



NOTICE

THE MAYOR HAS CALLED

A SPECIAL MEETING OF COUNCIL

AT 6:30 P.M.

TUESDAY, DECEMBER 11, 2018

IN COUNCIL CHAMBERS, CIVIC SQUARE

TO CONSIDER ANY CORRESPONDENCE, REPORTS, AND BY-LAWS

**Carmela Radice,
Acting City Clerk**



SPECIAL COUNCIL MEETING AGENDA
Tuesday, December 11, 2018
COUNCIL CHAMBERS – CIVIC SQUARE

1. **COMMITTEE-OF-THE-WHOLE (IN-CAMERA)**
 - Labour relations or employee negotiations.
 - *ATU Negotiations.*
2. **ARISE FROM COMMITTEE-OF-THE-WHOLE (IN-CAMERA) (6:45 P.M.)**
3. **OPEN SPECIAL COUNCIL MEETING (6:45 p.m.)**
 - 3.1 **ADDITIONS/DELETIONS TO AGENDA**
 - 3.2 **CALL UPON THE CITY CLERK TO REVIEW COMMITTEE-OF-THE-WHOLE ITEMS (IN-CAMERA) TO BE ADDED TO BLOCK**
 - 3.3 **DISCLOSURES OF INTEREST**
 - 3.4 **COUNCILLORS TO DETERMINE AGENDA ITEMS AND BY-LAWS TO BE REMOVED FROM BLOCK FOR DISCUSSION IN COMMITTEE-OF-THE-WHOLE (OPEN) (See pink tab)**
4. **ORAL REPORTS AND DELEGATIONS**
 - 4.1 **PRESENTATION(S) - Nil**
 - 4.2 **DELEGATION(S) (maximum 5/10/5 policy) - Nil**
 - 4.3 **AGENCIES, BOARDS, COMMISSIONS AND COMMITTEE REPORT(S) - Nil**
5. **BY-LAWS**

18-15 A By-law to authorize the entering into a collective agreement with the Welland Professional Fire Fighters Association for the period commencing January 1st, 2015 to December 31st, 2018. Ref. No. 18-15.
7. **CONFIRMATORY BY-LAW**

A By-law to adopt, ratify and confirm proceedings of the Council of the Corporation of the City of Welland at its meeting held on the 11th day of December, 2018.
Ref. No. 18-1
8. **ADJOURNMENT**



SPECIAL COUNCIL MEETING AGENDA INDEX

*Tuesday, December 11, 2018
6:30 P.M.
COUNCIL CHAMBERS – CIVIC SQUARE*

Page No.

AGENDA BLOCK

1. **BUSINESS ARISING FROM MINUTES, PREVIOUS MEETINGS AND OTHER ITEMS REFERRED FROM COUNCIL FOR DISCUSSION - Nil**

2. **COMMITTEE AND STAFF REPORTS**

1. **Business Arising from Committee-of-the-Whole (closed) - Nil**

2. **Staff Reports**

1 - 3 **HR-2018-04** Gen. Mgr., Human Resources and Legislative Services,
R. Mantesso – Municipal Officer's Expense Allowance
Ref. No. 18-14.




3. **NEW BUSINESS - Nil**

4. **BY-LAWS**

MAY BE VIEWED IN THE CLERK'S DIVISION PRIOR TO THE MEETING IF DESIRED.

1. A By-law to authorize the entering into a collective agreement with the Welland Professional Fire Fighters Association for the period commencing January 1st, 2015 to December 31st, 2018. Ref. No. 18-15
(See Report HR-2018-04)

COUNCIL
HUMAN RESOURCES DEPARTMENT

| APPROVALS | |
|--------------------|---|
| GENERAL MANAGER |  |
| CFO |  |
| CAO |  |

REPORT HR-2018-04
DECEMBER 11, 2018

SUBJECT: MUNICIPAL OFFICERS' EXPENSE ALLOWANCE

**AUTHOR: GEORGETA IVANESCU,
PAYROLL MANAGER**

**APPROVING G.M.: ROSANNE MANTESSO,
GENERAL MANAGER, HUMAN RESOURCES & LEGISLATIVE
SERVICES**

RECOMMENDATION:

THAT THE COUNCIL OF THE CITY OF WELLAND approves the remuneration of the Mayor and Council to fully taxable, to ensure the same net pay as outlined in staff report HR-2018-04;
AND FURTHER, That Welland City Council approves increasing the Council stipends for Chairs and Vice Mayor positions as summarized in staff report HR-208-04.

