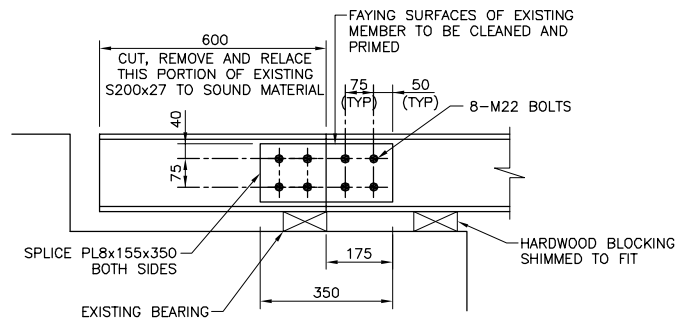
GENERAL NOTES

1. ALL STRUCTURAL STEEL SHALL CONFORM TO CSA STANDARD CAN/CSA-G40.21-M92 GRADE 350. ROLLED SECTIONS SHALL CONFORM TO CSA STANDARD CAN/CSA-G40.21-M92 OR ASTM SPECIFICATION A588.
2. BOLTS SHALL BE GALVANIZED ASTM A325M TYPE 1, M22. BOLT THREADS SHALL BE EXCLUDED FROM THE SHEAR PLANES.
3. DIMENSIONS ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY EXISTING DIMENSIONS PRIOR TO THE COMMENCEMENT OF WORK AND REPORT ANY DISCREPANCIES TO THE ENGINEER.
4. ALL NEW STEEL SHALL BE ABRASIVE BLAST CLEANED TO SSPC SP10 (NEAR WHITE) AND PRIMED WITH A ZINC RICH PRIMER.

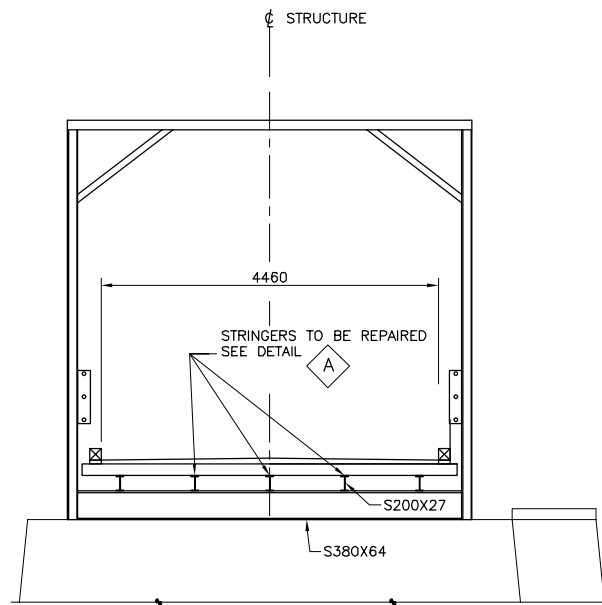
SCOPE OF WORK

1. ERECT TEMPORARY TRAFFIC CONTROL AND CLOSE BRIDGE TO TRAFFIC.
2. INSTALL TEMPORARY HARDWOOD BLOCKING AND SHIM TO FIT.
3. REMOVE DETERIORATED STEEL SECTION ON THREE (3) STRINGERS AT WEST ABUTMENT TO LIMITS SHOWN ON CONTRACT DRAWINGS. ALL STRUCTURAL STEEL REMOVALS SHALL BE UNDERTAKEN IN ACCORDANCE WITH OPSS 906.
4. POWER TOOL CLEAN EXISTING STEEL FAYING SURFACES TO BARE METAL IN ACCORDANCE WITH SSPC-SP-11 AND PRIME WITH ZINC RICH PRIMER.
5. INSTALL NEW STEEL MEMBER AND SPLICE PLATES. BOLTS TO BE TIGHTENED USING THE "TURN OF THE NUT" METHOD.
6. REMOVE TEMPORARY HARDWOOD BLOCKING, REOPEN BRIDGE TO TRAFFIC.

1:20



1:20




1:100

FILE LOCATION: \\A:\6075\CURRENT\SHEETS\ANDREWSVILLE BRIDGE\  
 DRAWING NAME: 6075-ANDREW-DETAIL.DWG  
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| DRAWN  | MS  | CHK | WRB | SITE 015-0013 | STRUCT      | SCHEME | DWG      |

|   |       |
|---|-------|
| COUNTY OF LANARK<br>5 BRIDGE REHABILITATIONS<br>ANDREWSVILLE BRIDGE   | SHEET |
| STRINGERS REPAIR DETAIL<br>WEST ABUTMENT  |       |
|  <b>McCORMICK RANKIN CORPORATION</b> |       |





# APPENDIX B



**MINUTES  
FIRST MEETING OF 2007  
PUBLIC WORKS COMMITTEE OF THE WHOLE**

The Public Works Committee of the Whole met on Wednesday, January 17<sup>th</sup>, 2007 following the Community Development Committee meeting at the Lanark County Administrative Building, Sunset Blvd., Perth, Ontario.

**Members Present:** Chair S. Freeman, Warden A. Lunney, B. Fletcher, B. Horlin, B. Hurre, J. MacTavish, P. Kavanagh, J. Fenik, W. Laut, K. Kerr, R. Kidd, S. Mousseau, P. Dulmage, E. Sonnenburg, A. Churchill and J. Lowe.

**Staff/Others Present:** P. Wagland, Chief Administrative Officer, C. Ritchie, Clerk, S. Allan, Director of Public Works, J. Dickey, Fleet and Facilities Manager (left at 8:57 p.m.) A. Mabo, Committee Secretariat/Administrative Assistant, P. McLaren, IT Support.

**Absent:** None.

**PUBLIC WORKS**

**Chair :** Councillor Susan Freeman

**1. CALL TO ORDER**

The meeting was called to order at 7:47 p.m.  
A quorum was present.

**2. DISCLOSURE OF PECUNIARY INTEREST**

None.

**3. APPROVAL OF MINUTES**

**MOTION #PW-2007-01**

**MOVED BY:** Keith Kerr

**SECONDED BY:** Aubrey Churchill

**“THAT**, the minutes of the Public Works Committee meeting held on November 1<sup>st</sup>, 2006 be approved as circulated.”

**ADOPTED**

#### 4. ADDITIONS AND APPROVAL OF AGENDA

- i) Under New/Other Business: 2007 OGRA/ROMA Minister Delegation Topics.

##### **MOTION #PW-2007-02**

**MOVED BY:** Paul Dulmage

**SECONDED BY:** Sharon Mousseau

“**THAT**, the agenda be adopted as amended.”

**ADOPTED**

#### 5. DELEGATIONS/PRESENTATIONS

- i) Public Works Orientation.  
**Director of Public Works Steve Allan.**

Copies of the Presentations can be requested from the Clerk’s Office at 613-267-4200 ext. 119 or [amabo@county.lanark.on.ca](mailto:amabo@county.lanark.on.ca).

The Public Works Supervisors were in attendance for the Orientation presentation. Janet Tysick, Office Coordinator; Gerry Cole, Perth Operations Supervisor; Tom Guindon, Almonte Operations Supervisor and Walter Warwick, Construction Supervisor.

S. Allan overviewed the mission, organization, roads, bridges, operations, waste management and County – Local Municipal coordination.

The Committee recessed at 8:51 p.m.

The Committee returned to session at 8:57 p.m.

Fleet and Facilities Manager J. Dickey left at 8:57 p.m.

#### 6. COMMUNICATIONS

- i) Ministry of Transportation, Chapter 4, Section 4.14, Maintenance of the Provincial Highway System.
- ii) Notice of DCR Submission and Study Completion Highway 15 Improvements Smith Falls to Franktown.
- iii) Notice McNeely Avenue Environmental Assessment Public Meeting January 18<sup>th</sup>, 2007.

- iv) Perth Arterial Roadway Environmental Assessment Technical Advisory Committee Meeting Report #1.

**MOTION #PW-2007-03**

**MOVED BY:** John Fenik

**SECONDED BY:** Wendy Laut

**“THAT**, staff be requested to compile a report that establishes the following:

- a) the rationale for the designation of new County roads;
- b) the principles for the establishment of cost sharing agreements for the study, design construction and operation of any newly designed County roads;
- c) the level of service and funding support provided to existing and future County roads required to accommodate growth;

**AND FURTHERMORE THAT**, this report be incorporated into the draft transportation master plan.”

**ADOPTED**

In reviewing the draft transportation master plan this piece was missing. These items will be answered prior to the transportation master plan being undertaken.

In the meantime, Council will lobby the Ministry for the construction and funding of the Perth by-pass at the OGRA/ROMA Conference.

- v) Ontario Good Roads Association Board Brief December 1<sup>st</sup>, 2006.
- vi) Ministry of Transportation Highway Access Management Initiative.
- vii) Canada-Ontario Municipal Rural Infrastructure Fund (COMRIF) Intake Three Funded Project.
- viii) Carmon Crosbie, Resident regarding County Road 511 deterioration.
- ix) Town of Carleton Place regarding Appointment to Public Transit System Committee.

A County Transit System study will be done through an RFP. There is a provision in the draft transportation master plan.

Smiths Falls has been given the opportunity to participate in the transportation master plan process but has yet to submit comments.

- x) ROMA Request for Nominations for the 2007 – 2010 ROMA Board.

**MOTION #PW-2007-04**

**MOVED BY:** Sharon Mousseau

**SECONDED BY:** Richard Kidd

“**THAT**, communication items for the January 2007 Public Works Committee meeting, excluding item (iv) be received as information only.”

**ADOPTED**

**7. REPORTS**

- i) Report #PW-01-2007 Public Works Contracts Status Report #1.  
**Director of Public Works, Steve Allan.**

The purpose of this report is to inform the Committee of the status of Public Works Contracts.

**MOTION #PW-2007-05**

**MOVED BY:** Richard Kidd

**SECONDED BY:** Sharon Mousseau

“**THAT**, Report #PW-01-2007 Public Works Contracts Status Report #1 be received as information only.”

**ADOPTED**

- ii) Tender Authorization Reports.  
**Director of Public Works, Steve Allan.**

- a) Report #PW-02-2007 County Road #14 (Narrows Locks Road) Proposed Improvements.
- b) Report #PW-04-2007 County Road #16 (Wolfe Grove Road) Proposed Improvements.
- c) Report #PW-07-2007 Bakers Bridge Rehabilitation.
- d) Report #PW-12-2007 Maberly Bridge Rehabilitation.

**MOTION #PW-2007-06**

**MOVED BY:** Richard Kidd

**SECONDED BY:** John Fenik

“**THAT**, the Director of Public Works be authorized to tender the:

- a) County Road 14 Rehabilitation project, as described in Report #PW-02-2007;
- b) County Road 16 Rehabilitation project, as described in Report #PW-04-2007;
- c) Bakers Bridge Rehabilitation project, as described in Report #PW-07-2007;
- d) Maberly Bridge Rehabilitation project, as described in Report #PW-12-2007.”

**THAT**, the tender documents stipulate that the contract awards are subject to County Council 2007 budget approval;

**THAT**, the Director of Public Works present the results of the tender calls and a recommendation to the Corporate Services Committee during budget deliberations;

**AND THAT**, the Clerk sends:

- a) Report #PW-02-2007 to the Tay Valley Township Clerk, for information;
- b) Report #PW-04-2007 to the Town of Mississippi Mills Clerk, for information;
- c) Report #PW-07-2007 to the Montague Township Clerk, for information;
- d) Report #PW-12-2007 to the Tay Valley Township Clerk, for information."

**ADOPTED**

- iii) Report #PW-03-2007 County Road #15 (Ferguson's Falls Road) Proposed Improvements.

**Director of Public Works, Steve Allan.**

The purpose of this report is to seek Council approval of the proposed plans to rehabilitate County Road 15 (Ferguson's Falls Road) in 2007. The tender has been written to include paved shoulders in the Hamlet. There are other options that will be discussed during the budget process.

**MOTION #PW-2007-07**

**MOVED BY:** Aubrey Churchill

**SECONDED BY:** Ed Sonnenburg

**"THAT**, the Director of Public Works be authorized to tender the County Road 15 Rehabilitation project, as described in Report #PW-03-2007;

**THAT**, the tender document stipulates that the contract award is subject to County Council 2007 budget approval;

**THAT**, the Public Works Committee provides staff direction regarding the addition of paved shoulders to the County Road 15 project;

**THAT**, the Director of Public Works presents the results of the County Road 15 Rehabilitation tender call and a recommendation to the Corporate Services Committee during budget deliberations;

**THAT**, the Director presents a by-law to County Council to reduce the posted speed limit on County Road 15, within the limits of the hamlet of Ferguson's Falls, from 60 kph to 50 kph;

**AND THAT**, the Clerk sends Report #PW-03-2007 to the Drummond/ North Elmsley Township and the Lanark Highlands Township Clerks, for information."

**ADOPTED**

- iv) Report #PW-05-2007 Deacon Bridge Rehabilitation.  
**Director of Public Works, Steve Allan.**

The purpose of this report is to seek Council approval of the proposed plans to rehabilitate the Deacon Bridge in 2007.

**MOTION #PW-2007-08**

**MOVED BY:** Keith Kerr

**SECONDED BY:** Sharon Mousseau

**“THAT**, the Director of Public Works be authorized to tender the Deacon Bridge Rehabilitation project, as described in Report #PW-05-2007;

**THAT**, the tender document stipulates that the contract award is subject to County Council 2007 budget approval;

**THAT**, the Director of Public Works presents the results of the Deacon Bridge Rehabilitation tender call and a recommendation to the Corporate Services Committee during budget deliberations;

**THAT**, two-thirds of the Deacon Bridge Rehabilitation project cost (up to \$355,140) is funded from the approved Canada-Ontario Municipal Rural Infrastructure Fund (COMRIF) Intake 2 grant;

**AND THAT**, the Clerk sends Report #PW-05-2007 to the Tay Valley Township Clerk, for information.”

**ADOPTED**

- v) Report #PW-06-2007 Rural Infrastructure Investment Initiative Funding Application.  
**Director of Public Works, Steve Allan.**

The purpose of this report is to recommend that the County of Lanark submit an application for Rural Infrastructure Investment Initiative funding for the Rehabilitation of County Road 15 (Ferguson’s Falls Road).

**MOTION #PW-2007-09**

**MOVED BY:** John Fenik

**SECONDED BY:** Keith Kerr

**“THAT**, the Director of Public Works submit a Rural Infrastructure Investment Initiative funding application, by February 5<sup>th</sup>, 2007, for the Rehabilitation of County Road 15 (Ferguson’s Falls Road) with a total estimated project cost of \$1.8 million;

**THAT**, a by-law authorizing the submission of the funding application is presented at the January meeting of County Council;

**AND THAT**, the Clerk sends Report #PW-06-2007 to Norm Sterling M.P.P, for information.”

**ADOPTED**

- vi) Report #PW-08-2007 Town of Mississippi Mills Cost Sharing Request: Ottawa Street Reconstruction.  
**Director of Public Works, Steve Allan.**

The purpose of this Report is to inform Council of a Town of Mississippi Mills request to partially fund road works related to the reconstruction of Ottawa Street between St. James Street and County Road 17 (Appleton Side Road) in Almonte Ward.

**MOTION #PW-2007-10**

**MOVED BY:** John Fenik

**SECONDED BY:** Al Lunney

“**THAT**, the County contribution to the Town of Mississippi Mills Ottawa Street Reconstruction project be referred to the 2007 budget deliberations;

**AND THAT**, the Clerk sends Report #PW-08-2007 to the Town of Mississippi Mills Clerk, for information.”

**ADOPTED**

- vii) Report #PW-09-2007 Ontario Regulation 555/06 Highway Traffic Act Hours of Service.  
**Director of Public Works, Steve Allan.**

The attachments to the report were distributed as a separate document – *attached, page 12.*

The purpose of this Report is to inform Council of Ontario Regulation 555/06 Highway Traffic Act Hours of Service, which took effect on January 1<sup>st</sup>, 2007.

**MOTION #PW-2007-11**

**MOVED BY:** Al Lunney

**SECONDED BY:** Brenda Hurrle

“**THAT**, Report #PW-09-2007 Ontario Regulation 555/06 Highway Traffic Act Hours of Service for information only;

**THAT**, the staffing implications arising from Ontario Regulation 555/06 be referred to the 2007 budget deliberations;

**AND THAT**, the Clerk sends Report #PW-09-2007 to all County of Lanark local municipalities, for information.”



- viii) Report #PW-10-2007 Andrewsville Bridge Rehabilitation/Replacement Options.  
**Director of Public Works, Steve Allan.**

The purpose of this report is to seek Council approval to conduct a Public Information Centre to seek public input regarding the future of the Andrewsville Bridge.

**MOTION #PW-2007-12**

**MOVED BY:** Sharon Mousseau

**SECONDED BY:** John Fenik

**“THAT**, the Director of Public Works be authorized to schedule a Public Information Centre, in coordination with the United Counties of Leeds and Grenville, to seek public input regarding the future of the Andrewsville Bridge;

**THAT**, the Director of Public Works presents the results of the Andrewsville Bridge Public Information Centre to the Public Works Committee by June 2007;

**AND THAT**, the Clerk sends Report #PW-10-2007 to the Montague Township Clerk and the United Counties of Leeds and Grenville Clerk for information.”

**ADOPTED**

- ix) Report #PW-11-2007 2006 Traffic Count Program Results.  
**Director of Public Works, Steve Allan.**

The purpose of this report is to inform Council of the results of the 2006 County Roads Traffic Count Program and to recommend the necessary amendments to By-Law 2002-39.

Staff will update the Program Results as County Road #24 was omitted.

**MOTION #PW-2007-13**

**MOVED BY:** Aubrey Churchill

**SECONDED BY:** Brenda Hurrle

**“THAT**, Report #PW-11-2007 2006 Traffic Count Program Results be received for information only;

**AND THAT**, a By-Law, to amend By-Law 2002-39 “A By-Law to Establish Highways and to Provide for Road Classifications”, be presented at the January meeting of County Council.”

**ADOPTED**

- x) Report #PW-13-2007 Appleton Bridge Rehabilitation Options.  
**Director of Public Works, Steve Allan.**

The purpose of this report is to seek approval of the proposed rehabilitation design concept for the Appleton Bridge.

**MOTION #PW-2007-14**

**MOVED BY:** John Fenik  
**SECONDED BY:** Al Lunney

“**THAT**, subject to budget approval, the Director of Public Works be authorized to proceed with the final design for the Appleton Bridge Rehabilitation project, as described in Report #PW-13-2007;

**AND THAT**, the Clerk sends Report #PW-13-2007 to the Town of Mississippi Mills Clerk, for information.”

**ADOPTED**

- xi) Report #PW-14-2007 Weed Inspector’s 2006 Report and Appointment of the County Weed Inspector for 2007.  
**Director of Public Works, Steve Allan.**

The purpose of this report is to inform the Committee of the activities of the County Weed Inspector.

**MOTION #PW-2007-15**

**MOVED BY:** Keith Kerr  
**SECONDED BY:** Richard Kidd

“**THAT**, the 2006 Annual Weed Report be accepted for information;

**THAT**, the payment of an honorarium of \$500 to Mr. Tom Guindon for his services as County Weed Inspector in 2006 be authorized;

**AND THAT**, a by-law appointing Mr. Tom Guindon as the County Weed Inspector for 2007 be presented at the January meeting of County Council.”

**ADOPTED**

- xii) Report #PW-15-2007 Extension of Traffic Signals, Flashing Beacon and Streetlight Maintenance Contract.  
**Director of Public Works, Steve Allan.**

The purpose of this report is to recommend the renewal of a contract with Partham Engineering Ltd.

**MOTION #PW-2007-16**

**MOVED BY:** Bruce Horlin  
**SECONDED BY:** Bob Fletcher

“**THAT**, Contract #22-2003 with Partham Engineering Ltd for the provision of routine and emergency maintenance services on traffic signals, overhead flashing beacons and street lights be renewed for a period of three years.”

**ADOPTED**

## 8. CONFIDENTIAL REPORTS

None.

## 9. NEW/OTHER BUSINESS

i) 2007 OGRA/ROMA Minister Delegation Topics.

### MTO

- construction and funding of the Perth by-pass.
- our member of parliament will be invited to attend this delegation

### OMAFRA

- buy locally theme
- still lack of processing plants in Eastern Ontario
- training program to recruit employees and meat cutters for slaughter houses
- costs of slaughtering/processing, almost doubled
- Sub-Committee update
- 4-H support
- website

### Children and Youth Services

- follow up on support for youth centres

### Health Promotion

- update on trails

Staff will present the summary at the January 24<sup>th</sup> Corporate Services Committee meeting.

## 10. ADJOURNMENT

The meeting adjourned at 9:53 p.m. on motion by Councillors B. Fletcher and E. Sonnenburg.



**Cathie Ritchie,  
Clerk**

# REPORTS

# **THE COUNTY OF LANARK**

## ***PUBLIC WORKS COMMITTEE***

*January 17<sup>th</sup>, 2007*

Report #PW-10-2007 of the  
Director of Public Works

### **ANDREWSVILLE BRIDGE REHABILITATION /REPLACEMENT OPTIONS**

#### **1. STAFF RECOMMENDATIONS**

It is recommended that:

- i) The Public Works Committee authorizes the Director of Public Works to schedule a Public Information Centre, in coordination with the United Counties of Leeds and Grenville, to seek public input regarding the future of the Andrewsville Bridge.
- ii) The Director of Public Works presents the results of the Andrewsville Bridge Public Information Centre to the Public Works Committee by June 2007.
- iii) The Clerk sends Report #PW-10-2007 to the Montague Township Clerk and the United Counties of Leeds and Grenville Clerk for information.

#### **2. PURPOSE**

The purpose of this report is to seek Council approval to conduct a Public Information Centre to seek public input regarding the future of the Andrewsville Bridge.

#### **3. BACKGROUND**

The Andrewsville Bridge crosses the Rideau River in the hamlet of Andrewsville about 5 km north of the Village of Merrickville and it provides access to the Parks Canada swing bridge (5 tonnes load limit) which crosses the Rideau Canal at the Nicholson's Locks. The Andrewsville Bridge is composed of two separate structures with 5 tonnes load limits: a 38 metre span steel through- truss with timber deck bridge (west approach) and a 10 metre span timber deck on a rolled steel girder bridge (east approach). The width of the travelled lane is 4.4 metres therefore both bridges accommodate single-lane traffic only. Average Annual Daily Traffic (AADT) is about 200. The bridges were constructed in 1915. Since they are designated as boundary bridges, they are jointly maintained by the County of Lanark and the United Counties of Leeds and Grenville.

Under Contract #1-2005, McCormick Rankin Corporation (MRC) were retained to inspect the bridges and to provide rehabilitation recommendations. The MRC Draft Report recommended immediate repairs to the stringers at the west abutment and these repairs were completed in May 2006.

#### **4. DISCUSSION**

The MRC Draft Report (extract attached) concluded that the bridge substructure and superstructure were in poor condition and recommended the development of a long-term strategy to address the significant structural deficiencies. MRC also recommended a structural evaluation of the bridge trusses to confirm their condition and to estimate their remaining life. In May 2006 (attached) Parks Canada was asked to comment on the Draft Report and a response was received in November 2006 (attached).

#### **5. ANALYSIS AND OPTIONS**

The MRC have identified five alternatives to address the deficiencies noted in their Report:

- a. Option 1: Do nothing and close bridge to vehicular traffic when bridge condition necessitates
- b. Option 2: Deck replacement and substructure repairs \$85,000
- c. Option 3: Option 2 plus replace bridge railing system \$400,000
- d. Option 4: Replace existing structure with a new single-lane bridge, \$850,000
- e. Option 5: Replace existing structure with a new two-lane bridge, \$1,650,000

Parks Canada staff has indicated that there is no need for the Andrewsville Bridge to access their site and that they would not provide financial support for any work on the Bridge. Given the age and the poor condition of the bridge, Option 1 would probably necessitate closure to vehicle traffic within the next three to five years. A more precise estimate of the remaining life of the structure will be available after the proposed structural analysis is completed. Option 2 would provide a short-term solution to the deck problems but it would not address other significant deficiencies and the bridge would eventually be closed to vehicle traffic. Option 3 would address most of the problems but the cost effectiveness is questionable. Options 4 and 5 are feasible but would require a significant financial commitment by both Counties and given the environmental sensitivities, the estimated costs could increase substantially. The Director is uncertain of the United Counties of Leeds and Grenville's capacity and willingness to commit to Option 4 or 5.

#### **6. FINANCIAL IMPLICATIONS**

The proposed 2007 Public Works budget includes \$5,000 for the Andrewsville Bridge Public Information Centre and the structural evaluation study costs. The budgeted amount represents the County of Lanark's 50 per cent share of the total cost.

#### **7. LOCAL MUNICIPAL IMPACT**

The bridges at Merrickville and at Burrits Rapids provide alternative crossings of the Rideau Canal. Closing the Andrewsville Bridge would add about 10 kilometres of travel for its current users, in particular the residents of Andrewsville. A Public Information Centre to review the alternatives and consult with the users of the Andrewsville Bridge should be held before the summer.

## **8. CONCLUSIONS**

The Andrewsville Bridge is at the end of its service life and a long-term plan to address its future should be developed in 2007.

## **9. ATTACHMENTS**

- i) Appendix "A" - McCormick Rankin Corporation Investigation and Rehabilitation Report September 2005 (Extracts)
- ii) Appendix "B" - Director's letter to Parks Canada dated May 4<sup>th</sup> 2006
- iii) Appendix "C" - Parks Canada letter dated November 7<sup>th</sup>, 2006

**Recommended By:**

**Approved for Submission By:**

**Steve Allan, P. Eng.  
Director of Public Works**

**Peter Wagland  
Chief Administrative Officer**

**EXECUTIVE SUMMARY**

**APPENDIX "A"**

The Andrewsville Bridge, located on Main Street in the hamlet of Andrewsville, is a two span, single lane, simply supported structure. The bridge is composed of two separate structures: steel through truss with timber deck, and a timber deck on rolled steel girder structure. The exposed surface of the substructure is currently concrete; however, the concrete is likely a re-facing over the original masonry.

The bridge is in poor condition. The asphalt is in poor condition with several wide transverse cracks, alligator cracks, medium progressive edge cracking and potholes. The timber deck is in fair condition with localized areas requiring replacement. The steel truss is in poor to fair condition with scattered light corrosion throughout. The steel below the deck is in poor to fair condition as the stringers at the west abutment have severe web section loss. The steel roller bearings are in poor condition and severely corroded. The pier and abutments are in poor condition with extensive scaling, delaminations, spalls and widespread alkali-aggregate reaction. The bridge railing and approach guiderail are substandard.

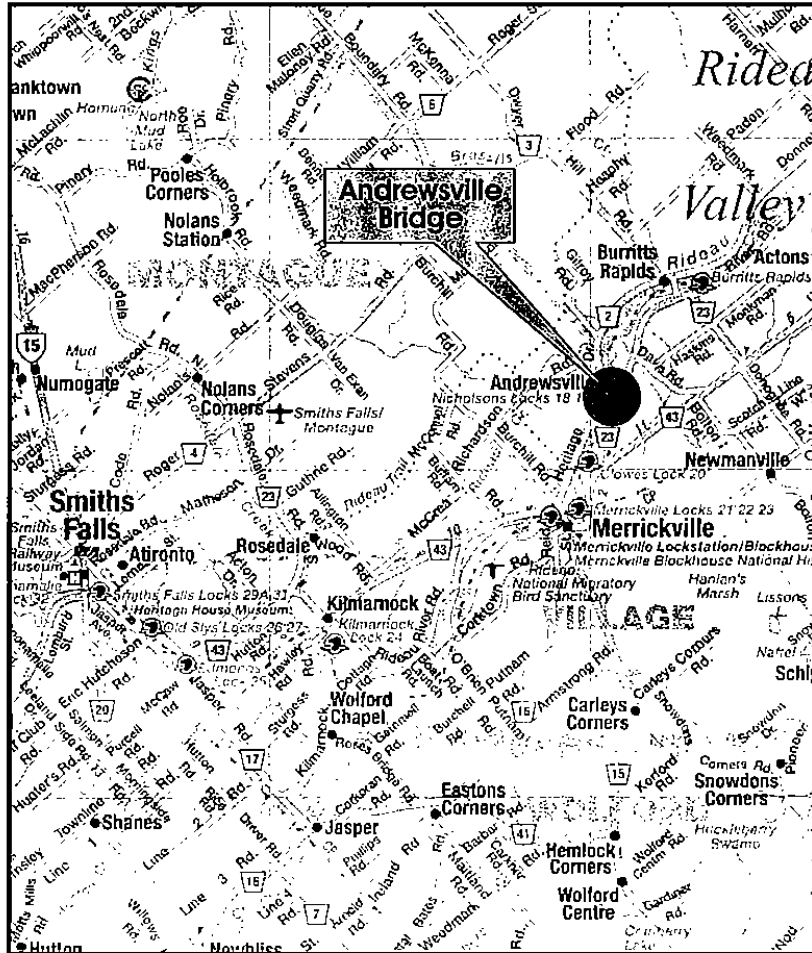
The bridge is 88 years old and is nearing the end of its service life. Five rehabilitation and replacement alternatives were investigated, and it was determined that a single lane structure is adequate to meet future traffic requirements, and that structure replacement (estimated cost of \$850,000) is not recommended at this time. It is recommended that the service life of the structure be extended with a major rehabilitation within the next few years. Work under this rehabilitation will include, but not be limited to, the following:

- Abrasive blast clean and recoat the structural steel;
- Remove the existing timber deck and construct a new timber deck;
- Install a crash-tested PL-1 barrier railing on the bridge;
- Remove and repair all deteriorated concrete in the substructure;
- Jack the bridge and replace all bearings with elastomeric bearings;
- Construct a reinforced concrete slab-on-grade on the east approach stone retaining walls;
- Upgrade the approach railing systems to meet current code requirements.

The estimated cost for this rehabilitation is \$400,000.00.



KEY PLAN



| Inventory Data:   |   |                              |                   |
|-------------------|---|------------------------------|-------------------|
| Structure Name    | Andrewville Bridge                      |                              |                   |
| MTO Region        | Eastern                                 | Main Highway                 | County Rd. 2 On 9 |
| MTO District      | Kingston                                | Owner                        | County of Lanark  |
| County            | Lanark                                  | AADT                         | -                 |
| Township          | Montague                                | Inspection Route Sequence    |                   |
| Structure Type    | Steel Truss, wood deck on steel girders |                              |                   |
| Total Deck Area   | 236.80 (sq.m)                           | Interchange Structure Number |                   |
| Total Deck Length | 47.79 (m)                               | Overall Structure Width      | 5.343 (m)         |
| No. of Spans      | 2                                       | Roadway Width                | 4.460 (m)         |
| Span Lengths      | 38.545 m, 9.245 m (m)                   |                              |                   |

| Historical Data:                      |      |                                    |            |
|---------------------------------------|------|------------------------------------|------------|
| Year Built                            | 1915 | Current Load Limit                 | 5.0 tonnes |
| Evaluation Year                       |      | Last Bridge Master Inspection      |            |
| Latest Biennial Inspection            | 2004 | Last Underwater Inspection         |            |
| Last Condition Survey                 |      | Rehab. History: (Date/description) |            |
| 1963 – timber deck and curb replaced. |      |                                    |            |

| Field Inspection Information: |                    |              |      |
|-------------------------------|--------------------|--------------|------|
| Date of Inspection:           | June 9, 2005       |              |      |
| Inspector:                    | Bill Bohne, P.Eng. |              |      |
| Others in Party:              | Nathan Bakker, EIT |              |      |
| Weather:                      | Sunny and humid    | Temperature: | 30°C |

| Additional Investigations Required: | Priority |        |        |
|-------------------------------------|----------|--------|--------|
|                                     | None     | Normal | Urgent |
| Detailed Deck Condition Survey:     |          | X      |        |
| DART Survey:                        |          | X      |        |
| Detailed Coating Condition Survey:  |          | X      |        |
| Underwater Investigation:           |          | X      |        |
| Fatigue Investigation:              |          | X      |        |
| Seismic Investigation:              |          | X      |        |
| Structure Evaluation:               |          | X      |        |

## **1.0 INTRODUCTION**

McCormick Rankin Corporation (MRC) was retained by the County of Lanark to undertake the inspection and detailed design for the rehabilitation of the Andrewsville Bridge (MTO Site No. 015-0013). The first phase of the assignment includes a total station survey of the structure and approach roadways, a delamination survey of all exposed concrete components, the evaluation and analysis of rehabilitation alternatives, and the preparation of a preliminary General Arrangement drawing detailing the rehabilitation work to be completed.

This report summarizes the results of the field investigation, including photographs, recommendations for rehabilitation and studies as required and preliminary cost estimates. Photographs of existing conditions and significant areas of deterioration are included in Appendix A. A preliminary General Arrangement drawing is included in Appendix B. A description and history of the structure, a summary of significant findings, and a discussion of recommended rehabilitations and cost estimates are in Sections 2 through 5 inclusive.

## **2.0 STRUCTURE DESCRIPTION AND HISTORY**

The Andrewsville Bridge spans the Rideau River in the hamlet of Andrewsville, located between Merrickville and Burritts Rapids. Constructed in 1918, it is comprised of two simply supported structures: a 38.5 m steel modified Warren truss and a 9.2 m long steel girder (Photographs 1 and 2). The deck on both spans is 52 mm x 152 mm (2" x 6") transverse timbers laid on their sides. The timber deck has an asphalt topping and a 152 mm x 152 mm timber curb. The substructure consists of two concrete abutments and one concrete pier founded on spread footings on bedrock. In its current configuration, the structures permit one lane of traffic, with oncoming traffic yielding to vehicles on the bridge (Photograph 4). The west approach through the town of Andrewsville is two lanes. The embankment on the east approach is a single lane comprised of two dry stone retaining walls approximately 70 m in length (Photograph 3). The road continues as a two lane roadway to the east of the embankment where it crosses the Rideau Canal at Nicholson's Locks (approximately 500 m from the Andrewsville Bridge).

Information on previous rehabilitations of the Andrewsville Bridge is limited. Records indicate that the timber deck was replaced in 1963 with creosote-treated jack pine timbers. Field observations on the condition of the substructure indicate that the original substructure masonry was likely re-faced with concrete, but there are no records to substantiate this observation.

## **3.0 SUMMARY OF SIGNIFICANT FINDINGS**

### **3.1 General**

The truss structure is posted at 5 tonnes, and the posted speed limit across both structures is 10 km/hr. The west approach is tangent to the structures and there is a sharp horizontal curve just past the limits of the stone retaining wall at the east approach (Photograph 5). The width of the travelled lane across the structures is approximately 4400 mm.

### **3.2 Superstructure**

The timber deck is in fair to poor condition. The timbers are connected to the stringers with steel clip angles (Photograph 18). At many of these clip angles, the timbers have separated (Photograph 9), permitting runoff through the timbers. The runoff has removed the protective creosote in these locations, and there is evidence of brown and white rot in the timbers (Photographs 10, 11, 12). The asphalt wearing surface has also failed in these locations (Photographs 7 and 8). The deck has separated from the steel stringers in several locations and the timbers were observed to deflect upwards under traffic loads. There is evidence of numerous previous repairs to the asphalt over the expansion joints (Photograph 6).

The steel truss is in fair condition, with widespread light corrosion and minor section loss throughout. The structural steel in the truss is typically in better condition above deck than below deck. The below deck steel floor system consists of longitudinal stringers and transverse floorbeams, which are suspended below the bottom chord in the truss span (Photograph 13) and tie into the exterior girder in the short span (Photograph 17). The steel floor systems are generally in fair condition, with the exception of the stringers at the West Abutment, which exhibit very severe section loss (Photographs 19 and 20).

Lateral bracing for the steel floor system is provided by square iron bars that are anchored to, and pass through, the floorbeams (Photographs 15 and 16). The bracing is in fair to poor condition.

The truss bearings are fixed steel bearing plates at the pier and nested roller bearings at the West Abutment. The north roller bearing is in poor condition (Photographs 21 and 22), and the south roller bearing is in fair to good condition (Photograph 23). The longitudinal stringers on the truss do not tie into the transverse floorbeams at the bearings, but are individually supported on brick bearing pads (Photograph 24). The short span is fixed at both ends.

### **3.3 Substructure**

The abutments and pier are in poor condition with extensive scaling, delaminations, spalls, deterioration, and alkali-aggregate reaction (Photographs 27, 26, 28, 29). The bearing seats are similarly delaminated, severely scaled and disintegrated at the pier and East Abutment (Photographs 31 and 32). The East Abutment ballast wall exhibits severe deterioration (photograph 30) and undermining of the north bearing plate (Photograph 25). Based on field observations, it appears that the existing substructure, likely masonry, has been encased in concrete (Photograph 32). However, further investigation would be required to confirm visual observations. The top of the footings were exposed and wide cracks, delamination, and spalls were noted throughout.

The severe deterioration of the substructure components is consistent with the deterioration typical when masonry structures are encased in concrete. It is therefore likely that the existing substructure was constructed of masonry shafts with concrete bearing seats and ballast walls (see Photographs 31 and 32).

### **3.4 Miscellaneous Components**

The bridge railing, consisting of 3 x 50 mm diameter hollow tubular steel sections mounted to the truss members exhibits extensive light to medium corrosion and has been damaged in several locations (Photograph 4). The bridge railing is substandard with respect to current code requirements.

The fills in the east approach are retained by an ungrouted masonry retaining wall (photograph 3). The wall is in fair to poor condition. The wall has settled on the south side, which has deformed the guiderail (Photograph 34).

Similar to the bridge railing, the approach railing is substandard and has been damaged in several locations. On the east approach, the railing posts are cast into concrete blocks that sit on an ungrouted masonry wall (Photograph 3).

The curb on the deck consists of 152 mm x 152 mm timbers (Photograph 33), and is in fair to good condition.

## **4.0 REHABILITATION ALTERNATIVES AND RECOMMENDATIONS**

### **4.1 Short Term Rehabilitation**

Three of the stringers supported on the West Abutment exhibit very severe deterioration and it is recommended that they be repaired immediately by removing a 600 mm long section of the deteriorated stringer and replacing it with a section of S200x27. A complete scope of work for, and details of, the repair may be found in Appendix B.

### **4.2 Long Term Rehabilitation**

The selection of any long-term rehabilitation methodology for the Andrewsville Bridge must address the following concerns:

- The existing bridge is in fair to poor condition, is a single lane structure, and is nearly 90 years old;
- The structure is posted for 5 tonnes, but there are no records to indicate when this posting was implemented, nor if any structural evaluation was undertaken to determine this posting;
- The bridge railing system is connected directly to the truss members, and likely could not withstand any significant impact, which could result in significant damage to or complete failure of the truss;
- The existing timber deck is exhibiting severe deterioration and is more than 40 years old;
- The substructure is masonry encased in concrete, and the condition of the masonry cannot be determined without extensive destructive testing;
- The east approach alignment is substandard;
- The approach guiderail is substandard, and the configuration of the approach will not permit upgrading of the approach without significant widening (including reconstruction of the existing stone walls at the east approach).

The Canadian Highway Bridge Design Code (CHBDC) and the MTO Structural Financial Analysis Manual indicate that the assumed service life of a bridge is 75 years. Given the age of the structure and the extent of deterioration, the next major rehabilitation would typically involve replacement of the structure. However, due to the low traffic volume (AADT = 200) and the severe load posting, it is anticipated that the service life of the bridge can be extended by approximately 10 years with the rehabilitation of the primary components. Accordingly, both replacement and rehabilitation alternatives have been considered. A summary of the advantages and disadvantages of each alternative is detailed in Table 1.

***Alternative 1 – Do Nothing***

Although this is the least expensive alternative (no capital outlay in the near future other than the stringer repairs detailed in Section 4.1), potential liability issues with the bridge and approach railings are not addressed. The continued deterioration of the timber deck will eventually result in punch-trough failures, which could close the bridge until repairs are effected. Accordingly, this alternative is not recommended.

***Alternative 2 Replace Timber Deck, Upgrade Bridge Railing, Repair Substructure***

In this alternative, the timber deck is replaced in kind and the concrete substructure is repaired. The bridge is jacked and the existing bearings are replaced with elastomeric bearings. The existing railing is removed and replaced with a Performance Level 1 (PL-1) railing system from the MTO publication "Crash Tested Bridge Railings" which is anchored to the new timber deck. A structural evaluation is undertaken to determine the required load posting.

The advantage of this alternative is that the potential for severe damage or total collapse of the structure due to impact damage is addressed, and the service life of the structure is extended with the repairs to the deck and substructure. The primary disadvantage is that the potential liability issues with the substandard approach railing are not addressed.

***Alternative 3 Replace Timber Deck, Upgrade Bridge and Approach Railings, Repair Substructure***

This alternative is similar to Alternative 2 with the addition of upgrades to the approach guiderail system. The new approach railing system cannot be anchored into the existing masonry wall, so a reinforced concrete slab will be constructed over the entire width of the approach fills, and the railing system will be anchored to the slab. All potential liability concerns are addressed with this alternative. However, it represents a significant outlay of capital for a single lane structure. In addition, the construction of the approach slab will necessitate closure of the bridge for a prolonged period of time.

***Alternative 4 New Single Lane Structure***

In this alternative, the existing structure is replaced with a single lane slab-on-girder structure (MTO Guidelines for the Design of Bridges on Low Volume Roads permits the construction of new single lane bridges on roads with AADT < 400). The east approach fills are reconstructed to meet current code requirements. This alternative represents a significant outlay of capital for a

low volume road. In addition, the widened fills and required wall reconstruction on the east approach may have detrimental environmental impacts on the watercourse.

***Alternative 5 New Two Lane Structure***

In this alternative, the existing bridge is replaced with a two lane slab-on-girder bridge. This alternative resolves all geometric and structural concerns, but requires significant widening of the east approach.

It is our understanding, through discussions with the Counties of Lanark and Leeds & Grenville, that it is unlikely that the approach roadways will be widened to two lanes in the near future. The bridge over the Rideau Canal to the east of the Andrewsville Bridge is a single lane structure, and no long-term widening of this bridge is planned. Accordingly, this alternative is not recommended.

**4.3 Recommended Rehabilitation**

It is recommended that the Andrewsville Bridge be rehabilitated in accordance with Alternative 3. This alternative addresses all structural deficiencies and potential liability concerns while extending the service life of the structure and minimizing impacts to the watercourse associated with structure replacement. A detailed breakdown of the work included in the alternative is summarized in Section 5.0 – Cost Estimates, and a preliminary General Arrangement drawing is included in Appendix B. It is our understanding that the County of Lanark is considering implementing Alternative 2 and accepting the liability associated with maintaining the east approach as is.

However, prior to the implementation of any rehabilitation alternative, it is strongly recommended that a structural evaluation be undertaken on the bridge to determine the actual load posting on the structure. The recommended rehabilitation requires a significant outlay of funds (approximately \$400,000), and it is prudent to ensure that the existing structure will meet the current and intended use of the bridge for the next decade.

**Table 1 – Rehabilitation Alternatives**

| Alt. | Description  | Advantages   | Disadvantages  | Estimated Cost (\$2005) |
|------|--|--|--|-------------------------|
| 1    | <ul style="list-style-type: none"> <li>Maintenance repairs as required.</li> </ul>   | <ul style="list-style-type: none"> <li>Minimal outlay of capital in 2006</li> </ul>  | <ul style="list-style-type: none"> <li>Deficiencies in structure and approaches are not addressed</li> <li>Actual capacity of structure is not known</li> <li>Potential risk to the County due to deficiencies is not addressed</li> </ul>   | -                       |
| 2    | <ul style="list-style-type: none"> <li>Remove and replace existing asphalt and timber deck</li> <li>Install PL-1 crash tested bridge railing system</li> <li>Repairs to the structural steel as required</li> <li>Remove rollers and replace with elastomeric bearing pads</li> <li>Repair deteriorated concrete in piers and abutments</li> </ul> | <ul style="list-style-type: none"> <li>Least expensive of rehabilitation alternatives</li> <li>Service life of structure is extended through deck replacement and substructure repairs</li> <li>Potential for structure collapse due to vehicular impact is mitigated by installation of bridge railing system</li> </ul>  | <ul style="list-style-type: none"> <li>Substandard approach railing and potential liability due to the railing is not addressed</li> <li>Poor approach alignment not addressed</li> <li>Actual capacity of structure is not known</li> </ul> | \$85,000                |
| 3    | <ul style="list-style-type: none"> <li>Same repairs as detailed in Alternative 2 above</li> <li>Construct concrete slab-on-grade on east approach fills</li> <li>Construct a crash-tested railing system on approach slab</li> </ul>   | <ul style="list-style-type: none"> <li>Service life of structure is extended through deck replacement and substructure repairs</li> <li>Potential for structure collapse is avoided by installation of bridge railing system</li> <li>Approach railings meet current code requirements</li> <li>Potential for liability associated with bridge collapse and approach railing failure is addressed</li> </ul> | <ul style="list-style-type: none"> <li>Significant outlay of capital for a structure with limited remaining service life</li> <li>Poor approach alignment not addressed</li> </ul>   | \$400,000               |
| 4    | <ul style="list-style-type: none"> <li>Replace existing structure with single lane structure</li> <li>Construct a concrete slab on east approach fills and upgrade guiderail</li> </ul>  | <ul style="list-style-type: none"> <li>Structural and guiderail deficiencies addressed</li> </ul>  | <ul style="list-style-type: none"> <li>Significant outlay of capital for a single lane bridge</li> <li>Potential environmental impacts due to minor widening</li> </ul>  | \$850,000               |
| 5    | <ul style="list-style-type: none"> <li>Replace existing structure with two lane structure</li> <li>Widen east approach to permit two lanes of traffic</li> <li>Upgrade approach guiderail</li> </ul>   | <ul style="list-style-type: none"> <li>All deficiencies addressed</li> </ul>   | <ul style="list-style-type: none"> <li>Two lane bridge not required</li> <li>Significant outlay of capital</li> <li>Potential environmental impacts due to significant widening</li> </ul>   | \$1,650,000             |



## 5.0 COST ESTIMATES

Cost estimates for the rehabilitation alternatives discussed in Section 4.0 are tabulated below. All costs are in 2005 dollars. For the duration of the rehabilitation, the structure would be closed, which will result in a detour of approximately 10 km.

It is estimated that a structural evaluation of the Andrewsville Bridge would cost approximately \$8,000.00.

| Table 2 – Upgrading Bridge Railing and Approach Guiderail        |                |          |                   |           |
|--|----------------|----------|-------------------|-----------|
| Description  | Unit           | Quantity | Unit Cost         | Item Cost |
| Traffic Control  | L.S.           | -        | -                 | \$5,000   |
| Removal of Existing Timber Deck and Asphalt                      | L.S.           | -        | -                 | \$10,000  |
| Timber Replacement   | L.S.           | -        | -                 | \$45,000  |
| Jacking Bridge Deck  | L.S.           | -        | -                 | \$5,000   |
| Bearing Modifications (removal of rollers, installation of pads) | L.S.           | -        | -                 | \$10,000  |
| Concrete Removals, Partial Depth Type C                          | m <sup>3</sup> | 5.5      | \$3,500.00        | \$19,250  |
| Concrete Repairs, Formed Surfaces                                | m <sup>3</sup> | 4.6      | \$2,000.00        | \$9,200   |
| Concrete Refacing  | m <sup>3</sup> | 4.0      | \$1,000.00        | \$4,000   |
| Recoating Structural Steel (including environmental protection)  | L.S.           | -        | -                 | \$50,000  |
| Concrete in Approach Slab  | m <sup>3</sup> | 45       | \$1,000.00        | \$45,000  |
| Reinforcing Steel  | t              | 3.1      | \$1,800.00        | \$5,580   |
| Coated Reinforcing Steel   | t              | 3.1      | \$2,400.00        | \$7,440   |
| Bridge Railing System  | m              | 96       | \$700.00          | \$67,200  |
| Steel Beam Guiderail   | m              | 140      | \$85.00           | \$11,900  |
| Steel Beam Guiderail with Channel                                | m              | 40       | \$115.00          | \$4,600   |
|  |                |          |                   |           |
|  |                |          | Subtotal          | \$304,170 |
|  |                |          | Contingency (15%) | \$45,626  |
|  |                |          | Total             | \$350,000 |
|  |                |          | Engineering (15%) | \$50,000  |
|  |                |          | Rounded Total     | \$400,000 |

Report Prepared By:

Report Reviewed By:

Bill Bohne, P.Eng.

Michel Vachon, P.Eng.

# LANARK COUNTY

## PUBLIC WORKS DEPARTMENT

APPENDIX "B"

May 4<sup>th</sup>, 2006

Parks Canada  
Rideau Canal National Historian Site  
34A Beckwith Street South  
Smiths Falls, ON  
K7A 2A8

ATTENTION: MR. DAVE BALLINGER

Dear Mr. Ballinger:

**Re: Andrewsville Bridge Rehabilitation Options**

The County of Lanark and the United Counties of Leeds and Grenville are jointly responsible for the Andrewsville Bridge which spans the Rideau Canal between Merrickville and Burritts Rapids. The single-lane, two-span structure was built in 1915 and is nearing the end of its service life. Currently, it is load posted to 5 tonnes.

In 2005, McCormick Rankin Corporation (MRC) was retained to inspect the Bridge and to provide rehabilitation options. A copy of the MRC Report is attached. Since alternative crossings of the Rideau Canal are available at Merrickville and Burritts Rapids, the Counties are also exploring the "Do Nothing Option." Under this option, at some point in the near future the Andrewsville Bridge would be closed to vehicle traffic. In the interim, only emergency repairs to the structure would be undertaken until a decision on the future of the Bridge is finalized.

Since the Andrewsville Bridge provides access to the Upper and the Lower Nicholson's Locks, the Counties are interested in Parks Canada's assessment of the situation. In particular the following information is requested, if available:

- a. **Traffic Counts:** Seasonal AADT at the Andrewsville, Burritts Rapids and Merrickville crossings of the Rideau, including percent truck traffic.
- b. **Closure Policy:** The Parks Canada policy and process for closing bridges that cross the Rideau Canal.
- c. **Cost Sharing Policy:** The Parks Canada policy and application process for sharing the cost with municipalities for the rehabilitation of bridges that cross the Rideau Canal.

The Counties plan to seek public input on the various options open and anticipate conducting a Public Information Centre at some point in the Fall of 2006. Any information and assistance that you could provide by July 2006 will be much appreciated.

Yours truly,



Steve Allan, P. Eng.,  
Director of Public Works,  
Lanark County Public Works Department

SA:mm

cc Les Sheppard, United Counties of Leeds and Grenville  
C.A.O. Montague Township  
Bill Bohne, McCormick Rankin Corporation



Parks Canada  
Parcs Canada

Rideau Canal National Historic Site  
34A Beckwith Street South  
Smiths Falls, Ontario K7A 2A8

Telephone: 613-283-5170  
Fax: 613-283-0677

November 7, 2006

Mr. Les Shepherd  
Director of Public Work and Emergency Services  
United Counties of Leeds and Grenville  
25 Central Avenue W., Suite 100  
Brockville, Ontario K6V 4N6

Dear Mr. Shepherd

I am writing in response to a letter from Mr. Steve Allan and a recent telephone conference call regarding the Andrewsville Bridge.

Parks Canada does not have any statistics on the amount of traffic that goes over our bridge, which is fairly close, and is part of the same road as the Andrewsville Bridge. In addition, there is no funding available from Parks Canada to assist with any remedial work required on the bridge, as we have no need for this bridge to access our site or facilities.

As mentioned, our concerns are related to the fact that it would possibly increase traffic on the Parks Canada Burritts Rapids and Merrickville bridges. Generally, this would not be a serious problem except when we need to close either of these bridges for repair work or refits; such as; painting, and/or redecking. This activity usually occurs about every 10 - 12 years. When this does take place, the bridge can be closed for a period of time, which certainly impacts on residents and others who use either of the bridges. It should be noted that we would not close these two bridges for extended periods at the same time.

We appreciate the opportunity to provide input and are certainly willing to meet to discuss this further if required.

D.J. Ballinger  
Director of Operations  
Rideau Canal National Historic Site

c.c. Bill Pratt, Chief Engineer  
Frank Corrigan Sector Manager

Canada



DO NOT REMOVE

# Andrewsville Bridge Site No. 015-0013



## Structural Evaluation Report

## EXECUTIVE SUMMARY

The Andrewsville Bridge, located on Main Street in the hamlet of Andrewsville, is a two span, single lane, simply supported structure. The bridge is composed of two separate structures: a steel through truss with timber deck, and a timber deck on rolled steel girder structure. The exposed surface of the substructure is currently concrete; however, the concrete is likely a refacing over the original masonry.

The bridge is in poor condition. The asphalt is in poor condition with several wide transverse cracks, alligator cracks, medium progressive edge cracking and potholes. The timber deck is in fair condition with localized areas requiring replacement. The steel truss is in poor to fair condition with scattered light corrosion throughout. The steel below the deck is in poor to fair condition, and the stringers at the West Abutment have been strengthened due to severe section loss in the web. The steel roller bearings are in poor condition and are severely corroded. The pier and abutments are in poor condition with extensive scaling, delaminations, spalls and widespread alkali-aggregate reaction. The bridge railing and approach guiderail are substandard.

The results of the structural evaluation indicate that there are ten components on the structure with load postings of 10 tonnes or less. The existing load posting of 5 tonnes is governed by the stringers in the truss floor deck system. The Live Load Capacity Factor (F) for the stringers is 0.23. In accordance with the Canadian Highway Bridge Design Code (CHBDC), consideration should be given to closing a structure with  $F < 0.3$ .

The bridge is 88 years old and requires major rehabilitation or replacement. It is our understanding that funding is not available now, nor will likely be available in the future for major rehabilitation. On this basis, it is recommended that the County implement one of the following two programs:

- Alternative 2, which involves upgrading of the deck and truss railing system to obtain another 10 to 15 years of useful life, but involves the County assuming the risks for the remaining substandard components;
- Alternative 6, in which the bridge is closed to ~~pedestrian~~ traffic.

vehicular.

A  
27 Apr 07

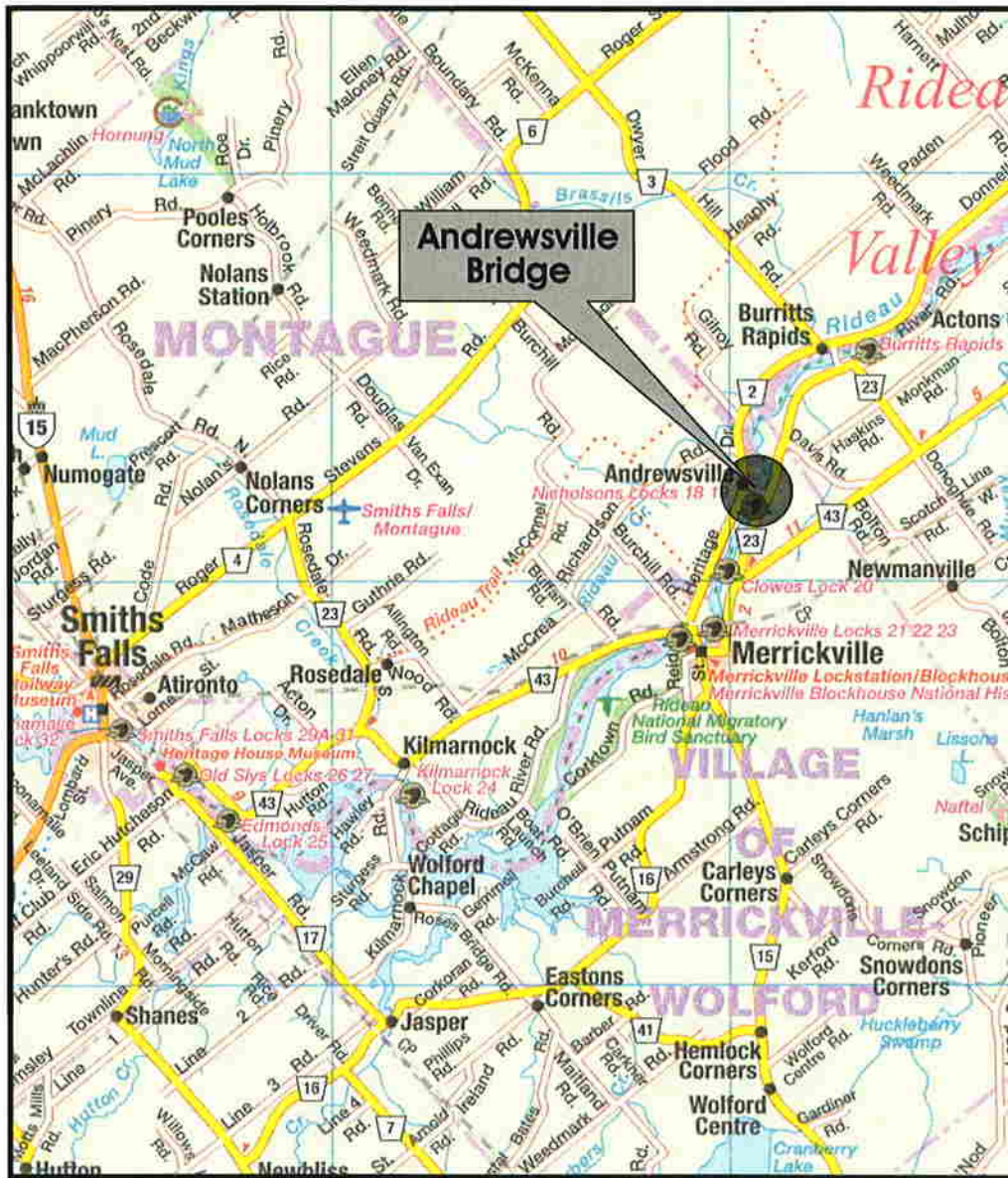
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**APPENDICES**

Appendix A Structural Evaluation

### KEY PLAN

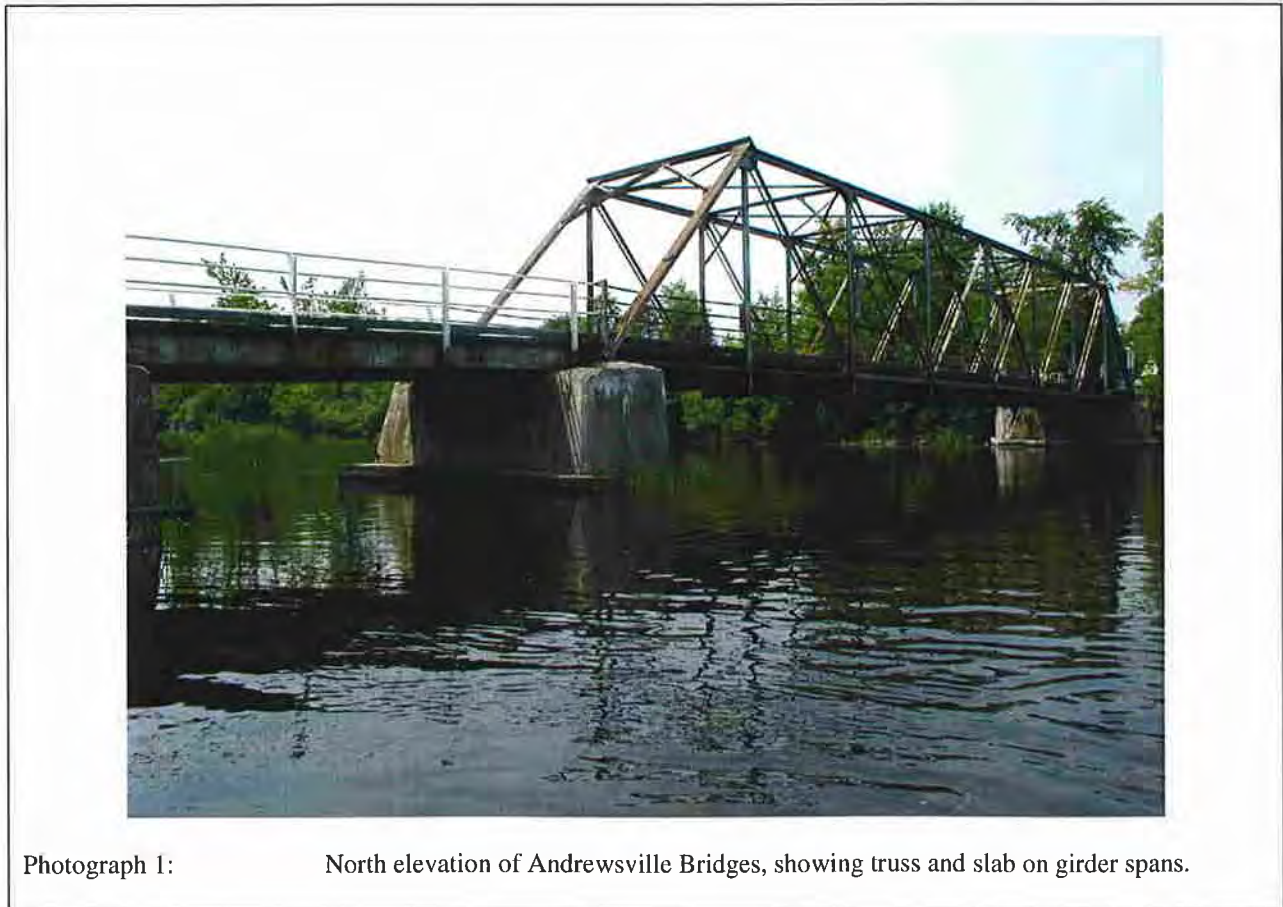




## 1.0 INTRODUCTION

McCormick Rankin Corporation (MRC) was retained by the County of Lanark to undertake a structural evaluation of the Andrewsville Bridge (MTO Site No. 015-0013). The structural evaluation follows the site inspection and the development and evaluation of rehabilitation alternatives for the structure done by MRC in June and July of 2005 (see Investigation and Recommended Rehabilitation Report, dated October 2005). One of the recommendations of the 2005 report was to undertake a structural evaluation to determine if the existing posted loading (5 tonnes) is accurate, and to ensure the structure meets the current requirements of the Canadian Highway Bridge Design Code CAN/CSA-06 (CHBDC). This report summarizes the results of the structural evaluation.

To provide a more complete overview of the investigations and evaluations done to date, this report also summarizes the results of the field investigation the alternatives evaluated, and the recommended rehabilitation. An additional rehabilitation alternative has been added as a result of the structural evaluation. A description and history of the structure, a summary of significant findings of the field investigation, a discussion of recommended rehabilitation, and the results of the structural evaluation are detailed in Sections 2 through 5 inclusive.



Photograph 1: North elevation of Andrewsville Bridges, showing truss and slab on girder spans.

## 2.0 STRUCTURE DESCRIPTION AND HISTORY

The Andrewsville Bridge spans the Rideau River in the hamlet of Andrewsville, located between Merrickville and Burritts Rapids. Constructed in 1918, it is comprised of two simply supported structures: a 38.5 m steel modified Warren truss and a 9.2 m long steel girder (Photograph 1, previous page). The deck on both spans is 52 mm x 152 mm (2" x 6") transverse timbers laid on their sides. The timber deck has an asphalt topping and a 152 mm x 152 mm timber curb. The substructure consists of two concrete abutments and one concrete pier founded on spread footings on bedrock. In its current configuration, the structures permit one lane of traffic (Photograph 2), with oncoming traffic yielding to vehicles on the bridge. Two lanes of traffic are provided on the west approach through the hamlet of Andrewsville. The embankment on the east approach is a single lane comprised of two dry stone retaining walls approximately 70 m in length (Photograph 3). The road continues as a two lane roadway to the east of the embankment where it crosses the Rideau Canal at Nicholson's Locks, approximately 500 m from the Andrewsville Bridge.



Photograph 2: View across truss, looking east.



Photograph 3: View of single lane east approach on dry stone retaining walls, looking east.

Information on previous rehabilitations of the Andrewsville Bridge is limited. Records indicate that the timber deck was replaced in 1963 with creosote-treated jack pine timbers. Field observations on the condition of the substructure indicate that the original substructure was likely masonry that was later refaced with concrete, but there are no records to substantiate this observation.

### 3.0 SUMMARY OF SIGNIFICANT FINDINGS

The following section provides a brief description of the condition of the structure observed during the June 2005 inspection. For further details, refer to the October 2006 Investigation and Recommended Rehabilitation Report.

The truss structure is posted at 5 tonnes and the posted speed limit across both structures is 10 km/hr. The west approach is tangent to the structures, and there is a sharp horizontal curve just past the limits of the stone retaining wall at the east approach. The width of the travelled lane across the structures is approximately 4400 mm.

The timber deck is in fair to poor condition. The timbers have separated in numerous locations, permitting runoff through the timbers and removing the protective creosote (Photographs 4 and 5). Timber rot was also observed in a few areas where the creosote was missing. The deck has separated from the steel stringers in several locations and the timbers were observed to deflect upwards under traffic loads. The asphalt wearing surface has also failed in these locations. There is evidence of numerous previous repairs to the asphalt over the expansion joints.



Photograph 4: Deterioration of the asphalt and separation of the deck timbers.



Photograph 5: Deterioration of the timber deck due to loss of creosote protection. Note the widespread light corrosion of the below-deck steel floor system.

The steel truss is in fair condition, with widespread light corrosion and minor section loss throughout (Photograph 6). The structural steel in the truss is typically in better condition above deck than below deck. The steel floor systems are generally in fair condition, with the exception of the stringers at the West Abutment. During the June 2005 inspection, it was noted that the stringers at the West Abutment exhibited very severe section loss and perforations. The October 2005 report recommended that these stringers be retrofit, which had been done by the time of the February 2007 inspection (Photograph 7).

The truss bearings are typically in poor condition.



Photograph 6: Typical condition of below-deck structural steel in truss.



Photograph 7: Detail of repaired stringer at the West Abutment.

The abutments and pier are in poor condition with extensive scaling, delaminations, spalls, deterioration, and alkali-aggregate reaction. The bearing seats are similarly delaminated, severely scaled and disintegrated at the pier and East Abutment. The East Abutment ballast wall exhibits severe deterioration and undermining of the north bearing plate. The top of the footings were exposed and wide cracks, delamination, and spalls were noted throughout. The severe deterioration of the substructure components is consistent with the deterioration typical when masonry structures are encased in concrete. It is therefore likely that the existing substructure was constructed of masonry shafts with concrete bearing seats and ballast walls.

The bridge railing exhibits extensive light to medium corrosion and has been damaged in several locations. The bridge railing is substandard with respect to current code requirements.

The fills in the east approach are retained by an ungrouted masonry retaining wall. The wall is in fair to poor condition. The wall has settled on the south side, which has deformed the guiderail. Similar to the bridge railing, the approach railing is substandard and has been damaged in several locations. On the east approach, the railing posts are cast into concrete blocks that sit on an ungrouted masonry wall.

#### 4.0 STRUCTURAL EVALUATION

A structural evaluation of the truss and the beam span of the Andrewsville Bridge was undertaken in accordance with Section 14 of the Canadian Highway Bridge Design Code S6-00 (CHBDC). The evaluation considered dead and live loads.

The truss structure was analysed using a two-dimensional model generated with SAP 2000 commercial software assuming fully pinned behaviour at the truss joints. The truss floor system was analysed using the simplified method in accordance with Section 5 of the CHBDC. The configuration of the slab-on-girder span did not meet the requirements to use the simplified method of analysis as specified in the CHBDC. Consequently, a three-dimensional grillage model was created to complete the analysis.

The applicable load factors of the evaluation were based on the target reliability index specific to the structural behaviour of each element as outlined under Section 14 of the CHBDC for the Inspection Level 2. The resistance modification factor  $U$  was applied in accordance with Section 14 of the CHBDC.

No contract drawings were available for this bridge. Consequently, section properties were calculated from measurements obtained from the field inspection in June 2005, and confirmed in March 2007. The section properties were based on the original condition of each element.

The material properties were selected in accordance with Section 14 of the CHBDC considering the reported age of the bridge. Yield and ultimate strengths of all structural steel were assumed to be 210 MPa and 420 MPa, respectively. The deck timbers were assumed to be S-P-F No. 1 Grade.

As load restrictions are being applied to this bridge and it is required to carry single unit vehicles, a Level 3 evaluation was performed. The applicable live load model was the CL3-625-ONT truck or lane loading. Structural responses were considered at Ultimate Limit States for bending moment, shear force, and axial force. The Live Load Capacity Factor ( $F$ ) for each structural element has been summarized in Table 1. Corresponding load postings for components are also included in Table 1.

The results of the structural evaluation determined that the existing load posting of 5 tonnes must remain (based on the capacity of the stringers in the below deck truss floor system). It can be seen from Table 1 that there are 10 components with load postings of 10 tonnes or less. In accordance with Clause 14.17.2 of the CHBDC, for  $F < 0.3$  at Evaluation Level 3, consideration should be given to closing the bridge.

Structural evaluations at Serviceability and Fatigue Limit States (SLS and FLS, respectively) were not undertaken. There was no evidence of serviceability related defects during the June 2005 inspection, and the traffic volumes across the bridge are low.

Table 1 – Live Load Capacity Factors (F &lt; 1.0)

| Span        | Element           | Response          | F    | Posting (t) |
|-------------|-------------------|-------------------|------|-------------|
| Truss Span  | Wood Deck         | Moment            | 0.65 | 15          |
|             |                   | Shear             | 0.82 | 20          |
|             | Stringers         | Moment            | 0.23 | 5           |
|             |                   | Shear             | 0.53 | 12          |
|             | Floorbeams        | Moment            | 0.34 | 7           |
|             |                   | Shear             | 0.85 | 21          |
|             | Bottom Chord      | Axial Tension     | 0.87 | 21          |
|             | Top Chord         | Axial Compression | 0.60 | 14          |
|             | End Post          | Axial Compression | 1.14 |             |
|             | Hanger            | Axial Tension     | 1.75 |             |
|             | Post              | Axial Compression | 0.45 | 10          |
| Diagonal    | Axial Compression | 0.55              | 13   |             |
| Counter     | Axial Compression | zero force        | N/A  |             |
| Girder Span | Wood Deck         | Moment            | 1.10 |             |
|             |                   | Shear             | 0.95 | 23          |
|             | Stringers         | Moment            | 0.36 | 8           |
|             |                   | Shear             | 0.47 | 11          |
|             | Floorbeam         | Moment            | 0.42 | 9           |
|             |                   | Shear             | 1.30 |             |
| Girder      | Moment            | 0.30              | 6    |             |
|             | Shear             | 3.73              |      |             |

## 5.0 REHABILITATION AND REPLACEMENT ALTERNATIVES

Table 1 below provides a summary of the rehabilitation and repair alternatives developed and evaluated as part of the October 2005 Investigation and Recommended Rehabilitation Report. Since that time, consideration has been given to closing the bridge to vehicular traffic. Accordingly, Alternative 6 – Close Bridge to Vehicular Traffic has been added to the previous alternatives.

| Table 1 – Rehabilitation and Replacement Alternatives                          |   |  |   |                         |
|--|---|--|---|-------------------------|
| Alternative  | Description   | Advantages   | Disadvantages   | Estimated Cost (\$2007) |
| Do Nothing   | <ul style="list-style-type: none"> <li>Maintenance repairs as required.</li> </ul>  | <ul style="list-style-type: none"> <li>Minimal outlay of capital in 2007.</li> </ul>   | <ul style="list-style-type: none"> <li>Deficiencies in structure and approaches are not addressed;</li> <li>Structure load posting remains at current level;</li> <li>Potential risk to County due to existing structural deficiencies that have not been addressed.</li> </ul>   | -                       |
| Replace Timber Deck, Upgrade Bridge Railing, Repair Substructure               | <ul style="list-style-type: none"> <li>Remove and replace existing asphalt and timber deck (to correct deflections and areas of rot);</li> <li>Install PL1 crash-tested bridge railing system (to protect truss members from vehicular impact);</li> <li>Repair/replace/retrofit structural steel as required;</li> <li>Jack bridge, remove deteriorated rollers bearings at North Abutment and replace with elastomeric bearing pads;</li> <li>Repair deteriorated concrete in piers and abutments;</li> <li>Undertake a structural evaluation to determine actual load posting requirements.</li> </ul> | <ul style="list-style-type: none"> <li>Least expensive of rehabilitation alternatives;</li> <li>Service life of structure (assumed to be 75 years per CHBDC) is extended through deck replacement and substructure repairs;</li> <li>Potential for structure failure due to impact loads to truss members is mitigated by installation of bridge railing system anchored to the deck (not the truss, as is currently the case).</li> </ul>   | <ul style="list-style-type: none"> <li>Substandard approach railing on east approach (and potential liability to County) is not addressed;</li> <li>Poor approach alignment on east approach is not addressed;</li> <li>Structure load posting remains at current level;</li> <li>Potential risk to County due to existing structural deficiencies that have not been addressed.</li> </ul> | \$95,000                |
| Replace Timber Deck, Upgrade Bridge and Approach Railings, Repair Substructure | <ul style="list-style-type: none"> <li>Same work as detailed in Alternative 2 above;</li> <li>Construct new concrete slab-on-grade on east approach fills;</li> <li>Install a PL1 crash-tested railing system on east approach (anchored to the new concrete slab).</li> </ul>  | <ul style="list-style-type: none"> <li>Service life of structure is extended through deck replacement and substructure repairs;</li> <li>Potential for structure failure due to impact loads to truss members is mitigated by installation of bridge railing system anchored to the deck, not the truss;</li> <li>Approach railings brought up to meet current code requirements;</li> <li>Potential for liability to County associated with bridge collapse and approach railing failure is addressed.</li> </ul> | <ul style="list-style-type: none"> <li>Significant outlay of capital for a structure with limited remaining service life;</li> <li>Poor approach alignment on east approach not addressed.</li> </ul>   | \$430,000               |
| New Single Lane Structure  | <ul style="list-style-type: none"> <li>Replace existing truss and slab-on-girder structures with single lane slab-on-girder structures;</li> <li>Construct a reinforced concrete slab-on-grade and install new guiderail on east approach (per Alternative 3 above).</li> </ul>   | <ul style="list-style-type: none"> <li>Structural and guiderail deficiencies addressed.</li> </ul>   | <ul style="list-style-type: none"> <li>Significant outlay of capital for a single lane bridge;</li> <li>Potential environmental impacts due to minor widening of east approach.</li> </ul>  | \$910,000               |
| New Two Lane Structure   | <ul style="list-style-type: none"> <li>Replace existing truss and slab-on-girder structures with two lane slab-on-girder structures;</li> <li>Widen east approach to permit two lanes of traffic;</li> <li>Upgrade approach guiderail.</li> </ul>   | <ul style="list-style-type: none"> <li>All deficiencies addressed.</li> </ul>  | <ul style="list-style-type: none"> <li>Two lane bridge may not be required to meet current and future traffic volumes;</li> <li>Significant outlay of capital;</li> <li>Potential environmental impacts due to significant widening of east approach.</li> </ul>  | \$1,800,000             |
| Close Bridge to Vehicular Traffic  | <ul style="list-style-type: none"> <li>Roadway is blocked such that only pedestrian and bicycle traffic is permitted on bridges.</li> </ul>   | <ul style="list-style-type: none"> <li>Minimal outlay of capital over the remaining life of the bridge;</li> <li>Existing load posting is adequate for loading conditions;</li> <li>Potential liability associated with upgrading structure for vehicular traffic is addressed.</li> </ul>   | <ul style="list-style-type: none"> <li>Crossing across the Rideau River is lost;</li> <li>Potential delays for emergency and service vehicles due to the detour.</li> </ul>   | \$30,000<br>(Note 1)    |

### Notes

- Assumed costs associated with bridge closure, including additional public notification, bridge closure signage, etc.

## 6.0 RECOMMENDED REHABILITATION

The selection of any long-term rehabilitation methodology for the Andrewsville Bridge must address the following concerns:

- The existing bridge is in fair to poor condition, is a single lane structure, is posted at 5 t, and is nearly 90 years old;
- The bridge railing system is connected directly to the truss members, and likely could not withstand any significant impact, which could result in significant damage or complete failure of the truss;
- The existing timber deck is exhibiting severe deterioration and is more than 40 years old;
- The substructure is masonry encased in concrete, and the condition of the masonry cannot be determined without extensive destructive testing. However, experience has shown that concrete-encased masonry typically exhibits extensive deterioration;
- The east approach alignment is substandard;
- The approach guiderail is substandard, and the configuration of the approach will not permit upgrading of the approach without significant widening (including reconstruction of the existing stone walls at the east approach).

The Canadian Highway Bridge Design Code (CHBDC) and the MTO Structural Financial Analysis Manual indicate that the assumed service life of a bridge is 75 years. Given the age of the structure and the extent of deterioration, the next rehabilitation would typically involve major rehabilitation or replacement of the structure. Accordingly, the October 2005 report recommended Alternative 3, which included deck replacement, structural steel recoating, and railing upgrades on the structures and approaches.

However, it is our understanding that funding is not available for the rehabilitation, and neither the County of Lanark nor the County of Leeds & Grenville (who would be jointly funding the rehabilitation) will have funding available for major rehabilitation in the near future. If the County of Lanark intends to extend the service life of the bridge for another decade, it is recommended that the County implement Alternative 2. This alternative will maintain the bridge at its current level of service, and will address some of the risks associated with the current bridge. Alternatively, if funding is not available to maintain the bridge at its current level of service, consideration should be given to closing the bridge to vehicular traffic.

Report Prepared By:



Bill Bohne, P.Eng.

Report Reviewed By:



Michel Vachon, P.Eng.

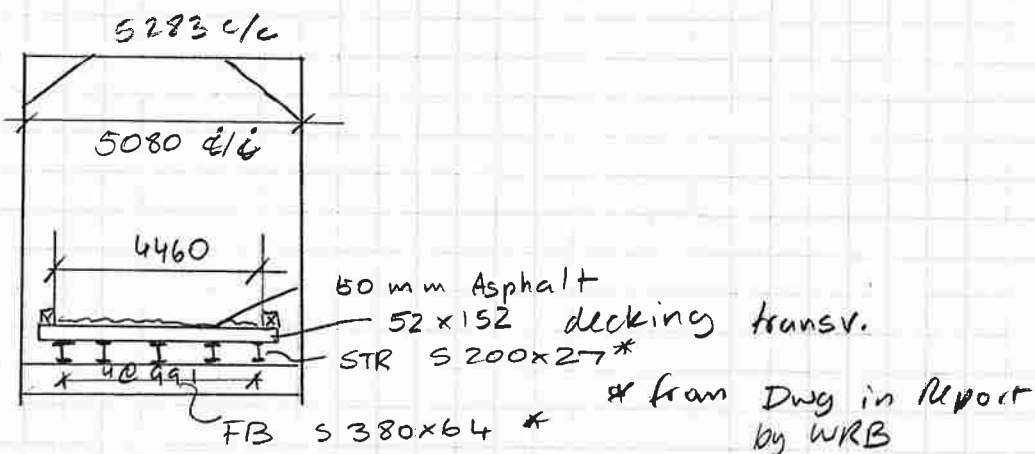
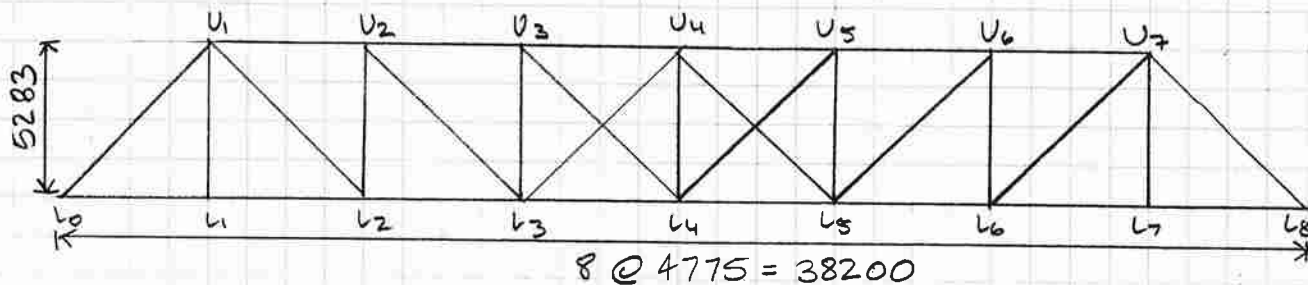


***APPENDIX A***  
***STRUCTURAL EVALUATION***

# Andrewsville Bridge Evaluation

Truss Span - Evaluation

Code 56-00



Dead Load Categories (14.7.2)

- D1 = Steel
- D2 = deck
- D3 = asphalt

Evaluation level 1 (Normal Traffic) (14.8.1.1.)

LL = CL - 625 ONT

1 lane RL = 1.0



**McCORMICK  
RANKIN  
CORPORATION**

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Andrewsville Br

SUS

*[Signature]*

DATE Feb 07

DATE Feb/07

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PAGE 1 OF

Load Factors and Target Reliability Index  $\beta$  (14.11)

System Behaviour:

Truss Members, Floorbeams S1

Stringers S2

Deck S3

Element Behaviour

Truss Compression or Net Section Tension E1

Stringers, Floorbeams, Deck Truss Tension at gross section E3

Inspection Level INSP2 (inspected by MRC in 2005)

Load Factors:

| Element                    | $\beta$ | $\alpha_{D1}$ | $\alpha_{D2}$ | $\alpha_{D3}$ | $\alpha_L$ |
|----------------------------|---------|---------------|---------------|---------------|------------|
| Deck                       | 2.75    | 1.06          | 1.12          | 1.30          | 1.42       |
| Stringer                   | 3.00    | 1.07          | 1.14          | 1.35          | 1.49       |
| Floorbeam                  | 3.25    | 1.08          | 1.16          | 1.40          | 1.56       |
| Truss (Comp. + Net sec. T) | 3.75    | 1.10          | 1.20          | 1.50          | 1.70       |
| Truss (gross sec. T)       | 3.25    | 1.08          | 1.16          | 1.40          | 1.56       |



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Resistance Factors (14.13.1)

$\phi_s = 0.95$  ( $\phi_{comp} = 0.9$ )     $\phi_r = 0.67$

$\phi_w = 0.90$

Material Properties (14.6.3)

year built 1915

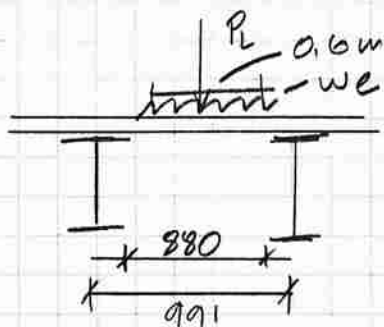
$F_y = 210 \text{ MPa}$

$F_u = 420 \text{ MPa}$

rivets  $F_u = 320 \text{ MPa}$

wood: assume S-P-F No 1 grade

Evaluation of Deck



wheel load shall be distributed over width of a plank or 0.25 m, whichever is greater (5.7.1.7.6 and 5.7.1.8.2)  
 $\Rightarrow$  use 5 planks

DLA (1axle) =  $0.7 (0.4) = 0.28$

Evaluation level 1 + 2

$P_L = 87.5 \text{ KN}$      $w = 145.8 \text{ KN/m}$

$M_f = (1.42) (1.28) (145.8) (0.087) = 23.1 \text{ KNm}$

$V_f = (1.42) (1.28) (145.8) (0.395) = 104.7 \text{ KN}$



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Evaluation level 3

$P_L = 70 \text{ KN}$

$$M_f = 18.5 \text{ KNm}$$

$$V_f = 83.8 \text{ KN}$$

Resistances (see p 5)

$$M_r = 2.7 \times 5 = 13.5 \text{ KNm}$$

$$V_r = 13.7 \times 5 = 68.5 \text{ KN}$$

LLCF - Moment

$$\text{Eval. 1+2} \quad F = \frac{13.5 - 0}{23.1} = 0.58$$

$$\text{Eval 3} \quad F = \frac{13.5 - 0}{18.5} = 0.73$$

LLCF - Shear

$$\text{Eval 1+2} \quad F = \frac{68.5 - 0}{104.7} = 0.65$$

$$\text{Eval 3} \quad F = \frac{68.5 - 0}{83.8} = 0.82$$

Posting

| Eval | level | F    | P     | PW   |
|------|-------|------|-------|------|
| 1    |       | 0.58 | 0.057 | 35 t |
| 2    |       | 0.58 | 0.041 | 25 t |
| 3    |       | 0.65 | 0.026 | 15 t |



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Wood Resistance

|          |     |   |
|----------|-----|---|
| Type     | 1   | (Joists and Planks = 1, Beams and Stringers = 2, Post Timber = 3)                                     |
| Species  | 3   | (D.Fir-L = 1, Hem-Fir = 2, SPF = 3, Northern = 4)   |
| Grade    | 1   | (SS = 0, No. 1 = 1, No. 2 = 2)  |
| System   | 2   | Long. Nail-lam = 1, Trans. Nail-lam = 2, Long. Stress-lam = 3, Transv. Stress-lam = 4, Stringers = 5) |
| Width b  | 52  | mm  |
| Depth d  | 152 | mm  |
| Length L | 880 | mm  |
| $L_u =$  | 0   | mm (unsupported length of compression flange)   |
| Spacing  | 52  | mm  |

Flexural Resistance  $M_r = \Phi k_d k_{ls} k_m k_{sb} f_{bu} S$

|            |   |
|------------|---|
| $\Phi =$   | 0.9   |
| $f_{bu} =$ | 8.4 MPa   |
| $k_d =$    | 1.00 (Dead and Live Load combination. For all others see 9.5.3) |
| $k_{ls} =$ | 1.00  |
| $k_m =$    | 1.51  |
| $k_{sb} =$ | 1.2   |
| $S =$      | 200235 mm <sup>3</sup>  |
| $M_r =$    | 2.7 kNm   |

Shear Resistance  $V_r = \Phi k_d k_m k_{sv} f_{vu} A / 1.5$

|            |   |
|------------|---|
| $\Phi =$   | 0.9   |
| $f_{vu} =$ | 0.8 MPa   |
| $k_d =$    | 1.00 (Dead and Live Load combination. For all others see 9.5.3) |
| $k_m =$    | 1.47  |
| $k_{sv} =$ | 2.45  |
| $A =$      | 7904 mm <sup>2</sup>  |
| $V_r =$    | 13.7 kN   |

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SKS

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Feb/07.

5/

## Evaluation of Truss Stringers

stringers are simply supported between floorbeams. update stringers are continuous at L2, L4 and L6

Dead Load:

|         |   |                          |      |      |      |              |      |
|---------|---|--------------------------|------|------|------|--------------|------|
| Asphalt | = | 4.780 (0.050) (23.5) / 5 | =    | 1.12 | kn/m | $\alpha_D =$ | 1.35 |
| Deck    | = | 4.780 (0.152) (6.0) / 5  | =    | 0.87 |      |              | 1.14 |
| self wt | = | 0.27                     | KN/m | =    | 0.27 |              | 1.07 |

$$W_{D,f} = 1.35(1.12) + 1.14(0.87) + 1.07(0.27) = 2.79 \text{ KN/m}$$

$$M_{D,f} = 2.78 (4.775)^2 / 8 = 7.9 \text{ KNm}$$

$$V_{D,f} = 2.78 (4.775) / 2 = 6.6 \text{ KN}$$

Live Load:

- Moment Amplification Factor  $F_m$  (5.7.1.2)

$$W_e = \frac{4460}{1} = 4460$$

$$M = \frac{4.46 - 3.3}{0.6} = 1.93 \rightarrow M = 1.0$$

$$S = 0.991 \text{ m} \quad N = 5$$

Type C - Girder Bridges with wood planks

$$F = 2.4 \quad C_f = 0$$

$$F_m = \frac{SN}{F \left(1 + \frac{Mc_f}{100}\right)} = \frac{0.991(5)}{2.4} = 2.06$$



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- Shear Amplification Factor  $F_v$  (S-7.1.4)

$$F = 2.40 \left( \frac{S}{2} \right)^{0.25}$$

$$= 2.40 \left( \frac{0.991}{2} \right)^{0.25} = 2.01$$

$$F_v = \frac{SN}{F} = \frac{(0.991)(5)}{2.01} = 2.465$$

- Live Load Force effects (SAP 2000)  $L = 4.775m$

| Eval | level | $M_L$ | $V_L$ | DLA |
|------|-------|-------|-------|-----|
| 1    |       | 254   | 245   | 0.3 |
| 2    |       | 254   | 245   | 0.3 |
| 3    |       | 254   | 245   | 0.3 |

$$M_{L,f} = \frac{\alpha_L(DLA) \cdot n \cdot M_L \cdot R_L \cdot F_m}{N} = \frac{1.49(1.3)(254)(2.06)}{5} = 202.7 \text{ kNm}$$

$$V_{L,f} = \frac{\alpha_L(DLA) \cdot n \cdot V_L \cdot R_L \cdot F_v}{N} = \frac{(1.49)(1.3)(245)(2.465)}{5} = 234.0 \text{ kN}$$

Resistance of Stringers

- Moment

S 200 x 27

Class web  $\frac{h}{w} = \frac{181}{6.9} = 26.2 \leq \frac{1100}{\sqrt{210}} = 75.9$  Class 1

Flange  $\frac{b_0}{t} = \frac{51}{10.8} = 4.7 \leq \frac{145}{\sqrt{210}} = 10.0$  Class 1

$\Rightarrow$  class 1 section

Stringers are laterally supported (brackets every 624 mm  $\pm$ )



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$$M_r = \phi_s Z_x F_y = (0.95)(272 \times 10^3)(210) \\ = 54.3 \text{ KNm}$$

- Shear

$$k_v = 5.34$$

$$\frac{h}{w} \sqrt{\frac{k_v}{F_0}} = 26.2 / \sqrt{\frac{5.34}{210}} = 164 \leq 502$$

$$F_s = F_{cr} = 0.577 F_y = 121 \text{ MPa}$$

$$A_w = d_w = 203(6.9) = 1401 \text{ mm}^2$$

$$V_r = \phi_s A_w F_s = (0.95)(1401)(121) = 161.0 \text{ kN}$$

LLCF (all evaluation levels)

$$\text{Moment } \Rightarrow F = \frac{1.0(54.3) - 7.9}{202.7} = 0.23 \\ u = 1.0$$

$$\text{Shear } \Rightarrow F = \frac{0.87(161) - 6.6}{234} = 0.57 \\ u = 0.87$$

since  $F < 0.3$  at Eval. level consideration shall be give to close this bridge

a  $F = 0.23$  corresponds to a posting of 5 tonnes (single posting) (C. 14.17.2)



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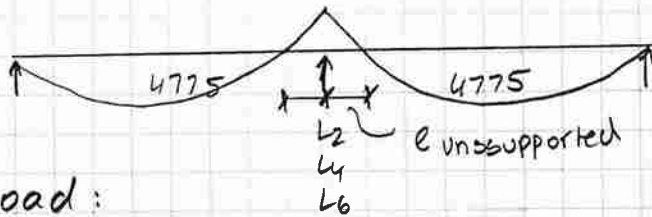
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continuous stringers at L2, L4, L6



Dead Load:

$$W_{FD} = 2.8 \text{ kN/m} \quad \text{see p 6.}$$

$$M_{LD}^+ = 0.07 (2.8) (4.775)^2 = 4.5 < \text{before}$$

$$M_{LD}^- = -0.125 (2.8) (4.775)^2 = -7.9 \text{ kNm}, \text{ same as before, but with } l_u = 1.18 \text{ m}$$

$$V_{FD} = 1.25 (2.8) (4.775) / 2 = 8.4 \text{ kN} > \text{before}$$

Live Load:

$$F_m = 2.06 \quad \text{and} \quad F_v = 2.465 \quad \text{as before}$$

$$M_L^+ = 208 < \text{before} \quad V_L = 258 \quad (\text{from SAP 2000})$$

$$M_L^- = -136$$

$$M_{L,F}^- = (1.49)(1.3)(136)(2.06) / 5 = 108.5 \text{ kNm}$$

$$V_{L,F} = (1.49)(1.3)(258)(2.465) / 5 = 246.4 \text{ kN}$$

100 k at  $l_u$ :  $5200 \times 27$  confirmed.

$$M_u = \frac{1.0 \pi}{1180} \sqrt{(200000)(1.59 \times 10^6)(77000)(140 \times 10^3) + \left(\frac{200000 \pi}{1180}\right)^2 (1.59 \times 10^6)(14.7 \times 10^9)}$$

$$= 267 \text{ kNm} > 0.67 M_p = 0.67(57.2)$$

$$M_r = 1.15 (0.95) (57.2) \left[ 1 - \frac{0.28 (57.2)}{267} \right] = 58.7 \approx 54.3$$

$$M_r = 54.3 \text{ kNm}$$



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LLCF

Moment -  
u = 1.0

$$\Rightarrow F = \frac{(1.07)(54.3) - 7.9}{108.5} = 0.42$$

positive Moment in non continuous  
stringer governs with F = 0.23

Shear  
u = 0.87

$$\Rightarrow F = \frac{0.87(161) - 8.4}{246.4} = 0.53 \quad (\text{governes})$$



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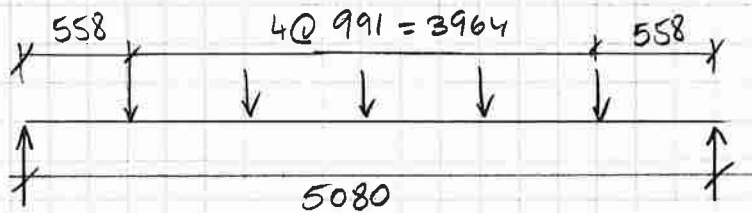
# Evaluation of Truss Floorbeams

S 380x64

Dead Load from stringers

Asphalt : 1.12 (4.775) = 5.4 kN  
 Deck : 0.87 ( ) = 4.2 kN  
 Stringer : 0.27 ( ) = 1.3 kN

Floorbeam self-wt: 0.627 kN/m



$$M_{FD} = [1.40(5.4) + 1.16(4.2) + 1.08(1.3)] (3.38) + 1.08(0.627)(5.08)^2 / 8$$

↙ Sap 2000 for unit load

$$= 49.0 \text{ kNm}$$

$$V_{FD} = [ \quad - \quad - \quad ] (2.50) + 1.08(0.627)(5.08) / 2$$

↙ Sap 2000 for unit load

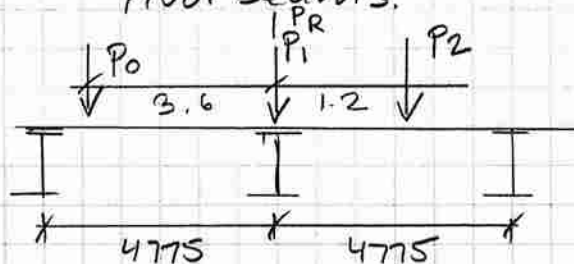
$$= 36.3 \text{ kN}$$

end floorbeam

$$M_{FD} = 25.6 \text{ kNm}$$

$$V_{FD} = 19.0 \text{ kN}$$

Live Load: no longitudinal continuity across floorbeams.



all eval. levels  
DLA = 0.3

$$P_R = P_1 + 0.75P_2 + 0.25P_0$$

$$= 70 + 0.75(70) + 0.25(25)$$

$$= 129 \text{ kN}$$



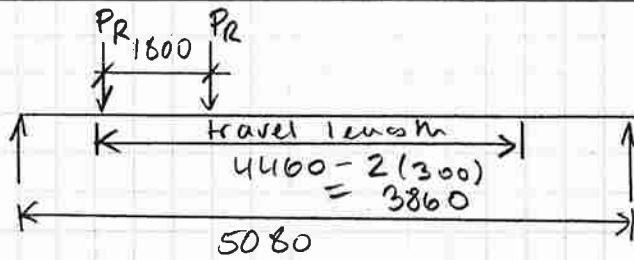
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from SAP 2000

$$M_{Max} = 1.71 P_R$$

$$V_{max} = 1.43 P_R$$

$$M_{Lif} = (1.56) (1.30) (129) (1.71) = 447 \text{ kNm}$$

$$V_{Lif} = (1.56) (1.30) (129) (1.43) = 374 \text{ kN}$$

Since end floor beams are also S380x64, interior floor beams will be more critical.

