Regional Municipality of Waterloo

Planning and Works Committee

Agenda

Tuesday, March 4, 2014
2:00 p.m.
Regional Council Chambers
150 Frederick Street, Kitchener

1. Declarations Of Pecuniary Interest Under The Municipal Conflict Of Interest Act

2. Delegations

   a) E-14-029, River Road Extension, King Street to Manitou Drive, Kitchener, Class Environmental Assessment – Recommended Design Concept (Staff Presentation)

      i. Louisette Lanteigne

Consent Agenda Items
Items on the Consent Agenda can be approved in one motion of Committee to save time. Prior to the motion being voted on, any member of Committee may request that one or more of the items be removed from the Consent Agenda and voted on separately.

3. Request To Remove Items From Consent Agenda
4. **Motion To Approve Items Or Receive For Information**


   b) **P-14-025**, West Waterloo Commercial Centre (Information)

   c) **P-14-029**, Amendment to Regional Municipality of Waterloo Controlled Access By-law #58-87 for Accesses to Regional Road #50 (Northfield Drive), City of Waterloo (Approval)

   d) Bridge Street Reconstruction (University Avenue to Woolwich Street) City of Waterloo/City of Kitchener – **Information Package** in Advance of Public Consultation Centre (Information)

   e) Ayr Sewage Pumping Station, Trunk Sewer, and Forcemain Routing Municipal Class Environmental Assessment – **Information Package** in Advance of Public Consultation Centre (Information)

   f) Conestogo Plains Water Supply System Class Environmental Assessment Study – **Information Package** in Advance of Public Consultation Centre (Information)

5. **Reports – Planning, Housing and Community Services**

   a) **P-14-026**, North Waterloo Scoped Sub-Watershed Study

   **Reports – Transportation and Environmental Services**

   **Transportation**

   b) **E-14-031**, Fischer-Hallman Road South Culvert at Strasburg Creek – City of Kitchener

   **Water Services**

   c) **E-14-030**, 2013 Summary Report for Regional Municipality of Waterloo Integrated Urban and Rural Water Systems, DWQMS Program Update, and Infrastructure Maintenance Plan
6. **Information/Correspondence**
   
a) Correspondence from Neil E. Taylor regarding Report E-14-029, River Road Extension, King Street to Manitou Drive, Kitchener, Class Environmental Assessment – Recommended Design Concept

b) Council Enquiries and Requests for Information Tracking List

7. **Other Business**

8. **Rapid Transit – To be dealt with at 3:00 p.m.**
   
a) E-14-032/F-14-019, Stage 1 Light Rail Transit Project: Selection of a Design-Build-Finance-Operate-Maintain Consortium (Report Distributed Separately to Council)

   (Staff Presentation)

**Delegations**

  i. Kevin Thomason
  ii. John Jackson, Chair, Grand River Environmental Network
  iii. Eleanor Grant
  iv. Chris Klein
  v. Deb Swidrovich
  vi. Robert Milligan
  vii. Louisette Lanteigne
  viii. Mike Boos

9. **Next Meeting – April 1, 2014**

10. **Adjourn**
## Next Meetings

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Description</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Planning and Works Committee</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>April 1, 2014</td>
<td>9:00 A.M.</td>
<td>Planning and Works Committee</td>
<td>Council Chamber 150 Frederick Street Kitchener, Ontario</td>
</tr>
<tr>
<td>April 29, 2014</td>
<td>9:00 A.M.</td>
<td>Planning and Works Committee</td>
<td>Council Chamber 150 Frederick Street Kitchener, Ontario</td>
</tr>
<tr>
<td><strong>Planning, Housing and Community Services</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Transportation and Environmental Services</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thur., March 6, 2014</td>
<td>5:00 P.M. - 7:00 P.M.</td>
<td>Ayr Sewage Pumping Station, Trunk Sewer and Forcemain Routing Municipal Class Environmental Assessment – Public Consultation Centre</td>
<td>North Dumfries Community Complex Dumfries Room 2958 Greenfield Road Ayr, Ontario</td>
</tr>
<tr>
<td>Tuesday, March 18, 2014</td>
<td>5:30 P.M. - 7:30 P.M.</td>
<td>Conestogo Plains Water Supply System Class Environmental Assessment Study – Public Consultation Centre</td>
<td>Conestoga Golf &amp; County Club 400 Golf Course Road Conestogo, Ontario</td>
</tr>
<tr>
<td>Thur., March 20, 2014</td>
<td>7:00 P.M. - 9:00 P.M.</td>
<td>Bridge Street Reconstruction (University Avenue to Woolwich Street) City of Waterloo/City of Kitchener Public Consultation Centre</td>
<td>Bridgeport Public School 59 Bridge Street West Kitchener, Ontario</td>
</tr>
</tbody>
</table>
Region of Waterloo
Transportation and Environmental Services
Design and Construction

To: Chair Jim Wideman and Members of the Planning and Works Committee
Date: March 4, 2014
File Code: C04-30, 7087
Subject: River Road Extension, King Street to Manitou Drive, Kitchener, Class Environmental Assessment – Recommended Design Concept

Recommendation:

That the Regional Municipality of Waterloo take the following actions with respect to the Class Environmental Assessment for the River Road Extension, King Street to Manitou Drive, in the City of Kitchener:

a) Approve the preliminary design for construction of the River Road Extension as described in Report E-14-029, dated March 4, 2014;

b) Direct staff to file the Notice of Completion for this Class Environmental Assessment Study by means of advertisements in the local newspapers and mailings to adjacent property owners, tenants, and agencies, and place the Environmental Study Report on the public record for a period of 30 days.

Summary:

The Region of Waterloo is undertaking a Class Environmental Assessment (EA) Study for the River Road Extension from King Street to Manitou Drive in the City of Kitchener. The study limits as shown in Appendix “A” include Fairway Road to the north, Wabanaki Drive to the south, Manitou Drive to the west and King Street to the east.

The initial stages of this Class EA study were completed as the South Kitchener Transportation Corridor Study (SKTCS). The purpose of the SKTCS was to develop alternative transportation planning solutions, including the establishment of potential new transportation corridors, to provide additional east-west mobility in South Kitchener for people and goods movement. During the initial phases of the SKTCS, the Project Team reviewed existing traffic operations and expected future traffic operations within the study area. This revealed that large areas of the existing road network in the study

Docs #1526240
area are currently congested during peak periods, including Fairway Road, Manitou Drive and King Street East at River Road. In addition, the intersections and mid-block sections along Fairway Road within the study area are among some of the worst locations in the Region for collisions. After extensive public consultation and technical studies to assess the traffic operations and environmental impacts, the Project Team identified the River Road Extension from King Street to Manitou Drive as the Preferred Planning Solution for this project. The entire SKTCS process and the resulting Preferred Planning Solution, identified as Alternative 4C, were detailed in Report P-06-071 and approved by Regional Council in July 2006.

In April 2007, following an advanced species survey conducted in the winter of 2007, the presence of Jefferson Salamanders, an Endangered Species, was confirmed in the Hidden Valley. In 2010, the Ministry of Natural Resources determined the Regulated limits of the Jefferson Salamander habitat within the Hidden Valley forest area.

There has been extensive public consultation undertaken as part of this project, including several reports to Regional Council, a stakeholder workshop and six Public Consultation Centres (PCC’s), including special meetings with residents of the Stonegate Drive neighbourhood. One of the key issues raised by the public during this Class EA was primarily related to potential negative effects on the natural environment within Hidden Valley.

Although the Alternative Design Concept 4C would not encroach upon the Regulated Jefferson Salamander Habitat, the public continued to raise concerns about the impacts of Design Concept 4C on a high-quality mature woodlot adjacent to the Regulated Habitat which is likely used as dispersal habitat by the endangered salamanders. At a Regional Council meeting on October 5, 2011, the Project Team was directed by Regional Council to review the additional alternative design concepts recently provided by the public and in particular, to investigate any new Highway 8 configurations that could move River Road away from the mature woodlot just south of Hidden Valley Road near Highway 8. In response to the request by Regional Council, the Project Team developed a new Alternative Design Concept 5. Design Concept 5 is similar to Concept 4C except that it includes a tighter curve on the Highway 8 bridge that pulls River Road away from the mature woodlot. Although Design Concept 5 would cost approximately $5 million more to construct than Design Concept 4C, it would reduce the impact to the mature woodlot by 35%. As a result, the Project Team strongly believes that Design Concept 5 is a significant improvement over Design Concept 4C in addressing any potential for negative effects on Jefferson Salamander dispersal. Alternative Design Concept 5 was presented to the public at the PCC held on October 1, 2013 and at the Public Input Meeting on December 3, 2013.

In addition to the concerns about Hidden Valley, the residents of the Stonegate Drive neighbourhood expressed concerns about how Stonegate Drive would be connected to River Road, and what effects that connection would have on non-local traffic “infiltrating” through their neighbourhood. In response to those concerns the Project Team has developed and recommended a combination of full access to and from Stonegate Drive from the proposed River Road Extension with closure of the existing King Street intersection except for right-turns from King Street into Stonegate Drive.
Based on a review of all public consultation to date and all relevant technical information, the Project Team has identified Alternative Design Concept 5 as the Recommended Design Concept for this project. Plans showing the alignment and configuration of Preferred Design Concept 5 are included in Appendix “M”. The estimated cost of Recommended Design Concept 5 is approximately $72 million which is projected to be fully funded from Regional Development Charges.

Report:

1. Background:

General Information

The Region of Waterloo is undertaking a Municipal Class Environmental Assessment (EA) Study for the River Road Extension from King Street to Manitou Drive in the City of Kitchener. The study limits as shown in Appendix “A” include Fairway Road to the north, Wabanaki Drive to the south, Manitou Drive to the west and King Street to the east.

The study area also includes the Hidden Valley natural area. This Class EA Study is being directed by a Project Team consisting of staff from the Region of Waterloo, City of Kitchener, Grand River Conservation Authority (GRCA), Ministry of Natural Resources (MNR), Ministry of Transportation Ontario (MTO), Regional Councillors Claudette Millar, Jean Haalboom, and Jim Wideman, and City of Kitchener Councillors John Gazzola and Berry Vrbanovic.

South Kitchener Transportation Corridor Study

The initial stages of this Class EA study were completed as the South Kitchener Transportation Corridor Study (SKTCS). The purpose of the study was to develop alternative transportation planning solutions, including the establishment of potential new transportation corridors, to provide additional east-west mobility in South Kitchener for people and goods movement. During the initial phases of the SKTCS, the Project Team reviewed existing traffic operations and expected future traffic operations within the study area. This revealed that large areas of the existing road network in the study area are currently congested during peak periods, including Fairway Road, Manitou Drive and King Street East at River Road. Fairway Road between Manitou Drive and King Street is heavily congested during peak periods with intersections at Wilson Avenue, King Street and the Highway 8 ramp terminals operating at or near capacity with current traffic volumes. In addition, the intersections and mid-block sections along this stretch of Fairway Road are among some of the worst locations in the Region for collisions. Fairway Road is identified as an important link in the Region’s road network that is critically overloaded, partly due to its connection to Highway 8. The prime objective of this Class EA identified by the Project Team was to reduce delays and collisions on the corridors within the study area.

The initial tasks of the SKTCS required development of high-level alternative planning solutions to address the problems identified. The resulting alternative planning solutions included the following:

Docs #1526240
Do nothing;
- Improvements to all or some of the corridors in the surrounding road network;
- Increased transit use on Fairway Road to reduce total vehicle volumes; and
- Creation of a new 4-lane road parallel to Fairway Road with a new interchange with Highway 8.