ORIGIN AND BACKGROUND:

The 2017 Federal Budget eliminated the current provision which allows for the payment of a tax free municipal officers' expense allowance. The current provision has resulted in one-third of a Council Member's remuneration to be considered a non-taxable allowance. The elimination of this provision comes into effect January 1st, 2019.

Currently, the Mayor receives an annual remuneration of \$54,500, with \$18,167 being tax free. A Councillor receives an annual remuneration of \$15,959, with \$5,319.67 being tax free. There is an approved increase of 1.5% of the gross wages for the year 2019.

COMMENTS AND ANALYSIS:

Staff have prepared an analysis of the impact of this change to both the members of Council and to the City. The analysis looks at two different scenarios: one where gross pay remains the same as current and one where net pay remains the same as current. The chart on the following page outlines the results of the review.

Changing Council Remuneration Structure - Fully Taxable, Starting January 1, 2019

| | Existing Salaries (1/3 Tax Exempt) | | Impact of the elimination of 1/3 tax free exemption | | Recommended salaries to achieve the same Net Pay | |
|--|---------------------------------------|------------|---|------------|--|------------|
| | Mayor | Councillor | Mayor | Councillor | Mayor | Councillor |
| Annual Remuneration | 55,318.00 | 16,199.00 | 55,318.00 | 16,199.00 | 55,318.00 | 16,199.00 |
| Additional Salary for Equal Net Pay | | | | | 16,422.00 | 2,426.00 |
| Taxable Earnings | 36,878.00 | 10,799.33 | 55,318.00 | 16,199.00 | 71,740.00 | 18,625.00 |
| Non-taxable Earnings | 18,440.00 | 5,399.67 | | | | |
| Total Gross Pay: | 55,318.00 | 16,199.00 | 55,318.00 | 16,199.00 | 71,740.00 | 18,625.00 |
| Estimated Deductions: | | | | | | |
| Income tax | 4,240.97 | 0.00 | 9,378.36 | 781.37 | 15,676.00 | 1,300.00 |
| CPP | 1,702.28 | 372.27 | 2,642.72 | 647.65 | 2,748.90 | 770.00 |
| OMERS | 3,319.02 | 971.94 | 4,978.62 | 1,457.91 | 7,260.10 | 1,700.00 |
| Net Pay | 46,055.73 | 14,854.79 | 38,318.30 | 13,312.07 | 46,056.00 | 14,855.00 |
| Change in Net Pay | | | -7,737.43 | -1,542.72 | 0.27 | 0.21 |

If gross pay remains the same, the Mayor will see a reduction in net pay of approximately \$7,737 and an individual Councillor will see an estimated reduction in net pay of \$1,542. The costs to the City on an annual basis will increase by approximately \$18,830.97, as a result of additional costs with CPP, OMERS and EHT. In addition, the City will lose the current HST rebate it claims for the one-third tax free allowance.

In order to ensure net pay remains the same, an increase of \$16,422 would be applied to the Mayor's salary and an increase of \$2,426 would be applied to each Councillor's salary. Under this scenario, the total salary budget for Mayor and Council would increase approximately \$72,012.

The stipends for the Corporate Services Chair, Infrastructure & Development Services Chair and Human Resources Committee Chair, as well as Vice Mayor require adjustment to maintain the same net pay as per the chart on page 3.

Chairs and Vice-Mayor Stipends

| | Existing Stipends | Recommended Stipends to achieve the same Net Pay |
|-------------------------------------|--------------------------|---|
| Integrated Services Committee Chair | \$1,710 | \$2,100 |
| Finance Committee Chair | \$1,710 | \$2,100 |
| Human Resource Committee Chair | \$1,710 | \$2,100 |
| Vice-Mayor | \$3,420 | \$4,200 |

FINANCIAL CONSIDERATION:

If Council chooses to maintain the same net pay, staff have included \$72,012 into the 2019 operating budget.