Floor beam Resistance S380x64

- Moment:

$$\text{class web } \frac{h}{w} = \frac{349}{10.4} = 33.6 \leq \frac{1100}{\sqrt{210}} = 75.1 \quad \text{Class 1}$$

$$\text{class flange } \frac{b_0}{t} = \frac{70}{15.8} = 4.4 \leq \frac{145}{\sqrt{210}} = 10.0 \quad \text{Class 1}$$

Class 1 section

top flange of floorbeams connected to stringers and thus laterally supported

$$M_r = \phi Z \times F_y = (0.95) (1140 \times 10^3) (210) = 227.4 \text{ kNm}$$

- Shear:

$$K_v = 5.34$$

$$\frac{h}{w} / \sqrt{\frac{K_v}{F_y}} = 33.6 / \sqrt{\frac{5.34}{210}} = 211 \leq 502$$



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$$F_s = F_{cr} = 0.577 F_y = 121 \text{ MPa}$$

$$A_w = d_w = 381 (10.4) = 3962 \text{ mm}^2$$

$$V_r = \phi_s A_w F_s = (0.95) (3962) (121) = 455 \text{ kN}$$

LLCF:

- Moment  
 $u=1.0$

$$F = \frac{1.0 (227.4) - 49}{447} = 0.40$$

- Shear  
 $u=0.87$

$$F = \frac{(0.87) (455) - 36}{374} = 0.96$$

| Eval level | F    | P     | Posting |
|------------|------|-------|---------|
| 1          | 0.40 | 0.038 | 23      |
| 2          | 0.40 | 0.027 | 17      |
| 3          | 0.40 | 0.015 | 9       |



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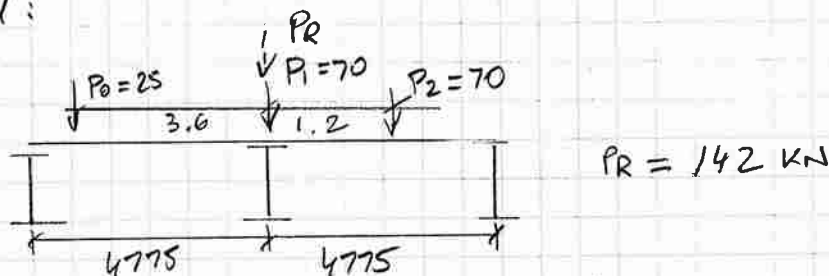
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Floorbeams at L<sub>2</sub>, L<sub>4</sub> and L<sub>6</sub> (stringers are continuous across FB)

$$MFD = [(11.40)(5.4) + 1.16(4.2) + 1.08(1.3)](1.25)(3.38) + 1.08(0.627)(5.08)^2/8 = 60.6 \text{ kN}$$

$$VFD = [ \quad - \quad ](1.25)(2.50) + - \quad - \quad (5.08)/2 = 45.0 \text{ kN}$$

Live Load:



$$M_{L1F} = (1.56)(1.30)(142)(1.71) = 492 \text{ kNm}$$

$$V_{L1F} = (1.56)(1.30)(142)(1.43) = 412 \text{ kN}$$

LLCF:

- Moment  $F = \frac{1.0(227.4) - 60.6}{492} = 0.34 \text{ (governs)}$

- Shear  $F = \frac{(0.87)(455) - 45}{412} = 0.85 \text{ (governs)}$



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# Evaluation of Truss

## Dead Loads

joints  $L_1$  to  $L_7$ : (floorbeam reaction)

$$\text{Asphalt: } \frac{1}{2}(4.46)(4.775)(23.5)(0.05) = 12.5 \text{ KN}$$

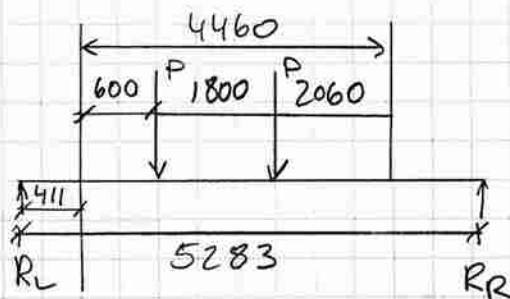
$$\text{Deck: } \frac{1}{2}(4.46)(4.775)(6.0)(0.152) = 9.7 \text{ KN}$$

$$\text{Steel: } (4.775)(0.27)(2.5) + (0.627)(5.08)(\frac{1}{2}) = 4.8 \text{ KN}$$

joints  $U_1$  to  $U_7$ :  $(0.115)(4.775)(\frac{1}{2}) + (0.075)(7.121) = 0.8 \text{ KN}$  bracing

Steel truss self-wt generated by SAP2000  
 $\times 1.10$  (misc. steel)

## Live Load



$$R_L = 0.81P + 0.47P = 1.28P$$

64% of CL-625 ONT truck load to one side of truss

$$\frac{1.28}{1.18} \times 0.5 = 0.54$$

factor applied to spread sheet to modify LL

- apply LL to bottom chord

- assume fully pinned truss

- DLA = 0.25 Eval. L. 1+2 except hangers DLA = 0.3  
 = 0.3 Eval. L. 3



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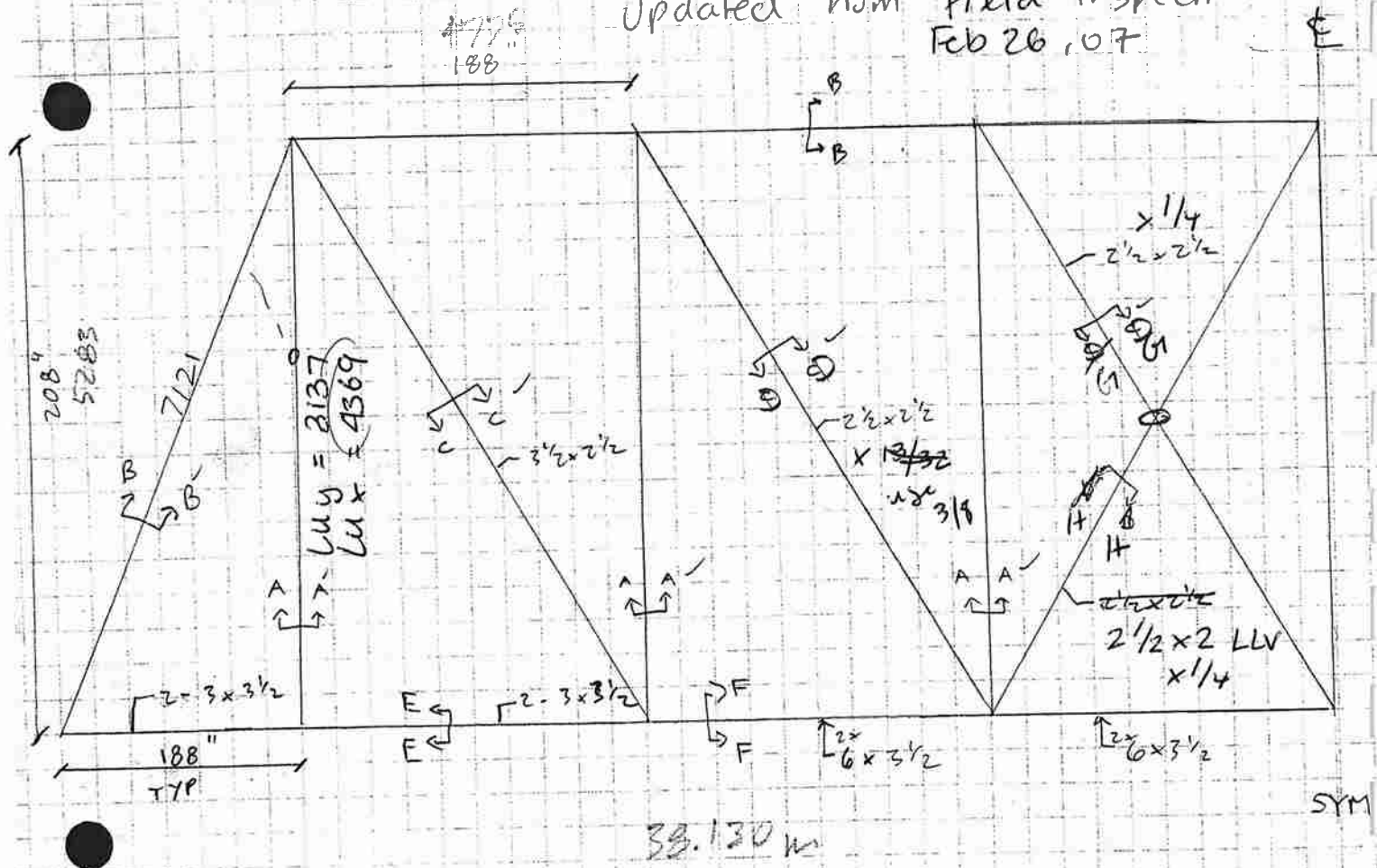
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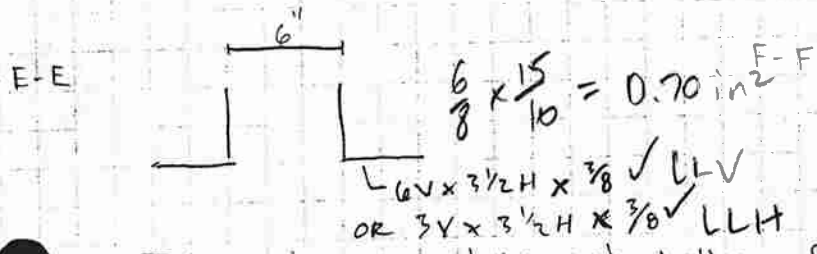
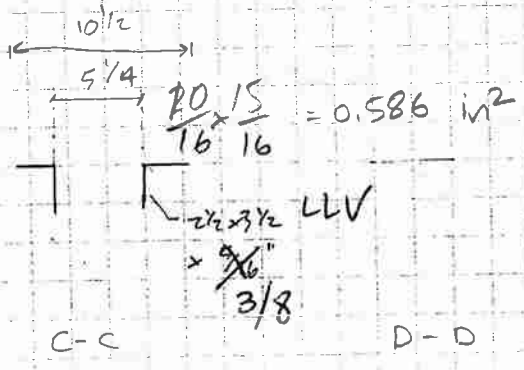
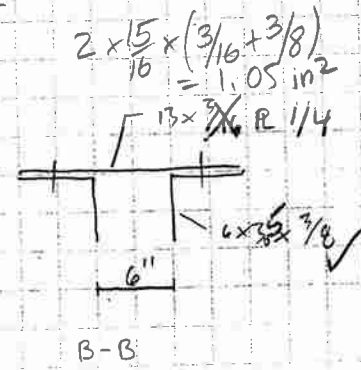
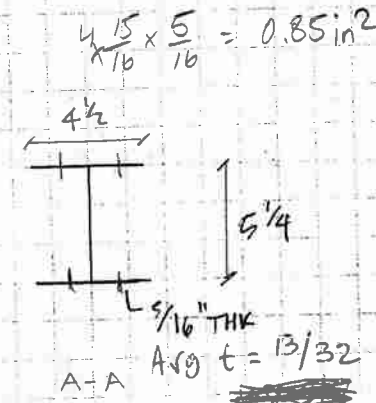


# ANDREW'SVILLE BRIDGE Section Properties

Updated from field inspection Feb 26, 07



33.130 m  
8.83 c/c L<sub>y</sub>



Truss is symmetric about the  $\phi$  except the section C-C & that cross are now reversed in the next bay.

Compressive Strength

| Jt1 | Jt2 | Elem | ID  | Type | Sec | Lw,X  | Lw,Y  | (Lw/r) <sub>x</sub> | (Lw/r) <sub>y</sub> | A    | Cw       | J        | y <sub>0</sub> | Ae     | r <sub>0</sub> <sup>2</sup> | H   | Fex   | Fey    | Fez   | Fe    | le  | fo  | fe  | Cr    |  |
|-----|-----|------|-----|------|-----|-------|-------|---------------------|---------------------|------|----------|----------|----------------|--------|-----------------------------|-----|-------|--------|-------|-------|-----|-----|-----|-------|--|
| L0  | L1  | 9    | 91  | bc   | EE  | 4.298 | 4.298 | 189                 | 40                  | 1.95 | 2.31E+07 | 44900.0  | 8.9            | 1482.0 | 12103.7                     | 1.0 | 55.4  | 1229.9 | 192.9 | 192.6 | 1.0 | 0.2 | 0.6 | 131.7 |  |
| L1  | L2  | 10   | 101 | bc   | EE  | 4.298 | 4.298 | 189                 | 40                  | 1.95 | 2.31E+07 | 44900.0  | 8.9            | 1482.0 | 12103.7                     | 1.0 | 55.4  | 1229.9 | 192.9 | 192.6 | 1.0 | 0.2 | 0.6 | 131.7 |  |
| L2  | L3  | 11   | 111 | bc   | FF  | 4.298 | 4.298 | 87                  | 43                  | 0.80 | 9.11E+07 | 66800.0  | 39.1           | 2207.5 | 13834.5                     | 0.9 | 259.1 | 1056.1 | 168.7 | 165.4 | 1.1 | 0.7 | 0.5 | 437.2 |  |
| L3  | L4  | 12   | 121 | bc   | FF  | 4.298 | 4.298 | 87                  | 43                  | 0.90 | 9.11E+07 | 66800.0  | 39.1           | 2207.5 | 13834.5                     | 0.9 | 259.1 | 1056.1 | 168.7 | 165.4 | 1.1 | 0.7 | 0.5 | 437.2 |  |
| L0  | U1  | 1    | 11  | ep   | BB  | 4.201 | 5.903 | 87                  | 60                  | 0.90 | 6.59E+08 | 285000.0 | 20.0           | 6510.0 | 12338.7                     | 1.0 | 247.8 | 1028.2 | 274.1 | 270.9 | 0.9 | 0.6 | 0.7 | 793.2 |  |
| U1  | U2  | 2    | 21  | lc   | BB  | 4.298 | 4.298 | 89                  | 44                  | 0.92 | 6.59E+08 | 285000.0 | 20.0           | 6510.0 | 12338.7                     | 1.0 | 247.8 | 1028.2 | 274.1 | 270.9 | 0.9 | 0.6 | 0.7 | 793.2 |  |
| U2  | U3  | 3    | 31  | lc   | BB  | 4.298 | 4.298 | 89                  | 44                  | 0.92 | 6.59E+08 | 285000.0 | 20.0           | 6510.0 | 12338.7                     | 1.0 | 247.8 | 1028.2 | 274.1 | 270.9 | 0.9 | 0.6 | 0.7 | 793.2 |  |
| U3  | U4  | 4    | 41  | lc   | BB  | 4.298 | 4.298 | 89                  | 44                  | 0.92 | 6.59E+08 | 285000.0 | 20.0           | 6510.0 | 12338.7                     | 1.0 | 247.8 | 1028.2 | 274.1 | 270.9 | 0.9 | 0.6 | 0.7 | 793.2 |  |
| U1  | L1  | 17   | 171 | h    | AA  | 3.137 | 4.369 | 56                  | 151                 | 1.56 |          |          |                |        |                             |     |       |        |       |       |     |     |     |       |  |
| U2  | L2  | 18   | 181 | v    | AA  | 3.137 | 4.369 | 56                  | 151                 | 1.56 |          |          |                |        |                             |     |       |        |       |       |     |     |     |       |  |
| U3  | L3  | 19   | 191 | v    | AA  | 3.137 | 4.369 | 56                  | 151                 | 1.56 |          |          |                |        |                             |     |       |        |       |       |     |     |     |       |  |
| U4  | L4  | 20   | 201 | v    | AA  | 3.137 | 4.369 | 56                  | 151                 | 1.56 |          |          |                |        |                             |     |       |        |       |       |     |     |     |       |  |
| U1  | L2  | 24   | 241 | d    | CC  | 6.207 | 6.207 | 324                 | 73                  | 2.29 | 1.15E+07 | 24100.0  | 16.8           | 1357.5 | 8362.4                      | 1.0 | 40.1  | 373.9  | 163.5 | 159.5 | 1.1 | 0.2 | 0.5 | 90.8  |  |
| U2  | L3  | 25   | 251 | d    | DD  | 6.207 | 6.207 | 324                 | 70                  | 3.35 | 5.87E+06 | 19900.0  | 0.0            | 1116.5 | 8135.3                      | 1.0 | 18.8  | 398.1  | 168.7 | 168.7 | 1.1 | 0.1 | 0.5 | 36.6  |  |
| U3  | L4  | 26   | 261 | d    | GG  | 3.194 | 3.194 | 163                 | 37                  | 1.69 | 5.87E+06 | 19901.0  | 0.0            | 766.0  | 7974.5                      | 1.0 | 73.9  | 1489.1 | 251.0 | 251.0 | 0.9 | 0.3 | 0.6 | 86.4  |  |
| L3  | U4  | 30   | 301 | ct   | HH  | 3.194 | 3.194 | 212                 | 36                  | 2.19 | 5.87E+06 | 19902.0  | 0.0            | 685.5  | 8136.5                      | 1.0 | 43.7  | 1530.7 | 274.9 | 274.9 | 0.9 | 0.2 | 0.7 | 49.5  |  |

L:\W O # Director\6075-05 Linn County 5 Bridge Rehabilitation\Andresville Bridge\6075-301.xls Andresville Truss Evaluation.xls\Comp

*Sgm Feb 07*

Evaluation Level 1

| Load Factors            |  | D1   | D2   | D3   | LL   |
|-------------------------|--|------|------|------|------|
| Tension - Gross Section |  | 1.08 | 1.16 | 1.40 | 1.56 |
| Otherwise               |  | 1.10 | 1.20 | 1.50 | 1.70 |

| DLA     |  | 0.30 |
|---------|--|------|
| Hangers |  | 0.30 |
| Other   |  | 0.25 |

| Element Forces |    | Unfactored Axial Loads |     |         |      |       |             |       |         |        |       | Factored Live Loads |       |        |        |        |        | Factored Dead Loads |                     |         |           |                    |
|----------------|----|------------------------|-----|---------|------|-------|-------------|-------|---------|--------|-------|---------------------|-------|--------|--------|--------|--------|---------------------|---------------------|---------|-----------|--------------------|
|                |    | Dead Load              |     |         |      |       | Live - Lane |       |         |        |       | Live - Truck        |       |        |        |        | Live   |                     | Tension - Gross Sec |         | Otherwise |                    |
|                |    | J1                     | J2  | Elem ID | Type | Sec   | Steel       | Deck  | Asphalt | L1MX   | L1MIN | L1MX                | L1MIN | T1MX   | T1MIN  | Max    | Min    | Max                 | Min                 | Max     | Min       | Tension Gross Sec. |
| L0             | L1 | 9                      | 91  | bc      | EE   | 41.0  | 30.7        | 39.5  | 266.0   | 0.0    | 247.9 | 0.0                 | 309.9 | 0.0    | 483.4  | 0.0    | 526.8  | 0.0                 | 526.8               | 0.0     | 135.2     | 141.2              |
| L1             | L2 | 10                     | 101 | bc      | EE   | 41.0  | 30.7        | 39.5  | 266.0   | 0.0    | 247.9 | 0.0                 | 309.9 | 0.0    | 483.4  | 0.0    | 526.8  | 0.0                 | 526.8               | 0.0     | 135.2     | 141.2              |
| L2             | L3 | 11                     | 111 | bc      | FF   | 70.8  | 52.6        | 67.8  | 457.8   | 0.0    | 427.2 | 0.0                 | 534.0 | 0.0    | 833.0  | 0.0    | 907.8  | 0.0                 | 907.8               | 0.0     | 232.4     | 242.7              |
| L3             | L4 | 12                     | 121 | bc      | FF   | 89.0  | 65.8        | 84.7  | 563.1   | 0.0    | 522.6 | 0.0                 | 653.2 | 0.0    | 1019.0 | 0.0    | 1110.5 | 0.0                 | 1110.5              | 0.0     | 291.0     | 303.9              |
| L0             | U1 | 1                      | 11  | ep      | BB   | -61.1 | -45.8       | -59.0 | 0.0     | -396.7 | 0.0   | -369.7              | 0.0   | -462.1 | 0.0    | 0.0    | 0.0    | 0.0                 | 0.0                 | -785.6  | -201.6    | -210.6             |
| U1             | U2 | 2                      | 21  | tc      | BB   | -70.8 | -52.6       | -67.8 | 0.0     | -457.8 | 0.0   | -427.2              | 0.0   | -534.0 | 0.0    | 0.0    | 0.0    | 0.0                 | 0.0                 | -907.8  | -232.4    | -242.7             |
| U2             | U3 | 3                      | 31  | tc      | BB   | -89.3 | -65.8       | -84.7 | 0.0     | -563.1 | 0.0   | -522.6              | 0.0   | -653.2 | 0.0    | 0.0    | 0.0    | 0.0                 | 0.0                 | -1110.5 | -291.3    | -304.2             |
| U3             | U4 | 4                      | 41  | tc      | BB   | -96.0 | -70.1       | -90.4 | 0.0     | -580.7 | 0.0   | -532.5              | 0.0   | -665.6 | 0.0    | 0.0    | 0.0    | 0.0                 | 0.0                 | -1131.5 | -311.6    | -325.3             |
| U1             | L1 | 17                     | 171 | h       | AA   | 6.7   | 9.7         | 12.5  | 153.0   | 0.0    | 164.6 | 0.0                 | 213.9 | 0.0    | 333.7  | 0.0    | 363.7  | 0.0                 | 363.7               | 0.0     | 36.0      | 37.7               |
| U2             | L2 | 18                     | 181 | v       | AA   | -25.2 | -14.6       | -18.8 | 43.8    | -178.5 | 47.1  | -175.4              | 58.9  | -219.2 | 91.9   | -342.0 | 100.1  | 100.1               | -372.6              | -70.4   | -70.4     | -73.4              |
| U3             | L3 | 19                     | 191 | v       | AA   | -12.2 | -4.9        | -6.3  | 80.6    | -127.9 | 83.5  | -129.4              | 104.4 | -161.7 | 162.8  | -252.3 | 177.5  | 177.5               | -274.9              | -27.6   | -27.6     | -28.6              |
| U4             | L4 | 20                     | 201 | v       | AA   | -5.5  | 0.0         | 0.0   | 0.0     | 0.0    | 0.0   | 0.0                 | 0.0   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0                 | 0.0                 | -5.9    | -5.9      | -6.0               |
| U1             | L2 | 24                     | 241 | d       | CC   | 44.5  | 32.7        | 42.1  | 316.0   | -23.2  | 302.3 | -26.4               | 377.9 | -33.0  | 589.5  | -51.5  | 642.4  | -56.1               | 642.4               | -56.1   | 145.0     | 151.4              |
| U2             | L3 | 25                     | 251 | d       | DD   | 27.6  | 19.6        | 25.3  | 240.6   | -59.0  | 236.4 | -63.5               | 295.5 | -79.4  | 460.9  | -123.8 | 502.3  | -134.9              | 502.3               | -134.9  | 87.9      | 91.8               |
| U3             | L4 | 26                     | 261 | d       | GG   | 10.0  | 6.5         | 8.4   | 172.4   | -108.6 | 174.4 | -112.6              | 218.0 | -140.7 | 340.0  | -219.5 | 370.5  | -239.2              | 370.5               | -239.2  | 30.2      | 31.5               |
| L3             | U4 | 30                     | 301 | ct      | HH   | 0.5   | 0.0         | 0.0   | 0.0     | 0.0    | 0.0   | 0.0                 | 0.0   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0                 | 0.0                 | 0.0     | 0.5       | 0.5                |

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**Live Load Capacity Factor**

**Evaluation Level 1**

Fy 210 MPa U = 1.01

Fu 420 MPa

| Jt1 | Jt2 | Elem | ID  | Type | Sec | Tr (gross)<br>kN | Tr (net)<br>kN | Lu<br>m | Cr<br>kN | F<br>tension | F<br>compr. |
|-----|-----|------|-----|------|-----|------------------|----------------|---------|----------|--------------|-------------|
| L0  | L1  | 9    | 91  | bc   | EE  | 591.3            | 852.1          | 4.775   | 131.7    | 0.96         | T           |
| L1  | L2  | 10   | 101 | bc   | EE  | 591.3            | 852.1          | 4.775   | 131.7    | 0.96         | T           |
| L2  | L3  | 11   | 111 | bc   | FF  | 880.8            | 1344.2         | 4.775   | 437.2    | 0.79         | T           |
| L3  | L4  | 12   | 121 | bc   | FF  | 880.8            | 1344.2         | 4.775   | 437.2    | 0.59         | T           |
| L0  | U1  | 1    | 11  | ep   | BB  | 1298.7           | 1978.1         | 7.121   | 809.0    | C            | 0.77        |
| U1  | U2  | 2    | 21  | tc   | BB  | 1298.7           | 1978.1         | 4.775   | 793.2    | C            | 0.62        |
| U2  | U3  | 3    | 31  | tc   | BB  | 1298.7           | 1978.1         | 4.775   | 793.2    | C            | 0.45        |
| U3  | U4  | 4    | 41  | tc   | BB  | 1298.7           | 1978.1         | 4.775   | 793.2    | C            | 0.42        |
| U1  | L1  | 17   | 171 | h    | AA  | 612.7            | 855.5          | 5.283   | 195.9    | 1.75         | T           |
| U2  | L2  | 18   | 181 | v    | AA  | 612.7            | 855.5          | 5.283   | 195.9    | 7.50         | 0.33        |
| U3  | L3  | 19   | 191 | v    | AA  | 612.7            | 855.5          | 5.283   | 195.9    | 3.97         | 0.62        |
| U4  | L4  | 20   | 201 | v    | AA  | 612.7            | 855.5          | 5.283   | 195.9    | #DIV/0!      | #DIV/0!     |
| U1  | L2  | 24   | 241 | d    | CC  | 541.6            | 792.6          | 7.121   | 90.8     | 0.68         | 4.33        |
| U2  | L3  | 25   | 251 | d    | DD  | 445.5            | 629.1          | 7.121   | 36.6     | 0.79         | 0.95        |
| U3  | L4  | 26   | 261 | d    | GG  | 305.6            | 391.3          | 7.121   | 86.4     | 0.82         | 0.50        |
| L3  | U4  | 30   | 301 | ct   | HH  | 273.5            | 336.7          | 7.121   | 49.5     | #DIV/0!      | #DIV/0!     |

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Evaluation Level 2

| Load Factors            | D1   | D2   | D3   | LL   |
|-------------------------|------|------|------|------|
| Tension - Gross Section | 1.08 | 1.16 | 1.40 | 1.56 |
| Otherwise               | 1.10 | 1.20 | 1.50 | 1.70 |

| DLA     |      |
|---------|------|
| Hangers | 0.30 |
| Other   | 0.25 |

| Element Forces |     | Unfactored Axial Loads |      |             |       |              |         |       |       |                     |       | Factored Live Loads |       |         |       |           |       | Factored Dead Loads |        |        |
|----------------|-----|------------------------|------|-------------|-------|--------------|---------|-------|-------|---------------------|-------|---------------------|-------|---------|-------|-----------|-------|---------------------|--------|--------|
|                |     | Dead Load              |      | Live - Lane |       | Live - Truck |         | Live  |       | Tension - Gross Sec |       | Otherwise           |       | Tension |       | Otherwise |       |                     |        |        |
| Jr1            | Jr2 | Elem ID                | Type | Sec         | Steel | Deck         | Asphalt | L2MX  | L2MIN | T2MX                | T2MIN | Max                 | Min   | Max     | Min   | Max       | Min   | Gross Sec.          |        |        |
| L0             | L1  | 9                      | 91   | bc          | EE    | 41.0         | 30.7    | 39.5  | 240.8 | 0.0                 | 216.4 | 0.0                 | 270.6 | 0.0     | 422.1 | 0.0       | 460.0 | 0.0                 | 135.2  | 141.2  |
| L1             | L2  | 10                     | 101  | bc          | EE    | 41.0         | 30.7    | 39.5  | 240.8 | 0.0                 | 216.4 | 0.0                 | 270.6 | 0.0     | 422.1 | 0.0       | 460.0 | 0.0                 | 135.2  | 141.2  |
| L2             | L3  | 11                     | 111  | bc          | FF    | 70.8         | 52.6    | 67.8  | 416.3 | 0.0                 | 375.4 | 0.0                 | 469.3 | 0.0     | 732.0 | 0.0       | 797.7 | 0.0                 | 232.4  | 242.7  |
| L3             | L4  | 12                     | 121  | bc          | FF    | 89.0         | 65.8    | 84.7  | 516.6 | 0.0                 | 464.5 | 0.0                 | 580.6 | 0.0     | 905.7 | 0.0       | 987.0 | 0.0                 | 291.0  | 303.9  |
| L0             | U1  | 1                      | 11   | ep          | BB    | -61.1        | -45.8   | -59.0 | 0.0   | -359.2              | 0.0   | -322.8              | 0.0   | -403.5  | 0.0   | -629.5    | 0.0   | -685.9              | -201.6 | -210.6 |
| U1             | U2  | 2                      | 21   | tc          | BB    | -70.8        | -52.6   | -67.8 | 0.0   | -416.3              | 0.0   | -375.4              | 0.0   | -469.3  | 0.0   | -732.0    | 0.0   | -797.7              | -232.4 | -242.7 |
| U2             | U3  | 3                      | 31   | tc          | BB    | -89.3        | -65.8   | -84.7 | 0.0   | -516.6              | 0.0   | -464.5              | 0.0   | -580.6  | 0.0   | -905.7    | 0.0   | -987.0              | -291.3 | -304.2 |
| U3             | U4  | 4                      | 41   | tc          | BB    | -96.0        | -70.1   | -90.4 | 0.0   | -546.3              | 0.0   | -489.6              | 0.0   | -612.0  | 0.0   | -954.7    | 0.0   | -1040.4             | -311.6 | -325.3 |
| U1             | L1  | 17                     | 171  | h           | AA    | 6.7          | 9.7     | 12.5  | 153.0 | 0.0                 | 164.6 | 0.0                 | 213.9 | 0.0     | 333.7 | 0.0       | 363.7 | 0.0                 | 36.0   | 37.7   |
| U2             | L2  | 18                     | 181  | v           | AA    | -25.2        | -14.6   | -18.8 | 43.8  | -165.1              | 47.1  | -158.7              | 58.9  | -198.3  | 91.9  | -309.4    | 100.1 | -337.2              | -70.4  | -73.4  |
| U3             | L3  | 19                     | 191  | v           | AA    | -12.2        | -4.9    | -6.3  | 80.6  | -120.4              | 83.5  | -119.9              | 104.4 | -149.9  | 162.8 | -233.8    | 177.5 | -254.8              | -27.6  | -28.6  |
| U4             | L4  | 20                     | 201  | v           | AA    | -5.5         | 0.0     | 0.0   | 0.0   | 0.0                 | 0.0   | 0.0                 | 0.0   | 0.0     | 0.0   | 0.0       | 0.0   | 0.0                 | -5.9   | -6.0   |
| U1             | L2  | 24                     | 241  | d           | CC    | 44.5         | 32.7    | 42.1  | 288.8 | -23.2               | 268.3 | -26.4               | 335.4 | -33.0   | 523.3 | -51.5     | 570.2 | -56.1               | 145.0  | 151.4  |
| U2             | L3  | 25                     | 251  | d           | DD    | 27.6         | 19.6    | 25.3  | 222.6 | -59.0               | 213.9 | -63.5               | 267.3 | -79.4   | 417.1 | -123.8    | 454.5 | -134.9              | 87.9   | 91.8   |
| U3             | L4  | 26                     | 261  | d           | GG    | 10.0         | 6.5     | 8.4   | 162.3 | -108.6              | 161.6 | -112.6              | 202.0 | -140.7  | 315.2 | -219.5    | 343.5 | -239.2              | 30.2   | 31.5   |
| L3             | U4  | 30                     | 301  | ct          | HH    | 0.5          | 0.0     | 0.0   | 0.0   | 0.0                 | 0.0   | 0.0                 | 0.0   | 0.0     | 0.0   | 0.0       | 0.0   | 0.0                 | 0.5    | 0.5    |

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**Live Load Capacity Factor**

**Evaluation Level 2**

Fy 210 MPa U = 1.01  
Fu 420 MPa

| Jt1 | Jt2 | Elem | ID  | Type | Sec | Tr (gross)<br>kN | Tr (net)<br>kN | Lu<br>m | Cr<br>kN | F<br>tension | F<br>compr. |
|-----|-----|------|-----|------|-----|------------------|----------------|---------|----------|--------------|-------------|
| L0  | L1  | 9    | 91  | bc   | EE  | 591.3            | 852.1          | 4.775   | 131.7    | 1.09         | T           |
| L1  | L2  | 10   | 101 | bc   | EE  | 591.3            | 852.1          | 4.775   | 131.7    | 1.09         | T           |
| L2  | L3  | 11   | 111 | bc   | FF  | 880.8            | 1344.2         | 4.775   | 437.2    | 0.90         | T           |
| L3  | L4  | 12   | 121 | bc   | FF  | 880.8            | 1344.2         | 4.775   | 437.2    | 0.66         | T           |
| L0  | U1  | 1    | 11  | ep   | BB  | 1298.7           | 1978.1         | 7.121   | 809.0    | C            | 0.88        |
| U1  | U2  | 2    | 21  | tc   | BB  | 1298.7           | 1978.1         | 4.775   | 793.2    | C            | 0.70        |
| U2  | U3  | 3    | 31  | tc   | BB  | 1298.7           | 1978.1         | 4.775   | 793.2    | C            | 0.50        |
| U3  | U4  | 4    | 41  | tc   | BB  | 1298.7           | 1978.1         | 4.775   | 793.2    | C            | 0.46        |
| U1  | L1  | 17   | 171 | h    | AA  | 612.7            | 855.5          | 5.283   | 195.9    | 1.75         | T           |
| U2  | L2  | 18   | 181 | v    | AA  | 612.7            | 855.5          | 5.283   | 195.9    | 7.50         | 0.37        |
| U3  | L3  | 19   | 191 | v    | AA  | 612.7            | 855.5          | 5.283   | 195.9    | 3.97         | 0.66        |
| U4  | L4  | 20   | 201 | v    | AA  | 612.7            | 855.5          | 5.283   | 195.9    | #DIV/0!      | #DIV/0!     |
| U1  | L2  | 24   | 241 | d    | CC  | 541.6            | 792.6          | 7.121   | 90.8     | 0.77         | 4.33        |
| U2  | L3  | 25   | 251 | d    | DD  | 445.5            | 629.1          | 7.121   | 36.6     | 0.87         | 0.95        |
| U3  | L4  | 26   | 261 | d    | GG  | 305.6            | 391.3          | 7.121   | 86.4     | 0.88         | 0.50        |
| L3  | U4  | 30   | 301 | ct   | HH  | 273.5            | 336.7          | 7.121   | 49.5     | #DIV/0!      | #DIV/0!     |

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Evaluation Level 3

| Load Factors            | D1   | D2   | D3   | LL   |
|-------------------------|------|------|------|------|
| Tension - Gross Section | 1.08 | 1.16 | 1.40 | 1.56 |
| Otherwise               | 1.10 | 1.20 | 1.50 | 1.70 |

| DLA     |      |
|---------|------|
| Hangers | 0.30 |
| Other   | 0.30 |

| Element Forces |     |         |      | Unfactored Axial Loads |           |       |             |       |              |        |       |        |                     | Factored Live Loads |           |        |                    |        |           | Factored Dead Loads |  |
|----------------|-----|---------|------|------------------------|-----------|-------|-------------|-------|--------------|--------|-------|--------|---------------------|---------------------|-----------|--------|--------------------|--------|-----------|---------------------|--|
| Jr1            | Jr2 | Elem ID | Type | Sec                    | Dead Load |       | Live - Lane |       | Live - Truck |        | Live  |        | Tension - Gross Sec |                     | Otherwise |        | Tension Gross Sec. |        | Otherwise |                     |  |
|                |     |         |      |                        | Steel     | Deck  | Asphalt     | L3MX  | L3MIN        | T3MX   | T3MIN | Max    | Min                 | Max                 | Min       | Max    | Min                |        |           |                     |  |
| L0             | L1  | 9       | 91   | bc                     | EE        | 41.0  | 30.7        | 39.5  | 196.4        | 0.0    | 160.9 | 0.0    | 209.1               | 0.0                 | 326.2     | 0.0    | 355.5              | 0.0    | 135.2     | 141.2               |  |
| L1             | L2  | 10      | 101  | bc                     | EE        | 41.0  | 30.7        | 39.5  | 196.4        | 0.0    | 160.9 | 0.0    | 209.1               | 0.0                 | 326.2     | 0.0    | 355.5              | 0.0    | 135.2     | 141.2               |  |
| L2             | L3  | 11      | 111  | bc                     | FF        | 70.8  | 52.6        | 67.8  | 335.2        | 0.0    | 274.0 | 0.0    | 356.2               | 0.0                 | 555.6     | 0.0    | 605.5              | 0.0    | 232.4     | 242.7               |  |
| L3             | L4  | 12      | 121  | bc                     | FF        | 89.0  | 65.8        | 84.7  | 416.5        | 0.0    | 339.4 | 0.0    | 441.2               | 0.0                 | 688.3     | 0.0    | 750.1              | 0.0    | 291.0     | 303.9               |  |
| L0             | U1  | 1       | 11   | ep                     | BB        | -61.1 | -45.8       | -59.0 | 0.0          | -292.8 | 0.0   | -239.9 | 0.0                 | -311.9              | 0.0       | -486.5 | 0.0                | -530.2 | 0.0       | -210.6              |  |
| U1             | U2  | 2       | 21   | tc                     | BB        | -70.8 | -52.6       | -67.8 | 0.0          | -335.2 | 0.0   | -274.0 | 0.0                 | -356.2              | 0.0       | -555.6 | 0.0                | -605.5 | 0.0       | -242.7              |  |
| U2             | U3  | 3       | 31   | tc                     | BB        | -89.3 | -65.8       | -84.7 | 0.0          | -416.5 | 0.0   | -339.4 | 0.0                 | -441.2              | 0.0       | -688.3 | 0.0                | -750.1 | 0.0       | -304.2              |  |
| U3             | U4  | 4       | 41   | tc                     | BB        | -96.0 | -70.1       | -90.4 | 0.0          | -443.3 | 0.0   | -360.7 | 0.0                 | -468.9              | 0.0       | -731.5 | 0.0                | -797.2 | 0.0       | -325.3              |  |
| U1             | L1  | 17      | 171  | h                      | AA        | 6.7   | 9.7         | 12.5  | 153.0        | 0.0    | 164.6 | 0.0    | 213.9               | 0.0                 | 333.7     | 0.0    | 363.7              | 0.0    | 36.0      | 37.7                |  |
| U2             | L2  | 18      | 181  | v                      | AA        | -25.2 | -14.6       | -18.8 | 42.9         | -138.3 | 46.0  | -125.2 | 59.7                | -162.7              | 93.2      | -253.8 | 101.6              | -276.6 | -70.4     | -73.4               |  |
| U3             | L3  | 19      | 191  | v                      | AA        | -12.2 | -4.9        | -6.3  | 71.6         | -103.5 | 72.4  | -98.8  | 94.1                | -128.4              | 146.8     | -200.3 | 159.9              | -218.3 | -27.6     | -28.6               |  |
| U4             | L4  | 20      | 201  | v                      | AA        | -5.5  | 0.0         | 0.0   | 0.0          | 0.0    | 0.0   | 0.0    | 0.0                 | 0.0                 | 0.0       | 0.0    | 0.0                | 0.0    | -5.9      | -6.0                |  |
| U1             | L2  | 24      | 241  | d                      | CC        | 44.5  | 32.7        | 42.1  | 237.6        | -23.2  | 204.3 | -26.4  | 265.6               | -34.3               | 414.3     | -53.5  | 451.5              | -58.3  | 145.0     | 151.4               |  |
| U2             | L3  | 25      | 251  | d                      | DD        | 27.6  | 19.6        | 25.3  | 186.5        | -57.8  | 168.7 | -62.0  | 219.3               | -80.5               | 342.2     | -125.6 | 372.9              | -136.9 | 87.9      | 91.8                |  |
| U3             | L4  | 26      | 261  | d                      | GG        | 10.0  | 6.5         | 8.4   | 139.5        | -96.6  | 133.1 | -97.5  | 173.1               | -126.8              | 270.0     | -197.8 | 294.2              | -215.6 | 30.2      | 31.5                |  |
| L3             | U4  | 30      | 301  | ct                     | HH        | 0.5   | 0.0         | 0.0   | 0.0          | 0.0    | 0.0   | 0.0    | 0.0                 | 0.0                 | 0.0       | 0.0    | 0.0                | 0.0    | 0.5       | 0.5                 |  |

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**Live Load Capacity Factor**

Evaluation Level **3**

Fy 210 MPa U = 1.01  
Fu 420 MPa

| Jt1 | Jt2 | Elem | ID  | Type | Sec | Tr (gross)<br>kN | Tr (net)<br>kN | Lu<br>m | Cr<br>kN | F<br>tension | F<br>compr. |
|-----|-----|------|-----|------|-----|------------------|----------------|---------|----------|--------------|-------------|
| L0  | L1  | 9    | 91  | bc   | EE  | 591.3            | 852.1          | 4.775   | 131.7    | 1.42         | T           |
| L1  | L2  | 10   | 101 | bc   | EE  | 591.3            | 852.1          | 4.775   | 131.7    | 1.42         | T           |
| L2  | L3  | 11   | 111 | bc   | FF  | 880.8            | 1344.2         | 4.775   | 437.2    | 1.18         | T           |
| L3  | L4  | 12   | 121 | bc   | FF  | 880.8            | 1344.2         | 4.775   | 437.2    | 0.87         | T           |
| L0  | U1  | 1    | 11  | ep   | BB  | 1298.7           | 1978.1         | 7.121   | 809.0    | C            | 1.14        |
| U1  | U2  | 2    | 21  | tc   | BB  | 1298.7           | 1978.1         | 4.775   | 793.2    | C            | 0.92        |
| U2  | U3  | 3    | 31  | tc   | BB  | 1298.7           | 1978.1         | 4.775   | 793.2    | C            | 0.66        |
| U3  | U4  | 4    | 41  | tc   | BB  | 1298.7           | 1978.1         | 4.775   | 793.2    | C            | 0.60        |
| U1  | L1  | 17   | 171 | h    | AA  | 612.7            | 855.5          | 5.283   | 195.9    | 1.75         | T           |
| U2  | L2  | 18   | 181 | v    | AA  | 612.7            | 855.5          | 5.283   | 195.9    | 7.39         | 0.45        |
| U3  | L3  | 19   | 191 | v    | AA  | 612.7            | 855.5          | 5.283   | 195.9    | 4.40         | 0.78        |
| U4  | L4  | 20   | 201 | v    | AA  | 612.7            | 855.5          | 5.283   | 195.9    | #DIV/0!      | #DIV/0! *   |
| U1  | L2  | 24   | 241 | d    | CC  | 541.6            | 792.6          | 7.121   | 90.8     | 0.97         | 4.17        |
| U2  | L3  | 25   | 251 | d    | DD  | 445.5            | 629.1          | 7.121   | 36.6     | 1.06         | 0.94        |
| U3  | L4  | 26   | 261 | d    | GG  | 305.6            | 391.3          | 7.121   | 86.4     | 1.03         | 0.55        |
| L3  | U4  | 30   | 301 | ct   | HH  | 273.5            | 336.7          | 7.121   | 49.5     | #DIV/0!      | #DIV/0! *   |

L:\W.O. # Directories\6075-05 Lanark County 5 Bridge Rehabilitations\Andrewsville Bridge\6075-301 sks Andrewsville Truss Evaluation.xls)Forces

*counters are made  
zero force members.*



Chart  
F

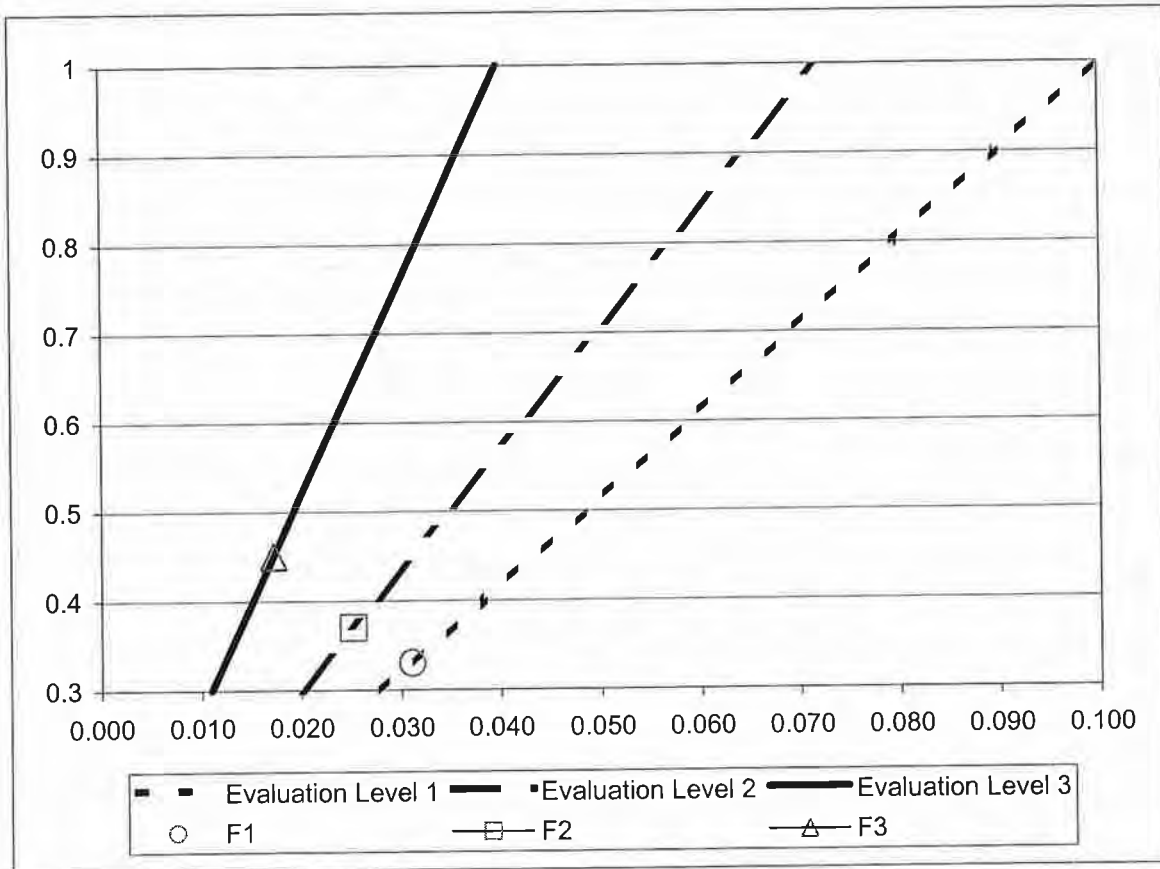
|     | P1    | P2    | P3    |
|-----|-------|-------|-------|
| 0.3 | 0.028 | 0.020 | 0.011 |
| 0.4 | 0.038 | 0.027 | 0.015 |
| 0.5 | 0.049 | 0.035 | 0.019 |
| 0.6 | 0.059 | 0.042 | 0.023 |
| 0.7 | 0.069 | 0.050 | 0.028 |
| 0.8 | 0.079 | 0.057 | 0.032 |
| 0.9 | 0.090 | 0.065 | 0.036 |
| 1   | 0.100 | 0.072 | 0.040 |

| L | p1    | p2    | m        | b        |
|---|-------|-------|----------|----------|
| 1 | 0.028 | 0.1   | 0.102857 | -0.00286 |
| 2 | 0.02  | 0.072 | 0.074286 | -0.00229 |
| 3 | 0.011 | 0.04  | 0.041429 | -0.00143 |

**Posting loads for gross vehicle weights**

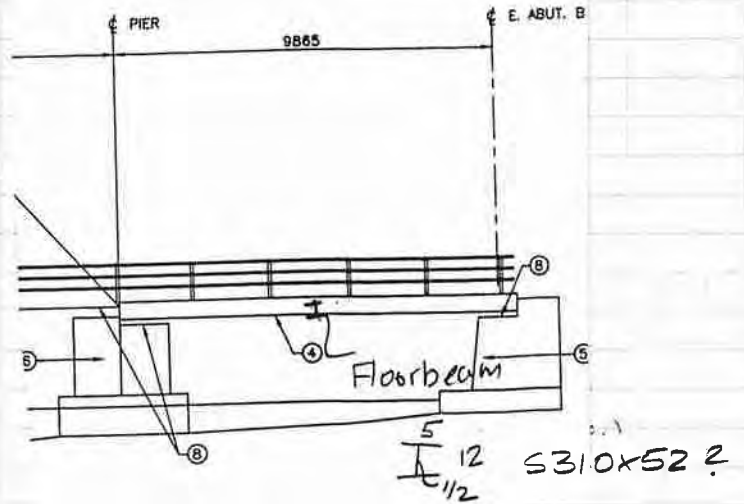
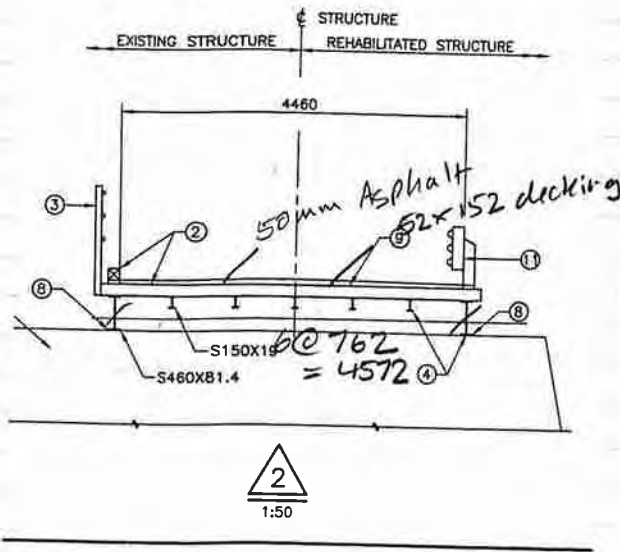
W = 625 KN

| Evaluation Level | LLCF F | P     | Posting (t) |
|------------------|--------|-------|-------------|
| 1                | 0.33   | 0.031 | 19          |
| 2                | 0.37   | 0.025 | 15          |
| 3                | 0.45   | 0.017 | 10          |



# Beam Span - Evaluation

Code 56-00



Dead load categories (14.7.2)

- $D_1$  = steel
- $D_2$  = deck
- $D_3$  = asphalt

Evaluation level 1 (Normal Traffic) (14.8.1.1)

GL - 625 - ONT, 1 lane,  $R_L = 1.0$

Load Factors and Target Reliability Index (14.11/14.12)

System Behaviour:

- Deck S3
- Stringers S2
- Floorbeam/Girder S1



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# Element Behaviour:

all E3  
Inspection level INP 2

# Load factors:

| Element   | $\beta$ | $\alpha_1$ | $\alpha_2$ | $\alpha_3$ | $\alpha_L$ |
|-----------|---------|------------|------------|------------|------------|
| Deck      | 2.75    | 1.06       | 1.12       | 1.30       | 1.42       |
| Stringer  | 3.00    | 1.07       | 1.14       | 1.35       | 1.49       |
| Floorbeam | 3.25    | 1.08       | 1.16       | 1.40       | 1.56       |
| Girder    | 3.25    | 1.08       | 1.16       | 1.40       | 1.56       |

# Resistance Factors (14.13.1)

$$\phi_s = 0.95$$

$$\phi_w = 0.9$$

# Material Properties (14.6.3)

year built 1915

$$F_y = 210 \text{ MPa}$$

$$F_u = 420 \text{ MPa}$$

wood - assume SPF No1 grade



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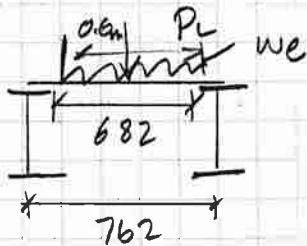
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# Evaluation of Deck



Wheel load shall be distributed over width of a plank, or 0.25m whichever is greater (S.7.1.7.6 and S.7.1.8.2)  
 $\Rightarrow$  use 5 planks

$$DLA (1 \text{ axle}) = 0.7 (0.4) = 0.28$$

$$\text{Evaluation level 1+2} \quad P_L = 87.5 \text{ kN} \quad w_e = 145.8 \text{ kN/m}$$

$$M_F = 1.42 (1.28) (145.8) (0.682)^2 / 8 = 15.4 \text{ kNm}$$

$$V_F = 1.42 (1.28) (145.8) (0.682) / 2 = 90.4 \text{ kN}$$

$$\text{Evaluation level 3} \quad P_L = 70 \text{ kN} \quad w_e = 116.7 \text{ kN/m}$$

$$M_F = 12.3 \text{ kNm}$$

$$V_F = 72.3 \text{ kN}$$

Resistances - see p 5

$$M_r = 2.7 \times 5 = 13.5 \text{ kNm}$$

$$V_r = 13.7 \times 5 = 68.5 \text{ kN}$$

LLCF:

Moment

Shear

$$\text{Eval 1+2} \quad F = \frac{13.5 - 0}{15.4} = 0.88$$

$$F = 68.5 / 90.4 = 0.76$$

$$\text{Eval 3} \quad F = 13.5 / 12.3 = 1.10$$

$$F = 68.5 / 72.3 = 0.95$$

Posting (14.17.2)

| Eval level | F    | P     | PW   |
|------------|------|-------|------|
| 1          | 0.76 | 0.075 | 47 t |
| 2          | 0.76 | 0.054 | 33 t |
| 3          | 0.95 | 0.038 | 23 t |



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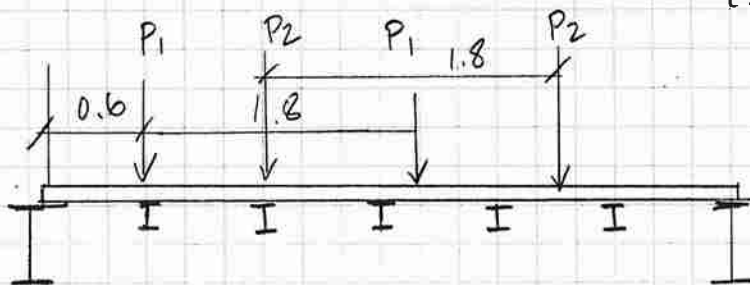
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## Evaluation of Stringers

- assume stringers are simply supported at floorbeam (conservative and judging from pictures, most probable) stringers are continuous across FB (see grillage model)



2 positions of truck to be investigated

- simplified method of analysis (U. 5.7.1.1) requires girders of equal (or  $\pm 10\%$ ) flexural rigidity. In this case, interior girders are less rigid and will deflect more. If truck is in position P2, the ext. girders will see very little load due to the low stiffness of the deck. Consequently, it is reasonable and conservative to assume truck load is resisted by the five stringers and to apply simplified method. The dead load is resisted by all seven elements.

Dead Load:

$$\begin{aligned} \text{Asphalt} &= 4.780 (0.050) (23.5) / 7 = 0.8 \text{ kN/m} & \alpha_D &= 1.35 \\ \text{Deck} &= 4.780 (0.152) (6.0) / 7 = 0.6 \text{ kN/m} & \alpha_D &= 1.14 \\ \text{self wt} &= 0.183 \text{ kN/m} & \alpha_D &= 1.07 \end{aligned}$$

$$w_{D,f} = 1.35(0.8) + 1.14(0.6) + 1.07(0.18) = 2.0 \text{ kN/m}$$

$$M_{D,f} = 2.0 (4.93)^2 / 8 = 6.1 \text{ kNm}$$

$$V_{D,f} = 2.0 (4.93) / 2 = 4.9 \text{ kN}$$



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- Live Load

$$S = 0.762 \quad N = 5$$

Type C - Girder Bridges with wood planks

$$F = 2.4 \quad Cf = 0$$

$$F_m = \frac{SN}{F(1 + \frac{Cf}{100})} = \frac{0.762(5)}{2.4} = 1.59$$

$$F = 2.40 \left(\frac{S}{2}\right)^{0.25} \\ = 2.40 \left(\frac{0.762}{2}\right)^{0.25} = 1.89$$

$$F_v = \frac{SN}{F} = \frac{(0.762)(5)}{1.89} = 2.02$$

- Live Load Force effects (SAP 2000)  $L = 4.93$

| Eval level | M <sub>L</sub> | V <sub>L</sub> | DLA |
|------------|----------------|----------------|-----|
| 1          | 264            | 247            | 0.3 |
| 2          | 264            | 247            | 0.3 |
| 3          | 264            | 247            | 0.3 |

$$M_{LIF} = \frac{\alpha_L (DLA) \cdot n M_L R_L F_m}{N} = \frac{1.49(1.3)(264)(1.59)}{5} = 163 \text{ kNm}$$

$$V_{LIF} = \frac{\alpha_L (DLA) \cdot n V_L R_L F_v}{N} = \frac{1.49(1.3)(247)(2.02)}{5} = 193 \text{ kN}$$

Resistance of stringers

S 150 x 19

$$\text{class web } b/w = 134/5.9 = 22.7 \leq \frac{1100}{\sqrt{210}} = 75.9 \quad \text{Class 1}$$

$$\text{class flange } b/t = 42.5/9.1 = 4.7 \leq \frac{145}{\sqrt{210}} = 10.0 \quad \text{Class 1}$$



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stringers are laterally supported (brackets every 624 mm  $\pm$ )

$$M_r = \phi_s Z_x F_y = (0.95)(139 \times 10^3)(210) = 27.7 \text{ kNm}$$

- Shear

$$k_r = 5.34$$

$$\frac{h}{w} / \sqrt{\frac{k_r}{F_y}} = 22.7 / \sqrt{\frac{5.34}{210}} = 142.4 \leq 502$$

$$F_s = F_{cr} = 0.577 f_y = 121 \text{ MPa}$$

$$A_w = d_w = (152)(5.9) = 897 \text{ mm}^2$$

$$V_r = \phi_s A_w F_s = (0.95)(897)(121) = 103 \text{ kN}$$

LLCF (all evaluation levels)

$$\begin{array}{l} \text{Moment} \\ u = 1.0 \end{array} \quad F = \frac{(27.7) - 6.1}{103} = 0.13$$

$$\begin{array}{l} \text{Shear} \\ u = 0.87 \end{array} \quad F = \frac{0.87(103) - 4.9}{193} = 0.44$$

Results show that the stringers have a capacity of less than 5 t (see p 8). Revise live load force effects using detailed grillage Model (SAP 2000). Based on previous results, only need to look at Evaluation level 3 (single posting).

$$M_L = 30.8 \text{ kNm}$$

$$V_L = 92.5 \text{ kN}$$

} from SAP 2000 grillage Model

$$M_{LIF} = 1.49(1.3)(30.8) = 60.0 \text{ kNm}$$

$$V_{LIF} = 1.49(1.3)(92.5) = 179.2 \text{ kN}$$



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Stringers - revised: continuous across FB

$$M_L^+ = 30.2 \text{ KNm} \quad \text{unchanged}$$

$$M_L^- = 9.24 \text{ KNm}$$

$$M_{L1f}^- = 1.49 (1.3) (9.24) = 18.0 \text{ KNm}$$

$$M_{D1f} = 2.2 (0.126) (4.93)^2 = 6.7 \text{ KNm}$$

$l_u$  in  $M^- = 300 \text{ mm} \pm$  by inspection  $M^-$  will not be critical.

$$V_{L1f} = 86.6 \text{ KNm} \quad \text{not critical}$$



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## Revised LLCF for stringer

$$\text{Moment}_{u=1.0} = \frac{27.7 - 6.1}{60} = 0.36 \quad \text{PW} \quad 0.013 \quad \text{P} \quad 86$$

$$\text{Shear}_{u=0.87} = \frac{0.87(103) - 4.9}{179} = 0.47$$

$$\text{Required posting } (14.17.2) = 8t$$

## Evaluation of Floorbeam

- Dead Load: Reaction from stringers + self wt

$$\begin{aligned} P_{\text{ASPH}} &= (0.8)(4.93) = 3.94 \text{ kN} & \alpha_D &= 1.40 \\ P_{\text{DECK}} &= (0.6)(4.93) = 3.00 \text{ kN} & \alpha_D &= 1.16 \\ P_{\text{stringer}} &= (6.183)(4.93) = 0.90 \text{ kN} & \alpha_D &= 1.08 \\ W_{\text{self wt}} &= 0.512 \text{ kN/m} & \alpha_D &= 1.08 \end{aligned}$$

$$M_{FID} = \left[ (1.4)(3.94) + 1.16(3.00) + 1.08(0.90) \right] (4.5)(0.762) + (1.08)(0.512)(4.572)^2 / 8 = 35.6 \text{ kNm}$$

$$V_{FD} = \left[ (1.4)(3.94) + 1.16(3.00) + 1.08(0.9) \right] (2.5) + (1.08)(0.512)(4.572) / 2 = 26.2 \text{ kN}$$

- Live Load (from grillage model SAP 2000)

$$M_{LIF} = (1.56)(1.30)(131.5) = 267 \text{ kNm}$$

$$V_{LIF} = (1.56)(1.30)(115.9) = 235 \text{ kN}$$



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- Floor beam Resistance S310x52 ?

$$\text{class web } h/w = 277/10.9 = 25.4 \leq \frac{1100}{\sqrt{210}} = 75.9 \quad \text{Class 1}$$

$$\text{class flange } b_0/t = 645/13.8 = 4.7 \leq \frac{145}{\sqrt{210}} = 10.0 \quad \text{Class 1}$$

floorbeam laterally supported at stringer connection

$$M_r = \phi_s Z_x F_y = (0.95)(736 \times 10^3)(210) = 147 \text{ KNM}$$

Shear:

$$K_v = 5.34$$

$$h/w \sqrt{\frac{K_v}{F_y}} = 25.4 \sqrt{\frac{5.34}{210}} = 15.9 \leq 50.2$$

$$F_s = F_{cr} = 0.577 F_y = 121 \text{ MPa}$$

$$A_w = d w = (305)(10.9) = 3325 \text{ mm}^2$$

$$V_r = \phi_s A_w F_s = (0.95)(3325)(121) = 382 \text{ kN}$$

LLCF (all evaluation levels) and posting (14.17.2)

|                     |                                     |             |          |
|---------------------|-------------------------------------|-------------|----------|
| Moment<br>$u = 1.0$ | $F = \frac{147 - 35.6}{267} = 0.42$ | PW<br>0.016 | P<br>9 t |
|---------------------|-------------------------------------|-------------|----------|

|                     |   |   |   |
|---------------------|---|---|---|
| Shear<br>$u = 0.87$ | $F = \frac{0.87(382) - 26.2}{235} = 1.30$ | - | - |
|---------------------|---|---|---|



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revise Floorbeam : stringers continuous

$$M_{FD} = [(1.4)(3.94) + 1.16(3.00) + 1.08(0.90)] (1.25)(4.5)(0.762) + 1.08(0.512)(4.572)^2/8 = 44.2 \text{ kNm}$$

$$V_{FD} = [ \quad -11 \quad + \quad -11 \quad - \quad ] (1.25)(2.5) / 2 = 32.4 \text{ kN}$$

$$M_{f,L} = (1.56)(1.30)(119.6) = 242.5 \text{ kNm}$$

$$V_{f,L} = (1.56)(1.30)(102.2) = 207.3 \text{ kN}$$

LLCF

$$M: F = \frac{147 - 44.2}{242.5} = 0.42 \quad \text{as before}$$

$$V: F = \frac{0.87(382) - 32.4}{207.3} = 1.44$$



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# Evaluation of Girder

## - Dead Load

- Reaction from Floorbeam

$$V_f = 26.2 \quad (\text{factored, same load factors})$$

|          |             |      |                   |
|----------|-------------|------|-------------------|
| - Deck   | $W_D = 0.3$ | KN/m | $\alpha_D = 1.16$ |
| - Asph   | $W_a = 0.4$ | KN/m | 1.40              |
| - Selfwt | $W_s = 0.8$ | KN/m | 1.08              |

$$W_f = 1.16(0.3) + 1.40(0.4) + 1.08(0.8) = 1.8 \text{ KN/m}$$

$$M_{LD} = \frac{26.2(9.865)}{4} + \frac{1.8(9.865)^2}{8} = 86.5 \text{ KNm}$$

$$V_{fD} = 26.2/2 + 1.8(9.865)/2 = 22.0 \text{ KN}$$

- Live Load (from SAP 2000 grillage Model)

$$M_{Lf} = (1.56)(1.30)(390.5) = 792 \text{ KNm}$$

$$V_{Lf} = (1.56)(1.30)(106.0) = 215 \text{ KN}$$

## Resistance of girder

class web  $h/w = 422/11.7 = 36.1 \leq \frac{1100}{\sqrt{210}} = 75.9$  Class 1

class flange  $b_o/t = 76/17.6 = 4.3 \leq \frac{145}{\sqrt{210}} = 10.0$  (class 1)

$L_u = 4600^* \text{ mm}$        $W_2 = 10$       \* 4930 - 144 ± (bracket at support)

$$M_u = \frac{W_2 \pi}{L} \left( \sqrt{E_s I_y G_s J + \left( \frac{\pi E_s}{L} \right)^2 I_y (C_w)} \right)$$

$$= \frac{\pi}{4600} \sqrt{(20000 \times 8.77 \times 10^6)(77000)(986 \times 10^3) + \left( \frac{20000 \pi}{4600} \right)^2 (8.77 \times 10^6) (423 \times 10^6)}$$



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$$M_u = 307 \text{ kNm} \quad \times 0.67 M_p = 0.67(1720 \times 10^3)(210) = 242 \text{ kNm}$$

$$M_r = 1.15 \phi_s M_p \left[ 1 - \frac{0.28 M_p}{M_u} \right] \leq \phi_s M_p$$

$$= 1.15(0.95)(361) \left[ 1 - \frac{0.28(361)}{307} \right] \leq 0.95(361)$$

$$= 265 \text{ kNm} \leq 343$$

Shear  $K_v = 5.34$

$$h/w / \sqrt{\frac{K_v}{I_y}} = 36.1 / \sqrt{\frac{5.34}{210}} = 226 < 502$$

$$F_s = F_{cr} = 0.577 F_y = 121 \text{ MPa}$$

$$A_w = 457(11.7) = 5347$$

$$V_r = \phi_s A_w F_s = (0.95)(5347) \left( \frac{121}{210} \right) = 1067 \text{ kN}$$

LLCF and Posting (14.17.2) (all Eval. Levels)

Moment  
u = 1.0  $F = \frac{265 - 86.5}{792} = 0.23$

PW  
0.008

P  
5t

Shear  
u = 0.87  $F = \frac{(10.87) \left( \frac{615}{210} \right) - 22}{215} = 2.4$

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July 9, 2007

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Toronto, Ontario M7A 2R9

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| Action | .....       |
| PWCOW  | August Copy |
| BF:    | .....       |

Attention: Ms. Karla Barboza, Conservation Advisor

**RE: ANDREWSVILLE BRIDGE (MTO SITE No. 015-0073)  
CULTURAL AND HERITAGE EVALUATION  
OUR FILE: W.O. 6075-3013**

Dear Ms. Barboza:

McCormick Rankin Corporation (MRC) has been retained by the County of Lanark to recommend a rehabilitation strategy for the above-noted bridge. As part of this assignment, we have undertaken an assessment of the cultural and heritage value of the Andrewsville Bridge in accordance with Municipal Class EA requirements. The results of our evaluation, including photographs of key features of the bridge, are summarized below. A completed Heritage Bridge Program Criteria Form and any relevant correspondence has been appended to this document.

Location and Description of Property

The Andrewsville Bridge (MTO Site No. 015-0013) spans the Rideau River. It is located off County Road 2, approximately 4 km east of Merrickville, on Main Street in the hamlet of Andrewsville, Township of Montague, County of Lanark. The bridge was constructed by Dominion Steel Limited. The exact date of construction is unknown, but previous inspection records indicate that it was built in 1915 or 1918.

The bridge consists of two distinct spans: a 38 m long Pratt through truss with timber deck; and a 10 m long timber deck on steel stringers and girders (Photograph 1). There are no existing drawings for the bridge; however, the presence of exposed bedrock at the base of the footings indicates that the centre pier and abutments were likely founded on spread footings on bedrock. The original substructure was likely stone masonry that was subsequently encased on concrete at an unknown date (Photographs 2, 3, 4). The timber deck was replaced in kind in 1963. The overall width of the deck will permit a single lane of traffic.

The east approach to the structure is comprised of a dry stone retaining wall, likely backfilled with rubble (Photograph 5).

.../2

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*Global Transportation Engineering*

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Tel: (613) 736-7200 Fax: (613) 736-8710 E-mail: mrc-ott@mrc.ca www.mrc.ca





### Historical Records

The only historic record of the structure pertains to the 1963 deck replacement. All other information was gathered from field observations and measurements during MRC inspections in June 2005 and 2007.

### Cultural Heritage Value

The Andrewsville Bridge was rated using the “Ontario Heritage Bridge Guideline” produced by the Ontario Ministry of Citizenship, Culture, and Recreation, and the “Heritage Bridges: Identification and Assessment Guide, Ontario, 1945 to 1965” was referenced for comparison of the evaluation. A copy of the completed Heritage Bridge Program Criteria Form has been completed and is appended to this correspondence and can be summarized as follows:

- Design and Designer are not remarkable. The bridge is a combination of two structures: a standard Pratt truss and a slab-on-girder steel bridge. The Heritage Bridges – Identification and Assessment Guide states that these types of bridges are fairly common in Ontario;
- The bridge itself is of a typical material and design, and is not a prototype structure. The bridge is constructed of steel, timber and concrete. These construction materials were used, and still are used, because they are readily available. The steel members of the truss and the girders are standard rolled steel sections available from numerous steel producers. The original substructure may be stone masonry substructure, but it has been encased in concrete and has therefore lost much of its historical significance. The dry stone retaining wall on the east approach is original, but is not part of the bridge *per se*. Walls are Random Interrupted Coursed and were not executed with a high degree of craftsmanship;
- The visual appeal of the bridge has no distinguishing features and has no particular aesthetic appeal beyond the aesthetic appeal of truss bridges in general. The stone retaining wall on the east approach has some appeal because of the use of natural materials;
- While all bridges provide a crossing of a barrier and thus to a certain extent are landmarks, this bridge is not distinguished specifically as a landmark or gateway structure;
- The bridge has some local cultural value, as it is a popular spot for recreational fishermen and walkers; however, this value is based on the access it provides and not the form or historic value of the structure;



- The surrounding landscape has significant cultural importance (see attached correspondence from Rideau Canal Historic Site), and the Rideau Canal has recently been declared a UNESCO World Heritage Site. The link specifically to this structure is less clear as it could be argued that although the bridge has been present for a long period, it is not original to the Canal.

#### Archaeological Value

An archaeological survey of the area was not undertaken, as the proposed rehabilitation of the bridge will not impact areas of archaeological significance. All in-situ grounds will remain undisturbed.

#### Level of Intervention

The evaluation would indicate that the historical value of the bridge itself is minimal, and that any historical value is associated with the nearby Rideau Canal. Nonetheless, all interventions will treat the structure as if it has heritage value and will minimize the effect on the heritage value until final determination has been made by the Ministry of Culture.

Interventions have been divided into short term and long term interventions. The short-term intervention will likely include replacement of the timber deck in kind and installation of a bridge railing system. This intervention represents the minimum required to maintain the current level of service, to provide some level of safety to the public, and to protect the structural integrity of the bridge. The replacement railings will be selected to meet current acceptable highway standards while attempting to retain the aesthetics of the bridge. Choices are limited the acceptable standards.

The bridge is currently posted at 5 tonnes, which is acceptable for local car and light truck traffic. However, continued deterioration of the bridge components will likely require significant strengthening or modifications in the future to maintain the current level of service. Accordingly, the selection of a long-term intervention for major structural rehabilitation will be dependent on the heritage status of the bridge. The selection of a long-term major rehabilitation alternative will therefore not be decided until a review of the heritage status of the Andrewsville Bridge has been completed.

We trust that the above and the enclosed correspondence will address the concerns of the Ministry of Culture. The evaluation and correspondence has been reviewed by Mr. Andy Huctwith P.Eng of our Kingston office, who is a member of the Canadian Association of Professional Heritage Consultants (CAPHC). Mr. Huctwith is in agreement with the assessment.





Ms. Karla Barboza

-4-

July 9, 2007

If you have any questions, or require further information, please do not hesitate to contact us.

Yours very truly,

**McCORMICK RANKIN CORPORATION**

A handwritten signature in black ink, appearing to read "W. Bohne", is written over the printed name.

Bill Bohne, P.Eng.

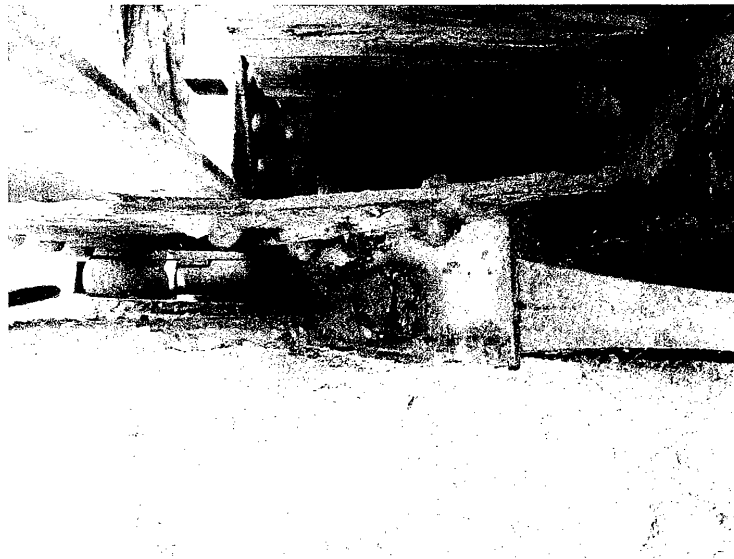
Encl.

cc S. Allan, County of Lanark

L:\W.O. # Directories\6075-05 Lanark County 5 Bridge Rehabilitations\Andrewsville Bridge\Heritage\6075-301 wrb covering letter.doc



Photograph 1: South elevation of Andrewsville Bridge as viewed from the southeast quadrant.



Photograph 2: West Abutment bearing seat. Bottom bearing plate and cross-bracing are embedded in concrete, which is likely indicative that abutment and bearing seat have been refaced.



Photograph 3: East Abutment showing concrete refacing on original abutment.



Photograph 4: West Abutment ballast wall. Concrete has deteriorated, exposing stone fill behind.



Photograph 5: Dry stone retaining wall on east approach.

**ANDREWSVILLE BRIDGE  
HERITAGE BRIDGE EVALUATION CRITERIA**

| CRITERION   |  | DESCRIPTOR   | SCORING                              | COMMENTS   |
|---|--|--|--------------------------------------|--|
| <b>A. Documentation</b>   | <b>1. Builder or Designer</b>  | <p>a) Unknown:<br/>Builder or designer is totally unknown. May be revised as more information comes to light.</p>  | Maximum Score (A):<br>Maximum Score: | 20<br>6  |
|   |  |  | 0                                    | 4  |
|   | <b>Or</b>  | <p>b) Known; undetermined contribution<br/>Companies, engineers, builders about which there is little present information may be elevated to Category c) or d) as more information comes to light.</p> | 2                                    |  |
|   |  |  | <b>Or</b>                            | <p>c) Known; prolific builder or designer<br/>Companies, engineers, builders responsible for large numbers of bridges utilising standard forms or elements.</p>                        |
|   | <b>Or</b>  | <p>d) Known; unusual designer<br/>Innovative companies, engineers, builders having major impacts on the development of bridge design.</p>  |                                      |  |
|   |  |  | <b>2. Age</b>                        | Maximum Score:   |
|   | Pre -1880<br>This criterion recognizes the value placed by society on the age of artifacts. Older structures are often seen to have value simply because they still remain in our environment. | 14   |                                      |  |
|   | 1880-1900  | 12   |                                      |  |
|   | 1901-1910  | 10   |                                      |  |
|   | 1911-1920  | 8  |                                      | 7  |
| Records indicate bridge constructed in 1915 or 1918. One point deducted due to estimated age. |  |  |                                      |  |
| <b>B. Technology</b>  | <b>3. Materials</b>  | 1921-1930  | 6                                    |  |
|   |  | 1931-1940  | 4                                    |  |
|   |  | 1941-1950  | 2                                    |  |
|   |  | Maximum Score (B):<br>Maximum Score:   | 40<br>4                              | 16<br>2  |
|   | Wrought Iron or Stone<br>Wrought iron and stone are afforded high priority because these materials are no longer in use.   | 4  | 2                                    | Dry stone retaining walls on east approach are not part of the bridge per se. Walls are Random Interrupted Coursed and were not executed with a high degree of craftsmanship, and have |

**ANDREWSVILLE BRIDGE  
HERITAGE BRIDGE EVALUATION CRITERIA**

| <b>CRITERION</b>                  | <b>DESCRIPTOR</b>  | <b>SCORING</b>             | <b>COMMENTS</b>   |
|-----------------------------------|--|----------------------------|---|
| <b>Or</b>                         | Other<br>Category "Other" means only materials not normally used in bridge or that have not gained favour as well as unusual combinations of materials used in bridges.  | 4                          | been modified by the addition of steel posts and railings. Original substructure is may be stone masonry, but it has been encased on concrete.  |
| <b>4. Design/Style</b>            | Maximum Score:<br>Unique:<br>The only one of its kind. It may be eccentric, odd, an exaggerated version by virtue of its design (includes especially large examples), materials or construction.   | 16<br>16                   | 8<br>0  |
| <b>Or</b>                         | Rare Survivor of a Typical Design or Style:<br>Bridge structures that were very common at their time of construction may now be quite rare and grow increasingly rare as the majority of similar structures are demolished, changed, or fall into disrepair. | 16                         | 8<br>Pratt truss and slab-on-steel girder bridges are two of the more common types of structures. Many truss bridges on highways similar to this structure have been replaced; however, there are still numerous examples of this type of bridge remaining. |
| <b>Or</b>                         | Unusual:<br>Included here are bridges of which only a small number may have been built and perhaps a smaller number now remain.  | 16                         | 0   |
| <b>5. Prototype</b>               | Maximum Score:<br>Prototype<br>A bridge may possess a technological or design innovation or adaptation, which marks it as a first of a type.   | 10<br>10                   | 0   |
| <b>Or</b>                         | Early Example<br>A bridge may possess a technological or design innovation or adaptation, which marks it as an early example or an important improvement   | 10                         |   |
| <b>6. Structural Preservation</b> | No Significant Modifications:<br>This example has escaped significant modification and is of importance in illustrating the original form.   | Maximum Score:<br>10<br>10 | 6<br>6<br>Original timber deck replaced in kind in 1963, now covered in asphalt. Stone masonry substructure has been encased in concrete. Original stone approach walls mostly intact, but modified to accommodate railing system.                          |

**ANDREWSVILLE BRIDGE  
HERITAGE BRIDGE EVALUATION CRITERIA**

| <b>CRITERION</b>                            | <b>DESCRIPTOR</b>  | <b>SCORING</b> | <b>COMMENTS</b> |
|---|--|----------------|-----------------|
| <b>Or</b>                                   | Sympathetic Modifications:<br>This example has undergone modifications aimed at preserving the original form while improving the effectiveness of the structure.   | 5              |                 |
| <b>C. Bridge Aesthetics and Environment</b> | <b>Maximum Score (C):</b>  | <b>30</b>      | <b>17</b>       |
| <b>7. Visual Appeal</b>                     | Design Merits:<br>An attractive structure due to elegant visual elements and interplay with surrounding scenic landscape. Removal of the structure would be detrimental to the ambience of the setting.  | 12<br>10       | 5<br>5          |
| <b>And/or</b>                               | Ornamentation/Decoration:<br>Decoration or ornamentation, whether discreet or ostentatious, adds visual interest to the structure. It may appear in sculptured forms, balustrade, light standards, piers, cross members, portals, etc.                   | 2              |                 |
| <b>8. Integrity</b>                         | At Original Location<br>Original locations are often benchmarks in the past development of a particular environment and they often contribute a strong sense of place.   | 4<br>4         | 3<br>3          |
| <b>9. Landmark</b>                          | Physical Prominence:<br>A bridge may be a prominent feature in the landscape, from either the road or some other vantage point. Landmarks may be used by people as guides for moving through an area, or more simply adding interest in the environment. | 6<br>6         | 4               |
| <b>Or</b>                                   | Public Perception:<br>Bridges may be perceived as landmarks in the community and have a symbolic importance rather than purely visual or aesthetic value.  | 6              | 4               |
| <b>10. Gateway</b>                          | Entrance/Exit Occurrence:<br>In some instances, particularly urban areas, certain bridges may assume the function of a gateway, albeit quasi, emphasizing to drivers and pedestrians that they are entering or leaving a specific area.                  | 4<br>4         | 2<br>2          |
|   | <b>Maximum Score (10):</b>   | <b>4</b>       | <b>2</b>        |

**ANDREWSVILLE BRIDGE  
HERITAGE BRIDGE EVALUATION CRITERIA**

| CRITERION                        | DESCRIPTOR  | SCORING                  | COMMENTS  |
|----------------------------------|---|--------------------------|-----------|
| <b>11. Character</b>             | Character Contribution:<br>A bridge, together with other buildings or structures may contribute to a particular mood or ambiance or an area. This is more readily identifiable in certain places than others. | Maximum Score (11):<br>4 | 3         |
|                                  |   | 4                        | 3         |
| <b>D. Historical Association</b> | Associated with person/group:<br>Associated with the life or activities of a person or group that made a significant contribution to the community, province or nation.                                       | Maximum Score:<br>10     | 7         |
|                                  |   | 10                       | 7         |
| <b>Or</b>                        | Associated with event:<br>Associated with a significant event that contributed to the future activities of a community, province or nation.   | 10                       | 0         |
| <b>Or</b>                        | Associated with theme:<br>Associated with an illustrative of significant patterns of cultural, social, political, economic or industrial history.   | 10                       | 7         |
| <b>Or</b>                        | Associated with former bridges:<br>Associated with former bridges that have served the same site or locale.   | 10                       | 0         |
| <b>Maximum Total:</b>            |   | <b>100</b>               | <b>51</b> |





**MINUTES  
FOURTEENTH MEETING OF 2007  
PUBLIC WORKS COMMITTEE OF THE WHOLE**

The Public Works Committee of the Whole met in regular session on Wednesday, October 3<sup>rd</sup>, 2007 immediately following the Community Development Committee meeting at Lanark Lodge, Christie Lake Road, Perth, Ontario.

**Members Present:** Chair S. Freeman, Councillors B. Fletcher, B. Horlin, B. Hurrle, J. MacTavish, P. Kavanagh, J. Fenik, W. Laut, K. Kerr, R. Kidd, S. Mousseau (left at 6:12 pm), E. Sonnenburg, A. Churchill and G. McConnell.

**Staff/Others Present:** P. Wagland, Chief Administrative Officer, C. Ritchie, Clerk, S. Allan, Director of Public Works, A. Mabo, Council and Clerk Services Assistant, M. MacDonald, Council and Clerk Services Assistant, P. MacLaren, IT Support.

**Absent:** Warden A. Lunney and Councillor P. Dulmage

**PUBLIC WORKS**

**Chair:** Councillor Susan Freeman

**1. CALL TO ORDER**

The meeting was called to order at 6:06 p.m.  
A quorum was present.

**2. DISCLOSURE OF PECUNIARY INTEREST**

None at this time.

**3. APPROVAL OF MINUTES**

**MOTION #PW-2007-154**

**MOVED BY:** Brenda Hurrle  
**SECONDED BY:** Bob Fletcher

**“THAT**, the minutes of the Public Works Committee meeting held on September 5<sup>th</sup>, 2007 be approved as circulated.”

**ADOPTED**

#### 4. ADDITIONS AND APPROVAL OF AGENDA

##### MOTION #PW-2007- 155

**MOVED BY:** Keith Kerr

**SECONDED BY:** Gord McConnell

“**THAT**, the agenda be adopted as amended.”

**ADOPTED**

#### 5. DELEGATIONS & PRESENTATIONS

- i) Posted Speed Reduction Almonte (County Road 16A)  
**Resident, Catherine Blake.**

Councillor S. Mousseau left at 6:12 pm.

C. Blake gave a Power Point Presentation – *attached page 8*. She noted that there are not enough posted speed signs along the road. The current speed limit is 50 km per hour and C. Blake requested that it be reduced to 40 km per hour.

Enforcement is conducted by the Ontario Provincial Police (OPP). The issue was discussed at the last Town of Mississippi Mills Police Services Board (PSB) meeting. The OPP will be setting up speed traps as well as installing a radar billboard that displays the speed of vehicles. The results of the speed traps will be brought forward in a Staff report at the November Public Works Committee meeting.

The Public Works Committee requested a motion from the Town of Mississippi Mills regarding the posted speed on Queen Street (County Road 16A) on how the Town would like to proceed.

Staff will provide a report at the next meeting also incorporating information received from the Town of Mississippi Mills.

- ii) Andrewsville Bridge Future Recommendations – *attached page 23*.  
**McCormic Rankin Corporation, Bill Bohne.**

Andrewsville Bridge is jointly owned by the County of Lanark and United Counties of Leeds & Grenville. A joint decision would be required by both Counties for any decisions with regard to the Bridge. United Counties of Leeds & Grenville Warden J. Douglas Struthers and Director of Public, Leslie Shepherd and residents of Andrewsville were present at the meeting.

Ministry of Culture notified the County that the Andrewsville Bridge may be designated a Heritage Bridge. Prior to any major rehabilitation project, the County must notify the Ministry of Culture and an evaluation of the bridge will be done. This process costs approximately \$10,000 to \$15,000 and can take

up to 6 months. The bridge is presently safe with a load restriction of 5 tonnes. The cost of the minor repairs recommended by the Consultant are estimated at \$80,000 and painting the structure would cost an additional \$135,000. The repairs would extend the life of the bridge for approximately 5 to 10 years.

Staff is continuing to assess and evaluate public comments regarding several issues. Further Consultation with Parks Canada regarding their comments is also required.

The Committee thanked the Director of Public Works for his diligent work and the process of gathering information keeping the public and the United Counties of Leeds & Grenville involved.

## **6. COMMUNICATIONS**

- i) Ministry of the Environment: Municipal Engineers Association Municipal Class Environmental Assessment Notice of Approval of Amendments.
- ii) Town of Perth: Electronic Waste Depot Day.

The Committee thanked the Town of Perth for organizing the Waste Depot Day.

- iii) Rural Ontario Municipal Association (ROMA): Ontario Election 2007 Promoting a Rural Agenda.
- iv) Ontario Good Roads Association (OGRA): Ontario's Party Leaders Discuss Municipal Issues.
- v) Ontario Good Roads Association Board: Board Brief.

### **MOTION #PW-2007- 157**

**MOVED BY:** Brenda Hurrle  
**SECONDED BY:** Wendy Laut

**“THAT**, communication items for the October 2007 Public Works Committee meeting be received as information only.”

**ADOPTED**

## **7. REPORTS**

- i) Report #PW-78-2007 Andrewsville Bridge Assessment.  
**Director of Public Works, Steve Allan.**

The purpose of this Report is to recommend the repair of the Andrewsville Bridge in 2008, subject to budget approval.

**MOTION #PW-2007- 156**

**MOVED BY:** Peter Kavanagh  
**SECONDED BY:** Richard Kidd

“**THAT**, County Council authorizes McCormick Rankin Corporation to proceed with pre-engineering for repairs to the Andrewsville Bridge, with a view to tendering the work in January 2008 (Option 2);

**THAT**, the Andrewsville Bridge Repair project is referred to the 2008 budget deliberations;

**THAT**, the County of Lanark and United Counties of Leeds and Grenville staffs jointly develop a long-term strategy for the Andrewsville Bridge for presentation during the 2008 budget deliberations;

**THAT**, all costs associated with the Andrewsville Bridge project are shared equally between the County of Lanark and the United Counties of Leeds and Grenville;

**AND THAT**, the Clerk sends Report #PW-78-2007 to the United Counties of Leeds and Grenville and the Montague Township Clerk and Parks Canada, for information.”

**ADOPTED**

Warden J. D, Struthers and L. Shepherd will bring forward Lanark County’s resolution and their recommendations to the United Counties of Leeds & Grenville Council.

- ii) Report #PW-77-2007 Claim for Damages (Hosler): County Road #29 at Lot 6 Concession IX Geographic Township of Pakenham.  
**Director of Public Works, Steve Allan.**

The purpose of this Report is to inform Council of the receipt of a claim for damages from Mr. Robert Hosler alleging erosion of a creek on his property abutting County Road 29, due to the diversion of storm water from an existing concrete box culvert (cattle pass).

**MOTION #PW-2007- 158**

**MOVED BY:** Keith Kerr  
**SECONDED BY:** Bob Fletcher

“**THAT**, Report #PW-77-2007 Claim for Damages (Hosler): County Road 29 at Lot 6 Concession IX Geographic Township of Pakenham” be accepted, for information only;

**AND THAT**, the Clerk sends Report #PW-77-2007 to the Town of Mississippi Mills Clerk, for information.”

**ADOPTED**

- iii) Report #PW-75-2007 Public Works Contracts Status Report #9.  
**Director of Public Works, Steve Allan.**

The purpose of this report is to inform the Committee of the status of Public Works Contracts.

**MOTION #PW-2007- 159**

**MOVED BY:** Bruce Horlin

**SECONDED BY:** Wendy Laut

“**THAT**, Report #PW-75-2007 Public Works Contracts Status Report #9 be received for information.”

**ADOPTED**

- iv) Report #PW-74-2007 Road Tour 17 October 2007: Itinerary.  
**Director of Public Works, Steve Allan.**

The purpose of this Report is to confirm the itinerary for the Road Tour to be held on October 17<sup>th</sup>, 2007.

**MOTION #PW-2007- 160**

**MOVED BY:** Aubrey Churchill

**SECONDED BY:** John Fenik

“**THAT**, the October 17<sup>th</sup>, 2007 Public Works Committee Road Tour Itinerary be accepted, as amended.”

**ADOPTED**

- v) Report #PW-76-2007 DiCola Petroleum Remediation Plan: County Road 10 and Rogers Road.  
**Director of Public Works, Steve Allan.**

The purpose of this Report is to inform Council of the receipt of a site remediation work plan from 901659 Ontario Inc (DiCola Petroleum) for the removal of hydrocarbon contamination at the intersection of County Road 10 and Rogers Road, in the Town of Perth.

**MOTION #PW-2007- 161**

**MOVED BY:** Wendy Laut

**SECONDED BY:** Peter Kavanagh

“**THAT**, Report #PW-76-2007 “DiCola Petroleum Remediation Plan: County Road 10 and Rogers Road, Town of Perth” be accepted, for information only;

**AND THAT**, the Clerk sends Report #PW-76-2007 to the Town of Perth Clerk, for information.”

**ADOPTED**

- vi) Report #PW-XX-2007 First Draft Ten Year Road and Bridge Plan – *deferred to a future meeting.*

**8. CONFIDENTIAL REPORTS**

None.

**9. NEW/OTHER BUSINESS**

None.

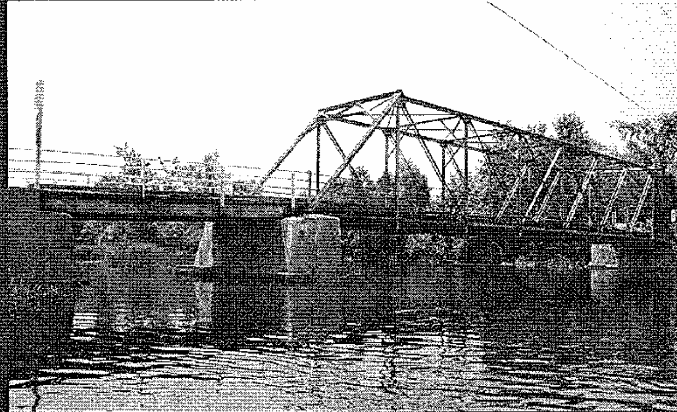
**10. ADJOURNMENT**

The Committee adjourned at 7:27 p.m. on motion by Councillors E. Sonnenburg and B. Horlin.



**Cathie Ritchie,  
Clerk**

# **DELEGATIONS/ PRESENTATIONS**



**Presentation to Lanark County Council  
October 3, 2007**

MRC



**Presentation will focus on the following:**

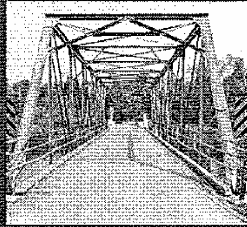
- Condition of existing bridge
- Summary of inspections/studies done to date
- Cultural/heritage aspects of bridge
- Rehabilitation Alternatives
  - Short-term repairs
  - Long-term rehabilitation or replacement
- Next steps.

MRC

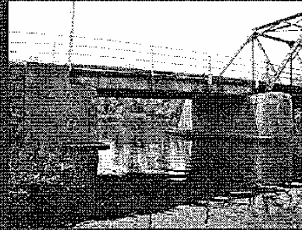


## Existing Conditions

**Bridge is comprised of 3 main components:**



**Single span steel truss**



**Single span slab-on-girder**



**Ungrouted stone retaining walls**

MRC

## Existing Conditions

### Age of Bridge

- Exact date of construction is unknown
- Based on historical records, bridge was built circa 1890.

### Heritage Status

- Bridge is not currently designated as a heritage structure nor is under consideration of heritage designation
- Given the age of the bridge, Ministry of Culture (MOC) has requested that a full cultural and heritage assessment be undertaken prior to major rehabilitation of the structure.

MRC

Results of June 2005 Inspection:

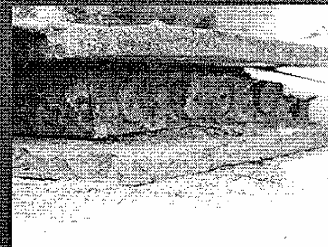
- Bridge is generally in poor condition
- Asphalt has numerous wide cracks and potholes, timber deck below shows signs of rot and has detached from stringers



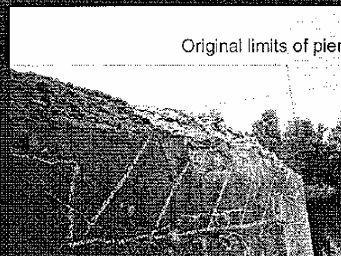
Steel has widespread light corrosion with areas of severe corrosion and perforated steel below-deck

MRC

- Roller bearings are seized and do not adequately permit movements due to thermal expansion and contraction



- Concrete in pier and abutments is severely deteriorated

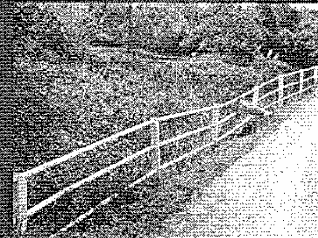


MRC



## Existing Conditions

- Retaining walls have subsided and undermined approach railing
  - During spring runoff, water flows through the walls above the storm pipe, minimal fine granular remaining in lower section of walls



- Existing bridge railings are attached directly to truss and have been damaged by vehicular impact in several locations.