In order to evaluate the Alternative Solutions, extensive Natural Heritage studies assessed the types of plants and animals that exist within two large environmental areas within the study area: the Hidden Valley and the Schneider Creek Valley.

After extensive public consultation and technical studies to assess the traffic operations and environmental impacts, the Project Team identified the River Road Extension from King Street to Manitou Drive as the Preferred Planning Solution for this project. The entire SKTCS process and the resulting Preferred Planning Solution, identified as Alternative 4C, were detailed in Report P-06-071 and approved by Regional Council in July 2006.

**Other Transportation Studies**

The need for Transportation improvements in this study area have also been clearly established in the following transportation studies:

- 1981 River Road Extension Route Location and Feasibility Study;
- 1994 Fairway Road/River Road Traffic Study;
- 1999 and 2010 Regional Master Transportation Plans (RTMP); and
- 2014 Regional Active Transportation Master Plan (ATMP).

The new Region Transportation Master Plan (RTMP), completed in 2010, confirmed the need for the River Road Extension. The River Road Extension would complete the transportation network in Kitchener by offering a new east-west corridor alternative that would assist in the continued development in the Kitchener area. The Fairway Road corridor traffic growth would be reduced with the introduction of the River Road Extension as an alternative. Highway 8 access would be improved and future operational improvements at the Fairway Road interchange would be delayed or eliminated. The River Road Extension would delay or eliminate the need to widen King Street from Highway 8 to Fairway Road (including the Freeport Bridge over the Grand River). The River Road Extension would also delay the need for any longer term improvements on Manitou Drive (including the reconstruction of the railway bridge). The corridors of King Street through the Sportsworld Drive area and Homer Watson Boulevard would also see some benefit from the River Road Extension because of the additional highway access and reduced traffic growth.

**River Road Extension**

Following Council’s approval of the SKTCS recommendation of Alternative 4C for the River Road Extension, the Project Team then developed and assessed various alternative design concepts for the River Road Extension, including various road cross sections, intersection designs, bridge crossing alternatives over Highway 8 and

Docs #1526240
Schneider’s Creek and various Highway 8 interchange configurations. During this study phase, some members of the public requested that further investigations be conducted to determine the presence of a threatened species in the Hidden Valley area, namely the Jefferson Salamander. In April 2007, following an advanced species survey conducted in the winter of 2007, the presence of Jefferson Salamanders in the Hidden Valley was confirmed. Once the presence of Jefferson Salamanders was confirmed in Hidden Valley, the River Road Extension Class EA study was put on hold to allow field studies to be undertaken to determine the extent of the Jefferson Salamander population in Hidden Valley.

In 2010, the Ministry of Natural Resources (MNR) determined the Regulated limits, under the Endangered Species Act (ESA), of the Jefferson Salamander habitat within the Hidden Valley forest area, as illustrated in Appendix “B”. With this new information from the MNR, the Project Team once again reviewed and assessed the high-level alternative planning solutions and concluded that the River Road Extension (Alternative 4C) was still the Preferred Planning Solution.

Regional Council Meeting on October 5, 2011

At the October 5, 2011 Council meeting, staff presented the updated information (from the post-2007 field studies) supporting the previously recommended solution for the River Road Extension, identified as Alternative 4C, as the Preferred Planning Solution for this project. Several persons at the Council meeting expressed concern that the proposed River Road interchange at Highway 8 would negatively impact a high-quality woodlot adjacent to the south side of existing Hidden Valley Road near Highway 8. Several new options for this project were presented by various members of the public at the meeting, including some new interchange options that could potentially reduce the negative impacts on the woodlot. Regional Council, at the October 5, 2011 meeting, reaffirmed their previous approval of the River Road Extension (Alternative 4C) as the Preferred Planning Solution for this project and directed staff to review the additional alternative design concepts recently provided by the public and in particular, to investigate any new Highway 8 configurations that could move River Road away from the mature woodlot just south of Hidden Valley Road near Highway 8.

Additional Study of Alternative Design Concepts for the Highway 8 Interchange

The alternative Fairway Road solutions and Hwy 8 interchange options presented by the public to Regional Council on October 5, 2011 are displayed in Appendix “C”. As per Regional Council’s direction, staff have reviewed and evaluated these alternatives in an effort to reduce or eliminate the negative impacts of the approved Planning Solution on the existing woodlot adjacent to Hidden Valley Road.

In addition to the new alternatives received from the public, the Project Team developed a new alternative, Alternative Design Concept 5 by modifying one of the alternatives provided by the public. As shown in Appendix “D”, Alternative Design Concept 5 is similar to Alternative Design Concept 4C and includes a highly skewed bridge crossing of Highway 8 to minimize direct impact on the sensitive land in the Hidden Valley area. Each of these new Alternatives was evaluated in terms of its capability to address traffic
congestion in the study area and how each new alternative would function from a traffic operations and safety perspective. Based on the evaluation, the Project Team concluded that only Alternative Design Concepts 4C and 5 would address the transportation problem. Therefore only these two alternatives were carried forward for additional evaluation as summarized in Appendix “D”. From a transportation operations viewpoint, the Project Team concluded that both Alternative Design Concepts 4C and 5 would operate equally well.

There are mature woodlots located between the Jefferson Salamander Regulated Habitat and Highway 8 which are identified as potential dispersal habitat for a relative small proportion of the Jefferson Salamander population. Highway 8 itself represents a formidable limit to dispersal of the Jefferson Salamanders beyond the Regulated Habitat. While Alternative Design Concept 4C would impact 1.29 hectares of these mature woodlots, Alternative 5 would reduce the impact to these mature woodlots by 35% and would move much of the impact to another woodlot which is located on the far side of Hidden Valley Road from the Regulated Habitat. Hidden Valley Road itself is also a significant deterrent to salamander dispersal. The Project Team therefore concluded that Alternative Design Concept 5 is a significant improvement over Alternative 4C in addressing any potential for negative effects on Jefferson Salamander dispersal.

The proposed River Road Extension would not encroach on the Jefferson Salamander Regulated Habitat as shown in Appendix “B”. The Region will enter into discussions with MNR staff for the purpose of obtaining a Permit under Section 17 of the Endangered Species Act to establish the measures for the Region to follow in the event that future road construction may encounter Jefferson Salamanders that have travelled beyond the Regulated Habitat. Preparation of the Region’s request for the Permit and MNR review of that request would proceed during the detailed design phase of the River Road Extension.

Stonegate Drive Access

It is planned as part of the River Road Extension project to connect River Road with existing Stonegate Drive where the northbound Highway 8 ramp terminal would intersect with River Road on the east side of Highway 8 near King Street. The proposed intersection would be a signalized highway ramp terminal operating under the control of the MTO and subject to MTO requirements for its design and operation. The Stonegate Drive neighbourhood currently has access to the intersection at King Street and River Road via a temporary road through a building lot that has been in place since the subdivision was constructed, as shown in Appendix “E”. This temporary road was planned to remain in operation until the River Road Extension is constructed. The temporary road cannot remain in operation, even as a right-in and right-out intersection, once the River Road Extension is in place because of its close proximity to the King Street intersection. Frequently during peak periods, vehicle queues from the King Street intersection would extend beyond the location of the temporary access. The queues across the access and the challenge of “getting over” to the left-turn lane in a short distance would result in long delays and collisions for motorists to exit the neighbourhood and would result in some residents who wish to turn left on King Street to instead turn left from the other end of Stonegate Drive at King Street.

Docs #1526240
At several public consultation events for the Class EA and special meetings with residents of the Stonegate Drive neighbourhood, Project Team representatives heard conflicting concerns from neighbourhood residents including:

- Full access should be provided at the River Road Extension/Hwy 8 ramp intersection for the convenience of residents in the neighbourhood;
- Access to the neighbourhood should be restricted to discourage “shortcutting” of non-local traffic between King Street and the Highway 8 ramps; and
- Stonegate Drive is a local, residential road; much of which is not suitable for increased traffic due to sharp bends, lack of sidewalk and on-street parking.

2. Public Consultation:

There has been extensive public consultation undertaken as part of this project including several reports to Regional Council, a stakeholder workshop and six Public Consultation Centres (PCC’s) including the recently held PCC on October 1, 2013. The formats, attendance and comments received at all public meetings held for this project have been detailed in previous reports for this Class EA Study. A summary of the public meetings is included in Appendix “F”.

3. Public Input Meeting, December 3, 2013:

A Public Input Meeting (PIM) of the Planning and Works Committee was held on December 3, 2013 at which Alternative Design Concept 5 was presented as the Project Team’s Preferred Design Concept. The Project Team’s summary of and response to all public comments received to date were also presented at the PIM. 38 people signed in at the meeting. Appendix “G” shows the meeting minutes, which were approved by Council on December 17, 2013 and mailed to all meeting attendees who indicated they would like to receive them. Comments received from 12 delegations at the meeting have been grouped into several main categories as follows:

- Natural Environment Impacts
- Stonegate Drive Access
- Changes in Design Requested by a Land Owner
- Changes in Views and Traffic Noise Caused By the River Road Extension

Natural Environment Impacts

Throughout this Class EA, many comments were received containing concerns about the potential negative impacts of the proposed River Road Extension on the natural environment. While this report cannot attempt to detail all these comments, the Project Team has grouped the main issues raised into four categories as follows:

- Loss of trees and wetlands, primarily in Hidden Valley;
- Destruction of habitat of Species at Risk (SAR) or endangered species, such as the Jefferson Salamander;
- Presence in the study area and potential impacts to other SAR in addition to Jefferson Salamander; and
- Negative effects of road salt on the surface and groundwater in the area including potential negative effects on the Region’s water supply wells in the
vicinity of Schneider Creek, and potential negative effects on the surface water intake at the Manheim Water Treatment Plant on the Grand River located just downstream from the Highway 8 Bridge.

Project Team Response:

The Project Team acknowledges that the construction of the River Road Extension would result in some removal of trees and wetlands within the Hidden Valley area. To the greatest extent possible, the Project Team believes it has developed an alignment for this new road that minimizes the negative effects on these features. In sharp contrast to the original alignment for River Road that traversed directly through the middle of the Hidden Valley wetlands, the proposed alignment would follow the existing Hidden Valley Road alignment as much as possible and would impact only natural areas that are adjacent to the existing Hidden Valley Road and Hwy 8. All reasonable efforts will be made during detailed design of the alignment to establish a road footprint that would minimize tree loss. To a large extent, the alignment of Alternative Design Concept 5 makes use of existing disturbed areas as much as possible so that tree loss is kept to a minimum. In addition, Design Concept 5 represents a huge improvement over Design Concept 4C in reducing the negative impacts of the new road on the existing mature woodlot (adjacent to and south of Hidden Valley Road near Highway 8) by reducing the tree loss by 35%.

The Project Team has made great efforts to document the existence of and to mitigate any potential negative effects on any known Species-at-Risk (SAR) or Endangered Species within the project limits. The proposed road alignment completely avoids the Regulated Jefferson Salamander Habitat established by the MNR. The alignment of Design Concept 5 further reduces the encroachment of the new road into the existing woodlot (adjacent to and south of Hidden Valley Road near Highway 8), a potential dispersal area for the Jefferson Salamanders. The Project Team concluded that the proposed alignment within Hidden Valley avoids as much known SAR habitat as possible, and more will be done in detailed design to ensure compliance with MNR requirements.