OTHER DEPARTMENT IMPLICATIONS:

The Payroll division will make the necessary changes in the payroll system as per Council's decision.

SUMMARY AND CONCLUSION:

If Council approves the recommendation to maintain the same net pay, the impact on the budget would be minimal.



GENERAL COMMITTEE

Tuesday, December 11, 2018
COUNCIL CHAMBERS - CIVIC SQUARE

Meeting Number 2018 - 10

1. **OPEN GENERAL COMMITTEE MEETING FOLLOWING THE SPECIAL COUNCIL MEETING.**
 - 1.1 **CALL TO ORDER BY VICE MAYOR LEO VANVLIET**
 - 1.2 **ADDITIONS/DELETIONS TO AGENDA**
 - 1.3 **DISCLOSURES OF INTEREST**
 - 1.4 **ADOPTION OF MINUTES**

General Committee Meeting of June 12, 2018.
 - 1.5 **ITEMS TO BE REMOVED FROM BLOCK FOR DISCUSSION IN COMMITTEE-OF-THE-WHOLE (OPEN) (See blue tab)**

2. **VERBAL REPORTS AND DELEGATIONS**
 - 2.1 **PRESENTATIONS**

09-159 Erik Nickel, Gen. Mgr. Infrastructure and Development Services and City Engineer and Chris Anders, Manager of Engineering Services Infrastructure and Development Services re: Update Forks Road Bridge. **(Background information provided in Council members packages).**
 - 2.2 **DELEGATIONS (MAXIMUM 5/10/5 RULE)**

09-159 Community Group re: Forks Road Bridge
 - 2.3 **AGENCIES, BOARDS, COMMISSIONS AND COMMITTEES REPORT(S) – Nil**

3. **COMMITTEE-OF-THE-WHOLE (OPEN)**
(Discuss items removed from Agenda Block)

4. **ADJOURNMENT**



GENERAL COMMITTEE

Tuesday, December 11, 2018
COUNCIL CHAMBERS - CIVIC SQUARE

Meeting Number 2018 - 10

Page No.

AGENDA BLOCK

1. BUSINESS ARISING FROM MINUTES, PREVIOUS MEETINGS AND OTHER ITEMS REFERRED FROM COUNCIL FOR DISCUSSION - Nil




2. STAFF REPORTS

Traffic/Parking/By-laws Division

- 1 - 4** **TRAF-2018-20** Gen. Mgr., Infrastructure and Development Services/City Engineer,
E. Nickel – Update to Exotic Animal By-Law. Ref. No.06-156
- 5 - 14** **ENG-2018-32** Gen. Mgr., Infrastructure and Development Services/City Engineer,
E. Nickel – Forks Road Bridge. Ref. No.09-159

3. NEW BUSINESS - Nil

1
GENERAL COMMITTEE
INFRASTRUCTURE AND DEVELOPMENT SERVICES
TRAFFIC DIVISION

| APPROVALS | |
|-----------------|---|
| GENERAL MANAGER |  |
| CFO |  |
| CAO |  |

REPORT TRAF-2018-20
DECEMBER 11, 2018 06-156

SUBJECT: UPDATE TO EXOTIC ANIMAL BY-LAW

AUTHOR: MUHAMMAD ALI KHAN, M.A.Sc., P. ENG.
SUPERVISOR, TRAFFIC, PARKING & BY-LAWS

APPROVING MANAGER: CHRIS ANDERS, P. ENG
MANAGER, ENGINEERING SERVICES

APPROVING G.M.: ERIK NICKEL, P. ENG.,
GENERAL MANAGER, INFRASTRUCTURE AND DEVELOPMENT SERVICES / CITY ENGINEER

RECOMMENDATIONS:

THAT THE COUNCIL OF THE CITY OF WELLAND receives for information **REPORT TRAF-2018-20** Update to Exotic Animal By-law; and further

THAT Welland City Council directs the City Clerk to amend the recitals of the Exotic Animals By-law 7540, in accordance with new/ updated legislation.