MRC

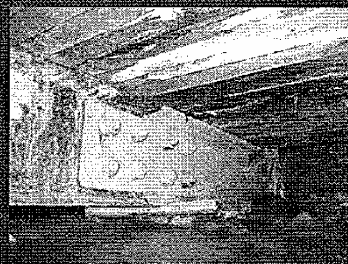


## Recent Repairs

**Deterioration in centre stringer at West Abutment required immediate repairs to ensure the continued integrity of the bridge.**



Condition of stringer, June 2005



Repaired stringer, February 2006

MRC

Results of February 2007 Structural Evaluation

- Bridge capacity, based on existing deteriorated condition of bridge, is 5 tonnes
- Bridge is currently posted at 5 tonnes, so no further reduction in load posting is required *at this time*



Undermining of south pier bearing

MRC

Canadian Highway Bridge Design Code (CHBDC)

- Used for calculating the capacity of existing bridge
- Live Load Capacity Factor (F) < 1.0 may require load posting
- Andrewsville Bridge
  - Stringers F = 0.23
  - Girders F = 0.30
  - Floorbeams F = 0.34
  - Truss Chords F = 0.60
- CHBDC states that for F < 0.3, "consideration shall be given to closing the bridge".

MRC

- Bridge is in poor condition and repair is required
- Current industry standards suggest Owner consider closing the bridge
- Bridge is load posted, but there is currently no method of restricting overloaded vehicles from using the bridge
- Public Information Centre was held to obtain feedback from general public

**Six rehabilitation alternatives were presented**

- Do Nothing
- Repair timber deck, upgrade bridge railing, repair concrete substructure
- Repair timber deck, upgrade bridge railing, repair concrete substructure, upgrade approach railings
- New single lane bridge
- New two lane bridge
- Close bridge to vehicular traffic.

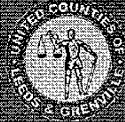
**Two alternatives were subsequently rejected**

- Do Nothing: structural defects and potential for public risk not addressed
- New two lane bridge: not warranted given cost/benefit analysis, and does not fit with character of Andrewsville.

**Overwhelming public response to keep bridge open  
to vehicular traffic**

- **Loss of emergency services (24%)**
  - **No loss of emergency services (per discussions with Lanark County Ambulance and Montague Twp. Fire Dept.)**
- **Rideau Canal as a UNESCO World Heritage Site (23%)**
  - **Heritage/cultural evaluation to be done to determine its designation if major rehabilitation is undertaken**
  - **Rideau Canal is now enforcing a policy that all works above the watercourse of the Rideau River are under their jurisdiction and have recently requested to other Counties that facilities be upgraded at the County's cost.**

- **Convenience for residents and commuters (13%)**
  - **Agreed, however it affects approximately 12 residents at one end of the bridge.**
- **Potential for congestion in Merrickville or Burritts Rapids if bridge is closed (10%)**
  - **Recent traffic counts across the bridge indicate the AADT is significantly less than 400 vehicles per day. Based on an equal split between the two other bridges, traffic increase would be 4% in Merrickville and 20% in Burritts Rapids.**
- **Importance to tourism (9%)**
- **Winter alternative to Andrewsville main road (6%)**
- **Crossing needed for future development (6%)**
- **Access for school buses (4%)**
- **Negative impact of property values (3%)**
- **Access for farming community (1%)**
  - *Evaluation underway but not completed.*



**Issues**

- Short term repairs are required within the next year to ensure public safety and maintain the bridge at its current level of service until rehabilitation/replacement
- Short term repairs represent a substantial outlay of capital on a 100 year old asset to postpone rehabilitation or replacement by 5 to 10 years maximum
- If the bridge is granted heritage designation
  - Replacement will not be permitted
  - Rehabilitation to strengthen the bridge to keep it open to vehicles may not meet heritage requirements, and closure to traffic may be required

MRC



**Proposed Short Term Repairs (2008)**

- Termed "sympathetic modifications", and are minor repairs that will not significantly change the character of the bridge while preserving the opportunity for heritage designation in the future
- Address the deficiencies in the structures, but not the approaches

MRC

**Work in 2008 would consist of:**

- Removal of asphalt wearing surface
- Replacement of deteriorated deck timbers
- Installation of new timber plank wearing surface
- Construction of bridge railing system
- Substructure concrete repairs
- Steel repairs
  
- Estimated cost: \$80,000
  
- Additional cost for repainting the bridge: \$135,000

MRC

**Long Term Rehabilitation/Replacement**

- Cannot commence until completion of a heritage, cultural, and archaeological assessment and Ministry of Culture's evaluation to determine the designation of the structure
  
- Based on information to date, designation as a heritage structure is likely
  
- Methods of rehabilitation dependent on whether the bridge is classified as a heritage structure
  
- Replacement is recommended based on financial analysis of lifecycle costs

MRC





**Rehabilitation Options (no heritage designation)**

- Rehabilitate existing bridges and stone retaining walls for vehicular traffic
  - Rehabilitated structure will retain appearance of existing bridges
  - Estimated Cost: \$650,000
  
- Replace bridges and retaining walls with a new two span single lane bridge
  - Slab-on-girder bridge will be visually less intrusive on area
  - Estimated Cost: \$1,500,000
  
- Close bridge to vehicular traffic
  - Estimated Cost: \$30,000

MRC



**Rehabilitation Options (heritage designation)**

- Rehabilitate bridges and retaining walls
  - Significant modifications to strengthen the structure will may alter the heritage components, and may not be permitted
  - Estimated cost: \$650,000
  
- Close the bridge to vehicular traffic, use as pedestrian walkway
  - Most likely scenario, as it preserves the heritage asset in its original form
  - Estimated cost: \$30,000

MRC



**Two Alternatives**

- **Keep bridge open to vehicular traffic**
  - **Complete the evaluation of public and government agency comments**
  - **Complete engineering work for short term repairs and tender contract in 2008**
  - **Undertake heritage assessment and submit results to Ministry of Culture for decision on designation**
  - **Determine long term requirements for bridge in preparation for major rehabilitation/replacement or closure to vehicular traffic**
- **Close bridge to vehicular traffic**

MRC



**Comments?**

**Questions?**

MRC

# **THE COUNTY OF LANARK**

## ***PUBLIC WORKS COMMITTEE***

*October 3rd, 2007*

Report #PW-78-2007 of the  
Director of Public Works

### **ANDREWSVILLE BRIDGE REPAIRS**

#### **1. STAFF RECOMMENDATIONS**

It is recommended that:

- i) County Council authorizes McCormick Rankin Corporation to proceed with pre-engineering for repairs to the Andrewsville Bridge, with a view to tendering the work in January 2008 (Option 2).
- ii) The Andrewsville Bridge Repair project is referred to the 2008 budget deliberations.
- iii) The County of Lanark and United Counties of Leeds and Grenville staffs jointly develop a long-term strategy for the Andrewsville Bridge for presentation during the 2008 budget deliberations
- iv) All costs associated with the Andrewsville Bridge project are shared equally between the County of Lanark and the United Counties of Leeds and Grenville.
- v) The Clerk sends Report #PW-78-2007 to the United Counties of Leeds and Grenville and the Montague Township Clerk and Parks Canada, for information.

#### **2. PURPOSE**

The purpose of this Report is to recommend the repair of the Andrewsville Bridge in 2008, subject to budget approval. Bill Bohne P.Eng, of McCormick Rankin Corporation will also provide a presentation to the Committee on October 3<sup>rd</sup>, 2007 to provide more detail on this project.

#### **3. BACKGROUND**

In 2005 the McCormick Rankin Corporation (MRC) was retained to undertake an analysis of rehabilitation options for the Andrewsville Bridge. The MRC findings (Report #PW-10-2007) concluded that the bridge substructure and superstructure were in poor condition and recommended the development of a long-term strategy to address these significant structural deficiencies. The Report identified six (6) potential repair/replacement strategies including the closure of the Bridge to vehicular traffic.

In May 2007 (Report #PW-39-2007) the Director presented an MRC Structural Evaluation Report which confirmed the need for the current 5 tonnes load limit on the bridge due to the poor condition of the stringers in the truss floor deck system. The MRC Report also noted that in accordance with the Canadian Highway Bridge Design

Code without repair or rehabilitation, consideration should be given to closing the structure in a few years, due to the diminished capacity of the stringers. The complete Report was posted on the County website.

In August 2007 (Report #PW-66-2007) the Director presented the results of a Public Information Centre that was held in Merrickville on May 17<sup>th</sup>, 2007 regarding the future of the Andrewsville Bridge. The results of the PIC indicated that the users of the Andrewsville Bridge are overwhelmingly in favour of repairing the structure and do not support the closure of the bridge to vehicular traffic. Since the PIC the Director has also received correspondence from the Merrickville-Wolford Heritage Committee (Appendix "A") and the Rideau Canal National Historic Site (Appendix "B"). Both organizations support the repair and the preservation of the bridge. On August 24<sup>th</sup>, 2007, by e-mail, the Ministry of Culture (MOC) advised that "sympathetic modifications" (minor repairs to ensure public safety) to the structure would be permitted if they did not alter the character of the structure. The MOC has also indicated that major modifications or the replacement or relocation of the structure cannot proceed until a heritage impact assessment is completed by a qualified heritage consultant, and approved by the MOC. The estimated cost of a heritage impact assessment is \$10,000 to \$20,000.

#### **4. DISCUSSION**

A summary of the written comments that were received at the PIC was presented at the August Public Works Committee Meeting (Report #PW-66-2007). Since then the Director has endeavoured to consult with the appropriate agencies to discuss the ten (10) areas of concern that were identified by the public. A summary of the results of this consultation, to date, is at Appendix "C."

#### **5. ANALYSIS AND OPTIONS**

Four options are open:

- a. Option 1. Do nothing
- b. Option 2. Effect minor repairs consistent with the MOL "sympathetic modifications" definition.
- c. Option 3. Effect major repairs
- d. Option 4. Replace the structure.

Option 1 is not recommended as it does not support good risk management practices. If minor repairs to the structure are not completed during the next two years, consideration must be given to closing the bridge to vehicular traffic. Option 2 is feasible; however it is unlikely that it would add more than five years to the life of the structure. Option 3 is not recommended as a large investment to repair a one-hundred year old, one-lane bridge is not practical. In the short-term Option 4 is not practical as at least two years of pre-engineering would be needed before the project could begin.

Effecting minor repairs to the bridge in 2008 (Option 2) would "buy" some time for the structure. However, extending the life of the bridge for a short time will place the burden of a decision on the long-term strategy for the Andrewsville Bridge on future

County Councils. The Director recommends that MRC be authorized to complete the pre-engineering for Option 2 (minor repairs) with a view to tendering the project in January 2008 to provide a firm price for consideration during the budget deliberations. Staff should also develop a long-term strategy for the Andrewsville Bridge for consideration during the budget deliberations. This process would provide the Councils the flexibility to consider moving forward with Option 2 or reconsidering Option 1 or Option 4.

## **6. FINANCIAL IMPLICATIONS**

To be presented by Bill Bohne, McCormick Rankin Corporation.

## **7. LOCAL MUNICIPAL IMPACT**

Public interest in the project is very high, particularly in the Andrewsville, Merrickville, and Burritts Rapids areas. Notification of this Report has been sent to about fifty (50) persons on the project mailing list. Attendance by the public at the October 3<sup>rd</sup>, 2007 meeting is likely. The Director is committed to keeping all informed of the progress of the project.

## **8. CONCLUSIONS**

Minor repairs to the Andrewsville Bridge in 2008 will provide a short-term solution to the existing deficiencies, but it will also shift the burden of a long-term decision on the future of the structure to future Councils from Lanark County and the United Counties of Leeds and Grenville.

## **9. ATTACHMENTS**

- i) Appendix "A" – Letter from the Chair, Merrickville-Wolford Heritage Committee received September 5<sup>th</sup>, 2007
- ii) Appendix "B" – Letter from the Field Unit Superintendent, Rideau Canal National Historic Site of Canada, dated August 27<sup>th</sup>, 2007
- iii) Appendix "C"- Areas of Concern Evaluation

**Recommended By:**

**Approved for Submission By:**

**Steve Allan, P. Eng.**  
**Director of Public Works**

**Peter Wagland**  
**Chief Administrative Officer**



## APPENDIX "A"

July 23<sup>rd</sup>, 2007

To: Merrickville-Wolford Council

From: The Merrickville-Wolford Heritage Committee

### Re: A Letter of Support for Andrewsville Bridge Preservation

The Merrickville Heritage Committee has several concerns regarding the future of the Andrewsville Bridge which, under the mandate given to heritage committees by the province, we would like to bring to the council's attention. It is our recommendation that this council provide a letter of support to the various decision makers and area groups in order to demonstrate our support for the preservation and/or restoration of the Andrewsville bridge. Merrickville is the next possible canal and river crossing to the east of Andrewsville and there are several points that we would like to draw to your attention:

- 1) We are advised that a study done in 2006 indicates that 200 cars a day cross the Andrewsville bridge. The impact of the increased traffic in Merrickville that would result from the closure of the Andrewsville bridge will be felt in several ways:
  - a) The traffic is already backed up down the St. Lawrence street when the bridge is open, making it impossible to drive up the street even if one is not going to cross the bridge.
  - b) The designation of the Rideau Canal as a World Heritage Site will no doubt draw yet more tourists to the area and increase the traffic congestion in Merrickville even more if the option of crossing the river at Andrewsville is not available.
  - c) This same designation is a potential boon to shop owners. If it is more difficult to reach shops because additional traffic uses the Merrickville bridge, the Andrewsville bridge closure will negatively impact the shops which are the attraction of Merrickville for many tourists.
  - d) Merrickville is a tourist attraction not just for its shops but also for its architectural history. Additional traffic clogging the main street when the bridge is open impedes tourists' views of the picturesque village.
- 2) The Andrewsville bridge is part of an important tourist route used by visitors to Merrickville and will become increasingly important as the World Heritage designation of the canal attracts more visitors.
- 3) Local traffic can use the bridge in Andrewsville if the bridge in Merrickville is open for boaters and closed to vehicles.
- 4) The Andrewsville Bridge is available for emergency vehicles transporting people to the nearest hospital in Kemptonville. Should it be closed, the

residents along Heritage Drive east of Merrickville, as well as Merrickville residents north of the canal could be affected.

- 5) The Andrewsville Bridge provides a location east of Merrickville where emergency vehicles can get to and across the water. Its value became obvious during the drowning accident in March and could be crucial in the event of a fire.
- 6) The Merrickville Heritage Committee encourages the preservation and maintenance of historically significant architecture. The bridge facilitates access to the historically important village of Andrewsville.

If the reported cost of \$95,000 for repairs to the bridge that will last for 15 years is shared by all the counties affected, each county will pay much less than the estimated \$30,000 it would cost to close the bridge, yet would reap much greater benefits.

The Merrickville Heritage Committee considers it important to emphasize why the closure of this bridge will be a significant loss to both tourists and Merrickville residents, as well as to the larger communities nearby. We hope that you will take our concerns into consideration and that you will decide to support the efforts to repair and not to close the Andrewsville bridge.

Anne Barr, Chair, for Claire Smith  
Merrickville-Wolford Heritage Committee





Parks Canada  
Parcs Canada

APPENDIX "B"

LANARK COUNTY  
PUBLIC WORKS

Rideau Canal National Historic Site  
34A Beckwith Street South  
Smiths Falls, Ontario K7A 2A8

AUG 29 2007  
 FILE Andrews-ville-Pic  
 Action Name Info  
 PWCOW Copy  
 BF  
 August 27, 2007  
 Sent to Mr. Sheppard one 31 Aug 07

Phone: (613) 283-5170  
Fax: (613) 283-0677

Mr. Bill Bohne  
McCormick Rankin Corporation  
1145 Hunt Club Road, Suite 300  
Ottawa, Ontario K1V 0Y3

**Subject: Andrewsville Bridge Cultural and Heritage Evaluation, Parks Canada comments**

Dear Mr. Bohne:

I am writing to provide you with Parks Canada's review of the Cultural and Heritage Evaluation of the Andrewsville Bridge. Upon review of the completed Heritage Bridge Program Criteria Form, we feel it does not adequately reflect the heritage value of the bridge, particularly with respect to its connection with the surrounding community and the Rideau Canal National Historic Site of Canada.

The *Rideau Canal National Historic Site of Canada Management Plan* identifies Parks Canada's interests in the conservation of the heritage values of the Rideau Canal Corridor. Parks Canada strives to work in co-operation with others to protect the cultural heritage resources within the Rideau Canal corridor. Specifically, one of the key principles in that plan is that:

"The historic values, natural features, scenic beauty and diversity of cultural landscapes of the Canal corridor constitute its unique heritage character and should be preserved by government, commercial interests and private residents."

The Andrewsville Bridge and the views from it are critical to the protection of the heritage setting of the Upper Nicholson's Lockstation and the community of Andrewsville, an integral component of the heritage character of the Rideau Canal. Its continued use as a crossing of the canal contributes to a wide range of unique heritage experiences available to visitors to the Canal Corridor.

We have reviewed the scoring of the Andrewsville Bridge undertaken by your firm and have the following suggestions to better reflect its heritage value.

**2. Age**

Our reports indicate that the bridge was built around 1900. Parks Canada scoring: 12

**4. Design/Style: Rare Survivor of a Typical Design or Style:**

The current score of 8/16 appears low for a bridge of this style and does not evaluate it in the context of the Rideau Canal. The Andrewsville Bridge is the only high through truss bridge on the Rideau Canal, is one of only two steel fixed bridges owned by a municipality, is the only



surviving municipal road bridge of that era on the canal and quite likely among a handful of such bridges left in Ontario. Parks Canada score: 10/16

**6. Structural Preservation: No Significant Modifications:**

The score of 6 seems low for a structure which retains its original stone approach walls mostly intact and a timber deck which was *replaced in kind* in 1963, which follows good conservation practices. Parks Canada score: 7/10

**7. Visual Appeal: Design Merits:**

This score could be increased from the current 5/10 for the very reasons outlined for this descriptor: This is an attractive structure due in part to the interplay with the surrounding environment. More importantly, the removal of the Andrewsville Bridge would be “detrimental to the ambience of the setting.” Indeed, as it is an integral component of the picturesque character of the area, the combination of natural, cultural and scenic values makes this one of the most attractive locations along the canal. Parks Canada score 8/10

**8. Integrity: At Original Location:**

This score could be increased from 3/4 as this bridge significantly contributes to a strong sense of place for both the community and the lockstation. It has been part of the Upper Nicholson's Lockstation landscape since 1900 and is part of a road network which dates back to the 1870s when the first bridge was built. Parks Canada score 4/4

**9. Landmark: Physical Prominence:**

**Landmark: Public Perception:**

The 0/6 rating for physical prominence, and 4/6 for public perception appears low and may not adequately reflect the landmark value of the bridge and its significance to the local community. The Andrewsville Bridge continues to be a prominent feature in this rural landscape, connecting the north side of the canal and the community of Andrewsville with the Upper Nicholson's Lockstation and the River Road on the south side of the Canal. For many local residents it symbolizes the old Rideau as they knew it before the bridge upgrading program of the last 30 years resulted in the loss of many of these types of bridges. This is one of only a few locations on the canal where residents and visitors are able to cross the river and canal on a bridge that was designed 100 years ago in a setting that has retained much of its rural charm. As a symbol of the Rideau as a living museum it is thus an important feature both in its physical form but also in its function as a vehicular bridge. Parks Canada score 6/6 and 5/6

**10. Gateway: Entrance / Exit Occurrence:**

The bridge functions as a gateway to the Rideau River and Upper Nicholson's Lockstation reinforcing the notion that they are entering a heritage area. The score of 2/4 appears to minimize this value. Parks Canada score: 3/4

**12. Historical Association: Associated with theme:**

**Historical Association: Associated with former bridges:**

The Andrewsville Bridge is associated with the integration of the Rideau Canal, with the local community and the development of the communities along the canal. In conjunction with the lock, swing bridge and channel, the bridge constitutes a character defining element of the site.

The bridge is directly associated with the canal and its operation by virtue of the fact that the presence of the bridge required a swing bridge at the lockstation. If this bridge never existed, nor would the features of this lockstation.

Continued use of this bridge for vehicular traffic is a tradition that dates back to 1864 when the first bridge was constructed. Vehicular traffic requires the swing bridge across the lock to be opened and closed. The sights and sounds of this operation and the traffic across the lock speak to the fact that the Rideau is a functioning historic system integrated into the life of the communities along the canal. Parks Canada scoring 6/10 and 7/10

Based on Parks Canada's heritage evaluation, using the Heritage Bridge Program Criteria Form, the Andrewsville Bridge should have a score of 77. In our opinion, this score is a more realistic reflection of its heritage value.

Parks Canada also has concerns regarding the Archaeological Value section of the Cultural and Heritage Evaluation Report. It states that "an archaeological survey of the area was not undertaken, as the proposed rehabilitation of the bridge will not impact areas of archaeological significance." This is inconsistent with the archaeological process as areas of archaeological significance can only be determined when an archaeological survey of the area is undertaken.

We trust that you will find our comments useful and that the evaluation will be modified to reflect these observations.

Yours sincerely,



Gavin Liddy  
Field Unit Superintendent  
Rideau Canal National Historic Site  
of Canada

*gavin.liddy@pc.gc.ca*

c.c. Steve Allan, County Engineer  
Lanark County Public Works  
Lanark County Engineering Building  
95 Christie Lake Road, Box 37  
Perth Ontario K7H 3E2

Tamara Anson-Cartwright  
Ministry of Culture  
Programs and Services Branch  
Culture Services Unit  
400 University Avenue, 4<sup>th</sup> Floor  
Toronto, Ontario M7A 2R9

**SUMMARY OF WRITTEN COMMENTS FROM ANDREWSVILL  
EVALUATION TO DATE**

| <b>Area of Concern</b>  | <b>Number of Written Comments from the Public/Agencies</b> | <b>Results of Director’s Consultation with Agencies</b>   |
|---|--|---|
| Loss of emergency services if bridge closed                                   | 18   | Lanark County Ambulance and the CAO Montague Township (re: Fire Service) have advised that there would be <b>no</b> loss of emergency services.   |
| Convenience for Andrewsville residents and commuters                          | 10   | True for the dozen residences that are located at the foot of the bridge in Montague Township.  |
| World Heritage status of Rideau Canal and sites                               | 18   | Agreed that this is a factor to consider.   |
| Potential congestion in Merrickville and Burritt’s Rapids if bridge is closed | 8  | Based on recent counts daily traffic crossing bridge (AADT) is less than 400. Current AADT at Merrickville is 4,700 and Burritt’s Rapids is 1,100. Assuming Andrewsville Bridge traffic would split equally between Merrickville and Burritt’s Rapids, increase in AADT would be 4 % in Merrickville and 20 % in Burrit’s Rapids. |
| Importance of tourism   | 7  | No data available   |
| Bridge is needed in winter as an alternative to Andrewsville Main Road        | 5  | Could be resolved by Montague Township by providing higher level of service on Andrewsville Main Road   |
| Andrewsville crossing is needed for future development                        | 5  | No data available.  |
| Farmers need the bridge for access  | 1  | Not evaluated yet.  |
| Bridge is needed for school bus access  | 3  | Not evaluated yet   |
| Negative impact of bridge closure on property values                          | 2  | No data available.  |

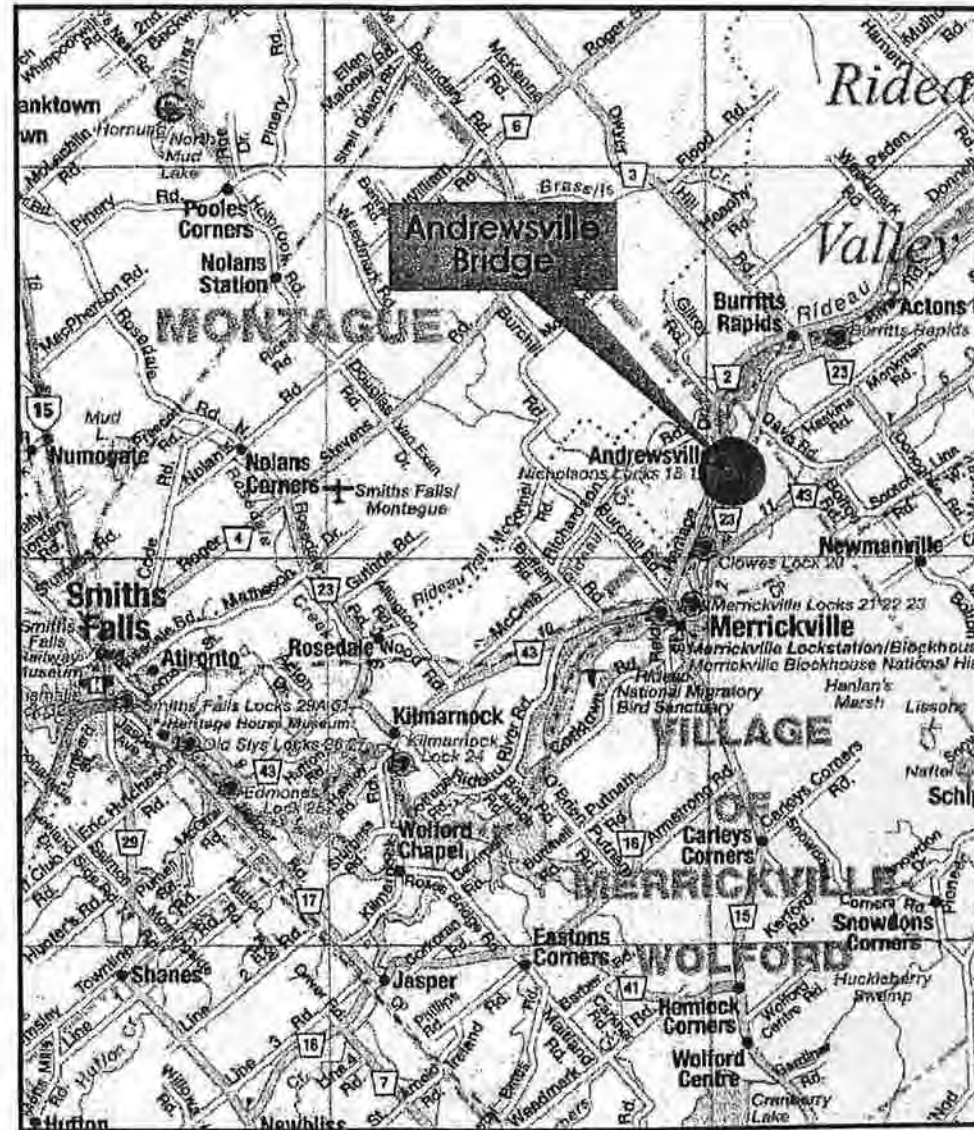
# APPENDIX C

LANARK  
COUNTY



S. ALLAN, P.ENG.  
DIRECTOR OF PUBLIC WORKS

JANUARY 2008



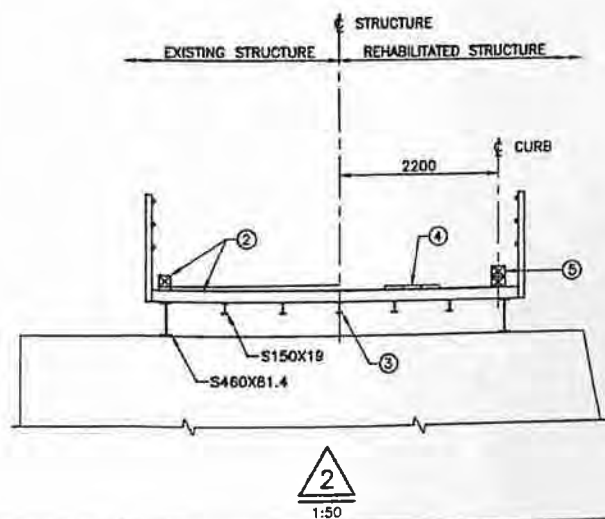
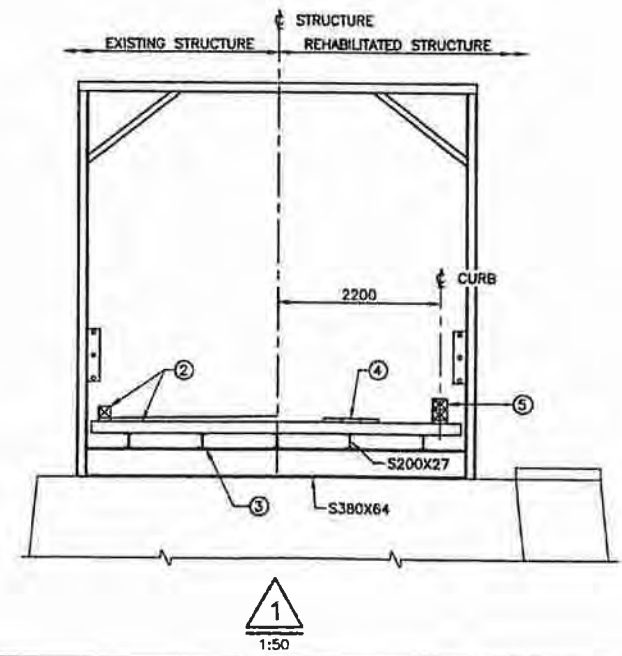
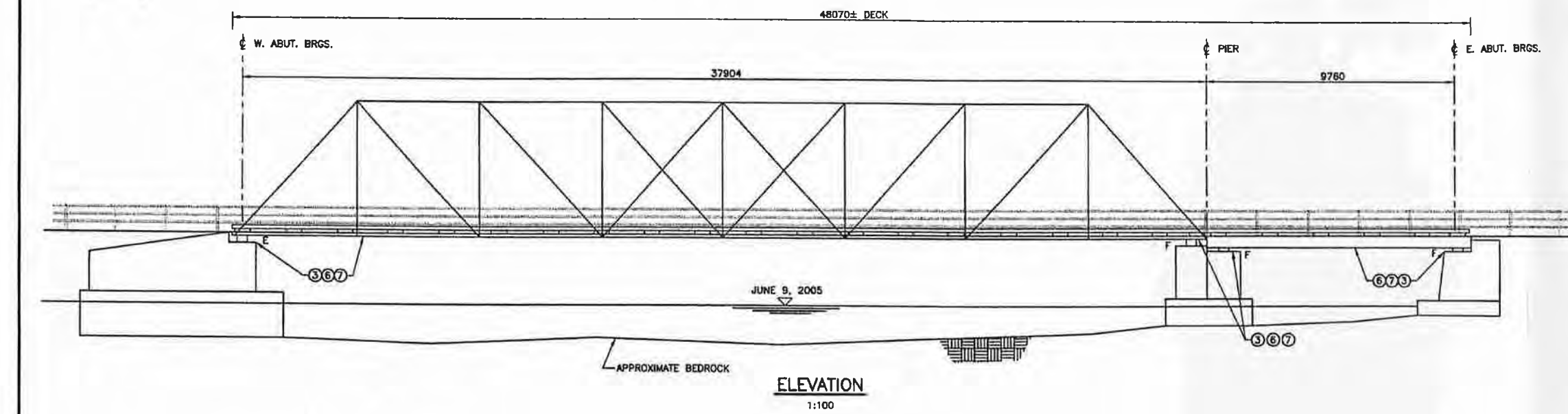
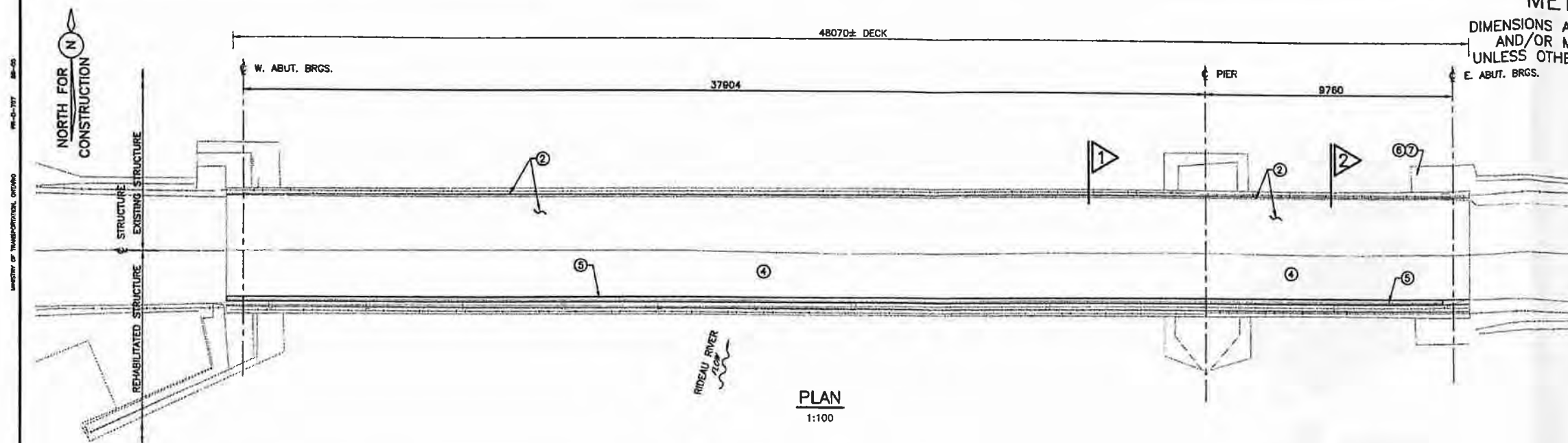
McCORMICK RANKIN  
CORPORATION

ANDREWVILLE BRIDGE REHABILITATION

STRUCTURE No. 015-0013

CONTRACT No. PW-9-2008

**METRIC**  
 DIMENSIONS ARE IN METRES  
 AND/OR MILLIMETRES  
 UNLESS OTHERWISE SHOWN



**GENERAL NOTES**

- CLASS OF CONCRETE**  
 CLASS OF CONCRETE SHALL BE 30 MPa.
- CLEAR COVER TO REINFORCING STEEL**  
 FOOTINGS . . . . . 100 ±25  
 DECK TOP . . . . . 70 ±20  
 BOTTOM . . . . . 40 ±10  
 REMAINDER - UNLESS OTHERWISE NOTED. . . . . 70 ±20
- STRUCTURAL STEEL**  
 ALL STRUCTURAL STEEL SHALL CONFORM TO CSA STANDARD CAN/CSA - G40-M92 OR ASTM SPECIFICATION A588.  
 ROLLED SECTIONS SHALL CONFORM TO CSA STANDARD CAN/CSA - G40-M92 OR ASTM SPECIFICATION A588.  
 BOLTS SHALL BE ASTM A325M TYPE 1, M22. BOLT THREADS SHALL BE EXCLUDED FROM THE SHEAR PLANES OF STRUCTURAL STEEL.  
 THREADED ROD SHALL BE ASTM A307.
- TIMBER**  
 DECK TIMBER SHALL BE S-P-F No. 2 OR BETTER.  
 ALL S-P-F SHALL BE PRESERVATIVE TREATED IN ACCORDANCE WITH CSA STANDARD CAN/CSA O88-M02.  
 CURB TIMBER SHALL BE D.Fir-L No. 2 OR BETTER.  
 NAILS, SCREWS AND LAG BOLTS SHALL CONFORM TO CSA STANDARD CAN/CSA - B111-03  
 NAILING CLIPS SHALL CONFORM TO CSA STANDARD CAN/CSA - G40.21-M92, GRADE 300  
 NAILS, SCREWS, LAG BOLTS AND NAILING CLIPS SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH CA/CSA - G164-M03
- CONSTRUCTION NOTES**  
 DIMENSIONS ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY EXISTING DIMENSIONS PRIOR TO COMMENCEMENT OF WORK AND REPORT ANY DISCREPANCIES TO THE ENGINEER.  
 EXISTING STRUCTURE IS LOAD POSTED FOR 5 TONNES G.W.

**SCOPE OF WORK**

- ERECT TRAFFIC SIGNAGE AS INDICATED IN CONTRACT DOCUMENTS.
- REMOVE EXISTING ASPHALT WEARING SURFACE, TIMBER CURB AND TIMBER DECK.
- STRENGTHEN / REPLACE DETERIORATED STEEL.
- CONSTRUCT TIMBER DECK AND WEARING SURFACE.
- INSTALL TIMBER CURB.
- REMOVE DETERIORATED CONCRETE FROM SUBSTRUCTURE AS DIRECTED BY THE ENGINEER.
- REPAIR CONCRETE IN SUBSTRUCTURE USING LOW PRESSURE "FORM AND PUMP" TECHNIQUES.

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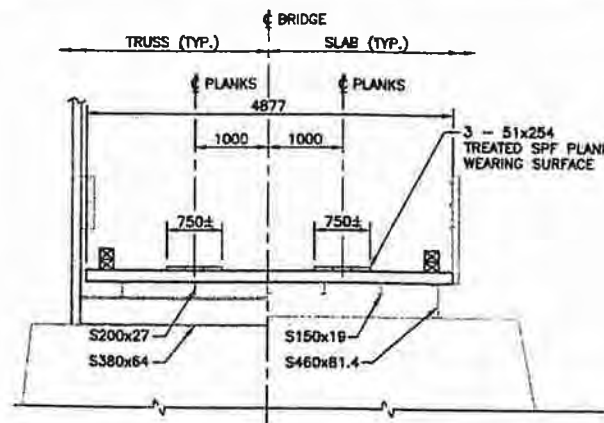
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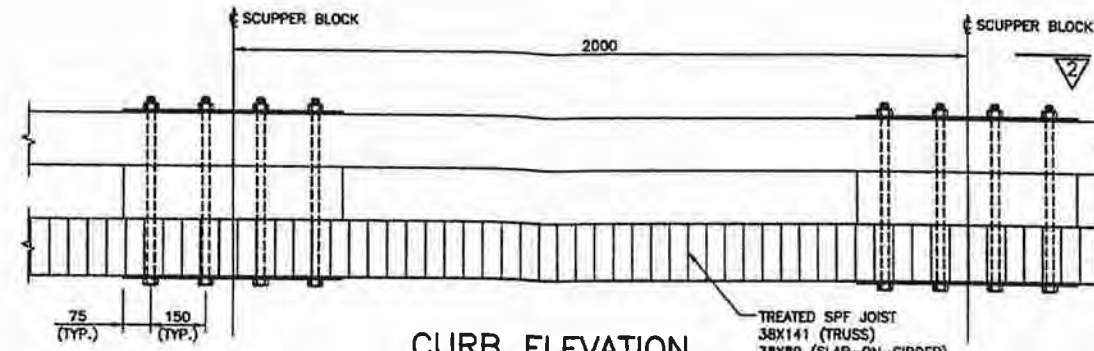
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| TIMBER DECK AND CURB DETAILS                              |  |       |
| MCCORMICK RANKIN CORPORATION                              |  |       |

NOTES

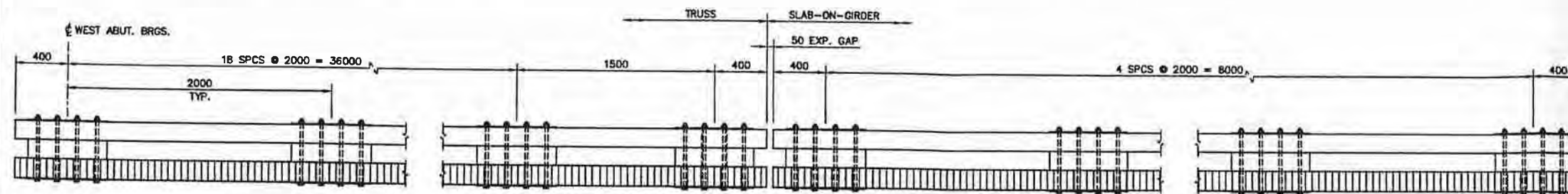
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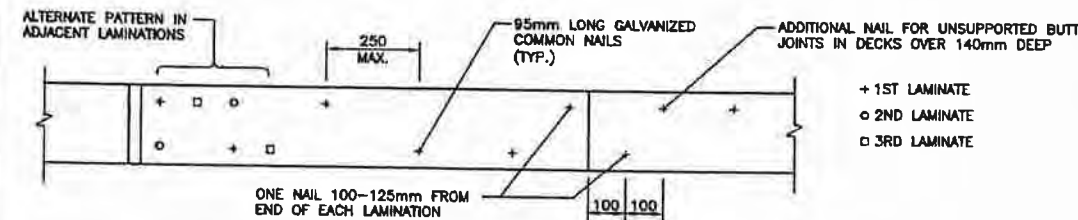
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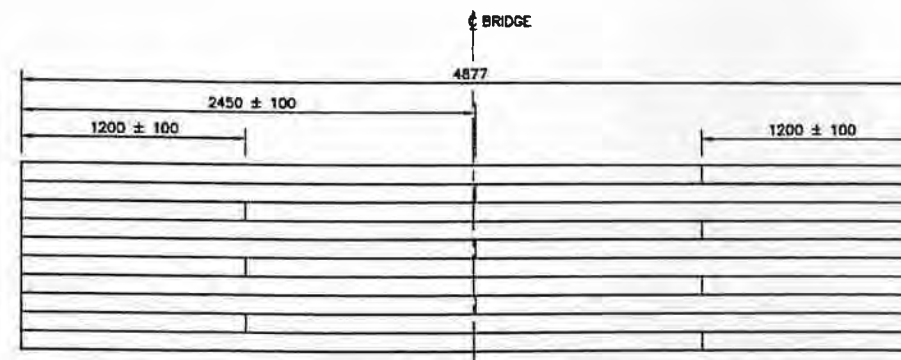
CURB ELEVATION  
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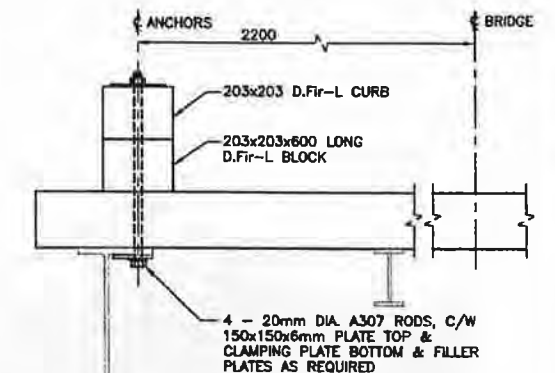
TIMBER CURB - LAYOUT  
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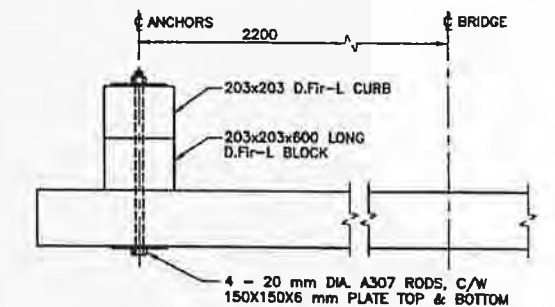
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N.T.S.



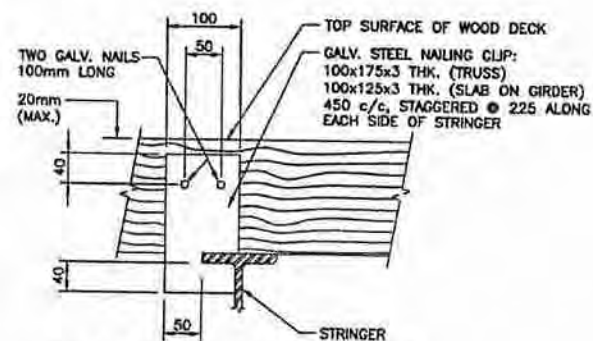
DECK PARTIAL PLAN AND BUTT JOINT LAYOUT  
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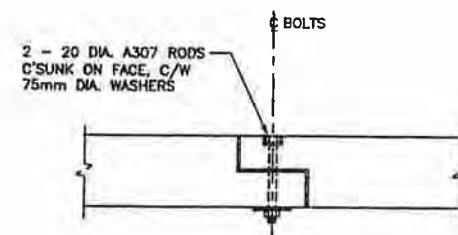
SLAB STRUCTURE



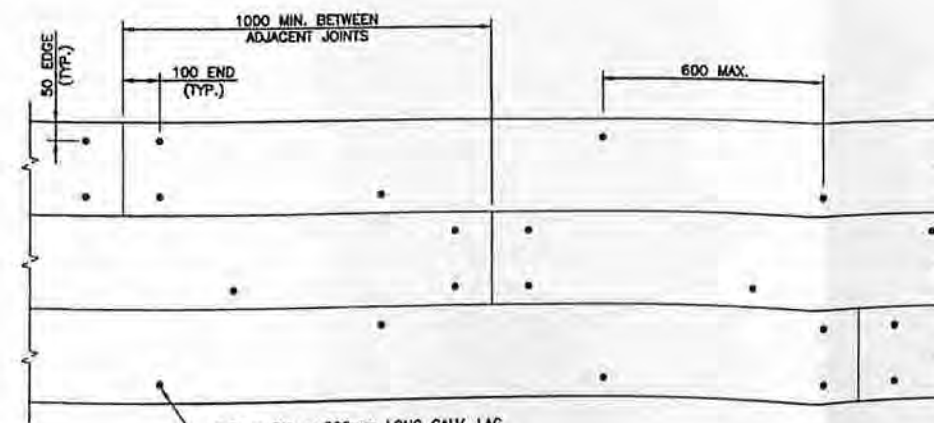
TRUSS STRUCTURE



TIMBER DECK NAILING  
1:5



TIMBER CURB SPLICE  
-PLAN-  
1:10



LAYOUT - TIMBER PLANK LAG SCREWS  
1:10

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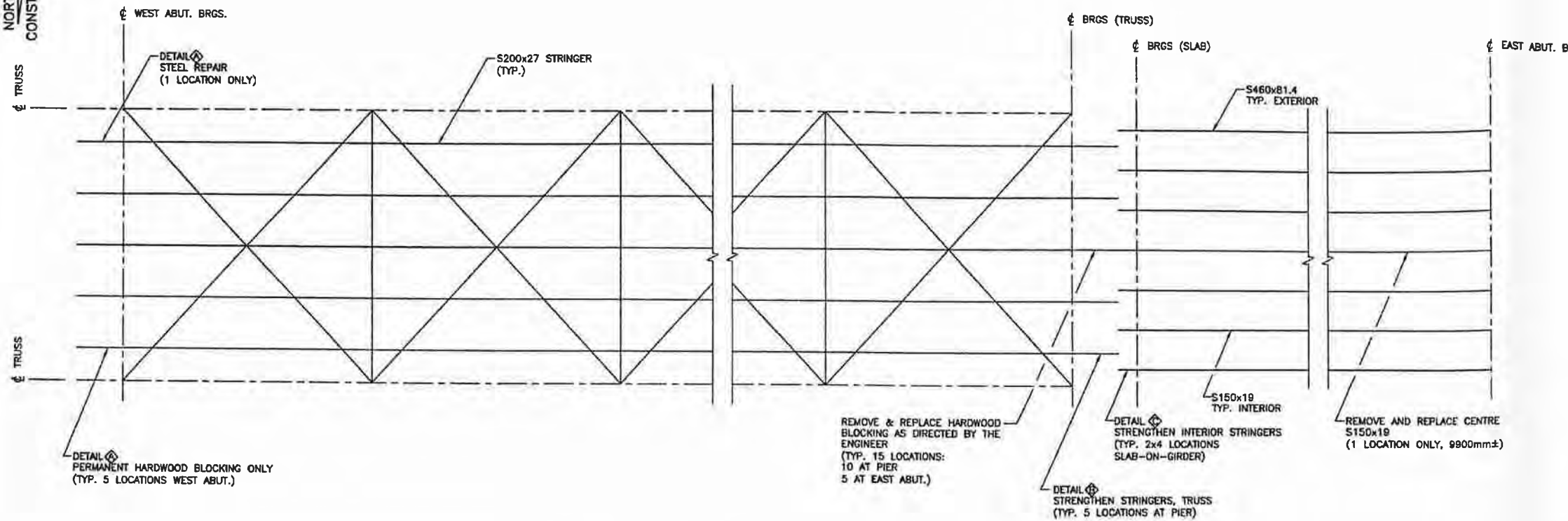
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Revised





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AND/OR MILLIMETRES  
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NORTH FOR  
CONSTRUCTION

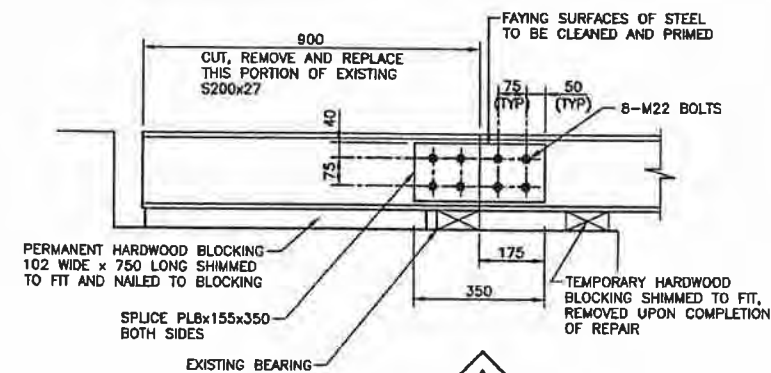


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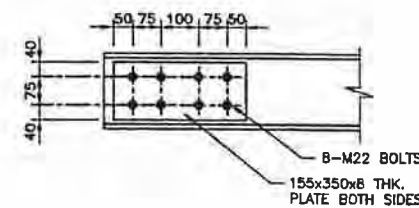
- SEE DWG No. S1 FOR GENERAL NOTES.
- FAYING SURFACES OF EXISTING AND NEW STEEL TO BE POWER TOOL CLEANED TO BARE METAL (SSPC SP3) AND PRIMED WITH A ZINC RICH PRIMER. PRIMER SHALL BE SELECTED FROM MTO DESIGNATED SOURCES FOR MATERIALS.
- BOLTS FOR STRINGER REPAIRS TO BE TIGHTENED USING THE "TURN OF THE NUT" METHOD.
- TEMPORARY HARDWOOD BLOCKING TO BE IN PLACE PRIOR TO STEEL REPAIRS AT WEST ABUTMENT, AND TO BE REMOVED UPON COMPLETION OF REPAIRS.
- ALL NEW PERMANENT HARDWOOD BLOCKING TO BE INSTALLED PRIOR TO REOPENING BRIDGE TO TRAFFIC.

PLAN - FLOOR SYSTEM

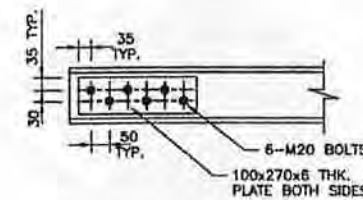
1:50



A  
1:10



B  
1:10



C  
1:10

DRAWING NOT TO BE SCALED  
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FILE LOCATION: H:\075\CURRENT\SHEETS\ANDREWSVILLE BRIDGE  
DRAWING NAME: 8035-ANDREW-STEELDETAILS-003.DWG  
DRAWN BY: STEVEN HUANG PLOTTED: 06/01/02 12:02:16 Revised

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| DRAWN SH   | CHK WRB | SITE 015-0013  | STRUCT | SCHEME DWG S3 |

# APPENDIX D



**MINUTES  
FIRST MEETING OF 2012  
PUBLIC WORKS COMMITTEE OF THE WHOLE**

The Public Works Committee of the Whole met in regular session on Wednesday, January 11<sup>th</sup>, 2012 immediately following the Community Development Committee meeting at the Lanark County Municipal Office, 99 Christie Lake Road, Perth, Ontario.

**Members Present:** Chair, Warden J. Gemmell, Councillors P. McLaren, B. Stewart, J. Levi, V. Wilkinson, B. Dobson, P. Dolan, K. Kerr, S. Freeman, R. Kidd, S. Mousseau, W. LeBlanc, E. Sonnenburg, A. Churchill and G. Code

**Staff/Others Present:** C. Ritchie, Acting CAO  
L. Drynan, Deputy Clerk  
S. Allan, Director of Public Works  
E. Patterson, Council & Clerk Services Assistant  
K. Stewart, I.T. Support

**Regrets:** Councillor J. Fenik

**PUBLIC WORKS**

**Chair:** Councillor Susan Freeman

**1. CALL TO ORDER**

The meeting was called to order at 6:07 p.m.  
A quorum was present.

**2. DISCLOSURE OF PECUNIARY INTEREST**

None at this time.

**3. APPROVAL OF MINUTES**

**MOTION #PW-2012-001**

**MOVED BY:** Ed Sonnenburg  
**SECONDED BY:** Aubrey Churchill

**“THAT**, the minutes of the Public Works Committee meeting held on November 30<sup>th</sup>, 2011 be approved as circulated.”

**ADOPTED**

#### 4. ADDITIONS AND APPROVAL OF AGENDA

##### **Addition**

Under New/Other Business

- iii) Update on fire at Perth Public Works garage

##### **MOTION #PW-2012-002**

**MOVED BY:** Pat Dolan

**SECONDED BY:** Peter McLaren

“**THAT**, the agenda be approved as amended.”

**ADOPTED**

#### 5. NEW/OTHER BUSINESS

- iii) Update on Fire at Perth Public Works Garage

S. Allan reported that on December 27<sup>th</sup>, 2011 there was a small electrical fire in one of the trucks. S. Allan stated that at the time of the fire there were employees on site who tried to extinguish the fire but were unsuccessful. An employee backed the truck out of the building and called 911.

S. Allan informed council that there was no damage done to the building and the truck can be fixed.

#### 6. DELEGATIONS & PRESENTATIONS

- i) Complete Streets Policy  
**Jeff Mills**

Mr. Mills gave a PowerPoint Presentation – *attached page 7*

#### 7. COMMUNICATIONS

- i) Resolution from the Municipality of Clarington: Request for Provincial Regulations Regarding Commercial Fill Operations
- ii) Riding in Mississippi Mills (RIMM): Toward a Bicycle Friendly Lanark – The Lanark County Cycling Plan

##### **MOTION #PW-2012-003**

**MOVED BY:** Pat Dolan

**SECONDED BY:** Wendy LeBlanc

“**THAT**, the communications for the January Public Works Committee meeting be received as information.”

**ADOPTED**

## 8. CONSENT REPORTS

- i) Report #PW-01-2012 Public Works Contract Status Report #1
- ii) Report #PW-03-2012 Ontario Good Roads Association Long-Service Awards Luncheon

### **MOTION #PW-2012-004**

**MOVED BY:** Richard Kidd  
**SECONDED BY:** Sharon Mousseau

“**THAT**, a Long-Service Awards Luncheon ticket be purchased for Councillors attending the OGRA/ROMA conference to attend and support the recognition of retiree Gerry Cole and his exemplary service to the County of Lanark.”

**ADOPTED**

### **MOTION #PW-2012-005**

**MOVED BY:** Keith Kerr  
**SECONDED BY:** Aubrey Churchill

“**THAT**, the following Consent Reports for the January Public Works Committee meeting be received as information:

Report #PW-01-2011 Public Works Contract Status Report #1  
Report #PW-03-2012 Ontario Good roads Association Long-Service Awards Luncheon.”

**ADOPTED**

## 9. DISCUSSION REPORTS

- i) Report #PW-04-2012 County Cycling Working Group Terms of Reference  
**Director of Public Works, Steve Allan**

The purpose of this report is to seek Council approval of the proposed Terms of Reference for the Lanark County Cycling Working Group.

### **MOTION #PW-2012-006**

**MOVED BY:** Keith Kerr  
**SECONDED BY:** Val Wilkinson

“**THAT**, the Public Works Committee approve the creation of a County Cycling Working Group;

**AND THAT** the proposed draft terms of reference for the County Cycling Working Group be referred to the Striking Committee for approval.”

**ADOPTED**

- ii) Report #PW-05-2012 Dixon Bridge Evaluation Results  
**Director of Public Works, Steve Allan**

The purpose of this report is to recommend options for the repair and the future replacement of the Dixon Bridge.

**MOTION #PW-2012-007**

**MOVED BY:** Ed Sonnenburg  
**SECONDED BY:** Aubrey Churchill

**“THAT**, County Council accepts the Keystone Bridge Management Report on the Dixon Bridge, for information;

**AND THAT** the Director of Public Works includes a project, in the 2013 Public Works Budget, for Council’s consideration, to extend the service life of the Dixon Bridge until 2030 (Option 2).”

**ADOPTED**

- iii) Report #PW-06-2012 Andrewsville Bridge: Options for the Future  
**Director of Public Works, Steve Allan**

The purpose of this report is to recommend that Council renders a decision on the future of the Andrewsville Bridge.

**MOTION #PW-2012-008**

**MOVED BY:** Brian Stewart  
**SECONDED BY:** John Levi

**“THAT**, contingent upon the agreement of the Council of the United Counties of Leeds and Grenville, County Council authorizes the Director of Public Works to retain McCormick Rankin Corporation to complete a Condition Assessment of the Andrewsville Bridge by May 21<sup>st</sup>, 2012, at a cost of \$2,500;

**AND THAT** the Clerk sends Report #PW-06-2012 to the Rideau Corridor Strategy Landscape Strategy and the Township of Montague Clerk, for information.”

**ADOPTED**

- iv) Report #PW-07-2012 Disposal of Surplus Property: Pat 1, Part Lot 3, Lot 27  
Concession 2 Geographic Township of Bathurst  
**Director of Public Works, Steve Allan**

The purpose of this report is to propose that the ½ acre “orphan” parcel, located on the South side of the Tay River, which comprises part of the 38 acres of land on which the County Municipal Buildings and Lanark Lodge are located, on the North side of the Tay River, is declared surplus, and conveyed to the abutting property owner.

**MOTION #PW-2012-009**

**MOVED BY:** Keith Kerr

**SECONDED BY:** Richard Kidd

“**THAT**, Lanark County Council declares Park Lot 3, Concession 2, in the Geographic Township of Bathurst, now in the Municipality of the Town of Perth, more particularly described as Part 1 on the Draft Plan (Drawing J10-119-6), prepared by McIntosh Perry, August 9<sup>th</sup>, 2011, as surplus to County’s needs. (Option 2);

**THAT** the value of consideration for the surplus lands is set at one dollar (\$1.00);

**THAT** the surplus lands are conveyed to 1778577 Ontario Limited (Perth Golf Course), at no cost to the County;

**AND THAT** the Clerk sends this Report to the Town of Perth Clerk, for information.”

**ADOPTED**

- v) Report #PW-08-2012 Proposed Lanark County Public Works Garages Steering Committee  
**Director of Public Works, Steve Allan**

The purpose of this report is to seek Council approval of the proposed Terms of Reference for the Lanark County Public Works Garages Steering Committee.

**MOTION #PW-2012-010**

**MOVED BY:** Keith Kerr

**SECONDED BY:** Pat Dolan

“**THAT**, the Public Works Committee approve the creation of a Lanark County Public Works Steering Committee;

**AND THAT** the proposed draft terms of reference for the Lanark County Public Works Steering Committee be referred to the Striking Committee for approval.”

**ADOPTED**

**10. VERBAL REPORTS**

None

**10. DEFERRED REPORTS**

None

**11. CONFIDENTIAL REPORTS**

None

**12. NEW/OTHER BUSINESS**

- i) Complete Streets Policy

Council agreed to forward the Complete Streets Policy to the County Cycling Working Group.

- ii) OGRA/ROMA Ministers Meeting Requests  
**Director of Clerk's Services/Clerk, Cathie Ritchie**

C. Ritchie reviewed the draft appointments list.

S. Freeman briefed the committee on the proposal from Tay Valley.

The following ministers meetings were suggested:

Minister of Children and Youth Services: Support the Youth  
Minister of Labour: Arbitration Process  
Minister of Transportation: CP/OVR

Discussion was held on the hospitality suite. C. Ritchie is to forward Report #C-01-2011 OGRA/ROMA Hospitality Suite to Council.

- iii) Meeting Schedule – *attached page 21*  
**Director of Clerk's Services/Clerk, Cathie Ritchie**

**13. ADJOURNMENT**

The Committee adjourned at 7:09 p.m. on motion by Councillors K. Kerr and E. Sonnenburg

  
Leslie Drynan,  
Deputy Clerk



# THE COUNTY OF LANARK

## ***PUBLIC WORKS COMMITTEE***

January 11<sup>th</sup>, 2012

Report #PW-06-2012 of the  
Director of Public Works

### **ANDREWSVILLE BRIDGE: OPTIONS FOR THE FUTURE**

#### **1. STAFF RECOMMENDATIONS**

“THAT,

- i) Contingent upon the agreement of the Council of the United Counties of Leeds and Grenville, County Council authorizes the Director of Public Works to retain McCormick Rankin Corporation to complete a Condition Assessment of the Andrewsville Bridge by May 21<sup>st</sup>, 2012, at a cost of \$5,000.
- ii) County Council advises the Council of the United Counties of Leeds and Grenville that when the Andrewsville Bridge reaches the end of its service life, it should be closed to vehicular traffic and remain open for pedestrians and cyclists (Option 5).
- iii) The Clerk sends Report #PW-06-2012 to the Township of Montague Clerk, for information.”

---

**Recommended By:**

**Approved for Submission By:**

**Steve Allan, P. Eng.  
Director of Public Works**

**Peter Wagland  
Chief Administrative Officer**

## 2. PURPOSE

The purpose of this Report is to recommend that Council renders a decision on the future of the Andrewsville Bridge.

## 3. BACKGROUND

Andrewsville lies midway between Merrickville and Burritts Rapids, on the North side of the Rideau River, in the Township of Montague. The Andrewsville Bridge crosses the Rideau River in the Hamlet of Andrewsville, providing access to the Parks Canada swing bridge (5 tonnes load limit), which crosses the Rideau Canal at the Nicholson's Locks. A Map of the area is at Appendix "A".

Between 1843 and the early 1900s, Andrewsville established itself as a thriving industrial village of 200 people with an abundant source of waterpower for its shingle, grist, carding and sawmills. It also had a general store, a cheese factory, a tavern and a blacksmith shop. Its population slowly declined when the railways bypassed the village and in 1912, the post office was closed. Today, all that remains of the bustling village is about 21 residential properties.

Bridges have spanned the Rideau River and Canal, at Andrewsville, since about 1864. The existing Andrewsville Bridge, which was constructed in the early 1900s, has two separate structures with 5 tonnes load limits. Our bridge maintenance records (which are incomplete) indicate that the structures were repaired in 1944, 1963, 1983 and 2008.

On the West approach, there is a 38 metre steel through-truss with timber deck bridge and on the East approach, a 10 metre timber deck, on a rolled steel girder bridge, with a 70 m dry stone wall on the approach. The width of the travelled lane is 4.4 metres. Therefore, both bridges can carry single-lane traffic only. Average Annual Daily Traffic (AADT) is about 200 and the posted speed is 10 kph. **Since they are designated as boundary bridges, they are jointly owned and maintained by the County of Lanark and the United Counties of Leeds and Grenville.** Photos of the Andrewsville Bridge are at Appendix "B".

In 2005, McCormick Rankin Corporation (MRC) was retained to evaluate rehabilitation options for the Andrewsville Bridge. The MRC (Report #PW-10-2007) concluded that the bridge was in poor condition and that repairs were required to the deck, wearing surface and deck structural steel. The Report also recommended that a structural analysis be completed as soon as practicable.

In May 2007 (Report #PW-39-2007), the Director presented the MRC Structural Evaluation Report, which confirmed the need for the current 5 tonnes load limit on the bridge, due to the poor condition of the stringers in the truss floor deck system. The MRC Report also noted that, in accordance with the Canadian Highway Bridge Design Code, without repair or rehabilitation, **consideration should be given to closing the structure in a few years, due to the diminished capacity of the stringers.**

MRC identified five (5) options (costs in 2007\$):

- Minor repairs to extend the service life for five years (\$100,000).
- Major repairs to extend the service life for ten years (\$430,000).
- Replace with new single lane bridge (\$910,000).
- Replace with new two-lane bridge (\$1,800,000).
- Close bridge to vehicular traffic (\$30,000.)

On May 17<sup>th</sup>, 2007, Lanark County and the United Counties of Leeds and Grenville hosted a joint Public Information Centre (PIC) at the Merrickville Municipal Office regarding the five options for the future of the Andrewsville Bridge. Thirty-six (36) members of the public registered at the PIC and thirty-three (33) written comments were received within two weeks of the event. The results of the PIC indicated that **the users of the Andrewsville Bridge were overwhelmingly in favour of repairing or replacing the structure and that they did not support the closure of the bridge to vehicular traffic.** Most of the attendees at the meeting were from the Hamlet of Andrewsville. Correspondence from the Merrickville-Wolford Heritage Committee, the Rideau Canal National Historic Site, Parks Canada and Township of Montague Council also supported the repair and the preservation of the bridge. While Parks Canada indicated that they had “no operational need for the bridge”, they considered the site to be part of the cultural heritage and tourism value of the Rideau Canal. Parks Canada also indicated that they could not provide funding to assist with any remedial work on the bridge. Lanark County emergency service providers did not register any concerns regarding the potential closure of the bridge to vehicular traffic.

To respond to the Parks Canada concerns and to set the stage for repairs, a Cultural and Heritage Evaluation Report was completed by MRC and submitted to the Ministry of Culture on July 9<sup>th</sup>, 2007. The MRC Report concluded that “the historical value of the bridge itself is minimal and that any historical value is associated with the nearby Rideau Canal”. The Ministry of Culture (MOC) response to the Report was that “sympathetic modifications” (minor repairs to ensure public safety) to the structure would be permitted if they did not alter the character of the structure. **The MOC also indicated that major modifications or the replacement or relocation of the structure could not proceed until a Heritage Impact Assessment was completed by a qualified heritage consultant** and approved by the MOC. The estimated cost of a Heritage Impact Assessment was \$20,000.

In October 2007 (Report #PW-78-2007), Lanark County Council and the Council of the United Counties of Leeds and Grenville agreed to **defer a decision on the rehabilitation/replacement of the structure and to complete the necessary repairs to the Andrewsville Bridge to extend its service life for five years.** The UNESCO designation of the Rideau Canal, as a World Heritage Site in 2007, was a factor in Council’s decision to forgo a long-term plan for the bridge. There was also an expectation that a future Federal/Provincial grant program could be used to offset the costs to rehabilitate or to replace the bridge.

During the Summer of 2008, under Contract #PW-09-2008, Andrewsville Bridge Repairs, Meyknecht-Lischer Limited removed and replaced the timber bridge deck and curbs, strengthened the steel stringers below deck and completed minor repairs to the abutment bearing seats and ballast walls at a cost of about \$100,000 (shared equally by the two Counties). The bridge was closed to traffic, for about 10 days, while the work was done. Since then the bridge continues to be monitored on a regular basis to ensure that it remains safe for traffic.

#### 4. DISCUSSION

Three years have passed since the 2008 bridge repairs were completed. The aim of the repairs was to extend the bridge service life by five years. **Although the structure is still safe for reduced loads (5 tonnes), it is certain that without rehabilitation, it will eventually deteriorate to a point that it will need to be closed to vehicular traffic.** It should also be noted that although there are warning signs on the nearby County Roads and reduced load posting signs at the bridge, it is likely that these signs are ignored by some drivers with loads in excess of 5 tonnes. Over loading the bridge will accelerate the deterioration of the structures.

Without a long-term plan for the Andrewsville Bridge, the County of Lanark and the United Counties of Leeds and Grenville risk having to close the bridge in the future, with little or no notice to public and with no agreement on how to proceed thereafter. The Director suggests that a more deliberate and proactive approach is needed to decide the future of the bridge.

#### 5. ANALYSIS AND OPTIONS

The five (5) options that were identified in 2005 are still open:

- i) Option 1. Do nothing.
- ii) Option 2. Rehabilitate the bridge.
- iii) Option 3. Replace the bridge.
- iv) Option 4. Close the bridge to vehicular traffic **now**.
- v) Option 5. Close the bridge to vehicular traffic when the bridge reaches the **end of its service life**.

**Option 1** is not recommended as the only outcome is an unplanned closure of the bridge when it can no longer carry traffic safely. Also, Option 1 does not mitigate the County's exposure to risk. Such an unexpected closure would generate much concern with the residents of Andrewsville, public concern about the County's ability to manage its infrastructure and it could compel the two Counties to make a hasty decision on how to proceed. **Option 2** cannot proceed without the completion of a Heritage Impact Assessment (cost \$20,000) and the approval of the MOC to rehabilitate the bridge. If the MOC designates the bridge as a Heritage Structure, it is unlikely that they would allow it to be rehabilitated, unless the work could be done without changing the character of the structure. MRC has indicated that it is unlikely that the structure could be rehabilitated without altering its appearance. In any case, if Option 2 is feasible, it would be at least three years before the necessary approvals were in place and the total cost could range from \$500,000 to \$ 1 million. The cost/benefit of an

expenditure of this magnitude would be difficult to justify for a small increase in operating capacity on a single lane bridge. In addition, the bridge would be closed for 4 to 6 months for construction. **Option 3** would cost at least \$1 or \$2 million. Based on similar situations encountered by MRC, if the existing bridge is deemed a Heritage Structure it would have to remain in place and the new bridge would be built in another nearby location. The feasibility of constructing a new bridge would remain uncertain until an Environmental Assessment was completed and it is uncertain if the Counties would receive approval from Parks Canada, the Ministry of Environment etc. for such an undertaking. In any case, Option 3 would take three to five years and require expenditures in 2013 to get the project rolling. **Option 4** would provide the least financial risk and public safety risk. However, it may be premature. An assessment of the condition of the key elements of the bridge, in the Spring, would determine if it can remain operational for a few more years, with or without repairs. MRC has indicated that they could complete such an evaluation for \$5,000. **Option 5** would reduce the number of crossings of the Rideau River between Burritts Rapids and Merrickville from three to two. Although this would inconvenience some drivers, the historic nature of the Andrewsville Bridge could still be maintained by keeping the bridge open for pedestrians and cyclists. An expenditure of about \$30,000 would be needed to close the bridge to vehicular traffic. Additional expenditures, to beautify the bridge for continued use by pedestrians and cyclists, such as painting the trusses, repairing the existing safety barriers and perhaps adding flower boxes could be also contemplated.

In the short term, the Director recommends that the Counties retain MRC to complete an evaluation of the bridge by May 21<sup>st</sup>, 2012, to determine its remaining service life, at a cost of \$5,000 (County share \$2,500). The Director further recommends that when the bridge reaches the **end of its service life**, it is closed to vehicular traffic and remains open for pedestrians and cyclists (Option 5).

If Council accepts the Director's recommendation (Option 5), no Heritage Impact Assessment is required. If Council does not agree with the Director's recommendation and considers Options 2 or 3 to be viable, then the Counties should retain MRC to complete a Heritage Impact Assessment, at a cost of \$20,000 (County share \$10,000). This would start the process to determine if Options 2 or 3 are feasible. No funds have been included in the 2012 Public Works Budget for a Heritage Impact Assessment.

## **6. FINANCIAL IMPACT**

Since 2008, the financial pressures on the County have grown substantially. If it is Council's intention to replace the Andrewsville Bridge, the capital costs for this project should be included in the draft Long-Term Capital Plan.

It is unlikely that any external sources of funding will be available to offset the costs to rehabilitate or to replace the Andrewsville Bridge. Can the Counties afford to make such large investments to rehabilitate or to replace a 100 year old structure that carries about 200 vehicles each day? In any case, since the Andrewsville Bridge is a Boundary Bridge, Lanark County Council and the Council of the United Counties of Leeds and Grenville must jointly agree on its future and share the costs.

## **7. LOCAL MUNICIPAL IMPACT**

Public interest, in the future of the Andrewsville Bridge, is very high, particularly in the Andrewsville, Merrickville, and Burritts Rapids area. The recent designation of the Rideau Canal as a UNESCO World Heritage Site has also generated some interest in the long-term preservation of the structure.

## **8. CONCLUSIONS**

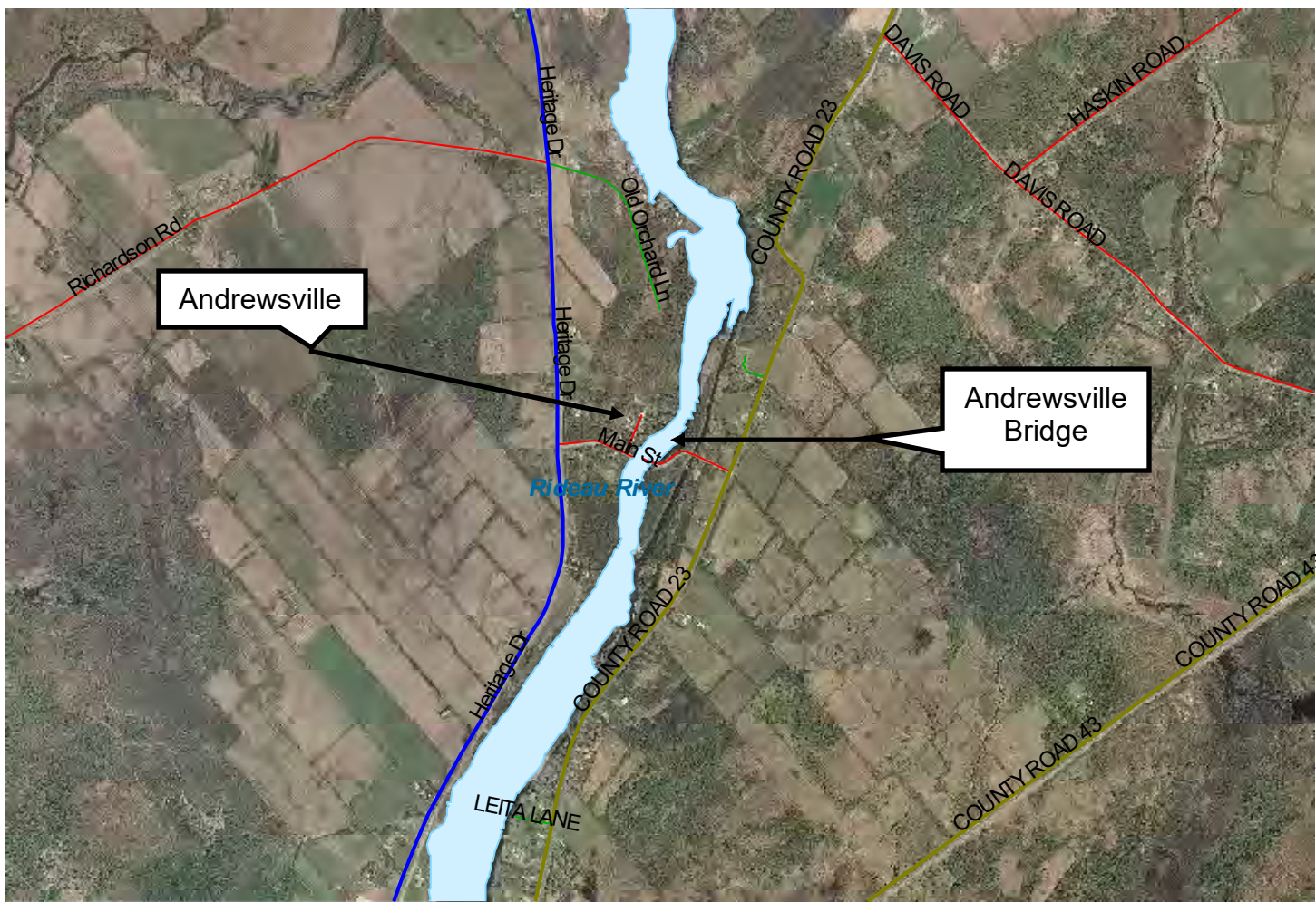
The Director recommends that Lanark County Council and the Council of the United Counties of Leeds and Grenville agree on a short and a long-term plan for the Andrewsville Bridge in 2012.

## **9. ATTACHMENTS**

Appendix "A" - Andrewsville Bridge Area Map.

Appendix "B" - Andrewsville Bridge Photos.

ANDREWSVILLE BRIDGE AREA MAP



ANDREWSVILLE BRIDGE PHOTO





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## EXECUTIVE SUMMARY

The Andrewsville Bridge, spanning the Rideau River in the hamlet of Andrewsville, was constructed in the late 1800's. The single lane bridge is comprised of a 38.5 m long steel truss and a 9.2 m long steel girder span. Both spans support a nail laminated timber deck with timber runners and curbs. In addition to the steel structures, the south approach is constructed on a dry stone rubble causeway approximately 70 m long.

In 2007, an inspection and structural evaluation of the Andrewsville Bridge was undertaken. At that time it was recommended that the structure be load posted for a maximum of 5 tonnes. In 2009, the timber deck was replaced in kind and minor structural repairs were completed with the goal of maintaining the bridge in a serviceable condition for the 3 to 5 years until a long-term decision on the bridge was made.

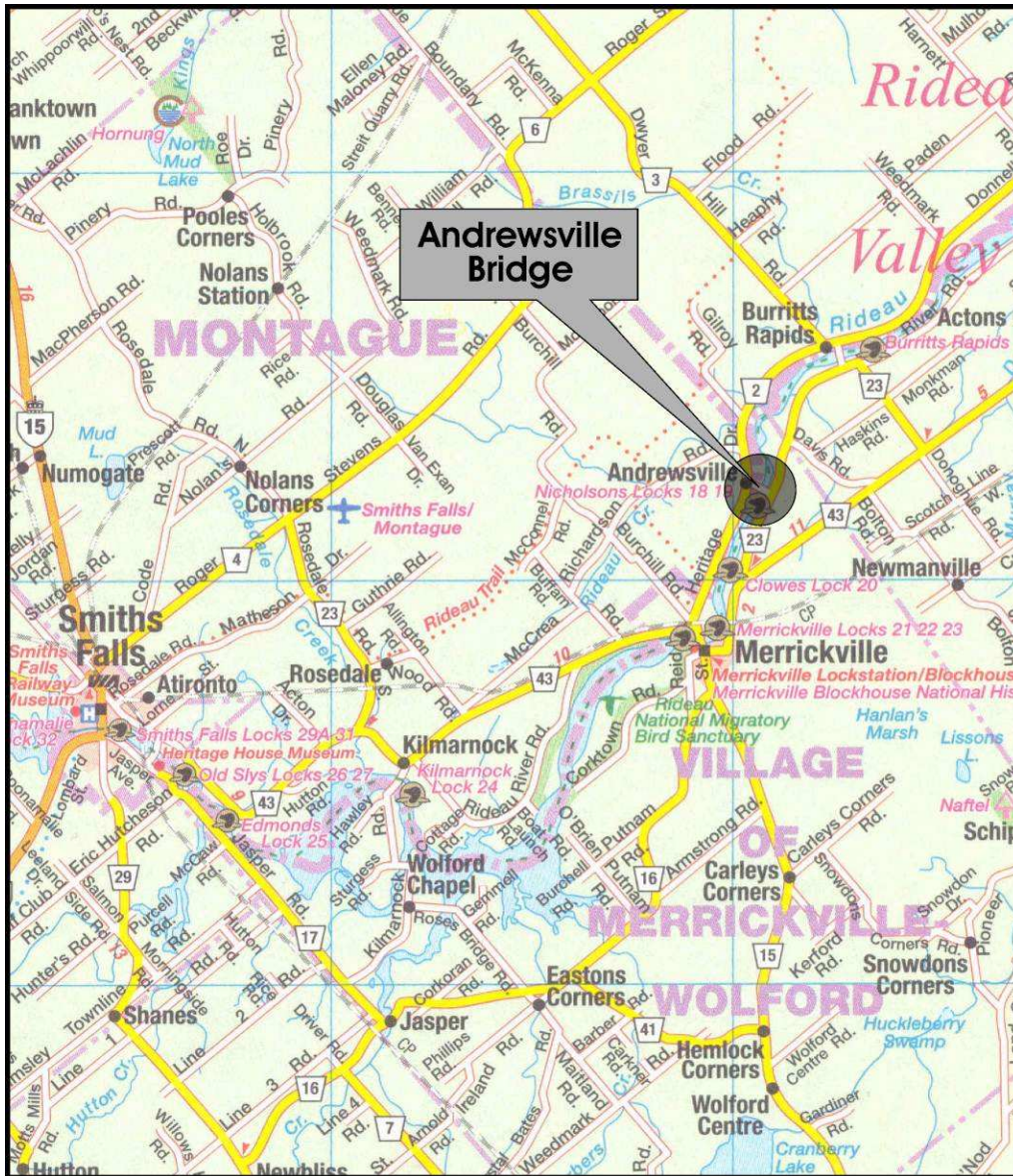
In March of 2012, the bridge was inspected and the structural evaluation was updated to reflect the current condition of the bridge. This report summarizes the results of the inspection and updated evaluation. Corrosion and section loss of components is ongoing; however, it is recommended that the current load posting of 5 tonnes remain in place. In addition, it is recommended that the following repairs be undertaken in the summer of 2012 to maintain the current load posting:

- Restore timber blocking under stringer supports at the abutment and piers of the truss and girder spans, and,
- Local strengthening of the bottom chords LOL1 at the north end of the truss span.

It is estimated that the work will cost \$50,000 including engineering, construction, and supervision.

There is significant risk to the County by continuing to operate the Andrewsville Bridge. The structural capacity is currently governed by the stringers in the truss span. The Live Load Capacity Factor (F) of the stringers is 0.24. In accordance with the Canadian Highway Bridge Design Code (CHBDC), consideration shall be given to closing a structure with  $F < 0.3$ . The CHBDC also recommends maintaining a single load posting for a period of two years or less, which provides sufficient time to close or replace the bridge. The Andrewsville Bridge has had a single load posting for 5 years. As such, it is our recommendation that consideration be given to closing the Andrewsville Bridge to vehicular traffic.

**KEY PLAN**



## 1. INTRODUCTION

McCormick Rankin, a member of MMM Group Limited (MRC) was retained by the County of Lanark (County) to undertake a visual inspection of the Andrewsville Bridge (MTO Site No. 15-013) and to update the March 2007 structural evaluation.

The visual inspection was completed by Sascha Schreiber, P. Eng. and Joel Sam, EIT of MRC on March 7, 2012. The purpose of the inspection was twofold: to assess the overall condition of the superstructure; and to determine the degree of deterioration in components of the steel superstructure to be used in the updated structural evaluation. The visual inspection included a detailed hands-on inspection and section loss measurements of all superstructure elements that could be readily accessed by ladder from the deck or the pier and abutment footings. Interior below-deck floor system components were not inspected.

Upon completion of the visual inspection, the 2007 structural evaluation was updated reflect the inspection findings, the latest revisions to the Canadian Highway Bridge Design Code (CHBDC), and the 2009 rehabilitation.

This report summarizes the inspection findings and the results of the structural evaluation update, and includes cost estimates for several alternatives for structure replacement.

## 2. STRUCTURE DESCRIPTION

The Andrewsville Bridge spans the Rideau River in the hamlet of Andrewsville, located between Merrickville and Burritt's Rapids. Constructed in the late 1800's, it is comprised of two simply supported spans (Photograph 1): a 38.5 m long steel Pratt truss with eight bays at 4.8 m and a 9.2 m long steel girder span comprised of steel stringer and floorbeam system. The substructure consists of two concrete abutments and one concrete pier founded on spread footings on bedrock. In its current configuration, the bridge permits one lane of traffic with oncoming traffic yielding to vehicles on the bridge. Posted speed limit across the structure is 10 km/hr. The south approach is founded on a 70 m long dry stone causeway with rubble infill.

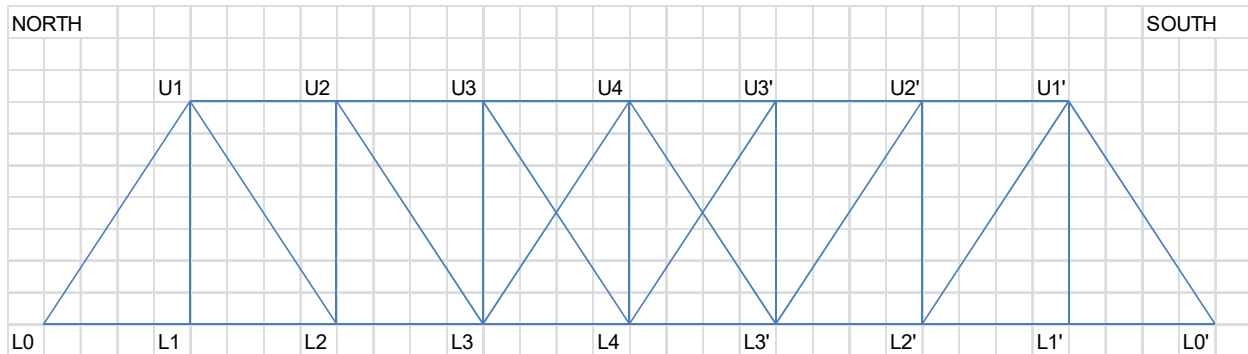
In 2007, the results of a structural evaluation recommended a single load posting on the bridge of 5 tonnes. In 2009, the existing timber deck was replaced with a nail laminated timber deck with timber runners and curbs, and minor structural repairs (primarily to the stringers at the North Abutment) were completed.



*Photograph 1: East elevation, looking northwest.*

### 3. SUMMARY OF SIGNIFICANT FINDINGS

The steel superstructure is in fair condition with widespread surface corrosion. The structural steel is generally in better condition above deck than below deck. The stringers in the end bays of the truss span have widespread surface corrosion with moderate section loss in the web and both flanges (Photograph 2). The section loss has been measured at several locations and was calculated to be up to 30% of the flange area. For the purposes of the inspection and structural evaluation, truss joints are numbered as shown in Figure 1 below.



*Figure 1: Truss Elevation with Joint Numbering*

Severe section loss was observed in both the east and west bottom chords of the north end bay between L0L1 (see Figure 1 for truss joint numbering used in this report). The horizontal legs of the double angle section near the lateral bracing connection plate at L0 have near complete loss of section (Photograph 3). The vertical legs of the angles exhibit moderate pitting (Photograph 4). The corresponding section loss for the two members has been estimated at 60% (east) and 50% (west). The lateral bracing connection plates at these locations are also severely corroded with perforations (Photograph 5).



*Photograph 2: Typical stringer corrosion in end bay of truss span.*



*Photograph 3: Severe pitting of horizontal leg of bottom chord L0L1.*



*Photograph 4: Moderate pitting vertical leg of bottom chord L0L1*



*Photograph 5: Severely corroded bottom lateral connection plate at L0*

The truss diagonals U2L3 and U4L3' exhibit signs of buckling. The angle section U2L3 has twisted noticeably near L3, suggesting lateral torsional buckling has taken place (Photograph 6). At U4L3' the angles of the double angle section have bent and are nearly touching at mid-height, indicating global buckling (Photograph 7).



*Photograph 6: Twisting of U2L3 (east truss) near L3.*



*Photograph 7: Buckling of U4L3' (east truss) near mid-height.*

The bearings of the truss span are in poor condition and are unlikely to be functioning properly due to the advanced state of corrosion (Photograph 8). The timber blocking under the truss span stringer bearings is displaced at several locations causing excessive bending of the stringers due to lack of support (Photograph 9).



*Photograph 8: Condition of truss bearing. Southeast bearing shown.*



*Photograph 9: Displace timber blocking at stringer bearing. Note stringer web repair from 2009 rehabilitation.*

Previous inspection reports have noted significant deterioration in the west wall of the causeway, which has compromised the railing system over two sections of the railing. It is our understanding, through discussions with the County, that there are concerns with the integrity of sections of the east retaining wall. However, due to snow accumulations, this could not be confirmed as part of this inspection.



## 4. STRUCTURAL EVALUATION

The March 2007 structural evaluation of the truss and girder spans of the Andrewsville Bridge was updated as part of this assignment. The original evaluation was undertaken in accordance with Section 14 of the Canadian Highway Bridge Design Code S6-00 (CHBDC). The evaluation considered the dead load and live loads at the Ultimate Limit States (ULS) only. Details on the methodology of the original evaluation can be found in the March 2007 Structural Evaluation Report by MRC.

The update considered the dead loads of the new deck; any changes to pertinent clauses in the CHBDC and the measured section loss (refer to Section 3 of this report). The new timber deck has not been evaluated. Table 1 provides a comparison between the Live Load Capacity Factors (F) of the March 2007 evaluation and those obtained by the update. The values shown in Table 1 are for Evaluation Level 3 (single unit vehicles, i.e. small trucks). The results of the evaluation are summarized as follows:

- Overall, the continued deterioration has reduced the capacity of the bridge, most significantly in the bottom chord of the truss near the North Abutment;
- The capacity of several components increased due to a reduction in dead load (asphalt wearing surface was removed from the deck in 2009) and the improved load distribution characteristics of the new nail-laminated deck;
- Bridge posting is still governed by the truss span stringers and should remain at 5 tonnes (single posting).

Table 1: Live Load Capacity Factors and Posting

| Span        | Element      | Response    | 2007 Evaluation |             | 2012 Update |             |
|-------------|--------------|-------------|-----------------|-------------|-------------|-------------|
|             |              |             | F               | Posting (t) | F           | Posting (t) |
| Truss Span  | Stringers    | Flexure     | 0.23            | 5           | 0.24        | 5           |
|             |              | Shear       | 0.53            | 12          | 0.72        | 17          |
|             | Floorbeams   | Flexure     | 0.34            | 7           | 0.39        | 9           |
|             |              | Shear       | 0.85            | 21          | 0.90        | 22          |
|             | Bottom Chord | Tension     | 0.87            | 21          | 0.45        | 10          |
|             | Top Chord    | Compression | 0.60            | 14          | 0.73        | 18          |
|             | End Post     | Compression | 1.14            |             | 1.27        |             |
|             | Hanger       | Tension     | 1.75            |             | 1.79        |             |
|             | Vertical     | Compression | 0.45            | 10          | 0.53        | 12          |
| Diagonal    | Tension      | 0.55        | 13              | 0.51        | 12          |             |
| Girder Span | Stringers    | Flexure     | 0.36            | 8           | 0.28        | 6           |
|             |              | Shear       | 0.47            | 11          | 0.45        | 10          |
|             | Floorbeams   | Flexure     | 0.42            | 9           | 0.38        | 8           |
|             |              | Shear       | 1.30            |             | 1.12        |             |
|             | Girders      | Flexure     | 0.30            | 6           | 0.35        | 8           |
|             |              | Shear       | 3.73            |             | 4.07        |             |

## 5. DISCUSSION AND RECOMMENDATIONS

The structural evaluation update determined that the existing load posting of 5 tonnes should remain in place. While the structure is generally in fair condition, its design is functionally obsolete as it does not have sufficient capacity to support current highway loads. The governing elements are the truss and girder span stringers with Live Load Capacity Factors of less than 0.3 and the CHBDC recommends that consideration to closure of the bridge shall be given. The risk to the County associated with keeping the structure open to traffic lies in the difficulty of enforcing a 5 tonne weight limit.

Section loss due to corrosion has affected the stringers, particularly in the end bays of the truss span, and the bottom chords at the north end. The new nail laminated deck installed in 2009 has reduced the dead load and improved load distribution compensating the reduction in resistance due to section loss. However, additional section loss due to ongoing corrosion will result in further deterioration of the load capacity of the bridge. Cleaning and recoating of the stringers in the end bays of the truss span should be considered if the structure is to remain open.

Of particular concern are the bottom chords (L0L1) at the north end, where severe section loss was observed. While the bottom chords rate for 10 tonnes and are not the governing structural elements, their failure in tension would be catastrophic and cause the collapse of the entire structure. In addition to live and dead loads, the bottom chords are likely subjected to temperature loads, which were not considered in the evaluation, and are likely amplified by the poor condition of the truss bearings. In their current condition, the bearings may not allow the required expansion and contraction. Furthermore, overstress caused by the passage of over limit vehicles cannot be effectively prevented. As such, it is strongly recommended that the bottom chords be reinforced. It is further recommended that the severely corroded bottom lateral connection plates at L0 be replaced at the same time.

The observed twist in the diagonal U2L3 of the east truss is indicative of overstress in compression (lateral torsional buckling). While primarily a tension member, load reversal will occur under live load. The deformation will significantly lower the compressive resistance of this member. However, the 5 tonne live load as posted is not sufficient to cause the load reversal, so no further action is required provided the vehicles do not exceed the posted load. Buckling has also been observed in diagonal member U4L3' of the east truss. Since this member is redundant, overstress in compression will be redistributed and is not a concern at this time.

It is recommended that the timber blocking under the stringer supports at the piers and the abutments of both the truss and girder spans be replaced as required. It is further recommended that the above-noted work (bottom chord strengthening, connection plate replacement, stringer blocking) be completed in the summer of 2012.

As part of this assignment, repair and replacement alternatives and the associated costs were generated. The alternatives, including cost estimates are summarized in Table 2 on the next page. If it is the County's intention to maintain the crossing in the long-term, it is recommended that the structure and causeway be replaced in kind. Otherwise, it is recommended that consideration be given to closing the bridge and causeway to vehicular traffic.

Table 2: Structure Replacement Alternatives

| Alt. | Description   | Estimated Cost (\$2102)                     | Discussion   |
|------|---|---|--|
| 1    | Do nothing.   | 0   | Structure exhibits severe localized deterioration. CHBDC recommends bridge closure. County exposed to significant risk. Not recommended.   |
| 2    | Maintain bridge in current condition through routine maintenance contracts.         | \$50,000 (2012)<br>\$50,000 every two years | Cost for 2012 based on estimate required to maintain structure in operating condition. Significant structural defects not addressed. Risk to County reduced, but not eliminated. Due to continuing deterioration of bridge, assume \$50k every two years for repairs works to maintain bridge in current condition. Not recommended. |
| 3    | Replace single lane bridge on existing substructure, reconstruct approach causeway. | \$1,750,000                                 | Risk to County eliminated. Structure upgraded while maintaining aesthetics of bridge and causeway stone walls. Recommended if decision is made to maintain the crossing in the long-term.  |
| 4    | Replace bridge and causeway with a single lane structure.                           | \$3,100,000                                 | Risk to County eliminated. Not recommended due to cost.  |
| 5    | Replace bridge with double lane structure, reconstruct causeway.                    | \$2,650,000                                 | Risk to County eliminated. Not recommended due to cost.  |
| 6    | Replace bridge and causeway with a double lane bridge.                              | \$4,450,000                                 | Risk to County eliminated. Not recommended due to cost.  |
| 7    | Close bridge to vehicular traffic, maintain bridge as pedestrian structure.         | \$50,000                                    | Risk to County eliminated; however, river crossing for vehicular traffic removed. Estimated cost includes bridge closure, public consultation, agency notification, etc. Recommended if monies not available for structure replacement.  |

Report Prepared By:

Sascha Schreiber, P.Eng.  
(Structural Evaluation)

Joel Sam, EIT

Report Reviewed By:

Bill Bohne, P.Eng.

McCormick Rankin  
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www.mrc.ca

May 9, 2012

The Corporation of the County of Lanark  
Public Works Department  
99 Christie Lake Road  
Perth, ON K7H 3E2

Attention: Mr. Steve Allan, P.Eng.  
Director of Public Works and Engineering

Dear Sir:

McCormick Rankin, a member of MMM Group Limited (MRC) was retained by the County of Lanark (County) to undertake an emergency visual inspection of the Andrewsville Bridge over the Rideau River following an incident on May 4, 2012. It is our understanding that a truck weighing in excess of 5 tonnes crossed the Andrewsville Bridge and the adjacent swing bridge over the Rideau Canal. The swing bridge was damaged, and Parks Canada closed both bridges to all traffic.

The inspection of the Andrewsville Bridge was undertaken by Sascha Schreiber, P. Eng. and Andrew Krisciunas, E.I.T. of MRC on May 9, 2012. The purpose of the inspection was to visually assess the condition of the accessible structural members and their connections of the bridge for signs of damage caused by the overload. Structural members that were not readily accessible by ladder from the deck and the pier or abutment footings, such as the interior bays of the floor system of both the truss and girder spans, were not inspected.

MRC had recently completed a detailed visual inspection of the same bridge in March 7, 2012 and presented the inspection results to the County of Lanark in the March 2012 Structural Inspection and Evaluation Report. The results of this inspection were used as a benchmark to assess whether any new damage was evident.