The Project Team was asked how any new SAR and ESA requirements will be addressed since SAR requirements continue to change. MNR’s response is that some SAR such as bird species can move around so potential impacts on their habitat are not as critical as potential impacts to the Jefferson Salamander habitat. The Project Team acknowledges that there will be a need for further species inventory during detailed design and prior to construction. Specific measures will be implemented in accordance with any required MNR permits to minimize the potential impact to all known SAR during and after construction.

In order to address concerns about the potential effects of salt on surface and groundwater resources in the study area, the Project Team undertook a comprehensive water resources impact study that included a thorough assessment of the existing water resources via an extensive set of monitoring wells and surface water samples. The study methodology was developed with assistance from the MNR and the GRCA. After monitoring in 2012 and 2013 and an assessment of the potential salt impacts from a new road, the study concluded that there are currently high chloride levels notably in Schneider Creek and in the wetland pools in Hidden Valley, and also concluded that the
new road would have a negligible effect on the surface water and groundwater resources in the study area. The Region is committed to making all reasonable efforts to reduce the potential salt impacts of a new road on the area. The detailed design will incorporate appropriate best management practices for capturing and diverting road drainage. Continued implementation of the Region’s salt management plans for use of alternative de-icing measures during future winter maintenance operations will prevent significant impacts on the Hidden Valley Wetlands.

The Region’s Ecological and Environmental Advisory Committee (EEAC) reconstituted a sub-committee to advise staff concerning the environmental implications of the Recommended Design Concept for the River Road Extension. EEAC received and adopted report EEAC-14-001, February 25, 2014, which supports the Recommended Design Concept and which will be included in the documentation for the Class EA. Further documentation regarding the natural environment and a comprehensive set of mitigation measures to be incorporated into the detailed design and construction will be included in the final documentation for this study. Please refer to Appendix “H” for a summary of the proposed mitigation measures for this project.

Stonegate Drive Access

At the December 3, 2013, PIM, the Project Team’s Preferred Design was presented which included the following option for access to the Stonegate Drive neighbourhood:

- Entry for Emergency Vehicles Only at River Road –This concept would allow all movements out of Stonegate Drive and allow no entry except by emergency vehicles as shown in Appendix “I-2”. The existing intersection of Stonegate Drive and King Street would be not be changed.

5 of the 12 delegations that addressed Regional Council at the PIM voiced concern with the preferred design for access to Stonegate Drive. The concerns expressed included:

- Full access should be provided at the River Road Extension/Hwy 8 ramp intersection, for the convenience of residents. If this results in any increase in collisions or infiltration of commuter traffic through the neighbourhood, further assessment of the operation may lead to corrective measures;
- Vehicles will shortcut from King Street, west-bound via Stonegate Drive to the Highway-8 on-ramp increasing traffic on Stonegate Drive;
- Increased use of the Intersection at King Street/Stonegate Drive to access the neighbourhood is undesirable because the King Street end of Stonegate Drive is poorly suited to any increase in traffic volume; and
- Access to Stonegate Drive at the River Road Extension/Hwy 8 ramp intersection should be restricted to emergency vehicles and only used for right-turn out.

Subsequently, on December 10, 2013, the City of Kitchener held a neighbourhood meeting for the Stonegate residents to discuss concerns with the design for access to Stonegate Drive. The meeting was hosted by two of the City representatives on the Project Team and was well attended. At the meeting, City representatives heard concerns similar to the ones expressed at the PIM and received suggestions to consider design concepts to reduce access to Stonegate Drive from the existing intersection at King Street.

Docs #1526240
**Project Team Response:**

All Stonegate Drive neighbourhood access alternatives considered to date are summarized in Appendix I. The Project Team reviewed the input received at the PIM and by the City of Kitchener at the neighbourhood meeting December 10, 2013 including all the alternative access alternatives suggested to date. The Project Team has concluded that an additional alternative will best ensure an elimination of “cut-through” traffic while ensuring that a high level of access by local traffic and an alternate emergency access route will also be provided. That alternative is described as follows:

- Close Stonegate Drive at King Street except for Right-turn Entry and allow full movements at River Road and Stonegate Drive - This concept would allow all movements into and out of Stonegate Drive at River Road and Highway 8 on and off-ramps, as shown in Appendix “I-3”. The intersection of Stonegate Drive and King Street would be closed except to allow local traffic to enter making a right-turn from King Street and to allow entry and exit by emergency vehicles. This is supported by the Project Team as the Recommended Design Concept.

A tabular summary of the technical evaluation of all access alternatives for Stonegate Drive access is presented in Appendix “I”. The Project Team has selected the “Close Stonegate Drive at King Street Except for Right-turn Entry and full movements at the River Road and Stonegate Drive neighbourhood” option as the recommended option because it represents the best balance of competing needs. Although it does not completely satisfy the desire of some neighbourhood residents for an unimpeded access to/from King Street, it does provide adequate emergency access to the neighbourhood while eliminating traffic infiltration on to Stonegate Drive. In selecting this option as the Recommended Design option, the Project Team is acknowledging the greater good of eliminating “cut-through” traffic when compared to the convenience of easy access to/from King Street. City of Kitchener Operations and Fire Department and Regional Emergency Medical Services were consulted and all confirmed that the design is acceptable. Liaison with those three groups will be required to finalize a detailed design for the King Street/Stonegate Drive intersection. MTO has confirmed that the recommended option will be permitted.

In January, the City of Kitchener sent a questionnaire to residents of the Stonegate Drive neighbourhood asking them to respond indicating their preference for either of two choices to which the following response was received:

- Entry for emergency vehicles only at River Road – not preferred
- Close Stonegate Drive at King Street except for right turn entry and full movements at River Road and Stonegate Drive- preferred

**Changes in Design Requested by a Land Owner**

Mr. Peter Benninger is the owner of Pearl Valley Developments (PVD) which owns almost all of the undeveloped land in the Hidden Valley Area. A significant portion of that land will be required for construction of the Recommended Design Concept. Mr. Benninger appeared as a delegation and proposed two changes in the Preferred Design Concept as shown in Appendix J and described as follows:

Docs #1526240
1. Design the River Road/Hidden Valley Road intersection to permit full movement entry and exit instead of right-in and right-out as per the current Preferred Design Concept. If that is not possible, a roundabout or permitted U-turn at the new Highway 8 south-bound on-ramp is requested to reduce the distance by 460m for a west-bound vehicle to make a U-turn and then return to access the Hidden Valley Drive intersection.

2. Move the proposed roundabout at Wabanaki Drive further from the CP-Rail crossing.

Project Team Response:

Project staff have met with Mr. Benninger on two occasions to discuss the proposed changes. The Project Team evaluated the merits of the proposed changes based on the benefits for the Study area, with no consideration of access to future development on PVD land which have not been submitted to the City of Kitchener for approval. Such approval would be contingent upon PVD’s compliance with the Official Plan, zoning, traffic impact study and environmental impact study requirements. During detail design, staff will work with PVD to access the merits of minor changes to the road and intersection designs as PVD progresses through the land development process.

The Project Team’s evaluations of the proposed changes to the Preferred Design Concept are as follows:

1. Conversion of the River Road/Hidden Valley Drive intersection to a full movement intersection was previously supported by some members of the public but was opposed by 3 other delegations at the PIM. The intersection is located in the middle of a tight banked curve within the highway interchange area. The sight distance in both directions is insufficient for left turns, even when improved by a widening of the Highway 8 bridge to provide an extra turn lane and would be expected to result in collisions due to left-turning vehicles being overtaken by vehicles approaching from the rear. Therefore, this change is not recommended by the Project Team.

While a roundabout at the new Highway 8 south-bound on-ramp would provide a small reduction in distance for traffic heading west to make a U-turn at the roundabout at the new Hwy 8 south-bound on-ramp versus the Wabanaki Drive roundabout, it would result in delays and collisions. The sight distance in both directions would be insufficient for U-turns at the Highway 8 south-bound on-ramp. Therefore, these two changes are not recommended by the Project Team. The Project Team has advised Mr. Benninger that in future if a development plan is approved that would justify a roundabout or if during detailed design, the requirements for a permitted U-turn can be satisfied, those changes will be considered, subject to MTO approval.

2. Shifting the proposed Wabanaki Drive roundabout would provide increased separation and storage for vehicles between the roundabout and the CP-Rail crossing and could potentially reduce the net impact on the lands remaining for development after the Region acquires property for the recommended corridor alignment. The Project Team recommends that this change be evaluated during
the detailed design, in discussion with the property owner to address concerns with the design, noting that the roundabout location is subject to approval by MTO because of its close proximity to the Highway-8 on-ramp.

Changes in Views and Traffic Noise Caused By the River Road Extension

Two delegations asked for clarification of the expected changes in elevation at the intersection of Stonegate Drive and the new River Road Extension and at the proposed Highway-8 bridge crossing. They expressed concern with the change in view that would result from these elevation changes and from tree removals that would be required near those locations. They and other delegations who spoke of concerns with the Stonegate Drive Access also expressed concern that noise levels will increase not only because of the River Road Extension traffic but because of the existing and increased noise expected to come from Highway-8 traffic.

Project Team Response:

The River Road extension approaching from both King Street and from Hidden Valley Road will need to be built on embankments to raise the new road so that it will cross safely above Highway-8. The Project Team acknowledges that there will be an expected change in the views which will be most significant from properties at the south side of Stonegate Drive and west side of Woodview Crescent beside the intersection of Stonegate Drive, overlooking Highway-8 and the proposed bridge across Highway-8.

The Project Team acknowledges that the construction of a new road will result in increases in noise levels to adjacent properties. As part of this Class EA Study, the Region has completed a Noise Assessment Study in accordance with Ministry of Environment (MOE) guidelines to determine the potential noise impact of the new road on adjacent properties. The key area within the River Road project where applicable noise sensitive locations are present includes the south side of River Road between Highway 8 and King Street as this section of River Road would be directly adjacent to the backyards and side-yards of the existing homes along Woodview Crescent and Stonegate Drive. The Noise Assessment Study completed for this Class EA Study determined that noise barriers are not warranted at any location adjacent to the new road, and therefore no noise walls will be recommended for this project. The findings of the noise study are summarized in Appendix “K”.

During the detailed design, it will be determined whether or not the grading for the proposed interchange and extension of River Road will result in surplus soil between King Street and Highway 8. Staff will determine if an earth berm can be constructed by using any surplus soil in the space within the road allowance adjacent to the rear of homes on Woodview Crescent. The berm would provide some visual screening to mitigate the potential changes to views from the homes.

4. The Project Team’s Recommended Design Concept:

Based on the public input received to date, the Project Team’s investigations and studies and other relevant technical data, the Project Team has completed an evaluation of the Alternative Design Concepts and has identified Alternative Design Concept 5 as the Recommended Design Concept for the River Road Extension.
Plans of the functional Design of the Recommended Design Concept 5 are shown in Appendix L and posted in more detail on the Region’s website, www.regionofwaterloo.ca. A brief description of Recommended Design Concept 5 is as follows:

**Horizontal Alignment and Cross Section Elements**

Most of the proposed road for Recommended Design Concept 5 would follow the alignments of the existing Goodrich Drive, Wabanaki Drive and a portion of Hidden Valley Road with the exception of two areas: the western section where the road crosses Schneider Creek and at the Highway 8 interchange. The proposed road cross-section includes 4 lanes from King Street to Manitou Drive. A multi-use trail for pedestrians and cyclists is proposed on both sides of the proposed River Road Extension. The proposed cross-section includes a continuous raised centre median. The proposed centre median would vary in width from 1.5 metres to 5 metres and would be landscaped where there is sufficient width.