THAT Welland City Council directs the City Clerk to amend Exotic Animal By-law 7540 as follows:

DELETE Section 1. (1) and (2) and Section 3

RENAME Section 2. to Section 2 – EXEMPTIONS

DELETE the following from Section 2:

2. This by-law does not apply to prohibit the keeping of any animal of the kind described in Section 1 above in the following places or circumstances:

ADD the following to Section 2 – EXEMPTIONS

2. This by-law does not apply to prohibit the keeping of any animal of the kind described in Section 3 in the following places or circumstances:

ADD Section 1 – DEFINITIONS

ADD the following to Section 1 – DEFINITIONS

“Animal Control Officer” means an employee or agent of the Welland and District Humane Society, authorized for the purpose of enforcing and carrying out the provisions of this By-law;

"Animal" means any member of the animal kingdom, other than a human as so defined in Section 11.1 of the act;

ADD Section 3 – GENERAL PROVISIONS

ADD the following to Section 3 – GENERAL PROVISIONS

- (1) Except as hereinafter provided, the keeping of any kind of exotic and non-domesticated animal that is, or may be, injurious to human health, on private property, for sale, for exhibition, as a pet or for any other purpose, is hereby prohibited in the City of Welland.
- (2) Without limiting the generality of Section 3 (1) above, the animals of this kind listed in Schedule "A" attached hereto and forming part of this by-law shall be deemed to be exotic and non-domestic kinds of animals that are or may be injurious to human health.

ADD Section 4 – RIGHT OF ENTRY

ADD the following to Section 4 – RIGHT OF ENTRY

- (1) An Animal Control Officer may at all reasonable times, enter upon any land for the purpose of carrying out an inspection to determine whether or not this By-law is being contravened.

ADD Section 5 - ISSUE OF AND COMPLIANCE WITH NOTICE

ADD the following to Section 5 - ISSUE OF AND COMPLIANCE WITH NOTICE

- (1) An Animal Control Officer may issue a notice of removal with respect to any prohibited animal found on the premises or at large, setting out the time and date by which such animals shall be removed from the premises.

ADD Section 6 - SEIZURE OR SURRENDER

ADD the following to Section 6 – SEIZURE OF SURRENDER

- (1) An Animal Control Officer may take into its possession any animal listed in Schedule 'A' that may be seized or surrendered to him by the owner.

ADD Section 7 – PENALTY

ADD the following to Section 7 – PENALTY

- (1) Any person who contravenes this By-law is guilty of an offence and is liable, upon conviction, to a penalty in accordance with the Provincial Offences Act.

DELETE the following from Schedule "A"

1. All Marsupials (such as, Kangaroos and Opossums)
14. All Snakes of the families Pythonidae and Boidae

21. All Families of venomous Spiders.

ADD the following to Schedule "A"

1. All Marsupials (such as, Kangaroos and Opossums); except Sugar Gliders.

14. All snakes which reach an adult size of more than 3 meters in length.

21. All venomous arachnids except all species of Tarantulas.

22. All lizards which reach an adult size of more than 2 meters in length.

ADD Schedule "B" – Set Fine Schedule

ADD the following to Schedule "B" – Set Fine Schedule

| <u>ITEM</u> | <u>COLUMN 1</u> Short Form Wording | <u>COLUMN 2</u> Offence creating provision or defining offence | <u>COLUMN 3</u> Set Fine |
|-------------|---|---|-----------------------------|
| 1 | Keeping of prohibited animal on premises (per animal) | Section 3(1) | \$200.00 |
| 2 | Sell, offer for sale or display for sale any prohibited animal (per animal) | Section 3(1) | \$200.00 |
| 3 | Failing to comply with Notice to remove (per animal) | Section 5(1) | \$300.00 |

ORIGIN AND BACKGROUND:

At the July 24, 2018 meeting of Council, the following motion was passed:

"THAT Welland City Council receives for information the presentation by Vincent Librock, OWREB certified custodian/operator of a sanctuary for exotics and pet store regarding the City's exotic animal's By-law; and further

"That Welland City Council refers the presentation to staff for a report back to a General Committee meeting."