MRC noted that the buckling of the diagonal U4L3' of the east truss has progressed since the March 2012 inspection. The double angles are now overlapping as opposed to nearly touching in the previous inspection (Photograph 1). Additionally, a moderate deformation (twist) of the interior angle of the west truss diagonal U3L4 was observed near L4 (Photograph 2), which was not observed in the March 2012 inspection. While these members are primarily tension members, load reversal into compression will occur under certain live loading conditions. The deformation will significantly lower the compressive resistance of these members. However, MRC determined in the March 2012 Structural Inspection and Evaluation Report that the 5 load limit (as posted) is not large enough to cause the load reversal; accordingly, no further action is required provided the vehicles do not exceed the posted load limit.



March 2012



May 2012

Photograph 1: Diagonal U4L3', east truss. The horizontal legs of the double angles were nearly touching in March 2012 (left) but were overlapping in May 2012 (right).



Photograph 2: Deformation in interior angle of U3L4, west truss.

The stringers in the end bays of the truss span, which govern the load posting of the bridge, and those of the slab-on-girder, did not exhibit signs of yielding or distress. All other members which could be inspected showed no signs of damage. Consequently, the bridge can be safely reopened to vehicular traffic with the current load restrictions (single load posting of 5 tonnes). Notwithstanding the preceding, MRC strongly recommends that the recommendations presented in the March 2012 Structural Inspection and Evaluation Report be considered. Further, MRC recommends that the 10 tonne load posting for the adjacent bridge over the Rideau Canal be reduced to 5 tonnes to be consistent with the load posting of the Andrewsville Bridge. The width and configuration of the roadway between the two bridges is such that a larger vehicle approaching from the south and weighing less than 10 tonnes, but more than 5 tonnes, would not be able to turn around and therefore have no option other than crossing over the Andrewsville Bridge.

If you have any questions or concerns, or should you require additional information or clarification, please do not hesitate to contact the undersigned.

Yours very truly,

McCormick Rankin, a member of MMM Group Limited

Sascha Schreiber, P. Eng.  
Senior Project Engineer  
Transportation >Structures



**MINUTES  
SEVENTH MEETING OF 2012  
PUBLIC WORKS COMMITTEE OF THE WHOLE**

The Public Works Committee of the Whole met in regular session on Wednesday, June 6<sup>th</sup>, 2012 immediately following the Community Development Committee meeting at the Lanark County Municipal Office, 99 Christie Lake Road, Perth, Ontario.

**Members Present:** Chair S. Freeman, Warden J. Gemmell, Councillors P. McLaren, B. Stewart, J. Levi, V. Wilkinson, B. Dobson, P. Dolan, J. Fenik, K. Kerr, R. Kidd, W. LeBlanc, E. Sonnenburg, A. Churchill and G. Code

**Staff/Others Present:** P. Wagland, CAO  
C. Ritchie, Director of Clerk's Services/Clerk  
S. Allan, Director of Public Works  
K. Greaves, Director of Finance/Treasurer (left meeting 10:12 p.m.)  
E. Patterson, Council & Clerk Services Assistant  
K. Stewart, I.T. Support

**Regrets:** Councillor S. Mousseau

**PUBLIC WORKS**

**Chair:** Councillor Susan Freeman

**1. CALL TO ORDER**

The meeting was called to order at 7:50 p.m.  
A quorum was present.

**2. DISCLOSURE OF PECUNIARY INTEREST**

None at this time.

**3. APPROVAL OF MINUTES**

**MOTION #PW-2012-047**

**MOVED BY:** John Gemmell  
**SECONDED BY:** Peter McLaren

“**THAT**, the minutes of the Public Works Committee meeting held on May 2<sup>nd</sup>, be approved as circulated.”

**ADOPTED**



#### 4. ADDITIONS AND APPROVAL OF AGENDA

##### MOTION #PW-2012-048

**MOVED BY:** Ed Sonnenburg  
**SECONDED BY:** Aubrey Churchill

“**THAT**, the agenda be approved as presented.”

**ADOPTED**

#### 5. DELEGATIONS & PRESENTATIONS

- i) Request to Waive Entrance Application Fee  
**Randy Cota**

Mr. Cota addressed council on a request to waive an entrance application fee based on principle.

S. Allan informed the committee that the current policy does not have a provision for an exemption for a status Indian.

##### MOTION #PW-2012-049

**MOVED BY:** Keith Kerr  
**SECONDED BY:** Pat Dolan

“**THAT**, the delegation request to waive an entrance application fee be deferred, to obtain further information, to the August 1<sup>st</sup>, 2012 Public Works Committee of the Whole.”

**ADOPTED**

#### 6. COMMUNICATIONS

- i) Lanark County Public Information Centre for the Rehabilitation of the Mississippi River Bridge: Thursday, June 21<sup>st</sup>, 2012
- ii) Lanark County Public Notice: Roadway Line Painting Underway

##### MOTION #PW-2012-050

**MOVED BY:** Wendy LeBlanc  
**SECONDED BY:** Ed Sonnenburg

“**THAT**, the communications for the June Public Works Committee meeting be received as information.”

**ADOPTED**

## 7. CONSENT REPORTS

- i) Report #PW-33-2012 Public Works Contract Status Report #6
- ii) Report #PW-36-2012 County Truck Rodeo Results
- iii) Report #PW-37-2012 2012 Public Works Goals Update

### **MOTION #PW-2012-051**

**MOVED BY:** Brian Stewart  
**SECONDED BY:** John Levi

“**THAT**, the following Consent Reports for the June Public Works Committee meeting be received as information:

Report #PW-33-2012 Public Works Contract Status Report #6

Report #PW-36-2012 County Truck Rodeo Results

Report #PW-37-2012 2012 Public Works Goals Update.”

**ADOPTED**

## 8. DISCUSSION REPORTS

- i) Report #PW-40-2012 Proposed Closure of Andrewsville Bridge  
**Director of Public Works, Steve Allan**

The purpose of this Joint Report is to recommend that the Councils of Lanark County and the United Counties of Leeds and Grenville authorize Staff to begin the necessary process to permanently close the Andrewsville Bridge to vehicular traffic.

S. Allan gave a PowerPoint Presentation – *attached page 13*

Discussion was held on the following items:

- utilizing Algonquin College masonry students to repair the bridge
- neighbouring municipalities partnering in funding
- exploring all financial obligations prior to permanent closure
- emergency dispatch having no concerns with the closure

### **MOTION #PW-2012-052**

**MOVED BY:** John Fenik  
**SECONDED BY:** Bill Dobson

“**THAT**, the County of Lanark fund 50% of \$50,000 to execute the necessary repairs to attempt to extend the Andrewsville Bridge service life with the anticipation of exploring a full replacement with potential future funding opportunity from the government;

**AND THAT** the necessary repairs to the Andrewsville Bridge be undertaken subject to an agreement with the United Counties of Leeds and Grenville.

**ADOPTED**

- ii) Report #PW-39-2012 Proposal for the Assumption of a New County Road:  
McNeely Avenue Extension  
**Director of Public Works, Steve Allan**

The purpose of this Report is to recommend a joint, Cost-shared Project, with the Town of Carleton Place, for the construction of a new arterial road, between Highway 7 and Highway 15, known as the McNeely Avenue Extension.

S. Allan highlighted the main points of interest.

- iii) Report #PW-38-2012 Proposal for the Assumption of a New County Road:  
Perth Arterial Road  
**Director of Public Works, Steve Allan**

The purpose of this Report is to recommend a joint, cost-shared project, with the Town of Perth, for the construction of a new arterial road, between Highway 7 and County Road 43.

S. Allan highlighted the main points of interest.

- iv) Report #FIN-17-2012 Financial Analysis of McNeely Ave & Perth Arterial Road  
**Director of Finance/Treasurer, Kurt Greaves**

To provide council with a detailed financial analysis of the extension of McNeely Avenue and the Perth Arterial Road projects.

K. Greaves gave a PowerPoint Presentation – *attached page 15*

**MOTION #PW-2012-053**

**MOVED BY:** Richard Kidd

**SECONDED BY:** Keith Kerr

**"WHEREAS**, in December, 2009, in accordance with the Municipal Engineers Association Class Environmental Assessment Process, the Town of Carleton Place completed and received the Ministry of Environment's approval for an Environmental Study Report, for the southerly extension of McNeely Avenue, with a four-lane arterial road, between Highway 7 and Highway 15, in the Town of Carleton Place;

**AND WHEREAS**, the McNeely Avenue Extension shall be constructed in two phases: Phase 1: A two-lane arterial road, from Highway 7 to Highway 15, and Phase 2: Widening the platform, to four-lanes, from Highway 7 to Highway 15;

**AND WHEREAS**, on May 2nd, 2012, Town of Carleton Place Staff presented a Proposal to the Public Works Committee for a joint project with the County to construct the McNeely Avenue Extension (Phase 1) between 2013 and 2015;

**AND WHEREAS**, in accordance with the Policy for the "Assumption of Local Roads by the County of Lanark", County Council resolves that the McNeely Avenue Extension meets the criteria to be designated as a County Road and to be accepted into the County Road System, when it has been constructed;

**AND WHEREAS**, the County of Lanark and the Town of Carleton Place have agreed to a cost-sharing framework, for the design and the construction of the McNeely Avenue Extension.

**NOW BE IT RESOLVED:**

**THAT**, upon the issuing of the Certificate of Substantial Completion for Phase 1 construction, the County of Lanark shall enact the necessary By-Law to accept the newly constructed McNeely Avenue Extension into the County Road System;

**THAT**, the County of Lanark shall be responsible for the widening of the McNeely Avenue Extension to four-lanes, in the future, when warranted by the traffic volumes.

**THAT**, the County shall fund its portion of the McNeely Avenue Extension Project Costs as stipulated in the Treasurer's Report #FIN-17-2012;

**AND THAT** County Council authorizes the Warden and Treasurer to execute an Agreement with the Town of Carleton Place, which stipulates the arrangements, as described in Report #PW-39-2012, for the McNeely Avenue Extension Project."

**ADOPTED**

**MOTION #PW-2012-054**

**MOVED BY:** Ed Sonnenburg

**SECONDED BY:** Aubrey Churchill

**"WHEREAS**, in June, 2008, in accordance with the Municipal Engineers Association Class Environmental Assessment Process, the Town of Perth completed and received the Ministry of Environment approval for an Environmental Study Report for the construction of a two-lane arterial road between the intersection of Highway 7 and County Road 43 in the Town of Perth;

**AND WHEREAS**, on May 2nd, 2012, Town of Perth Staff presented a proposal to the Public Works Committee for a joint project, with the County, to construct the proposed Arterial Road between 2025 and 2030, contingent upon the further expansion of the Perthmore Subdivision;

**AND WHEREAS**, the Perth Arterial Road shall be constructed in two phases: Phase 1, from Highway 7 to County Road 10, and Phase 2, from County Road 10 to County Road 43;

**AND WHEREAS**, in accordance with the Policy for the "Assumption of Local Roads by the County of Lanark", County Council resolves that the Perth Arterial Road meets the criteria to be designated as a County Road and to be accepted into the County Road System, when it has been constructed;

**AND WHEREAS**, the County of Lanark and the Town of Perth have agreed to a cost-sharing framework for the design and the construction of the Perth Arterial Road.

**NOW BE IT RESOLVED:**

**THAT**, effective January 1st, 2013, the County of Lanark and the Town of Perth shall enact the necessary By-Laws to transfer the ownership of County Road 1 (Gore Street), County Road 6 (Sunset Boulevard), and County Road 10 (North Street), within the current limits of the Town of Perth, from the County to the Town of Perth;

**THAT**, upon the issuing of the Certificate of Substantial Completion for Phase 1 Construction, the County of Lanark shall enact the necessary By-Law to accept the newly constructed Perth Arterial Road into the County Road System;

**THAT**, the County and the Town of Perth shall collaborate for the future construction and acceptance into the County Road System of an extension of the Arterial Road, from County Road 10 to County Road 43 (Phase 2);

**THAT**, the Town of Perth shall be prepared to act, as the County's Agent, to facilitate the potential disposal of the Perth Garage Property, including the remediation, marketing and redevelopment of the site, at no cost to the County;

**THAT**, the County shall fund its portion of the Perth Arterial Road Project Costs, as stipulated in the Treasurer's Report #FIN-17-2012;

**AND THAT** County Council authorizes the Warden and Treasurer to execute an Agreement with the Town of Perth, which stipulates the arrangements, as described in Report #PW-38-2012, for the Perth Arterial Road Project."

**ADOPTED**

**MOTION #PW-2012-0**

**MOVED BY:** Wendy LeBlanc

**SECONDED BY:** John Gemmell

**"That**, County Council enter into an agreement to cost share the McNeely Avenue extension with the Town of Carleton Place;

**And that,** Lanark County Council commit to funding 50% of the cost of the necessary planning and 50% of the cost of building the required intersections;

**And that,** the total cost of the County 50% share be limited to \$1,400,000 (estimate of \$1,277,000 plus 10%);

**And that,** County Council authorize the County share of the McNeely Avenue extension related to growth be funded by Development Charges;

**And that,** County Council enter into an agreement with the Town of Perth to cost share the Perth Arterial Road;

**And that,** County council commit to funding up to \$680,000 (estimate of \$620,000 plus 10%) for the preliminary work on the project;

**And that,** once Perth has a developer agreement that includes contributions to the Arterial Road that County Council enter into negotiations on a formal cost sharing agreement with the Town of Perth for the balance of the road construction cost;

**And that,** County Council authorize the County share of the Perth Arterial Road related to growth be funded by Development Charges."

**ADOPTED**

**MOTION #PW-2012-055**

**MOVED BY:** Richard Kidd

**SECONDED BY:** Bill Dobson

**“THAT,** the Development Charges by-law be amended to include the Perth Arterial Road Project and the McNeely Ave. Project.”

**ADOPTED**

- v) Report #PW-27-2012 Proposed Property Conveyance: Part Lot 22, Concession 2 County Road 9  
**Director of Public Works, Steve Allan**

The purpose of this Report is to finalize an exchange of property between the County of Lanark and Gemmill's General Store Inc. (known as The Clayton General Store Inc.) which requires that a portion of the former County Road 9, Lot 22, Concession 2, Geographic Township of Ramsay, within the Municipality of the Town of Mississippi Mills, more particularly described as Part 4, Registered Plan 27R10040, be declared surplus, stopped-up, closed and conveyed to the abutting property owners.

**MOTION #PW-2012-056**

**MOVED BY:** Keith Kerr

**SECONDED BY:** Ed Sonnenburg

**“THAT**, Lanark County Council declare the portion of the former County Road 9, in Lot 22, Concession 2, Geographic Township of Ramsay, Municipality of Town of Mississippi Mills, more particularly described as Part 4, Registered Plan 27R10040, as surplus to County needs and that Staff be authorized to commence the process to stop-up, close and sell the subject lands;

**THAT** the value of consideration for the surplus lands is set at one dollar (\$1.00);

**THAT** a Public Hearing, regarding the subject road closing, is held at the Lanark County Council Chambers on August 1, 2012, immediately prior to the Public Works Committee Meeting;

**THAT** the Director of Public Works provides a Report and recommendations to the Public Works Committee, as soon as practicable, after the Public Hearing;

**THAT** the Warden and Clerk, on behalf of the Corporation of the County of Lanark, be authorized to enter into an Agreement of Purchase and Sale (attached) with Gemmill’s General Store Inc. (also known as The Clayton General Store) for:

- a. The purchase of property, abutting County Road 9, being Part of Lot 22, Concession 2, more particularly described as Part 2 on Plan 27R-10040, in the Geographic Township of Ramsay, Municipality of Town of Mississippi Mills, for the purpose of road construction
- b. The sale of property, abutting County Road 9, being Part of Lot 22, Concession 2, more particularly described as Part 4 on Plan 27R-10040, in the Geographic Township of Ramsay, Municipality of Town of Mississippi Mills, for the purpose of road construction

**AND THAT** the Clerk sends Report #PW-27-2012 to the Town of Mississippi Mills Clerk, for information.”

**ADOPTED**

- vi) Report #PW-34-2012 Proposed County Road 9 Jurisdiction Change: Part Lot 22, Concession 2

**Director of Public Works, Steve Allan**

The purpose of this Report is to finalize a transfer of property between the County of Lanark and the Town of Mississippi which requires that a portion of the former County Road 9, Lot 22, Concession 2, Geographic Township of Ramsay, within the Municipality of the Town of Mississippi Mills, more particularly described as Parts 3 and 5, Registered Plan 27R10040, be removed from the County Road System.

**MOTION #PW-2012-057**

**MOVED BY:** Val Wilkinson  
**SECONDED BY:** Bill Dobson

**“THAT**, Lanark County Council declare the portion of the former County Road 9, in Lot 22, Concession 2, Geographic Township of Ramsay, Municipality of Town of Mississippi Mills, more particularly described as Parts 3 and 5, Registered Plan 27R10040, as surplus to County needs and that a By-law be prepared to remove these lands from the County Road System;

**AND THAT** the Clerk sends Report #PW-34-2012 to the Town of Mississippi Mills Clerk, for information.”

**ADOPTED**

K. Greaves left the meeting at 10:12 p.m.

- vii) Report #PW-35-2012 2011 Weed Inspector’s Report and Appointment of the County Weed Inspector for 2012  
**Director of Public Works, Steve Allan**

The purpose of this Report is to inform the Committee of the activities of the County Weed Inspector.

**MOTION #PW-2012-058**

**MOVED BY:** Aubrey Churchill  
**SECONDED BY:** Gail Code

**“THAT**, County Council accepts the 2011 Annual Weed Report for information;

**THAT** County Council authorize the payment of an honorarium of \$500 to Mr. Tom Guindon for his services as County Weed Inspector in 2011;

**AND THAT** the Clerk prepares the necessary By-Law to appoint Mr. Tom Guindon as the County Weed Inspector for 2012.”

**ADOPTED**

- viii) Report #PW-41-2012 Property Conveyance Part of Lot 24 Concession 10 Geographic Township of Ramsay: County Road 17  
**Director of Public Works, Steve Allan**

The purpose of this Report is to recommend the purchase of property, from landowners on County Road 17 (Blakeney Road), to enable road improvements at the intersection of Ridge Road and Blakeney Road in the Village of Blakeney.



**MOTION #PW-2012-059**

**MOVED BY:** John Gemmell  
**SECONDED BY:** John Levi

**“THAT**, the Warden and Clerk, on behalf of the Corporation of the County of Lanark, be authorized to enter into an Agreement of Purchase and Sale (attached) with Ralph William Henry for the purchase of property, abutting County Road 17, being Part of Lot 24, Concession 10, in the Geographic Township of Ramsay, Municipality of the Town of Mississippi Mills, and more particularly described as Part 1 on Registered Plan 27R-10023 dated December 22<sup>nd</sup>, 2011, for the purpose of road construction;

**AND THAT** the Clerk sends Report #PW-41-2012 to the Town of Mississippi Mills Clerk, for information.”

**ADOPTED**

**9. VERBAL REPORTS**

- i) Report #PW-42-2012 Perth Golf Course Property Conveyance  
**Director of Public Works, Steve Allan**

A PowerPoint slide was projected – *attached page 21*

**MOTION #PW-2012-060**

**MOVED BY:** Ed Sonnenburg  
**SECONDED BY:** Pat Dolan

**“THAT**, the Clerk rescinds By-Law 2012-01 and presents a corrected by-law at the June Meeting of County Council.”

**ADOPTED**

**10. DEFERRED REPORTS**

None

**11. CONFIDENTIAL REPORTS**

None

## 12. NEW/OTHER BUSINESS

- i) Meeting Schedule – *attached page*  
**Director of Clerk's Services/Clerk, Cathie Ritchie**

The following change to the meeting schedule was noted:

- June 25<sup>th</sup> Lanark County Tourism Association in Lanark Highlands Council Chambers

## 13. ADJOURNMENT

The Committee adjourned at 10:15 p.m. on motion by Councillors B. Dobson and P. Dolan



**Cathie Ritchie,  
Clerk**

# **DISCUSSION REPORTS**

## ANDREWSVILLE BRIDGE



## ANDREWSVILLE BRIDGE History

- Five PW reports since 2007
  - Condition of structure
  - Short-term repairs
  - Long-term plan for structure ?
- 2009 Councils decide to repair to extend life 5 years
- March 2012 Structural Evaluation
- May 2012 Emergency Closure

## ANDREWSVILLE BRIDGE Consultant's Recommendations

- Service life over
- Does not meet CHBDC
  - Stringer capacity insufficient
  - 5 Tonnes load posting > 2 years
- **May 4<sup>th</sup> Incident: Emergency Inspection**
  - Truss deformation
  - Risk non-compliance with load posting

## ANDREWSVILLE BRIDGE Options

- Option 1. Reopen
- Option 2. Continue closure until repaired/replaced
- **Option 3. Continue closure and begin process for permanent closure to vehicles**

**THE COUNTY OF LANARK  
AND  
THE UNITED COUNTIES  
OF LEEDS AND GRENVILLE**

***PUBLIC WORKS COMMITTEE***

June 6<sup>th</sup>, 2012

Lanark County Report #PW-40-2012  
United Counties of Leeds and Grenville Report #PW-36-2012

**PROPOSED CLOSURE OF ANDREWSVILLE BRIDGE**

**1. STAFF RECOMMENDATIONS**

**WHEREAS**, on March 7<sup>th</sup>, 2012, our Consulting Engineers completed a Structural Evaluation of the Andrewsville Bridge, recommending that the existing five (5) tonnes load posting was warranted. In order to mitigate the risk of continuing to use the structure beyond its service life, consideration is being given to its closure, rehabilitation or replacement;

**AND WHEREAS**, at the request of Parks Canada, the Andrewsville Bridge was closed to vehicular traffic on May 4<sup>th</sup>, 2012, when an loaded transport truck illegally used the crossing, damaging the adjacent Parks Canada swing bridge at Nicholson's Lock, and necessitating the closure of both bridges, to effect repairs;

**AND WHEREAS** an Engineer's Emergency Inspection of the Andrewsville Bridge on May 9<sup>th</sup>, 2012, identified evidence of distress in some of the truss members, which was not there in March, 2012, rendering the structure unsafe for vehicular traffic;

**AND WHEREAS**, at a joint meeting on May 22<sup>nd</sup>, 2012, with representatives from the Councils of Lanark County and the United Counties of Leeds and Grenville, our Consulting Engineers recommended the permanent closure of the Andrewsville Bridge to vehicular traffic;

**AND WHEREAS**, the Counties agree that it is not fiscally responsible to rehabilitate or replace the Andrewsville Bridge, since less than 200 vehicles per day use the structure, alternative crossings are available only four (4) km away, at Burritts Rapids and Merrickville, and the estimated costs would be at least \$1,750,000.

**NOW THEREFORE BE IT RESOLVED,**

**THAT**, in the interests of public safety and fiscal prudence, the Councils of Lanark County and the United Counties of Leeds and Grenville, accept the advice of our Consulting Engineers to close the Andrewsville Bridge to vehicular traffic;

**AND THAT**, Staff is directed to take the necessary steps, in accordance with the Municipal Engineers Association Class Environmental Assessment Process, to permanently close the Andrewsville Bridge, with a view to scheduling a Public Meeting in August, 2012;

**AND THAT**, the Clerk sends Report this Report to our Provincial and Federal Members of Parliament, Parks Canada, Montague Township and the Town of Merrickville-Wolford for information.

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**Recommended By:**

**Steve Allan, P. Eng.  
Director of Public Works**

**Recommended By:**

**Les Shepherd, P. Eng.  
Public Works, Planning Services  
and Asset Management**

**Approved for Submission By:**

**Peter Wagland  
Chief Administrative Officer**

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## **2. PURPOSE**

The purpose of this Joint Report is to recommend that the Councils of Lanark County and the United Counties of Leeds and Grenville authorize Staff to begin the necessary process to permanently close the Andrewsville Bridge to vehicular traffic.

## **3. BACKGROUND**

The Andrewsville Bridge is one of three crossings of the Rideau River on the eight (8) km shoreline between Merrickville and Burritts Rapids. It is jointly owned by the County of Lanark and the United Counties of Leeds and Grenville. The Bridge crosses the Rideau River, in the Hamlet of Andrewsville, providing access to the Parks Canada swing bridge, which crosses the Rideau Canal at the Nicholson's Locks.

The future of the 100 year old Andrewsville Bridge has been debated since 2005, when our Consulting Engineers identified a number of significant structural deficiencies and noted that the Bridge had reached the end of its service life. In October, 2007 (Report #PW-78-2007), Lanark County Council and the Council of the United Counties of Leeds and Grenville agreed to defer a decision on the rehabilitation/replacement of the structure and to complete the necessary repairs to the Andrewsville Bridge to attempt to extend its service life for five years. To that end, about \$150,000 of repairs were completed between 2007 and 2009 to keep the Bridge open to vehicular traffic, with a load posting of five (5) tonnes.

At their January 25<sup>th</sup>, 2012, Meeting (Report #PW-06-2012), Lanark County Council authorized the Director of Public Works to retain McCormick Rankin Corporation to complete an Inspection and Structural Evaluation of the Andrewsville Bridge at a cost of \$5,000. The purpose of the Inspection was to update previous evaluations, to determine the remaining service life of the structure, and to provide options for the future. The United Counties of Leeds and Grenville also agreed to proceed with the assessment.

The March, 2012, Inspection and Structural Evaluation Report is attached at Appendix "A". The Report recommended \$50,000 of repairs during the summer of 2012 and noted "that there is significant risk to the County continuing to operate the Andrewsville Bridge".

On May 4<sup>th</sup>, 2012, at the request of Parks Canada, the Andrewsville Bridge was closed to vehicular traffic when a loaded transport truck illegally used the crossing, damaging the adjacent Parks Canada swing bridge at Nicholson's Lock, and necessitating the closure of both bridges, to effect repairs. Although there was no visible damage to the Andrewsville Bridge, the Director immediately asked our Consulting Engineers to inspect the bridge. The Engineer's Emergency Inspection of the Andrewsville Bridge on May 9<sup>th</sup>, 2012, identified evidence of distress in some of the truss members, which was not there in March, 2012, rendering the structure unsafe for vehicular traffic. The May 9<sup>th</sup>, 2012, Report is attached at Appendix "B" for information.



#### **4. DISCUSSION**

In light of these events, the Wardens, the Chairs of the Public Works Committees, the CAOs and the Engineers for the two Counties met in Merrickville on May 22<sup>nd</sup>, 2012, to review the Consultant's recommendations. In the interests of public safety and fiscal prudence, the Meeting Participants agreed that a Joint Report, recommending the closure of the Andrewsville Bridge, to vehicular traffic, should be presented to both Councils as soon as possible. The Participants also agreed that notwithstanding the anticipated reopening of the Parks Canada swing bridge, at Nicholson's Lock, that the Andrewsville Bridge should remain closed to vehicular traffic, pending the completion of the required Environmental Assessment Process and Public Consultation. The Participants further agreed that a Public Meeting should be held, in August, at the Montague Township Municipal Office.

#### **5. ANALYSIS AND OPTIONS**

After the repairs have been completed to the Nicholson's Lock swing bridge, three (3) options are open

- i) Option 1. Reopen the Andrewsville Bridge to vehicular traffic.
- ii) Option 2. Continue with the closure of the Andrewsville Bridge to vehicular traffic until it has been repaired or replaced.
- iii) Option 3. Continue with the closure of the Andrewsville Bridge, indefinitely, and begin the process to effect a permanent closure of the structure to vehicular traffic.

Option 1 is not recommended, as it would compromise public safety and it would be contrary to the Consultant's recommendations. Option 2 is not recommended, as the structure has reached the end of its service life and expenditures to repair the bridge are not fiscally responsible, given the low traffic volumes and the proximity to alternative crossings. Also, replacing the bridge, at a cost of at least \$1,750,000, is not fiscally responsible. Therefore, the Directors recommend Option 3, continue with the closure of the Andrewsville Bridge, indefinitely, and begin the process to effect a permanent closure of the structure to vehicular traffic.

#### **6. FINANCIAL IMPACT**

The estimated cost to complete the process to permanently close the structure to vehicular traffic is \$50,000. This cost will be shared, equally, by Lanark County and the United Counties of Leeds and Grenville. In the longer term and if funding permits, additional expenditures, to beautify the Bridge for continued use by pedestrians and cyclists, could be considered by the two County Councils, with input from the local residents.

## **7. LOCAL MUNICIPAL IMPACT**

Public interest, in the Andrewsville Bridge, is very high, particularly in the Andrewsville, Merrickville, and Burritts Rapids areas. On June 1<sup>st</sup>, 2012, after this Report was distributed to Council, the Lanark County Director of Public Works provided the County Website Link to the Report to 40 members of the public. The link was sent to local ratepayers who had asked to be kept up to date on the status of the Andrewsville Bridge.

## **8. CONCLUSIONS**

The Directors recommend that the Andrewsville Bridge remains closed to vehicular traffic and the two Counties begin the process to effect a permanent closure of the structure to vehicular traffic.

## **9. ATTACHMENTS**

Appendix "A" - McCormick Rankin Corporation's Andrewsville Bridge Inspection and Structural Evaluation Report dated March 7<sup>th</sup>, 2012.

Appendix "B" - McCormick Rankin Corporation's Andrewsville Bridge Emergency Inspection Report dated May 9<sup>th</sup>, 2012.

**APPENDIX “A”**

**MCCORMICK RANKIN CORPORATION’S ANDREWSVILLE BRIDGE INSPECTION  
AND STRUCTURAL EVALUATION REPORT DATED MARCH 7<sup>TH</sup>, 2012**

Andrewsville Bridge (Site No. 15-013)

2012 Inspection and Structural Evaluation

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## EXECUTIVE SUMMARY

The Andrewsville Bridge, spanning the Rideau River in the hamlet of Andrewsville, was constructed in the late 1800's. The single lane bridge is comprised of a 38.5 m long steel truss and a 9.2 m long steel girder span. Both spans support a nail laminated timber deck with timber runners and curbs. In addition to the steel structures, the south approach is constructed on a dry stone rubble causeway approximately 70 m long.

In 2007, an inspection and structural evaluation of the Andrewsville Bridge was undertaken. At that time it was recommended that the structure be load posted for a maximum of 5 tonnes. In 2009, the timber deck was replaced in kind and minor structural repairs were completed with the goal of maintaining the bridge in a serviceable condition for the 3 to 5 years until a long-term decision on the bridge was made.

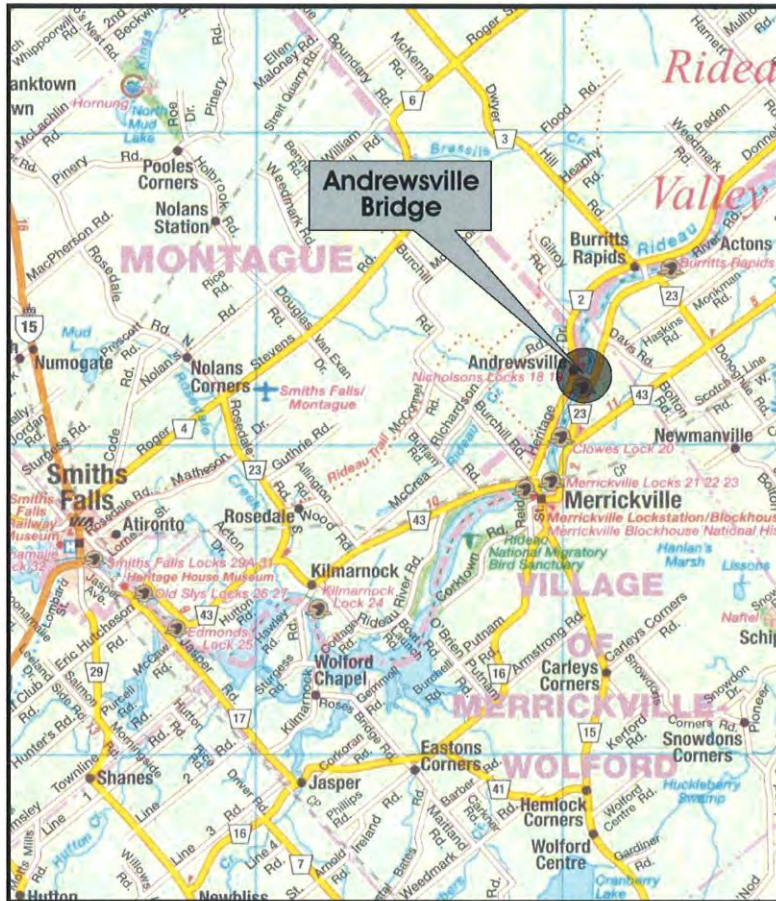
In March of 2012, the bridge was inspected and the structural evaluation was updated to reflect the current condition of the bridge. This report summarizes the results of the inspection and updated evaluation. Corrosion and section loss of components is ongoing; however, it is recommended that the current load posting of 5 tonnes remain in place. In addition, it is recommended that the following repairs be undertaken in the summer of 2012 to maintain the current load posting:

- Restore timber blocking under stringer supports at the abutment and piers of the truss and girder spans, and,
- Local strengthening of the bottom chords LOL1 at the north end of the truss span.

It is estimated that the work will cost \$50,000 including engineering, construction, and supervision.

There is significant risk to the County by continuing to operate the Andrewsville Bridge. The structural capacity is currently governed by the stringers in the truss span. The Live Load Capacity Factor (F) of the stringers is 0.24. In accordance with the Canadian Highway Bridge Design Code (CHBDC), consideration shall be given to closing a structure with  $F < 0.3$ . The CHBDC also recommends maintaining a single load posting for a period of two years or less, which provides sufficient time to close or replace the bridge. The Andrewsville Bridge has had a single load posting for 5 years. As such, it is our recommendation that consideration be given to closing the Andrewsville Bridge to vehicular traffic.

**KEY PLAN**



## 1. INTRODUCTION

McCormick Rankin, a member of MMM Group Limited (MRC) was retained by the County of Lanark (County) to undertake a visual inspection of the Andrewsville Bridge (MTO Site No. 15-013) and to update the March 2007 structural evaluation.

The visual inspection was completed by Sascha Schreiber, P. Eng. and Joel Sam, EIT of MRC on March 7, 2012. The purpose of the inspection was twofold: to assess the overall condition of the superstructure; and to determine the degree of deterioration in components of the steel superstructure to be used in the updated structural evaluation. The visual inspection included a detailed hands-on inspection and section loss measurements of all superstructure elements that could be readily accessed by ladder from the deck or the pier and abutment footings. Interior below-deck floor system components were not inspected.

Upon completion of the visual inspection, the 2007 structural evaluation was updated reflect the inspection findings, the latest revisions to the Canadian Highway Bridge Design Code (CHBDC), and the 2009 rehabilitation.

This report summarizes the inspection findings and the results of the structural evaluation update, and includes cost estimates for several alternatives for structure replacement.

## 2. STRUCTURE DESCRIPTION

The Andrewsville Bridge spans the Rideau River in the hamlet of Andrewsville, located between Merrickville and Burritt's Rapids. Constructed in the late 1800's, it is comprised of two simply supported spans (Photograph 1): a 38.5 m long steel Pratt truss with eight bays at 4.8 m and a 9.2 m long steel girder span comprised of steel stringer and floorbeam system. The substructure consists of two concrete abutments and one concrete pier founded on spread footings on bedrock. In its current configuration, the bridge permits one lane of traffic with oncoming traffic yielding to vehicles on the bridge. Posted speed limit across the structure is 10 km/hr. The south approach is founded on a 70 m long dry stone causeway with rubble infill.

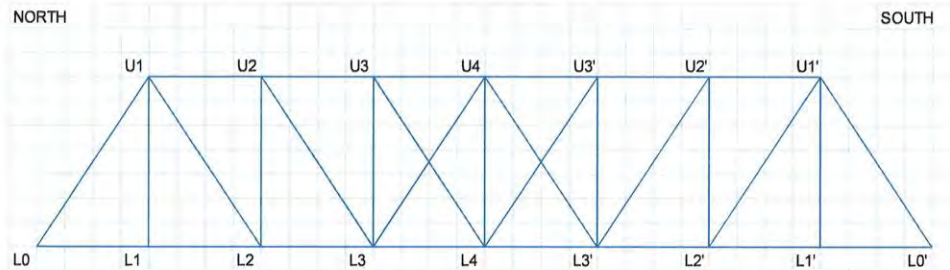
In 2007, the results of a structural evaluation recommended a single load posting on the bridge of 5 tonnes. In 2009, the existing timber deck was replaced with a nail laminated timber deck with timber runners and curbs, and minor structural repairs (primarily to the stringers at the North Abutment) were completed.



*Photograph 1: East elevation, looking northwest.*

### 3. SUMMARY OF SIGNIFICANT FINDINGS

The steel superstructure is in fair condition with widespread surface corrosion. The structural steel is generally in better condition above deck than below deck. The stringers in the end bays of the truss span have widespread surface corrosion with moderate section loss in the web and both flanges (Photograph 2). The section loss has been measured at several locations and was calculated to be up to 30% of the flange area. For the purposes of the inspection and structural evaluation, truss joints are numbered as shown in Figure 1 below.



*Figure 1: Truss Elevation with Joint Numbering*

Severe section loss was observed in both the east and west bottom chords of the north end bay between L0L1 (see Figure 1 for truss joint numbering used in this report). The horizontal legs of the double angle section near the lateral bracing connection plate at L0 have near complete loss of section (Photograph 3). The vertical legs of the angles exhibit moderate pitting (Photograph 4). The corresponding section loss for the two members has been estimated at 60% (east) and 50% (west). The lateral bracing connection plates at these locations are also severely corroded with perforations (Photograph 5).



*Photograph 2: Typical stringer corrosion in end bay of truss span.*



*Photograph 3: Severe pitting of horizontal leg of bottom chord L0L1.*





*Photograph 4: Moderate pitting vertical leg of bottom chord L0L1*



*Photograph 5: Severely corroded bottom lateral connection plate at L0*

The truss diagonals U2L3 and U4L3' exhibit signs of buckling. The angle section U2L3 has twisted noticeably near L3, suggesting lateral torsional buckling has taken place (Photograph 6). At U4L3' the angles of the double angle section have bent and are nearly touching at mid-height, indicating global buckling (Photograph 7).



*Photograph 6: Twisting of U2L3 (east truss) near L3.*



*Photograph 7: Buckling of U4L3' (east truss) near mid-height.*

The bearings of the truss span are in poor condition and are unlikely to be functioning properly due to the advanced state of corrosion (Photograph 8). The timber blocking under the truss span stringer bearings is displaced at several locations causing excessive bending of the stringers due to lack of support (Photograph 9).



*Photograph 8: Condition of truss bearing. Southeast bearing shown.*



*Photograph 9: Displace timber blocking at stringer bearing. Note stringer web repair from 2009 rehabilitation.*

Previous inspection reports have noted significant deterioration in the west wall of the causeway, which has compromised the railing system over two sections of the railing. It is our understanding, through discussions with the County, that there are concerns with the integrity of sections of the east retaining wall. However, due to snow accumulations, this could not be confirmed as part of this inspection.

#### 4. STRUCTURAL EVALUATION

The March 2007 structural evaluation of the truss and girder spans of the Andrewsville Bridge was updated as part of this assignment. The original evaluation was undertaken in accordance with Section 14 of the Canadian Highway Bridge Design Code S6-00 (CHBDC). The evaluation considered the dead load and live loads at the Ultimate Limit States (ULS) only. Details on the methodology of the original evaluation can be found in the March 2007 Structural Evaluation Report by MRC.

The update considered the dead loads of the new deck; any changes to pertinent clauses in the CHBDC and the measured section loss (refer to Section 3 of this report). The new timber deck has not been evaluated. Table 1 provides a comparison between the Live Load Capacity Factors (F) of the March 2007 evaluation and those obtained by the update. The values shown in Table 1 are for Evaluation Level 3 (single unit vehicles, i.e. small trucks). The results of the evaluation are summarized as follows:

- Overall, the continued deterioration has reduced the capacity of the bridge, most significantly in the bottom chord of the truss near the North Abutment;
- The capacity of several components increased due to a reduction in dead load (asphalt wearing surface was removed from the deck in 2009) and the improved load distribution characteristics of the new nail-laminated deck;
- Bridge posting is still governed by the truss span stringers and should remain at 5 tonnes (single posting).

| Span        | Element      | Response    | 2007 Evaluation |             | 2012 Update |             |
|-------------|--------------|-------------|-----------------|-------------|-------------|-------------|
|             |              |             | F               | Posting (t) | F           | Posting (t) |
| Truss Span  | Stringers    | Flexure     | 0.23            | 5           | 0.24        | 5           |
|             |              | Shear       | 0.53            | 12          | 0.72        | 17          |
|             | Floorbeams   | Flexure     | 0.34            | 7           | 0.39        | 9           |
|             |              | Shear       | 0.85            | 21          | 0.90        | 22          |
|             | Bottom Chord | Tension     | 0.87            | 21          | 0.45        | 10          |
|             | Top Chord    | Compression | 0.60            | 14          | 0.73        | 18          |
|             | End Post     | Compression | 1.14            |             | 1.27        |             |
|             | Hanger       | Tension     | 1.75            |             | 1.79        |             |
|             | Vertical     | Compression | 0.45            | 10          | 0.53        | 12          |
| Diagonal    | Tension      | 0.55        | 13              | 0.51        | 12          |             |
| Girder Span | Stringers    | Flexure     | 0.36            | 8           | 0.28        | 6           |
|             |              | Shear       | 0.47            | 11          | 0.45        | 10          |
|             | Floorbeams   | Flexure     | 0.42            | 9           | 0.38        | 8           |
|             |              | Shear       | 1.30            |             | 1.12        |             |
|             | Girders      | Flexure     | 0.30            | 6           | 0.35        | 8           |
|             |              | Shear       | 3.73            |             | 4.07        |             |

## 5. DISCUSSION AND RECOMMENDATIONS

The structural evaluation update determined that the existing load posting of 5 tonnes should remain in place. While the structure is generally in fair condition, its design is functionally obsolete as it does not have sufficient capacity to support current highway loads. The governing elements are the truss and girder span stringers with Live Load Capacity Factors of less than 0.3 and the CHBDC recommends that consideration to closure of the bridge shall be given. The risk to the County associated with keeping the structure open to traffic lies in the difficulty of enforcing a 5 tonne weight limit.

Section loss due to corrosion has affected the stringers, particularly in the end bays of the truss span, and the bottom chords at the north end. The new nail laminated deck installed in 2009 has reduced the dead load and improved load distribution compensating the reduction in resistance due to section loss. However, additional section loss due to ongoing corrosion will result in further deterioration of the load capacity of the bridge. Cleaning and recoating of the stringers in the end bays of the truss span should be considered if the structure is to remain open.

Of particular concern are the bottom chords (L0L1) at the north end, where severe section loss was observed. While the bottom chords rate for 10 tonnes and are not the governing structural elements, their failure in tension would be catastrophic and cause the collapse of the entire structure. In addition to live and dead loads, the bottom chords are likely subjected to temperature loads, which were not considered in the evaluation, and are likely amplified by the poor condition of the truss bearings. In their current condition, the bearings may not allow the required expansion and contraction. Furthermore, overstress caused by the passage of over limit vehicles cannot be effectively prevented. As such, it is strongly recommended that the bottom chords be reinforced. It is further recommended that the severely corroded bottom lateral connection plates at L0 be replaced at the same time.

The observed twist in the diagonal U2L3 of the east truss is indicative of overstress in compression (lateral torsional buckling). While primarily a tension member, load reversal will occur under live load. The deformation will significantly lower the compressive resistance of this member. However, the 5 tonne live load as posted is not sufficient to cause the load reversal, so no further action is required provided the vehicles do not exceed the posted load. Buckling has also been observed in diagonal member U4L3' of the east truss. Since this member is redundant, overstress in compression will be redistributed and is not a concern at this time.

It is recommended that the timber blocking under the stringer supports at the piers and the abutments of both the truss and girder spans be replaced as required. It is further recommended that the above-noted work (bottom chord strengthening, connection plate replacement, stringer blocking) be completed in the summer of 2012.

As part of this assignment, repair and replacement alternatives and the associated costs were generated. The alternatives, including cost estimates are summarized in Table 2 on the next page. If it is the County's intention to maintain the crossing in the long-term, it is recommended that the structure and causeway be replaced in kind. Otherwise, it is recommended that consideration be given to closing the bridge and causeway to vehicular traffic.

| Table 2: Structure Replacement Alternatives |   |   |  |
|---|---|---|--|
| Alt.  | Description   | Estimated Cost (\$2102)                     | Discussion   |
| 1   | Do nothing.   | 0   | Structure exhibits severe localized deterioration. CHBDC recommends bridge closure. County exposed to significant risk. Not recommended.   |
| 2   | Maintain bridge in current condition through routine maintenance contracts.         | \$50,000 (2012)<br>\$50,000 every two years | Cost for 2012 based on estimate required to maintain structure in operating condition. Significant structural defects not addressed. Risk to County reduced, but not eliminated. Due to continuing deterioration of bridge, assume \$50k every two years for repairs works to maintain bridge in current condition. Not recommended. |
| 3   | Replace single lane bridge on existing substructure, reconstruct approach causeway. | \$1,750,000                                 | Risk to County eliminated. Structure upgraded while maintaining aesthetics of bridge and causeway stone walls. Recommended if decision is made to maintain the crossing in the long-term.  |
| 4   | Replace bridge and causeway with a single lane structure.                           | \$3,100,000                                 | Risk to County eliminated. Not recommended due to cost.  |
| 5   | Replace bridge with double lane structure, reconstruct causeway.                    | \$2,650,000                                 | Risk to County eliminated. Not recommended due to cost.  |
| 6   | Replace bridge and causeway with a double lane bridge.                              | \$4,450,000                                 | Risk to County eliminated. Not recommended due to cost.  |
| 7   | Close bridge to vehicular traffic, maintain bridge as pedestrian structure.         | \$50,000                                    | Risk to County eliminated; however, river crossing for vehicular traffic removed. Estimated cost includes bridge closure, public consultation, agency notification, etc. Recommended if monies not available for structure replacement.  |

Report Prepared By:

Sascha Schreiber, P.Eng.  
(Structural Evaluation)

Joel Sam, EIT

Report Reviewed By:

Bill Bohne, P.Eng.

## MCCORMICK RANKIN CORPORATION'S ANDREWSVILLE BRIDGE EMERGENCY INSPECTION REPORT DATED MAY 9<sup>TH</sup>, 2012



McCormick Rankin  
 1145 Hunt Club Road, Suite 300  
 Ottawa, ON Canada K1V 0Y3  
 T: 613.736.7200 | F: 613.736.8710  
 www.mrc.ca

May 31, 2012

The Corporation of the County of Lanark  
 Public Works Department  
 99 Christie Lake Road  
 Perth, ON K7H 3E2

Attention: Mr. Steve Allan, P.Eng.  
 Director of Public Works and Engineering

Dear Sir:

McCormick Rankin, a member of MMM Group Limited (MRC) was retained by the County of Lanark (County) to undertake an emergency visual inspection of the Andrewsville Bridge over the Rideau River following an incident on May 4, 2012. It is our understanding that a truck weighing in excess of 5 tonnes crossed the Andrewsville Bridge and the adjacent swing bridge over the Rideau Canal. The swing bridge was damaged, and Parks Canada closed both bridges to all traffic.

The inspection of the Andrewsville Bridge was undertaken by Sascha Schreiber, P. Eng. and Andrew Krisciunas, E.I.T. of MRC on May 9, 2012. The purpose of the inspection was to visually assess the condition of the accessible structural members and their connections of the bridge for signs of damage caused by the overload. Structural members that were not readily accessible by ladder from the deck and the pier or abutment footings, such as the interior bays of the floor system of both the truss and girder spans, were not inspected.

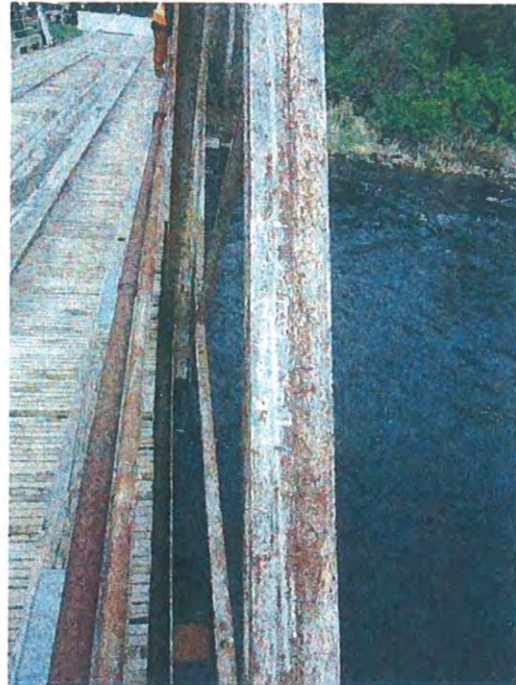
MRC had recently completed a detailed visual inspection of the same bridge in March 7, 2012 and presented the inspection results to the County of Lanark in the March 2012 Structural Inspection and Evaluation Report. The results of this inspection were used as a benchmark to assess whether any new damage was evident.

MRC noted that the buckling of the diagonal U4L3' of the east truss has progressed since the March 2012 inspection. The double angles are now overlapping as opposed to nearly touching in the previous inspection (Photograph 1). Additionally, a moderate deformation (twist) of the interior angle of the west truss diagonal U3L4 was observed near L4 (Photograph 2), which was not observed in the March 2012 inspection. While these members are primarily tension members, load reversal into compression will occur under certain live loading conditions. The deformation will significantly lower the compressive resistance of these members. However, MRC determined in the March 2012 Structural Inspection and Evaluation Report that the 5 load limit (as posted) is not large enough to cause the load reversal; accordingly, no further action is required provided the vehicles do not exceed the posted load limit. It is recommended that measures to ensure compliance with the posted load limit be implemented prior to reopening the bridge to vehicular traffic.

global transportation engineering



March 2012



May 2012

Photograph 1: Diagonal U4L3', east truss. The horizontal legs of the double angles were nearly touching in March 2012 (left) but were overlapping in May 2012 (right).



Photograph 2: Deformation in interior angle of U3L4, west truss.



The stringers in the end bays of the truss span, which govern the load posting of the bridge, and those of the slab-on-girder, did not exhibit signs of yielding or distress. All other members which could be inspected showed no signs of damage. However, the Live Load Capacity Factor (F) of the stringers = 0.24, and in accordance with the Canadian Highway Bridge Design Code (CHBDC), consideration should be given to closing a bridge with  $F < 0.3$ . The CHBDC further recommends maintaining a single load posting for two years or less to provide sufficient time to close or replace the bridge. Therefore, it is recommended that consideration be given to closing the Andrewsville Bridge to vehicular traffic. It is further recommended that the 10 tonne load posting for the adjacent bridge over the Rideau Canal be reduced to 5 tonnes to be consistent with the load posting of the Andrewsville Bridge. The width and configuration of the roadway between the two bridges is such that a larger vehicle approaching from the south and weighing less than 10 tonnes, but more than 5 tonnes, would not be able to turn around and therefore have no option other than crossing over the Andrewsville Bridge.

If you have any questions or concerns, or should you require additional information or clarification, please do not hesitate to contact the undersigned.

Yours very truly,

McCormick Rankin, a member of MMM Group Limited



Bill Bohne, P. Eng., Associate  
Senior Project Engineer  
Transportation - Structures

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# LANARK COUNTY

**JUNE SESSION 2012**

MINUTES – REPORTS

BYLAWS – MOTIONS

Leslie Drynan  
Deputy Clerk

John Gemmell  
Warden



COUNTY COUNCIL  
Council Chambers  
Municipal Office  
Perth, Ontario

Pursuant to adjournment the Council of the Corporation of the County of Lanark met in regular session on Wednesday, June 27<sup>th</sup>, 2012 at 7:00 p.m.

**Chair:** Warden John Gemmell

**1. CALL TO ORDER**

The meeting was called to order at 7:02 p.m.

**2. MOMENT OF SILENT MEDITATION**

Council rose and observed a moment of silent meditation.

**3. ROLL CALL**

All members present.  
A quorum was present.

**4. DISCLOSURE OF PECUNIARY INTEREST**

None at this time.

**5. APPROVAL OF COUNCIL MINUTES**

**MOTION #CC-2012-097**

**MOVED BY:** Gail Code  
**SECONDED BY:** Aubrey Churchill

"**THAT**, the minutes of the Lanark County Council Meeting held on May 23<sup>rd</sup>, 2012 be approved as circulated."

**ADOPTED**

**6. ADDITIONS AND APPROVAL OF AGENDA**

**ADDITIONS**

Under Reports

ii) Official Plan Update

**Consultant, Pierre Mercier**

Under By-laws

- xi) By-law No. 2012-25: Adoption of SCOP  
**Chief Administrative Officer, Peter Wagland**

Under New/Other Business

- iii) Lanark Village 150<sup>th</sup> Anniversary Celebration  
**Councillor, Peter McLaren**

**MOTION #CC-2012-098**

**MOVED BY:** Peter McLaren  
**SECONDED BY:** Brian Stewart

“**THAT**, the agenda be adopted as amended.”

**ADOPTED**

**7. DELEGATIONS & PRESENTATIONS**

- i) United Way County/Employee Recognition  
**Executive Director, Sarah Bridson**  
**Fund Development Officer, Fraser Scantlebury**

Mr. Scantlebury and Ms. Bridson presented three plaques recognizing the County for their contributions to Lanark County United Way:

- Warden Gemmell and Sharon Mousseau for the 2011 Wardens Golf Tournament
- Peter Wagland on behalf of Lanark County Staff
- Deborah Pigeon on behalf of Lanark Lodge

**8. COMMUNICATIONS**

None

**9. REPORTS**

- i) Community Development: June 6<sup>th</sup>, 2012 – *attached, page 16*  
**Chair, Councillor Richard Kidd**

Discussion was held on the funding for the Perth Golf Course Project.

**MOTION #CC-2012-099**

**MOVED BY:** Richard Kidd  
**SECONDED BY:** Sharon Mousseau

“**THAT**, the Seventh Report of the Community Development Committee of the Whole, be adopted as presented.”

**ADOPTED**

- ii) Official Plan Update  
**Consultant, Pierre Mercier**

Mr. Mercier reported that further to the public meeting additional comments have been received.

John Fenik arrived at 7:22 p.m.

- a) SCOP Comments - John M.A. McKay

Mr. McKay's comments regarding the SCOP document – *attached page 21*

**MOTION #CC-2012-100**

**MOVED BY:** Aubrey Churchill  
**SECONDED BY:** Wendy LeBlanc

**"THAT**, the comments received from John M.A. McKay regarding the County SCOP be received as information and included in the final package being submitted to the Ministry of Municipal Affairs and Housing for review and response."

**ADOPTED**

- b) Town of Carleton Place - Comments on County SCOP

The Town of Carleton Place's comments on the County SCOP – *attached page 24*

**MOTION #CC-2012-101**

**MOVED BY:** Susan Freeman  
**SECONDED BY:** Bill Dobson

**"THAT**, the comments received from the Town of Carleton Place regarding the County SCOP be incorporated into the Final Draft of the Sustainable Community Official Plan (SCOP) dated May 28th, 2012."

**ADOPTED**

- ii) Community Development: June 20<sup>th</sup>, 2012 – *attached, page 25*  
**Chair, Councillor Richard Kidd**

**MOTION #CC-2012-102**

**MOVED BY:** Richard Kidd  
**SECONDED BY:** Sharon Mousseau

**“THAT**, the Eighth Report of the Community Development Committee of the Whole, be adopted as amended.”

**ADOPTED**

R. Kidd thanked and wished Peter Wagland all the best.

**MOTION #CC-2012-103**

**MOVED BY:** Richard Kidd  
**SECONDED BY:** Sharon Mousseau

**“THAT**, Peter Wagland be recognized and thanked for initiating and promoting the phrase “wearing your County hat” during his term as Lanark County CAO, 2003-2012.”

**ADOPTED**

- iii) Andrewsville Bridge Update

- i) Correspondence/Resolution from Leeds & Grenville
- ii) DRAFT Council Meeting Minutes - Leeds & Grenville
- iii) Submission/presentation by the Friends of the Andrewsville Bridge

**MOTION #CC-2012-104**

**MOVED BY:** Keith Kerr  
**SECONDED BY:** Bill Dobson

**“THAT**, discussions on the Andrewsville Bridge be referred to the August 1<sup>st</sup>, 2012 Public Works Committee meeting;

**AND THAT**, Lanark County Council defer the decision on the future of the Andrewsville Bridge until Lanark County and the United Counties of Leeds and Grenville have hosted a joint Public Consultation meeting currently scheduled for August 30, 2012 at the Rosedale Hall in Montague Township;

**AND THAT**, the Bridge remains temporarily closed to vehicular traffic until a final decision is made.”

**ADOPTED**

- iv) Public Works: June 6<sup>th</sup>, 2012 – *attached, page 27*  
**Chair, Councillor Susan Freeman**

Councillor Kerr requested that item “B” 4 be removed and referred to the August 1<sup>st</sup>, 2012 Public Works Committee of the Whole.

**MOTION #CC-2012-105**

**MOVED BY:** Susan Freeman  
**SECONDED BY:** Keith Kerr

“**THAT**, the Sixth Report of the Public Works Committee of the Whole, excluding item “B” 4, be adopted as amended.”

**ADOPTED**

Councillor Freeman thanked and wished Peter Wagland all the best.

- v) Community Services: June 13<sup>th</sup>, 2012 – *attached, page 35*  
**Chair, Councillor John Levi**

**MOTION #CC-2012-106**

**MOVED BY:** John Levi  
**SECONDED BY:** Brian Stewart

“**THAT**, the Sixth Report of the Community Services Committee of the Whole, be adopted as presented.”

**ADOPTED**

- vi) Corporate Services: June 13<sup>th</sup>, 2012 – *attached, page 38*  
**Chair, Councillor Sharon Mousseau**

Councillor Kidd requested that item “B” 13 be pulled and voted on separately.

**MOTION #CC-2012-107**

**MOVED BY:** Richard Kidd  
**SECONDED BY:** Susan Freeman

“**THAT**, County Council appoint Jennie Bingley as interim Director of Finance/Treasurer;

**AND THAT** the Clerk be authorized to prepare the necessary by-law.”

**ADOPTED**

**MOTION #CC-2012-108**

**MOVED BY:** Keith Kerr  
**SECONDED BY:** Aubrey Churchill

"**THAT**, County Council authorize staff to conduct a review on the future organization of the Finance Department."

**ADOPTED**

**MOTION #CC-2012-109**

**MOVED BY:** Sharon Mousseau  
**SECONDED BY:** Pat Dolan

"**THAT**, the Sixth Report of the Corporate Services Committee of the Whole, excluding item "B" 13, be adopted as amended."

**ADOPTED**

Councillor Mousseau thanked and wished Peter Wagland all the best.

**10. CONFIDENTIAL REPORTS**

None

**11. BY-LAWS AND MOTIONS**

- i) By-law No. 2012-14: Appoint Chief Administrative Officer – *attached page 44*

**MOTION #CC-2012-110**

**MOVED BY:** Susan Freeman  
**SECONDED BY:** Keith Kerr

"**THAT**, By-Law 2012-14, being a by-law to appoint a Chief Administrative Officer be read a first and second time."

**ADOPTED**

**MOTION #CC-2012-111**

**MOVED BY:** Susan Freeman  
**SECONDED BY:** Keith Kerr

"**THAT**, the By-Law just now read a second time, be forth with read a third time short and passed and signed by the Warden and Clerk."

**ADOPTED**



- ii) By-Law No. 2012-16: Appoint Interim Director of Finance/Treasurer – *attached page 46*

**MOTION #CC-2012-112**

**MOVED BY:** Brian Stewart  
**SECONDED BY:** Peter McLaren

**"THAT,** By-Law 2012-16, being a by-law to appoint an interim Director of Finance/Treasurer be read a first and second time."

**ADOPTED**

**MOTION #CC-2012-113**

**MOVED BY:** Brian Stewart  
**SECONDED BY:** Peter McLaren

**"THAT,** the By-Law just now read a second time, be forth with read a third time short and passed and signed by the Warden and Clerk."

**ADOPTED**

- iii) By-Law No. 2012-17: Appoint County Weed Inspector for 2012 – *attached page 47*

**MOTION #CC-2012-114**

**MOVED BY:** Ed Sonnenburg  
**SECONDED BY:** Wendy LeBlanc

**"THAT,** By-Law 2012-17, being a by-law to appoint a County Weed Inspector for 2012 be read a first and second time."

**ADOPTED**

**MOTION #CC-2012-115**

**MOVED BY:** Ed Sonnenburg  
**SECONDED BY:** Wendy LeBlanc

**"THAT,** the By-Law just now read a second time, be forth with read a third time short and passed and signed by the Warden and Clerk."

**ADOPTED**

- iv) By-Law No. 2012-18: Rescind By-Law 2012-01 Disposal of Surplus Property: Part of Park Lot 3, Con. 2 Geographic Township of Bathurst – *attached page 48*

**MOTION #CC-2012-116**

**MOVED BY:** Bill Dobson  
**SECONDED BY:** Val Wilkinson

“**THAT**, By-Law 2012-18, being a by-law to rescind By-Law No. 2012-01: Disposal of Surplus Property - Part of Park Lot 3, Con. 2 Geographic Township of Bathurst be read a first and second time.”

**ADOPTED**

**MOTION #CC-2012-117**

**MOVED BY:** Bill Dobson  
**SECONDED BY:** Val Wilkinson

“**THAT**, the By-Law just now read a second time, be forth with read a third time short and passed and signed by the Warden and Clerk.”

**ADOPTED**

- v) By-Law No. 2012-19: Property Conveyance : Part Lot 22, Concession 2 County Road 9 - Gemmill's General Store Inc. – *attached page 50*

**MOTION #CC-2012-118**

**MOVED BY:** Pat Dolan  
**SECONDED BY:** Bill Dobson

“**THAT**, By-Law 2012-19 being a by-law to authorize the execution of a property purchase agreement between the Corporation of the County of Lanark and Gemmill's General Store Inc., O/A The Clayton General Store Inc., be read a first and second time.”

**ADOPTED**

**MOTION #CC-2012-119**

**MOVED BY:** Pat Dolan  
**SECONDED BY:** Bill Dobson

“**THAT**, the By-Law just now read a second time, be forth with read a third time short and passed and signed by the Warden and Clerk.”

**ADOPTED**

- vi) By-Law No. 2012-20: County Road 9 Jurisdiction Change: Boundary Adjustment with Town of Mississippi Mills – *attached page 52*

**MOTION #CC-2012-120**

**MOVED BY:** Val Wilkinson  
**SECONDED BY:** Bill Dobson

“**THAT**, By-Law 2012-20, being a by-law to amend By-law No. 81-23 which adopted a plan of County Road improvement and establishing a County Road system, be read a first and second time.”

**ADOPTED**

**MOTION #CC-2012-121**

**MOVED BY:** Val Wilkinson  
**SECONDED BY:** Bill Dobson

“**THAT**, the By-Law just now read a second time, be forth with read a third time short and passed and signed by the Warden and Clerk.”

**ADOPTED**

- vii) By-Law No. 2012-21: Agreement of Purchase and Sale - Ralph William Henry – *attached page 55*

**MOTION #CC-2012-122**

**MOVED BY:** Richard Kidd  
**SECONDED BY:** Sharon Mousseau

“**THAT**, By-Law 2012-21, being a by-law to authorize execution of a property purchase agreement between the Corporation of the County of Lanark and Ralph William Henry, be read a first and second time.”

**ADOPTED**

**MOTION #CC-2012-123**

**MOVED BY:** Richard Kidd  
**SECONDED BY:** Sharon Mousseau

“**THAT**, the By-Law just now read a second time, be forth with read a third time short and passed and signed by the Warden and Clerk.”

**ADOPTED**

- viii) By-Law No. 2012-22: Procedural By-Law Amendment – *attached page 57*

**MOTION #CC-2012-124**

**MOVED BY:** Bill Dobson  
**SECONDED BY:** Pat Dolan

"**THAT**, By-Law 2012-22, being a by-law to amend By-law No. 2006-43, a by-law to establish rules governing the order and proceedings of Council and Committees of the Corporation of the County of Lanark, be read a first and second time."

**MOTION #CC-2012-125**

**MOVED BY:** Bill Dobson  
**SECONDED BY:** Pat Dolan

"**THAT**, the By-Law just now read a second time, be forth with read a third time short and passed and signed by the Warden and Clerk."

**ADOPTED**

- ix) By-law No. 2012-23: Rescind By-law No. 1998-17 - Non-Union Employment By-law – *attached page 59*

**MOTION #CC-2012-126**

**MOVED BY:** Susan Freeman  
**SECONDED BY:** Keith Kerr

"**THAT**, By-law No. 2012-23, being a by-law to rescind by-law 1998-17 which authorized a non-union employment by-law for the Corporation of the County of Lanark be read a first and second time."

**ADOPTED**

**MOTION #CC-2012-127**

**MOVED BY:** Susan Freeman  
**SECONDED BY:** Keith Kerr

"**THAT**, the By-law just now read a second time, be forth with read a third time short and passed and signed by the Warden and Clerk."

**ADOPTED**

**MOTION #CC-2012-128**

**MOVED BY:** Pat Dolan  
**SECONDED BY:** Richard Kidd

"**THAT**, the non-union employee policies be brought forward, for further review, to the August 8<sup>th</sup>, 2012 Corporate Services agenda."

**WITHDRAWN**

- x) By-Law No. 2012-24: Provincial Gas Tax Agreement – *attached page 61*

**MOTION #CC-2012-129**

**MOVED BY:** Aubrey Churchill  
**SECONDED BY:** Gail Code

"**THAT**, By-law No. 2012-24, being a by-law to authorize execution of a letter of agreement between the Corporation of the County of Lanark and the Province of Ontario for funding under the dedicated gas tax funds for public transportation program, be read a first and second time."

**ADOPTED**

**MOTION #CC-2012-130**

**MOVED BY:** Aubrey Churchill  
**SECONDED BY:** Gail Code

"**THAT**, the By-law just now read a second time, be forth with read a third time short and passed and signed by the Warden and Clerk."

**ADOPTED**

- xi) By-Law No. 2012-25: Adoption of Official Plan – *attached page 63*

K. Kerr requested a recorded vote.

**MOTION #CC-2012-131**

**MOVED BY:** Sharon Mousseau  
**SECONDED BY:** Richard Kidd

"**THAT**, By-law No. 2012-25, being a by-law to authorize adoption of the Official Plan for the County of Lanark, be read a first and second time."

**ADOPTED  
FOR – 72  
AGAINST – 34**

Recorded vote – *attached page 64*

**MOTION #CC-2012-132**

**MOVED BY:** Sharon Mousseau  
**SECONDED BY:** Richard Kidd

"**THAT**, the By-law just now read a second time, be forth with read a third time short and passed and signed by the Warden and Clerk."

**ADOPTED**

**12. NEW BUSINESS**

- i) 2012 AMO Conference - Delegation Requests  
**Deputy Clerk, Leslie Drynan**

**MOTION #CC-2012-133**

**MOVED BY:** Keith Kerr  
**SECONDED BY:** Bill Dobson

"**THAT**, staff be directed to request the following delegations at the AMO Conference:

- Minister of Health & Long Term Care regarding long term care issues case;
- Minister of Natural Resources & Aboriginal Affairs regarding support for continuation of the Stewardship Council and potential relocation of the MNR Offices."

**ADOPTED**

- ii) AMO Nomination - Request for Financial Support from Local Municipalities  
**Councillor, Ed Sonnenburg**

E. Sonnenburg reported that request for financial support for Susan Freeman's AMO campaign is no longer required as sufficient funds are available.

- iii) Lanark Village 150<sup>th</sup> Celebration  
**Councillor Peter McLaren**

P. McLaren informed Council that Lanark Village will be celebrating its 150<sup>th</sup> anniversary on the long weekend in August.

**13. NOTICE OF COMMITTEE MEETINGS**

- i) Meeting Schedule – *attached page 67*  
**Deputy Clerk, Leslie Drynan**

**14. CONFIRM COUNCIL PROCEEDINGS**

- i) By-Law No. 2012-26: Confirming By-Law – *attached, page 65*

**MOTION #CC-2012-134**

**MOVED BY:** Brian Stewart  
**SECONDED BY:** John Levi

“**THAT**, By-Law 2012-26, being a by-law to confirm the proceedings of the Council meeting held on June 27<sup>th</sup>, 2012, be read a first and second time.”

**ADOPTED**

**MOTION #CC-2012-135**

**MOVED BY:** Brian Stewart  
**SECONDED BY:** John Levi

“**THAT**, the By-Law just now read a second time, be forth with read a third time short and passed and signed by the Warden and Clerk.”

**ADOPTED**

**15. REQUESTS FOR INTERVIEWS**

Lake 88 requested interviews with CAO, Peter Wagland and Councillor Susan Freeman.

**16. ADJOURNMENT – O’CANADA**

Council adjourned at 8:50 p.m. on motion by Councillors K. Kerr and G. Code.

  
Leslie Drynan,  
Deputy Clerk

To the Members of Lanark County Council.

We, the Members of your Public Works Committee of the Whole beg leave to report Section "A" to be received as information and Section "B" as follows:

"A" 1. Request to Waive Entrance Application Fee

"B" 1. MOTION #PW-2012-049

"THAT, the delegation request to waive an entrance application fee be deferred, to obtain further information, to the August 1<sup>st</sup>, 2012 Public Works Committee of the Whole."

"A" 2. Communications

MOTION #PW-2012-050

"THAT, the communications for the June Public Works Committee meeting be received as information."

"A" 3. Consent Reports

MOTION #PW-2012-051

"THAT, the following Consent Reports for the June Public Works Committee meeting be received as information:  
Report #PW-33-2012 Public Works Contract Status Report #6  
Report #PW-36-2012 County Truck Roadeo Results  
Report #PW-37-2012 2012 Public Works Goals Update."

"A" 4. Report #PW-40-2012 Proposed Closure of Andrewsville Bridge

The purpose of this Joint Report is to recommend that the Councils of Lanark County and the United Counties of Leeds and Grenville authorize Staff to begin the necessary process to permanently close the Andrewsville Bridge to vehicular traffic.



REFERRED

**"B" 4. MOTION #PW-2012-052**

**"THAT** the County of Lanark fund 50% of \$50,000 to execute the necessary repairs to attempt to extend the Andrewsville Bridge service life with the anticipation of exploring a full replacement with potential future funding opportunity from the government;

**AND THAT** the necessary repairs to the Andrewsville Bridge be undertaken subject to an agreement with the United Counties of Leeds and Grenville."

**"A" 5. Report #PW-39-2012 Proposal for the Assumption of a New County Road: McNeely Avenue Extension**

The purpose of this Report is to recommend a joint, Cost-shared Project, with the Town of Carleton Place, for the construction of a new arterial road, between Highway 7 and Highway 15, known as the McNeely Avenue Extension.

**"A" 6. Report #PW-38-2012 Proposal for the Assumption of a New County Road: Perth Arterial Road**

The purpose of this Report is to recommend a joint, cost-shared project, with the Town of Perth, for the construction of a new arterial road, between Highway 7 and County Road 43.

**"A" 7. Report #FIN-17-2012 Financial Analysis of McNeely Ave & Perth Arterial Road**

To provide council with a detailed financial analysis of the extension of McNeely Avenue and the Perth Arterial Road projects.

**"B" 7. MOTION #PW-2012-053**

**"WHEREAS**, in December, 2009, in accordance with the Municipal Engineers Association Class Environmental Assessment Process, the Town of Carleton Place completed and received the Ministry of Environment's approval for an Environmental Study Report, for the southerly extension of McNeely Avenue, with a four-lane arterial road, between Highway 7 and Highway 15, in the Town of Carleton Place;

**AND WHEREAS**, the McNeely Avenue Extension shall be constructed in two phases: Phase 1: A two-lane arterial road, from Highway 7 to Highway 15, and Phase 2: Widening the platform, to four-lanes, from Highway 7 to Highway 15;

**AND WHEREAS**, on May 2nd, 2012, Town of Carleton Place Staff presented a Proposal to the Public Works Committee for a joint project with the County to construct the McNeely Avenue Extension (Phase 1) between 2013 and 2015;

**AND WHEREAS**, in accordance with the Policy for the "Assumption of Local Roads by the County of Lanark", County Council resolves that the McNeely Avenue Extension meets the criteria to be designated as a County Road and to be accepted into the County Road System, when it has been constructed;

**AND WHEREAS**, the County of Lanark and the Town of Carleton Place have agreed to a cost-sharing framework, for the design and the construction of the McNeely Avenue Extension.

**NOW BE IT RESOLVED:**

**THAT**, upon the issuing of the Certificate of Substantial Completion for Phase 1 construction, the County of Lanark shall enact the necessary By-Law to accept the newly constructed McNeely Avenue Extension into the County Road System;

**THAT**, the County of Lanark shall be responsible for the widening of the McNeely Avenue Extension to four-lanes, in the future, when warranted by the traffic volumes.

**THAT**, the County shall fund its portion of the McNeely Avenue Extension Project Costs as stipulated in the Treasurer's Report #FIN-17-2012;

**AND THAT** County Council authorizes the Warden and Treasurer to execute an Agreement with the Town of Carleton Place, which stipulates the arrangements, as described in Report #PW-39-2012, for the McNeely Avenue Extension Project."

**"B" 8. MOTION #PW-2012-054**

**"WHEREAS**, in June, 2008, in accordance with the Municipal Engineers Association Class Environmental Assessment Process, the Town of Perth completed and received the Ministry of Environment approval for an Environmental Study Report for the construction of a two-lane arterial road between the intersection of Highway 7 and County Road 43 in the Town of Perth;

**AND WHEREAS**, on May 2nd, 2012, Town of Perth Staff presented a proposal to the Public Works Committee for a joint project, with the County, to construct the proposed Arterial Road between 2025 and 2030, contingent upon the further expansion of the Perthmore Subdivision;

**AND WHEREAS**, the Perth Arterial Road shall be constructed in two phases: Phase 1, from Highway 7 to County Road 10, and Phase 2, from County Road 10 to County Road 43;

**AND WHEREAS**, in accordance with the Policy for the "Assumption of Local Roads by the County of Lanark", County Council resolves that the Perth Arterial Road meets the criteria to be designated as a County Road and to be accepted into the County Road System, when it has been constructed;

**AND WHEREAS**, the County of Lanark and the Town of Perth have agreed to a cost-sharing framework for the design and the construction of the Perth Arterial Road.

**NOW BE IT RESOLVED:**

**THAT**, effective January 1st, 2013, the County of Lanark and the Town of Perth shall enact the necessary By-Laws to transfer the ownership of County Road 1 (Gore Street), County Road 6 (Sunset Boulevard), and County Road 10 (North Street), within the current limits of the Town of Perth, from the County to the Town of Perth;

**THAT**, upon the issuing of the Certificate of Substantial Completion for Phase 1 Construction, the County of Lanark shall enact the necessary By-Law to accept the newly constructed Perth Arterial Road into the County Road System;

**THAT**, the County and the Town of Perth shall collaborate for the future construction and acceptance into the County Road System of an extension of the Arterial Road, from County Road 10 to County Road 43 (Phase 2);

**THAT**, the Town of Perth shall be prepared to act, as the County's Agent, to facilitate the potential disposal of the Perth Garage Property, including the remediation, marketing and redevelopment of the site, at no cost to the County;

**THAT**, the County shall fund its portion of the Perth Arterial Road Project Costs, as stipulated in the Treasurer's Report #FIN-17-2012;

**AND THAT** County Council authorizes the Warden and Treasurer to execute an Agreement with the Town of Perth, which stipulates the arrangements, as described in Report #PW-38-2012, for the Perth Arterial Road Project."

**"B" 9. MOTION #PW-2012-0**

**"That**, County Council enter into an agreement to cost share the McNeely Avenue extension with the Town of Carleton Place;

**And that**, Lanark County Council commit to funding 50% of the cost of the necessary planning and 50% of the cost of building the required intersections;

**And that**, the total cost of the County 50% share be limited to \$1,400,000 (estimate of \$1,277,000 plus 10%);

**And that**, County Council authorize the County share of the McNeely Avenue extension related to growth be funded by Development Charges;

**And that,** County Council enter into an agreement with the Town of Perth to cost share the Perth Arterial Road;

**And that,** County council commit to funding up to \$680,000 (estimate of \$620,000 plus 10%) for the preliminary work on the project;

**And that,** once Perth has a developer agreement that includes contributions to the Arterial Road that County Council enter into negotiations on a formal cost sharing agreement with the Town of Perth for the balance of the road construction cost;

**And that,** County Council authorize the County share of the Perth Arterial Road related to growth be funded by Development Charges."

**"B" 10. MOTION #PW-2012-055**

**"THAT,** the Development Charges by-law be amended to include the Perth Arterial Road Project and the McNeely Ave. Project."

**"A" 11. Report #PW-27-2012 Proposed Property Conveyance: Part Lot 22, Concession 2 County Road 9**

The purpose of this Report is to finalize an exchange of property between the County of Lanark and Gemmill's General Store Inc. (known as The Clayton General Store Inc.) which requires that a portion of the former County Road 9, Lot 22, Concession 2, Geographic Township of Ramsay, within the Municipality of the Town of Mississippi Mills, more particularly described as Part 4, Registered Plan 27R10040, be declared surplus, stopped-up, closed and conveyed to the abutting property owners.

**"B" 11. MOTION #PW-2012-056**

**"THAT,** Lanark County Council declare the portion of the former County Road 9, in Lot 22, Concession 2, Geographic Township of Ramsay, Municipality of Town of Mississippi Mills, more particularly described as Part 4, Registered Plan 27R10040, as surplus to County needs and that Staff be authorized to commence the process to stop-up, close and sell the subject lands;

**THAT** the value of consideration for the surplus lands is set at one dollar (\$1.00);

**THAT** a Public Hearing, regarding the subject road closing, is held at the Lanark County Council Chambers on August 1, 2012, immediately prior to the Public Works Committee Meeting;

**THAT** the Director of Public Works provides a Report and recommendations to the Public Works Committee, as soon as practicable, after the Public Hearing;

**THAT** the Warden and Clerk, on behalf of the Corporation of the County of Lanark, be authorized to enter into an Agreement of Purchase and Sale (attached) with Gemmill's General Store Inc. (also known as The Clayton General Store) for:

- a. The purchase of property, abutting County Road 9, being Part of Lot 22, Concession 2, more particularly described as Part 2 on Plan 27R-10040, in the Geographic Township of Ramsay, Municipality of Town of Mississippi Mills, for the purpose of road construction
- b. The sale of property, abutting County Road 9, being Part of Lot 22, Concession 2, more particularly described as Part 4 on Plan 27R-10040, in the Geographic Township of Ramsay, Municipality of Town of Mississippi Mills, for the purpose of road construction

**AND THAT** the Clerk sends Report #PW-27-2012 to the Town of Mississippi Mills Clerk, for information."

- "A" 12.** Report #PW-34-2012 Proposed County Road 9 Jurisdiction Change: Part Lot 22, Concession 2

The purpose of this Report is to finalize a transfer of property between the County of Lanark and the Town of Mississippi which requires that a portion of the former County Road 9, Lot 22, Concession 2, Geographic Township of Ramsay, within the Municipality of the Town of Mississippi Mills, more particularly described as Parts 3 and 5, Registered Plan 27R10040, be removed from the County Road System.

- "B" 12.** **MOTION #PW-2012-057**

**"THAT**, Lanark County Council declare the portion of the former County Road 9, in Lot 22, Concession 2, Geographic Township of Ramsay, Municipality of Town of Mississippi Mills, more particularly described as Parts 3 and 5, Registered Plan 27R10040, as surplus to County needs and that a By-law be prepared to remove these lands from the County Road System;

**AND THAT** the Clerk sends Report #PW-34-2012 to the Town of Mississippi Mills Clerk, for information."

- "A" 13.** Report #PW-35-2012 2011 Weed Inspector's Report and Appointment of the County Weed Inspector for 2012

The purpose of this Report is to inform the Committee of the activities of the County Weed Inspector.

**"B" 13. MOTION #PW-2012-058**

**"THAT**, County Council accepts the 2011 Annual Weed Report for information;

**THAT** County Council authorize the payment of an honorarium of \$500 to Mr. Tom Guindon for his services as County Weed Inspector in 2011;

**AND THAT** the Clerk prepares the necessary By-Law to appoint Mr. Tom Guindon as the County Weed Inspector for 2012."

**"A" 14. Report #PW-41-2012 Property Conveyance Part of Lot 24 Concession 10 Geographic Township of Ramsay: County Road 17**

The purpose of this Report is to recommend the purchase of property, from landowners on County Road 17 (Blakeney Road), to enable road improvements at the intersection of Ridge Road and Blakeney Road in the Village of Blakeney.

**"B" 14. MOTION #PW-2012-059**

**"THAT**, the Warden and Clerk, on behalf of the Corporation of the County of Lanark, be authorized to enter into an Agreement of Purchase and Sale (attached) with Ralph William Henry for the purchase of property, abutting County Road 17, being Part of Lot 24, Concession 10, in the Geographic Township of Ramsay, Municipality of the Town of Mississippi Mills, and more particularly described as Part 1 on Registered Plan 27R-10023 dated December 22<sup>nd</sup>, 2011, for the purpose of road construction;


**AND THAT** the Clerk sends Report #PW-41-2012 to the Town of Mississippi Mills Clerk, for information."

**"A" 15. Report #PW-42-2012 Perth Golf Course Property Conveyance**

**"B" 15. MOTION #PW-2012-060**

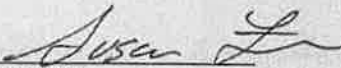
**"THAT**, the Clerk rescinds By-Law 2012-01 and presents a corrected by-law at the June Meeting of County Council."


All of which is respectfully submitted by:

  
Susan Freeman, Chair

**Direction by the Warden:  
Council may remove items in Section "B" to be voted on separately prior to  
introducing a motion to accept the report in its entirety.**

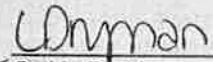
Moved and Seconded by:

  
Moved By

  
Seconded By

Adopted this 27<sup>th</sup>, day of June, 2012

  
John Gemmell  
Warden

for   
Cathie Ritchie  
Director of Clerk's Service/Clerk

## Andrewsville Bridge



**Public Information Centre  
August 30, 2012**



### Presentation will focus on the following:

- Background Information of the Crossing
  - Condition of existing structures
  - Summary of inspections/studies/repairs done to date
  
- Rehabilitation Alternatives
  - Crossing closure
  - Short-term repairs
  - Long-term rehabilitation or replacement
  
- Summary

## Background Information

Crossing is comprised of 3 main components:



Single span steel truss



Single span slab-on-girder



UngROUTED stone retaining walls

### Age of Crossing

- Exact date of construction is unknown.
- Based on historical records, bridge was built circa 1890.

### Heritage Status

- Bridge structures and causeway have not been formally designated as heritage structures, nor are under consideration for heritage designation.
- Given the age of the Crossing, a heritage assessment would be undertaken prior to major rehabilitation of the structure to determine a formal designation.
- Designation as a heritage structure will impact the type and scope of rehabilitation.

### June 2005: Detailed Inspection

- Crossing was generally in poor condition.
- Asphalt had numerous wide cracks and potholes, timber deck below exhibited signs of rot and had detached from stringers.



Steel had widespread light corrosion with areas of severe corrosion and perforated steel below-deck.

## Background Information

- Roller bearings were seized and do not adequately permit movements due to thermal expansion and contraction

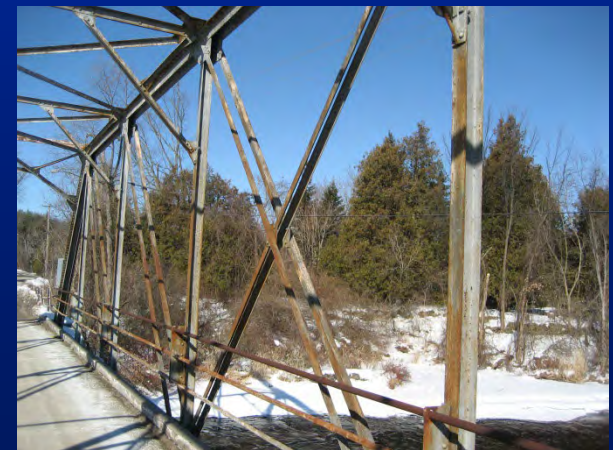


- Concrete in pier and abutments was severely deteriorated



## Background Information

- Retaining walls on causeway had subsided and had undermined approach approach railing
  - During spring runoff, water flows through the walls above the storm pipe
  
- Existing bridge railings were attached directly to truss and had been damaged by vehicular impact in several locations.



## Background Information

In 2006, several stringers at the West Abutment were repaired to keep the bridge open to traffic.



Condition of stringer, June 2005



Repaired stringer, February 2006

### February 2007: Structural Evaluation

- Capacity of both bridges, based on existing deteriorated condition of bridge, is 5 tonnes.
- Bridges are currently posted at 5 tonnes, so no further reduction in load posting was required.



Undermining of south pier bearing



### Canadian Highway Bridge Design Code (CHBDC)

- Used for calculating the capacity of existing bridges.
- Live Load Capacity Factor ( $F$ )  $< 1.0$  may require load posting.
- Andrewsville Bridges
  - Stringers  $F = 0.23$
  - Girders  $F = 0.30$
  - Floorbeams  $F = 0.34$
  - Truss Chords  $F = 0.60$
- CHBDC recommends that for  $F < 0.3$ 
  - Consideration should be given to closing the bridge.
  - Posting should be maintained for a maximum of two years to provide bridge owner with sufficient time to replace or close the bridge.

### May 2007: Public Information Centre

- Public Information Centre (PIC) was held to obtain feedback from general public
  - Crossing is in poor condition and repair is required
  - Industry standards suggest replacement or closure
  - Bridge is load posted, but there is currently no method of restricting overloaded vehicles from using the bridge.
- Six rehabilitation alternatives were forwarded
  - Do Nothing (rejected as concerns with safety were not addressed)
  - Repair timber deck, upgrade bridge railing, repair concrete substructure
  - Repair timber deck, upgrade bridge railing, repair concrete substructure, upgrade approach railings
  - New single lane bridge
  - New two lane bridge (rejected, not warranted in this location)
  - Close bridge to vehicular traffic.

### May 2007 PIC (cont'd)

- Public response was generally in favour of keeping the Crossing open.
- Both Councils determined a short-term rehabilitation strategy was best suited until the long-term future of the Crossing could be determined.

### Summer 2008: Deck Rehabilitation

- Repairs intended to keep the Crossing open for 3 to 5 years
- Work included replacement of the timber deck in kind and minor concrete repairs to the substructure
- Concrete, structural steel, causeway, and approach deficiencies not addressed



### March 2012: Inspection and Structural Evaluation

- Structural steel continues to deteriorate
- Deck replacement actually increased the capacity of some of the truss members
- Evidence of distortion of truss members not witnessed in previous inspections



- 5t load posting still in effect based on capacity of stringers in both bridges

### May 2012: Emergency Inspection

- Vehicle in excess of 5t used the Crossing
- Evidence of damage to the truss bridge and the swing bridge over the Rideau Canal
- Crossing was closed to effect repairs to the swing bridge
- 5t load posting to remain; however, it was recommended that the Crossing remain closed until repairs to deteriorated members could be completed and load limit could be strictly enforced



### 4 Rehabilitation Alternatives

- Close Crossing to vehicular traffic
- Implement minor repairs to Crossing and reopen to traffic with current load posting
  - Short term strategy to maintain the Crossing for 3-5 years
- Implement a major rehabilitation and upgrade load posting to 10t
  - Medium to long term strategy to maintain the Crossing for 15-20 years
- Replace the Crossing
  - Long term strategy to address all current and foreseeable deficiencies

### Closing the Crossing to Vehicular Traffic

- Least costly alternative
- Immediate risk to Counties is eliminated
- Current configuration and visual appearance of Crossing would remain unchanged
- Repair costs estimated to be \$50k every 10 years
- Alternative is least preferable to public and to Parks Canada
- Major rehabilitation will eventually be required
  - Steel and concrete will continue to deteriorate
  - Scope of work will be less than for rehab of vehicular crossing



### Minor Repairs to Crossing with 5t Load Posting

- Least costly intervention to reopen Crossing
- Work could likely be completed in the fall of 2012
  - Pending immediate decisions from Councils
- \$50k to \$100k rehabilitation contract
  - Concrete repairs to substructure
  - Minor structural steel strengthening
  - Upgrades to approach railing systems
  - 'Sympathetic modifications' that will not significantly alter the appearance of the Crossing

### Minor Repairs to Crossing (cont'd)

- 'Band-Aid' solution
  - Future of Crossing not addressed, just postponed for 3-5 years
  - Major rehabilitation will be required in near future
  - Approach railing upgrades would likely result in narrower road width on causeway
  - Moderate exposure to risk: uncertainty of rate of deterioration of concrete and masonry
- Method of enforcing load posting must be addressed
  - Solutions may negatively affect the visual appearance of Crossing
  - Parks Canada to agree on methods and location of solution
- Availability of funds

### Major Rehabilitation with 10t Load Posting

- Structural and safety deficiencies addressed
- Load rating increased to match swing bridge
- \$2M cost
  - Major rehabilitation of concrete substructure and masonry causeway (in-water works)
  - Significant strengthening of structural steel; however, repairs likely to be sympathetic modifications
  - Replacement of bearings
  - Repairs to timber deck
  - Upgrading of approach railings
  - Exposure to risk significantly reduced

### Major Rehabilitation (cont'd)

- Environmental Assessment required
  - In-water works likely will be a 'HADD' (hazardous alteration, disruption, or destruction)
  - Heritage status to be determined
  - Archaeological and environmental studies to be undertaken
  - Ownership of causeway to be decided
- EA in 2013, construction in 2014 if funding available
  - 3<sup>rd</sup> party funding likely to be needed
  - Availability of funds may delay construction
  - Process can be time-consuming and if selected, should start immediately

### Structure Replacement

- EA process is similar to that for a major rehabilitation
- Heritage designation may determine replacement is not permissible
- \$3M to \$3.5M cost
- EA in 2013, construction in 2014 if funding available
  - 3<sup>rd</sup> party funding likely to be needed
  - Availability of funds may delay construction

### **Closing the Crossing**

- Preferable based on financial and structural perspective

### **Reopening the Crossing in the short term**

- Repairs are required prior to reopening
- Steps must be taken to restrict oversized vehicles
- Not a one-time expenditure, anticipate 3-5 years, then repeat the close/repair/replace process

### **Maintaining the Crossing in the long term**

#### **Replacing the Crossing**

- Environmental assessment to be started asap
- Funding to be secured

LANARK  
COUNTY



# Questions?

MRC

# THE COUNTY OF LANARK

## **SPECIAL PUBLIC WORKS COMMITTEE**

September 19<sup>th</sup>, 2012

Report #PW-65-2012 of the  
Director of Public Works

### **ANDREWSVILLE BRIDGE: PUBLIC INFORMATION CENTRE AUGUST 30<sup>TH</sup>, 2012**

#### **1. STAFF RECOMMENDATIONS**

**“THAT,**

- i) Report #PW-65-2012 “Andrewsville Bridge: Public Information Centre August 30<sup>th</sup>, 2012”, is accepted, for information.
- ii) The Director of Public Works is authorized to provide the Friends of the Andrewsville Bridge the written responses to their questions, as amended, at Appendix “C” to Report #PW-65-2012.
- ii) The Clerk sends Report #PW-65-2012 to the United Counties of Leeds and Grenville Clerk, the Montague Township Clerk, Parks Canada and the Friends of the Andrewsville Bridge, for information.”

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**Recommended By:**

**Approved for Submission By:**

**Steve Allan, P. Eng.  
Director of Public Works**

**Kurt Greaves  
Chief Administrative Officer**



## **2. PURPOSE**

The purpose of this Report is to provide a summary of the discussion at the August 30<sup>th</sup>, 2012, Andrewsville Bridge Public Information Centre.

## **3. BACKGROUND**

The Andrewsville Bridge has been closed to vehicular traffic since May 4<sup>th</sup>, 2012. The closure occurred after a structural inspection of the Bridge on May 9<sup>th</sup>, 2012, concluded that it was unsafe for vehicular traffic due to the recent deformation of several truss members. The May 9<sup>th</sup>, 2012, inspection was initiated after an overloaded transport truck illegally crossed the Andrewsville Bridge and subsequently severely damaged the Parks Canada swing bridge at Nicholson's Lock. The Parks Canada swing bridge has been repaired, but remains closed to vehicular traffic, pending a decision regarding the future of the Andrewsville Bridge. The Councils of Lanark County and the United Counties of Leeds and Grenville deferred such a decision until public consultation was completed.

About 130 members of the public attended the Andrewsville Bridge Public Consultation Session, which was held at the Rosedale Hall, in Montague Township, from 5 to 7 pm, on August 30<sup>th</sup>, 2012. A number of Councillors from Lanark County, the United Counties of Leeds and Grenville and Montague Township also attended.

Notice of the Meeting was advertised in the EMC Record News, on the County's Website and posted on a roadside message board located at the intersection of County Road 2 (Heritage Drive) and Andrewsville Main Road. The Meeting Notice was also sent, by e-mail and regular mail, to over 100 persons on our project Mailing List and to the Friends of the Andrewsville Bridge.

The Public Consultation began with a 30 minute Presentation by Bill Bohne, the Consulting Engineer from McCormick Rankin Corporation, who has been assigned to this Project since 2005. A copy of the Presentation (attached at Appendix "A") was provided to the Meeting Participants when they arrived. The Presentation was followed by an one hour Question and Answer Period. Verbal responses to questions from the public and Montague Township Councillors were provided by Bill Bohne, Steve Allan (Lanark County, Director of Public Works) and Les Sheppard (United Counties of Leeds and Grenville, Director of Works, Planning Services and Asset Management). At the end of the Meeting, The Friends of the Andrewsville Bridge provided a written summary of their questions (attached at Appendix "B") to the Directors and requested a written response. A real-time, written record of the questions and answers, from the Meeting, was created by Bill Bohne's Assistant.

## **4. DISCUSSION**

A summary of the questions that were asked and the responses that were given is attached at Appendix "C." Members of the public were overwhelmingly in favour of reopening the Bridge, as soon as it was safe to do so, and maintaining the crossing, at Andrewsville, in the future.

## **5. ANALYSIS AND OPTIONS**

A summary of the Motions, regarding the future of the Andrewsville Bridge that have been considered by the two Counties, since June 2012, is at Appendix "D".

## **6. FINANCIAL IMPACT**

The Andrewsville Bridge is jointly owned by Lanark County and the United Counties of Leeds and Grenville. Therefore, the Councils of both Counties must jointly agree on any action to be taken and equally share the costs. Since none of the options has been pre-engineered, the estimated costs provided by the Consultant are not precise and they range from:

- \$50,000 every ten years if the bridge is closed to vehicular traffic.
- \$50,000 - 100,000 for minor repairs to reopen the bridge, with additional expenditures of the same amount every 3 to 5 years.
- \$2 million for a major rehabilitation, including strengthening the structure to accommodate 10 tonne loads. The feasibility, scope and cost of the rehabilitation could change if the structure receives a "Heritage" Designation.
- \$3 to \$3.5 million to replace the bridge. The feasibility, scope and cost of the replacement could change if the structure receives a "Heritage" Designation.

## **7. LOCAL MUNICIPAL IMPACT**

Representatives of the Friends of the Andrewsville Bridge, appeared as a Delegation, at the August 8<sup>th</sup>, 2012, Meeting of the Public Works Committee and provided a Petition with 1,027 signatures by persons "who are opposed to closing the Andrewsville Bridge to vehicular traffic".

## **8. CONCLUSIONS**

The previously presented Engineering Reports and the recently completed Public Consultation should facilitate a decision by the Councils of Lanark County and the United Counties of Leeds and Grenville regarding the future of the Andrewsville Bridge.