**River Road Extension - Highway 8 Interchange**

The proposed Highway 8 interchange includes:

- Ramps that would allow motorists to travel to and from Highway 401 to the south; and
- A ramp allowing River Road traffic to travel north on Highway 8.

The ramps onto and off Highway 8 northbound would be located opposite the end of Stonegate Drive. The on-ramp to Highway 8 southbound would be located mid-way between the Hidden Valley Road intersection and Wabanaki Drive. The bridge over Highway 8 would include two spans of a total length of 108 metres and would be 28 metres in width. The bridge would carry four lanes, a multi-use trail on each side and a continuous raised median in the centre. Construction of the new Highway 8 interchange would require the adjustment or relocation of four Hydro-One transmission towers and some existing Highway 8 drainage and retaining structures.

**River Road Extension Bridge Over Schneider Creek**

The proposed Schneider Creek Bridge would include a single span of 45 metres and would be 24 metres wide. The bridge would carry four lanes, a multi-use trail on each side and would have a continuous raised centre median. As part of detailed design, the Project Team will select an open-type railing on the bridge to allow pedestrians on the bridge to have a good view of the Schneider Creek Valley. The proposed height and length of the bridge will satisfy Regional flood plain requirements and would also allow passage of animals safely under the bridge. In addition, the bridge would accommodate the existing City of Kitchener multi-use trail on the north bank of Schneider Creek (beneath the proposed bridge) and facilitate trail connections to the multi-use trails on both sides of the River Road Extension.

**Intersection Designs**

Based on a comparison of life-cycle costs for roundabouts versus traffic signals, the
Project Team has identified a roundabout as the preferred traffic control at the Wilson Avenue, Goodrich/Wabanaki/Hidden Valley and the Wabanaki Drive (north end of Wabanaki Drive near Fairway Road) intersections. A roundabout at the Manitou Drive and Bleams Road extension has already been approved as part of the Manitou Drive widening Class EA that was completed in 2010 and is planned for construction in 2015. Traffic signals are preferred at the Highway 8 northbound ramp at Stonegate Drive and at the King Street intersection due to property constraints and the proximity of the CP Rail crossing east of King Street. The existing intersection of Stonegate Drive at King Street would be closed except for right-turn entry only from King Street to Stonegate Drive. A section of centre-median would be constructed on King Street at the Stonegate Drive intersection. No traffic control is required at the Highway 8 southbound on-ramp. Stop control would be required on Hidden Valley Road where it intersects with the new River Road Extension.

Property Impacts

While it is the intent of the planning and design process to minimize the need to acquire property, the proposed River Road Extension would require the acquisition of private property at several locations; however, the precise locations and amounts of land to be acquired will not be fully known until the detailed design stage.

After the Recommended Design Concept is approved by Regional Council, the affected property owners will be contacted by Regional Real Estate staff to discuss the necessary property acquisitions and related issues. It is the Region’s standard practice to negotiate agreements of purchase and sale with the affected property owners, based on an independent appraisal of the land’s fair market value. If agreements cannot be reached in time to meet the project schedule, the Region will acquire the needed lands through expropriation. Please see Appendix “M”, the Property Acquisition Process Information Sheet (Projects Requiring Class EA Approval), for more detailed information.

What are the Benefits of the Recommended Design Concept 5?

Recommended Design Concept 5, by providing a four lane extension of River Road from King Street to Manitou Drive, will provide the following benefits:

- Reduced congestion and delay for all modes of traffic along Fairway Road (which is already at capacity) and other routes in South Kitchener;
- Creation of a cycling facility that would facilitate cycling trips in the east-west direction in South Kitchener and provide for a new cycling and pedestrian link in South Kitchener as planned in the 2014 Regional Active Transportation Master Plan; and
- Recommended Design Concept 5 includes a new Highway 8 interchange thereby providing additional access to the widened Highway 8 for the improved movement of people and goods in South Kitchener.

In addition to all of the above benefits that the Recommended Design Concept would bring, Design Concept 5, when compared to the previously Preferred Design Concept 4C, would:

Docs #1526240
Reduce potential impact on an endangered species and other plants and animals by reducing direct and indirect impact on woodlots that are potential dispersal habitat for the Jefferson Salamanders; and

Utilize existing road alignments for more of the proposed new road and as a result would minimize the segregation of adjacent lands including environmentally sensitive land, conserve more of the core environmental features and minimize the direct and indirect impacts of the new road on those adjacent lands.

5. Preliminary Cost Estimate of the Recommended Design Concept 5

The preliminary cost estimate for the Recommended Design Concept 5 is approximately $72 million and includes engineering, property acquisition and construction. The preliminary cost estimate of Recommended Design Concept 5 is $5 million greater than the estimated cost of the previously Preferred Design Concept 4C ($67 million). This cost difference can be mainly attributed to the increased cost of the Highway 8 bridge and associated Highway 8 interchange works in Concept 5.

All capital costs for the River Road Extension are projected to be fully funded by the Regional Development Charges Reserve Fund, and on this basis, the construction of this project would not result in an increase in property taxes.

6. Next Steps in Completing the River Road Extension Class EA

All members of the public who have expressed an interest in this project have been notified directly of the opportunity to comment before a final decision is made for this project.

Subject to Regional Council approval of the Recommended Design Concept, the Environmental Study Report (ESR) documenting the planning and decision process for the project will be completed and a “Notice of Study Completion” will be ‘filed’ in the public record for a 30 day review period. This filing will be advertised by mail-outs, on the Region’s website and notices in newspapers. During this filing period, anyone concerned that the study did not fully follow the appropriate requirements of the Class EA process or address all of the issues may request that the Minister of Environment order the project to a more detailed environmental assessment, referred to as a Part II Order request. The Minister of Environment must receive such requests in writing, with a copy sent to the Region’s Commissioner of Transportation and Environmental Services. The Minister will determine if a more detailed environmental assessment is required and the Minister’s decision will be final. If there are no significant unresolved objections following the 30 day review period, the project will be considered approved and proceed to detailed design and construction.

It is anticipated that construction of the improvements will commence in 2017, subject to budget approval. This schedule is also dependent on completion of property acquisitions, co-ordination of utilities and securing necessary approvals. It is anticipated that some utility relocations will be completed in advance of the road improvements.
**Corporate Strategic Plan:**

This project is consistent with the development of Strategic Focus Area 2 (Growth Management and Prosperity) in terms of:

- Develop, optimize and maintain infrastructure to meet current and projected needs.

It is also consistent with the development of Strategic Focus Area 3 (Sustainable Transportation) in terms of:

- Develop, promote and integrate active forms of transportation (cycling and walking).

**Financial Implications**

The 2014 Transportation Capital Budget and Ten-Year Capital Forecast includes $72 million over the years 2014 to 2023 for the design and construction of this project to be funded from the Development Charges Reserve Fund. The estimated cost to construct the River Road Extension is approximately $72 million.

**Other Department Consultations/Concurrence:**

The Transportation Planning Division of the Planning Housing and Community Services Department has been consulted in the preparation of this report.

**Attachments**

- Appendix A – Key Plan of Study Area
- Appendix B – Regulated Habitat of Jefferson Salamander
- Appendix C – Alternative Fairway Road and Highway 8 Interchange Options Presented by the Public in 2011
- Appendix D – Evaluation of Design Concepts 4C and 5
- Appendix E – Key Plan of Stonegate Drive Neighbourhood
- Appendix F – Summary of Public Consultation
- Appendix G – Minutes of Public Input Meeting (PIM), December 3, 2013.
- Appendix H – Mitigation of River Road Extension Natural Environment Impacts
- Appendix I – Evaluation of Stonegate Drive Access Options
- Appendix J – Design Concepts Proposed by a Land Owner at the PIM
- Appendix K – Acoustical Report Summary and Conclusions
- Appendix L – Functional Design Plans and Cross Section
- Appendix M – Property Acquisition Process Information Sheet

Docs #1526240
APPENDIX A

KEY PLAN AND STUDY AREA
REGION OF WATERLOO
RIVER ROAD EXTENSION CLASS ENVIRONMENTAL ASSESSMENT
APPENDIX B

Jefferson Salamander Regulated Habitats

Natural Resources Inventory & Impact Assessment in Hidden Valley
Alternative Fairway Road Solutions Studied

**Roundabout Corridor**
Fairway Road capacity improvements with roundabouts does not provide enough relief capacity along Fairway Road to solve forecasted traffic attractions. Ramps at the Highway 8 and Fairway Road interchange, and the Manitou intersection still operate over-capacity.

**Conclusion:** Fairway Road remains a congested corridor. Roundabouts or widening would provide added capacity, but also attracts added traffic to the corridor so congestion is not relieved.

**6 Lane Fairway Road Widening**
Fairway Road capacity improvements did not provide enough relief capacity along Fairway Road to solve forecasted traffic attractions. Ramps at the Highway 8 and Fairway Road interchange, and the Manitou intersection still operate over-capacity.
Additional Interchange Concepts resulting from May 17, 2011 Public Consultation Centre

Unacceptable Operational Issues:
- Having these tight turns on a River Road Extension could have the following adverse impacts:
  - Mislead driver expectations;
  - Cause vehicle control problems at higher speeds, especially under wet/snowy weather conditions; and
  - Increase the potential for more collisions, particularly rear-ends.

Alternative ‘S’

Alternative ‘H’

Traffic Operation Issues
- NOT RECOMMENDED
APPENDIX D

Evaluation of Alternative Design Concepts 4C and 5
### Natural, Social & Economic Impact Comparisons in Hidden Valley