COMMENTS AND ANALYSIS:

Mr. Librock, in his presentation to City Council requested that the City's Exotic Animal By-law be amended to allow Sugar Gliders, snakes and Tarantulas.

To address Mr. Librock's request, City staff met with SPCA staff, researched the matter and contacted various other municipalities about their experience. As a result, the provision prohibiting Squamata (lizards and snakes) has been revised to permit all constrictors less than 3 metres in length as they do not present a danger. According to SPCA staff, implementing this rule would address any safety hazards as nonvenomous

snakes under three meters and non-venomous lizards under 2 meters are captive bred and docile.

Sugar Gliders will be permitted as they have been kept as pets for multiple generations, are easily kept in captivity, all specimens available from the trade come from captive-breeding operations, they pose no threat to native ecosystems, and information as to their care is readily available.

Staff also researched the issue of allowing Tarantulas, consulted with other municipalities, SPCA staff, and are comfortable with permitting tarantulas.

In addition to the requests by Mr. Librock, Staff felt it was necessary to update and add additional sections to the By-law to ensure Enforcement Staff can effectively and efficiently enforce the By-law when needed. With the addition of short form wording in Schedule B, Enforcement Staff will be able to issue a ticket to an offender instead of bring the offender before a Justice of the Peace.

FINANCIAL CONSIDERATION:

There are no financial implications related to this report.

OTHER DEPARTMENT IMPLICATIONS:

Legal Services and the Clerks Department would be required to update the By-laws with the changes noted in this report.



SUMMARY AND CONCLUSION:

Proposed updates are required to ensure the appropriate wording and regulations are in place for the Welland SPCA staff to enforce effectively and efficiently. This report has been discussed with Welland SPCA staff and Mr. Librock and they are in agreement with the changes.

ATTACHMENTS:

None.

GENERAL COMMITTEE
INFRASTRUCTURE AND DEVELOPMENT SERVICES
ENGINEERING DIVISION

| APPROVALS | |
|-----------------|---|
| GENERAL MANAGER |  |
| CFO | |
| CAO |  |

09-159

REPORT ENG-2018-32
DECEMBER 11, 2018

SUBJECT: FORKS ROAD BRIDGE

**AUTHOR: CHRIS ANDERS, P. ENG.,
MANAGER OF ENGINEERING SERVICES**

**APPROVING G.M.: ERIK NICKEL, P. ENG.,
GENERAL MANAGER, INFRASTRUCTURE AND
DEVELOPMENT SERVICES / CITY ENGINEER**

RECOMMENDATIONS:

THAT THE COUNCIL OF THE CITY OF WELLAND receive for information REPORT ENG-2018-32 Forks Road Bridge Update.

ORIGIN AND BACKGROUND:

The Forks Road bridge was designed in 1928 and constructed in 1930, to provide vehicle passage over the canal. The bridge remained in service until 1973 when the lift operation was decommissioned due to the opening of the Welland by pass canal. The bridge has been modified from its original lift bridge design. In 1997 the towers and counter weights were removed as they were no longer needed, leaving the bridge in its present state. The ownership of the bridge was transferred from the Seaway to the Region and to the City of Welland in 2000.

The City of Welland has completed inspections of the bridge every two years as required. During the 2016 inspection it was noted that the rate of corrosion had increased and the bridge was no longer able to carry the posted load. Emergency repairs were completed with the goal of extending the life of the bridge to 2020 when it was budgeted to be replaced.

During the 2018 inspection it was noted that the corrosion has continued to occur at an accelerated rate. The temporary repairs completed in 2016 were no longer sufficient to carry the posted load limit. It was determined that the structure had very little life left. There was concern about the impact of winter operations on the corrosion of the bridge, the continued effects of corrosion and the effect of overweight vehicles driving over the bridge. It is for these reasons, the bridge was closed to vehicular traffic on November 2, 2018.