## **9. ATTACHMENTS**

Appendix "A" - Public Information Centre Presentation August 30<sup>th</sup>, 2012.  
Appendix "B" - Written Questions from the Friends of the Andrewsville Bridge.  
Appendix "C" - Responses to Public Information Centre Questions.  
Appendix "D" - Andrewsville Bridge: Summary of Motions.

PUBLIC INFORMATION CENTRE PRESENTATION AUGUST 30<sup>TH</sup>, 2012

**LANARK  
COUNTY**



## Andrewsville Bridge



**Public Information Centre  
August 30, 2012**

MRC

### Presentation will focus on the following:

- Background Information of the Crossing
  - Condition of existing structures
  - Summary of inspections/studies/repairs done to date
- Rehabilitation Alternatives
  - Crossing closure
  - Short-term repairs
  - Long-term rehabilitation or replacement
- Summary

Crossing is comprised of 3 main components:



Single span steel truss



Single span slab-on-girder



UngROUTED stone retaining walls

### Age of Crossing

- Exact date of construction is unknown.
- Based on historical records, bridge was built circa 1890.

### Heritage Status

- Bridge structures and causeway have not been formally designated as heritage structures, nor are under consideration for heritage designation.
- Given the age of the Crossing, a heritage assessment would be undertaken prior to major rehabilitation of the structure to determine a formal designation.
- Designation as a heritage structure will impact the type and scope of rehabilitation.

### June 2005: Detailed Inspection

- Crossing was generally in poor condition.
- Asphalt had numerous wide cracks and potholes, timber deck below exhibited signs of rot and had detached from stringers.



Steel had widespread light corrosion with areas of severe corrosion and perforated steel below-deck.

## Background Information

- Roller bearings were seized and do not adequately permit movements due to thermal expansion and contraction



- Concrete in pier and abutments was severely deteriorated





## Background Information

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In 2006, several stringers at the West Abutment were repaired to keep the bridge open to traffic.



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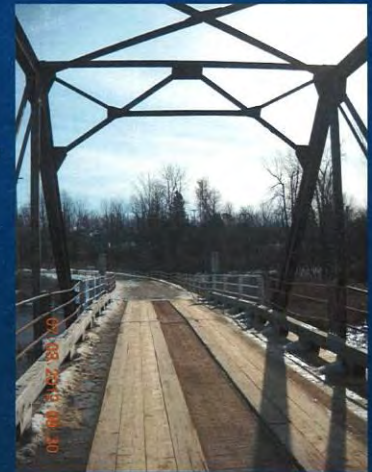
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### Major Rehabilitation (cont'd)

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### **Closing the Crossing**

- Preferable based on financial and structural perspective

### **Reopening the Crossing in the short term**

- Repairs are required prior to reopening
- Steps must be taken to restrict oversized vehicles
- Not a one-time expenditure, anticipate 3-5 years, then repeat the close/repair/replace process

### **Maintaining the Crossing in the long term**

#### **Replacing the Crossing**

- Environmental assessment to be started asap
- Funding to be secured

LANARK  
COUNTY



# Questions?

MRC

WRITTEN QUESTIONS FROM THE FRIENDS OF THE ANDREWVILLE BRIDGE

August 30, 2012

Mr. A Brown, CAO  
United Counties of Leeds and Grenville  
and  
Mr. K Greaves, CAO  
Lanark County

Dear Sirs:

**RE: ANDREWVILLE BRIDGE**

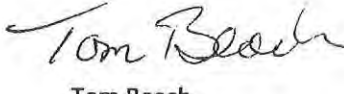
Thank you for hosting the public meeting regarding Andrewsville Bridge. We anticipate that we will not have sufficient time to ask all of the attached questions; therefore, we have provided you with a list of the pertinent question that we would like answered in writing.

This process is vital to the lives, economy and heritage of our area and I am sure you will assist us as we gather information. Our aim is to work with our respective Counties in a supportive and cooperative way to ensure we maintain the quality of life in our communities and the heritage we value.

Yours truly



Val Morris



Tom Beach

On behalf of the Friends of Andrewsville Bridge

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1

**FRIENDS OF THE ANDREWVILLE BRIDGE**

Tom Beach 115 Andrewsville Rd, RR3, Merrickville ON  
Val Morris 119 Water Street, Andrewsville ON

**UCLG & LANARK COUNTY PUBLIC MEETING**

**ANDREWSVILLE BRIDGE**

| QUESTION   | RESPONSE |
|--|----------|
| 1. The repairs carried out in 2008 were a stop-gap to allow time to seek funds to cover a more complete renovation. What was the result of this search, what renovations took place and what sources were approached for funds?  |          |
| 2. What kind of maintenance costs are budgeted for a bridge the size of Andrewsville (i.e. 48 metres plus 70 metres causeway)?   |          |
| 3. In the interest of public safety why was there not regular maintenance conducted on the bridge?   |          |
| 4. If both parties agree to contribute a minimum of \$25,000 each will that allow for the bridge to be re-opened immediately?  |          |
| 5. Why did UCLG state in the resolution (Aug 23) that funding should be sought 'outside the levy'? Does this mean that UCLG will not consider any more funds over the \$50,000 over 4 years for the Andrewsville Bridge?   |          |
| 6. In the Lanark County Agenda, Public Works Committee, Aug 01, 2012, a detailed report from the Steering Committee for the Provincial-Municipal Roads and Bridges Review was presented. This review states, "Municipal bridges should be considered a public safety priority regardless of the road classification and their criticality should be determined through municipal asset management plans." Given the urgency of the need for a long term plan to preserve bridges, can the Andrewsville Bridge be considered as a 'pilot project' for this new innovative review process? |          |
| 7. The Municipality of North Grenville just released information re: their application to the CIIF (Community Infrastructure Improvement Fund.) They requested \$570,000 for a Pedestrian bridge over the South Branch of the Rideau as part of their community pathways project. If this figure is the 'norm' for a foot bridge, why is the sum of \$50,000 or even \$100,000 to repair Andrewsville Bridge deemed to be a large sum?   |          |
| 8. Why hasn't the county provided an option to refurbish the Andrewsville Bridge using sufficient funds to do a proper job, one with long range planning to keep the bridge maintained for the next 20 years or more?  |          |
| 9. As taxpayers we have few demands on the UCLG (and Lanark) which receive a large % of our tax dollars. Our taxes have paid for and will continue to pay for assets throughout the UCLG (and Lanark.) It is now our time for need to provide funds to repair and protect a functional community asset. Will UCLG (and Lanark) accept their responsibility for Andrewsville Bridge and include it in their asset management plans?   |          |

## RESPONSES TO PUBLIC INFORMATION CENTRE QUESTIONS

*PIC Meeting – Andrewsville Bridge: Lanark County, United Counties of Leeds & Grenville*

*August 30, 2012*

## QUESTION &amp; RESPONSE SESSION

**Q:** The repairs carried out in 2008 were a stop-gap to allow time to seek funds to cover a more complete renovation. What was the result of this search, what renovations took place and what sources were approached for funds?

**A:** *There were no Federal/Provincial funding programs between 2008 and 2012. This is not to say that there will not be an appropriate program in the future. However, when there are Federal or Provincial infrastructure programs, factors such as economic impacts and the number of vehicles using a bridge play an important role in securing the funds. Bridges with higher traffic volumes are more likely to get funding.*

**Q:** We have known of maintenance required since 1991. What annual maintenance costs should have been allocated during this time? Where did money go from 1991 – 2005?

**A:** *The exact amount of money spent on this bridge is not readily available without researching into past expenditures. It is known that the bridge underwent major rehabilitations in the mid-1960's, mid-1980's, and in 2005. What needs to be determined now is the long-term requirement for a crossing in this location. Is a crossing required? If not, then consideration should be made to turning the bridge into a pedestrian bridge.*

**Q:** In the interest of public safety, why was there not regular maintenance conducted on the bridge?

*Bridges must legally be inspected every two years, and the results of the inspections serve as the basis for maintenance and rehabilitation programs. Infrastructure repair programs have been developed based on the necessity of repairs and the available monies for all County assets (roads, bridges, buildings). There is only so much money to go around, and the condition of the bridge is not due to neglect. Focus should be on what is required now for the future. The bridge is at the end of its life – something needs to be done.*

*Based on the Consultant's experience with many municipalities in Ontario, it appears that when infrastructure assets were downloaded from the province, insufficient funds were transferred to maintain the assets, or the assets transferred were not in adequate condition. A shortage of infrastructure funding is common in many Ontario municipalities.*

**Q:** If both parties agree to contribute a minimum of \$25,000 each will that allow for the bridge to be re-opened immediately?

**A:** *No. However, as stated in the presentation, if the bridge is strengthened, and measures are introduced to ensure the load posting on the bridge is met, it may be possible to reopen the bridge by Christmas. However, this will not resolve the long-term issues with the bridge. At some point in the near future, even if it is maintained as a pedestrian bridge, a major rehabilitation will be required.*

**Q:** Why did UCLG state in the August 23 resolution that funding should be sought “outside the levy”? Does this mean that UCLG will not consider any more funds over the \$50,000 over 4 years for the Andrewsville Bridge?

August 30, 2012

**A:** *The Andrewsville Bridge is 120 years old and requires a major rehabilitation which will be costly. Funding would be required from other sources (federal, provincial). As previously stated, until the future of the bridge has been decided, long-term funding requirements cannot be determined.*

**Q:** *In the Lanark County Agenda, Public Works Committee, August 1/12, a detailed report from the Steering Committee for the Provincial-Municipal Roads and Bridges Review was presented. This review states "Municipal bridges should be considered a public safety priority regardless of the road classification and their criticality should be determined through municipal asset management plans. Given the urgency of the need for a long term plan to preserve bridges, can the Andrewsville Bridge be considered as a 'pilot project' for this new innovative review process?"*

**A:** *The Lanark County Engineer was part of the Steering Committee. The report represents a long-term plan in the event that provincial funding is increased; however, at this time, there are insufficient funds available from the province to implement the proposal.*

**Q:** *The Municipality of North Grenville just released information re their application to CIIF (Community Infrastructure Improvement Fund). They requested \$570,000 for a pedestrian bridge over the south branch of the Rideau River as part of their community pathways project. If this figure is the norm for a footbridge, why is the sum of \$50,000 or even \$100,000 to repair the Andrewsville Bridge deemed to be a large sum?*

**A:** *A lot of spending is required around the Counties, and this brings us back to our earlier discussion. The Counties must prioritize funding for infrastructure based on usage, economic requirement, needs, etc. It is not the amount of money; rather, it is spending the money if the bridge is going to be closed in the near future, and the justifiable allocation of funds. Concerning infrastructure funding, the Consultant stated that he has completed numerous applications on behalf of municipal clients, and based on the economic impacts, traffic volumes, and nearby crossings, it would be unlikely that the Andrewsville Bridge would be successful in obtaining federal or provincial funding.*

**Q:** *Why haven't the Counties provided an option to refurbish the Andrewsville Bridge using sufficient funds to do a proper job, one with long range planning to keep the bridge maintained for the next 20 years or more?*

**A:** *As stated in the presentation, 3 options have been recommended: close it, fix it, or replace it. The option selected will be based on the decision concerning the future of the bridge. The final decision will be made by County Councils.*

**Q:** *As taxpayers we have few demands on the Counties, which receive a large percentage of our tax dollars. Our taxes have paid for and will continue to pay for assets in the Counties. It is now our time for need to provide funds and protect a functional community asset. Will the Counties accept their responsibility for Andrewsville Bridge and include it in their asset management plans?*

**A:** *The Andrewsville Bridge is included in the asset plans. Three alternatives, as previously stated, have been considered for the bridge. Based strictly on structural adequacy and financial viability, it has been*

*August 30, 2012*

*recommended to Councils to close the bridge. It is the panel's job to provide the Councils with recommendations.*

**Q:** *Since both counties have joint responsibility, why have both Counties not worked together to develop a joint strategy and asset management plan for saving or maintaining the bridge and, will both Counties work jointly or will UCLG give Lanark County the mandate to make decisions and support them in this lead?*

**A:** *Lanark is lead on the Andrewsville Bridge; however, all decisions concerning the bridge and costs for maintenance and repair are shared equally.*

**Q:** *Had it not been necessary to close the bridge in order to repair the Swing Bridge at Upper Nicholson's Locks, would Andrewsville Bridge still be open to vehicles?*

**A:** *If the bridge had not been damaged by the overweight vehicle, it would still be open for traffic.*

**Q:** *Is there any way of recuperating money for repairs from the overweight vehicle that crossed the bridge in May 2012?*

**A:** *In the case of the Swing Bridge, it was obvious, as the truck still had part of the railing stuck in the truck. As for Andrewsville Bridge, there is no way of proving that the damage was solely the responsibility of this truck.*

**Q:** *There seem to be differing risk factors regarding the safety of the Andrewsville Bridge. What will happen if we continue to use it? Lawyers don't seem to see a significant risk.*

**A:** *Structurally, there are concerns with the bridge, and it is an issue of public safety. In the Consultant's opinion, until the repairs are made and traffic restrictions are in place, it is recommended that the bridge remain closed.*

**Q:** *It seems that the fate of the Andrewsville Bridge was decided in 2005 when the short-term decision was made for repairs. Was there any money put away during this time? It is a poor timing.*

**A:** *In 2005, upon completion of an inspection of the bridge, the same 3 options (close it, fix it, replace it) were presented to the Councils and a decision was made to implement short-term repairs and postpone the final decision concerning the future of the bridge for 3 to 5 years. Had the heavy load not gone over the bridge in May, the bridge would still be open.*

**Q:** *Have any other Bridges been closed before under these circumstances?*

**A:** *Recently a city in Northern Ontario was faced with the same decision. Based on the economic and traffic requirements of both bridges, one was closed, and one was replaced.*

**Q:** *What is the plan for EMS vehicles if one or both of the remaining bridges are closed for repairs?*

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**A:** *Dave LaLiberte, EMS – We never use the Andrewsville bridge, and we take calls on both side of the bridge. Instead, we cross in Merrickville or Kemptville. Kingston covers Iroquois to Trenton. If the bridges are closed, the proper ambulance will be dispatched.*

**COMMENT:** I believe the EMS comments are untrue. I spoke with an officer after an accident today and was informed that have crossed over the Andrewsville Bridge. When the drowning occurred in 2007, the EMS used the Andrewsville Bridge.

**Q:** It appears that there are very few dollars being spent in the Andrewsville Hamlet. Given that Andrewsville is a designated settlement growth area, why is this?

**A:** *If you don't have sufficient available funds to go to all maintenance required, you need to decide what you will do first, and what you'll wait to maintain. What is justification when there is alternate maintenance required that is more populated and economically friendly. Money spent must be justified. Consider the Mississippi River Bridge: 5,000 cars a day, essential for industry, and it is a strategic bridge in the County. It also needs a major rehabilitation. Monies are spent where they have the most impact.*

**Q:** The Counties' vision for the future is based on maintaining the distinct character and heritage of our villages, towns, and hamlets, rural and waterfront areas will be maintained. How will this vision be realized if the Andrewsville Bridge is closed? A petition has been circulated and signed, and people are passionate about keeping the bridge.

**A:** *Again, one must consider – is the crossing required? Money goes towards priorities. How does the structure fit into priorities, activity, and economic requirements? Since the Bridge was closed on May 4<sup>th</sup>, there have been no calls received from Tourism, EMS, or citizens requiring the bridge. The panel agrees that the bridge increases the aesthetic appeal of the area, and for that reason, it is our recommendation to maintain the bridge, but as a pedestrian crossing. On another note, it is important to realize that the bridge has not been designated as a heritage structure.*

**COMMENT:** We have concerns with the bridge closure for neighbourhood safety. Since the closure there have been increased incidents of vandalism and partying on and around the bridge. The daily flow of traffic across the bridge acts as an informal neighbourhood watch.

**Q:** Once you close the Andrewsville Bridge, you won't get it back. If you want to be able to use it, we need to consider short-term repairs. Think of our options – can we build the bridge with local infrastructure? We need to think outside the box. Is there room for a separate bridge organization, help for funding? We all want to move forward and have bridge opened ASAP.

**A:** *Based on our experience, it is unlikely that the Andrewsville Bridge would receive funding from a grant as there would likely be another bridge that would be better suited for the grant considering the prior factors discussed that are taken into consideration. As for other sources of funding, this was researched last year prior to the current work being done on the Five Arches Bridge in Pakenham. It has been designated a heritage bridge; however, no funds from heritage organizations were available. In fact, OHT (Ontario Heritage Trust) has requested monies from the Province to stay solvent.*



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**Q:** I endorse all that was previously said. My concern is that minds are already made up – once the bridge is closed, it's closed forever. What is potential for the Rideau River? What about Traffic in Merrickville? What is the vision for road transportation cross the Rideau River?

**A:** *We've already given our recommendations; it's now the County Council's choice. There is no need for 3 bridges according to both calculations and traffic assessments.*

*There is the perception that the Counties are intent on closing the bridge regardless of public reaction. This is not true. In accordance with the Municipal Class Environmental Act (MCEA), the Counties have the authority to close the bridge without public consultation. However, both Counties were of the opinion that a public presentation was justified based on public opinion received to date.*

**Q:** We feel that the Counties' assessment of traffic flows is incorrect (200 to 400 vehicles per day, based on 2010 traffic counts), and does not accurately reflect the recent increase in traffic volumes across the bridge.

**A:** *We have no reason to believe that the 2010 counts have changed substantially.*

**Q:** Can Parks Canada fund repairs? What about the Rideau Corridor. Group? All townships?

**A:** *As previously discussed, infrastructure funding is an issue at all levels of government. In our previous discussions with Parks Canada, it is unlikely that they would have funds available, and this is further compounded by recent budget cutbacks at Parks Canada.*

**Q:** The quote for the \$2M repairs seems much higher than the numbers used for the same repair in 2007. Why has the cost increased so significantly?

**A:** *The 2007 numbers were very general costs designed to give the Counties some idea of what a variation of options would cost for comparison purposes, and were developed in general accordance with the limited environmental assessment done at that time. Alternatives ranging from bridge closure to replacement with a new two lane structure were reviewed, and some of the alternatives were immediately rejected. The latest estimated costs are a more realistic estimation of costs for the remaining alternatives (close it, fix it, replace it). The costs are also used for comparison purposes – for instance, to show that a major rehabilitation costs 10x a minor rehabilitation, and a replacement is 2x a major rehabilitation, etc.*

**Q:** In the past Lanark approved a \$25,000 sum. Grenville turned it down. However, Grenville recently approved \$25,000. How can this help?

**A:** *The motion was considered by Lanark County Council – but a decision was deferred pending public consultation. That is why we are having this meeting tonight. There is a Public Works meeting on September 19/12 where the Grenville motion will be considered. That being said, in order for Lanark County to approve the \$25,000 it would need to go first through the Public Works Committee, and then through the Council. .*

**Q:** is it feasible to do minor repairs now, to extend the life of the bridge by 3-5 years, and then seek additional funding for long-term repairs?

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**A:** *Yes. If the Councils decide to maintain the bridge in the long-term, this approach would permit the bridge to be opened in the near future while the long-term future of the bridge is determined. However, if this approach is selected, it is recommended that the environmental assessment for the major rehabilitation start as soon as possible, as there are significant approvals to obtain, and it may take years to complete the process.*

**Q:** How are we able to get any other questions to people?

**A:** *There are comment sheets available, as well as business cards. Please have all comments in by September 15<sup>th</sup>, as it is decision making time at the meeting on September 19<sup>th</sup>.*

**Q:** Following this meeting, what will be the next steps in this process and who will make the decisions regarding opening the bridge?

**A:** *Recommendations have been made to the Councils based on technical and financial information. It is now a decision for the Councils. Concerning the long-term future of the bridge, this meeting is one of the first steps. As part of the EA for a major rehabilitation, public input is required.*

**Q:** Who would be best for searching for funds for repair? Will there be annual report to review so we know work is being done if we opt for minor repairs for now and then seek funds for long-term repairs?

**A:** *Both Councils consider their priorities when submitting grant applications. There are other bridges in both Counties that are higher priorities than the Andrewsville Bridge. In the end, it comes down to funding – there is only so much available and it must be spent where it impacts the most people. Based on all factors, it is a political decision in the end.*

**COMMENT:** I understand that the decision must now be made by the politicians. We feel that you will do the right thing for us and the Andrewsville Bridge.

## SUPPLEMENTAL QUESTIONS

Many of the questions posed by the Friends of the Andrewsville Bridge, at Appendix “B”, were answered during the August 30<sup>th</sup>, 2012, Public Meeting Question Period. Responses to questions that were not addressed, at the Public Meeting, are below:

| QUESTION  | RESPONSE   |
|---|--|
| The counties vision for the Future is based on maintaining the distinct character and heritage of our villages, towns, and hamlets, rural and waterfront areas will be maintained. How will this vision be realized if the Andrewsville Bridge is closed?   | To realize the vision, the Counties must also be fiscally prudent and consider the Andrewsville Bridge, in the larger context, of the significant responsibilities to maintain large road systems with competing priorities.   |
| Both counties have been negligent in their maintenance of the bridge and have contributed to the current situation. Who will take the lead in any future planning for the bridge and maintain a working relationship with the Friends of Andrewsville?  | The Counties have not been negligent. Regardless of the Council decision, regarding the future of the Andrewsville Bridge, we will continue to work with the Friends of the Andrewsville Bridge.   |
| There have been 22 new homes built on both sides of the river neighbouring the Andrewsville County Rd 23 area. All of these homes contribute significantly to the tax base somewhere in the neighbourhood of \$300,000 what are the residents of this area receiving for such high taxes? And, what do current residents receive? | At the County level, your taxes provide funding for the County Road System, Ambulance Service, our Long-Term Care Facility and a number of Social Services Programs.   |
| The engineering firm, McCormick Rankin’s own information states that they are leaders in restoring historic bridges, were they asked to provide an opinion on the historic impact of this bridge and its value?   | The Consulting Engineer’s opinion is that the bridge is not a heritage structure. However, the final determination must be made by the Provincial Ministry of Heritage and Tourism. If the Counties proceed with the rehabilitation or the replacement of the bridge, a Heritage Assessment Study must be completed and submitted to the Province for their consideration. The Province, not the Counties, is responsible for determining if the bridge is a heritage structure. |
| Had it not been necessary to close the bridge in order to repair the Swing Bridge at Upper Nicholson’s Lock, would Andrewsville Bridge still be open to vehicles?   | Andrewsville Bridge was closed on May 4 <sup>th</sup> as it was deemed unsafe for vehicular traffic. It remains closed as the necessary repairs to ensure public safety have not been completed.   |
| Following this meeting what will be the next steps in this process and who will make the decisions regarding opening the bridge?  | The Councils of Lanark County and the United Counties of Leeds and Grenville will make that decision in due course.  |

|   |   |
|---|---|
| <p>The Provincial Government Official Plan shows the area as a “Settlement Area” which allows for growth as stated 22 new houses in the area does this not necessitate roads and bridges in good repair?</p>  | <p>There are existing bridges in Merrickville and Burritts Rapids that provide access to the Andrewsville Area Settlement Area.</p>   |
| <p>In the event that the counties cannot come to a mutual agreement on how to restore the bridge in the interim and in the longer term, how will this impact Parks Canada?</p>  | <p>Parks Canada is well aware of the Counties’ options for the future of the Andrewsville Bridge. They have expressed a desire to keep the Andrewsville Bridge open to vehicular traffic, but are not able to contribute financially to the repair, rehabilitation or replacement of the structure. Parks Canada has not informed the Counties about any long term impacts.</p> |
| <p>There has been x \$ spent on bridge in Lanark and Leeds and Grenville in the last xx years why was Andrewsville not a priority? For example, in North Grenville, in 2001, over \$359,000 was spent on two small bridges (Bishop’s Mills and McKenney) why wasn’t an equivalent ever spent on Andrewsville given its size, historic importance and the fact that it goes over the Rideau?</p> | <p>Public Works expenditures are approved by County Council. Road and Bridge Projects must be prioritized as there is insufficient funds to address all of the infrastructure needs. The Andrewsville Bridge has not been designated a historic structure.</p>  |
| <p>Given that neither UCLG or Lanark erected proper signage (in accordance with MTO) following the repairs to Andrewsville Bridge in 2008, why should we have any confidence that the counties will work together to seek funding for full repairs to the bridge let alone erect adequate signage now?</p>  | <p>Warning signage was installed on County Road 2. A Regulatory Sign, clearly indicating that the bridge is restricted to 5 Tonnes loads, is posted at the site.</p>  |

ANDREWSVILLE BRIDGE: SUMMARY OF MOTIONS

Andrewsville Bridge  
Summary of Staff  
Recommendations and Motions

As of August 29<sup>th</sup>, 2012

# Joint Staff Recommendation

## June 6<sup>th</sup>, 2012

**WHEREAS**, on March 7th, 2012, our Consulting Engineers completed a Structural Evaluation of the Andrewsville Bridge, recommending that the existing five (5) tonnes load posting was warranted. In order to mitigate the risk of continuing to use the structure beyond its service life, consideration is being given to its closure, rehabilitation or replacement;

**AND WHEREAS**, at the request of Parks Canada, the Andrewsville Bridge was closed to vehicular traffic on May 4th, 2012, when an loaded transport truck illegally used the crossing, damaging the adjacent Parks Canada swing bridge at Nicholson's Lock, and necessitating the closure of both bridges, to effect repairs;

**AND WHEREAS** an Engineer's Emergency Inspection of the Andrewsville Bridge on May 9th, 2012, identified evidence of distress in some of the truss members, which was not there in March, 2012, rendering the structure unsafe for vehicular traffic;

**AND WHEREAS**, at a joint meeting on May 22nd, 2012, with representatives from the Councils of Lanark County and the United Counties of Leeds and Grenville, our Consulting Engineers recommended the permanent closure of the Andrewsville Bridge to vehicular traffic;

**AND WHEREAS**, the Counties agree that it is not fiscally responsible to rehabilitate or replace the Andrewsville Bridge, since less than 200 vehicles per day use the structure, alternative crossings are available only four (4) km away, at Burritts Rapids and Merrickville, and the estimated costs would be at least \$1,750,000.

# Joint Staff Recommendation Cont'd

## June 6<sup>th</sup>, 2012

**NOW THEREFORE BE IT RESOLVED,**

**THAT**, in the interests of public safety and fiscal prudence, the Councils of Lanark County and the United Counties of Leeds and Grenville, accept the advice of our Consulting Engineers to close the Andrewsville Bridge to vehicular traffic;

**AND THAT**, Staff is directed to take the necessary steps, in accordance with the Municipal Engineers Association Class Environmental Assessment Process, to permanently close the Andrewsville Bridge, with a view to scheduling a Public Meeting in August, 2012;

**AND THAT**, the Clerk sends Report this Report to our Provincial and Federal Members of Parliament, Parks Canada, Montague Township and the Town of Merrickville-Wolford for information.

# Public Works Committee Meeting

## June 6<sup>th</sup>, 2012

Motion #PW -2012-052

**“THAT**, the County of Lanark fund 50 % of \$50,000 to execute the necessary repairs to attempt to extend the Andrewsville Bridge service life with the anticipation of exploring a full replacement with potential funding future funding opportunity from the government.

**AND THAT**, the necessary repairs to the Andrewsville Bridge be undertaken subject to an agreement with the United Counties of Leeds and Grenville.”

Moved By: John Fenik

Seconded By: Bill Dobson

ADOPTED



United Counties of Leeds and  
Grenville County Council Meeting  
June 21<sup>st</sup>, 2012

Resolution # CC-086-2012

**“THAT**, County Council defer the final decision on the closure of the Andrewsville Bridge until after the Public Information session;

**AND FURTHER THAT** the Bridge remains temporarily closed until a final decision is made.”

# Lanark County Council Meeting June 27<sup>th</sup>, 2012

## Motion #CC-2012-105

**THAT**, the Sixth Report of the Public Works Committee of the Whole, excluding Item #B4, be adopted as amended.”

Moved By: Susan Freeman

Seconded By: Keith Kerr

**ADOPTED**

Note: #B4 was the June 6<sup>th</sup>, 2012 Motion

# Lanark County Council Meeting June 27<sup>th</sup>, 2012

## **Motion #CC-2012-104**

**THAT**, discussions on the Andrewsville Bridge be referred to the August, 1<sup>st</sup> 2012 Public Works Committee Meeting;

**AND THAT**, Lanark County Council defer the decision on the future of the Andrewsville Bridge until Lanark County and the United Counties of Leeds and Grenville have hosted a joint Public Consultation meeting currently scheduled for August 30<sup>th</sup>, 2012 at the Rosedale Hall in Montague Township;

**AND THAT**, the Bridge remains temporarily closed to vehicular traffic until a final decision is made.”

Moved By: Keith Kerr  
Seconded By: Bill Dobson  
ADOPTED

# Public Works Committee Meeting August 1<sup>st</sup>, 2012

## Motion #PW-2012-066

“That, Motion #PW-052-2012 passed at the June 6<sup>th</sup>, 2012 Public Works Meeting be deferred to County Council for reconsideration”

Moved By: Richard Kidd

Seconded By: Pat Dolan

**ADOPTED**

# Lanark County Council Meeting

## August 29<sup>th</sup>, 2012

Motion #CC-2012-144

**“THAT**, Item “B” 2 regarding the Andrewsville Bridge be deferred to September.

Moved By: Keith Kerr

Seconded By: Peter McLaren

ADOPTED

Note: B2 was the June 6<sup>th</sup>, 2012 Motion

# LANARK COUNTY

**SEPTEMBER SESSION 2012**

MINUTES – REPORTS

BYLAWS – MOTIONS

Cathie Ritchie  
Director of Clerk's Services/Clerk

John Gemmell  
Warden

Pursuant to adjournment the Council of the Corporation of the County of Lanark met in regular session on Wednesday, September 26<sup>th</sup>, 2012 at 7:00 p.m.

**Chair:** Warden John Gemmell

**1. CALL TO ORDER**

The meeting was called to order at 7:01 p.m.

**2. MOMENT OF SILENT MEDITATION**

Council rose and observed a moment of silent meditation.

**3. ROLL CALL**

All members present.  
A quorum was present.

**4. DISCLOSURE OF PECUNIARY INTEREST**

None at this time.

**5. APPROVAL OF COUNCIL MINUTES**

**MOTION #CC-2012-164**

**MOVED BY:** Gail Code  
**SECONDED BY:** Aubrey Churchill

"**THAT**, the minutes of the Lanark County Council Meeting held on August 29<sup>th</sup>, 2012 be approved as circulated."

**ADOPTED**

**6. ADDITIONS AND APPROVAL OF AGENDA**

**MOTION #CC-2012-165**

**MOVED BY:** Brian Stewart  
**SECONDED BY:** Peter McLaren

"**THAT**, the agenda be adopted as presented."

**ADOPTED**

## 7. DELEGATIONS & PRESENTATIONS

- i) Presentation of Funds from Lanark County Warden's Golf Tournament to Perth & District Memorial Hospital  
**Warden John Gemmell**

Warden Gemmell presented Great War Memorial Hospital Foundation representative with a cheque, in the amount of \$2,000.00 from funds raised at the annual tournament.

- ii) Presentation of Funds from Lanark County Warden's Golf Tournament to Carleton Place & District Memorial Hospital  
**Warden John Gemmell**

Warden Gemmell presented Carleton Place & District Hospital representative with a cheque, in the amount of \$2,000.00 from funds raised at the annual tournament.

- iii) Presentation of Funds from Lanark County Warden's Golf Tournament to Almonte General Hospital  
**Warden John Gemmell**

Warden Gemmell presented Almonte General Hospital representatives with a cheque, in the amount of \$2,000.00 from funds raised at the annual tournament.

- iv) Presentation of Funds from Lanark County Warden's Golf Tournament to United Way  
**Warden John Gemmell**

Warden Gemmell presented United Way representative with a cheque, in the amount of \$2,000.00 from funds raised at the annual tournament.

## 8. COMMUNICATIONS

- i) L-SAA Steering Committee| LHIN Collaborative: Communique #2
- ii) South East LHIN: Advance Notice of Long-Term Care Home Accountability Planning Submission

### MOTION #CC-2012-166

**MOVED BY:** Wendy LeBlanc  
**SECONDED BY:** Ed Sonnenburg

"**THAT**, the communications for the September County Council meeting be received as information."

**ADOPTED**



**9. REPORTS**

- i) Community Development: September 5<sup>th</sup>, 2012 – *attached, page 11*  
**Chair, Councillor Richard Kidd**

**MOTION #CC-2012-167**

**MOVED BY:** Richard Kidd  
**SECONDED BY:** Sharon Mousseau

**“THAT, the Eleventh Report of the Community Development Committee of the Whole be adopted as presented.”**

**ADOPTED**

- ii) Public Works: September 5<sup>th</sup>, 2012 – *attached, page 15*  
**Chair, Councillor Susan Freeman**

**MOTION #CC-2012-168**

**MOVED BY:** Susan Freeman  
**SECONDED BY:** Keith Kerr

**“THAT, the Ninth Report of the Public Works Committee of the Whole be adopted as presented.”**

**ADOPTED**

- iv) Special Public Works: September 19<sup>th</sup>, 2012 – *attached, page 18*  
**Chair, Councillor Susan Freeman**

J. Fenik requested that item “B” 3 be pulled and voted on separately.

**MOTION #CC-2012-169**

**MOVED BY:** Susan Freeman  
**SECONDED BY:** Keith Kerr

**“THAT, the Tenth Report of the Public Works Committee of the Whole, excluding item “B” 3, be adopted as amended.”**

**ADOPTED**

Councillor Fenik stated that County Council should agree to provide the 50% of the \$50,000 and that in collaboration with the Friends of Andrewsville Bridge, Federal and Provincial funding be sought, in addition to fundraising efforts to open and maintain the bridge, and further that a moratorium be declared for a certain period of time to attempt to achieve funding. If the funding is not found, notice will be provided, and the bridge will be closed.

J. Fenik requested a recorded vote.

**MOTION #CC-2012-170**

**MOVED BY:** John Fenik  
**SECONDED BY:** Bill Dobson

**“THAT,** the County of Lanark fund 50% of \$50,000 to execute the necessary repairs to attempt to extend the Andrewsville Bridge service life with the anticipation of exploring a full replacement with potential future funding opportunity from the government;

**AND THAT** the necessary repairs to the Andrewsville Bridge be undertaken subject to an agreement with the United Counties of Leeds and Grenville.”

**DEFEATED**  
**FOR – 61**  
**AGAINST – 45**  
**ABSENT – 0**

Recorded vote – *attached page 21*

- v) Community Services: September 19<sup>th</sup>, 2012 – *attached, page 22*  
**Chair, Councillor John Levi**

B. Stewart requested that item “B” 3 be pulled and voted on separately.

**MOTION #CC-2012-171**

**MOVED BY:** John Levi  
**SECONDED BY:** Val Wilkinson

**“THAT,** the Eighth Report of the Community Services Committee of the Whole, excluding item “B” 3 be adopted as amended.”

**ADOPTED**

B. Stewart questioned whether the message that is being conveyed to the community is that Lanark County is out of the community grant process and believes that if that is not the case, then the community should still have the option to bring forward funding requests.

L. Drynan gave a PowerPoint Presentation – *attached page 24*

Discussion was held on providing County property with the stipulation that the request meets County requirements and at no cost.

J. Fenik requested a recorded vote.

**MOTION #CC-2012-172**

**MOVED BY:** John Fenik  
**SECONDED BY:** Pat Dolan

**“THAT,** the request for the Development of a Monument for Murdered Women be deferred to the 2013 budget deliberations.”

**DEFEATED**  
**FOR – 37**  
**AGAINST – 69**  
**ABSENT – 0**

Recorded vote – *attached page 26*

**MOTION #CC-2012-173**

**MOVED BY:** John Fenik  
**SECONDED BY:** Pat Dolan

**“THAT,** staff provide a report, to a future Corporate Services Committee of the Whole, outlining non-monetary options for the development of a monument for murdered women.”

**ADOPTED**

- vi) Corporate Services: September 19<sup>th</sup>, 2012 – *attached, page 27*  
**Chair, Councillor Sharon Mousseau**

**MOTION #CC-2012-174**

**MOVED BY:** Sharon Mousseau  
**SECONDED BY:** Richard Kidd

**“THAT,** the Ninth Report of the Corporate Services Committee of the Whole be adopted as presented.”

**ADOPTED**

- vii) **CONFIDENTIAL REPORTS**

None

**10. BY-LAWS AND MOTIONS**

- i) By-Law No. 2012-33: Rescind By-Law No. 2012-32 – *attached, page 31*

**MOTION #CC-2012-175**

**MOVED BY:** Keith Kerr  
**SECONDED BY:** Susan Freeman

“**THAT**, By-Law 2012-33, being a by-law to rescind By-Law No. 2012-32 which authorized the disposal and sale of surplus County owned property, be read a first and second time.”

**ADOPTED**

**MOTION #CC-2012-176**

**MOVED BY:** Keith Kerr  
**SECONDED BY:** Susan Freeman

“**THAT**, the By-Law just now read a second time, be forth with read a third time short and passed and signed by the Warden and Clerk.”

**ADOPTED**

- ii) By-Law No. 2012-34: Stop Up, Close and Authorize the Sale of Part of County Road 9 – *attached, page 33*

**MOTION #CC-2012-177**

**MOVED BY:** Pat Dolan  
**SECONDED BY:** Bill Dobson

“**THAT**, By-Law 2012-34, being a by-law to stop up, close and authorize the sale of part of County Road 9, be read a first and second time.”

**ADOPTED**

**MOTION #CC-2012-178**

**MOVED BY:** Pat Dolan  
**SECONDED BY:** Bill Dobson

“**THAT**, the By-Law just now read a second time, be forth with read a third time short and passed and signed by the Warden and Clerk.”

**ADOPTED**

- iii) By-Law No. 2012-35: Property Conveyance – Former County Road 1 to Twp. of Drummond/North Elmsley – *attached, page 36*

**MOTION #CC-2012-179**

**MOVED BY:** Bill Dobson  
**SECONDED BY:** Pat Dolan

“**THAT**, By-Law 2012-35, being a by-law to adopt a plan of County Road Improvement and Establishing a County Road System (County Road 1, Rideau Ferry Road), be read a first and second time.”

**ADOPTED**

**MOTION #CC-2012-180**

**MOVED BY:** Bill Dobson  
**SECONDED BY:** Pat Dolan

“**THAT**, the By-Law just now read a second time, be forth with read a third time short and passed and signed by the Warden and Clerk.”

**ADOPTED**

**12. NEW BUSINESS**

None

**13. NOTICE OF COMMITTEE MEETINGS**

- i) Meeting Schedule – *attached page 40*

**14. CONFIRM COUNCIL PROCEEDINGS**

- i) By-Law No. 2012-36: Confirming By-Law – *attached, page 39*

**MOTION #CC-2012-181**

**MOVED BY:** Ed Sonnenburg  
**SECONDED BY:** Aubrey Churchill

“**THAT**, By-Law 2012-36, being a by-law to confirm the proceedings of the Council meetings held on September 26<sup>th</sup>, 2012, be read a first and second time.”

**ADOPTED**

**MOTION #CC-2012-182**

**MOVED BY:** Ed Sonnenburg  
**SECONDED BY:** Aubrey Churchill

**“THAT,** the By-Law just now read a second time, be forth with read a third time short and passed and signed by the Warden and Clerk.”

**ADOPTED**

**15. REQUESTS FOR INTERVIEWS**

None

**16. ADJOURNMENT – O’CANADA**

Council adjourned at 8:09 p.m. on motion by Councillors K. Kerr and B. Stewart

*LDryman*  
Leslie Drynan,  
Deputy Clerk

# REPORTS



NINTH  
REPORT OF THE PUBLIC WORKS  
COMMITTEE OF THE WHOLE  
September 5<sup>th</sup>, 2012

To the Members of Lanark County Council.

We, the Members of your Public Works Committee of the Whole beg leave to report Section "A" to be received as information and Section "B" as follows:

"A" 1. Consent Reports

MOTION #PW-2012-086

"THAT, the following Consent Reports for the September Public Works Committee meeting be received as information:  
Report #PW-54-2012 Public Works Contracts Status Report #8  
Report #PW-55-2012 Road Tour - October 3, 2012: Proposed Itinerary  
Report #PW-58-2012 Public Works Garage Condition Assessment Reports  
Report #PW-60-2012 Bolton Creek Bridge Condition Survey Report."

"A" 2. Report #PW-44-2012 Proposed Conveyance: Former County Road 1 to Twp. of Drummond/North Elmsley

The purpose of this Report is to recommend the conveyance of County property, to the Township of Drummond/North Elmsley, to facilitate the proposed future construction of a public dock at Rideau Ferry.

"B" 2. MOTION #PW-2012-087

"THAT, County Council authorizes the Director of Public Works to proceed with the necessary By-Law to convey a portion of the former County Road 1, near the Rideau Ferry Bridge, more particularly described as Parts 1, 2, 3, 4 and 11 on Registered Plan 27R-10129, to the Township of Drummond/North Elmsley (Option 1);

AND THAT, the Clerk prepares the necessary By-Law to remove the portion of the former County Road 1, shown as Parts 1, 2, 3, 4, and 11 on Registered Plan 27R-10129, in Report #PW-44R-2012, from the County Road System, effective October 1st, 2012;

AND THAT, the Clerk sends Report #PW-44R-2012 to the Drummond/North Elmsley Township Clerk for information."



- “A” 3.** Report #PW-57-2012 Extension of Traffic Signals, Flashing Beacon and Street Light Maintenance Contract

The purpose of this report is to recommend the renewal of a Contract with Partham Engineering Limited.

- “B” 3.** **MOTION #PW-2012-088**

**“THAT**, the Public Works Committee recommends that Contract #PW-34-2007-09-E0-X3, with Partham Engineering Limited, for the provision of routine and emergency maintenance services on traffic signals, overhead flashing beacons and street lights, be renewed for a period of three years.”

- “A” 4.** Report #PW-59-2012 County Subsidy for Local Municipal Sidewalk Winter Maintenance

The purpose of this report is to recommend ending the ongoing subsidy to some local municipalities for sidewalk winter maintenance on County Roads.

- “B” 4.** **MOTION #PW-2012-089**

**“THAT**, the County subsidy for local municipal sidewalk winter maintenance as described in Report #PW-59-2012 be referred until budget deliberations.”

- “A” 5.** Report #PW-61-2012: Municipal Jurisdiction of Bridges

The purpose of this report is to respond to Council's direction to identify joint jurisdiction bridges in the County.

**MOTION #PW-2012-090**

**“THAT**, Report PW-61-2012, Municipal Jurisdiction of Bridges be accepted, for information.”

- “A” 6.** Report #PW-62-2012: Proposed 2012-2014 Roads/Bridges Capital Plan

The purpose of this Report is to propose the Road and Bridge Capital Program for 2013 and 2014.

- “B” 6.** **MOTION #PW-2012-091**

**“THAT**, the 2013 and 2014 proposed Road and Bridge Capital Program is referred to the Budget Process;

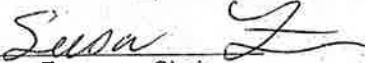
**AND THAT**, the Clerk sends Report #PW-62-2012 to all local municipal Clerks, for information.”

"A" 7. Report #PW-63-2012: Fuel & Asphalt Index Financial Impacts as of July 31st, 2012

MOTION #PW-2012-092


"THAT; Report #PW-63-2012: Fuel & Asphalt Index Financial Impacts as of July 31<sup>st</sup>, 2012 be received as information."


All of which is respectfully submitted by:

  
Susan Freeman, Chair

**Direction by the Warden:  
Council may remove items in Section "B" to be voted on separately prior to  
introducing a motion to accept the report in its entirety.**

Moved and Seconded by:

  
Moved By

  
Seconded By

  
John Gemmell  
Warden

Adopted this 26<sup>th</sup>, day of September, 2012

for   
Cathie Ritchie  
Director of Clerk's Service/Clerk



TENTH  
REPORT OF THE SPECIAL PUBLIC WORKS  
COMMITTEE OF THE WHOLE  
September 19<sup>th</sup>, 2012

To the Members of Lanark County Council.

We, the Members of your Public Works Committee of the Whole beg leave to report Section "A" to be received as information and Section "B" as follows:

- "A" 1. Resolution from United Counties of Leeds and Grenville: Andrewsville Bridge

**MOTION #PW-2012-094**

"THAT, the resolution from United Counties of Leeds and Grenville regarding the Andrewsville Bridge be received as information."

- "A" 2. Report #PW-65-2012 Andrewsville Bridge: Public Information Centre August 30, 2012

The purpose of this Report is to provide a summary of the discussion at the August 30<sup>th</sup>, 2012, Andrewsville Bridge Public Information Centre.

- "B" 2. **MOTION #PW-2012-095**

"THAT, Report #PW-65-2012 "Andrewsville Bridge: Public Information Centre August 30<sup>th</sup>, 2012", is accepted, for information;

THAT the Director of Public Works is authorized to provide the Friends of the Andrewsville Bridge the written responses to their questions, as amended, at Appendix "C" to Report #PW-65-2012;

AND THAT the Clerk sends Report #PW-65-2012 to the United Counties of Leeds and Grenville Clerk, the Montague Township Clerk, Parks Canada and the Friends of the Andrewsville Bridge, for information."

**"A"** 3. Motion #PW-2012-052 (Referred from June 6<sup>th</sup> meeting)

**"B"** 3. MOTION #PW-2012-052

**"THAT**, the County of Lanark fund 50% of \$50,000 to execute the necessary repairs to attempt to extend the Andrewsville Bridge service life with the anticipation of exploring a full replacement with potential future funding opportunity from the government;

**AND THAT** the necessary repairs to the Andrewsville Bridge be undertaken subject to an agreement with the United Counties of Leeds and Grenville.

**DEFEATED**

**"B"** 4. MOTION #PW-2012-096

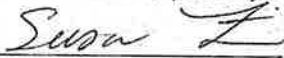
**"THAT**, the Andrewsville Bridge be open for pedestrians and bicycles only, and that County staff work with the Friends of Andrewsville Bridge with respect to the beautification of the bridge to an upset limit of \$\_\_\_\_\_."

**DEFERRED**

**"B"** 5. MOTION #PW-2012-097

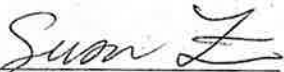
**THAT**, MOTION #PW-2012-096 be deferred, pending a staff report on the implications and anticipated costs of opening the bridge for recreational purposes (pedestrians and cyclists) at the October 3<sup>rd</sup> Public Works Committee meeting.


All of which is respectfully submitted by:

  
Susan Freeman, Chair

**Direction by the Warden:  
Council may remove items in Section "B" to be voted on separately prior to  
introducing a motion to accept the report in its entirety.**

Moved and Seconded by:

  
Moved By

  
Seconded By

Adopted this 26<sup>th</sup>, day of September, 2012

  
John Gemmell  
Warden

for   
Cathie Ritchie  
Director of Clerk's Service/Clerk

The Public Works Committee of the Whole met in regular session on Wednesday, November 7<sup>th</sup>, 2012 immediately following the Community Development Committee meeting at the Lanark County Municipal Office, 99 Christie Lake Road, Perth, Ontario.

**Members Present:** Chair S. Freeman, Councillors P. McLaren, J. Levi, V. Wilkinson, B. Dobson, P. Dolan, J. Fenik, K. Kerr, R. Kidd, E. Sonnenburg and A. Churchill

**Staff/Others Present:** K. Greaves, CAO  
C. Ritchie, Director of Clerk's Services/Clerk  
L. Drynan, Deputy Clerk  
S. Allan, Director of Public Works  
S. Law, Director of Information Technology  
M. White, Tourism Manager  
P. McLaren, I.T. Support

**Regrets:** Warden J. Gemmell, Councillors B. Stewart, S. Mousseau, W. LeBlanc and G. Code

## **PUBLIC WORKS**

**Chair:** Councillor Susan Freeman

### **1. CALL TO ORDER**

The meeting was called to order at 7:19 p.m.  
A quorum was present.

### **2. DISCLOSURE OF PECUNIARY INTEREST**

None at this time.

### **3. APPROVAL OF MINUTES**

#### **MOTION #PW-2012-098**

**MOVED BY:** Keith Kerr  
**SECONDED BY:** Peter McLaren

**"THAT**, the minutes of the Public Works Committee meeting held on October 3, 2012 be approved as circulated."

**ADOPTED**

4. **ADDITIONS AND APPROVAL OF AGENDA**

**ADDITION** – Verbal Update on McLean's Article

**MOTION #PW-2012-099**

**MOVED BY:** Aubrey Churchill

**SECONDED BY:** Bill Dobson

“**THAT**, the agenda be approved as amended.”

**ADOPTED**

5. **CONFIDENTIAL REPORTS**

None.

6. **DELEGATIONS & PRESENTATIONS**

- i) Mississippi Mills Cycling Update  
**Jeff Mills**

J. Mills gave a PowerPoint presentation – *attached, page 10*

B. Dobson suggested that the cycling plan be presented to Valley Heartland as a collaborated effort for funding opportunities.

- ii) Share the Road  
**Eleanor McMahan**

E. McMahan gave a PowerPoint presentation – *attached, page 24*

7. **COMMUNICATIONS**

- i) Township of Beckwith - Request to Transfer Boundary Bridges  
ii) OGRA Heads Up Alert: Five Year Extension Granted on the Use of Handheld Devices for Municipal Employees

R. Kidd requested that item i. be pulled and discussed separately.

**MOTION #PW-2012-100**

**MOVED BY:** Peter McLaren

**SECONDED BY:** Val Wilkinson

“**THAT**, the communications for the November Public Works Committee meeting, except item i. be received as information.”

**ADOPTED**

R. Kidd spoke to the Township of Beckwith's resolution regarding a request to Transfer Boundary Bridges. Discussion took place regarding identification of briges, options and costs.

**MOTION #PW-2012-101**

**MOVED BY:** John Levi  
**SECONDED BY:** Keith Kerr

"**THAT**, a detailed report regarding the transfer of Boundary Bridges be brought forward to the December Public Works Committee meeting, including a categorized list of all bridges, length of time under County ownership and the cost of uploading and/or downloading the bridges."

**ADOPTED**

**8. CONSENT REPORTS**

- i) Report #PW-70-2012 Public Works Contracts Status Report #10
- ii) Report #PW-74-2012 All-Terrain Vehicles on County Roads
- iii) Report #PW-76-2012: Andrews ville Bridge: Process for Conversion to Pedestrian and Cycling Use Only

A request was made to pull items ii and iii to be discussed separately.

**MOTION #PW-2012-102**

**MOVED BY:**  
**SECONDED BY:**

"**THAT**, the following Consent Report for the November Public Works Committee meeting be received as information:

Report #PW-70-2012: Public Works Contracts Status Report #10"

**ADOPTED**

- ii) Report #PW-74-2012 All-Terrain Vehicles on County Roads

Discussion took place regarding permitting ATV's on County roads, possible implications of increased policing costs and the manner in which a consultation process with the local municipalities could be undertaken.

**MOTION #PW-2012-103**

**MOVED BY:** Pat Dolan  
**SECONDED BY:** Aubrey Churchill



**“THAT**, a draft ATV by-law be brought forward to a future Public Works Committee meeting which permits the lawful use of ATV’s on County roads;

**AND THAT**, staff be directed to work in partnership with the local municipalities to distinguish specific roads within the rural and urban areas.”

**ADOPTED**

It was agreed that once a draft by-law is presented to the Public Works Committee for review, it will be shared with the local municipalities for their input and support.

iii) Report #PW-76-2012: Andrewsville Bridge: Process for Conversion to Pedestrian and Cycling Use Only

K. Kerr explained that the ‘Friends of Andrewsville Bridge’ Community group is willing to fundraise over the next few years in an attempt to save their bridge, and suggested that Council not deny them this opportunity and suggested that Committee mirror the resolution from United Counties of Leeds and Grenville.

**MOTION #PW-2012-104**

**MOVED BY:** Keith Kerr

**SECONDED BY:** John Fenik

**“THAT**, the Council of Lanark County agree to the following position in regards to the Andrewsville Bridge;

1. **THAT**, Lanark County agrees to provide a maximum of \$50,000, to be matched by funding from the United Counties of Leeds and Grenville over four years to allow traffic under five tonnes in weight on the Andrewsville Bridge; and
2. **THAT**, funding be sought outside the levy for replacement of the Andrewsville Bridge including Provincial and Federal Governments, Parks Canada and other agencies as well as community fundraising; and
3. **THAT**, in the event of a lack of non-levy funding to support the bridge, that further deterioration beyond Lanark County’s contribution of \$50,000 over four years for a total of \$100,000 invested by the two countires, that Lanark County shall recommend reconsideration of options by Lanark County and the United Counties of Leeds and Grenville.”

**ADOPTED**

**MOTION #PW-2012-105**

**MOVED BY:** Keith Kerr  
**SECONDED BY:** John Fenik

"**THAT**, if adequate funding for the Andrewsville Bridge is not obtained over the five years, that the bridge be closed."

**ADOPTED**

A question was raised with respect to Lanark County involvement in fundraising for the Andrewsville Bridge. Direction was provided to staff that United Counties of Leeds and Grenville take the lead on fundraising efforts.

**9. DISCUSSION REPORTS**

- i) Report #PW-72-2012 Rehabilitation Options: George Street Bridge - County Road 511  
**Director of Public Works, Steve Allan**

The purpose of this Report is to recommend the preferred rehabilitation option for the George Street Bridge, on County Road 511, in the Village of Lanark.

**MOTION #PW-2012-106**

**MOVED BY:** Keith Kerr  
**SECONDED BY:** Peter McLaren

"**THAT**, Contingent upon satisfactory results from semi-annual mandatory bridge inspections, a Deck Replacement Project, for the George Street Bridge, on County Road 511, in the Village of Lanark, is deferred until about 2033 (Option 3);

**AND THAT** within the next five years, the Director of Public Works budgets and schedules minor repairs to the George Street Bridge, as described in Report #PW-72-2012."

**ADOPTED**

- ii) Report #PW-73-2012 Public Information Centre Results and Design Options: Rehabilitation of County Road 16A Project  
**Director of Public Works, Steve Allan**

The purpose of this Report is to inform Council of the results of the Public Consultation, for the proposed rehabilitation of County Road 16A, in Almonte Ward, in 2013, and to recommend next steps.

A suggestion was made to obtain the report from Essex County regarding their County Wide Active Transportation Study Master Plan (CWATS).

**MOTION #PW-2012-107**

**MOVED BY:** Keith Kerr  
**SECONDED BY:** Pat Dolan

"**THAT**, County Council accepts the Public Information Centre Results and Design Options: County Road 16A Rehabilitation Project Report #PW 73 2012, for information;

**AND THAT**, The Clerk sends Report #PW-73-2012 to the Town of Mississippi Mills Council for their review and comment;

**AND THAT**, by January 31st, 2013, the Council of the Town of Mississippi Mills recommends their preferred design option, for the proposed rehabilitation of County Road 16A, to County Council."

**ADOPTED**

- iii) Report #PW-75-2012 Rehabilitation Options: Kilmarnock Bridge  
**Director of Public Works, Steve Allan**

The purpose of this Report is to recommend the preferred rehabilitation option, for the Kilmarnock Bridge, and to refer the Project to the 2013 Budget Process.

**MOTION #PW-2012-108**

**MOVED BY:** Aubrey Churchill  
**SECONDED BY:** Pat Dolan

"**THAT**, the proposed Project, to Rehabilitate the Kilmarnock Bridge, in 2013, as described in Report #PW-75-2012, is referred to the 2013 Budget Process (Option 4);

**AND THAT**, the Clerk sends Report #PW-75-2012 to the Clerk of the United Counties of Leeds and Grenville and the Montague Township Clerk, for information."

**ADOPTED**

- iv) Report #PW-77-2012: Public Works Tender Results for October/November 2012  
**Director of Public Works, Steve Allan**

The purpose of this Report is to seek Council approval of five Public Works Tenders that were closed during the months of October and November.

S. Allan reviewed the the RFQ results for snow plow blades – *attached*,  
*page 46*

**MOTION #PW-2012-109**

**MOVED BY:** Keith Kerr  
**SECONDED BY:** Bill Dobson

"**THAT**, Contracts be awarded, to the below listed Contractors, at the indicated prices plus applicable taxes:

i) PW-M-46-2012-13-E1 Combination Tandem Plow Truck and Operator for Winter Maintenance, County Road #16, Route #10 (South Lavant Road), Crains' Construction Limited, \$66,000.

ii) PW-M-47-2012-13-E1 Grit/Stone Dust (Union Hall, Almonte Garage and McDonalds Corners Pit), Crains' Construction Limited, \$18,780.

iii) PW-E-53-2012-15-E1 Request for Standing Offer (RFSO) for the Provision of Tires for Public Works Fleet, RDB Tire Sales, \$85,010.23.

iv) PW-E-54-2012-14-E2 Request for Quotation (RFQ) for Plow Blades, three year contract be awarded to Creighton Rock Drill with an upset limit of \$33,489.05.

v) PW-M-55-2012-12-E0 Culvert Replacement (County Roads #17, #20 and #29), Crains' Construction Limited, \$57,040."

**ADOPTED**

**10. VERBAL REPORTS**

- i) Report #PW-78-2012 Development Charges: March Road Improvements 2018-2023  
**Director of Public Works, Steve Allan**

S. Allan reviewed page 116 of the Transportation Master Plan – *attached*,  
*page 47*

**MOTION #PW-2012-110**

**MOVED BY:** Keith Kerr  
**SECONDED BY:** John Fenik

"**THAT**, Report #PW-78-2012 Development Charges: March Road Improvements 2018-2023 be received as information."

**ADOPTED**

**11. DEFERRED REPORTS**

None

**12. NEW/OTHER BUSINESS**

- i) Update on McLean's Article  
**Director of Public Works, Steve Allan**

S. Allan provided a brief overview of an incident which occurred on County Road 10 in September 2011 between a motor vehicle and a cow. The County and the local municipality were named as claimants to the case. In October 2012 the judge ruled that neither the County or the local municipality were liable.

- ii) Share the Road - Discussion and/or Staff Direction

**MOTION #PW-2012-111**

**MOVED BY:** Keith Kerr  
**SECONDED BY:** Val Wilkinson

**"THAT**, the Community Development Committee recommend that Lanark County Council support the Ontario Coroner's Review regarding cycling deaths;

**AND THAT**, staff be directed to prepare a resolution for the November Council meeting;

**AND FURTHER THAT**, Lanark County request (letter from Warden and delegation request at OGRA/ROMA Conference) that that Ministry of Transportation support funding for paved shoulders."

**ADOPTED**

- iii) Meeting Schedule – *attached, page 48*  
**Director of Clerk's Service/Clerk, Cathie Ritchie**

A brief discussion took place regarding the length of delegations, timeframe permitted in accordance with the Procedural By-law with direction provided to staff to consult with the Chair of the respective Committee if/when there is potential for a delegation to be longer than ten minutes.

**13. ADJOURNMENT**

The Committee adjourned at 9:40 p.m. on motion by Councillors E. Sonnenburg and Aubrey Churchill.

**THE COUNTY OF LANARK**

***PUBLIC WORKS COMMITTEE***

November 7<sup>th</sup>, 2012

Report #PW-76-2012 of the  
Director of Public Works

**ANDREWSVILLE BRIDGE: PROCESS FOR CONVERSION TO  
PEDESTRIAN AND CYCLING USE ONLY**

**1. STAFF RECOMMENDATIONS**

“THAT,

- i) County Council accepts Report #PW-76-2012 “Andrewsville Bridge: Process for Conversion to Pedestrian and Cycling Use Only”, for information.
- ii) The Clerk sends Report #PW-76-2012 to the Montague Township Clerk, the United Counties of Leeds and Grenville Clerk and the Lanark County Accessibility Committee, for information.”

---

**Recommended By:**

**Approved for Submission By:**

**Steve Allan, P. Eng.  
Director of Public Works**

**Kurt Greaves  
Chief Administrative Officer**

## 2. PURPOSE

The purpose of this Report is to respond to Council's questions about the potential conversion of the Andrewsville Bridge for use by pedestrians and cyclists only.

## 3. BACKGROUND

At their October 24<sup>th</sup>, 2012, Meeting, Lanark County Council tasked the Director to determine the process to close the Andrewsville Bridge to vehicular traffic and to respond to questions regarding the implications of Accessibility Regulations.

## 4. DISCUSSION

Process. Legal counsel, retained by the Director, has advised that to prohibit vehicular traffic on the Andrewsville Bridge, "A By-Law to Restrict the Common Law Right of Passage over the Andrewsville Bridge", must be enacted by Lanark County and the United Counties of Leeds and Grenville. A Draft By-Law is attached as Appendix "A".

Accessibility. In 2005, the Government of Ontario passed the Accessibility for Ontarians with Disabilities Act (AODA), which requires that Ontario be an accessible province by 2025. To help public, private and non-profit organizations identify, prevent and remove barriers to accessibility, the AODA contains accessibility standards in areas, including:

- Customer Service.
- Information and Communications.
- Employment.
- Transportation.
- The Built Environment.

The accessibility standard for customer service came into force in 2008. The next three standards, information and communications, employment and transportation have been combined into the Integrated Accessibility Standards Regulation (IASR). The IASR is now law and the requirements will be phased in over time. The standard for the built environment for facilities and outdoor spaces is still in development.

The Design of Public Spaces (Accessibility Standards for the Built Environment) portion of the new draft standard will **only apply to newly constructed facilities and projects that involve extensive renovations**. Since there will be no new construction nor extensive renovation to the structure, **compliance with these standards is not required if the Andrewsville Bridge is closed to vehicular traffic**. However, to meet the intent of the AODA, any modifications that are made to the Andrewsville Bridge should not create barriers to accessibility.

The Exterior Paths of Travel portion of the proposed new standard applies to outdoor sidewalks or walkways designed for pedestrian travel that serve a functional purpose and are not intended to provide a recreational experience. Paragraph 80.22 (8) of the

proposed Integrated Accessibility Standard states that “a minimum clear opening of 850 mm is required for gates, bollards and other entrance designs”. Therefore, this spacing requirement should be included in the design of the vehicular access barrier on the Andrewsville Bridge.

## **5. ANALYSIS AND OPTIONS**

None.

## **6. FINANCIAL IMPACT**

At their October 24<sup>th</sup>, 2012, Meeting, the Director provided Council (Report #PW-69-2012) with the estimated costs to close the Andrewsville Bridge, to vehicular traffic, and to convert it for use by pedestrians and cyclists. The County’s costs would include one-time costs of \$13,500 and annual costs (a contingency for future repairs) of \$5,000. The one-time costs included the installation of bollards to prohibit vehicle access to the Bridge. As per the discussion in this Report, the bollards must be spaced a minimum of 850 mm apart to permit wheelchair access. This requirement can be met within the \$13,500 estimated one-time costs that were previously provided.

The Lanark County Accessibility Coordinator and the United Counties of Leeds and Grenville Engineer have reviewed and concur with this Report.

## **7. LOCAL MUNICIPAL IMPACT**

None.

## **8. CONCLUSIONS**

To close the Andrewsville Bridge, to vehicular access, both Counties must pass a By-Law to Restrict the Common Law Right of Passage. No special accessibility measures need to be taken if the Andrewsville Bridge is closed, to vehicular traffic, as accessibility standards only apply to newly constructed facilities and projects that involve extensive renovations. However, bollards that could be installed to prohibit vehicular access to the Bridge, should be spaced a minimum of 850 mm apart to permit wheelchair access.

## **9. ATTACHMENTS**

Appendix “A”- Draft By-Law to Restrict the Common Law Right of Passage over the Andrewsville Bridge.



**DRAFT BY-LAW TO RESTRICT THE COMMON LAW RIGHT OF  
PASSAGE OVER THE ANDREWSVILLE BRIDGE**

**DRAFT**

**THE CORPORATION OF THE COUNTY OF LANARK**

**BY-LAW NO. \_\_\_\_\_**

**A BY-LAW TO RESTRICT THE COMMON LAW RIGHT OF PASSAGE OVER THE  
ANDREWSVILLE BRIDGE**

WHEREAS the Municipal Act, 2001, S.O. 2001, c. 25, s. 5 provides that the powers of a municipal corporation shall be exercised by its Council;

AND WHEREAS the Municipal Act, 2001, S.O. 2001, c. 25, s. 5 (3), provides that except where otherwise provided the powers of any Council shall be exercised by By-Law;

AND WHEREAS under the Municipal Act, 2001, S.O. 2001, c. 25, s. 1 (1), the term "highway" means a common and public highway and includes any bridge and, except as otherwise provided, includes a portion of a highway;

AND WHEREAS under the Municipal Act, 2001, S.O. 2001, c. 25, s. 35, except as otherwise provided in the Municipal Act, 2001, a municipality may pass By-Laws removing or restricting the common law right of passage by the public over a highway;

AND WHEREAS Section 54 of the Municipal Act, 2001, S.O. 2001, c. 25, provides that an upper-tier municipality that had jurisdiction over a bridge on a lower-tier highway on the day this section came into force continues to have jurisdiction over the approaches to it for 30 metres at each end of the bridge or any other distance agreed upon by the upper-tier municipality and the lower-tier municipality;

AND WHEREAS The Corporation of the County of Lanark has had joint ownership of the Andrewsville Bridge with the Corporation of the United Counties of Leeds and Grenville since it was constructed in 1904;

AND WHEREAS the Municipal Act, 2001, S.O. 2001, c. 25, s. 425 (1) authorizes municipalities to pass By-Laws providing that any person who contravenes any By-Law of the municipality is guilty of an offence;

AND WHEREAS by the adoption of Resolution # \_\_\_\_\_, Lanark County Council deems it expedient to enact a By-Law to restrict the common law right of passage over The Andrewsville Bridge.

NOW THEREFORE the Council of The Corporation of the County of Lanark enacts as follows:

### **DEFINITIONS**

In this By-Law "Bridge" includes the actual bridge structure, the land or water below the bridge and the 30 metres leading to the bridge on either side of same.

### **SCOPE**

This By-Law shall apply to the Bridges, spanning the Rideau River, located at Lot 2, Concession A, in the Township of Montague, and Lot 2, Concession B, Township of Merrickville-Wolford, Geographic Township of Wolford, more commonly called the Andrewsville Bridge. The bridges are jointly owned by The Corporation of the County of Lanark and the Corporation of the United Counties of Leeds and Grenville.

### **RESTRICTIONS**

1. The right to passage over the Bridges by vehicular traffic is prohibited.
2. Without limiting the generality of the foregoing, no person shall loiter on the Bridges.

### **EFFECTIVE DATE**

This By-Law takes effect when the United Counties of Leeds and Grenville enacts a By-Law to Restrict the Common Law Right of Passage over the Andrewsville Bridge.

### **PENALTY**

Every person who contravenes any provision of the By-Law is guilty of an offence, and upon conviction, is liable to a fine as provided in the *Provincial Offences Act*.

### **SEVERABILITY**

The invalidity or unenforceability of any section of this By-Law shall not affect the validity or enforceability of any other provision hereof and any such invalid or unenforceable section shall be deemed to be severable.

By-Law read a first, second and third time and finally enacted this \_\_\_\_ day of \_\_\_\_\_, 2012.

\_\_\_\_\_  
Warden - John Gemmell

\_\_\_\_\_  
Clerk – Cathie Ritchie



**MINUTES  
FOURTEENTH MEETING OF 2012  
PUBLIC WORKS COMMITTEE OF THE WHOLE**

The Public Works Committee of the Whole met in regular session on Wednesday, December 5<sup>th</sup>, 2012 immediately following the Community Development Committee meeting at the Lanark County Municipal Office, 99 Christie Lake Road, Perth, Ontario.

**Members Present:** Chair S. Freeman, Warden J. Gemmell, Councillors P. McLaren, B. Stewart, J. Levi, V. Wilkinson, B. Dobson, P. Dolan, K. Kerr, R. Kidd, S. Mousseau, W. LeBlanc, E. Sonnenburg, A. Churchill and G. Code

**Staff/Others Present:** K. Greaves, CAO/Treasurer  
L. Drynan, Deputy Clerk  
E. Patterson, Council and Clerk Services Assistant  
S. Allan, Director of Public Works  
M. Bothwell, I.T. Support

**Regrets:** Councillor J. Fenik

**PUBLIC WORKS**

**Chair:** Councillor Susan Freeman

**1. CALL TO ORDER**

The meeting was called to order at 6:40 p.m.  
A quorum was present.

**2. DISCLOSURE OF PECUNIARY INTEREST**

None at this time.

**3. APPROVAL OF MINUTES**

**MOTION #PW-2012-112**

**MOVED BY:** John Gemmell  
**SECONDED BY:** Keith Kerr

**"THAT,** the minutes of the Public Works Committee meeting held on November 7<sup>th</sup>, 2012 be approved as circulated."

**ADOPTED**

#### 4. ADDITIONS AND APPROVAL OF AGENDA

##### ADDITION

Under New/Other Business

- i) White Lines on Edge of Road

##### MOTION #PW-2012-113

**MOVED BY:** Peter McLaren

**SECONDED BY:** Pat Dolan

“THAT, the agenda be approved as amended.”

**ADOPTED**

#### 5. DELEGATIONS & PRESENTATIONS

- i) Recognition of Associate Certified Road Superintendent Certification Achievement – Tim Millar

**Warden John Gemmell/Chair, Councillor Susan Freeman**

Warden Gemmell and Chair Councillor S. Freeman presented Mr. Millar with a certificate of achievement.

#### 6. COMMUNICATIONS

- i) OGRA: Constitutional Amendment
- ii) Public Works Department Winter Road Maintenance Operations Notice
- iii) Letter from Morrison Hershfield: Detail Design and Environmental Assessment Study, Highway 7/Fall River Bridge Rehabilitation
- iv) OGRA Heads UP Alert: Ontario Introduces Next Step to Strengthen Municipal Infrastructure

##### MOTION #PW-2012-114

**MOVED BY:** Pat Dolan

**SECONDED BY:** John Gemmell

“THAT, the communications for the December Public Works Committee meeting be received as information.”

**ADOPTED**

**7. CONSENT REPORTS**

- i) Report #PW-79-2012 Public Works Contracts Status Report #11
- ii) Report #PW-82-2012 OGRA Long-Service Awards Luncheon Royal York Hotel February 26<sup>th</sup>, 2013

**MOTION #PW-2012-115**

**MOVED BY:** Brian Stewart  
**SECONDED BY:** John Gemmell

"**THAT**, the following Consent Report for the December Public Works Committee meeting be received as information:

Report #PW-79-2012 Public Works Contracts Status Report #11  
Report #PW-83-2012 OGRA Long-Service Awards Luncheon Royal York Hotel February 26<sup>th</sup>, 2013."

**ADOPTED**

**MOTION #PW-2012-116**

**MOVED BY:** Bill Dobson  
**SECONDED BY:** Pat Dolan

"**THAT**, the Verbal Reports be brought forward."

**ADOPTED**

**10. VERBAL REPORTS**

- i) Report #PW-84-2012 Andrewsville Bridge Repairs Schedule  
**Director of Public Works, Steve Allan**

S. Allan gave a PowerPoint Presentation – *attached page 8*

**MOTION #PW-2012-117**

**MOVED BY:** Keith Kerr  
**SECONDED BY:** Pat Dolan

"**THAT**, Article 20.8.9 of the County Purchasing Policy is waived and the CAO is authorized to award the Andrewsville Bridge Repairs Contract to the lowest compliant Bidder, contingent upon the award being less than or equal to \$100,000."

**MOTION #PW-2012-118**

**MOVED BY:** Richard Kidd  
**SECONDED BY:** John Levi

"**THAT**, Article 20.8.9 of the County Purchasing Policy is waived and the CAO is authorized to award the Andrewsville Bridge Repairs Contract to the lowest compliant Bidder, contingent upon the award being less than or equal to \$80,000."

**DEFEATED**

**MOTION #PW-2012-119**

**MOVED BY:** Sharon Mousseau  
**SECONDED BY:** Gail Code

"**THAT**, Article 20.8.9 of the County Purchasing Policy is waived and the CAO is authorized to award the Andrewsville Bridge Repairs Contract to the lowest compliant Bidder, contingent upon the award being less than or equal to \$100,000 inclusive of the signage and overhead."

**ADOPTED**

**8. DISCUSSION REPORTS**

- i) Report #PW-80-2012 Municipal Infrastructure Investment Initiative (MIII) Capital Program Expression of Interest  
**Director of Public Works, Steve Allan**

The purpose of this Report is to seek Council approval to submit an Expression of Interest for funding under the Municipal Infrastructure Investment Initiative (MIII) Capital Program.

**MOTION #PW-2012-120**

**MOVED BY:** Pat Dolan  
**SECONDED BY:** Wendy LeBlanc

"**WHEREAS**, by December 31<sup>st</sup>, 2013, the Corporation of the County of Lanark is committed to developing a comprehensive Asset Management Plan that includes all of the information and analysis described in the Province of Ontario document, "Building Together; Guide for Municipal Asset Management Plans;

**AND WHEREAS**, Lanark County Council has identified the Replacement of the Mississippi River Bridge as its highest priority capital project;

**NOW THEREFORE BE IT RESOLVED THAT** the Director of Public Works is authorized to submit a Municipal Infrastructure Investment Capital Program Expression of Interest to request \$2 million of provincial funding for a \$3 million project to replace the Mississippi River Bridge by December 31<sup>st</sup>, 2014 (Option 2)".

**ADOPTED**

- ii) Report #PW-81-2012 Draft By-Law to Regulate All-Terrain Vehicles on County Roads  
**Director of Public Works, Steve Allan**

The purpose of this Report is to provide a Draft By-Law for the Regulation of All Terrain Vehicles (ATV) on County Roads.

**MOTION #PW-2012-121**

**MOVED BY:** Aubrey Churchill  
**SECONDED BY:** Sharon Mousseau

"**THAT**, Report #PW-81-2012 "Draft By-Law to Regulate All-Terrain Vehicles on County Roads", as amended, be circulated to all local Municipalities, for their consideration, and comment, by April 1<sup>st</sup>, 2013."

**ADOPTED**

**MOTION #PW-2012-122**

**MOVED BY:** Richard Kidd  
**SECONDED BY:** Bill Dobson

"**THAT**, the Director of Public Works, include in the proposed draft, establishment of an ATV speed limit standard, as stipulated in the Highway Traffic Act."

**ADOPTED**

**9. CONFIDENTIAL REPORTS**

None

**11. DEFERRED REPORTS**

None

**12. NEW/OTHER BUSINESS**

- i) White Lines on the Edge of Road  
**Councillor Peter McLaren**

P. McLaren reported that he received a call regarding issues with visibility concerns when no white lines are present to indicate the edge of the road.

**MOTION #PW-2012-123**

**MOVED BY:** Peter McLaren  
**SECONDED BY:** Ed Sonnenburg

**“THAT,** the Director of Public works provide a report with a cost analysis providing white lines all County road edges.”

**ADOPTED**

- ii) Meeting Schedule – *attached, page 10*  
**Deputy Clerk, Leslie Drynan**

L. Drynan noted that a Special County Council meeting has been scheduled on December 12<sup>th</sup>, 2012 following the Corporate Services meeting.

**13. ADJOURNMENT**

The Committee adjourned at 7:27 p.m. on motion by Councillors K. Kerr and G. Code

  
Leslie Drynan,  
Deputy Clerk



# VERBAL REPORTS

# ANDREWSVILLE BRIDGE REPAIRS

Report #PW-84-2012  
Public Works Committee  
December 5<sup>th</sup>, 2012

## ANDREWSVILLE BRIDGE WORKS SUMMARY

### TENDER

- Structural repairs to permit 5 Tonne load
- Limit overhead clearance to 2 metres

### COUNTY PW Departments

- Warning signs

## SUGGESTED MOTION

**THAT** Article 20.8.9 of the County Purchasing Policy is waived and the CAO is authorized to award the Andrewsville Bridge Repairs Contract to the lowest compliant Bidder, contingent upon the award being less than or equal to \$100,000.

## ANDREWSVILLE BRIDGE REPAIR SCHEDULE

|        |                   |
|--------|-------------------|
| 3 Jan  | Distribute Tender |
| 17 Jan | Open Bids         |
| 18 Jan | Award Contract    |
| 25 Jan | Start Repair Work |
| 14 Feb | Bridge Open       |



**MEETING SCHEDULE – As at December 5<sup>th</sup>, 2012**

| Meeting  | Location                           | Time                    | Date                       |
|--|------------------------------------|-------------------------|----------------------------|
| Tourism Steering Committee   | Montague Room                      | 3:00 p.m.               | Wed. Dec. 12 <sup>th</sup> |
| Community Services Committee<br>Corporate Services Committee<br>Special County Council | Council Chambers                   | 5:00 p.m.               | Wed. Dec. 12 <sup>th</sup> |
| LCMTC  | D/NE Boardroom                     | 8:30 a.m.               | Mon. Dec. 17 <sup>th</sup> |
| Land Division  | Council Chambers                   | 10:00 a.m.              | Mon. Dec. 17 <sup>th</sup> |
| Forestry Working Group   | Carleton Place Boardroom           | 2:00 p.m.               | Mon. Dec. 17 <sup>th</sup> |
| Inaugural Meeting<br>Striking Committee  | Council Chambers<br>D/NE Boardroom | 11:00 a.m.<br>1:00 p.m. | Tue. Dec. 18 <sup>th</sup> |
| County Council   | Council Chambers                   | 7:00 p.m.               | Wed. Dec. 19 <sup>th</sup> |
| Community Development Committee<br>Public Works Committee                              | Council Chambers                   | 5:00 p.m.               | Wed. Jan. 9 <sup>th</sup>  |
| Community Services Committee<br>Corporate Services Committee                           | Council Chambers                   | 5:00 p.m.               | Wed. Jan. 16 <sup>th</sup> |
| LCMTC  | D/NE Boardroom                     | 8:30 a.m.               | Mon. Jan. 21 <sup>st</sup> |
| Forestry Working Group   | Carleton Place Boardroom           | 2:00 p.m.               | Mon. Jan. 21 <sup>st</sup> |
| Land Division  | Council Chambers                   | 9:00 a.m.               | Mon. Jan. 28 <sup>th</sup> |
| County Council   | Council Chambers                   | 7:00 p.m.               | Wed. Jan. 30 <sup>th</sup> |

# LANARK COUNTY

## NOVEMBER SESSION 2012

MINUTES – REPORTS

BYLAWS – MOTIONS

Cathie Ritchie  
Director of Clerk's Services/Clerk

John Gemmell  
Warden



COUNTY COUNCIL  
Council Chambers  
Municipal Office  
Perth, Ontario

Pursuant to adjournment the Council of the Corporation of the County of Lanark met in regular session on Wednesday, November 28<sup>th</sup>, 2012 at 7:00 p.m.

**Chair:** Warden John Gemmell

**1. CALL TO ORDER**

The meeting was called to order at 7:02 p.m.

**2. MOMENT OF SILENT MEDITATION**

Council rose and observed a moment of silent meditation.

**3. ROLL CALL**

All members present except Councillor S. Freeman.  
A quorum was present.

**4. DISCLOSURE OF PECUNIARY INTEREST**

None at this time.

**5. APPROVAL OF COUNCIL MINUTES**

**MOTION #CC-2012-208**

**MOVED BY:** Keith Kerr

**SECONDED BY:** Brian Stewart

"**THAT**, the minutes of the Lanark County Council Meeting held on October 24<sup>th</sup>, 2012 be approved as amended."

**ADOPTED**

## 6. ADDITIONS AND APPROVAL OF AGENDA

### DEFERRAL

Under By-Laws and Motions

iv) By-Law No. 2012-43: Adopting a Plan of County Road

### MOTION #CC-2012-209

**MOVED BY:** Pat Dolan

**SECONDED BY:** John Fenik

“THAT, the agenda be adopted as amended.”

**ADOPTED**

## 7. DELEGATIONS & PRESENTATIONS

None

## 8. COMMUNICATIONS

- i) Community Meeting on Housing & Homelessness
- ii) Letter from Minister Bob Chiarelli: Ontario’s Municipal Infrastructure Strategy
- iii) Thank You Letter from the Heart & Stroke

### MOTION #CC-2012-210

**MOVED BY:** Bill Dobson

**SECONDED BY:** Pat Dolan

“THAT, the communications for the November County Council meeting be received as information.”

**ADOPTED**

## 9. REPORTS

- i) Community Development: November 7<sup>th</sup>, 2012 – *attached, page 15*  
**Chair, Councillor Richard Kidd**

S. Mousseau requested that item “B” 4 be pulled and voted on separately and “B” 7 be pulled for a notation.

V. Wilkinson requested that item “B” 6 be pulled and voted on separately.

**MOTION #CC-2012-211**

**MOVED BY:** Sharon Mousseau  
**SECONDED BY:** Keith Kerr

**“THAT**, the Clerk prepare a By-law to amend By-law No. 2000-17 to delegate the authority to approve ‘minor’ revisions to plans of subdivision or condominium plans appointing the Planning Administrator, the Chief Administrator, and the Chair of the Community Development Committee for the Corporation, in accordance with the Planning Act Section 51.2 (1).”

**ADOPTED**

S. Mousseau requested that item “B” 7, the Text2 Visit application be revisited in the future.

**MOTION #CC-2012-212**

**MOVED BY:** Val Wilkinson  
**SECONDED BY:** Gail Code

**“THAT**, the Request for Proposal #PD-001-2012 Development / Landscape Master Plan, located at 99 Christie Lake Road, Lot 27 Concession 2 geographic Township of Bathurst know in Tay Valley Township, be awarded to Tocher Heyblom Design Inc. (thinc) in the amount of \$13,900.00 which included disbursements, plus applicable taxes;

**AND THAT**, staff be directed to budget for an additional \$3,260.00 for the optional provisional public meeting, plus applicable taxes.”

**ADOPTED**

Discussion was held regarding the optional provisional public meeting.

**MOTION #CC-2012-213**

**MOVED BY:** Richard Kidd  
**SECONDED BY:** Sharon Mousseau

**“THAT**, the Thirteenth Report of the Community Development Committee of the Whole, excluding items “B” 4 and “B” 6, be adopted as presented.”

**ADOPTED**



- ii) Public Works: November 7<sup>th</sup>, 2012 – *attached, page 20*  
**Past Chair, Councillor Aubrey Churchill**

K. Kerr requested clarification on items “B” 5 and “B” 6.

**MOTION #CC-2012-214**

**MOVED BY:** Aubrey Churchill

**SECONDED BY:** Gail Code

“**THAT**, the Twelfth Report of the Public Works Committee of the Whole be adopted as presented.”

**ADOPTED**

- iii) Community Services: November 14<sup>th</sup>, 2012 – *attached, page 25*  
**Chair, Councillor John Levi**

**MOTION #CC-2012-215**

**MOVED BY:** John Levi

**SECONDED BY:** Brian Stewart

“**THAT**, the Tenth Report of the Community Services Committee of the Whole, be adopted as presented.”

**ADOPTED**

J. Fenik requested that staff notify the organizers of the Memorial for Victims of Violence, of the passing of Motion #CS-2012-077.

- iv) Special Corporate Services: November 2<sup>nd</sup>, 2012 – *attached page 28*  
**Chair, Councillor Sharon Mousseau**

**MOTION #CC-2012-216**

**MOVED BY:** Sharon Mousseau

**SECONDED BY:** Richard Kidd

“**THAT**, the Eleventh Report of the Corporate Services Committee of the Whole be adopted as presented.”

**ADOPTED**

- v) Corporate Services: November 14<sup>th</sup>, 2012 – *attached, page 30*  
**Chair, Councillor Sharon Mousseau**

**MOTION #CC-2012-217**

**MOVED BY:** Sharon Mousseau  
**SECONDED BY:** Richard Kidd

“**THAT**, the Twelfth Report of the Corporate Services Committee of the Whole be adopted as presented.”

**ADOPTED**

- vi) Special Corporate Services: November 21<sup>st</sup>, 2012 – *attached page 35*  
**Chair, Councillor Sharon Mousseau**

K. Kerr requested clarification on item “B” 2.

**MOTION #CC-2012-218**

**MOVED BY:** Richard Kidd  
**SECONDED BY:** Keith Kerr

“**THAT**, item “B” 2 Motion #CP-2012-0175 be withdrawn from the Thirteenth Report of the Corporate Services Committee of the Whole, November 21<sup>st</sup>, 2012.

**ADOPTED**

**MOTION #CC-2012-219**

**MOVED BY:** Sharon Mousseau  
**SECONDED BY:** Richard Kidd

“**THAT**, the Thirteenth Report of the Corporate Services Committee, excluding item “B” 2, be adopted as presented.”

**ADOPTED**

- vii) Striking Committee: November 7<sup>th</sup>, 2012 – *attached page 38*  
**Chair, Councillor Bill Dobson**

**MOTION #CC-2012-220**

**MOVED BY:** Bill Dobson  
**SECONDED BY:** Pat Dolan

“**THAT**, the Sixth Report of the Striking Committee be adopted as presented.”

**ADOPTED**

**10. CONFIDENTIAL REPORTS**

None

**11. BY-LAWS AND MOTIONS**

- i) By-Law No. 2012-38 Appoint Chief Administrative Officer/Treasurer – *attached page 40*

**MOTION #CC-2012-221**

**MOVED BY:** Gail Code  
**SECONDED BY:** Aubrey Churchill

“**THAT**, By-Law 2012-38, being a by-law to appoint a Chief Administrative Officer/Treasurer for the Corporation of the County of Lanark, be read a first and second time.”

**ADOPTED**

**MOTION #CC-2012-222**

**MOVED BY:** Gail Code  
**SECONDED BY:** Aubrey Churchill

“**THAT**, the By-Law just now read a second time, be forth with read a third time short and passed and signed by the Warden and Clerk.”

**ADOPTED**

- ii) By-Law No. 2012-39: Appoint Financial Services Supervisor/Deputy Treasurer – *attached page 42*

**MOTION #CC-2012-223**

**MOVED BY:** Brian Stewart  
**SECONDED BY:** Peter McLaren

“**THAT**, By-Law 2012-39, being a by-law to appoint a Financial Services Supervisor/Deputy Treasurer for the Corporation of the County of Lanark, be read a first and second time.”

**ADOPTED**

**MOTION #CC-2012-224**

**MOVED BY:** Brian Stewart  
**SECONDED BY:** Peter McLaren

“**THAT**, the By-Law just now read a second time, be forth with read a third time short and passed and signed by the Warden and Clerk.”

**ADOPTED**

- iii) By-Law No. 2012-40: Amend By-Law No. 2000-17 – Delegation of Authority (Minor Changes to Subdivisions/Condos) – *attached page 44*

**MOTION #CC-2012-225**

**MOVED BY:** Aubrey Churchill  
**SECONDED BY:** Gail Code

“**THAT**, By-Law 2012-40, being a by-law regarding approval for minor revisions for matters related to the approval process for plans of subdivision and condominium, amending By-Law 2000-17, be read a first and second time.”

**ADOPTED**

**MOTION #CC-2012-226**

**MOVED BY:** Aubrey Churchill  
**SECONDED BY:** Gail Code

“**THAT**, the By-Law just now read a second time, be forth with read a third time short and passed and signed by the Warden and Clerk.”

**ADOPTED**

- iv) By-Law No. 2012-41: Domiciliary Hostel Services Agreements – *attached page 46*

**MOTION #CC-2012-227**

**MOVED BY:** John Fenik  
**SECONDED BY:** Sharon Mousseau

“**THAT**, By-Law 2012-41, being a by-law to authorize the execution of agreements between domiciliary hostels and the Corporation of the County of Lanark, be read a first and second time.”

**ADOPTED**

**MOTION #CC-2012-228**

**MOVED BY:** John Fenik  
**SECONDED BY:** Sharon Mousseau

“**THAT**, the By-Law just now read a second time, be forth with read a third time short and passed and signed by the Warden and Clerk.”

**ADOPTED**

- v) By-Law No. 2012-42: Incorporate Acquired Land Into the County Road System – *attached page 48*

**MOTION #CC-2012-229**

**MOVED BY:** Wendy LeBlanc  
**SECONDED BY:** Ed Sonnenburg

“**THAT**, By-Law 2012-42, being a by-law to incorporate acquired land in the County Road System be read a first and second time.”

**ADOPTED**

**MOTION #CC-2012-230**

**MOVED BY:** Wendy LeBlanc  
**SECONDED BY:** Ed Sonnenburg

“**THAT**, the By-Law just now read a second time, be forth with read a third time short and passed and signed by the Warden and Clerk.”

**ADOPTED**

- vi) By-Law No. 2012-43: Adopting a Plan of County Road

Deferred until an agreement has been established.

- vii) By-Law No. 2012-44: Adopt Estimates for the Sums Required During 2013 –  
*attached page 50*

**MOTION #CC-2012-231**

**MOVED BY:** Ed Sonnenburg

**SECONDED BY:** Aubrey Churchill

“**THAT**, By-Law 2012-44, being a by-law to adopt the Estimates for the sums required during the year 2013 for general purposes of the Corporation of the County of Lanark, be read a first and second time.”

**ADOPTED**

**MOTION #CC-2012-232**

**MOVED BY:** Ed Sonnenburg

**SECONDED BY:** Aubrey Churchill

“**THAT**, the By-Law just now read a second time, be forth with read a third time short and passed and signed by the Warden and Clerk.”

**ADOPTED**

- viii) Long-Term Care: CMI Freeze

**MOTION #CC-2012-233**

**MOVED BY:** Keith Kerr

**SECONDED BY:** Ed Sonnenburg

“**THAT**, Lanark County Council write a letter to Deb Mathews, Minister of Health and Long-Term Care, outlining their continued concerns related to their decision to “CAP” homes at prior years funding given the negative consequences that it has for Lanark Lodge as an operator in Phase 8 of the MDS project.”

**ADOPTED**

- ix) Support for Coroner's Report Recommendations – "Cycling Death Review: A Review of All Accidental Deaths in Ontario from January 1<sup>st</sup>, 2006 to December 31<sup>st</sup>, 2010"

**MOTION #CC-2012-234**

**MOVED BY:** Sharon Mousseau

**SECONDED BY:** Aubrey Churchill

**"WHEREAS**, the Council of Lanark County has adopted a Transportation Master Plan and is committed to creating safer roads for both cyclists and motorists within our communities;

**AND WHEREAS**, the Council of Lanark County supports vibrant, safe, connected communities and encourages the enhancement and overall health and quality of life created through cycling;

**AND WHEREAS**, the Office of the Chief Coroner of Ontario recently released a report entitled "Cycling Death Review: A Review of All Accidental Deaths in Ontario from January 1st, 2006 to December 31st, 2010" which contained 14 recommendations in the area of public safety and death prevention;

**NOW THEREFORE BE IT RESOLVED**, that the Council of the Corporation of the County of Lanark endorse the recommendations contained in the Cycling Death Review report from the Office of the Chief Coroner for Ontario;

**AND THAT**, correspondence be sent to the Province of Ontario requesting action on the report's recommendations, particularly the development of an Ontario Cycling Plan to guide the development of policy, legislation and regulations and the commitment of infrastructure funding to support cycling in Ontario."

**ADOPTED**

- x) Heart and Stroke Foundation – Support for "How to Save a Life Campaign"

**MOTION #CC-2012-235**

**MOVED BY:** Keith Kerr

**SECONDED BY:** Pat Dolan

**"WHEREAS**, every year in Ontario, 7,000 cardiac arrests occur with the majority occurring in public places or homes;

**AND WHEREAS**, the survival rate, for out-of-hospital cardiac arrests in Ontario is only 5-6%;

**AND WHEREAS**, cardiac safety in Lanark County is of a high importance;

**NOW THEREFORE BE IT RESOLVED THAT**, Lanark County Council:

1. To commit to implementing a broad public education campaign raising the awareness around issues such as the ease of CPR training and use of AED in the municipality;
2. To ensure that AEDs are placed in all sport and recreation facilities and schools through the Ontario Defibrillator Access Initiative;
3. To support the Heart and Stroke Foundation's request to have the script for emergency medical dispatchers be revised to provide the most compelling, clear and mandatory CPR direction in all cases of cardiac arrest. That this resolution be circulated to the Premier of Ontario, the Association of Municipalities of Ontario and the Heart and Stroke Foundation.

**AND THAT**, the Clerk is directed to distribute this Lanark County motion to the Clerk of the Local Municipalities;

**AND THAT**, the Warden and Chief Administrative Officer are directed to bring forth this resolution to the Eastern Ontario Warden Caucus;

**AND THAT**, the Warden is authorized to write the Minister of Health and Long Term Care advising that Lanark County Council supports the Heart and Stroke Foundation to amend the script for emergency medical dispatchers."

**ADOPTED**

**12. NEW BUSINESS**

None

**13. NOTICE OF COMMITTEE MEETINGS**

- i) Meeting Schedule – *attached page 54*

Councillor Kidd requested that a striking committee meeting be held to review the 2013 Board/Committee/Working Group appointments terms and number of meetings prior to the inaugural meeting. A meeting has been scheduled for December 5<sup>th</sup>, 2012 at 3:30 p.m.



**14. CONFIRM COUNCIL PROCEEDINGS**

- i) By-Law No. 2012-45: Confirming By-Law – *attached, page 53*

**MOTION #CC-2012-236**

**MOVED BY:** Peter McLaren  
**SECONDED BY:** Brian Stewart

“**THAT**, By-Law 2012-45, being a by-law to confirm the proceedings of the Council meetings held on November 28<sup>th</sup>, 2012, be read a first and second time.”

**ADOPTED**

**MOTION #CC-2012-237**

**MOVED BY:** Peter McLaren  
**SECONDED BY:** Brian Stewart

“**THAT**, the By-Law just now read a second time, be forth with read a third time short and passed and signed by the Warden and Clerk.”

**ADOPTED**

**15. REQUESTS FOR INTERVIEWS**

Lake 88 requested interviews with Councillor Mousseau and Dobson.

**16. ADJOURNMENT – O’CANADA**

Council adjourned at 8:06 p.m. on motion by Councillors K. Kerr and B. Stewart.



**Cathie Ritchie,  
Clerk**

# REPORTS



**TWELFTH  
REPORT OF THE PUBLIC WORKS  
COMMITTEE OF THE WHOLE  
November 7<sup>th</sup>, 2012**

To the Members of Lanark County Council.

We, the Members of your Public Works Committee of the Whole beg leave to report Section "A" to be received as information and Section "B" as follows:

**"A"** 1. Communication

**MOTION #PW-2012-100**

**"THAT**, the communications for the November Public Works Committee meeting, except item i. be received as information."

**"A"** 2. Township of Beckwith - Request to Transfer Boundary Bridges

**"B"** 2. **MOTION #PW-2012-101**

**"THAT**, a detailed report regarding the transfer of Boundary Bridges be brought forward to the December Public Works Committee meeting, including a categorized list of all bridges, length of time under County ownership and the cost of uploading and/or downloading the bridges."

**"A"** 3. Consent Reports

**MOTION #PW-2012-102**

**"THAT**, the following Consent Report for the November Public Works Committee meeting be received as information:

Report #PW-70-2012: Public Works Contracts Status Report #10"

**“A” 4.** Report #PW-74-2012 All-Terrain Vehicles on County Roads

**“B” 4. MOTION #PW-2012-103**

**“THAT**, a draft ATV by-law be brought forward to a future Public Works Committee meeting which permits the lawful use of ATV’s on County roads;

**AND THAT**, staff be directed to work in partnership with the local municipalities to distinguish specific roads within the rural and urban areas.”

**“A” 5.** Report #PW-76-2012: Andrewsville Bridge: Process for Conversion to Pedestrian and Cycling Use Only

**“B” 5. MOTION #PW-2012-104**

**“THAT**, the Council of Lanark County agree to the following position in regards to the Andrewsville Bridge;

1. **THAT**, Lanark County agrees to provide a maximum of \$50,000, to be matched by funding from the United Counties of Leeds and Grenville over four years to allow traffic under five tonnes in weight on the Andrewsville Bridge; and
2. **THAT**, funding be sought outside the levy for replacement of the Andrewsville Bridge including Provincial and Federal Governments, Parks Canada and other agencies as well as community fundraising; and
3. **THAT**, in the event of a lack of non-levy funding to support the bridge, that further deterioration beyond Lanark County’s contribution of \$50,000 over four years for a total of \$100,000 invested by the two counties, that Lanark County shall recommend reconsideration of options by Lanark County and the United Counties of Leeds and Grenville.”