#### APPENDIX D-2

<table>
<thead>
<tr>
<th>Alternative 5C</th>
<th>Property Acquired Cost</th>
<th>Measured Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 Property Displacement/Fragmentation</td>
<td>$5.5 Million</td>
<td>W of Hwy 8: 8.23 ha E of Hwy 8: 2.07 ha 10.90 ha</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Alternative 5</th>
<th>Property Acquired Cost</th>
<th>Measured Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 Property Displacement/Fragmentation</td>
<td>$5.5 Million</td>
<td>W of Hwy 8: 4.96 ha E of Hwy 8: 2.61 ha 7.57 ha</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GOAL 1: minimize natural environment impacts</th>
<th>Measured Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 Direct impacts to PW</td>
<td>2.9% - 0.39 ha</td>
</tr>
<tr>
<td>1.2 Indirect impacts to PW</td>
<td>15.4% - 2.92 ha</td>
</tr>
<tr>
<td>1.3 Indirect impact to hidden valley</td>
<td>8.28 ha</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GOAL 2: minimize social environment impacts</th>
<th>Measured Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 Property Displacement/Fragmentation</td>
<td>$5.5 Million</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GOAL 4: provide cost-effective economic environment</th>
<th>Measured Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1 Hwy &amp; Crossing Structure Comp Cost</td>
<td>Allowance of $750,000</td>
</tr>
<tr>
<td>4.2 Potential comparative cost of mitigation &amp;</td>
<td></td>
</tr>
<tr>
<td>erosion compensation for Natural Environment</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GOAL 5: minimize social environment impacts</th>
<th>Measured Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1 Direct impacts to PW</td>
<td>2.9% - 0.39 ha</td>
</tr>
<tr>
<td>5.2 Indirect impacts to PW</td>
<td>15.4% - 2.92 ha</td>
</tr>
<tr>
<td>5.3 Indirect impact to hidden valley</td>
<td>8.28 ha</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GOAL 6: provide cost-effective economic environment</th>
<th>Measured Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1 Hwy &amp; Crossing Structure Comp Cost</td>
<td>Allowance of $750,000</td>
</tr>
<tr>
<td>6.2 Potential comparative cost of mitigation &amp;</td>
<td></td>
</tr>
<tr>
<td>erosion compensation for Natural Environment</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GOAL 7: minimize social environment impacts</th>
<th>Measured Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.1 Direct impacts to PW</td>
<td>2.9% - 0.39 ha</td>
</tr>
<tr>
<td>7.2 Indirect impacts to PW</td>
<td>15.4% - 2.92 ha</td>
</tr>
<tr>
<td>7.3 Indirect impact to hidden valley</td>
<td>8.28 ha</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GOAL 8: provide cost-effective economic environment</th>
<th>Measured Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.1 Hwy &amp; Crossing Structure Comp Cost</td>
<td>Allowance of $750,000</td>
</tr>
<tr>
<td>8.2 Potential comparative cost of mitigation &amp;</td>
<td></td>
</tr>
<tr>
<td>erosion compensation for Natural Environment</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GOAL 9: minimize social environment impacts</th>
<th>Measured Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.1 Direct impacts to PW</td>
<td>2.9% - 0.39 ha</td>
</tr>
<tr>
<td>9.2 Indirect impacts to PW</td>
<td>15.4% - 2.92 ha</td>
</tr>
<tr>
<td>9.3 Indirect impact to hidden valley</td>
<td>8.28 ha</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GOAL 10: provide cost-effective economic environment</th>
<th>Measured Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.1 Hwy &amp; Crossing Structure Comp Cost</td>
<td>Allowance of $750,000</td>
</tr>
<tr>
<td>10.2 Potential comparative cost of mitigation &amp;</td>
<td></td>
</tr>
<tr>
<td>erosion compensation for Natural Environment</td>
<td></td>
</tr>
</tbody>
</table>

Docs #1526240
# Natural Resources Impact Assessment in Schneider’s Creek Valley

## GOAL 1: MINIMIZE NATURAL ENVIRONMENT IMPACTS

### Measured Criteria

<table>
<thead>
<tr>
<th></th>
<th>Alternative 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 Direct Impacts on PSW Wetlands</td>
<td>There are no PSWs in the vicinity of the Schneider Creek crossing.</td>
</tr>
<tr>
<td>1.2 Indirect Impacts to PSW Wetlands</td>
<td>There are no PSWs in the vicinity of the Schneider Creek crossing.</td>
</tr>
<tr>
<td>1.3 Direct Impact to Hidden Valley ESPA (existing &amp; candidate ESPA)</td>
<td>The alternative will not directly impact the Homer Watson Park ESPA.</td>
</tr>
<tr>
<td>1.4 Indirect Impact to Hidden Valley ESPA (existing &amp; candidate ESPA)</td>
<td>The alternative will indirectly impact 0.11 ha of the Homer Watson Park ESPA.</td>
</tr>
<tr>
<td>1.5 Direct Impact to Core Environmental Features</td>
<td>The alternative will not directly impact Core Environmental Features.</td>
</tr>
<tr>
<td>1.6 Indirect Impact to Core Environmental Features</td>
<td>The alternative will indirectly impact 0.11 ha of Core Environmental Features.</td>
</tr>
<tr>
<td>1.7 Impact to Vegetation Communities (ELC Classifications)</td>
<td>Low – 0.37 ha  Med – 0.1 ha  High – 0.74 ha  1.2 ha</td>
</tr>
<tr>
<td>1.8 Impacts to Woodlands</td>
<td>Will directly impact 16% (0.74 ha out of 4.56 ha total) of Deciduous Woodland Community</td>
</tr>
</tbody>
</table>

## GOAL 1: MINIMIZE NATURAL ENVIRONMENT IMPACTS

### Measured Criteria (Continued)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.9 Wildlife Resources</td>
<td>The alternative affects remnant forested, meadow and wetland communities behind industrial properties, where no “significant wildlife habitat” is identified. Local and resident animal habitat linkages and movement corridor function along Schneider Creek will be mitigated with bridge structure crossing that accommodates wildlife passage.</td>
</tr>
<tr>
<td>1.10 Fisheries and Aquatic Habitat</td>
<td>The alternative will cross Schneider Creek which supports a warmwater and coolwater fish community. Mitigation measures include spanning the creek meander belt with a bridge structure crossing to maintain creek corridor functions and maintain fish habitat along this reach.</td>
</tr>
<tr>
<td>1.11 Regional Significant Species</td>
<td>The alternative crosses existing disturbed and remnant forested and wetland habitat. No Regionally Significant Species have been identified within these areas.</td>
</tr>
</tbody>
</table>
APPENDIX E

KEY PLAN OF STONEGATE DRIVE NEIGHBOURHOOD

- Full Access
- Existing Temporary Access
- Proposed River Road Extension
APPENDIX F

SUMMARY OF PUBLIC CONSULTATION CENTRES

The following public consultation events were completed as part of the South Kitchener Transportation Corridor Study (SKTCS) and further documented in Report P-06-071, July 4, 2006:

- PCC No. 1, May 27, 2004 - project initiation
- Stakeholder Workshop, July 27, 2004
- PCC No. 2, January 19, 2005 - Alternative Planning Solutions
- PCC No. 3, October 4, 2005 - Preferred Solution
- Regional Council Approval of Preferred Planning Solution, July, 2006

The following additional public consultation events were completed for the River Road Extension Class EA:

- Meeting on November 16, 2006 with residents of the Stonegate Drive Area to discuss concerns with access from Proposed River Road Extension to Stonegate Drive. The Comments concerning alternatives for access to and from Stonegate Drive, at an area residents meeting November 16, 2006 were inconclusive so an additional questionnaire was included at PCC No. 1 for that concern.

- A PCC for showing alternative Design Concepts for the River Road Extension was held February 27, 2007.

- The second PCC for the River Road Extension was held May 17, 2011 at Conestoga Place, formerly Columbus Hall, 110 Manitou Drive, in order for the Project Team to ask for public comments on the Preferred Planning Solution and to update the public on work that had been completed since the previous PCC.

- At an October 5, 2011 meeting of Regional Council, staff presented the updated information confirming the River Road Extension, identified as Alternative 4C, as the Preferred Planning Solution for this project. Regional Council reaffirmed their previous approval of the River Road Extension (Alternative 4C) as the Preferred Planning Solution for this project and directed staff to proceed to the consideration of Alternative Design Concepts for Fairway Road and to study the new options for the Highway 8 interchange presented by the public with the objective of reducing the impact on the existing woodlot.

- The third PCC for the River Road Extension was held on October 1, 2013 at Conestoga Place, 110 Manitou Drive. A total of 114 members of the public signed in at the PCC. Design Alternatives, 4C and 5 were presented with the evaluation of transportation benefits, impact on the woodlots and other environmental and cultural heritage features and capital cost. Alternative Design Concept 5 was developed by the Project Team as it reviewed additional alternative design concepts recently provided by the public and investigated configurations that could move River Road Extension further away from the
mature woodlot than Alternative Design Concept 4C. Alternative Design Concept 5 is similar to Alternative Design Concept 4C and includes a highly skewed bridge crossing of Highway 8 to minimize direct impact on the mature woodlot. The public was asked to respond using two comment sheets provided.

Sheet 1 requested comments on the Project Team’s Preferred Alternative Design Concept 5 and Sheet 2 requested Comments on the two alternatives presented for access to/from Stonegate Drive from River Road. The 66 comments submitted to the Project Team were reviewed and all tabulated with a summary of responses which were prepared by Region staff, MNR staff, IBI Group and LGL Limited. The summary of all comments and responses was sent to all who commented and was appended to the Report E-13-135 for the Public Input Meeting, December 3, 2013.

- A Public Input Meeting (PIM) of the Planning and Works Committee was held on December 3, 2013 to receive further public input about the study. 38 people signed in at the meeting. Appendix F shows the meeting minutes, which were approved by council on December 17, 2013 and mailed to all meeting attendees who indicated they would like to receive them.

- Subsequently, on December 10, 2013, the City of Kitchener held a neighbourhood meeting for the Stonegate residents to discuss concern with the design for access to Stonegate Drive. The meeting was hosted by 2 of the City representatives on the Project Team and was well attended. The meeting heard more concerns and received suggestions to consider design concepts in addition to those presented at the PIM.
APPENDIX G

MINUTES OF PLANNING AND WORKS COMMITTEE, DECEMBER 1, 2013 – 
PUBLIC INPUT FOR PREFERRED DESIGN CONCEPT

REGIONAL MUNICIPALITY OF WATERLOO
PUBLIC MEETING OF THE
PLANNING AND WORKS COMMITTEE
MINUTES

Tuesday, December 3, 2013
7:00 p.m.
Regional Council Chambers
150 Frederick Street, Kitchener

Present were: Chair J. Wideman, J. Brewer, T. Cowan, R. Deutschmann, T. Galloway, J. Haalboom, R. Kelterborn, G. Lorentz, K. Seiling, and C. Zehr


OPEN REMARKS

Chair J. Wideman provided opening remarks regarding the purpose of the meeting and the advertisement history. He thanked the Councillors who sat on the project team from the Region of Waterloo as well as the City of Kitchener. Chair J. Wideman introduced Wayne Cheater, Project Manager and Don Drackley the Consultant from IBI Group.

DECLARATIONS OF PECUNIARY INTEREST UNDER THE MUNICIPAL CONFLICT OF INTEREST ACT

None declared.

REPORT – PLANNING, HOUSING AND COMMUNITY SERVICES - COMMUNITY PLANNING

a) Report E-13-135, River Road Extension, King Street to Manitou Drive, Kitchener, Class Environmental Assessment – Public Input Meeting for Preferred Design Concept

Received for information.

Steve Van de Keere, Head, Transportation Expansion Program provided a presentation that highlighted:
• Project Study Area;
• What Are The Problems;
• Planning Solutions Developed;
• Alternatives;
• Key Concerns Raised by the Public;
• Preferred Design Concept Alternative 5;
• What Are The Benefits Of The Preferred Design Concept; and
• Next Steps in the Study.

A copy of the presentation is appended to the original minutes.

S. Van de Keere provided clarification to Committee members on the right in right out turns, the project cost and where the money will be coming from.
DELEGATIONS

i. Neil Taylor appeared before Committee providing a presentation highlighting background information on the project, staff responses to concerns, costs, response to public, history, and species at risk. A copy of the presentation is appended to the original minutes.

ii. Peter Benninger, Pearl Valley Development Corporation and Ted Rowe. MTE Consultants Inc. appeared before Committee. P. Benninger stated he owns property in Hidden Valley. He provided Committee members with a handout as well provided a presentation. He stated his support for River Road extension and noted that he hired MTE consulting to provide some modifications to the preferred concept. He suggested that a roundabout be installed at the new Hwy 8 ramp South “on ramp” and suggested moving the Wabanki traffic circle location to the South East to allow for better use of the land. A copy of the presentation is appended to the original minutes.