COMMENTS AND ANALYSIS:

In 2010, Ellis Engineering Inc. completed a load capacity evaluation (LCE). The LCE indicated that a load limit posting was not required and the east expansion joint should be reinstated. The inspection also indicated that significant maintenance will be required shortly if the bridge is to remain in service.

Ellis also looked at three scenarios for the future of the structure, which included:

- 1) Rehabilitation of the structure
- 2) Replacement in five years
- 3) Replacement in ten years

Each alternative was evaluated using a Net Present Value (NPV) financial analysis using MTO software over a 75 year period to determine the most desirable alternative.

2010 Study Results

The conclusion of the 2010 study stated that rehabilitation of the 80 year old structure would prove to be a wasteful venture. Maintenance costs would increase as the structure continues to age and maintenance work would have to be done more frequently. Cost estimates for continued maintenance for the life expectancy of the bridge were developed. Rehabilitation was ruled out as a viable solution, given the extent of the total cost of future maintenance versus replacement costs for a low maintenance replacement alternative.

Replacement of the bridge in 5 years or 10 years would give the City a new structure that will last the full 75 year design life with scheduled maintenance throughout its life. The costs for replacement and maintenance of a new structure are much easier to forecast than those of an aging structure. Replacing the bridge in 10 years provided the lowest NPV costs. The structure appeared to be in good condition and it was thought that it could last another 10 years. It is for these reasons replacement in 10 years (2020) was selected as the recommended solution.

Ellis also recommended that the structure be monitored for further deterioration and another LCE be completed in 5 years. If severe corrosion became evident, the structure may require repairs or re-analysis.

2016 Study Results

During the 2016 inspection, severe loss of the cross-sectional area on structural steel members was noted. A close up inspection was completed and it found additional areas of severe loss of cross-sectional area on numerous primary structural steel components. It was recommended that the bridge be closed so emergency repairs could be completed. It was also recommended that a load limit be placed on the bridge and another close up inspection be completed in 2018. The repairs were completed in May 2016, with the goal of extending the bridge's life to 2020.

Ellis also looked at the option of filling the canal so the approach slabs would be supported by soil and not a bridge span. This option is not financially feasible, as it would require the replacement of the existing piers. The existing piers are designed to carry a vertical load and not the horizontal loading that soil would place on them. This would also require an Environmental Assessment during the design process.

In 2016, Ellis also looked at 11 different alternatives for the bridge, which included 8 types of bridges, 2 options for making it a pedestrian only bridge and 1 for demolishing the existing structure. Each alternative was analyzed using a NPV calculation.

The results of the analysis found that the most economical solution for the replacement of the bridge would be the construction of a new slab on steel girder bridge utilizing the existing

foundation piers. It was recommended that further testing of the piers be completed to ensure they are sound. The cost of this option was approximately \$11.7 M (2016).

The cost to remove the structure, reinstate the embankments, and cut and cap the piers was estimated to be \$3.5M (2016). Staff estimate that a lower cost removal option without pier cutting/capping and minimal embankment reinstatement may be possible. This option is under review.

2018 Study Results

During the 2018 inspection, it was noted that the corrosion has continued to occur at an accelerated rate. The temporary repairs completed in 2016 were no longer sufficient to carry the posted load limit. It was determined that the structure had very little life left. There was concern about the impact of winter operations on the corrosion of the bridge and the effect of overweight vehicles driving over the bridge. It is for these reasons, the bridge was closed to vehicular traffic on November 2, 2018.

Further statistical analysis of the structure's deterioration rate has revealed that the structure is only capable of supporting its own weight for approximately 12 to 16 months. At that time the structure may collapse and fall into the waterway below. This poses a significant risk to the public and the environment and will have a substantial clean up cost.

FINANCIAL CONSIDERATION:

Despite efforts to secure Provincial funding in 2018, which were unsuccessful, no budgetary allocations are presently available for the bridge. Staff are considering the financial implications for two possible options 1) construct a new bridge 2) demolish the existing structure.

The most cost effective solution is to construct a new bridge with a 75 year design life. However, this option carries a cost of \$11.7M (2016) and would be one of the largest capital projects completed in the City of Welland.

Demolition of the existing structure has an estimated cost of \$3.5M(2016).