**“B” 6. MOTION #PW-2012-105**

**“THAT**, if adequate funding for the Andrewsville Bridge is not obtained over the five years, that the bridge be closed.”

**“A” 7.** Report #PW-72-2012 Rehabilitation Options: George Street Bridge - County Road 511

The purpose of this Report is to recommend the preferred rehabilitation option for the George Street Bridge, on County Road 511, in the Village of Lanark.

**“B” 7. MOTION #PW-2012-106**

**"THAT**, Contingent upon satisfactory results from semi-annual mandatory bridge inspections, a Deck Replacement Project, for the George Street Bridge, on County Road 511, in the Village of Lanark, is deferred until about 2033 (Option 3);

**AND THAT** within the next five years, the Director of Public Works budgets and schedules minor repairs to the George Street Bridge, as described in Report #PW-72-2012."

**“A” 8. Report #PW-73-2012 Public Information Centre Results and Design Options: Rehabilitation of County Road 16A Project**

The purpose of this Report is to inform Council of the results of the Public Consultation, for the proposed rehabilitation of County Road 16A, in Almonte Ward, in 2013, and to recommend next steps.

**“B” 8. MOTION #PW-2012-107**

**"THAT**, County Council accepts the Public Information Centre Results and Design Options: County Road 16A Rehabilitation Project Report #PW 73 2012, for information;

**AND THAT**, The Clerk sends Report #PW-73-2012 to the Town of Mississippi Mills Council for their review and comment;

**AND THAT**, by January 31st, 2013, the Council of the Town of Mississippi Mills recommends their preferred design option, for the proposed rehabilitation of County Road 16A, to County Council."

**“A” 9. Report #PW-75-2012 Rehabilitation Options: Kilmarnock Bridge**

The purpose of this Report is to recommend the preferred rehabilitation option, for the Kilmarnock Bridge, and to refer the Project to the 2013 Budget Process.

**“B” 9. MOTION #PW-2012-108**

**"THAT**, the proposed Project, to Rehabilitate the Kilmarnock Bridge, in 2013, as described in Report #PW-75-2012, is referred to the 2013 Budget Process (Option 4);

**AND THAT**, the Clerk sends Report #PW-75-2012 to the Clerk of the United Counties of Leeds and Grenville and the Montague Township Clerk, for information."

**“A” 10.** Report #PW-77-2012: Public Works Tender Results for October/November 2012

The purpose of this Report is to seek Council approval of five Public Works Tenders that were closed during the months of October and November.

**“B” 10. MOTION #PW-2012-109**

**“THAT**, Contracts be awarded, to the below listed Contractors, at the indicated prices plus applicable taxes:

i) PW-M-46-2012-13-E1 Combination Tandem Plow Truck and Operator for Winter Maintenance, County Road #16, Route #10 (South Lavant Road), Crains’ Construction Limited, \$66,000.

ii) PW-M-47-2012-13-E1 Grit/Stone Dust (Union Hall, Almonte Garage and McDonalds Corners Pit), Crains’ Construction Limited, \$18,780.

iii) PW-E-53-2012-15-E1 Request for Standing Offer (RFSO) for the Provision of Tires for Public Works Fleet, RDB Tire Sales, \$85,010.23.

iv) PW-E-54-2012-14-E2 Request for Quotation (RFQ) for Plow Blades, three year contract be awarded to Creighton Rock Drill with an upset limit of \$33,489.05.

v) PW-M-55-2012-12-E0 Culvert Replacement (County Roads #17, #20 and #29), Crains’ Construction Limited, \$57,040.”

**“A” 11.** Report #PW-78-2012 Development Charges: March Road Improvements 2018-2023

**“B” 11. MOTION #PW-2012-110**

**“THAT**, Report #PW-78-2012 Development Charges: March Road Improvements 2018-2023 be received as information.”

**“A” 12.** Share the Road - Discussion and/or Staff Direction


**“B” 12. MOTION #PW-2012-111**

**“THAT**, the Community Development Committee recommend that Lanark County Council support the Ontario Coroner’s Review regarding cycling deaths;

**AND THAT**, staff be directed to prepare a resolution for the November Council meeting;


**AND FURTHER THAT**, Lanark County request (letter from Warden and delegation request at OGRA/ROMA Conference) that that Ministry of Transportation support funding for paved shoulders.”


All of which is respectfully submitted by:

  
Susan Freeman, Chair


**Direction by the Warden:**  
Council may remove items in Section “B” to be voted on separately prior to introducing a motion to accept the report in its entirety.


Moved and Seconded by:

  
Moved By

  
Seconded By

Adopted this 28<sup>th</sup> day of November, 2012

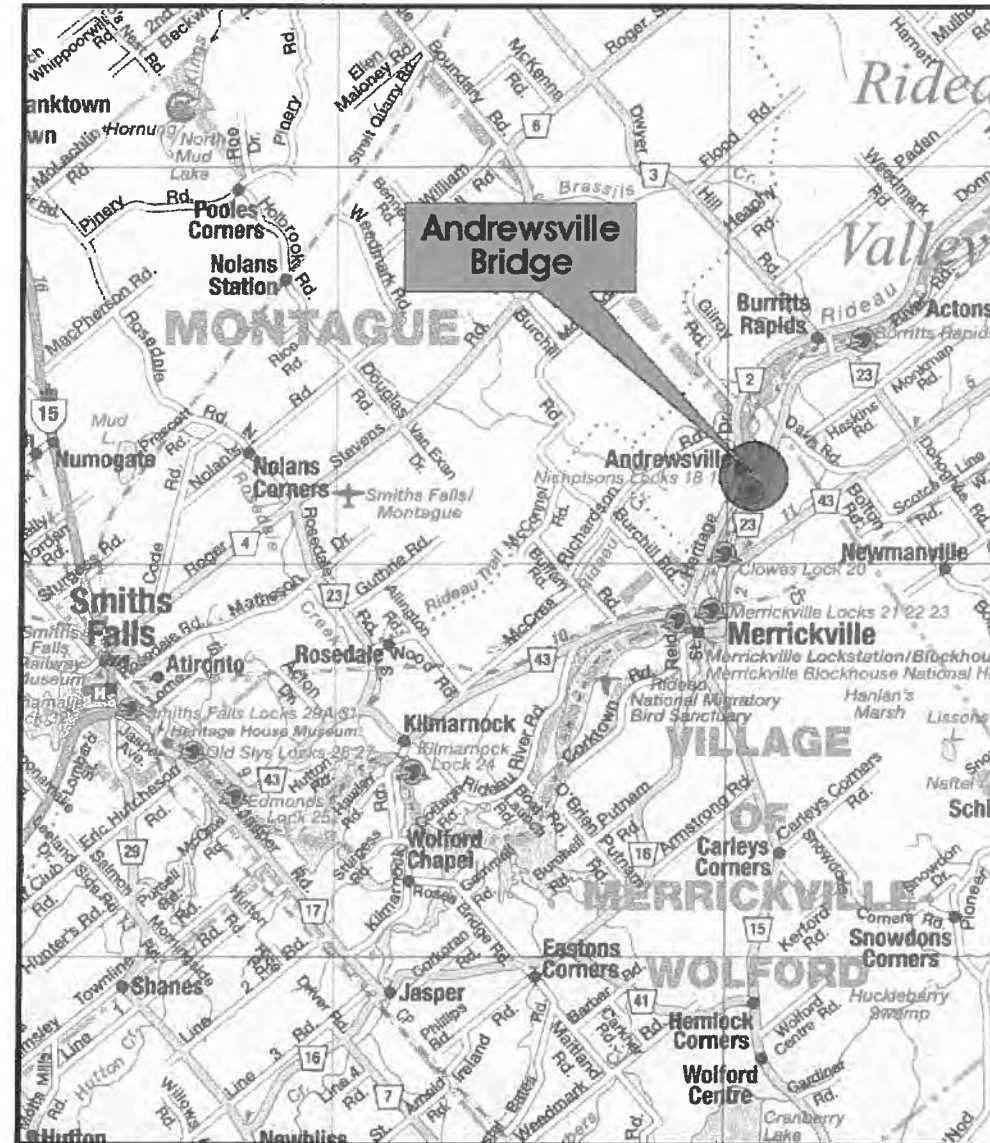
  
John Gemmell  
Warden

  
Cathie Ritchie  
Director of Clerk's Service/Clerk

# APPENDIX E



LANARK  
COUNTY



S. ALLAN, P.ENG.  
DIRECTOR OF PUBLIC WORKS  
COUNTY OF LANARK

L. SHEPHERD P.ENG.  
DIRECTOR OF WORKS, PLANNING  
SERVICES, AND ASSET MANAGEMENT  
UNITED COUNTY OF LEEDS AND GRENVILLE

JANUARY 2013



# ANDREWSVILLE BRIDGE REPAIRS STRUCTURE No. 015-0013 CONTRACT No. PW-C-14-2013-13-E0

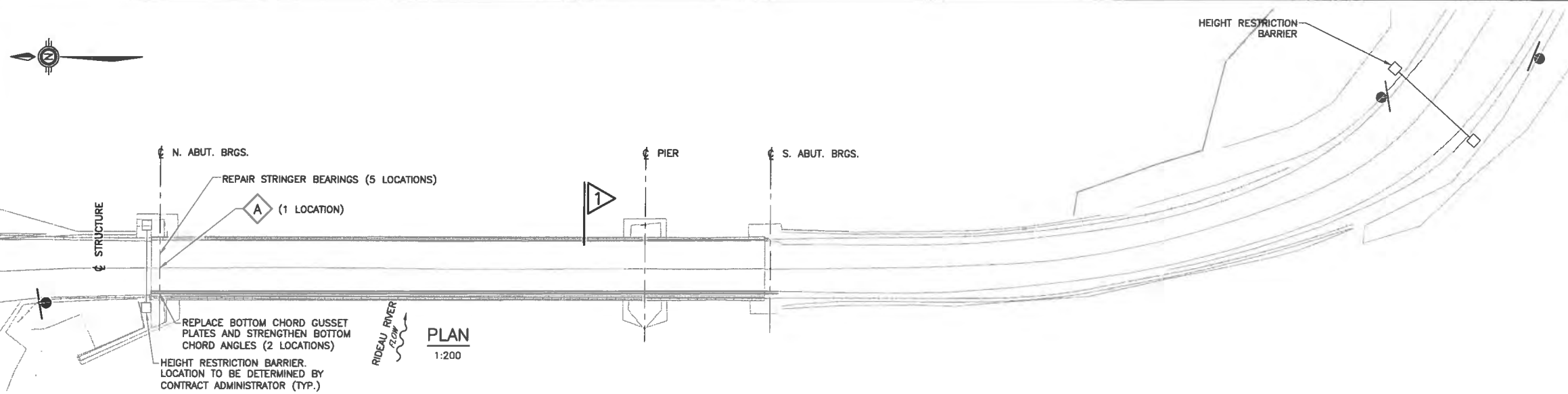


**GENERAL NOTES**

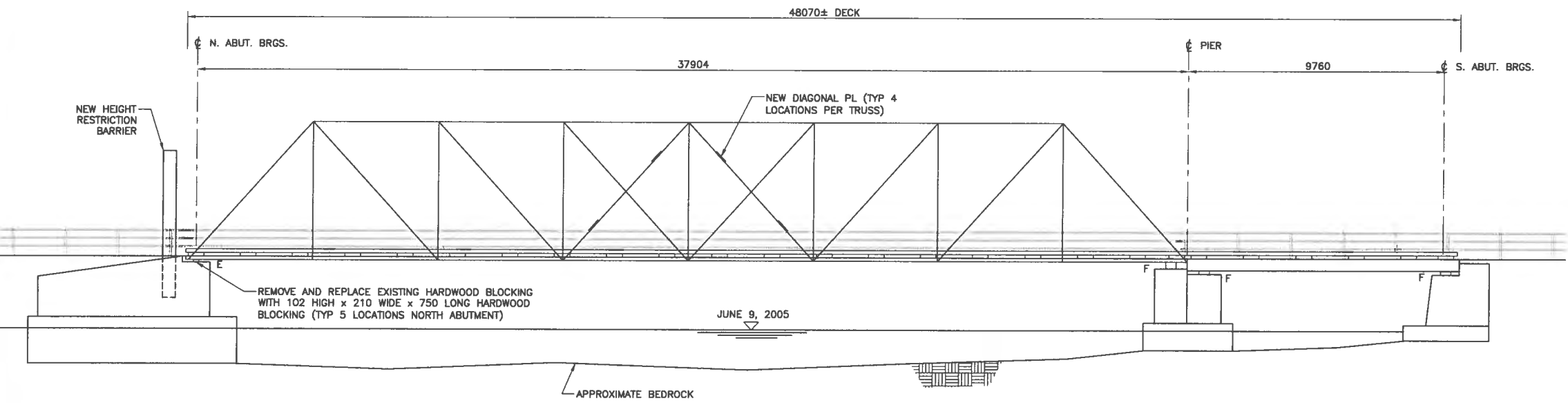
1. **CLASS OF CONCRETE**  
CLASS OF CONCRETE SHALL BE 30 MPa.
2. **STRUCTURAL STEEL**  
ALL STRUCTURAL STEEL SHALL CONFORM TO CSA STANDARD CAN/CSA - G40.21-M92. STRUCTURAL STEEL SHALL BE GRADE 350.  
ROLLED SECTIONS SHALL CONFORM TO CSA STANDARD CAN/CSA - G40-M92 OR ASTM SPECIFICATION A588.  
BOLTS SHALL BE ASTM A325M TYPE 1, BOLT THREADS SHALL BE EXCLUDED FROM THE SHEAR PLANES OF STRUCTURAL STEEL.  
THREADED ROD SHALL BE ASTM A307.
3. **CONSTRUCTION NOTES**  
DIMENSIONS ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY EXISTING DIMENSIONS PRIOR TO COMMENCEMENT OF WORK AND REPORT ANY DISCREPANCIES TO THE ENGINEER.  
EXISTING STRUCTURE IS LOAD POSTED FOR 5 TONNES GW.  
LOCATIONS OF HEIGHT RESTRICTION BARRIERS ARE APPROXIMATE ONLY. EXACT LOCATIONS TO BE DETERMINED BY CONTRACT ADMINISTRATOR.

**SCOPE OF WORK**

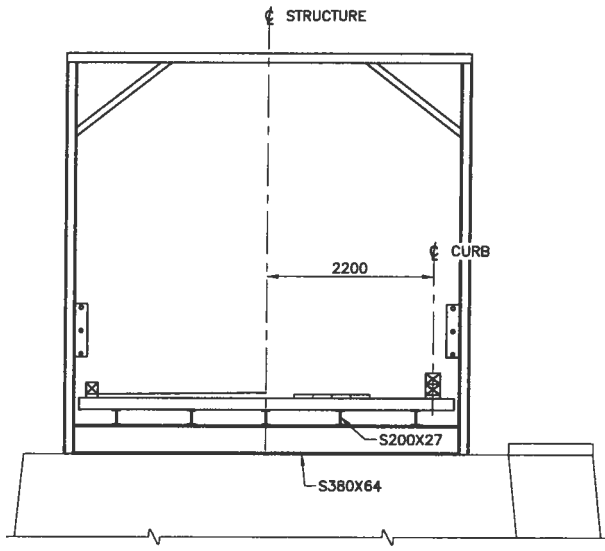
- ① FABRICATE AND INSTALL NEW HEIGHT RESTRICTION BARRIERS, INCLUDING CONSTRUCTION OF REINFORCED CONCRETE FOOTINGS.
- ② STRENGTHEN STEEL TRUSS MEMBERS.
- ③ REPAIR STRINGER BEARINGS AT NORTH ABUTMENT.
- ④ STRENGTHEN BOTTOM CHORD AT NORTH ABUTMENT.
- ⑤ REPLACE BOTTOM CHORD GUSSET PLATES AT NORTH ABUTMENT.
- ⑥ REPAIR STRINGER AT NORTH ABUTMENT.



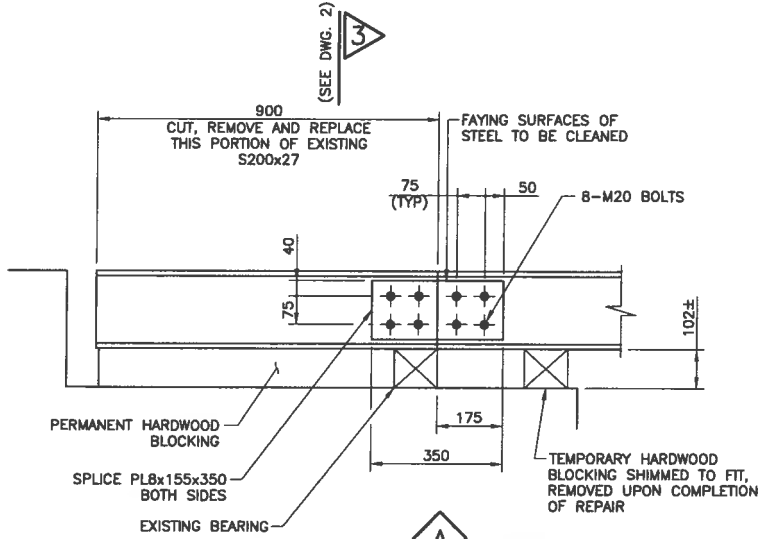
**PLAN**  
1:200



**ELEVATION - STRUCTURES**  
1:100



**1**  
1:50



**A**  
1:10

DRAWING NOT TO BE SCALED  
100mm ON ORIGINAL DRAWING

| REVISIONS |      | DESCRIPTION |     |     |             |
|-----------|------|-------------|-----|-----|-------------|
| NO.       | DATE | BY          | CHK | APP | DESCRIPTION |
|           |      |             |     |     |             |
|           |      |             |     |     |             |

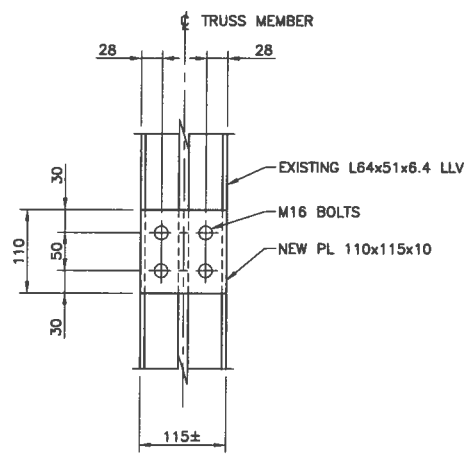
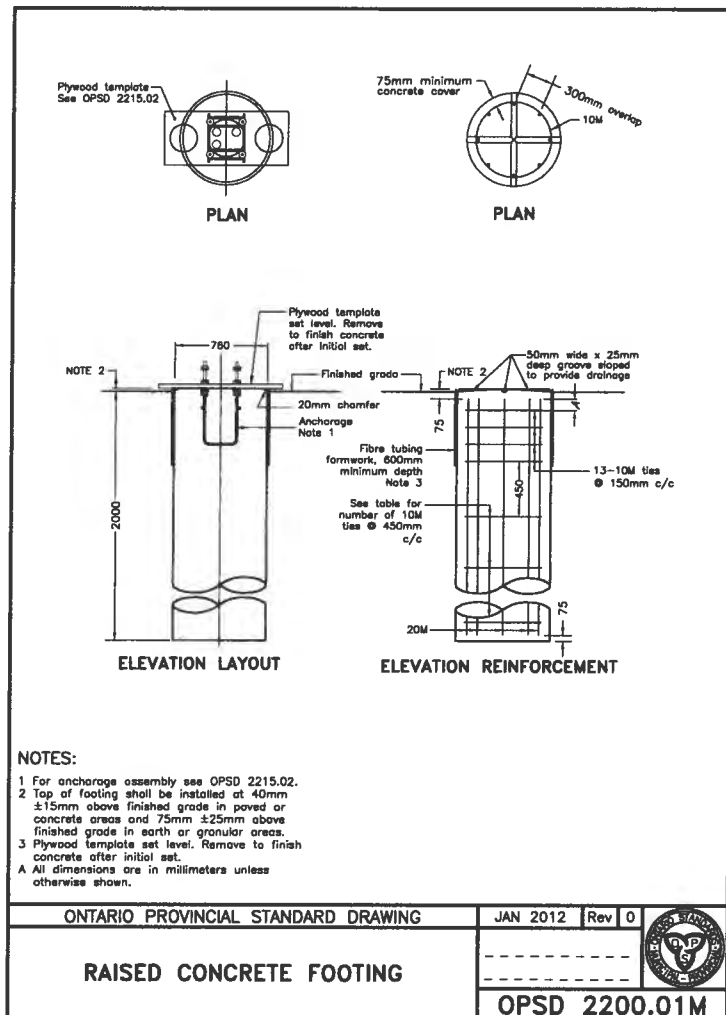
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 DRAWN BY: STEVEN HUANG PLOTTED: 13/01/17 10:14:48 Revised



85-00

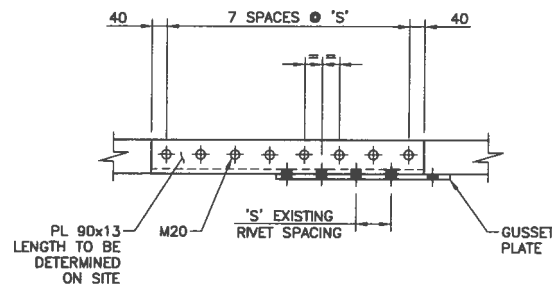
PR-0-707

MINISTRY OF TRANSPORTATION, ONTARIO



**DIAGONAL PLATE (TYP 8 LOCATIONS)**

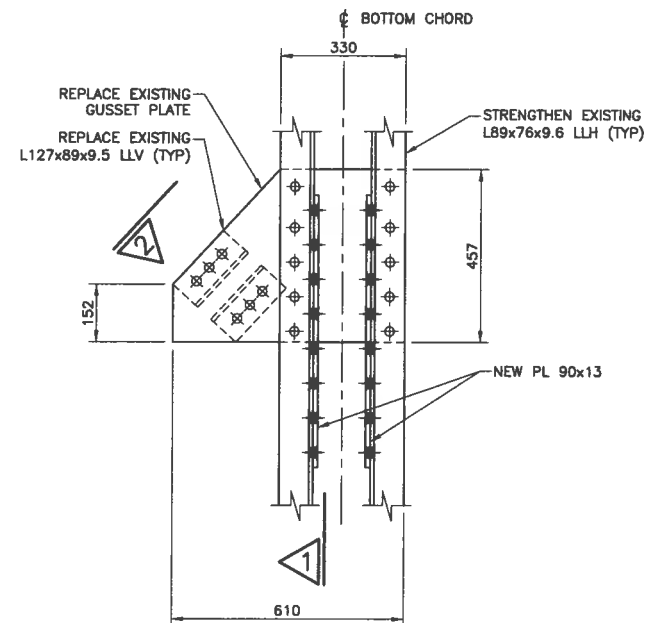
1:5



**1 SECTION**

1:10

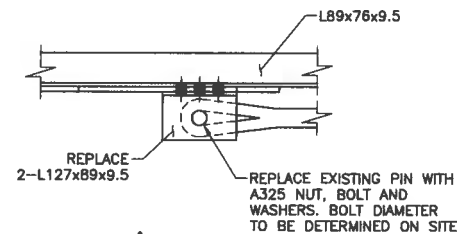
(4 PLATES REQUIRED)



**BOTTOM CHORD REPAIRS**

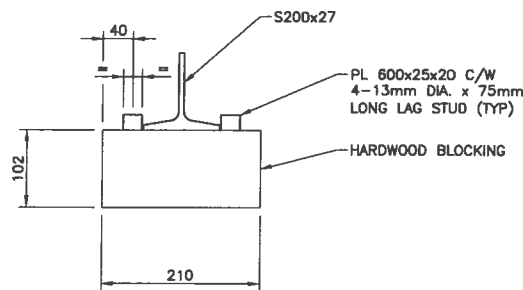
1:10

(TYP 2 LOCATIONS)



**2 SECTION**

1:10



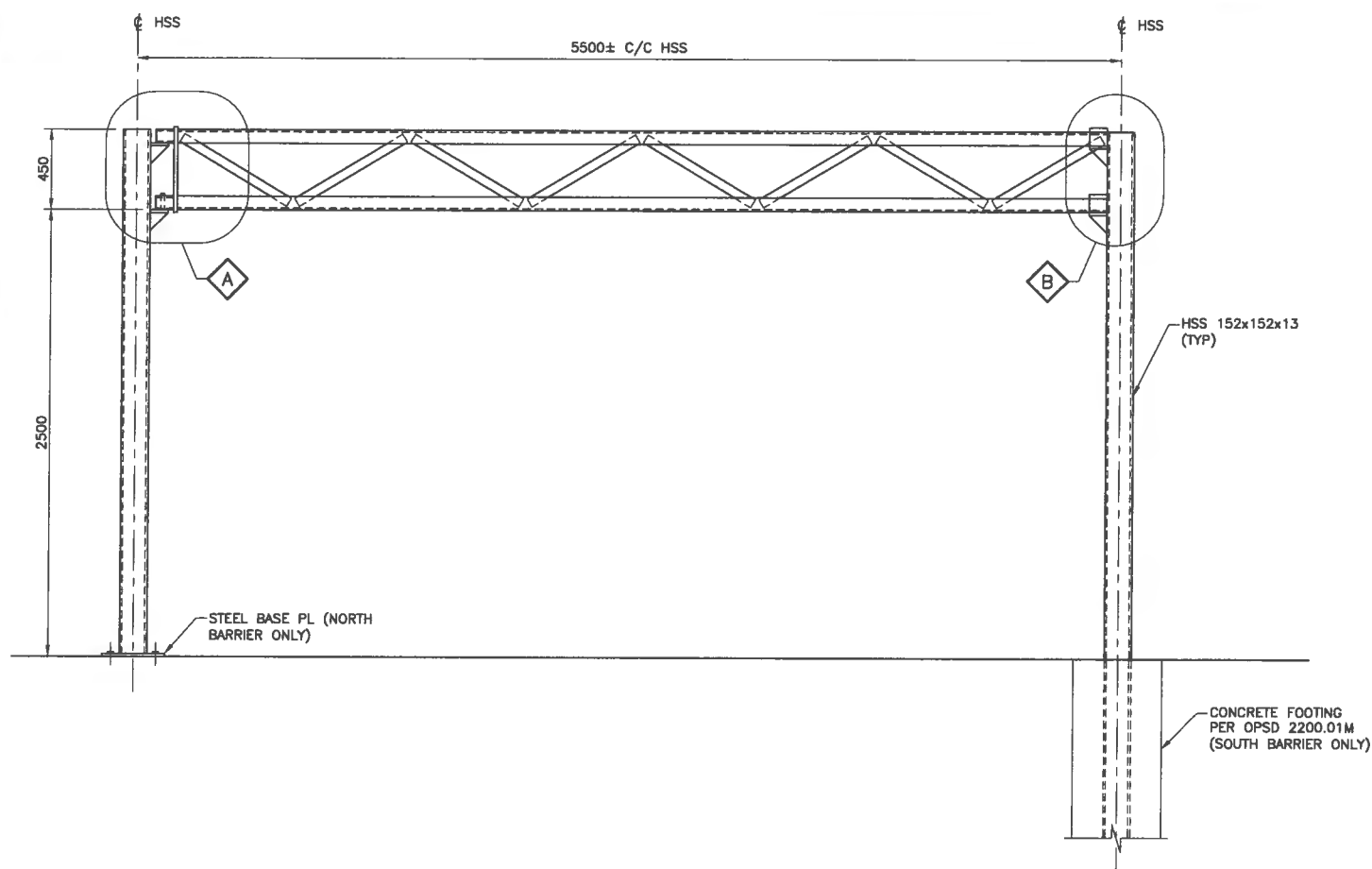
**3 SECTION**

1:5

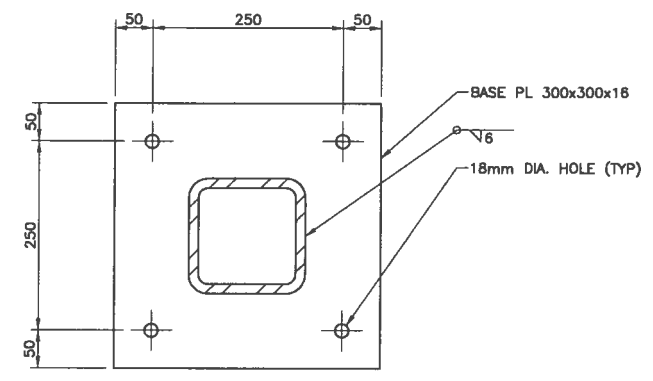
(SEE DWG. 1)

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100mm ON ORIGINAL DRAWING

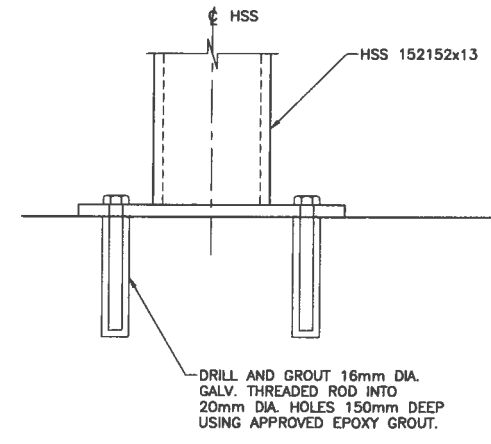
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|-----------|------|-------------|-----|-----|-------------|
| NO.       | DATE | BY          | CHK | APP | DESCRIPTION |
|           |      |             |     |     |             |
|           |      |             |     |     |             |
|           |      |             |     |     |             |



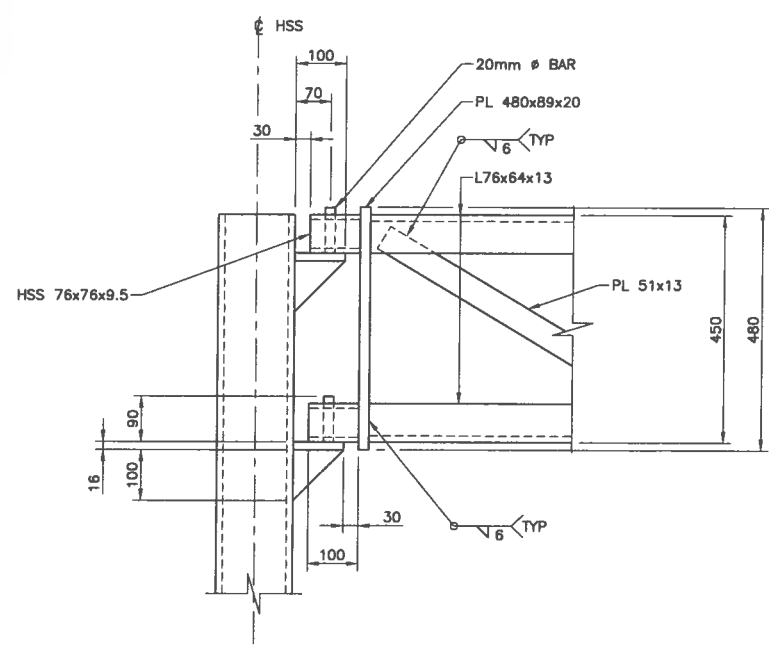
**HEIGHT RESTRICTION BARRIER**  
1:20



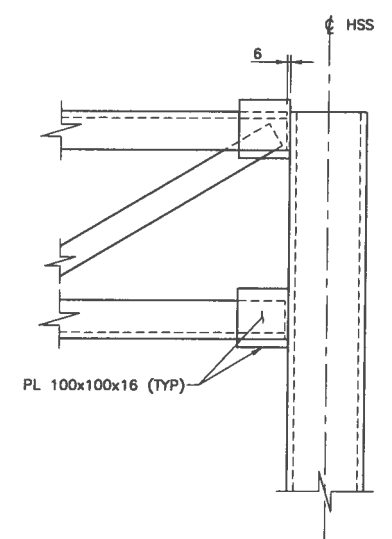
**BASE PLATE (NORTH BARRIER)**  
1:5



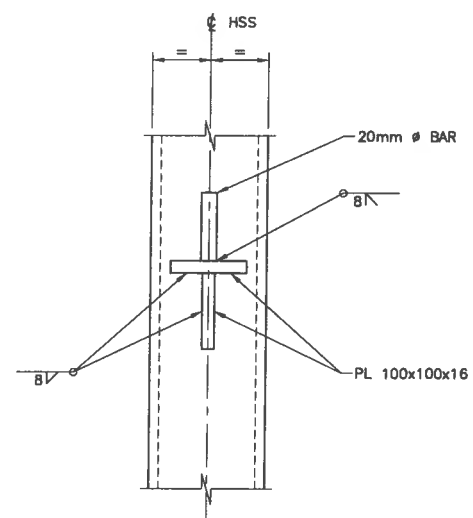
**SECTION 1**  
1:5



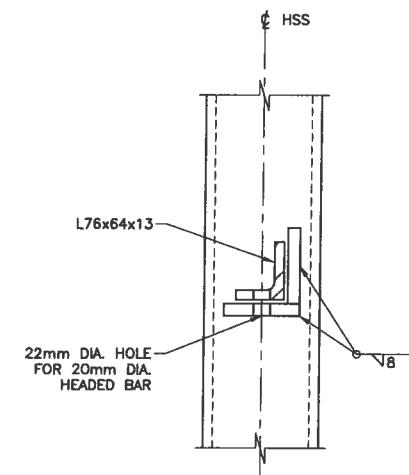
**A**  
1:7.5



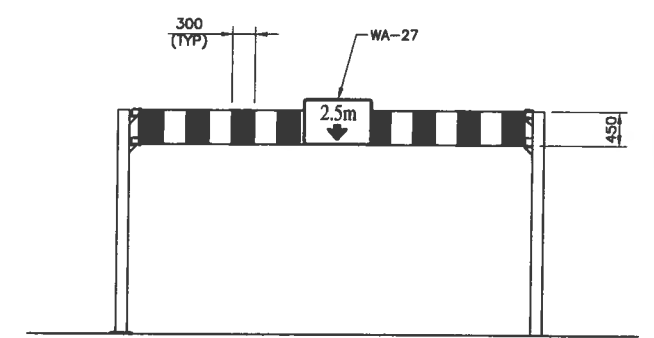
**B**  
1:7.5



**PIN DETAIL**  
1:5



**SUPPORT DETAIL**  
1:5



**HEIGHT RESTRICTION BARRIER**  
1:50

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 MODIFIED: 1/17/2013 10:14:53 AM BY: RESEB  
 DATE PLOTTED: 1/17/2013 10:14:54 AM BY: RESEB

DRAWING NOT TO BE SCALED  
100mm ON ORIGINAL DRAWING

| REVISIONS |      | DESCRIPTION |     |     |             |
|-----------|------|-------------|-----|-----|-------------|
| NO.       | DATE | BY          | CHK | APP | DESCRIPTION |
|           |      |             |     |     |             |
|           |      |             |     |     |             |

# APPENDIX F

**MUNICIPAL STRUCTURE INSPECTION FORM**

**BRIDGES**

**Site Number: 015-0013**

| INVENTORY DATA:    |  |                             |   |
|--------------------|--|-----------------------------|---|
| Structure Name     | <u>Andrewsville Bridge (B40)</u>   |                             |   |
| Main Hwy/Road #    | <u>-</u> On <input type="checkbox"/> Under <input checked="" type="checkbox"/>   | Crossing Type:              | Navig. Water <input checked="" type="checkbox"/> Non-Navig. Water <input type="checkbox"/><br>Rail <input type="checkbox"/> Road <input type="checkbox"/> Ped. <input type="checkbox"/> Other <input type="checkbox"/>              |
| Road Name          | <u>Andrewsville Main Street</u>  |                             |   |
| Structure Location | <u>Lot 2, Concession A - 1.0 km South of County Road 43</u>                      |                             |   |
| Latitude           | <u>44° 57.069'</u>   | Longitude:                  | <u>75° 49.148'</u>  |
| Owner(s)           | <u>County of Lanark</u>  | Heritage                    | Not Cons. <input checked="" type="checkbox"/> Cons./not App. <input type="checkbox"/> List/not Desig. <input type="checkbox"/><br>Designation:      Desig./not List <input type="checkbox"/> Desig. & List <input type="checkbox"/> |
| MTO Region         | <u>Eastern</u>   | Road Class:                 | Freeway <input type="checkbox"/> Arterial <input checked="" type="checkbox"/> Collector <input type="checkbox"/> Local <input type="checkbox"/>   |
| MTO District       | <u>Kingston</u>  | Posted Speed                | <u>20 km/hr</u> No. of Lanes <u>1</u>   |
| Old County         | <u>Lanark</u>  | AADT                        | <u>-</u> % Trucks <u>-</u>  |
| Geographic Twp.    | <u>Montague</u>  | Special Routes:             | Transit <input type="checkbox"/> Truck <input type="checkbox"/> School <input type="checkbox"/> Bicycle <input type="checkbox"/>  |
| Structure Type     | <u>Steel Through Truss with Wooden Deck and Steel I-Girders with Wooden Deck</u> | Detour Length Around Bridge | <u>10.0</u> (km)  |
| Total Deck Length  | <u>44.2</u> (m)  | Fill on Structure           | <u>-</u> (m)  |
| Overall Str. Width | <u>5.5</u> (m)   | Skew Angle                  | <u>150</u> (Degrees)  |
| Total Deck Area    | <u>243.1</u> (sq.m)  | Direction of Structure      | <u>N / S</u>  |
| Roadway Width      | <u>4.4</u> (m)   | No. of Spans                | <u>2</u> (m)  |
| Span Lengths       | <u>36.6 , 7.6</u> (m)  |                             |   |

| HISTORICAL DATA:                            |                     |                               |             |
|---|---------------------|-------------------------------|-------------|
| Year Built                                  | <u>1915</u>         | Last Biennial Inspection      | <u>2012</u> |
| Current Load Limit                          | <u>5.0</u> (tonnes) | Last Bridge Master Inspection | <u>-</u>    |
| Load Limit By-Law #                         | <u>-</u>            | Last Evaluation               | <u>-</u>    |
| By-Law Expiry Date                          | <u>-</u>            | Last Underwater Inspection    | <u>-</u>    |
| Min. Vertical Clearance                     | <u>2.4</u> (m)      | Last Condition Survey         | <u>-</u>    |
| <b>Rehab. History: (Date / Description)</b> |                     |                               |             |
|   |                     |                               |             |

**MUNICIPAL STRUCTURE INSPECTION FORM**

**BRIDGES**

**Site Number: 015-0013**

| <b>FIELD INSPECTION INFORMATION:</b> |                             |
|--------------------------------------|-----------------------------|
| Date of Inspection:                  | May 26, 2015                |
| Inspector:                           | Sam Fawson                  |
| Others in Party:                     | Grant Young                 |
| Equipment Used:                      | Camera, tape and hand tools |
| Weather:                             | Sunny                       |
| Temperature:                         | +27°C                       |

| <b>ADDITIONAL INVESTIGATIONS REQUIRED:</b>   | <b>Priority</b> |               |                   | <b>Estimated Cost</b> |
|--|-----------------|---------------|-------------------|-----------------------|
|  | <b>None</b>     | <b>Normal</b> | <b>Urgent</b>     |                       |
| Detailed Deck Condition Survey:  | x               |               |                   |                       |
| Bridge Rehabilitation / Replacement Study:   |                 | x             |                   | \$6,000.00            |
| DART Survey:   | x               |               |                   |                       |
| Detailed Coating Condition Survey:   | x               |               |                   |                       |
| Underwater Investigation:  | x               |               |                   |                       |
| Fatigue Investigation:   | x               |               |                   |                       |
| Seismic Investigation:   | x               |               |                   |                       |
| Structure Evaluation:  | x               |               |                   |                       |
| Load Posting - Estimated Load  |                 |               | <b>Total Cost</b> | <b>\$6,000.00</b>     |
| <b>Special Notes:</b>  |                 |               |                   |                       |
| <p>A rehabilitation/replacement study is recommended as noted above to determine the most feasible approach for the asset in the future.</p> <p>Traffic barrier does not conform to current design requirements.</p> |                 |               |                   |                       |
| Next Detailed Inspection:  |                 |               | 2017              |                       |

**Suspected Performance Deficiencies**

- |   |  |                              |
|---|--|------------------------------|
| 00 None   | 06 Bearing not uniformly loaded/unstable | 12 Slippery surfaces         |
| 01 Load Carrying capacity                           | 07 Jammed expansion joint                | 13 Flooding/channel blockage |
| 02 Excessive deformations (deflections & rotations) | 08 Pedestrian/vehicular hazard           | 14 Undermining of foundation |
| 03 Continuing settlement                            | 09 Rough riding surface                  | 15 Unstable embankments      |
| 04 Continuing movements                             | 10 Surface ponding                       | 16 Other                     |
| 05 Seized bearings                                  | 11 Deck drainage                         |                              |

**Maintenance Needs**

- |                                      |                               |                               |
|--------------------------------------|-------------------------------|-------------------------------|
| 01 Lift and swing bridge maintenance | 07 Repair of structural steel | 13 Erosion control at bridges |
| 02 Bridge cleaning                   | 08 Repair of bridge concrete  | 14 Concrete sealing           |
| 03 Bridge handrail maintenance       | 09 Repair of bridge timber    | 15 Rout and seal              |
| 04 Painting steel bridge structures  | 10 Bailey bridges maintenance | 16 Bridge deck drainage       |
| 05 Bridge deck joint repair          | 11 Animal/pest control        | 17 Other                      |
| 06 Bridge bearing maintenance        | 12 Bridge surface repair      |                               |

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGES

Site Number: 015-0013

| ELEMENT DATA  |                 |      |                 |                          |                          |                   |
|---|-----------------|------|-----------------|--------------------------|--------------------------|-------------------|
| Element Group:  | Deck            |      | Length:         | 44.2 m                   |                          |                   |
| Element Name:   | Wearing Surface |      | Width:          | 4.4 m                    |                          |                   |
| Location:   | Top of Deck     |      | Height:         | -                        |                          |                   |
| Material:   | Timber          |      | Count:          | -                        |                          |                   |
| Element Type:   | Wearing Surface |      | Total Quantity: | 194.5 m <sup>2</sup>     |                          |                   |
| Environment:  | Severe          |      | Not Inspected:  | <input type="checkbox"/> |                          |                   |
| Protection System:  | None            |      |                 |                          | Performance Deficiencies | Maintenance Needs |
|   | Units           | Exc. | Good            | Fair                     |                          |                   |
|   | m <sup>2</sup>  |      | 189.5           |                          | 5                        | 16                |
| Comments: 2x10 running boards along wheel tracks with crushing, abrasions and slits. Deck top appears to be in good condition. Significant movement at north end under loading. |                 |      |                 |                          |                          |                   |
| None <input checked="" type="checkbox"/> 1 - 5 years <input type="checkbox"/> < 1 year <input type="checkbox"/> Urgent <input type="checkbox"/>                                 |                 |      |                 |                          |                          |                   |

|   |                   |      |                 |                          |                          |                   |
|---|-------------------|------|-----------------|--------------------------|--------------------------|-------------------|
| Element Group:  | Deck              |      | Length:         | 44.2 m                   |                          |                   |
| Element Name:   | Soffit            |      | Width:          | 4.9 m                    |                          |                   |
| Location:   | Underside of Deck |      | Height:         | 0.15 m                   |                          |                   |
| Material:   | Wood              |      | Count:          | -                        |                          |                   |
| Element Type:   | Timber Deck       |      | Total Quantity: | 216.6 m <sup>2</sup>     |                          |                   |
| Environment:  | Benign            |      | Not Inspected:  | <input type="checkbox"/> |                          |                   |
| Protection System:  | None              |      |                 |                          | Performance Deficiencies | Maintenance Needs |
|   | Units             | Exc. | Good            | Fair                     |                          |                   |
|   | m <sup>2</sup>    |      | 216.6           |                          |                          | 0                 |
| Comments: <i>Some minor wear and wet stains.</i>  |                   |      |                 |                          |                          |                   |
| None <input checked="" type="checkbox"/> 1 - 5 years <input type="checkbox"/> < 1 year <input type="checkbox"/> Urgent <input type="checkbox"/> |                   |      |                 |                          |                          |                   |

|   |                             |      |                 |                          |                          |                   |
|---|-----------------------------|------|-----------------|--------------------------|--------------------------|-------------------|
| Element Group:  | Sidewalks / Curb            |      | Length:         | 44.6 m                   |                          |                   |
| Element Name:   | Curbs                       |      | Width:          | 0.21 m                   |                          |                   |
| Location:   | Edges of Deck (East / West) |      | Height:         | 0.21 m                   |                          |                   |
| Material:   | Wood                        |      | Count:          | 2                        |                          |                   |
| Element Type:   | Curbs                       |      | Total Quantity: | 37.5 m                   |                          |                   |
| Environment:  | Moderate                    |      | Not Inspected:  | <input type="checkbox"/> |                          |                   |
| Protection System:  | None                        |      |                 |                          | Performance Deficiencies | Maintenance Needs |
|   | Units                       | Exc. | Good            | Fair                     |                          |                   |
|   | m                           |      | 37.5            |                          |                          | -                 |
| Comments: Moderate weathering and minor splits.   |                             |      |                 |                          |                          |                   |
| None <input checked="" type="checkbox"/> 1 - 5 years <input type="checkbox"/> < 1 year <input type="checkbox"/> Urgent <input type="checkbox"/> |                             |      |                 |                          |                          |                   |



**MUNICIPAL STRUCTURE INSPECTION FORM**

**BRIDGES**

Site Number: 015-0013

| ELEMENT DATA  |                             |             |                        |                          |                                 |                          |
|---|-----------------------------|-------------|------------------------|--------------------------|---------------------------------|--------------------------|
| <b>Element Group:</b>   | Barriers                    |             | <b>Length:</b>         | 44.6 m                   |                                 |                          |
| <b>Element Name:</b>  | Railing System              |             | <b>Width:</b>          | -                        |                                 |                          |
| <b>Location:</b>  | Edges of Deck (East / West) |             | <b>Height:</b>         | -                        |                                 |                          |
| <b>Material:</b>  | Steel                       |             | <b>Count:</b>          | 2                        |                                 |                          |
| <b>Element Type:</b>  | Double Pipe                 |             | <b>Total Quantity:</b> | 89.2 m                   |                                 |                          |
| <b>Environment:</b>   | Severe                      |             | <b>Not Inspected</b>   | <input type="checkbox"/> |                                 |                          |
| <b>Protection System:</b>   | Coating                     |             |                        |                          | <b>Performance Deficiencies</b> | <b>Maintenance Needs</b> |
| <b>Units</b>  | <b>Exc.</b>                 | <b>Good</b> | <b>Fair</b>            | <b>Poor</b>              |                                 |                          |
| m   |                             |             |                        | 89.2                     | 08                              | 18                       |
| <b>Comments:</b> Moderate corrosion and severe coating deterioration throughout element. Several areas of vehicular damage. Traffic barrier does not conform to current design requirements |                             |             |                        |                          |                                 |                          |
| None <input type="checkbox"/> 1 - 5 years <input checked="" type="checkbox"/> < 1 year <input type="checkbox"/> Urgent <input type="checkbox"/>   |                             |             |                        |                          |                                 |                          |

|   |                             |             |                        |                          |                                 |                          |
|---|-----------------------------|-------------|------------------------|--------------------------|---------------------------------|--------------------------|
| <b>Element Group:</b>   | Barriers                    |             | <b>Length:</b>         | -                        |                                 |                          |
| <b>Element Name:</b>  | Railing System - Posts      |             | <b>Width:</b>          | -                        |                                 |                          |
| <b>Location:</b>  | Edges of Deck (East / West) |             | <b>Height:</b>         | 1.2 m                    |                                 |                          |
| <b>Material:</b>  | Steel                       |             | <b>Count:</b>          | 70                       |                                 |                          |
| <b>Element Type:</b>  | Bolted Members              |             | <b>Total Quantity:</b> | 70                       |                                 |                          |
| <b>Environment:</b>   | Severe                      |             | <b>Not Inspected</b>   | <input type="checkbox"/> |                                 |                          |
| <b>Protection System:</b>   | Coating                     |             |                        |                          | <b>Performance Deficiencies</b> | <b>Maintenance Needs</b> |
| <b>Units</b>  | <b>Exc.</b>                 | <b>Good</b> | <b>Fair</b>            | <b>Poor</b>              |                                 |                          |
| m   |                             |             |                        | 70                       | 01                              | 18                       |
| <b>Comments:</b> Moderate corrosion. Traffic barrier does not conform to current design requirements.   |                             |             |                        |                          |                                 |                          |
| None <input type="checkbox"/> 1 - 5 years <input checked="" type="checkbox"/> < 1 year <input type="checkbox"/> Urgent <input type="checkbox"/> |                             |             |                        |                          |                                 |                          |

|   |                         |             |                        |                          |                                 |                          |
|---|-------------------------|-------------|------------------------|--------------------------|---------------------------------|--------------------------|
| <b>Element Group:</b>   | Beams                   |             | <b>Length:</b>         | 5.0 m                    |                                 |                          |
| <b>Element Name:</b>  | Floor Beams             |             | <b>Width:</b>          | 0.2 m                    |                                 |                          |
| <b>Location:</b>  | Underside of North Span |             | <b>Height:</b>         | 0.5 m                    |                                 |                          |
| <b>Material:</b>  | Steel                   |             | <b>Count:</b>          | 7                        |                                 |                          |
| <b>Element Type:</b>  | I-Type                  |             | <b>Total Quantity:</b> | 56.0 m <sup>2</sup>      |                                 |                          |
| <b>Environment:</b>   | Moderate                |             | <b>Not Inspected</b>   | <input type="checkbox"/> |                                 |                          |
| <b>Protection System:</b>   | Coating                 |             |                        |                          | <b>Performance Deficiencies</b> | <b>Maintenance Needs</b> |
| <b>Units</b>  | <b>Exc.</b>             | <b>Good</b> | <b>Fair</b>            | <b>Poor</b>              |                                 |                          |
| m <sup>2</sup>  |                         | 50.0        | 6.0                    |                          | 0                               | 04                       |
| <b>Comments:</b> Light to moderate corrosion at ends of beams. Limited inspection due to high water level.                                      |                         |             |                        |                          |                                 |                          |
| None <input checked="" type="checkbox"/> 1 - 5 years <input type="checkbox"/> < 1 year <input type="checkbox"/> Urgent <input type="checkbox"/> |                         |             |                        |                          |                                 |                          |

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGES

Site Number: 015-0013

| ELEMENT DATA  |                         |             |                        |                                      |                                 |                          |
|---|-------------------------|-------------|------------------------|--------------------------------------|---------------------------------|--------------------------|
| <b>Element Group:</b>   | Beams / MLE's           |             | <b>Length:</b>         | 33.6 m                               |                                 |                          |
| <b>Element Name:</b>  | Stringers               |             | <b>Width:</b>          | 0.2 m                                |                                 |                          |
| <b>Location:</b>  | Underside of North Span |             | <b>Height:</b>         | 0.3 m                                |                                 |                          |
| <b>Material:</b>  | Steel                   |             | <b>Count:</b>          | 5                                    |                                 |                          |
| <b>Element Type:</b>  | I-Type                  |             | <b>Total Quantity:</b> | 201.6 m <sup>2</sup>                 |                                 |                          |
| <b>Environment:</b>   | Severe                  |             | <b>Not Inspected</b>   | <input type="checkbox"/> 80% visible |                                 |                          |
| <b>Protection System:</b>   | Coating                 |             |                        |                                      | <b>Performance Deficiencies</b> | <b>Maintenance Needs</b> |
|   | <b>Units</b>            | <b>Exc.</b> | <b>Good</b>            | <b>Fair</b>                          |                                 |                          |
|   | m <sup>2</sup>          |             |                        | 201.6                                |                                 | 0                        |
| <b>Comments:</b> Moderate corrosion and coating failure. Limited inspection due to high water level   |                         |             |                        |                                      |                                 |                          |
| None <input checked="" type="checkbox"/> 1 - 5 years <input type="checkbox"/> < 1 year <input type="checkbox"/> Urgent <input type="checkbox"/> |                         |             |                        |                                      |                                 |                          |

|   |                                   |             |                        |                          |                                 |                          |
|---|-----------------------------------|-------------|------------------------|--------------------------|---------------------------------|--------------------------|
| <b>Element Group:</b>   | Trusses                           |             | <b>Length:</b>         | 36.6 m                   |                                 |                          |
| <b>Element Name:</b>  | Truss                             |             | <b>Width:</b>          | 0.33 m                   |                                 |                          |
| <b>Location:</b>  | Edges of North Span (East / West) |             | <b>Height:</b>         | 4.0 m                    |                                 |                          |
| <b>Material:</b>  | Steel                             |             | <b>Count:</b>          | 2                        |                                 |                          |
| <b>Element Type:</b>  | Steel Through Truss               |             | <b>Total Quantity:</b> | -                        |                                 |                          |
| <b>Environment:</b>   | Moderate                          |             | <b>Not Inspected</b>   | <input type="checkbox"/> |                                 |                          |
| <b>Protection System:</b>   | Grey Paint                        |             |                        |                          | <b>Performance Deficiencies</b> | <b>Maintenance Needs</b> |
|   | <b>Units</b>                      | <b>Exc.</b> | <b>Good</b>            | <b>Fair</b>              |                                 |                          |
|   | %                                 |             | 20%                    | 80%                      |                                 | 0                        |
| <b>Comments:</b> Light to moderate corrosion throughout truss. Deterioration worse where exposed to road salts.                                 |                                   |             |                        |                          |                                 |                          |
| None <input checked="" type="checkbox"/> 1 - 5 years <input type="checkbox"/> < 1 year <input type="checkbox"/> Urgent <input type="checkbox"/> |                                   |             |                        |                          |                                 |                          |

|   |                         |             |                        |                          |                                 |                          |
|---|-------------------------|-------------|------------------------|--------------------------|---------------------------------|--------------------------|
| <b>Element Group:</b>   | Beams / MLE's           |             | <b>Length:</b>         | 7.6 m                    |                                 |                          |
| <b>Element Name:</b>  | Girders                 |             | <b>Width:</b>          | 0.15 m                   |                                 |                          |
| <b>Location:</b>  | Underside of South Span |             | <b>Height:</b>         | 0.5 m                    |                                 |                          |
| <b>Material:</b>  | Steel                   |             | <b>Count:</b>          | 1                        |                                 |                          |
| <b>Element Type:</b>  | I-Type                  |             | <b>Total Quantity:</b> | 110 m <sup>2</sup>       |                                 |                          |
| <b>Environment:</b>   | Moderate                |             | <b>Not Inspected</b>   | <input type="checkbox"/> |                                 |                          |
| <b>Protection System:</b>   | Paint                   |             |                        |                          | <b>Performance Deficiencies</b> | <b>Maintenance Needs</b> |
|   | <b>Units</b>            | <b>Exc.</b> | <b>Good</b>            | <b>Fair</b>              |                                 |                          |
|   | m <sup>2</sup>          |             |                        | 110.0                    |                                 | 0                        |
| <b>Comments:</b> Light to moderate corrosion.   |                         |             |                        |                          |                                 |                          |
| None <input checked="" type="checkbox"/> 1 - 5 years <input type="checkbox"/> < 1 year <input type="checkbox"/> Urgent <input type="checkbox"/> |                         |             |                        |                          |                                 |                          |

**MUNICIPAL STRUCTURE INSPECTION FORM**

**BRIDGES**

Site Number: 015-0013

| ELEMENT DATA  |   |             |                        |                          |                                 |                          |
|---|---|-------------|------------------------|--------------------------|---------------------------------|--------------------------|
| <b>Element Group:</b>   | Coatings                                    |             | <b>Length:</b>         | -                        |                                 |                          |
| <b>Element Name:</b>  | Structural Steel                            |             | <b>Width:</b>          | -                        |                                 |                          |
| <b>Location:</b>  | Girders, Trusses, Floor Beams and Stringers |             | <b>Height:</b>         | -                        |                                 |                          |
| <b>Material:</b>  | Paint                                       |             | <b>Count:</b>          | -                        |                                 |                          |
| <b>Element Type:</b>  | Coatings                                    |             | <b>Total Quantity:</b> | -                        |                                 |                          |
| <b>Environment:</b>   | Severe                                      |             | <b>Not Inspected</b>   | <input type="checkbox"/> |                                 |                          |
| <b>Protection System:</b>   | None  |             |                        |                          | <b>Performance Deficiencies</b> | <b>Maintenance Needs</b> |
| <b>Units</b>  | <b>Exc.</b>                                 | <b>Good</b> | <b>Fair</b>            | <b>Poor</b>              |                                 |                          |
| %   | %   |             | 25                     | 75                       | 0                               | 04                       |
| <b>Comments:</b> Moderate to severe deterioration of paint, including extensive flaking.  |   |             |                        |                          |                                 |                          |
| None <input type="checkbox"/> 1 - 5 years <input checked="" type="checkbox"/> < 1 year <input type="checkbox"/> Urgent <input type="checkbox"/> |   |             |                        |                          |                                 |                          |

|   |                          |             |                        |                          |                                 |                          |
|---|--------------------------|-------------|------------------------|--------------------------|---------------------------------|--------------------------|
| <b>Element Group:</b>   | Abutments                |             | <b>Length:</b>         | -                        |                                 |                          |
| <b>Element Name:</b>  | Abutment Walls           |             | <b>Width:</b>          | 7.5 m                    |                                 |                          |
| <b>Location:</b>  | Abutment (North / South) |             | <b>Height:</b>         | 2.2 m                    |                                 |                          |
| <b>Material:</b>  | Cast-In-Place Concrete   |             | <b>Count:</b>          | 2                        |                                 |                          |
| <b>Element Type:</b>  | Conventional Closed      |             | <b>Total Quantity:</b> | 33.0 m <sup>2</sup>      |                                 |                          |
| <b>Environment:</b>   | Moderate                 |             | <b>Not Inspected</b>   | <input type="checkbox"/> |                                 |                          |
| <b>Protection System:</b>   | None                     |             |                        |                          | <b>Performance Deficiencies</b> | <b>Maintenance Needs</b> |
| <b>Units</b>  | <b>Exc.</b>              | <b>Good</b> | <b>Fair</b>            | <b>Poor</b>              |                                 |                          |
| m <sup>2</sup>  |                          |             | 18.0                   | 15.0                     | 0                               | 08                       |
| <b>Comments:</b> A few large spalls and stained cracks. Also light to sever scaling, disintegration and efflorescence staining with wide cracks on west wall. |                          |             |                        |                          |                                 |                          |
| None <input type="checkbox"/> 1 - 5 years <input checked="" type="checkbox"/> < 1 year <input type="checkbox"/> Urgent <input type="checkbox"/>               |                          |             |                        |                          |                                 |                          |

|   |                          |             |                        |                          |                                 |                          |
|---|--------------------------|-------------|------------------------|--------------------------|---------------------------------|--------------------------|
| <b>Element Group:</b>   | Abutments                |             | <b>Length:</b>         | -                        |                                 |                          |
| <b>Element Name:</b>  | Ballast Walls            |             | <b>Width:</b>          | 7.0 m                    |                                 |                          |
| <b>Location:</b>  | Abutment (North / South) |             | <b>Height:</b>         | 0.6 m                    |                                 |                          |
| <b>Material:</b>  | Cast-In-Place Concrete   |             | <b>Count:</b>          | 2                        |                                 |                          |
| <b>Element Type:</b>  | Ballast Wall             |             | <b>Total Quantity:</b> | 8.4 m <sup>2</sup>       |                                 |                          |
| <b>Environment:</b>   | Benign                   |             | <b>Not Inspected</b>   | <input type="checkbox"/> |                                 |                          |
| <b>Protection System:</b>   | None                     |             |                        |                          | <b>Performance Deficiencies</b> | <b>Maintenance Needs</b> |
| <b>Units</b>  | <b>Exc.</b>              | <b>Good</b> | <b>Fair</b>            | <b>Poor</b>              |                                 |                          |
| m <sup>2</sup>  |                          |             | 6.4                    | 2                        | 0                               | 08                       |
| <b>Comments:</b> Wide cracks and spalls, some staining.   |                          |             |                        |                          |                                 |                          |
| None <input type="checkbox"/> 1 - 5 years <input checked="" type="checkbox"/> < 1 year <input type="checkbox"/> Urgent <input type="checkbox"/> |                          |             |                        |                          |                                 |                          |

**MUNICIPAL STRUCTURE INSPECTION FORM**

**BRIDGES**

**Site Number: 015-0013**

| ELEMENT DATA  |                        |             |                        |                          |                                 |                          |
|---|------------------------|-------------|------------------------|--------------------------|---------------------------------|--------------------------|
| <b>Element Group:</b>   | Abutments              |             | <b>Length:</b>         | 2.5 m                    |                                 |                          |
| <b>Element Name:</b>  | Wingwalls              |             | <b>Width:</b>          | -                        |                                 |                          |
| <b>Location:</b>  | Corners                |             | <b>Height:</b>         | 2.5 m                    |                                 |                          |
| <b>Material:</b>  | Cast-In-Place Concrete |             | <b>Count:</b>          | 3                        |                                 |                          |
| <b>Element Type:</b>  | Wingwalls              |             | <b>Total Quantity:</b> | 16.5 m <sup>2</sup>      |                                 |                          |
| <b>Environment:</b>   | Moderate               |             | <b>Not Inspected</b>   | <input type="checkbox"/> |                                 |                          |
| <b>Protection System:</b>   | None                   |             |                        |                          | <b>Performance Deficiencies</b> | <b>Maintenance Needs</b> |
| <b>Units</b>  | <b>Exc.</b>            | <b>Good</b> | <b>Fair</b>            | <b>Poor</b>              |                                 |                          |
| m <sup>2</sup>  | m <sup>2</sup>         |             | 14.5                   | 2.0                      | 0                               | 08                       |
| <b>Comments:</b> Some wide cracks, <b>spalling, light scaling, efflorescence stains.</b>  |                        |             |                        |                          |                                 |                          |
| None <input type="checkbox"/> 1 - 5 years <input checked="" type="checkbox"/> < 1 year <input type="checkbox"/> Urgent <input type="checkbox"/> |                        |             |                        |                          |                                 |                          |

|  |                                 |             |                        |                          |                                 |                          |
|--|---------------------------------|-------------|------------------------|--------------------------|---------------------------------|--------------------------|
| <b>Element Group:</b>  | Abutments                       |             | <b>Length:</b>         | -                        |                                 |                          |
| <b>Element Name:</b>   | Bearings                        |             | <b>Width:</b>          | -                        |                                 |                          |
| <b>Location:</b>   | Abutment (North)                |             | <b>Height:</b>         | -                        |                                 |                          |
| <b>Material:</b>   | Brick or Steel                  |             | <b>Count:</b>          | 7                        |                                 |                          |
| <b>Element Type:</b>   | Roller Bearings (Steel), Bricks |             | <b>Total Quantity:</b> | -                        |                                 |                          |
| <b>Environment:</b>  | Moderate                        |             | <b>Not Inspected</b>   | <input type="checkbox"/> |                                 |                          |
| <b>Protection System:</b>  | None                            |             |                        |                          | <b>Performance Deficiencies</b> | <b>Maintenance Needs</b> |
| <b>Units</b>   | <b>Exc.</b>                     | <b>Good</b> | <b>Fair</b>            | <b>Poor</b>              |                                 |                          |
| each   |                                 | 5           |                        | 2                        | 0                               | 06                       |
| <b>Comments:</b> Steel roller bearings supporting trusses are in poor condition. The plates maintaining the roller alignment are broken and bent, one roller is missing, and the entire assembly is severely corroded. Brick blocks are supporting steel stringers. Bearings not accessible at south abutment. |                                 |             |                        |                          |                                 |                          |
| None <input type="checkbox"/> 1 - 5 years <input checked="" type="checkbox"/> < 1 year <input type="checkbox"/> Urgent <input type="checkbox"/>  |                                 |             |                        |                          |                                 |                          |

|  |                        |             |                        |                          |                                 |                          |
|--|------------------------|-------------|------------------------|--------------------------|---------------------------------|--------------------------|
| <b>Element Group:</b>  | Piers                  |             | <b>Length:</b>         | 2.0 m                    |                                 |                          |
| <b>Element Name:</b>   | Shaft                  |             | <b>Width:</b>          | 8.0 m                    |                                 |                          |
| <b>Location:</b>   | Pier                   |             | <b>Height:</b>         | 2.2 m                    |                                 |                          |
| <b>Material:</b>   | Cast-In-Place Concrete |             | <b>Count:</b>          | 1                        |                                 |                          |
| <b>Element Type:</b>   | Shaft                  |             | <b>Total Quantity:</b> | 44.0 m <sup>2</sup>      |                                 |                          |
| <b>Environment:</b>  | Severe                 |             | <b>Not Inspected:</b>  | <input type="checkbox"/> |                                 |                          |
| <b>Protection System:</b>  | None                   |             |                        |                          | <b>Performance Deficiencies</b> | <b>Maintenance Needs</b> |
| <b>Units</b>   | <b>Exc.</b>            | <b>Good</b> | <b>Fair</b>            | <b>Poor</b>              |                                 |                          |
| m <sup>2</sup>   |                        |             | 30                     | 14.0                     | 0                               | 08                       |
| <b>Comments:</b> Shaft is severely spalled at the top at either end and at bearing seats. Severe efflorescence was noted in spalled areas and wide horizontal cracks were noted on pier face. Severe scaling exists at and below high water level. Also severe stained random cracks, delimitation and exposed re-bar. |                        |             |                        |                          |                                 |                          |
| None <input type="checkbox"/> 1 - 5 years <input checked="" type="checkbox"/> < 1 year <input type="checkbox"/> Urgent <input type="checkbox"/>  |                        |             |                        |                          |                                 |                          |

**MUNICIPAL STRUCTURE INSPECTION FORM**

**BRIDGES**

Site Number: 015-0013

| ELEMENT DATA   |  |             |                        |                          |                                 |                          |
|--|--|-------------|------------------------|--------------------------|---------------------------------|--------------------------|
| <b>Element Group:</b>  | Piers                                  |             | <b>Length:</b>         | -                        |                                 |                          |
| <b>Element Name:</b>   | Bearings                               |             | <b>Width:</b>          | --                       |                                 |                          |
| <b>Location:</b>   | Pier                                   |             | <b>Height:</b>         | --                       |                                 |                          |
| <b>Material:</b>   | Wood / Steel                           |             | <b>Count:</b>          | 3                        |                                 |                          |
| <b>Element Type:</b>   | Fixed Bearings (Steel), Wooden Members |             | <b>Total Quantity:</b> | 3                        |                                 |                          |
| <b>Environment:</b>  | Severe                                 |             | <b>Not Inspected</b>   | <input type="checkbox"/> |                                 |                          |
| <b>Protection System:</b>  | None                                   |             |                        |                          | <b>Performance Deficiencies</b> | <b>Maintenance Needs</b> |
| <b>Units</b>   | <b>Exc.</b>                            | <b>Good</b> | <b>Fair</b>            | <b>Poor</b>              |                                 |                          |
| Each   |  |             | 3                      |                          | 0                               | 0                        |
| <b>Comments:</b> Steel bearings supporting truss are severely corroded. Wooden members supporting steel stringers and girders have some minor rot. Vegetation growing on pier at bearings. |  |             |                        |                          |                                 |                          |
| None <input checked="" type="checkbox"/> 1 - 5 years <input type="checkbox"/> < 1 year <input type="checkbox"/> Urgent <input type="checkbox"/>  |  |             |                        |                          |                                 |                          |

|   |                  |             |                        |                          |                                 |                          |
|---|------------------|-------------|------------------------|--------------------------|---------------------------------|--------------------------|
| <b>Element Group:</b>   | Retaining Walls  |             | <b>Length:</b>         | 200.0 m (total)          |                                 |                          |
| <b>Element Name:</b>  | Retaining Walls  |             | <b>Width:</b>          | -                        |                                 |                          |
| <b>Location:</b>  | North            |             | <b>Height:</b>         | 2.5 m                    |                                 |                          |
| <b>Material:</b>  | Dry Masonry      |             | <b>Count:</b>          | 2                        |                                 |                          |
| <b>Element Type:</b>  | Dry Masonry Wall |             | <b>Total Quantity:</b> | 1000.0 m <sup>2</sup>    |                                 |                          |
| <b>Environment:</b>   | Moderate         |             | <b>Not Inspected</b>   | <input type="checkbox"/> |                                 |                          |
| <b>Protection System:</b>   | None             |             |                        |                          | <b>Performance Deficiencies</b> | <b>Maintenance Needs</b> |
| <b>Units</b>  | <b>Exc.</b>      | <b>Good</b> | <b>Fair</b>            | <b>Poor</b>              |                                 |                          |
| m <sup>2</sup>  |                  |             | 900.0                  | 100.0                    | 0                               | 18                       |
| <b>Comments:</b> Some missing stones and debris. Light weathering of stones. East wall bulging slightly.  |                  |             |                        |                          |                                 |                          |
| None <input type="checkbox"/> 1 - 5 years <input checked="" type="checkbox"/> < 1 year <input type="checkbox"/> Urgent <input type="checkbox"/> |                  |             |                        |                          |                                 |                          |

|   |                        |             |                        |                          |                                 |                          |
|---|------------------------|-------------|------------------------|--------------------------|---------------------------------|--------------------------|
| <b>Element Group:</b>   | Retaining Wall         |             | <b>Length:</b>         | 5.0 m                    |                                 |                          |
| <b>Element Name:</b>  | Retaining Wall         |             | <b>Width:</b>          | 0.4 m                    |                                 |                          |
| <b>Location:</b>  | South                  |             | <b>Height:</b>         | 2.25 m                   |                                 |                          |
| <b>Material:</b>  | Cast-In-Place Concrete |             | <b>Count:</b>          | 2                        |                                 |                          |
| <b>Element Type:</b>  | Retaining Walls        |             | <b>Total Quantity:</b> | 22.5 m <sup>2</sup>      |                                 |                          |
| <b>Environment:</b>   | Moderate               |             | <b>Not Inspected</b>   | <input type="checkbox"/> |                                 |                          |
| <b>Protection System:</b>   | None                   |             |                        |                          | <b>Performance Deficiencies</b> | <b>Maintenance Needs</b> |
| <b>Units</b>  | <b>Exc.</b>            | <b>Good</b> | <b>Fair</b>            | <b>Poor</b>              |                                 |                          |
| m <sup>2</sup>  |                        |             | 22.5                   |                          | 0                               | 0                        |
| <b>Comments:</b> Efflorescence, small spalls and map cracking. Several wide and medium cracks with severe efflorescence.                        |                        |             |                        |                          |                                 |                          |
| None <input type="checkbox"/> 1 - 5 years <input checked="" type="checkbox"/> < 1 year <input type="checkbox"/> Urgent <input type="checkbox"/> |                        |             |                        |                          |                                 |                          |

**MUNICIPAL STRUCTURE INSPECTION FORM**

**BRIDGES**

**Site Number: 015-0013**

| ELEMENT DATA  |                                  |             |                        |                                     |                                 |                          |
|---|----------------------------------|-------------|------------------------|-------------------------------------|---------------------------------|--------------------------|
| <b>Element Group:</b>   | Foundations                      |             | <b>Length:</b>         | -                                   |                                 |                          |
| <b>Element Name:</b>  | Foundations (below ground level) |             | <b>Width:</b>          | -                                   |                                 |                          |
| <b>Location:</b>  | -                                |             | <b>Height:</b>         | -                                   |                                 |                          |
| <b>Material:</b>  | -                                |             | <b>Count:</b>          | -                                   |                                 |                          |
| <b>Element Type:</b>  | Unknown                          |             | <b>Total Quantity:</b> | -                                   |                                 |                          |
| <b>Environment:</b>   | Benign                           |             | <b>Not Inspected:</b>  | <input checked="" type="checkbox"/> |                                 |                          |
| <b>Protection System:</b>   | None                             |             |                        |                                     | <b>Performance Deficiencies</b> | <b>Maintenance Needs</b> |
| <b>Units</b>  |                                  | <b>Exc.</b> | <b>Good</b>            | <b>Fair</b>                         |                                 |                          |
| N/A   |                                  |             |                        |                                     |                                 | 0                        |
| <b>Comments:</b> No evidence of instability. Also large spalls and exposed corroded re-bar at south footings.                                   |                                  |             |                        |                                     |                                 |                          |
| None <input checked="" type="checkbox"/> 1 - 5 years <input type="checkbox"/> < 1 year <input type="checkbox"/> Urgent <input type="checkbox"/> |                                  |             |                        |                                     |                                 |                          |

|   |                            |             |                        |                          |                                 |                          |
|---|----------------------------|-------------|------------------------|--------------------------|---------------------------------|--------------------------|
| <b>Element Group:</b>   | Embankments and Streams    |             | <b>Length:</b>         | -                        |                                 |                          |
| <b>Element Name:</b>  | Streams and Waterways      |             | <b>Width:</b>          | -                        |                                 |                          |
| <b>Location:</b>  | East and West of Structure |             | <b>Height:</b>         | -                        |                                 |                          |
| <b>Material:</b>  | Cobbles and Boulders       |             | <b>Count:</b>          | -                        |                                 |                          |
| <b>Element Type:</b>  | Rideau River               |             | <b>Total Quantity:</b> | All                      |                                 |                          |
| <b>Environment:</b>   | Benign                     |             | <b>Not Inspected</b>   | <input type="checkbox"/> |                                 |                          |
| <b>Protection System:</b>   | None                       |             |                        |                          | <b>Performance Deficiencies</b> | <b>Maintenance Needs</b> |
| <b>Units</b>  |                            | <b>Exc.</b> | <b>Good</b>            | <b>Fair</b>              |                                 |                          |
| All   |                            |             | All                    |                          |                                 | 0                        |
| <b>Comments:</b>  |                            |             |                        |                          |                                 |                          |
| None <input checked="" type="checkbox"/> 1 - 5 years <input type="checkbox"/> < 1 year <input type="checkbox"/> Urgent <input type="checkbox"/> |                            |             |                        |                          |                                 |                          |

|   |                         |             |                        |                          |                                 |                          |
|---|-------------------------|-------------|------------------------|--------------------------|---------------------------------|--------------------------|
| <b>Element Group:</b>   | Embankments and Streams |             | <b>Length:</b>         | -                        |                                 |                          |
| <b>Element Name:</b>  | Embankments             |             | <b>Width:</b>          | -                        |                                 |                          |
| <b>Location:</b>  | All four quadrants      |             | <b>Height:</b>         | -                        |                                 |                          |
| <b>Material:</b>  | -                       |             | <b>Count:</b>          | 4                        |                                 |                          |
| <b>Element Type:</b>  | Embankments             |             | <b>Total Quantity:</b> | 4                        |                                 |                          |
| <b>Environment:</b>   | Moderate                |             | <b>Not Inspected</b>   | <input type="checkbox"/> |                                 |                          |
| <b>Protection System:</b>   | None                    |             |                        |                          | <b>Performance Deficiencies</b> | <b>Maintenance Needs</b> |
| <b>Units</b>  |                         | <b>Exc.</b> | <b>Good</b>            | <b>Fair</b>              |                                 |                          |
| Each  |                         |             | 3                      |                          | 1                               | 0                        |
| <b>Comments:</b> Severe erosion of SE embankment.   |                         |             |                        |                          |                                 |                          |
| None <input type="checkbox"/> 1 - 5 years <input checked="" type="checkbox"/> < 1 year <input type="checkbox"/> Urgent <input type="checkbox"/> |                         |             |                        |                          |                                 |                          |

**MUNICIPAL STRUCTURE INSPECTION FORM**

**BRIDGES**

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| ELEMENT DATA  |                               |             |                        |                          |                                 |                          |
|---|-------------------------------|-------------|------------------------|--------------------------|---------------------------------|--------------------------|
| <b>Element Group:</b>   | Signs                         |             | <b>Length:</b>         | -                        |                                 |                          |
| <b>Element Name:</b>  | Signs                         |             | <b>Width:</b>          | -                        |                                 |                          |
| <b>Location:</b>  | Approaches and Corners        |             | <b>Height:</b>         | -                        |                                 |                          |
| <b>Material:</b>  | Steel                         |             | <b>Count:</b>          | 8                        |                                 |                          |
| <b>Element Type:</b>  | Signs                         |             | <b>Total Quantity:</b> | 8                        |                                 |                          |
| <b>Environment:</b>   | Moderate                      |             | <b>Not Inspected</b>   | <input type="checkbox"/> |                                 |                          |
| <b>Protection System:</b>   | Hot Dip Galvanised and Coated |             |                        |                          | <b>Performance Deficiencies</b> | <b>Maintenance Needs</b> |
|   | <b>Units</b>                  | <b>Exc.</b> | <b>Good</b>            | <b>Fair</b>              |                                 |                          |
|   | Each                          |             | 8                      |                          |                                 | 0                        |
| <b>Comments:</b> 4 hazard markers at corners of structure is in good condition. 2 Load Limit signs and 2 narrow structure signs                 |                               |             |                        |                          |                                 |                          |
| None <input checked="" type="checkbox"/> 1 - 5 years <input type="checkbox"/> < 1 year <input type="checkbox"/> Urgent <input type="checkbox"/> |                               |             |                        |                          |                                 |                          |

|   |                            |             |                        |                          |                                 |                          |
|---|----------------------------|-------------|------------------------|--------------------------|---------------------------------|--------------------------|
| <b>Element Group:</b>   | Approaches                 |             | <b>Length:</b>         | 6.0 m                    |                                 |                          |
| <b>Element Name:</b>  | Wearing Surface            |             | <b>Width:</b>          | 5.5 m                    |                                 |                          |
| <b>Location:</b>  | Approaches (North / South) |             | <b>Height:</b>         | -                        |                                 |                          |
| <b>Material:</b>  | Asphalt                    |             | <b>Count:</b>          | 2                        |                                 |                          |
| <b>Element Type:</b>  | Wearing Surface            |             | <b>Total Quantity:</b> | 66.0 m <sup>2</sup>      |                                 |                          |
| <b>Environment:</b>   | Moderate                   |             | <b>Not Inspected</b>   | <input type="checkbox"/> |                                 |                          |
| <b>Protection System:</b>   | None                       |             |                        |                          | <b>Performance Deficiencies</b> | <b>Maintenance Needs</b> |
|   | <b>Units</b>               | <b>Exc.</b> | <b>Good</b>            | <b>Fair</b>              |                                 |                          |
|   | m <sup>2</sup>             |             | 59.0                   | 5.0                      | 2                               | 0                        |
| <b>Comments:</b> Moderate ravelling more severe at structure. A few transverse cracks, wide crack and depression at south approach.             |                            |             |                        |                          |                                 |                          |
| None <input checked="" type="checkbox"/> 1 - 5 years <input type="checkbox"/> < 1 year <input type="checkbox"/> Urgent <input type="checkbox"/> |                            |             |                        |                          |                                 |                          |

**MUNICIPAL STRUCTURE INSPECTION FORM**

**BRIDGES**

**Site Number: 015-0013**

| REPAIR AND REHABILITATION REQUIRED |   | Priority     |               |        | Estimated Cost      |
|------------------------------------|---|--------------|---------------|--------|---------------------|
| Element                            | Repair and Rehabilitation Required        | 1 to 5 years | Within 1 year | Urgent |                     |
| Railing System                     | Replace Traffic Barrier and on approaches | x            |               |        | \$100,000.00        |
| Coating                            | Re-Coat Structural Steel                  | x            |               |        | \$100,000.00        |
| Abutments                          | Concrete Repair                           | x            |               |        | \$40,000.00         |
| Bearings                           | Replace Bearings                          | x            |               |        | \$20,000.00         |
| Pier - Shafts                      | Concrete Repairs                          | x            |               |        | \$50,000.00         |
| Retaining Walls                    | Masonry Repairs                           | x            |               |        | \$50,000.00         |
| Embankments                        | Repair SE quadrant                        | x            |               |        | \$2,000.00          |
|                                    |   |              |               |        |                     |
|                                    |   |              |               |        |                     |
|                                    |   |              |               |        |                     |
|                                    |   |              |               |        |                     |
| <b>Total cost</b>                  |   |              |               |        | <b>\$362,000.00</b> |

| ASSOCIATED WORK     | Comments | Estimated Cost     |
|---------------------|----------|--------------------|
| Approaches          |          |                    |
| Detours             |          | \$50,000.00        |
| Traffic Control     |          | \$5,000.00         |
| Utilities           |          |                    |
| Right of Way        |          |                    |
| Environmental Study |          |                    |
| Other               |          |                    |
| Contingencies       |          | \$40,000.00        |
| <b>Total Cost</b>   |          | <b>\$95,000.00</b> |

**JUSTIFICATION**

It is estimated that the bridge will need a rehabilitation in the next ten years to remain open to the public.



# Andrewsville Bridge



Approach view of the structure



Elevation view

The County of Lanark 2015 OSIM Bridge Inspections



View of timber curb and railing system



View of soffit and truss stringers and floor beams



View showing severe spalls and disintegration on abutment



View showing cracking with efflorescence and spalling on the abutment



View showing severe spalling of abutment and replaced bolted end plates



View of pier showing major spalling and efflorescence

The County of Lanark 2015 OSIM Bridge Inspections



View showing cross bracing and corrosion on girders



View showing mass spalling and corrosion stains



View of deck wearing surface with rot, splits, and checks

# APPENDIX G



**COUNTY COUNCIL**  
**Council Chambers**  
**Administration Building**  
**Perth, Ontario**

Pursuant to adjournment the Council of the Corporation of the County of Lanark met in special session on Wednesday, April 27, 2016 immediately following the Public Works Committee of the Whole.

**Chair:** Councillor Gail Code

**1. CALL TO ORDER**

The meeting was called to order at 8:50 p.m.

**2. ROLL CALL**

All members were in attendance, excluding J. Fenik.  
A quorum was present.

**3. DISCLOSURE OF PECUNIARY INTEREST**

None at this time.

**4. ADDITIONS AND APPROVAL OF AGENDA**

**MOTION #CC-2016-57**

**MOVED BY:** Keith Kerr      **SECONDED BY:** Brian Campbell

**"THAT**, the agenda be adopted as presented."

**ADOPTED**



## 5. REPORTS

- i) Public Works: April 27, 2016 Page  
3 - 5  
**Chair, Councillor Klaas Van Der Meer**

### **MOTION #CC-2016-58**

**MOVED BY:** Klaas Van Der Meer     **SECONDED BY:** Bill Dobson

**"THAT**, the Fourth Report of the Public Works Committee of the Whole be adopted as presented."

**ADOPTED**

## 6. ADJOURNMENT

Council adjourned at 8:52 p.m. on motion by Councillors A. Churchill and B. Stewart.

  
Leslie Drynan,  
Deputy Clerk



**FOURTH  
REPORT OF THE PUBLIC WORKS COMMITTEE OF THE WHOLE  
April 27, 2016**

To the Members of Lanark County Council.

We, the Members of your Public Works Committee of the Whole beg leave to report Section "A" to be received as information and Section "B" as follows:

**"A" 1.** REPORT #PW-10-2016 RECOMMENDATION OF CONTRACT AWARD FOR CONTRACT #PW-C-31-2016-16-E0, BLACK CREEK CULVERTS REHABILITATION

**"B" 1.** **MOTION #PW-2016-49**

**"THAT**, Report #PW-10-2016, Recommendation of Contract Award for Contract #PW-C-31-2016-16-E0, Black Creek Culverts Rehabilitation, be received as information;

**AND THAT**, the Public Works Committee recommends to County Council that Contract #PW-C-31-2016-16-E0, Black Creek Culverts Rehabilitation, be awarded to Lischer Construction Inc. in the amount of \$146,100.00, plus HST;

**AND THAT**, a decision regarding the savings from this Contract, \$151,328.73, be deferred until the majority of the Construction Projects are completed, when the outcome of Asphalt Index Prices, Fuel Index Prices and project extras are known."

**"A" 2.** REPORT #PW-11-2016 RECOMMENDATION OF CONTRACT AWARD FOR CONTRACT #PW-C-29-2016-16-E0, MCINTYRE DRAIN CULVERT REPLACEMENT

**"B" 2.** **MOTION #PW-2016-50**

**"THAT**, Report #PW-11-2016, Recommendation of Contract Award for Contract #PW-C-29-2016-16-E0, McIntyre Drain Culvert Replacement, be received as information;

**AND THAT**, the Public Works Committee recommends to County Council that Contract #PW-C-29-2016-16-E0, McIntyre Drain Culvert Replacement, be awarded to Willis Kerr Contracting Limited in the amount of \$208,580.03, plus HST;

**AND THAT**, the Public Works Committee recommends to County Council that Tay Valley Township be compensated \$20,000 to help offset the costs associated with adding Granular "M" to Bathurst Concession 5;

**AND THAT**, this Project be funded from 2016 Construction Program savings."

**"A" 3.** REPORT #PW-12-2016 RECOMMENDATION OF CONTRACT CANCELLATION, SUPPLY AND DELIVERY OF ONE (1) 4 X 4 BACKHOE LOADER, CONTRACT #PW-E-23-2016-16-E

**"B" 3.** **MOTION #PW-2016-51**

**"THAT**, Contract #PW-E-23-2016-16-E0, Supply and Delivery of One (1) 4 x 4 Backhoe Loader with 19 Foot Digging Depth be cancelled; **AND THAT**, staff be authorized to proceed with a Request for Proposal (RFP) for One 4 x 4 Backhoe Loader."

**"A" 4.** REPORT #PW-13-2016 ANDREWSVILLE BRIDGE: OPTIONS FOR THE FUTURE

**"B" 4. MOTION #PW-2016-52**

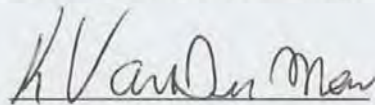
"**THAT**, contingent upon the agreement of the Council of the United Counties of Leeds and Grenville, Lanark County agrees to provide a maximum of \$60,000, to be matched by funding from the United Counties of Leeds and Grenville over a twelve year period, commencing November 2016, to allow traffic, under 5 tonnes in weight, on the Andrewsville Bridge."

All of which is respectfully submitted by:

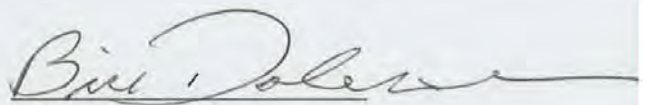
\_\_\_\_\_  
Klaas Van Der Meer, Chair

**Direction by the Warden:  
Council may remove items in Section "B" to be voted on separately prior to introducing a motion to accept the report in its entirety.**

Moved and Seconded by:



Moved By:

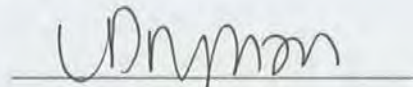


Seconded By:

Adopted this 27 day of April, 2016



Gail Code, Warden



Leslie Drynan, Deputy Clerk

PW Report February 17, 2016 to CC – March 9, 2016

# **THE COUNTY OF LANARK**

## **PUBLIC WORKS COMMITTEE**

April 27, 2016

Report # PW-13-2016 of the  
Director of Public Works

### **ANDREWSVILLE BRIDGE: OPTIONS FOR THE FUTURE**

#### **1. STAFF RECOMMENDATIONS**

"**THAT**, contingent upon the agreement of the Council of the United Counties of Leeds and Grenville, Lanark County agrees to provide a maximum of \$60,000, to be matched by funding from the United Counties of Leeds and Grenville over a twelve year period, commencing November 2016, to allow traffic, under 5 tonnes in weight, on the Andrewsville Bridge."

#### **2. PURPOSE**

To provide an update on the condition of the Andrewsville Bridge, review County Council's previous commitment and obtain a decision from County Council on the future of the bridge.

#### **3. BACKGROUND**

The Andrewsville Bridge, constructed in the early 1900's, is located between Burritts Rapids (5 km) and Merrickville (4 km). The ownership of the bridge is shared between Lanark County and the United Counties of Leeds and Grenville.

Currently, the bridge has a 5 tonne load limit, which is also the limit of the swing bridge owned by Parks Canada in this area. The annual average daily traffic (AADT) at the bridge is less than 200.

Summarized below are key events that have occurred over the last eight years:

##### 2008

Wooden deck replacement and some stringer, bearing seat and ballast wall repairs (approximately \$100,000).

##### 2012

January - Structural Report, Public Information Session (PIC) and Report to County Council.

May – A transport damages the bridge resulting in indefinite closure.

November - Motion #PW-2012-104

"**THAT**, the Council of Lanark County agree to the following position in regards to the Andrewsville Bridge;

1. **THAT**, Lanark County agrees to provide a maximum of \$50,000, to be matched by funding from the United Counties of Leeds and Grenville over four years to allow traffic under five tonnes in weight on the Andrewsville Bridge; and
2. **THAT**, funding be sought outside the levy for replacement of the Andrewsville Bridge including Provincial and Federal Governments, Parks Canada and other agencies as well as community fundraising; and
3. **THAT**, in the event of a lack of non-levy funding to support the bridge, that further deterioration beyond Lanark County's contribution of \$50,000 over four years for a total of \$100,000 invested by the two counties, that Lanark County shall recommend reconsideration of options by Lanark County and the United Counties of Leeds and Grenville."

November – Motion #PW-2012-105

"**THAT**, if adequate funding for the Andrewsville Bridge is not obtained over the five years, that the bridge be closed."

2013

January - Tender call for height restriction barriers, signage and bridge repairs to allow reopening of the bridge (approximately \$65,100).

March – bridge reopened.

2015

Annual inspection identifies stringer replacement required at North end of the bridge.

2016

February – April - Quotation is prepared for required stringer replacements with an estimated cost of \$30,000 to \$40,000, including engineering.

March – Meeting with Parks Canada officials. They indicated that the causeway, on the South end of the bridge, does not belong to Parks Canada. Parks Canada also indicated they have no funding stream available to contribute towards the replacement or repairs of the bridge.

Keystone Bridge Management provides a letter with a structural opinion of the bridge condition and life expectancy after stringer repairs completed. See Appendix "A".

#### **4. DISCUSSION**

Subject to quotation prices received, it is anticipated that the stringer replacements and structural inspection at low water, can be completed within the remaining funds, from the \$100,000, committed by the Counties in 2012.

If the stringer replacements are completed this year, there will have been approximately \$200,000 spent on the bridge since 2008. The height restriction devices appear to have done their job of limiting larger vehicles from crossing the bridge, although the barriers have been struck three or four times, by light weight RV's or camper trailers.

The opinion of the Engineer is that after the five stringers are replaced, the bridge can carry vehicular traffic for another 10 – 15 years with some annual maintenance. A structural inspection shall be carried out at low water, this year, of the underside of the bridge for the centre section to reaffirm the Engineers' findings and the causeway must be monitored closely each year for any signs of failure or further deterioration.

The bridge is at the bottom of both Counties' Asset Management Plans due to the low traffic volume and proximity of other available bridges to cross the river. It is not foreseeable that Lanark County would apply for grant money to replace the bridge.

#### **5. ANALYSIS AND OPTIONS**

##### Option 1 (recommended):

Contingent upon the agreement of the Council of the United Counties of Leeds and Grenville, Lanark County agrees to provide a maximum of \$60,000, to be matched by funding from the United Counties of Leeds and Grenville over a twelve year period, commencing November 2016, to allow traffic, under 5 tonnes in weight, on the Andrewsville Bridge.

Option 2 (not recommended):

No further commitment of money be made at this time and staff would use the authority under Motion PW-2012-105 and close the Bridge, if further repair needs arise in the future.

Option 3 (not recommended):

Staff would report to County Council for direction, on a case by case basis, as repair needs are identified.

Option 4 (not recommended):

The Counties download the bridge to the two local Municipalities.

**6. FINANCIAL IMPLICATIONS**

The existing commitment by the Counties ends in November 2016 and further monies is required to be spent, if the bridge is to remain open to vehicular traffic.

**7. LOCAL MUNICIPAL IMPACT**

The Andrewsville Bridge is a landmark for the local communities and public interest is high, especially with members of the Friends of the Andrewsville Bridge.

**8. CONCLUSIONS**

The Director recommends that Lanark County Council, in consultation with the United Counties of Leeds and Grenville, establish a long-term plan for the Andrewsville Bridge in 2016, to allow necessary actions to be taken by staff for the bridge to remain open.

**9. ATTACHMENTS**

Appendix "A" – Letter from Keystone Bridge Management Corp. dated March 24, 2016.

**Recommended By:**

Janet Tysick  
Business Manager

**Approved for  
Submission By:**

Terry McCann  
Director of Public  
Works

**Manager Approval  
By:**

Kurt Greaves  
Chief Administrative  
Officer





## Keystone Bridge Management Corp.

Your Bridge Asset Management Specialist

March 24, 2016

LANARK COUNTY  
PUBLIC WORKS

MAR 31 2016

Terry McCann, C.E.T.  
Director of Public Works  
Lanark County  
99 Christie Lake Road  
Perth, ON K7H 3C6

Re: Andrewsville Bridge

Dear Terry,

This is in response to your request for a letter of advice regarding the subject bridge and approaches.

The only known deficiency on the bridge is the perforated condition of the stringers at the extreme north end. These are recommended for replacement to ensure the continued viability of the 5 tonne load limit. It is expected these stringers can be replaced for less than \$35,000.00.

The timber deck and curbs are in good condition and have at least 10 to 15 years of remaining service life. The truss above the road service is presently in good repair.

The steel girder approach span at the south side of the truss is in acceptable condition for the present load limit.

The concrete abutments and pier are weathered but suitable for the present.

It is anticipated that the stringers south of the ones recommended for replacement are in acceptable condition. However this needs to be confirmed by a wading inspection underneath the bridge. This may only be completed under low-flow conditions and will need to be coordinated with the upstream hydro dam operator.

In summary, with an investment of less than \$35,000 this bridge can reasonably be expected to carry light vehicle traffic for another 10 to 15 years.

The bridge approaches consist of a narrow causeway constructed on the river bed and flood plain. The longest portion of the causeway is on the south approach. The causeway is constructed of dry stone stacked walls in-filled with rubble and presumably common fill. The causeway was constructed with small dry stone conduits at its base. These conduits are open and pass flow from the Rideau River.

Portions of the dry stone walls have partly collapsed on the downstream side. This has impacted the guiderail support but the road surface remains intact. An estimated 5% of the dry stone walls are in a partially failed condition.

Extreme flood conditions could be perilous to the causeway. Additional vigilance is recommended during flood events.

Deterioration of the causeway will continue in a gradual fashion, exacerbated primarily through frost action. A catastrophic failure of the causeway due to on-going deterioration is not contemplated at this time. Spot maintenance and regular patrolling is recommended to maintain the causeway in a safe and serviceable condition. Any abrupt change to the dry stone walls should be referred to an engineer for evaluation.

As the bridge and causeway continues to age the risk of a latent defect will increase. At some point in the next 15 years a decision will be required regarding the continued viability of the Andrewsville Bridge.

Sincerely,

Harold Kleywegt, P.Eng.  
Managing Director



**The United Counties of Leeds and Grenville  
Committee of the Whole**

**Resolution No.** CW- 097 -2016

**Date:** July 5, 2016

Moved by Doug Malanka

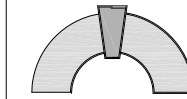
Seconded by Pat Sweeney

**THAT** the Committee of the Whole recommends matching the commitment of Lanark County Council of a maximum of \$60,000 over a 12 year period commencing November, 2016, to allow traffic under 5 tonnes in weight on the Andrewsville Bridge; and

**THAT** the Committee of the Whole recommends approval of \$20,000 in 2016 for the replacement of deficient bridge stringers to ensure continued viability of the 5 tonne load limit.