Committee members asked the delegation if MTE provided an estimated cost for the proposed recommendations. T. Rowe responded saying they did not provide a cost but did provide an estimate cost for the roundabout.

iii. John Nother appeared before Committee representing Hidden Valley Residents. He stated the residents have talked about the impact the River Road extension has on them as citizens in the area. He noted their biggest concern is the entrance going in and out at River Road. He pointed out that with traffic problems on Wabanki Drive at the intersection of Fairway Road the residents are concerned about traffic cutting through Hidden Valley Drive. He asked that this issue be addressed during the planning stage.

iv. Daphne Nicholls, The Friends of Hidden Valley appeared before Committee. During her presentation she showed pictures of Hidden Valley. She noted that Ginny Quinn could not be there but wanted to thank staff and the community for coming together for option 5 the preferred concept. D. Nicholls went in detail about Hidden Valley and what it has to offer stating Hidden Valley is a well functioning eco system. She talked about the various species and wondered if the Region was complying with the Species at Risk Act. She recommended that more tree planting occur.

Committee members asked the delegation if she is opposed to the road or if she is in support of option 5 being presented with planting more trees. D. Nicholls stated she is opposed to the road but noted that option 5 is the least obnoxious and would like to see enhanced tree planting.

v. Terry Lalande appeared before Committee stating he would like to make comments on the new access road for the Stonetage/Woodview subdivision. He highlighted that currently there are 2 roads allowing access into the subdivision and the one access will be closed down and replaced with the new access on River Road. He noted the current debate is whether access should be restricted at River Road and cars only be allowed to exit. He stated that he is concerned that if access is restricted at River Road then traffic will be forced to enter at King Street and Stonetage Drive highlighting this entrance is very dangerous due to the hill and curvy road. He suggested that the Region start with open access then assess the situation.

vi. Duncan Clemens, Tri Cities Transportation Action Group (TriTAG) appeared before Committee stating his comments are his views and not of TriTAG. He did state that TriTAG is not pro road or anti road but supports the most effective use of funds for...
March 4, 2014

P&W Minutes - 3 - 13/12/03

Effectively moving people. He stated that although there is a need to promote the use of active transportation it is still necessary to drive indicating road construction can be beneficial in order to connect missing links to the network to benefit all road users. He pointed out the delays currently for buses traveling on Fairway Road noting the River Road extension could elevate some of those delays. He asked that staff be directed to proceed with the extension.

Chair J. Wideman made a call for additional delegations.

vii. Ken Somers appeared before Committee stating his house is up for sale and potential buyers have asked a few questions. He inquired if Hofstetter Avenue will be rerouted to Stonegate Drive and wondered what the elevation of River Road will be.

viii. Peter Pople a resident at 56 Woodview Crescent stated he is concerned that there will only be one entrance into the subdivision off of King Street onto Stonegate Drive. He stated that access is slippery in the winter and there are no sidewalks on either side. He asked that if this is the only entrance into the subdivision it should be made safer.

Committee members asked the delegation if he would like to see accesses remain. P. Pople noted that if one access needs to be closed he asked that the access at King Street and Stonegate Drive be closed.

ix. Sonya Kochanski appeared before Committee stating she lives at 104 Woodview Crescent noting currently her house backs onto green space and wanted to know what the elevation of River Road would be.

x. Keith Townsend appeared before Committee stating he lives on Hidden Valley Road. He expressed his concerns about the traffic volumes on Hidden Valley Road connecting to River Road.

xi. Brian Ellacott a resident at 108 Stonegate Drive stated that the access to Stonegate Drive from River Road should only be used for emergency vehicles and only allow for a right turn out. He noted the inconvenience of this but highlighted that it will prevent traffic from cutting through the subdivision.

Committee members asked the delegation if he would be opposed to having two accesses into the subdivision and reevaluate at a later time. B. Ellacott stated he would be concerned about the politics on who would make that decision and he would want the guarantee that area would be monitored.

xii. Marcin Kasprzycki a resident at 4 Stonegate Drive wondered if staff has looked at the potential impact and congestion on Hwy 8 with the additional ramp being installed.

Committee members asked staff if consideration has been made at the top end of River Road closest to Wabanki Drive for a right of way that is required for phase 2 of the LRT.

ADJOURN

MOVED by G. Lorentz
SECONDED by J. Haalboom

THAT the meeting adjourn at 8:43 p.m.

1517319

Docs #1526240
P&W Minutes

CARRIED

COMMITTEE CHAIR, J. Wideman

COMMITTEE CLERK, E. Flewwelling
APPENDIX H

MITIGATION OF RIVER ROAD EXTENSION NATURAL ENVIRONMENT IMPACTS

In order to reduce or mitigate some of negative impacts of the River Road Extension on the natural and social environment, Region staff would implement the Mitigation measures which are detailed in “Natural Heritage Impact Analysis”, By LGL Limited, February 2014, which is available on the Regions website, at www.regionofwaterloo.ca including the following measures, where appropriate and feasible:

- Apply minimum acceptable road design standards in some locations to minimize the loss of Provincially Significant Wetland (PSW) and mature woodland loss caused by the roadway and fill slopes along elevated portions across Hidden Valley and the Schneider Creek Valley;

- Create steeper side slopes, and consider using bio-engineered slope reinforcement techniques along the road extension to reduce the “footprint” of the road to minimize tree loss and near all environmentally sensitive areas;

- Develop and implement a stormwater management plan which incorporates appropriate Best Management Practices (BMPs) in accordance with the completed stormwater management concept and the water resources impact study;

- Develop and implement, a plan that will ensure that the water quality of the watercourses, wetlands, and vernal pools that are part of the Jefferson Salamander habitat will not be adversely affected by construction and operation of the proposed road, and will work closely with MNR and GRCA to determine the best means of achieving this objective. As part of this objective, potential salt impacts to Jefferson Salamander habitat and the features and functions of the natural areas, will need to be addressed in the overall mitigation plan for the species, and it is expected that details of that mitigation plan will be developed at detailed design in close consultation with the MNR and the GRCA;

- Provide for safe wildlife passage, beneath the bridge structure over Schneider Creek.

- In the Hidden Valley portion of the corridor, provide low vertical walls as an effective barrier to prevent Jefferson Salamanders and most small animals from crossing the road.

- Consider means to provide controlled public access from the new road to the Hidden Valley natural area;

- Develop and implement, a plan to locate and protect, as necessary Jefferson Salamanders prior to and during construction. This plan could require an application to the MNR for a permit under the Species at Risk Legislation;
- Conduct further species inventory during detailed design and prior to construction. Native species of plants that are encountered within the area of construction will be salvaged and relocated to nearby areas to preserve local biodiversity. Specific measures will be implemented in accordance with any required MNR permits to minimize the potential impact to all known SAR during and after construction.

- Develop an erosion and sedimentation control plan to prevent sedimentation into the adjacent natural areas during construction. Ensure that controls remain in place and in good working order until the road side slopes of the fill areas are stabilized and re-vegetated;

- Utilize open areas created by the new road for extensive tree planting such as on the side slopes of the River Road extension between Manitou Drive and Wilson Avenue and between Wabanaki Drive and Stonegate Drive;

- As soon as feasible after acquiring any required property for the road extension, pre-stress the future new edges of the woodland (i.e. selectively clear some of the trees/vegetation on the surrounding edges) along the approved road right-of-way to allow the residual trees some time to adjust to increased exposure to sun, wind, etc.;

- Identify and implement measures to protect the population of Regionally significant Fringed Gentian (a rare plant) through protection from indirect impact and/or transplanting the plants to nearby suitable habitat;

- Provide construction monitoring on site by a qualified independent environmental inspector ensure that mitigation measures are in place and working and respond to significant observations that require additional documentation and response;

- Implement an environmental monitoring and adaptive management plan to assess the effectiveness of measures to mitigate impacts of the new road on the natural environment, identify opportunities to improve the mitigation plan, and enforce compliance with the plan.
## APPENDIX I

### Evaluation of Alternative Options for Access to Stonegate Drive

<table>
<thead>
<tr>
<th>Stonegate/River Road</th>
<th>Stonegate/King Street</th>
<th>Traffic Operations</th>
<th>Traffic Safety</th>
<th>Cut-Through Traffic</th>
<th>Overall Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Restricted access: full out movements, emergency only in</td>
<td>Full Access</td>
<td>Delay and congestion are acceptable.</td>
<td>Moderate conflicts at one end of Stonegate and moderate volume on Stonegate.</td>
<td>Left-turn to avoid use of King/River Road Extension intersection in one direction.</td>
<td>This was preferred by the Project Team at the PIM</td>
</tr>
<tr>
<td>2. Full Access – (Subject to acceptance by MTO)</td>
<td>Full Access</td>
<td>Delay and congestion are acceptable. Drivers will choose preferred routes.</td>
<td>Highest conflicts at both ends of Stonegate and highest volume on Stonegate.</td>
<td>Worst - Avoiding use of King/River Road Extension intersection in two directions.</td>
<td>Not recommended due to poor rating for cut-through and conflicts</td>
</tr>
<tr>
<td>3. Restricted access: full out movements, emergency only in</td>
<td>Restricted access: full in movements, emergency only out</td>
<td>Delay and congestion are acceptable. Enforcement is a concern.</td>
<td>Moderate conflicts at one end of Stonegate and moderate volume on Stonegate.</td>
<td>Left-turn to avoid use of King/River Road Extension intersection in one direction.</td>
<td>Not recommended - Elimination of left-out at King Street would not reduce cut-through.</td>
</tr>
<tr>
<td>4. Full Access (Subject to acceptance by MTO)</td>
<td>Right-in/Right-out</td>
<td>Delay and congestion are acceptable. Enforcement is a concern.</td>
<td>Some reduced left-turn conflicts.</td>
<td>High use of shortcut from River Road to King Street southbound.</td>
<td>Not recommended due to poor rating for cut-through</td>
</tr>
<tr>
<td>5. Full Access (Subject to acceptance by MTO)</td>
<td>Closed: Emergency access only or right-in only</td>
<td>Delay and congestion are acceptable. Improved operation at King/Stonegate but small delays at River Road/Hwy 8 ramp</td>
<td>Reduced conflicts at King Street end of Stonegate Drive.</td>
<td>No cut-through traffic.</td>
<td>Recommended, subject to acceptance by MTO</td>
</tr>
</tbody>
</table>
### APPENDIX I-2

**Evaluation of Alternative Options for Access to Stonegate Drive (continued)**

<table>
<thead>
<tr>
<th>Stonegate/River Road</th>
<th>Stonegate/King Street</th>
<th>Traffic Operations</th>
<th>Traffic Safety</th>
<th>Cut-Through Traffic</th>
<th>Overall Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. Closed: Emergency access only</td>
<td>Full Access</td>
<td>Delay and congestion are acceptable.</td>
<td>High-Increased use of King Street/Stonegate intersection for all access to/from Neighbourhood.</td>
<td>No cut-through traffic.</td>
<td>Not recommended due increased use of the King Street end of Stonegate Drive.</td>
</tr>
</tbody>
</table>

Note: All of the above options provide for access between the neighbourhood and all destinations and provides for emergency access. Details of Stonegate/River Road access options and overall plan of Option 5 are shown on the following two pages.
APPENDIX I-3

RIVER ROAD / STONEGATE DR. INTERSECTION OPTIONS

Alternative Options 2, 4 and 5 Full Access

Alternative Options 1 and 3 Restricted Access: full out movements, entry only for emergency vehicles

Docs #1526240
Close Stonegate Drive/King Street Except Right-in Only & Full Access Stonegate/River Rd.
APPENDIX J

Design Changes Presented by a Land Owner, Delegation at the Public Input Meeting (PIM), December 3, 2013

1. Change Hidden Valley Road intersection to full movements.
2. Change intersection at proposed Highway 8 SB on-ramp to a roundabout.
3. Move roundabout at Wabamun Drive further from the CP Rail crossing.
APPENDIX K

ACOUSTICAL REPORT (from IBI October 2013, updated January 2014)

Background and Noise Criteria

IBI Group was retained to conduct a noise study for the River Road Class Environmental Assessment (EA) Study. This acoustical study examined the impacts of noise created by the proposed River Road extension on existing residential development located between King Street and Highway 8 along the proposed River Road extension, and recommends any mitigation, if required, based on criteria set by the Region of Waterloo and the Ministry of the Environment (MOE).