Council's decisions pertaining to funding of this project will be discussed through the 2019 budget process.

SUPPORT OF ASSET MANAGEMENT PLAN:

The 2016 Addendum to the City of Welland Comprehensive Asset Management Plan identifies that "infrastructure expenditure needs are in excess of the available revenue. The analysis indicates that the funding gap is approximately \$20 million per year" (page 22).

To mitigate this funding shortfall, this report also suggests a number of mitigation strategies (page 21). The following strategies could be implemented on this project:

- Actively seeking out and applying for grants
- Decreasing expected levels of services
- Divestment of facilities, parks or other non-critical infrastructure where it is practical and appropriate to do so
- Issuing debt for significant and/or unforeseen capital projects, while staying within the City's debt capacity limits

OTHER DEPARTMENT IMPLICATIONS:

Fire and Emergency Services have participated in discussions with Police and EMS to ensure public safety and timely responses.

SUMMARY AND CONCLUSION:

The Forks Road Bridge has been used by the residents of Welland and the surrounding communities for the past 88 years. The existing bridge has reached the end of its life and is in need of replacement or demolition. City Staff have been working with Ellis Engineering to develop options for replacement with cost estimates.

The bridge replacement or demolition is one of several substantial capital projects that the City is looking to complete over the next few years. These projects will require a significant financial commitment from the City for the foreseeable future.

ATTACHMENTS:

Appendix I -Ellis Engineering letter October 19, 2018



ELLIS
Engineering Inc.

ELLIS Engineering Inc.
Consulting Engineers
201-214 Martindale Road
St. Catharines, ON, Canada
L2S 0B2

Tel: (905) 934-9049
Web: www.ellis.on.ca

October 19, 2018

Corporation of the City of Welland
60 East Main Street
Welland, ON
L3B 3X4

Attention: Chris Anders, P.Eng.
Manager of Engineering Services
Infrastructure and Development Services

Reference: 2018 Close-Up Inspection and Load Capacity Evaluation Check of Forks Road Bridge (Structure No. S007B), Forks Road over the Old Welland Canal. Our File No. 846

Brief Description of the Bridge

Forks Road Bridge is a three span bridge that carries Forks Road over the old Welland Canal. It consists of a centre "lift" span and two "tower" spans (also known as "approach" spans), one on either side of the lift span. The original three span steel truss structure was built circa 1930, and was initially a vertical lift bridge. The lift bridge was decommissioned in 1973 when the new Welland Canal was completed. The vertical tower sections of the structure were removed in 1997.

The three span superstructure consists of steel trusses, approximately 10 metres high, supporting transverse steel deck beams, longitudinal steel stringers and a reinforced concrete deck. The existing lift span is 66.5m long and 7.3m wide (centre-to-centre of truss verticals), supporting a 6.1m wide, two-lane roadway. The two tower spans are 32.8m long and 7.3m wide, supporting a 6.1m wide, two-lane roadway. On both sides of the roadway, there exist 2.4m sidewalks. The bridge superstructure is supported by concrete abutments and two concrete piers (east & west).

Background

During our the 2016 biennial inspection of Forks Road Bridge (conducted April 15, 2016, as part of the City's 2016 Structure Inspection Program), a perforation and severe loss of cross-sectional area was noted in the north channel of the north bottom chord truss member near the west support of the west tower span. A temporary posting was recommended limiting the load on the structure to 5 tonnes. A close-up inspection of the truss bottom chords at the panel points was also recommended.

.../2

The close-up inspection was completed by ELLIS Engineering on April 27, 2016. The close-up inspection revealed additional members with severe section loss and perforations. After initial review of the results of the close-up inspection, it was recommended that the bridge be closed to all traffic on April 29, 2016, until emergency repairs could be completed.

ELLIS Engineering Inc. (EEI) developed repair details. Rankin Construction Inc. (Rankin) and Black Creek Metal Inc. (BCM) developed a plan to conduct the emergency repairs. The cost of the emergency repairs was approved by Welland City Council on May 3, 2016. BCM and Rankin mobilized on site on May 5, 2016, and repairs were completed by May 11, 2016.