Carried ✓ Defeated \_\_\_\_\_

Mark Sord  
Chair



**Keystone Bridge Management Corp.**

**GENERAL NOTES**

THE CONTRACTOR SHALL ENSURE THAT NO DELETERIOUS MATERIALS RESULTING FROM CONSTRUCTION ACTIVITIES ENTERS THE WATER COURSE.

THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND REPORT ANY DISCREPANCIES TO THE OWNER/CONTRACT ADMINISTRATOR BEFORE PROCEEDING WITH THE WORK.

**SEQUENCE OF WORK**

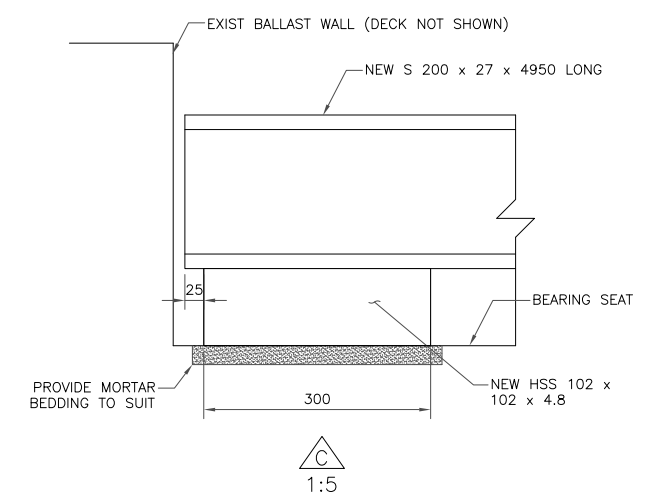
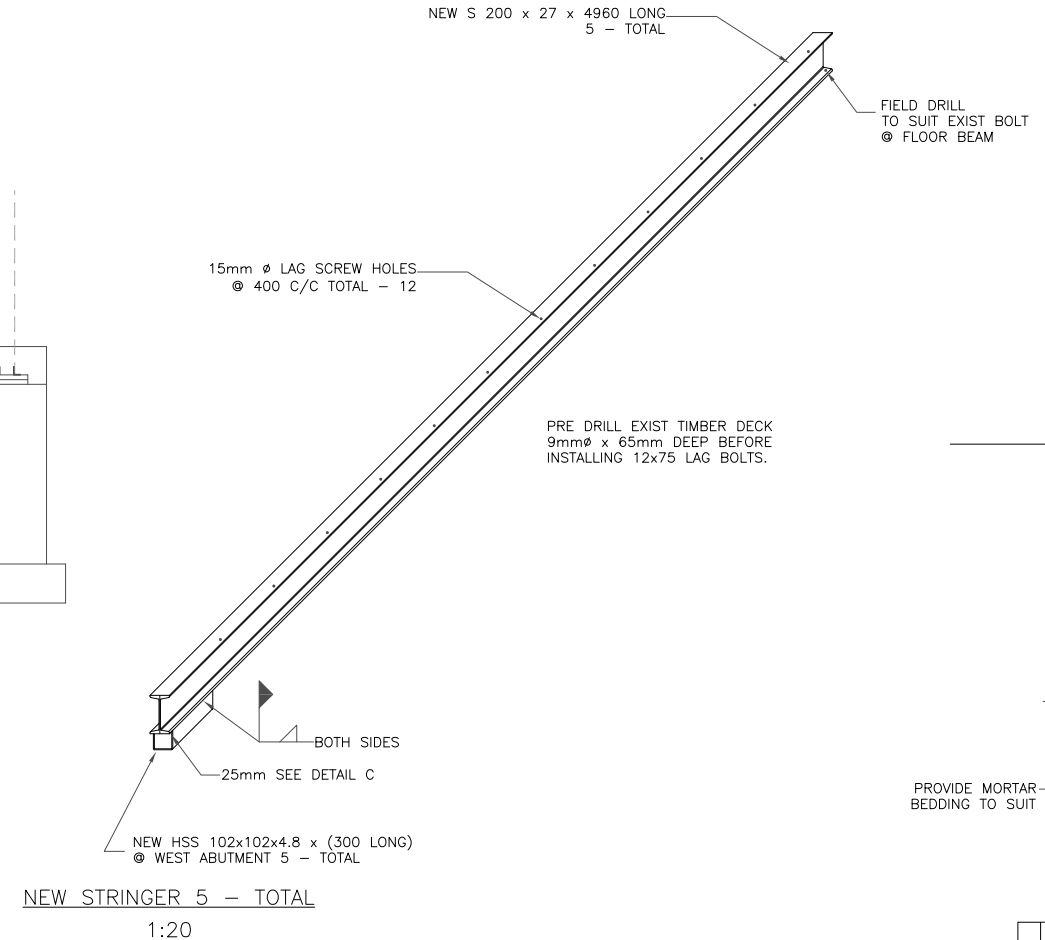
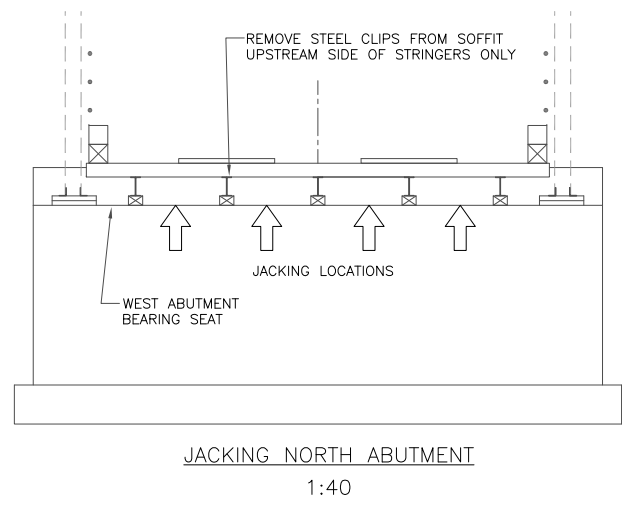
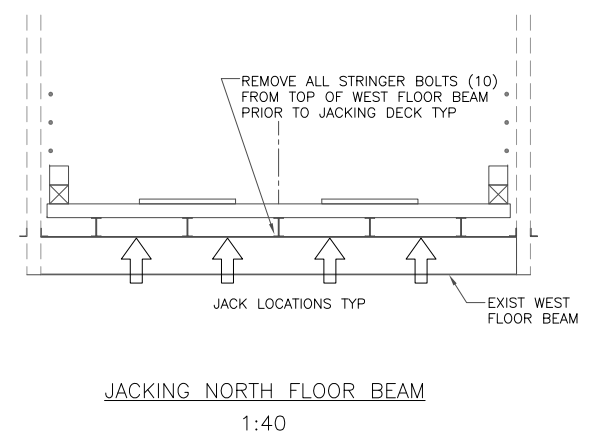
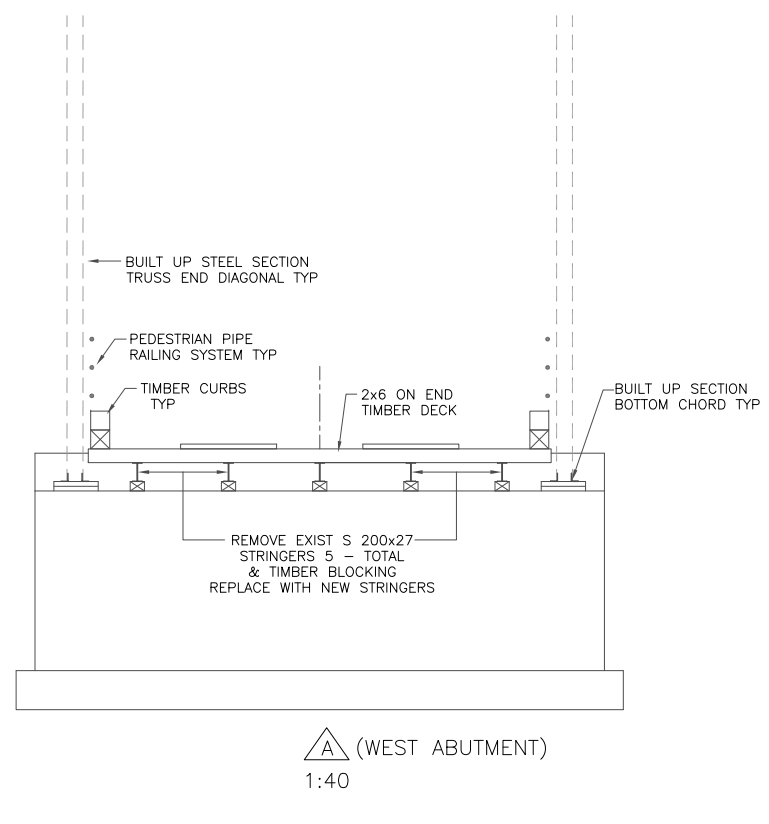
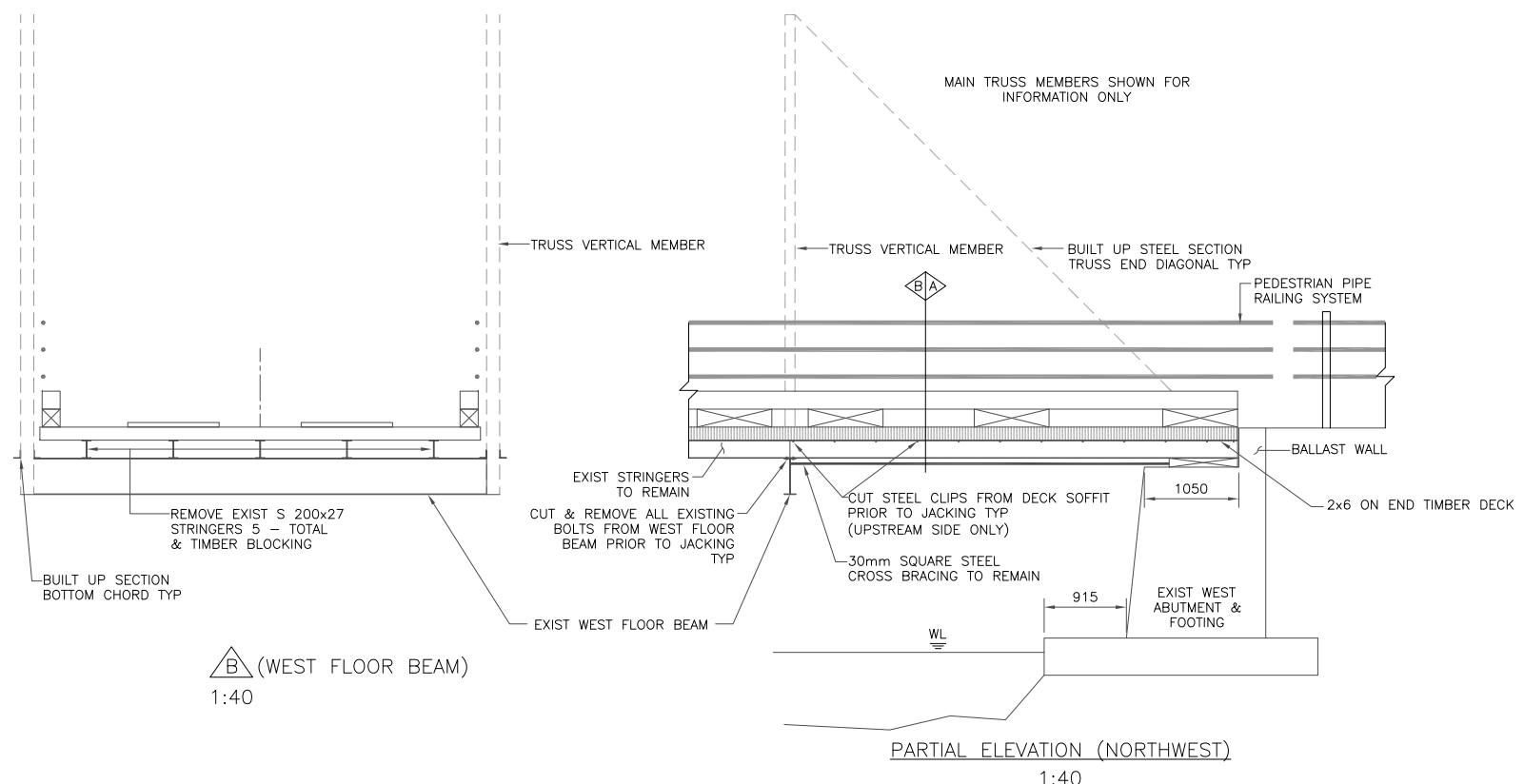
1. INSTALL ALL SIGNAGE AND ESTABLISH DETOUR AROUND BRIDGE. CLOSE BRIDGE TO TRAFFIC.
2. REMOVE BOLTS FROM WEST FLOOR BEAM/STRINGERS (10 TOTAL).
3. JACK BRIDGE (50mm MAX) AND BLOCK.
4. REMOVE CLIPS FROM DECK SOFFIT. (UPSTREAM SIDE ONLY).
5. REMOVE STRINGERS FROM THE NORTH END OF BRIDGE.
6. PLACE BEDDING GROUT UNDER STRINGERS AT THE WEST ABUTMENT AND INSTALL 5 NEW STRINGERS. LOWER BRIDGE. LAG BOLT TOP FLANGE OF STRINGERS TO UNDERSIDE OF DECK.
7. OPEN BRIDGE TO TRAFFIC AND REMOVE DETOUR SIGNAGE.

**STRUCTURAL STEEL NOTES**

1. ALL NEW STEEL GRADE 350W
2. ALL NEW STEEL TO BE SHOP COATED WITH 2 COATS PRIMER
3. INSTALL NEW STRINGER TO FLOOR BEAM BOLTS (10) TO SUIT FIELD CONDITIONS

**LIST OF DRAWINGS**

1. GENERAL ARRANGEMENT AND DETAILS
2. KEYPLAN AND TRAFFIC MANAGEMENT PLAN



| REVISIONS |    | DESCRIPTION |    | DATE        |          |
|-----------|----|-------------|----|-------------|----------|
| DESIGN    | HK | CHK         |    |             | MAY 2016 |
| DRAWN     | SR | CHK         | HK | SITE 99-001 | DWG 1    |

# Andrewsville Bridge Wading Inspection

## Introduction

Keystone Bridge Management was retained by the County of Lanark to complete a wading inspection of the underside of the Andrewsville Bridge over the Rideau River downstream of Merrickville, Ontario. The inspection was completed on August 3, 2016. Harold Kleywegt, P.Eng was the principal inspector. He was assisted by Cole Zanchetta, a 3<sup>rd</sup> year civil engineering student. Also present and assisting was Sean Derouin, E.I.T. of the County of Lanark.

Access to the underside of the bridge was obtained by setting up a 10' step ladder and 24' extension ladder on the river bottom. It was possible to obtain access to the underside of the bridge in most areas. However stream scour at both abutments precluded setting up ladders at these locations.

The Rideau River is flowing principally north at the Andrewsville Bridge. Accordingly, the east abutment is on the United Counties of Leeds & Grenville side of the bridge and the west abutment is on the Lanark County side.

The bridge has two spans, a 38.5 m long main truss forming the west span and a 9.2 m steel girder flanking east span. The truss has 9 panel points supporting floor beams at the interior 7 panel points. Five steel S200 x 27 stringers span between the floor beams and directly support the laminated timber deck. The stringer and floor beam framing is duplicated on the east steel girder approach span.

For the purpose of this report the area between floor beams is referred to as "Bays." There are 8 Bays comprising the truss floor system. They are numbered from east to west with Bay 1 closest to the pier, and Bay 8 closest to the west abutment. The stringers are numbered 1 to 5 from south to north. This convention has been followed in captioning the images included with this report.

The Bay 8 stringers were not inspected as they were about to be replaced and have since been replaced.

## Findings

In general the floor system of the truss and approach span is almost fully involved with corrosion. Any remaining paint coating on the stringers is ineffective. On the floor beams the paint system is still about 50% intact and somewhat effective.

The corrosion of the stringers consists of pitting type corrosion, rust flaking, and some slab rust. The most severe corrosion occurs on Stringer 2 of the east approach span. This stringer has web perforations throughout its length.

The stringers of the main truss with the exception of Bay 8 do not have any perforations of the webs. It is unlikely that any of the webs will perforate in the next 5 to 10 years. The average section loss of the

stringers in Bays 1 to 7 of the main truss is conservatively estimated as not exceeding 10%. It is more likely that the average section loss is around 5%.

The stringers of the approach span are very similar in condition as the main truss, with the exception of Stringer 2. This stringer has four perforations of its web. The largest perforation involves the entire depth of the web. This stringer has very conservatively an average of 10 to 15% section loss.

The stringers have more severe local corrosion and section loss where they bear on the pier and east abutment. Difficult access and the presence of debris hindered a more thorough examination. However the accompanying images provide a reasonably good portrayal of their condition.

The floor beams are in mostly fair to good condition. The most pronounced corrosion on the floor beams is at their ends where they frame into the main truss. The average section loss to the floor beams is in all likelihood not more than 2%.

The truss bottom chords are visible from the bridge deck. Hence these were not inspected as closely as the stringers and floor beams. Nonetheless, the underside of the bottom chords was consistent with the top side condition. The bottom chords are in mostly fair to good condition with no significant section loss noted.

The girders of the east approach span exhibit the most corrosion at their bearings. Debris at the bearings and difficult access precluded a thorough assessment. However, it can be stated that these girders remain structurally sound for the current load limit on the bridge.

## Conclusions

The floor system of the truss and east approach span is substantially corroded and weakened as a result. This corrosion is principally due to de-icing salts penetrating the timber deck and wetting the floor system. However the floor system is entirely adequate for the present 5 tonne load limit on the bridge.

The corrosion will continue to weaken the floor system to the point that even the 5 tonne load limit is not acceptable. It is expected the stringers have possibly 5 to 10 years of remaining service life at the current load limit.

## Recommendations

The following recommendations will help extend the life of the present bridge:

1. Provide a thorough cleaning of the top of the pier and east abutment bridge seat.
2. Close the bridge during the winter months so that de-icing salt is no longer contaminating the floor system.
3. Should the bridge stay open year round, then the floor system and bottom chords should be high pressure washed as early as possible each spring.
4. Coating the floor system is probably prohibitively expensive but should be considered in order to preserve the bridge.

5. The bottom chords of the truss should be painted in the next 5 years if it is intended to keep the bridge in service for more than another 10 years.
6. The underside should be re-inspected every two years as river flow permits.

## **Outlook**

The timber bridge deck is in good condition and is expected to have up to 20 years of remaining service life. Should the bridge be required to stay in service beyond the life of the present timber deck than all of the stringers except for those in Bay 8 should be replaced. The stringers should be replaced with galvanized stringers. It will be possible to clean and paint the floor beams conveniently when the deck is removed for replacement. The bottom chords of the bridge should be painted concurrently if not already painted.

## **Other Concerns**

The dry stone masonry retaining walls of the bridge approaches are a concern. There is notable bulging and displacement of the wall in the NW quadrant. A portion of the wall has failed in the SE quadrant. The integrity of the wall has been somewhat affected by the imposition of the railing system foundations into the top of the wall.

The causeway on the east approach has at least one dry stone culvert type opening through it at the base. There is iron strapping helping to form these openings. The iron strapping is substantially corroded.

The approach embankments are in a precarious condition. They are in a partial state of failure and further collapse may occur at any time with little or no warning. Such collapses are not anticipated to be catastrophic but would encroach on the roadway shoulders.

Further investigation and assessment of the approaches by a geotechnical engineer is recommended.

## **Closing**

Keystone Bridge Management Corp. is pleased to report on the wading inspection of the underside of the Andrewsville Bridge. We hope this assessment is sufficient for your purposes and will help guide the long term management of this bridge.

Harold Kleywegt, P.Eng.

(34 captioned images follow)



Image 1. Thinning of bottom flange of Stringer 2 in Bay 3



Image 2. Stringers 3 & 4 in Bay 3 looking downstream



Image 3. South end of Floor Beam between Bays 1 & 2.



Image 4. Close up of Image 3. Rust dangling from spider webs





Image 5. Truss Bay 1 adjacent pier, looking downstream



Image 6. Typical corrosion on stringers Bay 1



Image 7. Truss Stringer 1 at Pier Bearing



Image 8. Truss Stringer 2 at Pier Bearing



Image 9. Truss Stringer 3 at Pier Bearing



Image 10. Truss Stringer 4 at Pier Bearing



Image 11. Truss Stringer 5 at Pier Bearing



Image 12. Perforation of Approach Stringer 2 before probing



Image 13. Perforation of Approach Stringer 2 after probing



Image 14. Perforation near centre of Approach Stringer 2 west bay.



Image 15. General view of west bay of approach span looking downstream. Perforations circled.



Image 16. Truss Bay 1 looking west



Image 17. Truss Bay 2 looking west



Image 18. Truss Bay 3 looking west



Image 19. Truss Bay 4 looking west



Image 20. Truss Bay 5 looking west





Image 21. Truss Bay 6 looking west



Image 22. Truss Bay 7 looking west



Image 23. West abutment



Image 24. South bottom chord between Bays 6 and 7. (Typical condition)



Image 25. Stringer 5 bearing area at east abutment



Image 26. Splice on Stringer 4 at east abutment



Image 27. Stringer 3 bearing area at east abutment



Image 28. Perforated Stringer 2 at east abutment bearing



Image 29. Close up of perforated Stringer 2 at east abutment



Image 30. Stringer 1 bearing area at east abutment



Image 31. South girder interior side bearing area at east abutment



Image 32. North girder interior side bearing area at east abutment



Image 33. East bay of east approach span with perforation in Stringer 2



Image 34. Close-up of perforation shown in Image 33

# APPENDIX H



# Bridge Inspection Report

## Andrewsville Bridge

**Road Name:** Andrewsville Main St  
**Site ID:** B40  
**Structure Type:** Truss-Through  
**Owner:** County of Lanark  
**Built:** 1915  
**Length:** 47.7 m  
**Width:** 5.1 m  
**Spans:** 1  
**Spans Arrange:** 38.5 (truss) 9.2 (girder)  
**Feature Under:** Water  
**Crossing:** Rideau River  
**Location:** 500m west of County Rd 23



**Inspection Date:** September-18-17  
**Inspector:** Harold Kleywegt, P.Eng.  
**Assistant:** Milena Tresnak

### Comments:

*This bridge has a 5 tonne load limit. It has a very high local value. A historical plaque was added by local residents in 2017. The bridge has outlived its normal service life. Biggerst concerns are the stability of the dry stone walls on the approaches, perforated stringers at the south end, and severe decay to the timber curbs on the truss, The railing in the NE quadrant is mangled. Additional vigilance warranted. Need a plan to deal with partial collapse of dry stone wall. Bridge should be closed in winter months. Approach barriers and bridge railings*

### Recommended Investigations:

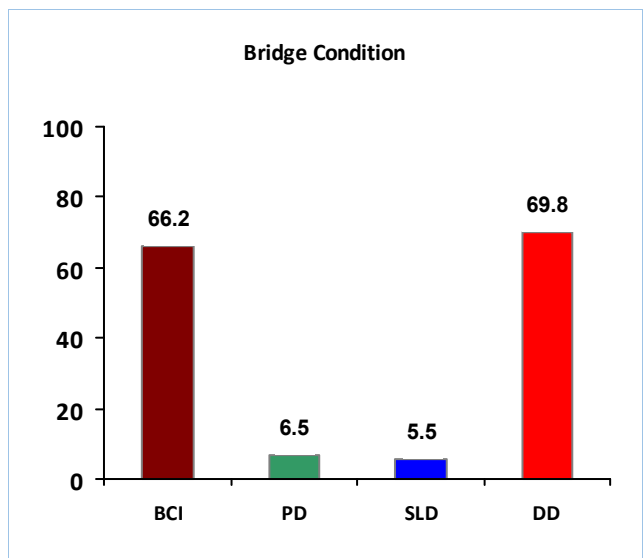
*No special investigations have been recommended*

### Recommended Capital Works:

*Timber Curbs, Stringer Repl, Misc Rep*

**Estimated Replacement Value:** \$3,280,000  
*Estimated replacement value is based on replacement in kind*  
**Estimated Remaining Service Life:** 0 Years  
**Rehabilitation Year and Estimated Cost:** 2019 \$84,000

**AADT:** 300      **Latitude:** 44.95115000  
**Lanes:** 1      **Longitude:** -75.81913300  
**Skew:** 0 °      **Orientation:** N-S  
**Speed:** 20 km/h      **Road Width:** 4.4 m  
**Trucks**      **Load Posting** 5



BCI = Bridge Condition Index MTO Calculation

PD = Parabolic Depreciation  
% of remaining life expectancy

SLD = Straight Line Depreciation  
% of remaining life expectancy

DD = % of Defects and Damage



## Component Inspection Information

**Timber-Laminated (1)** Defects **0.0%**  
**Approach Deck Surface** Damage **0.0%**  
 Length: **9.2 m** Maintenance **None**  
 Width: **5.5 m** Capital Rec. **None**  
 Height: **0.15 m** *Good condition.*

**Timber-Laminated (1)** Defects **0.0%**  
**Truss Deck Surface** Damage **0.0%**  
 Length: **38.6 m** Maintenance **None**  
 Width: **4.22 m** Capital Rec. **None**  
 Height: **0.15 m** *Good condition.*

**Timber-Sawn ()** Defects **20.0%** **Moderate UV Weathering, Moderate Checking**  
**Running boards** Damage **2.0%** **Moderate Breakage**  
 Length: **47.7 m** Maintenance **Local repair**  
 Width: **4.9 m** Capital Rec. **None**  
 Height: *The running boards at the pier have sustained some minor damage. Well secured.*

**Timber Curb (2)** Defects **0.0%**  
**Curbs** Damage **10.0%** **Major Decay**  
 Length: **47.7 m** Maintenance **Local repair**  
 Width: **0.13 m** Capital Rec. **Replace in 2 years**  
 Height: **0.13 m** *Significant decay noted in several areas in 2017. Some curb timbers completely decayed and require replacement. Entire curb system will require replacement in a few years.*

**Steel Pipe Ped Barrier (2)** Defects **0.0%**  
**Approach Barrier** Damage **20.0%** **Major Deformation, Moderate Impact**  
 Length: **100 m** Maintenance **Repair Minor Damage**  
 Width: Capital Rec. **None** Perf Def: **Weakened**  
 Height: *Significant damage and settlement on north approach, east side. Settlement and tilting on south side.*

**Steel-Fabricated (2)** Defects **20.0%** **Moderate Corrosion**  
**I-type - Girder** Damage **5.0%** **Minor Section Loss**  
 Length: **9.2 m** Maintenance **None** Partial Inspection  
 Width: **0.2 m** Capital Rec. **None**  
 Height: **0.46 m** *Much of coating is lost, with rust blisters on the lower flanges.*



## Component Inspection Information

|                                  |   |                           |
|----------------------------------|---|---------------------------|
| <b>Top Chord (2)</b>             | Defects <b>20.0%</b> <b>Minor Corrosion</b>   |                           |
| <b>Top chords</b>                | Damage <b>0.0%</b>  |                           |
| Length: <b>38.5 m</b>            | Maintenance <b>None</b>   |                           |
| Width: <b>0.33 m</b>             | Capital Rec. <b>None</b>  |                           |
| Height:                          | <i>Relatively benign environment means minimal section loss despite loss of coating.</i>  |                           |
| <b>Bottom Chord (2)</b>          | Defects <b>30.0%</b> <b>Minor Corrosion</b>   |                           |
| <b>Bottom Chords</b>             | Damage <b>5.0%</b> <b>Minor Section Loss</b>  |                           |
| Length: <b>38.5 m</b>            | Maintenance <b>None</b>   |                           |
| Width: <b>0.33 m</b>             | Capital Rec. <b>None</b>  |                           |
| Height:                          | <i>Significant coating failure. Bottom chord in NW corner strengthened in 2013. Wading inspection in 2016.</i>  |                           |
| <b>Diagonal/Post/Hangar (30)</b> | Defects <b>20.0%</b> <b>Minor Corrosion</b>   |                           |
| <b>Verticals/diagonals</b>       | Damage <b>0.0%</b>  |                           |
| Length: <b>4 m</b>               | Maintenance <b>None</b>   |                           |
| Width: <b>0.15 m</b>             | Capital Rec. <b>None</b>  |                           |
| Height: <b>0.15 m</b>            | <i>Tie plates added to many of the diagonals in 2013.</i>   |                           |
| <b>Steel Floor Beam (6)</b>      | Defects <b>5.0%</b> <b>Minor Corrosion, Moderate Corrosion</b>  |                           |
| <b>I-type - Floor Beams</b>      | Damage <b>0.0%</b>  |                           |
| Length: <b>5 m</b>               | Maintenance <b>None</b>   | <b>Partial Inspection</b> |
| Width: <b>0.2 m</b>              | Capital Rec. <b>None</b>  |                           |
| Height: <b>0.5 m</b>             | <i>See wading inspection report of 2016. Little change observed in 2017.</i>  |                           |
| <b>Stringers (5)</b>             | Defects <b>50.0%</b> <b>Moderate Corrosion</b>  |                           |
| <b>I-type - Stringers</b>        | Damage <b>10.0%</b> <b>Major Perforation, Moderate Section Loss</b>   |                           |
| Length: <b>47.7 m</b>            | Maintenance <b>None</b>   | <b>Partial Inspection</b> |
| Width: <b>0.2 m</b>              | Capital Rec. <b>Repair in 2 years</b>   |                           |
| Height: <b>0.3 m</b>             | <i>Some stringer ends have been repaired with bolted extensions. Stringers at the west abutment replaced in 2016. Large perforations in stringer 2 from west on south approach span and south end of truss.</i> |                           |
| <b>RC Abutment Wall (1)</b>      | Defects <b>30.0%</b> <b>Moderate Leaching/Seepage, Moderate Scaling, Moderate AAR Cracking</b>  |                           |
| <b>Abutment Stem</b>             | Damage <b>10.0%</b> <b>Major Disintegration</b>   |                           |
| Length:                          | Maintenance <b>None</b>   |                           |
| Width: <b>7 m</b>                | Capital Rec. <b>None</b>  |                           |
| Height: <b>2.2 m</b>             | <i>AAR related disintegration with leach staining and scaling.</i>  |                           |



## Component Inspection Information

|                                     |   |   |                           |
|-------------------------------------|---|---|---------------------------|
| <b>RC Ballast Wall (1)</b>          | Defects <b>0.0%</b>   |   |                           |
| <b>Ballast Walls</b>                | Damage <b>0.0%</b>  |   |                           |
| Length:                             | Maintenance <b>None</b>   |   | <b>Partial Inspection</b> |
| Width: <b>7 m</b>                   | Capital Rec. <b>None</b>  |   |                           |
| Height: <b>0.6 m</b>                | <b><i>Nop concerns noted.</i></b>   |   |                           |
| <b>RC Wing Walls (2)</b>            | Defects <b>50.0%</b>  | <b>Moderate Leaching Cracks, Moderate AAR Cracking</b>              |                           |
| <b>RC wingwall</b>                  | Damage <b>0.0%</b>  |   |                           |
| Length: <b>2.5 m</b>                | Maintenance <b>None</b>   |   | <b>Partial Inspection</b> |
| Width:                              | Capital Rec. <b>None</b>  |   |                           |
| Height: <b>1.25 m</b>               | <b><i>Serviceable.</i></b>  |   |                           |
| <b>Entire Pier (1)</b>              | Defects <b>20.0%</b>  | <b>Major AAR Cracking, Moderate Efflorescence, Moderate Scaling</b> |                           |
| <b>River Pier</b>                   | Damage <b>5.0%</b>  | <b>Major Disintegration</b>   |                           |
| Length: <b>2 m</b>                  | Maintenance <b>None</b>   |   | <b>Partial Inspection</b> |
| Width: <b>8 m</b>                   | Capital Rec. <b>None</b>  |   |                           |
| Height: <b>2.2 m</b>                | <b><i>Not possible to inspect most surfaces. Top is experiencing severe disintegration especially at nosing.</i></b>                          |   |                           |
| <b>Steel Sliding Plate (2)</b>      | Defects <b>0.0%</b>   |   |                           |
| <b>Bearings</b>                     | Damage <b>20.0%</b>   | <b>Moderate Section Loss</b>  |                           |
| Length:                             | Maintenance <b>None</b>   |   | <b>Partial Inspection</b> |
| Width:                              | Capital Rec. <b>None</b>  |   |                           |
| Height:                             | <b><i>Historically corroded.</i></b>  |   |                           |
| <b>Rocker or Roller Bearing (4)</b> | Defects <b>80.0%</b>  | <b>Moderate Corrosion, Checking</b>                                 |                           |
| <b>Roller bearing</b>               | Damage <b>20.0%</b>   | <b>Moderate Seizing</b>   |                           |
| Length:                             | Maintenance <b>Power Wash</b>   |   |                           |
| Width:                              | Capital Rec. <b>Replace in 1 year</b>   |   | <b>Perf Def: Seizing</b>  |
| Height:                             | <b><i>Bearings are covered in debris at pier and should be power washed. Nested roller bearings at north abutment are heavily rusted.</i></b> |   |                           |
| <b>Headwall (2)</b>                 | Defects <b>0.0%</b>   |   |                           |
| <b>Dry Stone Walls</b>              | Damage <b>20.0%</b>   |   |                           |
| Length: <b>100 m</b>                | Maintenance <b>None</b>   |   |                           |
| Width:                              | Capital Rec. <b>Repair in 5 years</b>   |   | <b>Perf Def: Bulging</b>  |
| Height: <b>2.5 m</b>                | <b><i>See Embankment comments.</i></b>  |   |                           |



## Component Inspection Information

|                              |   |
|------------------------------|---|
| <b>Water Channel (1)</b>     | Defects <b>0.0%</b>   |
| <b>Streams and Waterways</b> | Damage <b>0.0%</b>  |
| Length:                      | Maintenance <b>None</b>   |
| Width:                       | Capital Rec. <b>None</b>  |
| Height:                      | <i>Rapid current under bridge. Dam upstream. Boulderey bottom that has some localized scour.</i>  |
| <b>Embankment (1)</b>        | Defects <b>0.0%</b>   |
| <b>Embankments</b>           | Damage <b>15.0%</b> <b>Critical Local Instability</b> <span style="color: red;">■</span>  |
|                              | Maintenance <b>Slope revetment</b>  |
|                              | Capital Rec. <b>Repair in 1 year</b> <span style="float: right;"><b>Perf Def: Unstable</b></span>   |
|                              | <i>There is significant flow penetrating through the causeway on the south approach. The dry stone walls on the sides of the embankment have bulged on the east side. Frost action has loosened and disintegrated some of the stonework to a depth of 0.3 m. There is a strong possibility of partial collapse of in particular the east side of the causeway. This collapse could occur with little or no warning. Severe bulging of dry stone wall at NE quadrant, and is in serious condition. Water has partly undercut portions of wall on south approach. See images.</i> |
| <b>Load Posting (4)</b>      | Defects <b>0.0%</b>   |
| <b>Signs</b>                 | Damage <b>0.0%</b>  |
| Length:                      | Maintenance <b>None</b>   |
| Width:                       | Capital Rec. <b>None</b>  |
| Height:                      | <i>Posting signs of 5 tonnes on both approaches. In 2013 clearance portals were installed at both approaches to restrict vehicles with a height more than 2.4 m from driving onto the bridge. The portal at the north end has already been struck several times.</i>  |

## Recommended Investigations

X denotes not required

| Deck Conditon Survey | Enhanced Inspection | Underwater Investigation | Ice Inspection | Boat Inspection | Structure Evaluation | Load Posting | Planning Study |
|----------------------|---------------------|--------------------------|----------------|-----------------|----------------------|--------------|----------------|
| X                    | X                   | X                        | X              | X               | X                    | X            | X              |



## Capital Needs Cost Estimate Break-Down

| Item                            | Req'd | Units          | Quantity | Unit Price \$ | Estimated Cost |
|---------------------------------|-------|----------------|----------|---------------|----------------|
| <i>Misc Concrete Repairs</i>    | X     | m <sup>2</sup> | 0.0      | \$500         | \$0            |
| <i>Deck Concrete Overlay</i>    | X     | m <sup>2</sup> | 243.3    | \$350         | \$0            |
| <i>Deck Replacement</i>         | X     | m <sup>2</sup> | 243.3    | \$2,000       | \$0            |
| <i>Barrier Wall Replacement</i> | X     | m              | 71.7     | \$1,500       | \$0            |
| <i>Expansion Joint</i>          | X     | m              | 10.2     | \$3,000       | \$0            |
| <i>Waterproof &amp; Pave</i>    | X     | m <sup>2</sup> | 243.3    | \$200         | \$0            |
| <i>Bearing Replacement</i>      | X     | Count          | 4.0      | \$5,000       | \$0            |
| <i>Approach Guiderail</i>       | X     | m              | 80.0     | \$200         | \$0            |

### Other Work

*Timber Curbs, Stringer Repl, Misc Rep*

\$50,000

**Structural Items Subtotal \$50,000**

**Mobilization General Sitework 10% \$10,000**

**Estimated Traffic Management & Civil Items \$10,000**

**Contract Admin & Contingencies 20% \$14,000**

**Total Rehabilitation Cost Estimate \$84,000**

### Recommended Capital Work Summary

*Timber Curbs, Stringer Repl, Misc Rep*

**Recommended Capital Year**

**2019**

### Inspection Comments

*This bridge has a 5 tonne load limit. It has a very high local value. A historical plaque was added by local residents in 2017. The bridge has outlived its normal service life. Biggerst concerns are the stability of the dry stone walls on the approaches, perforated stringers at the south end, and severe decay to the timber curbs on the truss, The railing in the NE quadrant is mangled. Additional vigilance warranted. Need a plan to deal with partial collapse of dry stone wall. Bridge should be closed in winter months. Approach barriers and bridge railings deficient to current standards.*



Image 136



West elevation

Image 134



Damaged pipe railing NE quadrant

Image 135



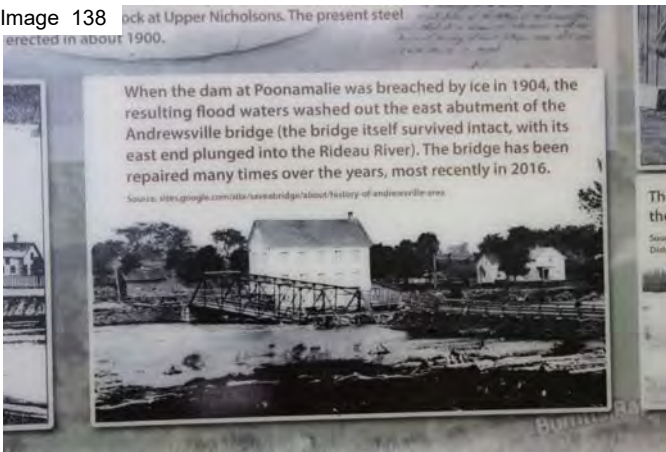
North approach

Image 137



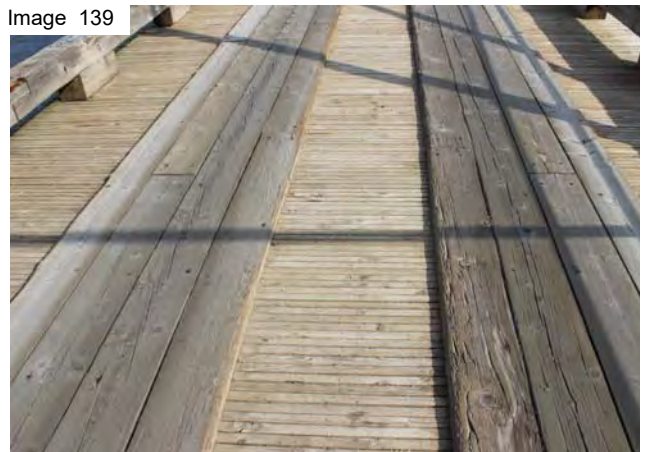
Plaque in NW quadrant added in 2017

Image 138



Plaque detail

Image 139



Running boards and deck on truss



Image 140



Decay in curb timber

Image 142



Under-cut rail post foundation SE quadrant

Image 144



Dry stone embankment wall SE quadrant

Image 141



South approach

Image 143



600 mm under-cut SE quadrant

Image 145



Sagged rail at under-cut location





Image 146



Curb timber decay on truss

Image 147



North abutment wall

Image 148



Truss soffit looking south

Image 149



New stringer at north abutment

Image 150



Nested roller bearing NW truss corner

Image 151



Bulging dry stone embankment wall NE quadrant



Image 152



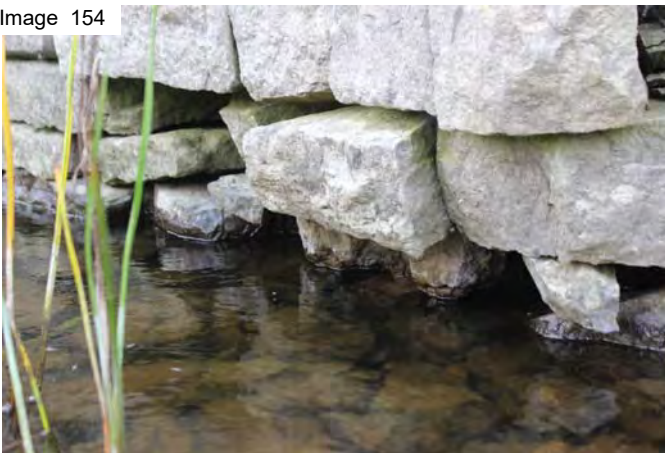
Disintegrating pier nosing

Image 153



Disintegrating south abutment west side

Image 154



Under-cut dry stone wall SE quadrant

Image 155



Perforation stringer 2 approach span south end

Image 156



Slab rust on east girder of south approach span

Image 157



South approach span soffit

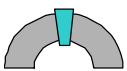


Image 158



Dry stone wall SE quadrant





# APPENDIX I



# ANDREWSVILLE BRIDGE UPDATE

Public Works Committee

August 29, 2018

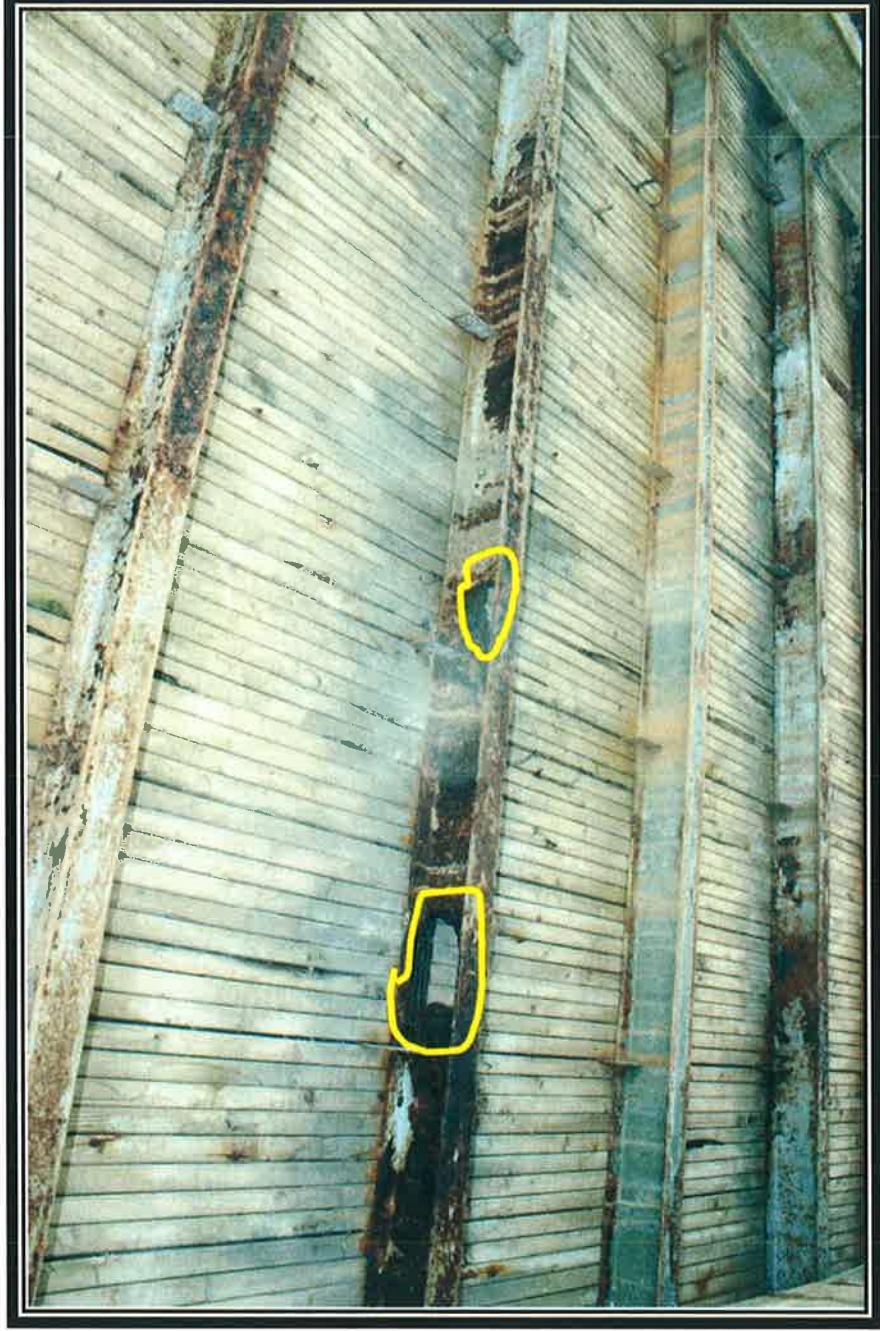
Terry McCann, C.E.T.,

Director of Public Works

# PERFORATION OF APPROACH STRINGER 2 AFTER PROBING



**GENERAL VIEW OF WEST BAY OF  
APPROACH SPAN LOOKING DOWNSTREAM.  
PERFORATIONS CIRCLED.**







**MINUTES  
SIXTH MEETING OF 2018  
PUBLIC WORKS  
COMMITTEE OF THE WHOLE**

The Public Works Committee of the Whole met in regular session on Wednesday, August 29, 2018 immediately following the Economic Development Committee meeting at the Lanark County Administration Building, 99 Christie Lake Road, Perth, Ontario.

**Members Present:** Chair B. Campbell, Warden J. Fenik, Councillors J. Hall, S. McLaughlin, J. Torrance, B. Dobson, K. Van Der Meer, B. Dobson, J. Gemmell, K. Kerr, R. Kidd, S. Mousseau, L. Antonakos, A. Churchill and G. Code

**Staff/Others Present:** K. Greaves, CAO  
L. Drynan, Clerk/Deputy CAO  
C. Whitar, Research Assistant  
T. McCann, Director of Public Works  
J. Tysick, PW Business Manager

**Regrets:** Councillors B. Stewart and J. Flynn

**PUBLIC WORKS**

**Chair:** Councillor Brian Campbell

**1. CALL TO ORDER (Reminder please silence all electronic devices)**

The meeting was called to order at 5:40 p.m.  
A quorum was present.

**2. DISCLOSURE OF PECUNIARY INTEREST**

None at this time.

**3. APPROVAL OF MINUTES**

**MOTION #PW-2018-32**

**MOVED BY:** John Gemmell      **SECONDED BY:** Gail Code

"**THAT**, the minutes of the Public Works Committee meeting held on June 27, 2018 be approved as circulated."

**ADOPTED**

**4. ADDITIONS AND APPROVAL OF AGENDA**

**MOTION #PW-2018-33**

**MOVED BY:** John Hall      **SECONDED BY:** Louis Antonakos

"**THAT**, the agenda be approved as amended."

**ADOPTED**

**5. DELEGATIONS (10 MINUTES)**

- |   |               |
|---|---------------|
| i) Ottawa Street and Martin/Queen Street Intersection<br>in Almonte<br><b>Steve Maynard</b> | Page<br>6 - 9 |
|---|---------------|

S. Maynard presented a power point presentation,  
please see attached.

**6. PRESENTATIONS**

None

**7. COMMUNICATIONS**

- i) North American Pollinator Protection Campaign: Pollinator Advocate Award

Staff was directed to prepare a news release highlighting the achievement of the Public Works Department with the Pollinator Advocate Award.

**MOTION #PW-2018-34**

**MOVED BY:** Bill Dobson      **SECONDED BY:** Aubrey Churchill

**"THAT**, the communications for the August Public Works Committee meeting be received as information."

**ADOPTED**

**8. CONSENT REPORTS**

None

**9. DISCUSSION REPORTS**

- i)      Report #PW-21-2018 ANDREWSVILLE BRIDGE UPDATE      Page 10 - 11  
**Director of Public Works, Terry McCann**

T. McCann presented a power point presentation, please see attached.

**MOTION #PW-2018-35**

**MOVED BY:** John Hall      **SECONDED BY:** Gail Code

**"THAT**, the Public Works Committee accepts Report #PW-21-2018, Andrews ville Bridge Update as information;

**AND THAT**, the Clerk circulates Report #PW-21-2018 to the Township of Montague, Village of Merrickville-Worlford and the United Counties of Leeds and Grenville."

**ADOPTED**

- ii)      Report #PW-22-2018 REQUEST FROM MUNICIPALITY OF MISSISSIPPI MILLS: COUNTY ROAD #17 (MARTIN STREET NORTH) BICYCLE LANES      Page 12 - 13  
**Director of Public Works, Terry McCann**

T. McCann presented a power point presentation, please see attached.

**MOTION #PW-2018-36**

**MOVED BY:** Keith Kerr      **SECONDED BY:** John Fenik

"**THAT**, the Public Works Committee recommend to County Council that the request from the Municipality of Mississippi Mills, for bicycle lanes on County Road #17 (Martin Street North) between Victoria Street/Princess Street and Teskey Street, be approved, conditional that all construction costs and ongoing maintenance costs of the line painting and signage required for the bicycle lanes, be the responsibility of the Municipality of Mississippi Mills;

**AND THAT**, the Clerk prepare the necessary No Parking By-Law for the September 5, 2018 County Council meeting;

**AND THAT**, the Clerk sends Report #PW-22-2018 to the Municipality of Mississippi Mills Clerk, for information."

**ADOPTED**

**10. VERBAL REPORTS**

- i) Report #PW-19-2018 Construction Projects Update  
**Director of Public Works, Terry McCann**

T. McCann updated Council on a number of completed projects and advised of timelines for those projects still in progress.

**MOTION #PW-2018-37**

**MOVED BY:** Keith Kerr      **SECONDED BY:** Aubrey Churchill

"**THAT**, Report #PW-19-2018 Construction Projects Update be received as information."

**ADOPTED**

**11. DEFERRED REPORTS**

None

**12. CONFIDENTIAL REPORTS**

None

**13. NEW/OTHER BUSINESS**

**14. ADJOURNMENT**

The Committee adjourned at 6:17 p.m. on motion by Councillors Van Der Meer and Gemmell

A handwritten signature in black ink that reads "LDrynan". The letters are cursive and somewhat stylized.

Leslie Drynan, Clerk/Deputy CAO

# LANARK COUNTY

## ANDREWSVILLE BRIDGE UPDATE

Public Works Committee  
August 29, 2018  
Terry McCann, C.E.T,  
Director of Public Works

### PERFORATION OF APPROACH STRINGER 2 AFTER PROBING



LANARK COUNTY

GENERAL VIEW OF WEST BAY OF  
APPROACH SPAN LOOKING DOWNSTREAM.  
PERFORATIONS CIRCLED.



LANARK  
COUNTY

# THE COUNTY OF LANARK

## PUBLIC WORKS COMMITTEE

September 26, 2018

Report # PW-24-2018 of the  
Director of Public Works

### ANDREWSVILLE BRIDGE UPDATE AND CONSULTING ENGINEER'S 2018 WADING INSPECTION REPORT

#### 1. STAFF RECOMMENDATIONS

**"THAT**, the Public Works Committee accepts Report #PW-24-2018, Andrewsville Bridge Update and Consulting Engineer's 2018 Wading Inspection Report, as information;

**AND THAT**, the Clerk prepare the necessary By-Law for the October 10, 2018 County Council Meeting, to authorize an Annual, Temporary Bridge closure of the Andrewsville Bridge, from December 1 to March 31;

**AND THAT**, the Director of Public Works be authorized to obtain quotations for the required work and proceed to have the work completed during the bridge closure during the Winter of 2018/2019;

**AND THAT**, the Clerk circulates Report #PW-24-2018 to the Township of Montague, Village of Merrickville-Wolford and the United Counties of Leeds and Grenville."

#### 2. PURPOSE

To provide the Consulting Engineer's Report on the condition of Andrewsville Bridge and provide recommendations.

#### 3. BACKGROUND

At the August 29, 2018 Public Works Committee Meeting, staff advised that further deterioration of the bridge had occurred and that a Consulting Engineer's Report was forthcoming. The Committee was also informed that a decision would be required in regards to an annual bridge closure during the winter.



#### **4. DISCUSSION**

Keystone Bridge Management Corp.'s "Andrewsville Bridge 2018 Wading Inspection" Report is attached at Appendix "A".

The immediate repairs are noted on Page 4 of the Report under Recommendations - Immediate Needs.

Subject to prices received, it is anticipated that the costs of the above noted work will range between \$75,000 - \$100,000.

The estimated cost of a complete bridge replacement is \$3.3 Million Dollars.

#### **5. ANALYSIS AND OPTIONS**

Option 1 (Recommended):

Complete the necessary immediate repairs and pass a By-Law to effect an annual, temporary road closure from December 1 thru March 31.

Option 2 (Not Recommended):

Do nothing and close the bridge.

#### **6. FINANCIAL IMPLICATIONS**

The existing commitment by the Counties, covering the period ending April 2028, has approximately \$110,000 remaining, which should be sufficient to complete the repairs.

#### **7. LOCAL MUNICIPAL IMPACT**

The Andrewsville Bridge is a landmark for the local communities and public interest is high, especially with members of the Friends of the Andrewsville Bridge.

#### **8. CONCLUSIONS**

The Director is recommending that the necessary By-law be presented at the October 10, 2018 County Council Meeting, to put an annual, temporary bridge closure in effect from December 1 until March 31, each year, and that the immediate repairs be completed during the 2018/2019 Winter Season bridge closure.

Future consideration will need to be given to the long term status of the Andrewsville bridge.

## 9. ATTACHMENTS

Appendix "A" – Andrewsville Bridge 2018 Wading Inspection.

**Recommended By:**

Janet Tysick  
Business Manager

**Approved for  
Submission By:**

Terry McCann  
Director of Public  
Works

**Manager Approval  
By:**

Kurt Greaves  
Chief Administrative  
Officer

## Andrewsville Bridge 2018 Wading Inspection

### Introduction

Keystone Bridge Management was retained by the County of Lanark to complete a wading inspection of the underside of the Andrewsville Bridge over the Rideau River downstream of Merrickville, Ontario. The inspection was completed on August 9, 2018. Harold Kleywegt, P.Eng., was the principal inspector. He was assisted by Steve Reid, C.E.T. and engineering student Brad Lair. Two student staff from Lanark County were on hand to observe the inspection and assist with the ladders.

Access to the underside of the bridge was obtained by setting up a 10' step ladder and 24' extension ladder on the river bottom. The depth of water and uneven bottom prevented ladder access to about half of the plan area of the truss and about three-quarters of the plan area of the east approach span. River flows were modest at the beginning of the inspection but increased considerably as the inspection progressed.

The Rideau River is flowing principally north at the Andrewsville Bridge. Accordingly, the east abutment is on the United Counties of Leeds & Grenville side of the bridge and the west abutment is on the Lanark County side.

The bridge has two spans, a 38.5 m long main truss forming the west span and a 9.2 m steel girder flanking east span. The truss has 9 panel points supporting floor beams spaced at 4.88 m. Floor beams are only located at the interior panel points.

Spanning from floor beam to floor beam on the truss are five steel S200 x 27 stringers spaced at 1.22m. They directly support the laminated timber deck.

The structural steel framing on the east approach span consists of two main girders, a connecting floor beam and five stringers spaced at 914 mm. The S150 x 19 approach span stringers are a lighter section than the truss stringers.

For the purpose of this report the area between floor beams is referred to as "Bays." There are 8 Bays comprising the truss floor system. They are numbered from west to east with Bay 1 closest to the west abutment, and Bay 8 closest to the pier. The stringers are numbered 1 to 5 from south to north. This convention has been followed in captioning the images included with this report.

The Bay 1 stringers were not inspected as they were replaced in late 2016.

### Main Truss Findings

The structural steel of the floor system of the main truss is almost fully involved in corrosion except for the replaced stringers adjacent the west pier.

The principal concern is the condition of the stringers. The stringers exhibit areas of severe corrosion with slab rust and severe thinning of the webs and flanges. In some localized areas the stringers may have lost an estimated 40% of their design strength due to section loss caused by corrosion.

The ends of the floor beams are most heavily involved in corrosion. Slab rust is evident on the webs and flanges of the floor beam ends. There is still residual paint on the centre sections of the floor beams. Although the floor beams are slightly weakened by corrosion, they are more than adequate for the present load limit on the bridge.

There is very little change to the bottom chords of the main truss since previous inspections. The bottom chords are deemed to be adequate for the present load posting.

### Approach Span Findings

Stringer 2 of the east approach span is severely perforated both west and east of the intermediate supporting floor beam. This stringer has almost no remaining strength.

Stringer 4 of the east approach span has one perforation and is otherwise heavily corroded.

The remaining stringers of the approach span, Stringers 1, 3, 5 fortunately are not as severely corroded. They however all exhibit varying degrees of moderate to severe corrosion with some corresponding section loss.

The stringers have more severe local corrosion and section loss where they bear on the pier and east abutment. Difficult access and the presence of debris hindered a more thorough examination.

The single floor beam of the approach span is mostly in fair to good condition, and structurally adequate for the present load posting.

The two main girders of the east approach span exhibit the most corrosion in the bearing areas. However, they are in overall satisfactory condition.

### Deck

The main truss deck consists of laminated 2 x 6 lumber on edge. The approach span deck has laminated 2 x 4 lumber on edge. The laminations are pressure treated. The deck has at least five and may have ten to fifteen years of remaining service life.

The timber curbs on the deck exhibit significant decay and are at the end of their service life. The curbs were not pressure treated, and hence their reduced service life.

The deck running boards consist of 2 x 10 unsized lumber lag bolted to the deck laminations. The running boards are in overall fair condition, with some repairs required.

## Concrete

The concrete in the pier and abutments lacks air entrainment, exhibits alkali aggregate reactivity and this has resulted in localized severe disintegration. The substructure concrete is adequate for the structural loading but would benefit from preservation repairs.

## Conclusions

The floor system of the truss and east approach span is substantially corroded and weakened as a result. This corrosion is principally due to de-icing salts penetrating the timber deck and wetting the floor system. The floor system of the main truss has possibly five to ten years of service life at the present rate of corrosion. Thereafter it will likely require full or partial replacement.

The stringers of the east approach span should be replaced at this time. Both the deck and stringers have deteriorated since the previous wading inspection, and the deck/stringer system reliability is less than ideal.

The curb timbers of the main truss and approach span require replacement at this time.

## Construction Considerations

To remove and replace the stringers of the east approach span, it will be necessary to remove the laminated timber deck of the approach span. The nature of the laminated deck is such that it can not be salvaged and re-instated. Therefore, it will be necessary to replace the approach span deck in its entirety when replacing the stringers.

## Recommendations

The following recommendations will help extend the operational life of the present bridge:

### Inspection

1. Until the floor and bottom chords of the bridge are substantially rehabilitated, a wading inspection of the underside of the bridge should be scheduled annually.
2. When the deck and stringers are removed at the east approach span, the pier, east abutment, main girders, and floor beam should be closely inspected to fully document their condition.

### Operational

3. The bridge should be taken out of service during the winter months from December 1 to March 31 of each year when it is possible for de-icing salts to track onto the bridge.
4. The floor system and bottom chords and bearing areas should be pressure cleaned every year, preferably in the spring.

### Immediate Needs

5. The stringers of the east approach span should be replaced at this time.
6. The timber deck curbs should be replaced at this time.

### 5-10 Year Needs

7. Coating the floor system should be considered to preserve the bridge.
8. The bottom chords of the truss should be painted in the next 5 years if it is intended to keep the bridge in service for more than another 10 years.
9. The deck of the main truss should be scheduled for replacement in ten years. At that time the truss stringers should be removed and replaced. The actual timing of replacement will depend on regular updates of the deck and stringer condition.

### Outlook

If the Counties and local Municipalities truly want to save the Andrewsville Bridge, they should support any measures that reduces the amount of salt tracked onto the bridge during winter maintenance operations. The only effective way to prevent salt tracking onto the bridge is to prevent vehicle traffic on the bridge during the winter months.

Without salt induced corrosion of the structural floor system and bottom chords of the truss, the Andrewsville Bridge can be maintained in summer operational status well into the future.

### Other Concerns

The following concerns are reintroduced from the 2016 report:

The dry-stone masonry retaining walls of the bridge approaches are a concern. There is notable bulging and displacement of the wall in the NW quadrant. A portion of the wall has failed in the SE quadrant. The integrity of the wall has been somewhat affected by the imposition of the railing system foundations into the top of the wall.

The causeway on the east approach has at least one dry stone culvert type opening through it at the base. There is iron strapping helping to form these openings. The iron strapping is substantially corroded.

The approach embankments are in a precarious condition. They are in a partial state of failure and further collapse may occur at any time with little or no warning. Such collapses are not anticipated to be catastrophic but would encroach on the roadway shoulders.

Further investigation and assessment of the approaches by a geotechnical engineer is recommended.

## Closing

Keystone Bridge Management Corp. is pleased to report on the wading inspection of the underside of the Andrewsville Bridge. We hope this assessment is sufficient for your purposes and will help guide the long-term management of this bridge.

Harold Kleywegt, P.Eng.  
Managing Director  
Keystone Bridge Management Corp.

(20 captioned images follow)



**Image 1. West abutment and replaced Bay 1 stringers, Floor Beam 1 in foreground.**



**Image 2. North end of Floor Beam 1 (FB 1) with slab rust evident**





**Image 3. Stringer 4 north side adjacent FB 2, slab rust, severe corrosion**



**Image 4. Bay 3 looking south, Stringers 4,3,2,1 visible**



**Image 5. Stringer 5, Bay 3 with top flange thinning**



**Image 6. Slab rust on north face of web of Stringer 4 adjacent FB 3**



**Image 7. North face Stringer 4 between FB 4 & 5, flange & web thinning, slab rust present**



**Image 8. South face Stringer 2 between FB 5 & 6, representative corrosion for most stringers**



**Image 9. South face of Stringer 3 between FB 7 & pier, slab rust and general section loss**



**Image 10. North face of Stringer 4 between FB 7 & pier, severe thinning of top flange**



**Image 11.** South face of main truss Stringer 5 at pier bearing



**Image 12.** North face of truss Stringer 3 at pier bearing



**Image 13. Perforated Stringer 2 west end approach span, looking north**



**Image 14. Perforated Stringer 2 west end approach span, looking north**



**Image 15. Perforated Stringer 4 west end approach span, looking north, severe flange thinning**



**Image 16. Perforated Stringer 2 east end approach span, looking north**



**Image 17. Approach span stringer resting on east abutment**



**Image 18. Outrigger attached to approach girder supporting Stringer 5 at pier**





**Image 19. Floor beam, stringers and east abutment at east approach span.**



**Image 20. Upstream face of pier between truss and east approach span**



**MINUTES  
SEVENTH MEETING OF 2018  
PUBLIC WORKS  
COMMITTEE OF THE WHOLE**

The Public Works Committee of the Whole met in regular session on Wednesday, September 26, 2018 immediately following the Economic Development Committee meeting at the Lanark County Administration Building, 99 Christie Lake Road, Perth, Ontario.

**Members Present:** Past Chair K. Van Der Meer, Warden J. Fenik, Councillors J. Hall, S. McLaughlin, B. Dobson, K. Van Der Meer, B. Dobson, J. Gemmell, R. Kidd, S. Mousseau, L. Antonakos, J. Flynn, A. Churchill and G. Code

**Staff/Others Present:** K. Greaves, CAO  
L. Drynan, Clerk/Deputy CAO  
T. McCann, Director of Public Works  
J. Tysick, PW Business Manager  
J. Stewart, County Planner

**Regrets:** Councillors B. Stewart, J. Torrance, B. Campbell and K. Kerr

**PUBLIC WORKS**

**Chair:** Councillor Klaas Van Der Meer

**1. CALL TO ORDER (Reminder please silence all electronic devices)**

The meeting was called to order at 6:15 p.m.  
A quorum was present.

**2. DISCLOSURE OF PECUNIARY INTEREST**

None at this time.

**3. APPROVAL OF MINUTES**

**MOTION #PW-2018-38**

**MOVED BY:** John Gemmell      **SECONDED BY:** Gail Code

"**THAT**, the minutes of the Public Works Committee meeting held on August 29, 2018 be approved as circulated."

**ADOPTED**

**4. ADDITIONS AND APPROVAL OF AGENDA**

**MOTION #PW-2018-39**

**MOVED BY:** Aubrey Churchill      **SECONDED BY:** Gail Code

"**THAT**, the agenda be approved as presented."

**ADOPTED**

**5. DELEGATIONS (10 MINUTES)**

None

**6. PRESENTATIONS**

- i) Recognition of Provincial Rodeo Winner, John Gleeson  
(Municipality of Mississippi Mills)  
**Klaas Van Der Meer**

T. McCann presented Mr. John Gleeson with his award.

**7. COMMUNICATIONS**

None

- i) Township of Montague - Andrewsville Bridge

**MOTION #PW-2018-40**

**MOVED BY:** John Gemmell      **SECONDED BY:** Bill Dobson

"**THAT**", the communication for the September Public Works Committee meeting be received as information."

**ADOPTED**

## **8. CONSENT REPORTS**

- i) Report #PW-23-2018 PUBLIC WORKS ACTIVE CONTRACTS STATUS REPORT #2018-3

### **MOTION #PW-2018-41**

**MOVED BY:** Gail Code      **SECONDED BY:** Aubrey Churchill

"**THAT**, the following Consent Reports for the September Public Works Committee meeting be received as information:

Report #PW-23-2018 PUBLIC WORKS ACTIVE CONTRACTS STATUS REPORT #2018-3."

**ADOPTED**

## **9. DISCUSSION REPORTS**

- i) Report #PW-24-2018 ANDREWSVILLE BRIDGE UPDATE AND CONSULTING ENGINEER'S 2018 WADING INSPECTION REPORT  
**Terry McCann, Director of Public Works**

Council directed the Warden and staff to meet with the County of Leeds & Grenville to discuss a joint long term plan for the bridge.

### **MOTION #PW-2018-42**

**MOVED BY:** John Gemmell      **SECONDED BY:** Aubrey Churchill

"**THAT**, the Public Works Committee accepts Report #PW-24-2018, Andrews ville Bridge Update and Consulting Engineer's 2018 Wading Inspection Report, as information;

**AND THAT**, the Clerk prepare the necessary By-Law for the October 10, 2018 County Council Meeting, to authorize an Annual, Temporary Bridge closure of the Andrewsville Bridge, from December 1 to March 31;

**AND THAT**, the Director of Public Works be authorized to obtain quotations for the required work and proceed to have the work completed during the bridge closure during the Winter of 2018/2019;

**AND THAT**, the Clerk circulates Report #PW-24-2018 to the Township of Montague, Village of Merrickville-Wolford and the United Counties of Leeds and Grenville."

**ADOPTED**

**10. VERBAL REPORTS**

None

**11. DEFERRED REPORTS**

None

**12. CONFIDENTIAL REPORTS**

None

**13. NEW/OTHER BUSINESS**

**14. ADJOURNMENT**

The Committee adjourned at 7:00 p.m. on motion by Councillors Gemmell and Fenik.



Leslie Drynan, Clerk/Deputy CAO

THE COUNTY OF LANARK  
NO. 2018-41

**THE CORPORATION OF THE COUNTY OF LANARK  
BY-LAW NO. 2018-41**

**A BY-LAW TO AUTHORIZE AN ANNUAL, TEMPORARY CLOSURE OF THE  
ANDREWSVILLE BRIDGE FROM DECEMBER 1 TO MARCH 31**

**WHEREAS**, by Section 5 of the Municipal Act, 2001, S.O. 2001, c. 25, the powers of a municipal corporation are to be exercised by its Council;

**AND WHEREAS**, by Section 11 (2) of the Municipal Act, 2001, S.O. 2001, c. 25, the powers of every Council are to be exercised by By-Law;

**AND WHEREAS**, by Section 44(1) of the Municipal Act, 2001, S.O. 2001, c. 25, the municipality that has jurisdiction over a highway or bridge shall keep it in a state of repair that is reasonable in the circumstances, including the character and location of the highway or bridge;

**AND WHEREAS**, Council deems it necessary to put an annual, temporary bridge closure in effect from December 1 until March 31, each year, and that the immediate repairs be completed during the 2018/2019 winter season bridge closure;

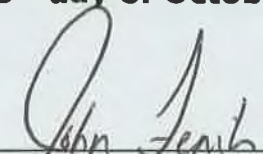
**NOW THEREFORE BE IT RESOLVED THAT**, the Council of the Corporation of the County of Lanark enacts as follows;

1. The Director of Public Works is hereby authorized to put an annual, temporary closure on the Andrewsville Bridge from December 1 until March 31, each year.
2. This By-law will come into force on the date of its passing.

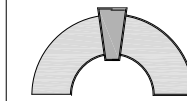
**By-Law read a first and second time this 10<sup>th</sup> day of October, 2018**

**By-Law read a third time and finally passed this 10<sup>th</sup> day of October, 2018**

  
\_\_\_\_\_  
Leslie Drynan  
Clerk/Deputy CAO

  
\_\_\_\_\_  
John Fenik, Warden



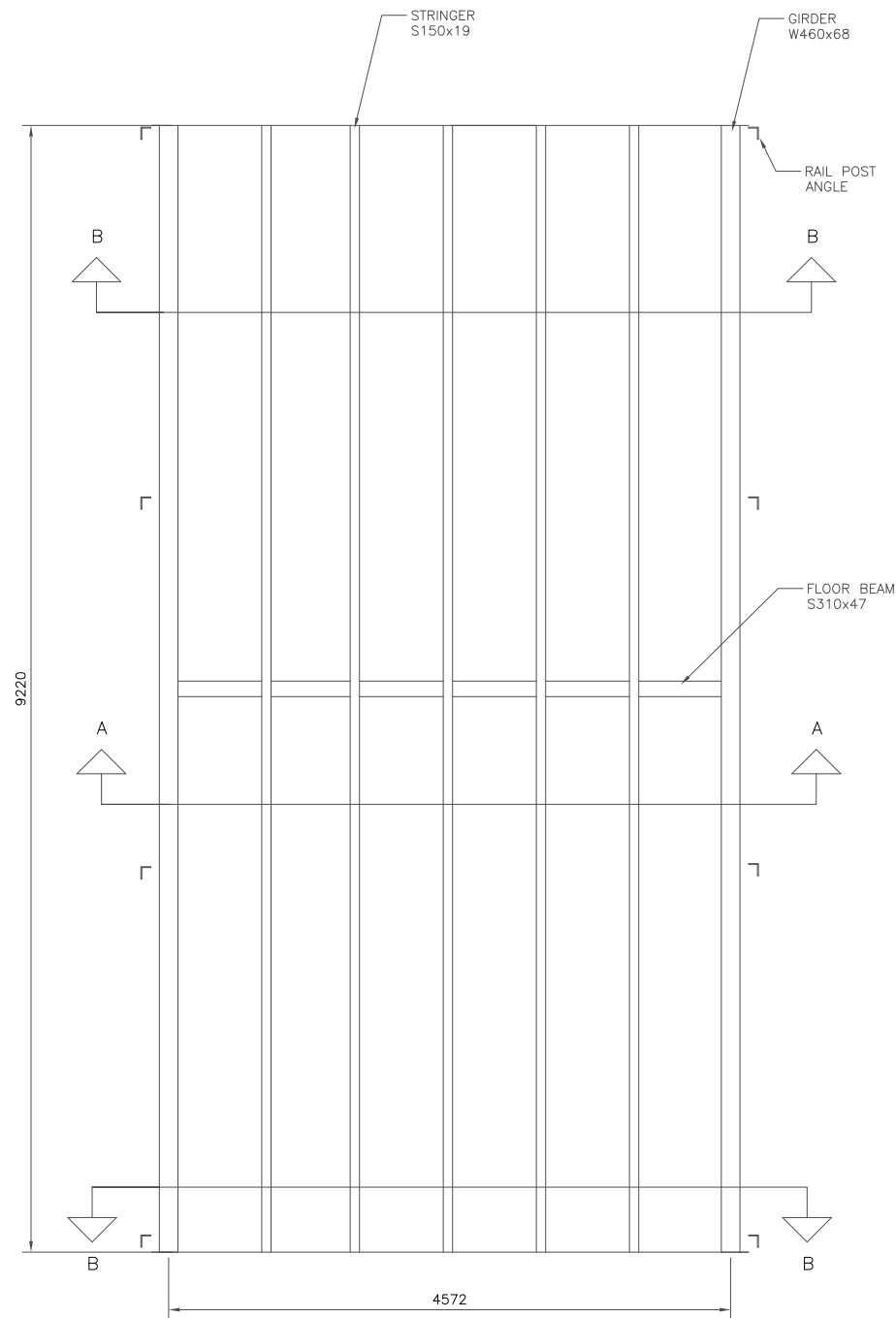
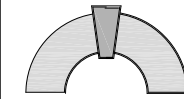


KEY PLAN

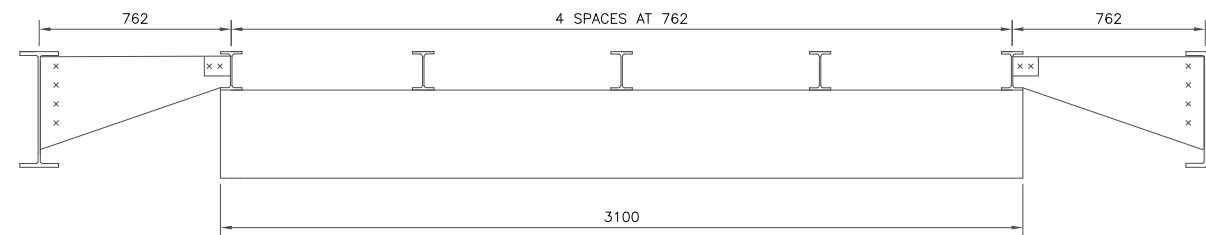
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STRUCTURAL FRAMING PLAN VIEW  
1:30



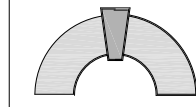
TYPICAL ABUTMENT/PIER CROSS SECTION "B-B"  
1:15



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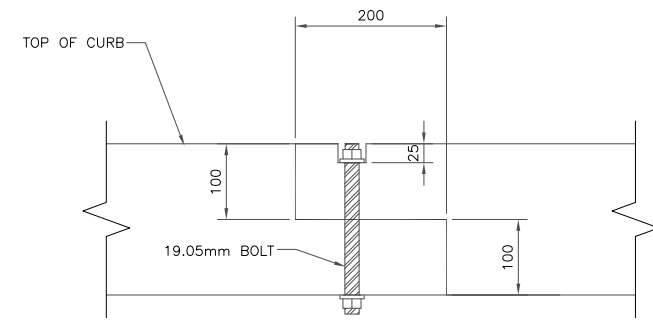
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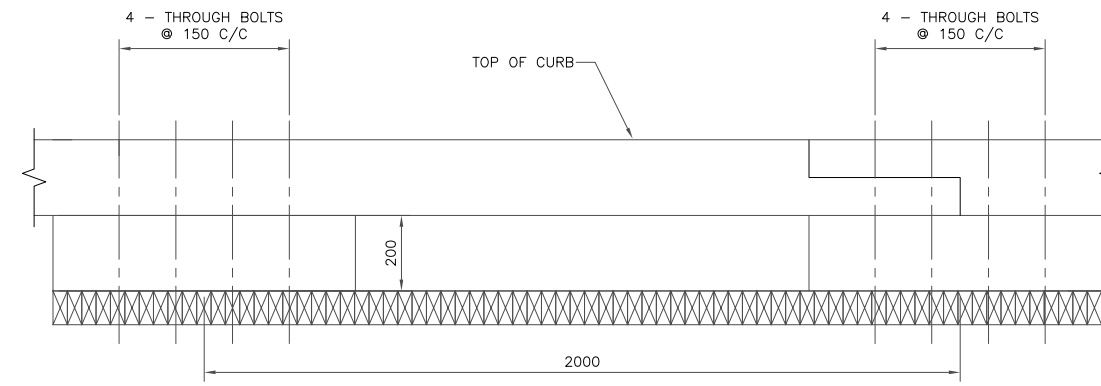
**Keystone Bridge Management Corp.**

**CURB NOTES**

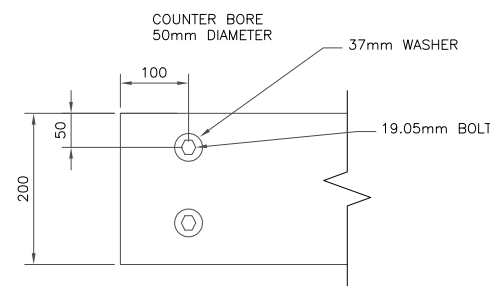
1. CURBS TO BE REPLACED IN KIND.
2. SALVAGE AND REUSE ALL THROUGH BOLTS, NUTS & WASHERS.
3. ALL CURB TIMBER SHALL BE UNSIZED 8"x8" HEMLOCK OR SPRUCE.
4. RE-UTILIZE HOLES THROUGH EXISTING DECK TO GREATEST EXTENT PRACTICAL.
5. TREAT ALL NEW HOLES IN DECK WITH PRESERVATIVE.
6. SPLICE CURBS AS SHOWN ON DRAWING.



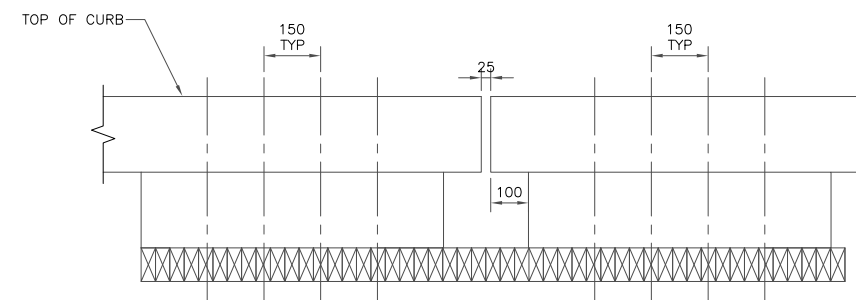
EXISTING SPLICE CONFIGURATION ELEVATION VIEW  
1:5



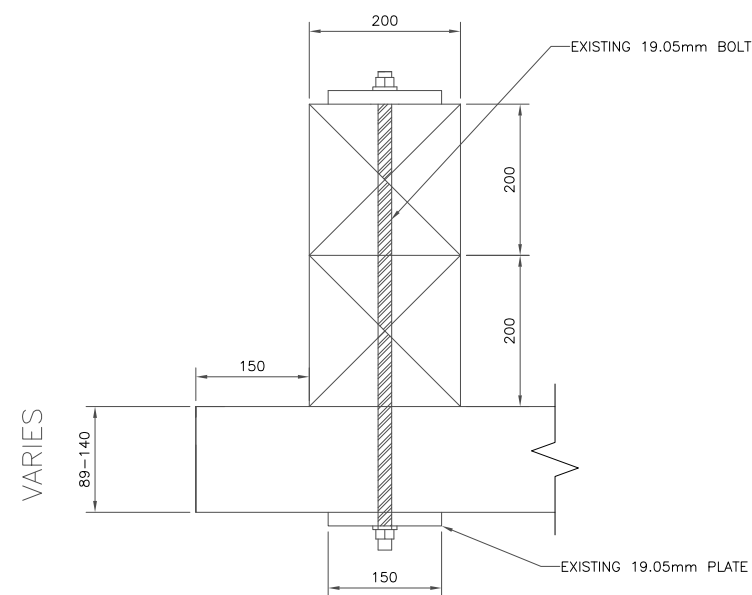
TYPICAL BLOCK SPACING ELEVATION VIEW  
1:10



EXISTING SPLICE BOLT CONFIGURATION PLAN VIEW  
1:5



TYPICAL BLOCK SPACING AT EXPANSION JOINT ELEVATION VIEW  
1:10



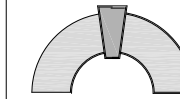
EXISTING CURB & BLOCK BOLTING CONFIGURATION CROSS SECTION  
1:5

| CURB HARDWARE |             |          |
|---------------|-------------|----------|
| APPROACH      | DECK        | SPLICE   |
| 80 BOLTS      | 160 BOLTS   | 64 BOLTS |
| 80 PLATES     | 160 PLATES  |          |
| 80 WASHERS    | 160 WASHERS |          |



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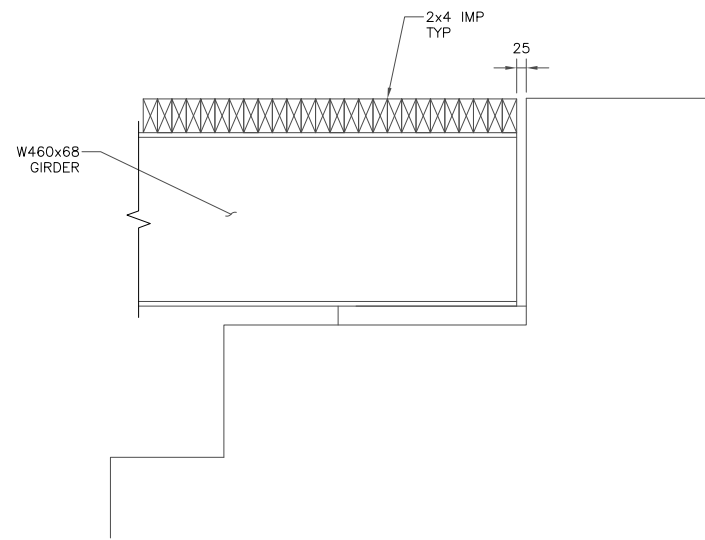
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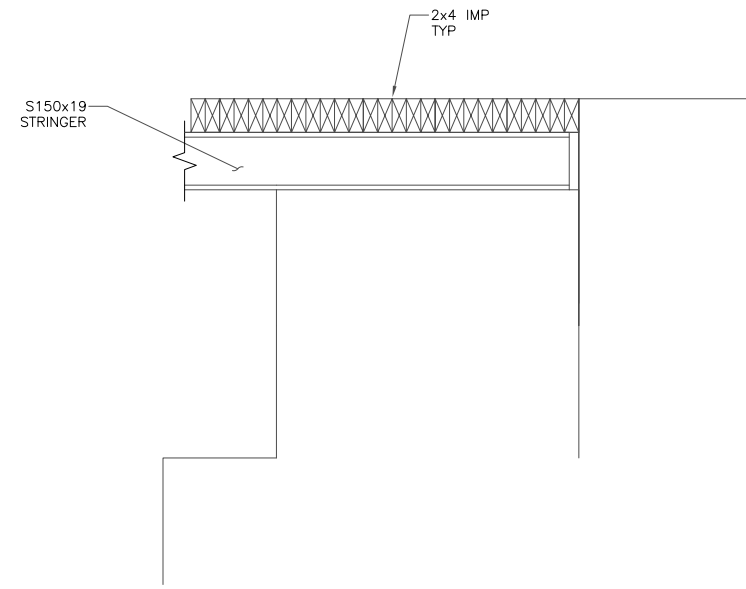
**Keystone Bridge  
Management Corp.**

TIMBER DECK NOTES

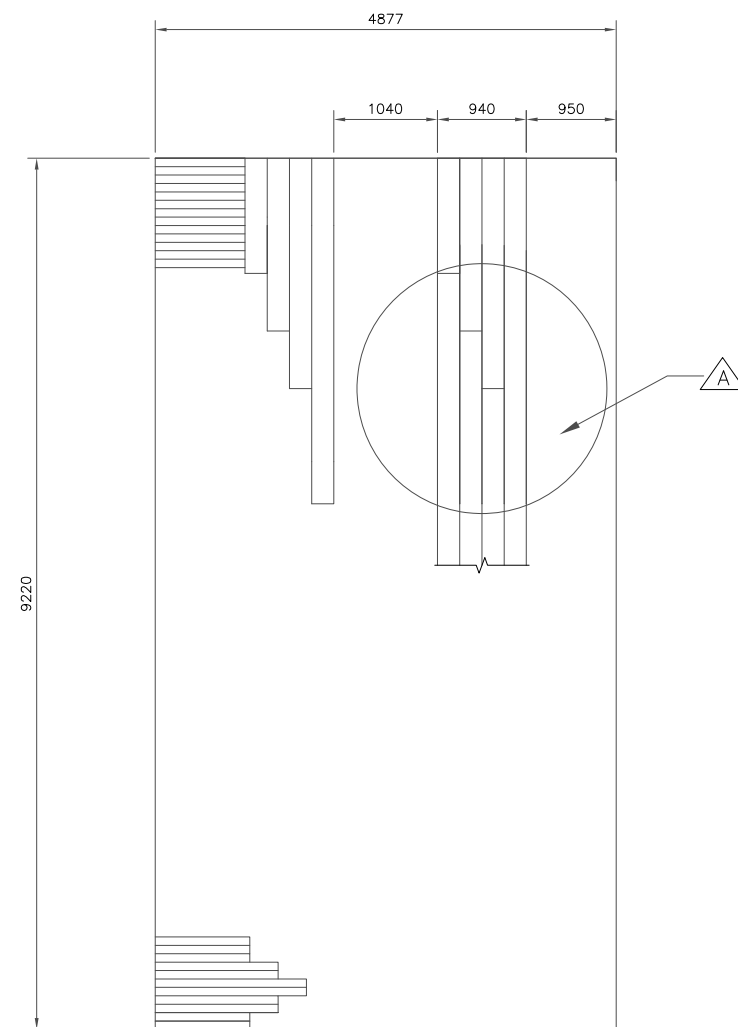
1. EACH LAMINATE SHALL BE NAILED AT MAXIMUM 250MM CENTERS, STAGGERED AS SHOWN.
2. REVERSE STAGGER EVERY SECOND LAMINATE.
3. EACH END OF ALL RUNNING BOARDS SHALL BE SECURED WITH TWO LAG SCREWS.
4. FIELD OF RUNNING BOARDS SHALL BE LAG SCREWED AT MAXIMUM 500mm SPACING AND STAGGERED AS SHOWN.
5. DECK SHALL BE ATTACHED TO ALL STRINGERS WITH PAIRS OF LAG BOLTS SPACED AT 1200MM AS SHOWN.