Refer to the Noise Information Plan below for the layout of the proposed road and existing residences.

The Region of Waterloo has established noise level guidelines for existing residential development impacted by future road construction and reconstruction entitled “Implementation Guideline for Noise Policies Part B: Existing Development Impacted by Proposed Regional Road Undertakings” published in July 1999. This guideline requires noise attenuation measures if:

1. The future predicted noise levels after the proposed road work exceeds 65 dBA;
2. The future predicted noise levels exceed 60 dBA and the difference between the current and future noise levels exceed 5 dBA;
3. If there is no existing road, 55 dBA is to be used as the existing noise level.

![Map of proposed road and existing residences](image-url)
Results

The noise modeling program “STAMSON 5.0” was used to predict noise levels produced by the existing and future (2031) traffic volumes along River Road and Highway 8 based on the information provided in Table 1.

As Highway 8 is a significant noise source, and the proposed River Road extension is independent of Highway 8 noise, it is beneficial to analyze River Road with and without Highway 8 noise included. From this analysis the impacts from the proposed River Road can be better understood. Accordingly, the results of noise from only River Road are summarized in Table 3.

Table 3 – Predicted Unattenuated Noise Levels (without Highway 8)

<table>
<thead>
<tr>
<th>RECEIVER</th>
<th>EXISTING NOISE LEVEL (dBA)</th>
<th>FUTURE NOISE LEVEL (dBA)</th>
<th>DIFFERENCE (dBA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A - Woodview Crescent</td>
<td>100</td>
<td>55</td>
<td>58.2</td>
</tr>
<tr>
<td>B - Stonegate Drive</td>
<td>137</td>
<td>55</td>
<td>57.2</td>
</tr>
<tr>
<td>C - Stonegate Drive</td>
<td>93</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

As outdoor noise levels do not exceed 60dBA for the daytime and are not greater than 5 dBA over the 55 dBA existing (as per criteria) noise level, noise mitigation in the form of acoustical barriers is not warranted.

With Highway 8 noise included with the River Road noise, the results shown in Table 4 were obtained.

Table 4 – Predicted Unattenuated Noise Levels (with Highway 8)

<table>
<thead>
<tr>
<th>RECEIVER</th>
<th>FUTURE NOISE LEVEL (dBA)</th>
<th>EXISTING NOISE LEVELS (dBA)</th>
<th>DIFFERENCE (dBA)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RIVER ROAD</td>
<td>HIGHWAY 8</td>
<td>TOTAL</td>
</tr>
<tr>
<td>A</td>
<td>58.2</td>
<td>60.6</td>
<td>62.6</td>
</tr>
<tr>
<td>B</td>
<td>57.2</td>
<td>67.4</td>
<td>67.8</td>
</tr>
<tr>
<td>C</td>
<td>N/A</td>
<td>64.8</td>
<td>64.8</td>
</tr>
</tbody>
</table>
As shown in Table 4, the noise levels at the various receivers are dominated by Highway 8 and the addition of River Road does not have a significant impact (noise level increases due to River Road are a maximum of 2dBA). The only receiver that fails the Region criteria is Receiver B as the noise level exceeds 65 dBA (both in the existing scenario and in the future 2013 forecast). However, the exceedance is dominated by Highway 8 noise as the River Road noise only contributes 0.4dBA to the total noise environment. Accordingly, noise attenuation is not warranted for traffic noise generated by River Road, and even if noise attenuation were constructed for River Road it would have no discernable influence on the noise environment.

**Recommendations**

In conclusion, it is found that predicted noise from River Road will not have a significant impact on the noise environment of the adjacent sensitive receivers and noise resulting from River Road will be within the Region of Waterloo guidelines. Accordingly, no noise mitigative measures are warranted for the River Road extension.
APPENDIX L

FUNCTIONAL DESIGN PLANS AND CROSS-SECTION

KEY PLAN

River Road Extension
Recommended Design Concept 5
Refer to Drawings L-2, L-3 and L-4 for additional details
APPENDIX L-3

RIVER ROAD (EAST) – RECOMMENDED DESIGN CONCEPT 5

Location of roundabout to be investigated during Detailed Design in consultation with adjacent property owner and MTO.

POTENTIAL WIDENING OF WABANAKI DRIVE ON EAST SIDE (PROPOSED ROAD ALIGNMENT TO BE CONFIRMED)

5.0m MEDIAN

GOODRICH DRIVE

FUNCTIONAL DESIGN

HIDDEN VALLEY ROAD
RECOMMENDED DESIGN CONCEPT 5

River Road Extension from King Street to Manitou Drive

Road Design Criteria: Typical Road Cross-Section

NOTE: Width of Road Will Vary to Minimize Natural Environment Impacts

Docs #1526240
APPENDIX M

PROPERTY ACQUISITION PROCESS INFORMATION SHEET
(PROJECTS REQUIRING CLASS ENVIRONMENTAL ASSESSMENT APPROVAL)

The following information is provided as a general overview of the property acquisition process and is not legal advice. Further, the steps, timing and processes can vary depending on the individual circumstances of each case.

Once the Class Environmental Assessment is complete and the Environmental Study Report outlining the Recommended Design Concept has been approved, the property acquisition process and the efforts of Regional Real Estate staff will focus on acquiring the required lands to implement the approved design. Regional staff cannot make fundamental amendments or changes to the approved design concept.

Property Impact Plans
After the project has been approved and as it approaches final design, the project planners will generate drawings and sketches indicating what lands and interests need to be acquired from each affected property to undertake the project. These drawings are referred to as Property Impact Plans (PIP).

Initial Owner Contact by Regional Real Estate Staff
Once the PIPs are available, Regional Real Estate staff will contact the affected property owners by telephone and mail to introduce themselves and set-up initial meetings to discuss the project and proposed acquisitions.

Initial Meetings
The initial meeting is attended by the project engineer and the assigned real estate staff person to brief the owner on the project, what part of their lands are to be acquired or will be affected, what work will be undertaken, when, with what equipment, etc and to answer any questions. The primary purpose of the meeting is to listen to the owner and identify issues, concerns, effects of the proposed acquisition on remaining lands and businesses that can be feasibly mitigated and/or compensated, and how the remaining property may be restored. These discussions may require additional meetings. The goal of staff is to work with the owner to reach mutually agreeable solutions.

Goal – Fair and Equitable Settlement for All Parties
The goal is always to reach a fair and equitable agreement for both the property owner and the Region. Such an agreement will provide compensation for the fair market value of the lands and address the project impacts (such as repairing or replacing landscaping, fencing, paving) so that the property owner will receive the value of the lands acquired and the restoration of their remaining property to the condition it was prior to the Project.

The initial meetings will form the basis of an initial offer of settlement or agreement of purchase and sale for the required lands or interests.

Steps Toward Offer of Settlement or Agreement of Purchase and Sale
The general steps towards such an offer are as follows;

1) The Region will obtain an independent appraisal of the fair market value of the lands and interests to be acquired, and an appraisal of any effect on the value of the rest of the property resulting from the acquisition of the required lands and interests;

Docs #1526240
APPENDIX M-2

2) compensation will be estimated and/or works to minimize other effects will be defined and agreed to by the property owner and the Region;

- reasonable costs of the owner will be included in any compensation settlement;
- an offer with a purchase price and any other compensation or works in lieu of compensation will be submitted to the property owner for consideration; and
- an Agreement will be finalized with any additional discussion, valuations, etc as may be required.

Depending on the amount of compensation, most agreements will require the approval of Council. The approval is undertaken in Closed Session which is not open to the public to ensure a level of confidentiality.

Expropriation

Due to the time constraints of these projects, it is the practice of the Region to commence the expropriation process in parallel with the negotiation process to insure that lands and interests are acquired in time for commencement of the Project. Typically, over 90% of all required lands and interests are acquired through the negotiation process. Even after lands and interests have been acquired through expropriation an agreement on compensation can be reached through negotiation, this is usually referred to as a ‘settlement agreement’.

Put simply, an expropriation is the transfer of lands or an easement to a governmental authority for reasonable compensation, including payment of fair market value for the transferred lands, without the consent of the property owner being required. In the case of expropriations by municipalities such as the Region of Waterloo, the process set out in the Ontario Expropriations Act must be followed to ensure that the rights of the property owners provided under that Act are protected.

For information on the expropriation process, please obtain a copy of the ‘Expropriation Information Sheet’.

Docs #1526240
Report: P-14-024

Region of Waterloo
Planning, Housing and Community Services
Community Planning

To: Chair Jim Wideman and Members of the Planning and Works Committee

Date: March 4, 2014

File Code: D18-01


Recommendation:


Summary:

In accordance with the Regional By-law 01-023, as amended, the Commissioner of Planning, Housing and Community Services has:

- Approved the following part lot control exemption by-law;
- Accepted the following plans of subdivision; and
- Approved the following official plan amendments.

Report:

City of Cambridge

Part Lot Control Exemption By-law 1-14

Applicant: Chrisview Custom Homes Limited

Location: Kedwell Street

Proposal: To permit the creation of 16 single detached units.

Regional Processing Fee: Paid December 4, 2013

Commissioner’s Approval: January 22, 2014
City of Waterloo

Official Plan Amendment No. 1

Applicant: Rise Real Estate (Adobe Varsity Living Inc.)
Location: 300 to 330 Phillip Street and 145 Columbia Street
Proposal: To add Specific Provision Area No. 50 (SPA 50) to Schedule ‘A6” of the City of Waterloo Official Plan. SPA 50 will require commercial uses to be located in one of the proposed buildings facing Phillip Street, permit residential uses and amenity areas to be located on the ground floor and establish design requirements for the development. This Official Plan Amendment will facilitate the development of four apartment buildings geared to students consisting of 524 units totalling 1384 bedrooms.

Regional Processing Fee: Paid January 7, 2014
Commissioner’s Approval: January 8, 2014
Came Into Effect: January 29, 2014

Township of North Dumfries

Plan of Subdivision Application 30T-14301

Date Accepted: January 15, 2014
Location: 895 Brant-Waterloo Road
Proposal: To permit the development of 380 to 439 residential units consisting of single detached, semi-detached, townhouse and cluster townhouse units.

Regional Processing Fee: Paid December 18, 2013

Township of Woolwich

Plan of Subdivision Application 30T-14701

Date Accepted: January 24, 2014
Applicant: Birdlands Development Ltd.
Location: 1143 Listowel Road, Elmira
Proposal: To permit the development of 141 residential units consisting of 84 single detached units, 24 semi-detached units and 33 townhouse units.