Following the completion of the emergency repairs it was recommended that the City install triple load limit posting signs at the approaches at each end of the bridge, as follows:

| | |
|---|-----------|
| Level 3 – Single Unit Truck | 11 tonnes |
| Level 2 – Tractor and One Trailer | 18 tonnes |
| Level 1 – Tractor and More Than One Trailer | 25 tonnes |

It was recommended in 2016 that a close-up inspection of the bottom chord members be completed in 2018 and that the City replace the structure in 1-4 years.

2018 Close-up Inspection

The 2018 close-up inspection of the truss bottom chord members at the structure panel points was completed by ELLIS Engineering Inc. on August 24, 2018. The inspection was conducted by Arih Struger-Kalkman, P. Eng. and Duane VanGeest, P.Eng. Rankin Construction Inc. assisted with the operation of a barge in order to access the panel points via the watercourse.

The primary purpose of the detailed visual inspection was to determine the levels of deterioration in the bottom chord members at the truss panel point connections below the bridge deck and in particular, to identify any members with severe section loss. The superstructure above the roadway, deck, deck beams, stringers and cantilever sidewalks were not included in the scope of the close-up inspection.

Effects of Deterioration

Overall, steelwork on the underside of the structure was found to be generally in fair to poor condition and extensive failure of the painted coating system was noted throughout. There are several areas of perforations and severe section loss with the most severe deterioration observed at the panel point connections throughout. Generally, the corrosion is significantly worse than in 2016 with more numerous and larger perforations in the primary members of the structural steelwork.

The repairs completed in 2016 appear to be in good condition; however, more extensive corrosion was noted at several repair locations, including newly perforated areas (see Photos 1-6 in Appendix A).

Structural Analysis

A Load Capacity Evaluation (LCE) was completed on Forks Road Bridge in 2010 (REF: Bridge Load Capacity Evaluation and Rehabilitation/Replacement Analysis Report, January 18, 2010). The LCE was updated with the results from the 2018 close-up inspection to identify critical sections.

The latest analysis indicates that due to new areas of severe section loss, the reduced capacity of several primary structural members is inadequate to carry the present posted load limits. The results show that a reduced posting or extensive structural repairs are required.

It is evident that the bridge structural steel is corroding at a much faster rate than was anticipated in 2016. Several members exhibit 5-35% more section loss when compared to section loss observed in 2016.

Recommendations

The rate of corrosion in the primary structural members is high and the future rate of corrosion is uncertain. Due to the uncertainty in the future rate of corrosion and significant observed areas of new corrosion, perforations and section loss since 2016, it is our recommendation that the bridge be closed to all vehicular and pedestrian traffic now.

We recommend that the City repair, remove or replace the structure now.

If you have any questions, please contact the undersigned.

Yours truly,

ELLIS Engineering Inc.



Arih Struger-Kalkman, P.Eng., M.Eng.

Attached:

- *Appendix A – Photos from the 2016 and 2018 Close-up Inspections*

THE CITY OF WELLAND

2018 CLOSE-UP INSPECTION AND LOAD CAPACITY EVALUATION CHECK

FORKS ROAD BRIDGE (STRUCTURE NO. S007B)

FORKS ROAD OVER THE OLD WELLAND CANAL

APPENDIX 'A'

PHOTOS FROM THE 2016 AND 2018 CLOSE-UP INSPECTIONS

(Photograph No's 1 to 6, 2 Pages)

Photograph No. 1:

- 2016: West Tower Span, North Truss, Bottom Chord L0L1 (prior to repair).

**Photograph No. 2:**

- 2016: West Tower Span, North Truss, Bottom Chord L0L1 (after repair).

**Photograph No. 3:**

- 2018: West Tower Span, North Truss, Bottom Chord L0L1.



Photograph No. 4:

- 2016: West Tower Span, South Truss, Bottom Chord L4L5 (prior to repair).

**Photograph No. 5:**

- 2016: West Tower Span, South Truss, Bottom Chord L4L5 (after repair).

**Photograph No. 6:**

- 2018: West Tower Span, South Truss, Bottom Chord L4L5.