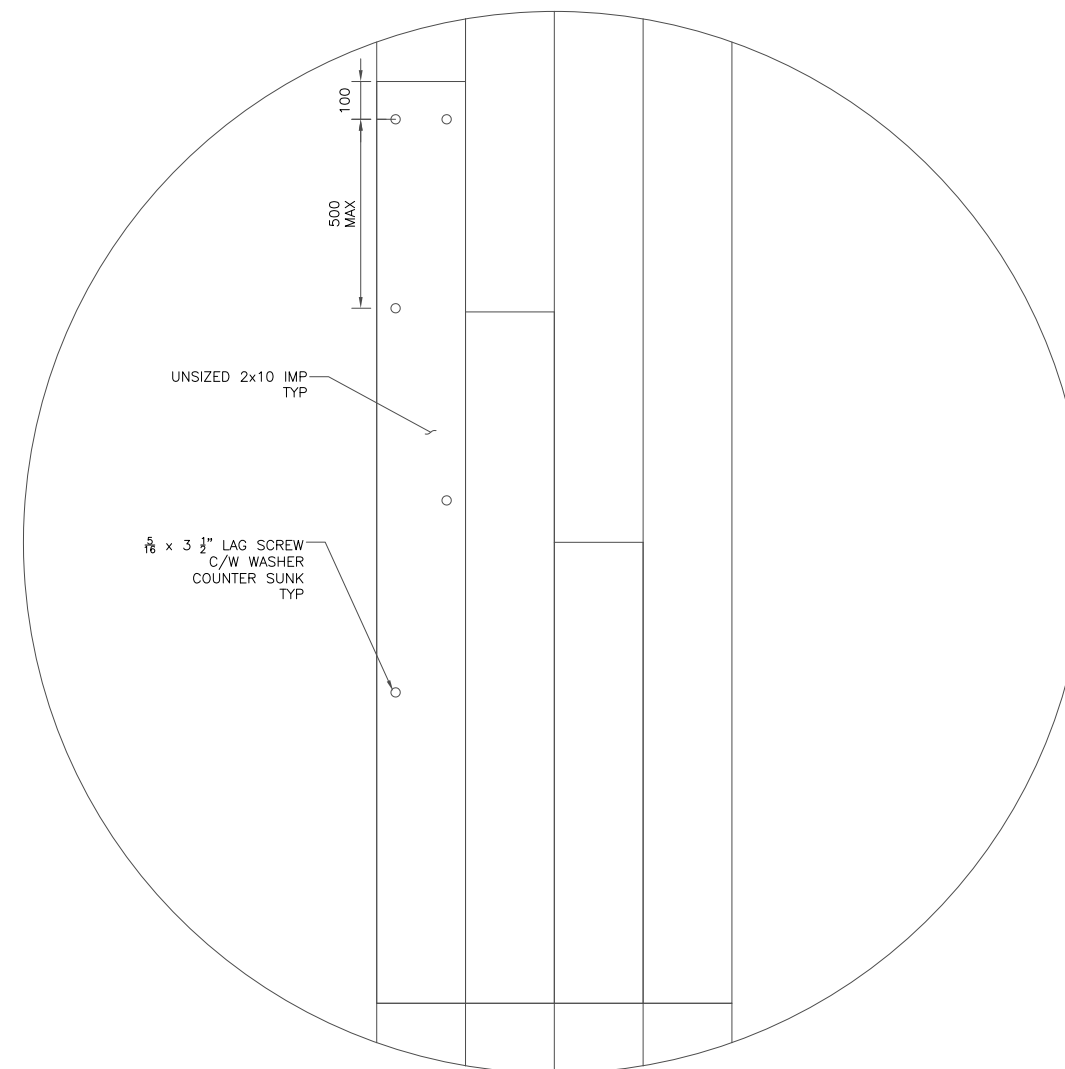
EAST ABUTMENT CROSS SECTION AT GIRDER ENDS  
1:10



EAST ABUTMENT CROSS SECTION AT STRINGER ENDS  
1:10



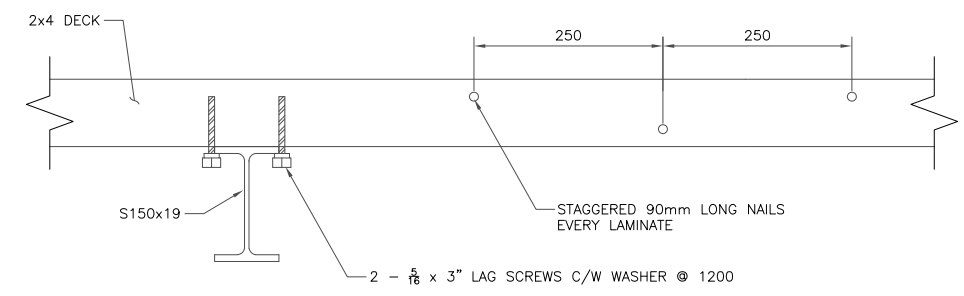
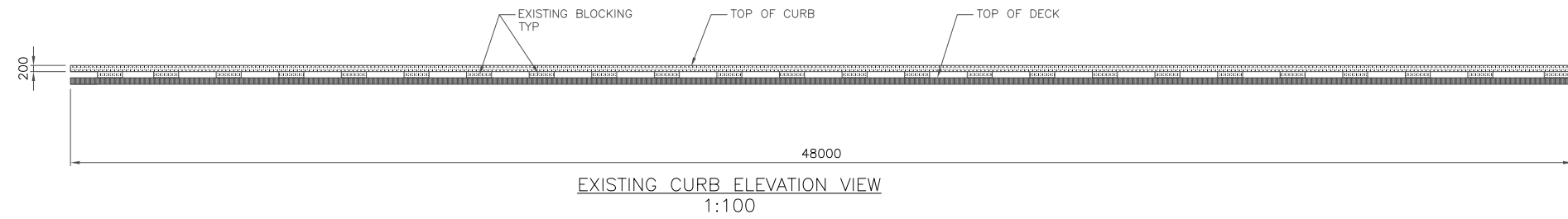
EAST APPROACH SPAN  
DECK PLAN VIEW  
1:40



RUNNING BOARD DETAIL PLAN VIEW  
1:10



| REVISIONS |    | DESCRIPTION |    | DATE        |           |
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# APPENDIX J

# Bridge Inspection Report

## Andrewsville Bridge

**Road Name:** Andrewsville Main St  
**Site ID:** B40  
**Structure Type:** Truss-Through  
**Owner:** County of Lanark  
**Built:** 1915  
**Length:** 47.7 m  
**Width:** 5.1 m  
**Spans:** 1  
**Span Arrange:** 38.5 (truss) 9.2 (girder)  
**Feature Under:** Water  
**Crossing:** Rideau River  
**Location:** 500m west of County Rd 23

**Inspection Date:** September-05-19

**Inspector:**

**Assistant:**

**Comments:**

*This bridge has a 5 tonne load limit. It has a very high local value. A historical plaque was added by local residents in 2017. The bridge has outlived its normal service life. Biggest concern is the stability of the dry stone walls on the approaches. The approach railings are mangled. Need a plan to deal with partial collapse of dry stone wall. Approach barriers and bridge railings deficient to current standards. Bridge now closed seasonally from Dec 1 to March 31. Refer to 2018 wading inspection notes for additional information.*

**Recommended Investigations:**

*No Special Investigations Recommended*

**Recommended Capital Works:**

*No Capital Works Recommendations*

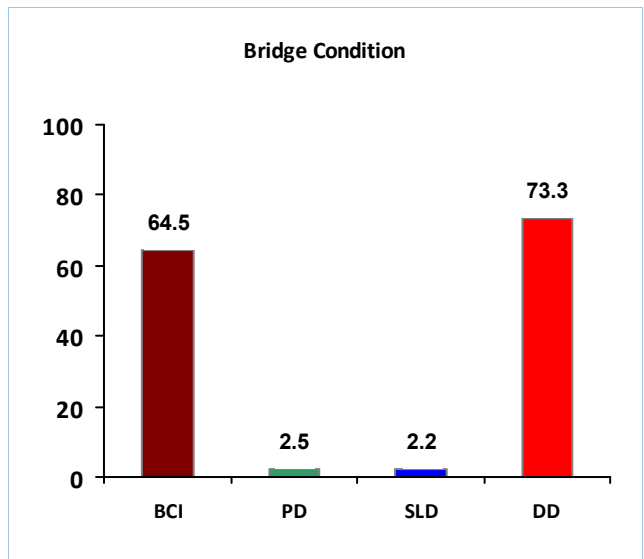
**Estimated Replacement Value:** \$4,765,000

*Estimated replacement value is based on replacement in kind*

**Estimated Remaining Service Life:** 15 Years



**AADT:** 300      **Latitude:** 44.95115000  
**Lanes:** 1      **Longitude:** -75.81913300  
**Skew:** 0 °      **Orientation:** N-S  
**Speed:** 20 km/h      **Road Width:** 4.4 m  
**Trucks**      **Load Posting:** 5



BCI = Bridge Condition Index MTO Calculation

PD = Parabolic Depreciation  
% retained value

SLD = Straight Line Depreciation  
% retained value

DD = Defects and Damage  
% loss of retained value



## Component Inspection Information

|  |   |
|--|---|
| <b>Timber-Laminated (1)</b><br><b>Approach Deck Surface</b><br>Length: 9.2 m<br>Width: 5.5 m<br>Height: 0.15 m | Defects 0.0%<br>Damage 0.0%<br>Maintenance None<br>Capital Rec. None<br><i>Replaced in 2019.</i>  |
| <b>Timber-Laminated (1)</b><br><b>Truss Deck Surface</b><br>Length: 38.6 m<br>Width: 4.22 m<br>Height: 0.15 m  | Defects 0.0%<br>Damage 0.0%<br>Maintenance None<br>Capital Rec. None<br><i>Good condition. Running boards partly replaced in 2019.</i>  |
| <b>Timber-Sawn ()</b><br><b>Running boards</b><br>Length: 47.7 m<br>Width: 4.9 m<br>Height:                    | Defects 20.0% <b>Moderate UV Weathering, Moderate Checking</b><br>Damage 2.0% <b>Moderate Breakage</b><br>Maintenance <b>Local repair</b><br>Capital Rec. <b>None</b><br><i>Fully replaced on east approach span, and partially on truss in 2019. Corner splintering evident.</i>                                 |
| <b>Timber Curb (2)</b><br><b>Curbs</b><br>Length: 47.7 m<br>Width: 0.13 m<br>Height: 0.13 m                    | Defects 0.0%<br>Damage 0.0%<br>Maintenance <b>Local repair</b><br>Capital Rec. <b>None</b><br><i>Curbs replaced in 2019. Bolts require re-tightening to compensate for timber drying and shrinkage.</i>   |
| <b>Steel Pipe Ped Barrier (2)</b><br><b>Approach Barrier</b><br>Length: 100 m<br>Width:<br>Height:             | Defects 0.0%<br>Damage 40.0% <b>Major Deformation, Moderate Impact</b><br>Maintenance <b>Repair Minor Damage</b><br>Capital Rec. <b>None</b><br><b>Perf Def: Weakened</b><br><i>Significant damage and settlement on north approach, east side. West approach railing recently damaged and in poor condition.</i> |
| <b>Steel-Fabricated (2)</b><br><b>I-type - Girder</b><br>Length: 9.2 m<br>Width: 0.2 m<br>Height: 0.46 m       | Defects 20.0% <b>Moderate Corrosion</b><br>Damage 5.0% <b>Minor Section Loss</b><br>Maintenance <b>None</b><br>Capital Rec. <b>None</b><br><b>Partial Inspection</b><br><i>Much of coating is lost, with rust blisters on the lower flanges. Web strengthened in NE corner in 2019, see image.</i>                |





## Component Inspection Information

|                                  |   |                           |
|----------------------------------|---|---------------------------|
| <b>Top Chord (2)</b>             | Defects <b>20.0%</b> <b>Minor Corrosion</b>   |                           |
| <b>Top chords</b>                | Damage <b>0.0%</b>  |                           |
| Length: <b>38.5 m</b>            | Maintenance <b>None</b>   |                           |
| Width: <b>0.33 m</b>             | Capital Rec. <b>None</b>  |                           |
| Height:                          | <i>Relatively benign environment means minimal section loss despite loss of coating.</i>  |                           |
| <b>Bottom Chord (2)</b>          | Defects <b>30.0%</b> <b>Minor Corrosion</b>   |                           |
| <b>Bottom Chords</b>             | Damage <b>5.0%</b> <b>Minor Section Loss</b>  |                           |
| Length: <b>38.5 m</b>            | Maintenance <b>None</b>   |                           |
| Width: <b>0.33 m</b>             | Capital Rec. <b>None</b>  |                           |
| Height:                          | <i>Significant coating failure. Bottom chord in NW corner strengthened in 2013. Wading inspection in 2016 and 2018..</i>  |                           |
| <b>Diagonal/Post/Hangar (30)</b> | Defects <b>20.0%</b> <b>Minor Corrosion</b>   |                           |
| <b>Verticals/diagonals</b>       | Damage <b>0.0%</b>  |                           |
| Length: <b>4 m</b>               | Maintenance <b>None</b>   |                           |
| Width: <b>0.15 m</b>             | Capital Rec. <b>None</b>  |                           |
| Height: <b>0.15 m</b>            | <i>Tie plates added to many of the diagonals in 2013.</i>   |                           |
| <b>Steel Floor Beam (6)</b>      | Defects <b>5.0%</b> <b>Minor Corrosion, Moderate Corrosion</b>  |                           |
| <b>I-type - Floor Beams</b>      | Damage <b>0.0%</b>  |                           |
| Length: <b>5 m</b>               | Maintenance <b>None</b>   | <b>Partial Inspection</b> |
| Width: <b>0.2 m</b>              | Capital Rec. <b>None</b>  |                           |
| Height: <b>0.5 m</b>             | <i>See wading inspection report of 2016, 2018. Little change observed in 2019.</i>  |                           |
| <b>Stringers (5)</b>             | Defects <b>50.0%</b> <b>Moderate Corrosion</b>  |                           |
| <b>I-type - Stringers</b>        | Damage <b>10.0%</b> <b>Moderate Section Loss</b>  |                           |
| Length: <b>47.7 m</b>            | Maintenance <b>None</b>   | <b>Partial Inspection</b> |
| Width: <b>0.2 m</b>              | Capital Rec. <b>None</b>  |                           |
| Height: <b>0.3 m</b>             | <i>Some stringer ends have been repaired with bolted extensions. Stringers at the west abutment replaced in 2016. Stringers of east approach span replaced in 2019.</i> |                           |
| <b>RC Abutment Wall (1)</b>      | Defects <b>30.0%</b> <b>Moderate Leaching/Seepage, Moderate Scaling, Moderate AAR Cracking</b>  |                           |
| <b>Abutment Stem</b>             | Damage <b>10.0%</b> <b>Major Disintegration</b>   |                           |
| Length:                          | Maintenance <b>None</b>   |                           |
| Width: <b>7 m</b>                | Capital Rec. <b>None</b>  |                           |
| Height: <b>2.2 m</b>             | <i>AAR related disintegration with leach staining and scaling.</i>  |                           |



## Component Inspection Information

|  |   |                    |
|--|---|--------------------|
| <b>RC Ballast Wall (1)</b><br><b>Ballast Walls</b><br>Length:<br>Width: 7 m<br>Height: 0.6 m | Defects 0.0%<br>Damage 0.0%<br>Maintenance None<br>Capital Rec. None<br><i>No concerns noted.</i>   | Partial Inspection |
| <b>RC Wing Walls (2)</b><br><b>RC wingwall</b><br>Length: 2.5 m<br>Width:<br>Height: 1.25 m  | Defects 50.0% <b>Moderate Leaching Cracks, Moderate AAR Cracking</b><br>Damage 0.0%<br>Maintenance None<br>Capital Rec. None<br><i>Serviceable.</i>   | Partial Inspection |
| <b>Entire Pier (1)</b><br><b>River Pier</b><br>Length: 2 m<br>Width: 8 m<br>Height: 2.2 m    | Defects 20.0% <b>Major AAR Cracking, Moderate Efflorescence, Moderate Scaling</b><br>Damage 7.0% <b>Major Disintegration</b><br>Maintenance None<br>Capital Rec. None<br><i>Not possible to inspect most surfaces. Top is experiencing severe disintegration especially at nosing.</i>          | Partial Inspection |
| <b>Steel Sliding Plate (2)</b><br><b>Bearings</b><br>Length:<br>Width:<br>Height:            | Defects 0.0%<br>Damage 20.0% <b>Moderate Section Loss</b><br>Maintenance None<br>Capital Rec. None<br><i>Historically corroded.</i>   | Partial Inspection |
| <b>Rocker or Roller Bearing (4)</b><br><b>Roller bearing</b><br>Length:<br>Width:<br>Height: | Defects 80.0% <b>Moderate Corrosion, Checking</b><br>Damage 20.0% <b>Moderate Seizing</b><br>Maintenance Power Wash<br>Capital Rec. Replace in 1 year<br><i>Bearings are covered in debris at pier and should be power washed. Nested roller bearings at north abutment are heavily rusted.</i> | Perf Def: Seizing  |
| <b>Headwall (2)</b><br><b>Dry Stone Walls</b><br>Length: 100 m<br>Width:<br>Height: 2.5 m    | Defects 0.0%<br>Damage 20.0%<br>Maintenance None<br>Capital Rec. Repair in 5 years<br><i>See embankment comments.</i>   | Perf Def: Bulging  |



## Component Inspection Information

|                              |  |                                   |
|------------------------------|--|-----------------------------------|
| <b>Water Channel (1)</b>     | Defects <b>0.0%</b>  |                                   |
| <b>Streams and Waterways</b> | Damage <b>5.0%</b>   | <b>Major Bank/Channel Scour</b>   |
| Length:                      | Maintenance <b>None</b>  |                                   |
| Width:                       | Capital Rec. <b>None</b>   |                                   |
| Height:                      | <i>Rapid current under bridge. Dam upstream. Bouldery bottom that has some localized scour. Very significant scour hole developed at upstream side of west abutment since 2018. Abutment does not appear to be undercut.</i>   |                                   |
| <b>Embankment (1)</b>        | Defects <b>0.0%</b>  |                                   |
| <b>Embankments</b>           | Damage <b>15.0%</b>  | <b>Critical Local Instability</b> |
|                              | Maintenance <b>Slope revetment</b>   |                                   |
|                              | Capital Rec. <b>Repair in 1 year</b>   | <b>Perf Def: Unstable</b>         |
|                              | <i>There is significant flow penetrating through the causeway on the south approach. The dry stone walls on the sides of the embankment have bulged on the east side. Frost action has loosened and disintegrated some of the stonework to a depth of 0.3 m. There is a strong possibility of partial collapse of in particular the east side of the causeway. This collapse could occur with little or no warning. Severe bulging of dry stone wall at NE quadrant, and is in serious condition. Water has partly undercut portions of wall on south approach. Clearance portal at west approach missing in 2019.</i> |                                   |
| <b>Load Posting (4)</b>      | Defects <b>0.0%</b>  |                                   |
| <b>Signs</b>                 | Damage <b>0.0%</b>   |                                   |
| Length:                      | Maintenance <b>None</b>  |                                   |
| Width:                       | Capital Rec. <b>None</b>   |                                   |
| Height:                      | <i>Posting signs of 5 tonnes on both approaches. In 2013 clearance portals were installed at both approaches to restrict vehicles with a height more than 2.4 m from driving onto the bridge. The portal at the west end has already been struck several times. West portal missing in 2019.</i>   |                                   |



Image 57



West elevation

Image 39



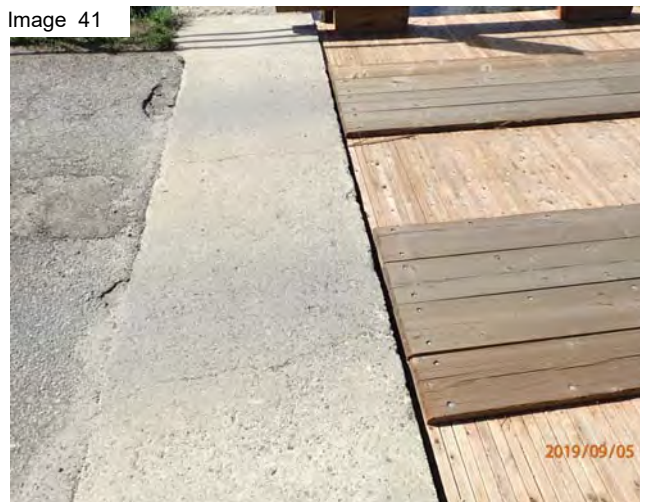
North approach

Image 40



South approach

Image 41



End of south approach span

Image 42



SW end of pier

Image 43



South abutment west corner disintegration



Image 44



Curb splice typ

Image 45



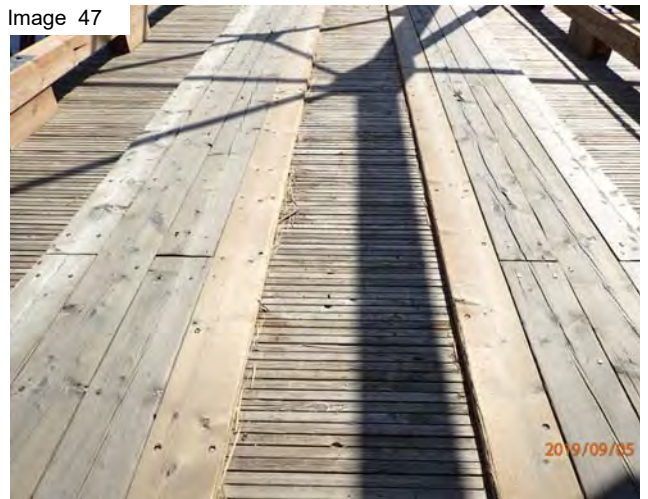
West channel

Image 46



East channel

Image 47



Deck surface

Image 48



SE girder end web strengthening (2019)

Image 49



East abutment wall



Image 50



West end of deck

Image 51



NE bearing

Image 52



West end ballast wall & stringer

Image 53



NW corner bearing

Image 54



NE corner detail

Image 56



Soffit



# APPENDIX K



# ANDREWSVILLE BRIDGE WADING INSPECTION REPORT- JULY 2021

Lanark County, United Counties Leeds & Grenville



**Keystone Bridge Management Corp.**  
Your Bridge Asset Management Specialist



## Introduction

Keystone Bridge Management was retained by the County of Lanark to complete a wading inspection of the underside of the Andrewsville Bridge over the Rideau River downstream of Merrickville, Ontario. This is the third wading inspection of the Andrewsville Bridge by Keystone Bridge Management. Keystone previously provided a wading inspection of the bridge in August 2016 and August 2018. Keystone also has provided biennial (OSIM) inspections of the bridge in 2017 and 2019 and will again this year. This report should be read together with the previous reports.

This inspection was completed on July 5, 2021. Harold Kleywegt, P.Eng., was the principal inspector. He was assisted by engineering student Kyle Davis. Sean Derouin of Lanark County and Jacob Ouellette of United Counties of Leeds & Grenville were on hand to observe the beginning of the inspection.

Access to the underside of the bridge was obtained by setting up a 10' step ladder and 24' extension ladder on the river bottom. The depth of water and uneven bottom prevented ladder access to about half of the plan area of the truss. River flows were modest during the inspection.

The Rideau River is flowing principally north at the Andrewsville Bridge. Accordingly, the east abutment is on the United Counties of Leeds & Grenville side of the bridge and the west abutment is on the Lanark County side.

The bridge has two spans, a 39.0 m long main truss forming the west span and a 9.2 m steel girder section comprising the east span. The truss has 9 lower chord panel points supporting floor beams spaced at 4.88 m. Floor beams are only located at the interior panel points.

Spanning from floor beam to floor beam on the truss are five lines of steel S200 x 27 stringers spaced at nominally 0.9 m. They directly support the 4.9 m-wide laminated timber deck.

The structural steel framing on the east approach span consists of two main girders, a connecting floor beam and five stringers spaced at 914 mm. The S150 x 19 approach span stringers are a lighter section than the truss stringers.

For this report the area between floor beams is referred to as "Bays." There are eight bays comprising the truss floor system. They are numbered from west to east with Bay 1 closest to the west abutment and Bay 8 closest to the pier. The stringers are numbered 1 to 5 from south to north (upstream to downstream). This convention has been followed in captioning the images included with this report.

The Bay 1 stringers were not closely inspected as they were replaced in late 2016. Similarly, the approach span stringers were not closely inspected as they were replaced in late 2018.

The primary purpose of the wading inspection is to provide direct access to the underside of the bridge by standing ladders on the river bottom. During the summer months when the river flow is reduced and the water temperature pleasant, this approach is a highly economical means of access as compared to swing stages or raft access.

Although the principal focus is the underside of the bridge, a thorough inspection of the top side and approaches was also provided.

## History

There is some uncertainty as to the actual year of construction of the bridge. A historical photo of a 1904 dam break and flood event shows the east end of the bridge submerged with the east abutment presumably lost to scour. The year of construction of the main truss is most likely close to 1900. It is possible that the east approach span was added after 1904.

It is surmised that that the timber deck of the main truss was last replaced in 2008. Other repairs were completed in 2008 as well. Height-restricting portals on the approaches to the bridge were added in 2013. This followed damage to the bridge from an overload in May 2012.

Five steel stringers at the west end of the bridge were replaced in the fall of 2016. In December 2018, following the first winter closure of the bridge, the east approach span stringers and deck were replaced, and all the timber curbs on the main truss span and approach span were replaced. The stringers were replaced due to severe section loss with perforations.

## Inspection Findings

### Stringers

The seven bays of the main truss numbered 2 to 8 have stringers that are original equipment to the main truss and are therefore well over 100 years old. Previous inspection of these stringers confirmed generalized corrosion and significant section loss; however, no perforations were present.

During the 2021 wading inspection select areas with heavy slab rust (laminar corrosion) were hammer tapped as in previous inspections. This time, the stringers were found to have perforated webs in two locations. Perforation of a web signifies a 6.9 mm thickness of steel section loss. Generalized web thinning of the stringers and significant section loss of the stringer flanges was also noted. It is estimated that the five stringers acting together as a deck system have lost approximately 50% of their intended strength at this time.

In some locations there was very pronounced section loss of either the top or bottom flange of a stringer. Full section loss was incised horizontally to an estimated depth of 6 mm on the top flange at one inspected location.

All lines of stringers were examined for signs of permanent deformation such as would form under an overload. No evidence of permanent deformation was present.

The stringers were generally plumb; however, stringer 4 of bay 8 is slightly inclined at the bearing. One other stringer end had mild inclination at a floor beam support.

Despite closing the bridge to winter traffic as of 2018, thus minimizing salt corrosion, it is clear that the structural steel of the floor system has continued to experience ongoing corrosion. The corrosion may be from historical salt content chemically bound to the steel. Salts in the preservative of the timber deck may also be contributing to the corrosion. The outlook is continued degradation of the structural capability of the truss floor system.

### Floor Beams

The floor beams span transverse to the axis of the truss and are connected to the lower chord panel points of the truss. They support the stringers and help stabilize the trusses. The floor beams' condition

has changed very little in the past seven years. The upstream and downstream ends of each of the seven floor beams are generally more heavily corroded than the middle sections. None of the corrosion on the floor beams is of a critical nature. That is, the load capacity of the truss is not governed by the floor beam condition.

A comparison of the floor beam condition change over time was made by careful comparison of 2018 imagery to 2021 imagery. A small increase in paint loss is clear. It was not possible to discern an increase in section loss. A small amount of additional section loss would be expected.

### Timber Deck

The timber deck could be visually examined from above and below. The deck on the truss dates to 2008. The deck on the east approach span was replaced in late 2018. The timber is generally sound and competent. The timber is nail-laminated, so that wheel loads are shared by multiple planks acting in unison. Thus, the system is tolerant of limited deterioration such as checking and decay. The timber deck on the main truss has at least five years of estimated remaining service life. The timber curbs on either side of the deck were replaced in 2018 and are in good condition. The anchor bolts fastening the curbs to the deck have loosened due to drying shrinkage of the curbs and should be tightened. The running boards are in fair-to-good condition with some spot replacement indicated on the main truss.

### Concrete

The concrete in the two abutments and pier is lightly reinforced, lacks air entrainment, is of low strength, and is affected by alkali-aggregate reactivity. This is resulting in slow but gradually accelerating disintegration of the concrete. The disintegration is most pronounced on the upstream upper surfaces of the pier, and the upstream side of the east abutment. The disintegration of the east abutment may also be exacerbated by ice scour.

Presently the disintegration front is about to affect the main truss bearing at the upstream east corner. The concrete around the bearing is incompetent, and eventually the concrete under the bearing will also become incompetent.

Repair of the concrete is still possible without having to provide temporary support to the truss. However, the window for easy repair is rapidly closing.

### Dry-Stone Retaining Walls

The east approach to the bridge has nominally 35 metres of dry-stone masonry retaining walls forming a causeway to the bridge. The walls are up to about 2.7 m high. The downstream side of the west approach has a similar dry-stone wall. These walls would have been originally constructed with a steep batter. The internal composition of the walls is not known. There is no evidence of iron or steel ties to internally support the walls.

The walls exhibit bulging, displacement, and localized dislodgement of stone. It is remarkable that they are still standing.

Some sections of the wall are partly collapsed. This is most notable on the west approach and at the eastern terminus of the downstream east wall. Erosion from turtle nesting has contributed to the partial collapse.

It is not anticipated that the dry-stone walls make the approaches vulnerable to catastrophic loss. That is to say, the slow deterioration of the walls will not cause a large collapse and full loss of the road platform. However, an extreme flood event or a seismic event could produce large scale failure of the walls and loss of the road. Certainly, a portion of the wall could collapse unexpectedly at any time and compromise the road surface.

Restoration of the walls would require almost complete reconstruction using salvaged material from the walls, most likely augmented by modern practises such as internal ties.

There is considerable risk exposure to the Municipalities arising from the condition of the dry-stone walls.

### Railings

The approaches and bridge possess “safety” railings. All the railings are generally in a neglected state of repair, and do not conform to any current codes for guide rail or bridge railings. The deterioration of the dry-stone walls has resulted in settlement and displacement of the footings for the approach railings.

### Scour

A nominal 0.5 m deep depression in the embankment in the upstream west corner of the truss was noted for the first time in 2021. The embankment is enclosed at this location by the west abutment and a reinforced concrete retaining wall.

Significant scour in front of the west abutment footing appeared after 2018 spring flooding. It is possible that some embankment material is “leaking” from gaps under the abutment footing or retaining wall footing. This would explain the noted depression in the embankment.

The Rideau River channel under the bridge is “lined” with natural blocky limestone. There is minor scour associated with the pier, and some suspected general scour between the pier and east abutment.

### Trusses

There has been no observable deterioration of the trusses above the level of the bridge deck over the past seven years. Similarly, below the deck level, the bottom chords and connection gussets at the panel points show no observable change.

There is no evidence of any recent high or wide load damage to the trusses or upper sway bracing and portals.

## Structural Evaluation

A simple structural evaluation was completed to establish some confidence in the residual capacity of the corroded stringers. There is some uncertainty with respect to the actual section properties of the stringers. They are certainly 8” high by 4” flange width Imperial stringers. Reference to historical section properties suggests there were about 10 rolled “S” shaped 8 x 4 beams with weights of 17 to 18.4 pounds per foot. The closest currently available section has a metric designation of S200x27 and an equivalent Imperial designation of S8x18.4. As the properties of the S200x27 section are reliably known, and the other similar sections will have closely similar structural attributes, this section was used as a starting point in the analysis.

The section was artificially weakened by reducing the combined flange area by half. The weakened section has 54% of the bending capacity of the original section.

Assuming a historical yield strength of 210 MPa, the weakened beam is predicted to plastically yield at an unfactored moment of 27 kN.m.

The unfactored weight of the deck and girders requires approximately 15% of the reduced girder capacity. Depending on assumptions around load distribution, a 5-tonne vehicle will require an additional 40% of the reduced capacity of the girders.

The upshot of this simple analysis is that the present 5-tonne load limit on the bridge is realistic but not conservative. Continued corrosion of the stringers will gradually erode the capacity of the bridge to the point that a 5-tonne load limit is no longer valid.

A 5-tonne single truck load limit is the practical lowest load rating for a bridge. Any posting lower than that is effectively a bridge closure according to the Bridge Code.

## Synopsis

The Andrewsville Bridge has already greatly exceeded its normal anticipated service life. Despite significant effort to extend the life of the bridge, ongoing corrosion, concrete deterioration, and an aging main timber deck pose ever increasing risk of localized failures. The dry-stone retaining walls that support the bridge approaches are misshapen and are no longer considered reliable. Safety appliances such as bridge railings and approach railings are inadequate.

## Restoration

### Bridge

The existing bridge cannot be restored to full truck loading. It is conceivable that the bridge can be restored to a 20-tonne single truck load rating. To achieve this the floor beams and stringers together with the deck will need to be replaced. Significant concrete restoration will also be required. To maximize the life of the restoration, the truss should be painted. It may be necessary to dismantle the truss and make shop repairs and complete strengthening ahead of painting the members. The cost of the truss work will greatly exceed \$1,000,000.

### Approaches

The existing dry-stone retaining walls have heritage value, although this may not have been officially recognized. To reconstruct them with fidelity to the original construction will require highly skilled and exceedingly scarce specialist masons. The cost is expected to be prohibitive.

The alternative to reconstruction would be simple embankment widening with low retaining walls designed to defend against river scour. This would almost double the footprint of the causeway in the river on the east side and would encroach on flood plain and possibly private property on the west side.

## Rust in Peace

The bridge can remain open with the current 5-tonne load posting for a few more years. However, every year that the bridge remains open, the risk of localized failure and liability exposure increases. It is the writer's recommendation to plan on fully closing the bridge to traffic within five (5) years. Until such time as the bridge is closed, regular monitoring of the approaches and bridge surface will be required to capture any untoward developments.

An annual comprehensive inspection of the bridge and approaches will be required.

## Vehicle Trespass

Despite clearance portals at each approach to the bridge, and advance warning signs, incidents of oversize vehicle and possibly over-weight vehicle trespass is known to be occurring. Such incidents put the security of the bridge in peril and add to the overall risk. Moreover, heavy axle weights could cause a failure of the dry-stone approach walls.

## Failure modes

The bridge stringers are presently the weakest component of the deck system. Should a stringer become slightly overloaded, it will permanently bend in the loaded direction or crush where it rests on a floor beam, abutment, or pier. This can result in local overloading of the timber deck, and an obvious "soft spot" will develop in the deck. The above is all premised on a light over-load such as a 7.5 tonne vehicle. It is very possible that a failure such as this will develop in the next five years. Fortunately, a failure such as this will be relatively benign, but would lead to a closure of the bridge, pending local strengthening or permanent closure.

If a loaded triaxle truck attempted to cross the bridge, the failure would be catastrophic and plainly visible to any following traffic. A gross overload such as this would likely not be benign and could result in the complete loss of the bridge.

Failure of the drystone retaining walls is anticipated to be of a relatively slow progressive mode exacerbated by rainfall, traffic and time. There should be some warning of the failure as the road platform narrows. However, under a severe flood, failure could occur suddenly and progress rapidly. A heavy rainfall event with gullying could also result in rapid failure.

## Future Inspections

A more thorough inspection, especially of the stringers, is strongly recommended within two years. Several days of field measurement and documentation are recommended to achieve a strong objective understanding of the level of deterioration of the stringers so that their reduced capacity can be more precisely determined. A large stable raft may expedite such an inspection.

A coring and probing survey of the timber deck should also take place concurrently.

## Summary Remarks

The Andrewsville Bridge has surpassed its useful life and is rapidly approaching the need to either invest major capital in its rehabilitation or renewal or close it to vehicle traffic. The road approaches to the bridge are failing and represent increasing risk to road users as they continue to degrade.

Several million dollars will be required to meaningfully extend the life of the existing bridge and improve the road approaches. The least costly alternative is to close the bridge, which is expected to be necessary within five years.

An environmental assessment study (EA) is strongly recommended at this time. An EA study will formalize an acceptable approach to dealing with end of useful life considerations for the Andrewsville Bridge, following well established guidelines. Options that will need full consideration include:

- Closure
- Conversion to pedestrian use only
- Rehabilitation
- Replacement

A do-nothing option for the bridge does not merit consideration even though it is typically considered in an EA study.

## Signature

Keystone is very pleased to be of continuing service in the monitoring and management of the Andrewsville Bridge. We trust this report will be helpful in determining the future of this structure. Thank you for this opportunity to be of service.



Harold Kleywegt, P.Eng.  
Managing Director

## Photos



*Figure 1: South elevation*



*Figure 2: East approach*





Figure 3: Bay 2 overview



Figure 4: Bay 3 overview



*Figure 5: Bay 4 overview*



*Figure 6: Bay 5 overview*



Figure 7: Bay 6 overview



Figure 8: Bay 7 overview



*Figure 9: Bay 8 overview*



*Figure 10: Stringer 2 perforation in bay 8*



*Figure 11: Floor beam 7 north end*



*Figure 12: Floor beam 7 south end*



*Figure 13: Floor beam 6 north end*



*Figure 14: Floor beam 6 south end*



*Figure 15: Floor beam 5 north end*



*Figure 16: Floor beam 5 south end*



Figure 17: Floor beam 4 north end



Figure 18: Floor beam 4 south end





*Figure 19: Floor beam 3 north end*



*Figure 20: Floor beam 3 south end*



*Figure 21: Floor beam 2 north end*



*Figure 22: Floor beam 2 south end*



Figure 23: Floor beam 1 north end



Figure 24: Floor beam 1 south end



*Figure 25: NE bearing*



*Figure 26: NE girder end web stiffening*



*Figure 27: East face of pier*



*Figure 28: East abutment and causeway from south*



*Figure 29: East span west end soffit*



*Figure 30: East span east end soffit*



*Figure 31: East abutment*



*Figure 32: Bulging retaining wall in SE*



Figure 33: NW truss bearing



Figure 34: West approach





*Figure 35: External stringer 1 condition Bay 6*



*Figure 36: Deck boards end detail*



Figure 37: West abutment



Figure 38: Looking west between stringers 2 and 3



*Figure 39: Stringer 3 perforation in bay 5*



*Figure 40: West face of pier*



*Figure 41: SW portal base*



*Figure 42: Sinkhole in SW corner*



*Figure 43: South channel upstream*



*Figure 44: North channel downstream*



*Figure 45: North pier truss bearing*



*Figure 46: Pier top north end*



*Figure 47: Railing south side of causeway*



*Figure 48: Bulging retaining wall north-east quadrant*



*Figure 49: Blocked drainage opening through causeway*



*Figure 50: North-east quadrant dry-stone retaining wall*





*Figure 51: Drainage opening through causeway*



*Figure 52: Undercut railing base in north retaining wall east end*



*Figure 53: North dry-stone retaining wall east approach*



*Figure 54: Grade change / bump over pier*



*Figure 55: Pier top south side from west*



*Figure 56: Typical bottom chord connection*



*Figure 57: Typical top chord connection*



*Figure 58: South pipe railing*



*Figure 59: Typical compression diagonal bracing tie plate*



*Figure 60: Damaged running boards*



*Figure 61: Deck surface looking west*



*Figure 62: South side truss*



*Figure 63: West portal*



*Figure 64: Wind and sway bracing*



Figure 65: North truss



Figure 66: North truss section





Figure 67: NW portal base



Figure 68: NW damaged approach railing



# ANDREWSVILLE BRIDGE REPORT #PW-29-2021

Public Works Committee  
August 25, 2021  
Sean Derouin, Public Works Manager

# BACKGROUND

- The Andrewsville Bridge (MTO Site No. 015-0013) spans the Rideau River and provides access to the Parks Canada swing bridge which crosses the UNESCO World Heritage site, the Rideau Canal at Nicholson's Locks.
- Constructed in the early 1900's, the Bridge is composed of two simply supported structures: a 38-metre span steel through-truss with timber deck (west approach); and a 10-metre span timber deck on a rolled steel girders (east approach).
- Andrewsville Bridge has had a 5-tonne load limit imposed since 1952, which is the same load limit of the adjacent swing bridge. Average Annual Daily Traffic (AADT) is less than 200.
- Structural inspections have identified that the bridge has outlived its normal service life noting the original steel superstructure continues to deteriorate at an ever-increasing rate. The other concern is the stability of the 70 metre drystone retaining wall on the south approach that is at risk of collapse.

# BACKGROUND

## 2005

- Investigation and Recommended Rehabilitation Report Completed recommending replacing the asphalt overlaid wood deck; upgrading bridge and approach railings; and repairing the substructure.

## 2007

- Structural Evaluation Report was completed to confirm the existing 5 tonnes load limit is still acceptable.

## 2008

- Wooden deck and curb replacement; and repairs to the stringers, bearing seats and ballast walls.

## 2012

- Inspection and update to the 2007 Structural Evaluation Report completed to confirm the 5 tonne load posting was sufficient.
- Recommendation was given to close the bridge to vehicular traffic if a major rehabilitation was not completed.
- A Public Information Session (PIC) was held to review the recommended options.
- May 4<sup>th</sup>; A transport damages the bridge resulting in indefinite closure.
- June; County Council commits to keep the bridge open with each Municipality contributing an upset amount of \$50,000 over a period of 5 years for required repairs.

# BACKGROUND

## 2013

Height restriction barriers and signage installed to prevent oversized vehicles. Bridge structural repairs completed to allow reopening of the bridge in March.

## 2015

Annual inspection identifies stringer repairs required at North end of the bridge.

## 2016

Enhanced wading inspection completed.

Replaced north span stringers.

Lanark County agrees to provide a maximum of \$60,000 (matched by UCLG), From Nov 2016 to Nov 2028 to maintain a 5 tonne load limit.

## 2018

Enhanced wading inspection completed.

By-law passed approving recommendation to close the bridge to traffic on an annual basis from December 1<sup>st</sup> to March 31<sup>st</sup> to prolong the lifespan of the bridge by eliminating further corrosion as a result of de-icing materials being tracked across the bridge.

South span girders, bearings and timber deck replaced.

Timber curbs replaced on entire structure.

# DISCUSSION: Expenditures

Andrewsville Bridge Summary - Lanark County Share Only (50%)

Current End Date of Funding: April 27, 2028

| Date      | Description                        | Financial Allocation   | Amount Spent         | Amount Remaining | Notes                         |
|-----------|------------------------------------|------------------------|----------------------|------------------|-------------------------------|
| 1-Nov-12  | Motion PW-2012-104                 | \$ (50,000.00)         |                      | \$ (50,000.00)   | UCLG also allocating \$50,000 |
| 31-Dec-13 | 2013 Annual Expenditures           |                        | \$ 32,554.70         | \$ (17,445.30)   |                               |
| 31-Dec-14 | 2014 Annual Expenditures           |                        | \$ -                 | \$ (17,445.30)   | No charges against fund       |
| 31-Dec-15 | 2015 Annual Expenditures           |                        | \$ -                 | \$ (17,445.30)   | No charges against fund       |
| 27-Apr-16 | Motion PW-2016-52                  | \$ (60,000.00)         |                      | \$ (77,445.30)   | UCLG also allocating \$60,000 |
| 31-Dec-16 | 2016 Annual Expenditures           |                        | \$ 22,015.66         | \$ (55,429.64)   |                               |
| 31-Dec-17 | 2017 Annual Expenditures           |                        | \$ -                 | \$ (55,429.64)   | No charges against fund       |
| 31-Dec-18 | 2018 Annual Expenditures           |                        | \$ 4,931.08          | \$ (50,498.56)   |                               |
| 31-Dec-19 | 2019 Annual Expenditures           |                        | \$ 43,119.18         | \$ (7,379.38)    |                               |
| 31-Aug-21 | 2021 Annual Expenditures (to date) |                        | \$ 1,770.88          | \$ (5,608.50)    |                               |
|           |                                    | <b>\$ (110,000.00)</b> | <b>\$ 104,391.50</b> |                  |                               |

**Max combined funds remaining \$ (11,217.00)**

**Notes:**

Motion PW-2012-104 - (Funds available over 4 years)

PW2014-000173 - \$1,119.61 recovered from Economical Mutual for damages MVA 7/Sep/14; in addition to above

Motion PW-2016-52 - (Funds available over 12 years) (April 2016 - April 2028)

# DISCUSSION: Updated Inspection

- Updated enhanced wading inspection completed on July 5, 2021 (Appendix A-Report)
- Previous wading inspection in 2018 noted general corrosion and significant section loss in the stringers but in this years inspection, **two large perforations in the webs** were identified.
- Generalized web thinning of the stringers and section loss of the flanges were also noted.
- A structural evaluation was completed to confirm the existing 5-tonne is still suitable.
- The drystone retaining walls are slowly deteriorating and are at risk of failure.
- The structural steel of the floor system has continued to deteriorate despite closing the bridge to winter traffic as of 2018.
- Report recommends closing bridge within 5 years.
- Report recommends an Environmental Assessment study (EA) be completed to investigate the future options of the bridge.



# ANALYSIS & OPTIONS

1. Advertise a Request for Proposal (RFP) for a Municipal Class Environmental Assessment (EA) report to assess alternative options for Andrewsville Bridge and recommend the preferred option such as:
  - I. Close Bridge
  - II. Convert to pedestrian only bridge
  - III. Rehabilitate Bridge
  - IV. Replace Bridge
  - V. Download bridge jurisdiction to the lower tier local Municipalities.
  - VI. Do nothing.
2. Work within existing allocated funds, conducting yearly inspections until the inspection yields a recommendation to close the bridge.
3. Close bridge to traffic.



# FINANCIAL IMPACT

1. EA Study:
  - Anticipated to cost \$20K to \$30K
2. Work within existing budget:
  - \$11K remaining @ ~\$3,500/year on inspections, a total of 3 more years.
- Close Bridge to Traffic
  - Anticipated ~\$10K to \$15K for signage and gates.



# CONCLUSION

- PW recommends proceeding with an RFP to complete an EA study to investigate the preferred alternative option to address the near end useful life of the Andrewsville Bridge.
- The results of the RFP bid submissions would be presented to the Sept 22 PW Committee meeting for approval prior to proceeding with award.
- UCLG have been consulted with and are in agreement with this recommendation. Following the committee's decision, UCLG will be taking this back to their Council.
- The cost of the EA study can be accommodated within the existing 2021/22 Engineering budget.

# ATTACHMENTS

- [Appendix 'A' – Andrewsville Bridge Wading Inspection Report - July 2021](#)



**MINUTES  
SEVENTH MEETING OF 2021  
PUBLIC WORKS  
COMMITTEE OF THE WHOLE**

The Public Works Committee of the Whole met in regular session on Wednesday, August 25, 2021 immediately following County Council at the Lanark County Administration Building, 99 Christie Lake Road, Perth, Ontario.

**Members Present:** Chair E. McPherson, Warden C. Lowry and Councillors P. McLaren, J. Hall, C. Lowry, R. Minnille, B. Dobson, K. Van Der Meer, J. Fenik, E. McPherson, B. Campbell,, B. Crampton, R. Kidd, D. Black, S. Redmond, S. Fournier, and R. Scissons.

**Staff/Others Present:** K. Greaves, CAO  
L. Drynan, Clerk/Deputy CAO  
C. Whitar, Deputy Clerk  
T. McCann, Director of Public Works  
S. Derouin, Public Works Manager

**Regrets:** Councillor S. Mousseau

**PUBLIC WORKS**

**Chair:** Councillor E. McPherson

**1. CALL TO ORDER (Reminder please silence all electronic devices)**

The meeting was called to order at 5:43p.m.  
A quorum was present.

**2. DISCLOSURE OF PECUNIARY INTEREST**

None at this time.

**3. APPROVAL OF MINUTES**

**MOTION #PW-2021-57**

**MOVED BY:** K. Van Der Meer      **SECONDED BY:** B. Crampton

"**THAT**, the minutes of the Public Works Committee meeting held on June 23, 2021 be approved as circulated."

**ADOPTED**

**4. ADDITIONS AND APPROVAL OF AGENDA**

**MOTION #PW-2021-58**

**MOVED BY:** J. Fenik      **SECONDED BY:** J. Hall

"**THAT**, the agenda be approved as presented."

**ADOPTED**

**5. DELEGATIONS (10 MINUTES)**

**6. QUESTIONS OF THE DELEGATION FROM COUNCIL**

**7. PRESENTATIONS**

- i) Public Hearing for Closing and Sale of Parts of County Road 7 and County Road 19  
**Director of Public Works, Terry McCann**

**MOTION #PW-2021-59**

**MOVED BY:** B. Crampton      **SECONDED BY:** B. Dobson

"**THAT**, the Committee recess at 5:44 p.m. in order to hold a Public Hearing for the proposed closing and sale of portions of former County Road 7 and County Road 19, as outlined in Report #PW-23-2021 and Report #PW-24-2021 (June 23, 2021 Public Works Committee); Motion #PW-2021-48 and Motion #PW-2021-49 approved at the June 23, 2021 County Council Meeting."

**ADOPTED**

**MOTION #PW-2021-60**

**MOVED BY:** K. Van Der Meer      **SECONDED BY:** J. Hall

“**THAT**, the Public Hearing close and the Committee return to regular session at 5:48pm.”

**ADOPTED**

**MOTION #PW-2021-61**

**MOVED BY:** C. Lowry      **SECONDED BY:** S. Redmond

“**THAT**, there being no objections from the public, the Clerk presents the necessary By-law at the September 8, 2021 meeting of County Council to stop-up, close and sell a portion of the former County Road 7, Being Part of Lots 21 & 22, Concession 11, Geographic Township of Bathurst, now Tay Valley Township, County of Lanark, designated as Parts 2 and 4, Registered Plan 27R11665 to the abutting property owner(s) for \$1.”

**ADOPTED**

**MOTION #PW-2021-62**

**MOVED BY:** C. Lowry      **SECONDED BY:** S. Redmond

“**THAT**, there being no objections from the public, the Clerk presents the necessary By-laws at the September 8, 2021 meeting of County Council to stop-up, close and sell a portion of former County Road 19, Firstly: Part of the East half of lot 2, Concession 10, Geographic Township of Bathurst, now Tay Valley Township, County of Lanark, designated as Part 2 on 27R8134 and Secondly: Part of Lot 3, Concession 10, Geographic Township of Bathurst, now Tay Valley Township, County of Lanark, designated as Part 6 on 27R10623 to the abutting property owner(s) for \$1.”

**8. COMMUNICATIONS**

- i) AORS - Certified Road Supervisory Senior Certification - Darwin Nolan

Council directed staff to pass on congratulatory messaging to Darwin Nolan.

- ii) Concerns regarding speeding in Appleton

Council discussed the issue of speed and working in partnership with the OPP moving forward. Council touched on the potential to use cameras in enforcement, similar to the red-light cameras used in Ottawa.

T. McCann advised that this is an ongoing problem (1-2 complaints a week) and that staff believe that the traffic calming policy needs to be updated. He also noted that with the OPP establishing a County wide Police Service Board, we will be better able to discuss issues, such as this and what the legislation with respect to using cameras.

Councillor Kidd noted that the extra-large signage being used west of County Road 17 work very well and has cut down on speed complaints since their installation.

**MOTION #PW-2021-63**

**MOVED BY:** C. Lowry      **SECONDED BY:** S. Redmond

"**THAT**, staff bring back a report to the Public Works Committee with a recommendation to update the traffic calming policy."

**ADOPTED**

- iii) Autonomous Vehicle - MTO

**MOTION #PW-2021-64**

**MOVED BY:** B. Campbell      **SECONDED BY:** B. Crampton

**"THAT**, the communications for the August Public Works Committee meeting be received as information."

**ADOPTED**

**9. CONSENT REPORTS**

**10. DISCUSSION REPORTS**

- i) Report #PW-28-2021 Posted Speed Reduction: County Rd 12 (Markle Rd.) Page  
9 - 13  
**Public Works Manager, Sean Derouin**

S. Derouin presented a power point presentation, please see attached.

Council directed staff to share information related to policy changes, such as this one that would affect local tiers, with local municipal staff before bringing to County Council to ensure appropriate local input is sought.

**MOTION #PW-2021-65**

**MOVED BY:** R. Kidd      **SECONDED BY:** B. Dobson

**"THAT**, County Council approve a speed reduction on County Road 12 (Markle Rd), to 60 km per hour, from the existing 50 km/hr reduced speed zone, westerly for 900 m.

**AND THAT**, the Clerk prepares the necessary by-law, for presentation at the September 8th Meeting of County Council, to establish the speed reduction on County Road 12 (Markle Rd.) as outlined in this report;

**AND THAT**, the Clerk prepares the necessary by-law, to amend the existing by-laws 81-44 and 2004-24 to define the actual limits of the existing 50 km/hr reduced speed zone.



**AND THAT**, the Clerk sends Report #PW-28-2021 to the Lanark County OPP Detachment, and the Clerk for the Township of Lanark Highlands for information."

**ADOPTED**

- ii) Report #PW-29-2021 Andrewsville Bridge  
**Public Works Manager, Sean Derouin** Page  
14 - 18

S. Derouin presented a power point presentation, please see attached.

S. Derouin took questions from Council and clarified that the nearest bridge is approximately 5km down the road.

B. Dobson provided background on his position for the bridge, noting its legacy of 150 years.

The Committee had a discussion with respect to the position of Parks Canada's willingness to partner on the project.

Councillor Fenik discussed the swing bridge upgrades in the Town of Perth, noting that it may be worth County Council writing MP Scott Reid to seek support in obtaining federal funding through grants to pay for the proposed restorations.

**MOTION #PW-2021-66**

**MOVED BY:** D. Black      **SECONDED BY:** S. Redmond

**"THAT**, the Public Works Committee recommends that County Council proceed with an RFP to complete an EA study to investigate the preferred alternative option in order to address the near end useful life of the Andrewsville Bridge;

**AND THAT**, the RFP be conditional upon the United Counties of Leeds & Grenville's partnership on the project;

**AND THAT**, the results of the RFP bid submissions be presented to the Public Works Committee on September 22, 2021."

**ADOPTED**

- iii) Report #PW-30-2021 2021 Construction Update Page  
**Public Works Manager, Sean Derouin** 19 - 25

S. Derouin provided a power point presentation, please see attached.

**MOTION #PW-2021-67**

**MOVED BY:** B. Campbell      **SECONDED BY:** J. Fenik

"**THAT**, Report #PW-30-2021, 2021 Construction Update be received as information."

**ADOPTED**

**11. VERBAL REPORTS**

- i) Climate Action Committee Page  
26 - 27

Councillor Fenik provided an update on the Climate Action Committee, please see summary attached.

The Committee discussed in detail the tasks of the workplan. Clerk L. Drynan provided clarification of the timelines and details.

**MOTION #PW-2021-68**

**MOVED BY:** J. Fenik      **SECONDED BY:** R. Kidd

"**THAT**, the Public Works Committee, based on a recommendation from the Climate Action Committee endorse the resolution adopted by the City of Stratford with respect to a request to phase out Ontario's Gas Plants."

**ADOPTED**

**MOTION #PW-2021-69**

**MOVED BY:** R. Kidd      **SECONDED BY:** J. Fenik

"**THAT**, the Climate Action Committee provide a formal report to County Council regarding the Climate Action Committee Workplan."

**ADOPTED**

**12. DEFERRED REPORTS**

**13. CONFIDENTIAL REPORTS**

**14. NEW/OTHER BUSINESS**

**15. ADJOURNMENT**

The Committee adjourned at 6:53p.m. on motion by Councillors



Casey Whiticar, Deputy Clerk



**MINUTES  
NINTH MEETING OF 2021  
PUBLIC WORKS  
COMMITTEE OF THE WHOLE**

The Public Works Committee of the Whole met in regular session on October 27, 2021 immediately following County Council at the Lanark County Administration Building, 99 Christie Lake Road, Perth, Ontario.

**Members Present:** Chair E. McPherson, Warden C. Lowry and Councillors P. McLaren, J. Hall, C. Lowry, R. Minnille, B. Dobson, K. Van Der Meer, J. Fenik, E. McPherson, B. Campbell,, B. Crampton, R. Kidd, S. Mousseau, D. Black, S. Redmond, S. Fournier, and R. Scissons.

**Staff/Others Present:** K. Greaves, CAO  
C. Whitarcar, Deputy Clerk  
T. McCann, Director of Public Works  
S. Derouin, Public Works Manager

**Regrets:** Councillor

**PUBLIC WORKS**

**Chair:** Councillor E. McPherson

**1. CALL TO ORDER (Reminder please silence all electronic devices)**

The meeting was called to order at 6:12 p.m.  
A quorum was present.

**2. DISCLOSURE OF PECUNIARY INTEREST**

None at this time.

**3. APPROVAL OF MINUTES**

**MOTION #PW-2021-77**

**MOVED BY:** J. Fenik      **SECONDED BY:** S. Fournier

**"THAT,** the minutes of the Public Works Committee meeting held on September 22, 2021 be approved as circulated."

**ADOPTED**

**4. ADDITIONS AND APPROVAL OF AGENDA**

**MOTION #PW-2021-78**

**MOVED BY:** K. Van Der Meer      **SECONDED BY:** S. Redmond

**"THAT,** the agenda be approved as presented."

**ADOPTED**

**5. DELEGATIONS (10 MINUTES)**

- i) Hwy 15 Entrance Concerns  
**Tom Bourne, Principal, Calvary Christian Academy/Calvary Christian High School**

Deferred.

**6. QUESTIONS OF THE DELEGATION FROM COUNCIL**

**7. PRESENTATIONS**

- i) FoodCycler Overview  
**Michelle Vala, Climate Environmental Coordinator**  
**Alex Hayman, Director of Strategic Solutions**  
**Christina Zardo, Manager of Municipal Solutions**

Page  
7 - 37

M. Vala presented a power point presentation, please see attached.

C. Zardo shared a power point presentation, please see attached.

Members of Council had a discussion regarding the presentation and directed staff to share with the Clerks of the local municipalities. The Committee had a discussion regarding inclusion of the initiatives in the 2022 budget deliberations.

CAO K. Greaves recommended that a standard dollar figure be included in the 2022 budget for consideration, in which the sub-committee could draw from throughout the year to fund initiatives, such as the FoodCycler program.

## **8. COMMUNICATIONS**

- i) Ontario Good Roads Association: Call for Nominations 2022-2023 Board of Directors
- ii) Town of Carleton Place: Request for Amendment to Lanark County By-Law 2015-30 Off Road Vehicles

### **MOTION #PW-2021-79**

**MOVED BY:** J. Fenik      **SECONDED BY:** S. Mousseau

"**THAT**, the communications for the October Public Works Committee meeting be received as information."

**ADOPTED**

### **MOTION #PW-2021-80**

**MOVED BY:** S. Redmond      **SECONDED BY:** B. Crampton

"**THAT**, staff prepare a report based on the request from the town of Carleton Place to amend Lanark County By-Law 2015-30, Off Road Vehicles."

**ADOPTED**

**9. CONSENT REPORTS**

**10. DISCUSSION REPORTS**

- i) Andrewsville Bridge RFP Results Page  
38 - 44

Staff was directed to share the Andrewsville Bridge RFP Results report with the "Friends of Andrewsville Bridge" group.

**MOTION #PW-2021-81**

**MOVED BY:** R. Scissons      **SECONDED BY:** S. Mousseau

"**THAT**, public works staff proceed with the RFP process to complete an EA study which would allow for the investigation of the preferred alternative option to address Andrewsville Bridge's future usage."

**ADOPTED**

- ii) County Road 19 Speed Limits New Info Update Page  
45 - 53

Council had a lengthy discussion regarding the proposed options presented by S. Derouin. Some concerns discussed included precedent setting and liability on the County.

Following points made by Warden Lowry, Council had a lengthy discussion about the process that has resulted in the request to amend the speed limits; with many noting they felt uncomfortable with it.

**MOTION #PW-2021-82**

**MOVED BY:** J. Hall      **SECONDED BY:** J. Fenik

"**THAT**, County Council approve a speed reduction on County Road 19 (Bennett Lake Rd.), as outlined in this report;

**AND THAT**, the Deputy Clerk prepares the necessary by-law, for presentation at the November 10 Meeting of County Council;

**AND THAT**, the Deputy Clerk sends Report #PW-34-2021 to the Lanark County OPP Detachment, for information."

**ADOPTED**

## **11. VERBAL REPORTS**

- |    |  |         |
|----|--|---------|
| i) | Report of the Lanark County Climate Action Committee | Page    |
|    |  | 54 - 74 |
|    | <b>Councillor John Fenik</b>                         |         |

### **MOTION #PW-2021-83**

**MOVED BY:** J. Fenik      **SECONDED BY:** K. Van Der Meer

"**THAT**, the Report of the Lanark County Climate Action Committee be received as information."

**ADOPTED**

### **MOTION #PW-2021-84**

**MOVED BY:** J. Fenik      **SECONDED BY:** B. Crampton

"**THAT**, the Public Works Committee recommend that Lanark County Council endorse the recommendation from the Lanark County Climate Action Committee in that the procurement of any replacement or new County fleet and/or equipment be electric in nature, when possible to align with the County's Climate Action Plan;

**AND THAT**, all local municipalities be encouraged to follow the lead with respect to electric purchases of fleet and equipment;

**AND THAT**, County Council and Staff remain mindful of 'Theme 9: Climate Change and Air Quality' (page 68) and 'Theme 11: Energy' (page 70) of the \* Integrated Community Sustainable Plan for Lanark County, adopted as part of the County Official



Plan in June 2012 during budget deliberations and when making capital and operational decisions for the corporation."

**ADOPTED**

**12. DEFERRED REPORTS**

**13. CONFIDENTIAL REPORTS**

**14. NEW/OTHER BUSINESS**

- i) FoodCycler Overview - *Discussion and/or Staff Direction*

**MOTION #PW-2021-85**

**MOVED BY:** S. Mousseau      **SECONDED BY:** B. Dobson

"**THAT**, Report #PW-32-2021, FoodCycler Pilot Program, be received as information;

**AND THAT**, a project fund for the Climate Action Committee be considered in the 2022 Budget Deliberations.;

**AND THAT**, requests to spend funds from the proposed 'project fund' be approved by Council through a report to the Public Works Committee."


**ADOPTED**

**15. ADJOURNMENT**

The Committee adjourned at 7:17p.m. on motion by Councillors Fournier and Scissons



Casey Whiticar, Deputy Clerk



# ANDREWSVILLE BRIDGE REPORT #PW-33-2021

## RESULTS OF RFP SUBMISSIONS FOR EA STUDY

Public Works Committee

October 27, 2021

Sean Derouin, Public Works Manager

MINUTES ITEM # 10.i)

# PURPOSE

- To provide the PW Committee with the results of the RFP submissions to complete an EA study on Andrewsville Bridge.

# BACKGROUND

- On August 25, 2021, the PW Committee agreed to proceed with advertising an RFP for an EA study on Andrewsville Bridge to investigate the preferred alternative options available to address the near end useful life of the Bridge, and for the results to be presented to the Committee for approval to proceed.
- The PW Committee also required confirmation that Leeds and Grenville will commit 50% of the required funds to proceed with the study.

# DISCUSSION

- A total of three submissions were received and Jewell Engineering was determined to be the most feasible bid.
- Leeds and Grenville has confirmed they will commit 50% of the required funds to complete the EA Study, and they already have an approved budget to do so.

# FINANCIAL IMPACT

- With a remainder of \$5.6K committed to Andrewsville Bridge, the total additional amount required to cover the County portion of the study =\$15K.
- With the EA taking place over 2 years, PW can accommodate the \$15K within the existing Engineering Budget.

# ANALYSIS & OPTIONS

1. Proceed with Award to Jewell Engineering to complete the EA Study
2. Do Nothing
3. Close bridge to traffic.

# STAFF RECOMMENDATION

- PW recommends proceeding with an RFP to complete an EA study to investigate the preferred alternative option to address Andrewsville Bridge's future usage.



# Bridge Inspection Report

## Andrewsville Bridge

**Road Name:** *Andrewsville Main St*  
**Site ID:** *B40*  
**Structure Type:** *Truss-Through*  
**Owner:** *County of Lanark*  
**Built:** *1900*  
**Length:** *47.7 m*  
**Width:** *5.1 m*  
**Spans:** *1*  
**Spans Arrange:** *38.5 (truss) 9.2 (girder)*  
**Feature Under:** *Water*  
**Crossing:** *Rideau River*  
**Location:** *500m west of County Rd 23*

**Inspection Date:** *July-05-21*  
**Inspector:** *Harold Kleywegt, P.Eng.*  
**Assistant:** *Kyle Davis, Eng Student*

**Comments:**

*This bridge has a 5 tonne load limit. It has a very high local value. A historical plaque was added by local residents in 2017. The bridge has outlived its normal service life. Biggest concern is the stability of the dry stone walls on the approaches. The approach railings are mangled. Need a plan to deal with partial collapse of dry stone wall. Approach barriers and bridge railings deficient to current standards. Bridge now closed seasonally from Dec 1 to March 31. Refer to 2021 wading inspection notes for additional information.*

**Recommended Investigations:**

*No Special Investigations Recommended*

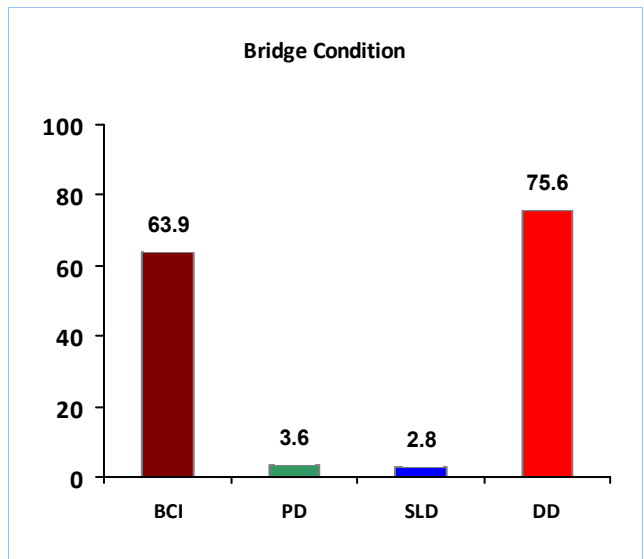
**Recommended Capital Works:**

*Decommission*

**Estimated Replacement Value:** *\$5,513,000*  
*Estimated replacement value is based on replacement in kind*  
**Estimated Remaining Service Life:** *5 Years*  
**Rehabilitation Year and Estimated Cost:** *2026 \$36,000*



**AADT:** *300*      **Latitude:** *44.95115000*  
**Lanes:** *1*      **Longitude:** *-75.81913300*  
**Skew:** *0 °*      **Orientation:** *N-S*  
**Speed:** *20 km/h*      **Road Width:** *4.4 m*  
**Trucks**      **Load Posting:** *5*



BCI = Bridge Condition Index MTO Calculation

PD = Parabolic Depreciation  
% retained value

SLD = Straight Line Depreciation  
% retained value

DD = Defects and Damage  
% loss of retained value



## Component Inspection Information

|                                   |  |  |
|-----------------------------------|--|--|
| <b>Timber-Laminated (1)</b>       | Defects <b>0.0%</b>  |  |
| <b>Approach Deck Surface</b>      | Damage <b>0.0%</b>   |  |
| Length: <b>9.2 m</b>              | Maintenance <b>None</b>  |  |
| Width: <b>5.5 m</b>               | Capital Rec. <b>None</b>   |  |
| Height: <b>0.15 m</b>             | <b>Good condition.</b>   |  |
| <hr/>                             |  |  |
| <b>Timber-Laminated (1)</b>       | Defects <b>0.0%</b>  |  |
| <b>Truss Deck Surface</b>         | Damage <b>1.0%</b>   | <b>Moderate Wear</b>                             |
| Length: <b>38.6 m</b>             | Maintenance <b>None</b>  |  |
| Width: <b>4.22 m</b>              | Capital Rec. <b>None</b>   |  |
| Height: <b>0.15 m</b>             | <b>Good condition. Some running boards are split and should be considered for replacement.</b>               |  |
| <hr/>                             |  |  |
| <b>Timber-Sawn (2)</b>            | Defects <b>20.0%</b>   | <b>Moderate UV Weathering, Moderate Checking</b> |
| <b>Running boards</b>             | Damage <b>5.0%</b>   | <b>Moderate Breakage</b>                         |
| Length: <b>47.7 m</b>             | Maintenance <b>Local repair</b>  |  |
| Width: <b>1 m</b>                 | Capital Rec. <b>None</b>   |  |
| Height:                           | <b>Some spot replacement should be considered.</b>   |  |
| <hr/>                             |  |  |
| <b>Timber Curb (2)</b>            | Defects <b>0.0%</b>  |  |
| <b>Curbs</b>                      | Damage <b>0.0%</b>   |  |
| Length: <b>47.7 m</b>             | Maintenance <b>Local repair</b>  |  |
| Width: <b>0.13 m</b>              | Capital Rec. <b>None</b>   |  |
| Height: <b>0.13 m</b>             | <b>Replaced in 2018. Bolts should be tightened to compensate for timber shrinkage.</b>                       |  |
| <hr/>                             |  |  |
| <b>Steel Pipe Ped Barrier (2)</b> | Defects <b>0.0%</b>  |  |
| <b>Approach Barrier</b>           | Damage <b>20.0%</b>  | <b>Major Deformation, Moderate Impact</b>        |
| Length: <b>100 m</b>              | Maintenance <b>Repair Minor Damage</b>   |  |
| Width:                            | Capital Rec. <b>None</b>   | <b>Perf Def: Weakened</b>                        |
| Height:                           | <b>Significant damage and settlement on north approach, east side. Settlement and tilting on south side.</b> |  |
| <hr/>                             |  |  |
| <b>Steel-Fabricated (2)</b>       | Defects <b>50.0%</b>   | <b>Moderate Corrosion</b>                        |
| <b>I-type - Approach Girders</b>  | Damage <b>5.0%</b>   | <b>Minor Section Loss</b>                        |
| Length: <b>9.2 m</b>              | Maintenance <b>None</b>  | <b>Partial Inspection</b>                        |
| Width: <b>0.2 m</b>               | Capital Rec. <b>None</b>   |  |
| Height: <b>0.46 m</b>             | <b>Much of coating is lost, with rust blisters on the lower flanges. NE corner web stiffened in 2018.</b>    |  |



## Component Inspection Information

|                                  |  |   |                           |
|----------------------------------|--|---|---------------------------|
| <b>Top Chord (2)</b>             | Defects <b>30.0%</b>   | <b>Minor Corrosion</b>  |                           |
| <b>Top chords</b>                | Damage <b>0.0%</b>   |   |                           |
| Length: <b>38.5 m</b>            | Maintenance <b>None</b>  |   |                           |
| Width: <b>0.33 m</b>             | Capital Rec. <b>None</b>   |   |                           |
| Height:                          | <i>Relatively benign environment means minimal section loss despite loss of coating.</i>   |   |                           |
| <b>Bottom Chord (2)</b>          | Defects <b>50.0%</b>   | <b>Minor Corrosion</b>  |                           |
| <b>Bottom Chords</b>             | Damage <b>5.0%</b>   | <b>Minor Section Loss</b>   |                           |
| Length: <b>38.5 m</b>            | Maintenance <b>None</b>  |   |                           |
| Width: <b>0.33 m</b>             | Capital Rec. <b>None</b>   |   |                           |
| Height:                          | <i>Significant coating failure. Bottom chord in NW corner strengthened in 2013. Wading inspection in 2016, 2018 and 2021.</i>  |   |                           |
| <b>Diagonal/Post/Hangar (30)</b> | Defects <b>40.0%</b>   | <b>Minor Corrosion</b>  |                           |
| <b>Verticals/diagonals</b>       | Damage <b>0.0%</b>   |   |                           |
| Length: <b>4 m</b>               | Maintenance <b>None</b>  |   |                           |
| Width: <b>0.15 m</b>             | Capital Rec. <b>None</b>   |   |                           |
| Height: <b>0.15 m</b>            | <i>Tie plates added to compression diagonals in 2013.</i>  |   |                           |
| <b>Steel Floor Beam (6)</b>      | Defects <b>60.0%</b>   | <b>Minor Corrosion, Moderate Corrosion</b>                                |                           |
| <b>I-type - Floor Beams</b>      | Damage <b>5.0%</b>   | <b>Minor Section Loss</b>   |                           |
| Length: <b>5 m</b>               | Maintenance <b>None</b>  |   | <b>Partial Inspection</b> |
| Width: <b>0.2 m</b>              | Capital Rec. <b>None</b>   |   |                           |
| Height: <b>0.5 m</b>             | <i>See wading inspection report of 2021. Some paint still intact.</i>  |   |                           |
| <b>Stringers (5)</b>             | Defects <b>60.0%</b>   | <b>Major Corrosion, Moderate Corrosion</b>                                |                           |
| <b>I-type - Stringers</b>        | Damage <b>20.0%</b>  | <b>Major Perforation, Moderate Section Loss</b>                           |                           |
| Length: <b>47.7 m</b>            | Maintenance <b>None</b>  |   | <b>Partial Inspection</b> |
| Width: <b>0.2 m</b>              | Capital Rec. <b>Repair in 2 years</b>  |   |                           |
| Height: <b>0.3 m</b>             | <i>Some stringer ends have been repaired with bolted extensions. Stringers at the west abutment replaced in 2016. Stringers on east approach span replaced in 2018. Two perforations detected on main truss stringers in 2021.</i> |   |                           |
| <b>RC Abutment Wall (1)</b>      | Defects <b>30.0%</b>   | <b>Moderate Leaching/Seepage, Moderate Scaling, Moderate AAR Cracking</b> |                           |
| <b>Abutment Stem</b>             | Damage <b>15.0%</b>  | <b>Major Disintegration</b>   |                           |
| Length:                          | Maintenance <b>None</b>  |   |                           |
| Width: <b>7 m</b>                | Capital Rec. <b>None</b>   |   |                           |
| Height: <b>2.2 m</b>             | <i>AAR related disintegration with leach staining and scaling.</i>   |   |                           |



## Component Inspection Information

|                                     |   |   |                           |
|-------------------------------------|---|---|---------------------------|
| <b>RC Ballast Wall (1)</b>          | Defects <b>0.0%</b>   |   |                           |
| <b>Ballast Walls</b>                | Damage <b>0.0%</b>  |   |                           |
| Length:                             | Maintenance <b>None</b>   |   | <b>Partial Inspection</b> |
| Width: <b>7 m</b>                   | Capital Rec. <b>None</b>  |   |                           |
| Height: <b>0.6 m</b>                | <b>No concerns noted.</b>   |   |                           |
| <b>RC Wing Walls (2)</b>            | Defects <b>50.0%</b>  | <b>Moderate Leaching Cracks, Moderate AAR Cracking</b>              |                           |
| <b>RC wingwall</b>                  | Damage <b>5.0%</b>  | <b>Minor Disintegration</b>   |                           |
| Length: <b>2.5 m</b>                | Maintenance <b>None</b>   |   | <b>Partial Inspection</b> |
| Width:                              | Capital Rec. <b>None</b>  |   |                           |
| Height: <b>1.25 m</b>               | <b>Serviceable.</b>   |   |                           |
| <b>Entire Pier (1)</b>              | Defects <b>40.0%</b>  | <b>Major AAR Cracking, Moderate Efflorescence, Moderate Scaling</b> |                           |
| <b>River Pier</b>                   | Damage <b>20.0%</b>   | <b>Major Disintegration</b>   |                           |
| Length: <b>2 m</b>                  | Maintenance <b>None</b>   |   |                           |
| Width: <b>8 m</b>                   | Capital Rec. <b>None</b>  |   |                           |
| Height: <b>2.2 m</b>                | <b>Top is experiencing severe disintegration especially at nosing. SE truss bearing may lose support in a few years.</b>              |   |                           |
| <b>Steel Sliding Plate (2)</b>      | Defects <b>0.0%</b>   |   |                           |
| <b>Bearings</b>                     | Damage <b>20.0%</b>   | <b>Moderate Section Loss</b>  |                           |
| Length:                             | Maintenance <b>None</b>   |   | <b>Partial Inspection</b> |
| Width:                              | Capital Rec. <b>None</b>  |   |                           |
| Height:                             | <b>Historically corroded.</b>   |   |                           |
| <b>Rocker or Roller Bearing (4)</b> | Defects <b>80.0%</b>  | <b>Moderate Corrosion, Checking</b>                                 |                           |
| <b>Roller bearing</b>               | Damage <b>20.0%</b>   | <b>Moderate Seizing</b>   |                           |
| Length:                             | Maintenance <b>Power Wash</b>   |   |                           |
| Width:                              | Capital Rec. <b>Replace in 1 year</b>   |   | <b>Perf Def: Seizing</b>  |
| Height:                             | <b>Bearings are covered in debris at pier and should be power washed. Nested roller bearings at west abutment are heavily rusted.</b> |   |                           |
| <b>Headwall (3)</b>                 | Defects <b>0.0%</b>   |   |                           |
| <b>Dry Stone Walls</b>              | Damage <b>20.0%</b>   |   |                           |
| Length: <b>40 m</b>                 | Maintenance <b>None</b>   |   |                           |
| Width:                              | Capital Rec. <b>Repair in 5 years</b>   |   | <b>Perf Def: Bulging</b>  |
| Height: <b>2.5 m</b>                | <b>See embankment comments.</b>   |   |                           |



## Component Inspection Information

|                              |  |  |
|------------------------------|--|--|
| <b>Water Channel (1)</b>     | Defects <b>0.0%</b>  |  |
| <b>Streams and Waterways</b> | Damage <b>0.0%</b>   |  |
| Length:                      | Maintenance <b>None</b>  |  |
| Width:                       | Capital Rec. <b>None</b>   |  |
| Height:                      | <i>Rapid current under bridge during spring conditions, Otherwise moderate current. Dam upstream. Boulderly bottom that has some localized scour. Significant scour adjacent west abutment.</i>  |  |
| <b>Embankment (1)</b>        | Defects <b>0.0%</b>  |  |
| <b>Embankments</b>           | Damage <b>15.0%</b>  | <b>Critical Local Instability</b> <span style="color: red;">■</span> |
|                              | Maintenance <b>Slope revetment</b>   |  |
|                              | Capital Rec. <b>Repair in 1 year</b>   | <b>Perf Def: Unstable</b>  |
|                              | <i>There is significant flow penetrating through the causeway on the south approach. The dry stone walls on the sides of the embankment have bulged on the east side. Frost action has loosened and disintegrated some of the stonework to a depth of 0.3 m. There is a strong possibility of partial collapse of in particular the east side of the causeway. This collapse could occur with little or no warning. Severe bulging of dry stone wall at NE quadrant, and is in serious condition. Water has partly undercut portions of wall on south approach. Sink hole developing in SW corner adjacent retaining wall noted in 2021. This could be due to scour effects.</i> |  |
| <b>Load Posting (4)</b>      | Defects <b>0.0%</b>  |  |
| <b>Signs</b>                 | Damage <b>0.0%</b>   |  |
| Length:                      | Maintenance <b>None</b>  |  |
| Width:                       | Capital Rec. <b>None</b>   |  |
| Height:                      | <i>Posting signs of 5 tonnes on both approaches. In 2013 clearance portals were installed at both approaches to restrict vehicles with a height more than 2.4 m from driving onto the bridge. The portal at the west end has already been struck several times. Most recent strike in June 2021 resulted in removal of west portal.</i>  |  |



## Capital Needs Cost Estimate Break-Down

| Item                     | Req'd | Units          | Quantity | Unit Price \$ | Estimated Cost |
|--------------------------|-------|----------------|----------|---------------|----------------|
| Misc Concrete Repairs    | X     | m <sup>2</sup> | 0.0      | \$960         | \$0            |
| Deck Concrete Overlay    | X     | m <sup>2</sup> | 243.3    | \$480         | \$0            |
| Deck Replacement         | X     | m <sup>2</sup> | 243.3    | \$3,000       | \$0            |
| Barrier Wall Replacement | X     | m              | 71.7     | \$3,600       | \$0            |
| Expansion Joint          | X     | m              | 10.2     | \$6,600       | \$0            |
| Waterproof & Pave        | X     | m <sup>2</sup> | 243.3    | \$264         | \$0            |
| Bearing Replacement      | X     | Count          | 4.0      | \$6,000       | \$0            |
| Approach Guide Rail      | X     | m              | 80.0     | \$300         | \$0            |

### Other Work

*Decommission* \$10,000

|   |                        |
|---|------------------------|
| <b>Structural Items Subtotal</b>                      | <b>\$10,000</b>        |
| <b>Mobilization General Sitework</b>                  | <b>\$10,000</b>        |
| <b>Estimated Traffic Management &amp; Civil Items</b> | <b>\$10,000</b>        |
| <b>Contract Admin &amp; Contingencies 20%</b>         | <b>\$6,000</b>         |
| <b>Total Rehabilitation Cost Estimate</b>             | <b><i>\$36,000</i></b> |

### Recommended Capital Work Summary

Recommended Capital Year **2026**

#### *Decommission*

### Inspection Comments

*This bridge has a 5 tonne load limit. It has a very high local value. A historical plaque was added by local residents in 2017. The bridge has outlived its normal service life. Biggest concern is the stability of the dry stone walls on the approaches. The approach railings are mangled. Need a plan to deal with partial collapse of dry stone wall. Approach barriers and bridge railings deficient to current standards. Bridge now closed seasonally from Dec 1 to March 31. Refer to 2021 wading inspection notes for additional information.*



Image 56



South elevation

Image 0



Railing over south retaining wall

Image 1



East abutment

Image 2



East span from south

Image 3



Pier north side

Image 4



North pier bearing



Image 8



Sinkhole in SW

Image 9



SW portal footing

Image 10



Pier

Image 11



Stringer 3 perforation in bay 5

Image 12



Looking west between stringers 2 and 3

Image 13



West abutment





Image 28



Stringer 2 perforation in bay 8

Image 29



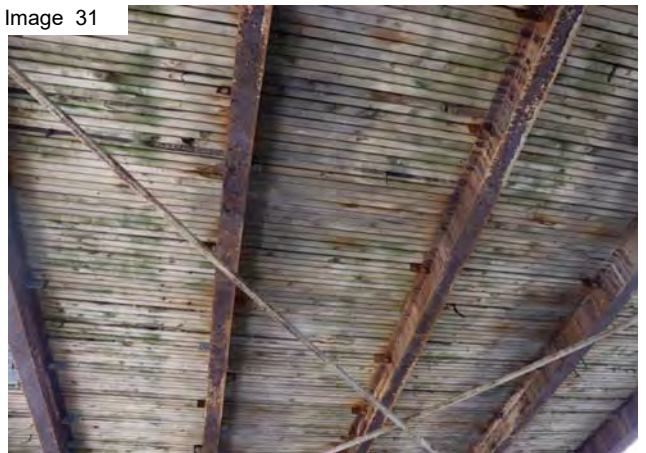
Bay 8 overview

Image 30



Bay 7 overview

Image 31



Bay 6 overview

Image 32



Bay 5 overview

Image 33



Bay 4 overview



Image 34



Bay 3 overview

Image 35



Bay 2 overview

Image 36



Deck boards detail

Image 37



South stringer condition in bay 6

Image 40



West approach

Image 41



NW bearing



Image 42



NW bottom chord end

Image 44



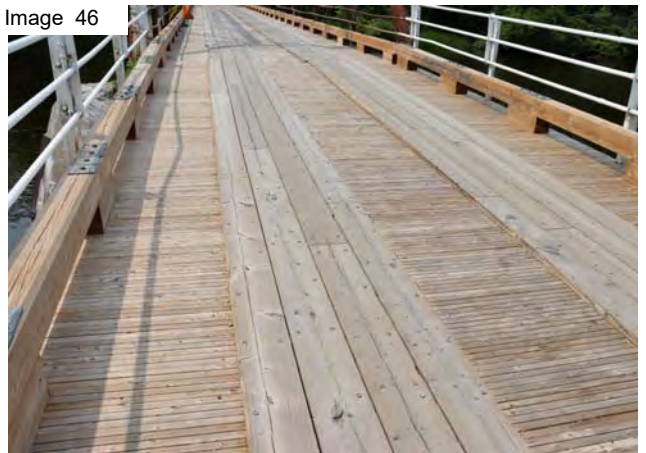
South retaining wall

Image 45



South retaining wall bulging

Image 46



East span deck surface

Image 47



East approach

Image 48



East abutment



Image 49



East span east soffit

Image 50



East span west soffit

Image 51



East abutment and causeway from south

Image 52



Pier east face

Image 53



NE girder end stiffening

Image 54



NE bearing



Image 973



NW approach railing

Image 974



NW portal base

Image 976



North truss

Image 977



Truss bracing

Image 978



Truss portal bracing

Image 979



New curbs (typical)



Image 980



South truss

Image 981



Deck surface on truss looking west

Image 982



Running boards damage

Image 984



South railing (typical)

Image 987



Typical bottom chord connection

Image 988



Pier top south side from west



Image 989



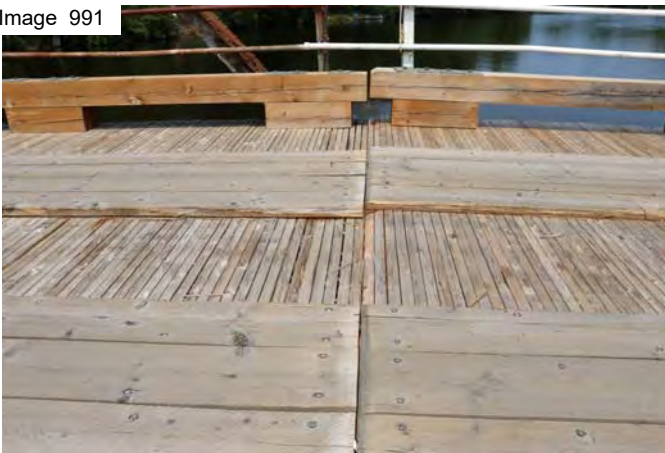
Pier top south side from east

Image 990



East deck end with gap

Image 991



Grade change and grade separation over pier

Image 992



Patching at east end

Image 993



North retaining wall

Image 994



Railing bottom undercutting in north retaining wall



Image 995



Culvert through causeway

Image 996



North retaining wall

Image 998



North retaining wall bulging

Image 999



Railing over north retaining wall





# APPENDIX L



## NOTICE OF STUDY COMMENCEMENT CLASS ENVIRONMENTAL ASSESSMENT FOR THE ANDREWSVILLE BRIDGE

The Counties of Lanark and Leeds and Grenville are undertaking a Municipal Class Environmental Assessment for the review of alternatives for the Andrewsville Bridge, located in the hamlet of Andrewsville, over the Rideau River, approximately 5km north of the Village of Merrickville. The options review is a priority for the Counties due to the bridge's age and condition, posted weight restriction and seasonal operation, and its potential cultural and heritage value. As part of the Environmental Assessment process, options for bridge reconstruction including the possible permanent decommissioning, will be reviewed to determine the preferred solution.

The project is being initiated in accordance with the latest edition of the Municipal Class Environmental Assessment Manual issued by the Municipal Engineers Association. The Municipal Class Environmental Assessment process applies to municipal infrastructure projects including road and bridge works. This project is proceeding as a Schedule 'B' undertaking in accordance with the Municipal Class Environmental Assessment Manual.

Public and agency consultation is an important component of the Environmental Assessment process. In addition to this notice, a Public Information Centre (PIC) will be planned where the public will be invited to review options, ask questions, and provide comments. The date and time of the PIC will be provided in the near future.

Subject to comments received and the receipt of necessary approvals, the Counties of Lanark and Leeds and Grenville intend to proceed with the planning, design, and implementation of the preferred alternative.

If you are interested in receiving further information on this project, please contact the following individuals:

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**Project Manager**  
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### **OWNER**

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**Public Works Manager**  
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This Notice issued April 13, 2022

## **NOTICE OF PUBLIC CONSULTATION CLASS ENVIRONMENTAL ASSESSMENT FOR THE ANDREWSVILLE BRIDGE**

This notice is to inform the public of the virtual **Public Consultation Centre (PCC)** in consideration of the Class Environmental Assessment (EA) processes to determine the preferred option for the future of the Andrewsville Bridge.

The Notice of Commencement was first published on April 13, 2022.

The Class EA requires public and stakeholder consultation, evaluation of alternatives, an assessment of potential impacts of the proposed alternatives and identification of measures to mitigate any adverse impacts. Upon completion of the study, an Environmental Study Report (ESR) documenting the process will be available for public review and comments for a period of 30 calendar days.

A virtual Public Consultation Centre (PCC) is planned for this Schedule B undertaking and information will be available online on the following County of Lanark's website at: [www.lanarkcounty.ca/andrewsvillebridge](http://www.lanarkcounty.ca/andrewsvillebridge).

Any person may visit the online PCC and address comments to the following email no later than December 2, 2022: [andrewsvillebridge@lanarkcounty.ca](mailto:andrewsvillebridge@lanarkcounty.ca)

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**MUNICIPAL CLASS ENVIRONMENTAL  
ASSESSMENT INFORMATION**

**ANDREWSVILLE BRIDGE  
FALL 2022**

# PROBLEM STATEMENT

THE ANDREWSVILLE BRIDGE HAS GREATLY EXCEEDED ITS ANTICIPATED SERVICE LIFE. WITH ONGOING CORROSION AND DETERIORATION POSING A RISK OF LOCALIZED FAILURES, THE ANDREWSVILLE BRIDGE HAS BEEN IDENTIFIED AS A PRIORITY FOR THE COUNTIES OF LANARK AND LEEDS AND GRENVILLE. THE COUNTIES HAVE THEREFORE COMMENCED THE PLANNING PROCESS TO IDENTIFY OPTIONS FOR THE FUTURE OF THE BRIDGE.



LOOKING EAST

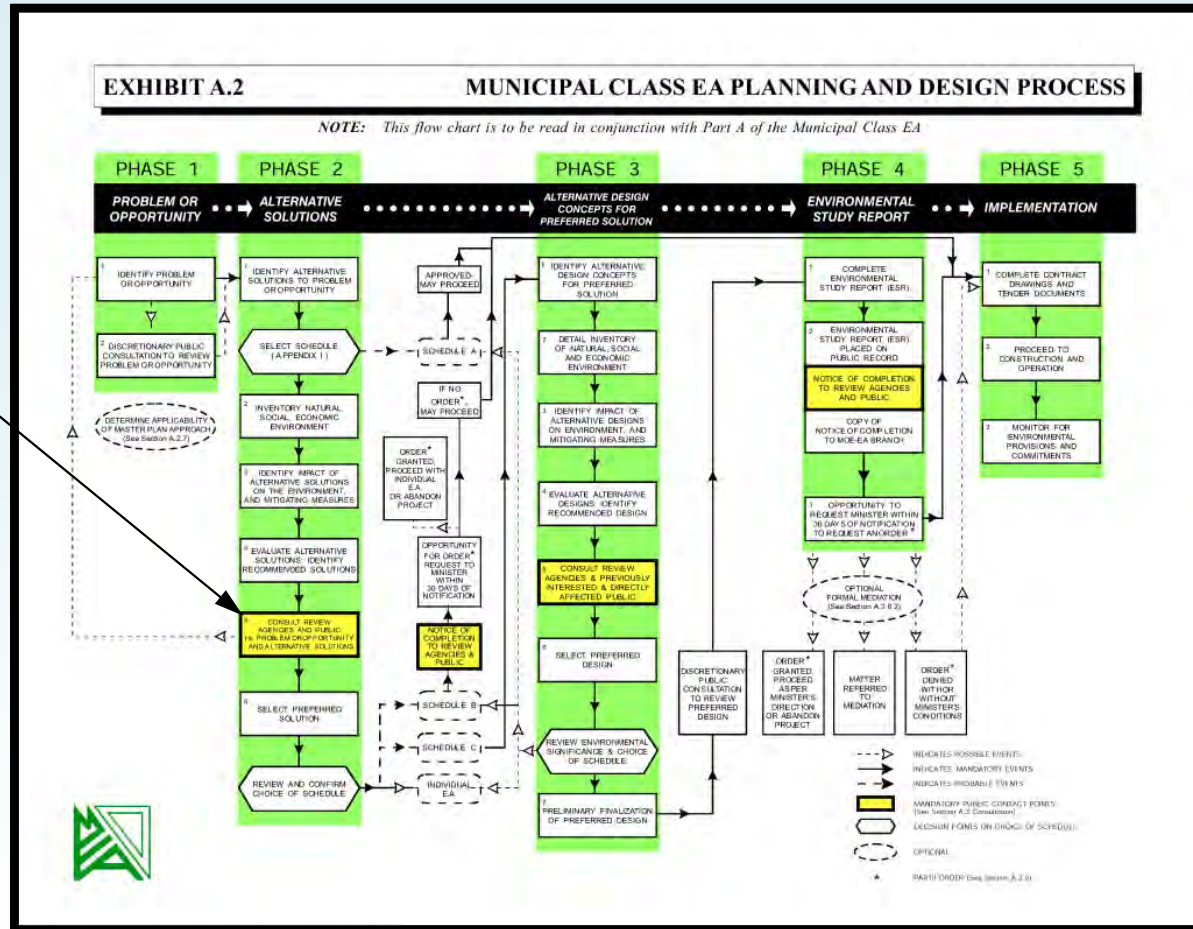


LOOKING WEST

# MUNICIPAL CLASS EA PROCESS

THE COUNTIES ARE CONDUCTING A SCHEDULE B MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR THE PROJECT, AS PER THE PROCESS BELOW:

WE ARE HERE IN THE PROCESS (CONSULT REVIEW AGENCIES AND REVIEW ALTERNATIVES)



# AERIAL VIEW OF PROJECT SITE



# EXISTING STRUCTURE

- THE BRIDGE ASSET PROVIDES ACCESS OVER THE RIDEAU RIVER AT ANDREWSVILLE, AND PROVIDES A SINGLE LANE OF TRAFFIC AND ACCESS TO THE ADJACENT PARKS CANADA SWING BRIDGE AT NICHOLSON'S LOCK
- HAS AN AVERAGE DAILY VEHICLE COUNT OF LESS THAN 200 AND A VEHICLE HEIGHT RESTRICTION DUE TO TRUSS MEMBERS
- ORIGINALLY CONSTRUCTED IN THE EARLY 1900'S, HAS UNDERWENT MANY UPGRADES AND REHABILITATIONS IN PAST SO THAT STRUCTURE CAN REMAIN OPEN TO TRAFFIC
- CURRENTLY A SEASONALLY OPERATED BRIDGE WITH A 5 TONNE LOAD RESTRICTION THAT UNDERGOES A DETAILED INSPECTION EACH YEAR TO CONFIRM CONDITION
- PREVIOUS INSPECTIONS HAVE INDICATED THE BRIDGE HAS OUTLIVED ITS EXPECTED SERVICE LIFE
- DETOUR LENGTH SOUTH FROM ANDREWSVILLE BRIDGE TO MERRICKVILLE – 12.4km – SEE FIG. 1 BELOW
- DETOUR LENGTH NORTH FROM ANDREWSVILLE BRIDGE TO BURRITTS AVE. – 9.3km – SEE FIG. 2 BELOW

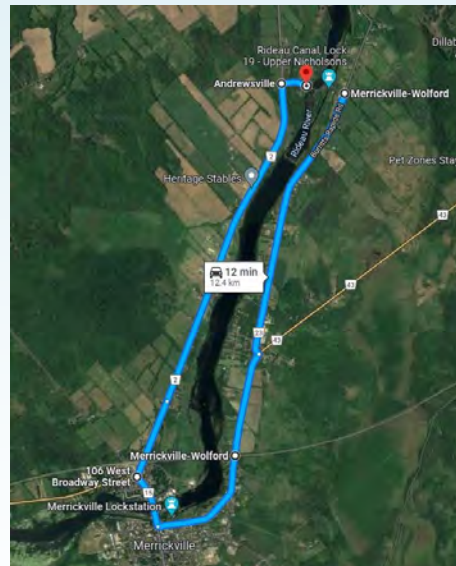


FIGURE 1: 12.4km, 12 MINS

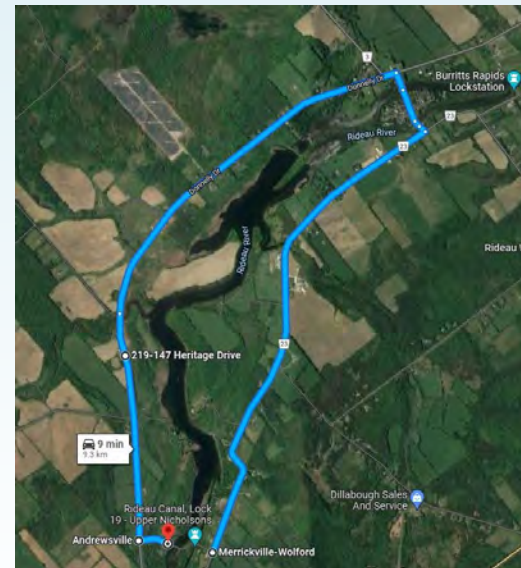


FIGURE 2: 9.3km, 9 MINS



# PROPOSED CONSTRUCTION OPTIONS

**THE FOLLOWING CONSTRUCTION OPTIONS ARE BEING CONSIDERED FOR THE BRIDGE:**

| OPTION | DESCRIPTION  | PRELIMINARY CONSTRUCTION COSTS |
|--------|--|--------------------------------|
| 1      | REHABILITATE THE EXISTING BRIDGE AND RECONSTRUCT/REPLACE THE APPROACH ROADWAYS AND DRY-STONE RETAINING WALL AS NECESSARY. WOULD INCLUDE MAINTAINING EXISTING WEIGHT AND HEIGHT RESTRICTIONS HOWEVER BRIDGE WOULD REMAIN OPEN ALL-YEAR. ANOTHER MAJOR REHABILITATION NOT EXPECTED FOR 25 YEARS. | \$2,000,000                    |
| 2      | CONSTRUCTION OF A NEW SINGLE LANE BRIDGE AND RECONSTRUCTION/REPLACEMENT OF DRY-STONE RETAINING WALLS. VEHICLES WOULD NOT BE RESTRICTED BY LOAD OR HEIGHT. SIGNIFICANT EFFORT AND COST TO OBTAIN APPROVALS REQUIRED PENDING FOUNDATION SCOPE AND LOCATION                                       | \$4,000,000                    |
| 3      | COMPLETE REMOVAL OF THE EXISTING BRIDGE STRUCTURE AND APPROACH RETAINING WALLS, NO NEW BRIDGE OR TURNING BASINS INCLUDED. ROAD WOULD BE CLOSED AND CROSSING RIVER AT ANDREWSVILLE NOT POSSIBLE.  | \$500,000                      |
| 4      | CONVERSION TO PEDESTRIAN BRIDGE. BRIDGE WOULD REMAIN WITH ACCESS MODIFICATIONS AT EACH END, SO THAT ONLY PEDESTRIANS CAN ENTER, NO MOTORIZED VEHICLES OF ANY TYPE. REGULAR BRIDGE INSPECTIONS AND MINOR MAINTENANCE WOULD BE REQUIRED INCLUDING SNOW REMOVAL IN WINTER.                        | \$50,000                       |
| 5      | DO NOTHING. CONTINUE WITH SEASONAL OPERATION OF BRIDGE WITH EXISTING WEIGHT RESTRICTION IN PLACE UNTIL BRIDGE IS DEEMED TO BE CLOSED – ESTIMATED TO BE NO LATER THAN YEAR 2027.  | \$0                            |

# PROS AND CONS OF ALTERNATIVES

| OPTION | DESCRIPTION  | PROS  | CONS   | OPTION SCORE |
|--------|--|---|--|--------------|
| 1      | REHABILITATE THE EXISTING BRIDGE AND ROADWAY APPROACHES, MAINTAIN CURRENT LOAD POSTING | <ul style="list-style-type: none"> <li>BRIDGE WILL REMAIN OPEN FOR A SIGNIFICANT PERIOD OF TIME</li> </ul>  | <ul style="list-style-type: none"> <li>SIGNIFICANT COST</li> <li>BRIDGE WILL STILL REQUIRE A LOAD RESTRICTION</li> </ul>                     | 4.1          |
| 2      | CONSTRUCTION OF A NEW SINGLE LANE BRIDGE AND RECONSTRUCTION OF APPROACH RETAINING WALL | <ul style="list-style-type: none"> <li>BRIDGE WILL REMAIN OPEN FOR AT LEAST 75 YEARS</li> </ul>   | <ul style="list-style-type: none"> <li>SIGNIFICANT COST</li> <li>MOST EXPENSIVE OPTION</li> </ul>  | 4.3          |
| 3      | COMPLETE REMOVAL OF THE EXISTING BRIDGE STRUCTURE AND APPROACH ROADWAY                 | <ul style="list-style-type: none"> <li>LESS COSTLY THAN OPTIONS 1 AND 2</li> </ul>  | <ul style="list-style-type: none"> <li>CLOSURE TO ALL VEHICLES AND PEDESTRIANS</li> </ul>  | 5.0          |
| 4      | CONVERSION TO PEDESTRIAN BRIDGE  | <ul style="list-style-type: none"> <li>LOW COST</li> <li>MAINTAINS ACCESS FOR PEDESTRIANS</li> </ul>  | <ul style="list-style-type: none"> <li>CLOSURE OF BRIDGE TO ALL VEHICLES</li> </ul>  | 7.2          |
| 5      | DO NOTHING, EVENTUALLY CLOSE BRIDGE  | <ul style="list-style-type: none"> <li>NO PRESENT DAY CONSTRUCTION COSTS</li> <li>MAINTAINS VEHICLE ACCESS FOR VEHICLES FOR TIME BEING AND FOR PEDESTRIANS/CYCLISTS FOR A PERIOD OF TIME THEREAFTER</li> <li>LOWEST COST</li> </ul> | <ul style="list-style-type: none"> <li>LOAD RESTRICTION REMAINS</li> <li>EVENTUAL BRIDGE CLOSURE TO VEHICLES AND THEN PEDESTRIANS</li> </ul> | 6.7          |

# PREFERRED OPTION

**DUE TO THE SIGNIFICANT COST TO REHABILITATE THE BRIDGE THAT WOULD INCLUDE A LOAD POSTING, AND THE SIGNIFICANT COST OF A COMPLETE BRIDGE AND WALL REPLACEMENT, COMBINED WITH THE LOW TRAFFIC VOLUME, THE COUNTIES' PREFERRED ALTERNATIVE IS OPTION 4, BEING THE CLOSURE OF THE BRIDGE TO ALL VEHICLE TRAFFIC AND CONVERSION TO A PEDESTRIAN BRIDGE. THIS OPTION WOULD INCLUDE THE FOLLOWING:**

- **CONTINUED SEASONAL OPERATION OF THE BRIDGE INCLUDING ANNUAL ENHANCED INSPECTION OF THE COMPLETE BRIDGE, BY A PROFESSIONAL ENGINEER**
- **IT IS ESTIMATED THE BRIDGE WILL FUNCTION IN THIS MANNER FOR ANOTHER 4 – 5 YEARS UNTIL IT IS RECOMMENDED FOR CLOSURE TO PUBLIC VEHICLES BY THE ENGINEER UPON INSPECTION.**
- **UPON CLOSURE TO ALL PUBLIC VEHICLES, THE BRIDGE WILL UNDERGO MINOR MODIFICATIONS INCLUDING THE INSTALLATION OF BARRIERS AT EACH END TO PREVENT MOTORIZED VEHICLES FROM CROSSING THE BRIDGE. OTHER MINOR STRUCTURAL REPAIRS MAY BE REQUIRED AT THAT TIME AS WELL.**
- **ONGOING IN THE FUTURE, CONTINUING INSPECTION OF BRIDGE AND APPROACH RETAINING WALLS WILL BE REQUIRED, AT THE INTERVAL RECOMMENDED BY THE INSPECTION ENGINEER, IN ADDITION TO SNOW REMOVAL FROM THE BRIDGE DECK AND APPROACHES.**

# NEXT STEPS



- RECEIVE AND REVIEW ANY ADDITIONAL COMMENTS FROM AGENCIES AND GROUPS OF INTEREST
- PUBLISH EA NOTICE OF COMPLETION ADVERTISEMENT
- CONTINUED SEASONAL VEHICLE OPERATION OF BRIDGE WITH EXISTING WEIGHT RESTRICTION IN PLACE UNTIL SUCH TIME THAT ANNUAL INSPECTION DETERMINES BRIDGE SHOULD BE PERMANENTLY CLOSED TO ALL PUBLIC VEHICLES
- IMPLEMENTATION OF PREFERRED ALTERNATIVE, OPTION 4, INCLUDING CONTINUED BRIDGE INSPECTIONS AND ONGOING MAINTENANCE PROTOCOLS, AS REQUIRED.
- ESTIMATED THE IMPLEMENTATION OF CONVERSION TO PEDESTRIAN BRIDGE TO OCCUR IN 5 YEARS TIME