Regional Processing Fee: Paid January 21, 2014

Official Plan Amendment No. 22

Applicant: King/86 Developments Ltd.
Location: 330 and 335 Farmer’s Market Road
Proposal: To provide for an in-store conversion to the Wal-Mart which would allow up to 25,000 square feet of food store merchandise. This amendment also provides for the construction of a new 24,500 square feet building to accommodate a Value Village store.

Regional Processing Fee: Paid December 31, 2013

Commissioner’s Approval: January 9, 2014
Came Into Effect: January 30, 2014

**Residential Subdivision Activity January 1, 2014 to January 31, 2014**

<table>
<thead>
<tr>
<th>Area Municipality</th>
<th>Units in Residential Registered Plans</th>
<th>Residential Units Draft Approved</th>
<th>Pending Plans (Units Submitted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Kitchener</td>
<td>0</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Waterloo</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Cambridge</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Woolwich</td>
<td>0</td>
<td>0</td>
<td>141</td>
</tr>
<tr>
<td>Wilmot</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>North Dumfries</td>
<td>0</td>
<td>0</td>
<td>439</td>
</tr>
<tr>
<td>Wellesley</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Region of Waterloo</td>
<td>0</td>
<td>0</td>
<td>580</td>
</tr>
</tbody>
</table>

*The acceptance and/or draft approval of plans of subdivision and condominium processed by the City of Kitchener under delegated approval authority are not included in this table. For comparison, the following table has also been included:
Residential Subdivision Activity January 1, 2013 to January 31, 2013

<table>
<thead>
<tr>
<th>Area Municipality</th>
<th>Units in Residential Registered Plans</th>
<th>Residential Units Draft Approved</th>
<th>Pending Plans (Units Submitted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Kitchener</td>
<td>27</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Waterloo</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Cambridge</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Woolwich</td>
<td>0</td>
<td>0</td>
<td>531</td>
</tr>
<tr>
<td>Wilmot</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>North Dumfries</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Wellesley</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Region of Waterloo</td>
<td>27</td>
<td>0</td>
<td>531</td>
</tr>
</tbody>
</table>

*The acceptance and/or draft approval of plans of subdivision and condominium processed by the City of Kitchener under delegated approval authority are not included in this table.

Area Municipal Consultations/Coordination

These planning approvals and releases, including consultations with Area Municipalities, have been completed in accordance with the Planning Act. All approvals contained in this report were supported by the Area Municipal Councils and/or staff.

Corporate Strategic Plan:

This report reflects actions taken by the Commissioner in accordance with the Delegation By-law adopted by Council. The activities described in this report are operational activities consistent with objectives of Focus Area A: Growth Management and Prosperity.

Financial Implications

Nil

Other Department Consultations/Concurrence:

Nil

Prepared By: Andrea Banks, Program Assistant

Approved By: Rob Horne, Commissioner, Planning, Housing and Community Services
Region of Waterloo
Planning, Housing, and Community Services
Transportation Planning

To: Chair Jim Wideman and Members of the Planning and Works Committee
Date: March 4, 2014
File Code: D09-01(A)
Subject: West Waterloo Commercial Centre

Recommendation:
For Information

Summary:
The West Waterloo Commercial Centre is a proposed development at 924 and 930 Erb Street West immediately opposite 925 Erb Street West (Waterloo Waste Management Centre). The primary tenant for this site is a Costco warehouse membership club and gas bar, of approximately 160,000 square feet. This area of Waterloo has been designated for commercial and employment (industrial) development by the City of Waterloo for about twenty years.

Transportation Analysis has been completed for this development based on a scope of work developed jointly by the Region of Waterloo and the City of Waterloo. These studies identify significant vehicle delays in the short term (i.e. from site opening to five years) due to the additional traffic generated.

The traffic delays noted above are expected to also affect operations at the Waterloo Waste Management Centre (WMC). Contracted curbside collection vehicles, industrial, commercial and institutional customers, as well as members of the public, will likely be subject to increased delays when visiting the WMC. These delays could affect the use of the WMC, which in turn could have financial impacts as a result of decreased revenue and/or increased costs for existing and future waste collection contracts. However, Regional and City of Waterloo staff, along with the developer, are in agreement that certain access and road improvements must be implemented before the development opens to the public to mitigate some of the delays. Furthermore, implementing all of the mitigation measures that are proposed is expected to further mitigate delays, but delays will still be higher than today.
The specific (proposed) transportation infrastructure investments that have been identified to mitigate expected vehicle delays consist of:

1. Construction of a new north-south collector road (City Employment Collector) between Erb Street West and Columbia Street West.
2. Widening of Erb Street West to four lanes between Fischer-Hallman Road and the City Employment Collector (subject to a Class Environmental Assessment Study).
3. Addition of a trail connection from Paris Boulevard to the Clair Hills residential neighbourhood and other active transportation improvements in the area.
4. Modifications to the roundabout at Erb Street West and Ira Needles Boulevard.
5. Proposed construction of two modern roundabouts to facilitate development and WMC access. Regional staff have concluded that one roundabout (easterly roundabout at WMC - Gate 1, commercial access) would be required to be constructed to allow partial development of the site in 2014 (opening of the Costco), and a second roundabout (westerly roundabout at WMC Gate 2, public access) would be required to be constructed prior to the development of the remainder of the site. Phasing of additional development should be a priority consideration.

While most of these improvements would not be in place for “Opening Day” of the West Waterloo Commercial Centre, they are currently being planned for and are expected to significantly improve operations in the coming years as described in this report. In the longer term (i.e. 5 to 20 years), further build out of the Vista Hills subdivision and the employment lands owned by the City of Waterloo (north of the subject site) will further increase pressure on the area transportation network.

This report outlines the proposed development, expected impacts and both planned and proposed mitigation in more detail.

Report:

The West Waterloo Commercial Centre is a proposed development at 924 and 930 Erb Street West immediately opposite 925 Erb Street West, the Waterloo Waste Management Centre (WMC). The current development proposal includes a large format warehouse membership club (Costco) and associated gas bar, of approximately 160,000 square feet. Additional commercial uses on the proposed site total over 65,000 square feet and include retail, restaurant, and services. The development also includes over 950 parking stalls.

This development parcel is part of a larger tract of non-residential land that extends from Erb Street West to Columbia Street West and from Wilmot Line east to the Hydro One corridor. Most of the larger tract of land is planned for employment (industrial) purposes, and is owned primarily by the City of Waterloo. Much of this employment land is occupied by the Waterloo Golf Academy, whose lease expires at the end of 2017.
The site includes a segment of a proposed City Employment Collector Road that will connect Columbia Street West to Erb Street West at the Gate 2 entrance to the Waterloo WMC. This road can not be fully connected to Columbia Street until the Golf Academy lease has expired. As such, this partial road segment along the western boundary of the site can essentially operate as a site access to Costco in the short term.

The West Waterloo Commercial Centre site is currently zoned Agriculture. This zoning is intended to allow existing farming activities to continue until the land is developed in accordance with the City’s Official Plan. The City’s 1990 Official Plan included a strip of commercial development along Erb Street West (west of the hydro transmission corridor to the Wilmot Line). This strip included a portion of the currently proposed West Waterloo Commercial Centre site. Through updates to the Official Plan, this strip was ultimately consolidated into one larger block in the 2012 City Official Plan and is now the site of the proposed development. The City’s Official Plan designation for this block specifically allows a large format retail commercial centre, with consideration for a warehouse membership club (subject to a zoning by-law amendment and a retail market impact study, which has been submitted to the City). However, the ancillary commercial uses (totalling 65,000 square feet) require both amendments to the City’s Official Plan and Zoning By-law.

The current proposal contemplates opening the Costco Warehouse and gas bar in the fall of 2014. The balance of the commercial tenants would occupy the site in the years after the warehouse membership club is in place. Please see Attachment 1 for a map of the area, highlighting several key features.

Beginning in October 2012, Regional Staff, City of Waterloo Staff, and the West Waterloo Commercial Centre proponents have been working together to identify and attempt to mitigate the transportation impacts of the proposed development. After working through several scenarios, a preferred solution was identified. However, the solution would not fully mitigate traffic impacts. In fact, further traffic delays are expected.

**Transportation and Waste Management Impacts**

A Transportation Impact Study and an Intersection Control Study have been completed for this development based on a scope of work developed jointly by the Region of Waterloo and the City of Waterloo. These studies identify significant vehicle delays in the short term due to the additional traffic generated by the proposed site, as well as delays in the longer term.

**Waterloo Waste Management Centre:**

The traffic delays noted above would significantly affect operations at the Waterloo Waste Management Centre (WMC). Contracted curbside collection vehicles, industrial, commercial and institutional customers, as well as members of the public, would be subject to increased delays when visiting the WMC. These delays could affect the use of the WMC, which in turn could have financial impacts as a result of decreased revenue and/or increased costs for existing and future collection contracts. However,
Regional and City of Waterloo staff, along with the developer, are in agreement that certain access and road improvements must be in place before the development opens to the public to mitigate some of the delays. With the mitigation measures that are proposed, over time, the delays would be expected to be reduced for all visitors to the WMC, but would still remain higher than exist today.

The Transportation Impact Study for the West Waterloo Commercial Centre considered three distinct time horizons over the course of the next ten years.

Opening Day (proposed for late 2014):

The first horizon evaluates the operation of the area transportation system, including the new easterly roundabout at the site and WMC - Gate 1, soon after the completion of the proposed development or “Opening Day”. A significant traffic generator such as a Costco warehouse membership club and gas bar will lead to traffic in excess of the current capacity of Erb Street West and particularly the roundabout at Erb Street West and Ira Needles Boulevard.

- On “Opening Day” average delays of over 6 minutes to travel from Erb Street West and Ira Needles Boulevard to the subject site (about 750 metres) are expected at peak traffic times such as weekday evenings. Off-peak this section of 0.7 km of road would take on average 1 minute to travel.
- It is also expected to take up to a minute on average (sometimes longer) to exit the site during these times.
- There could be even longer delays to exit the subject site if the construction of the westerly roundabout at the Employment Collector and WMC – Gate 2 is delayed beyond opening day.
- Once patrons have exited the site it is expected they will encounter congestion as they meet the existing two lane section of Erb Street West (through the Hydro One corridor) towards Ira Needles Boulevard.
- While the type of development on this site was considered in the design of the existing roundabout at Erb Street West and Ira Needles Boulevard, the amount of retail as now proposed would increase traffic volumes significantly beyond original traffic forecasts.

Five-Years (2019):

The second horizon looks at a point, approximately five years from today when a new City Employment Collector Road connecting Erb Street West to Columbia Street West is completed. For this horizon, it is also expected that operational improvements currently being planned will have been made to the intersection of Erb Street West and Ira Needles Boulevard and that Erb Street West will have been widened to two lanes of travel in each direction between Fischer-Hallman Road and the subject site (including the construction of the two roundabouts to facilitate site and WMC access). Compared to the 6 minutes of travel on opening day, average delays should drop to about 2 minutes to travel the 750 metres from Ira Needles Boulevard to the site.

Despite this improvement, traffic delays should still be expected during peaks. Additionally, the existing traffic signal on Erb Street West at the access to the Westside
Marketplace (Shoppers Drug Mart, Canadian Tire, etc.) may continue to cause congestion and queuing problems despite the other improvements. More detailed analysis is planned, but this traffic control signal may need to be removed. This would change access to the Westside Marketplace and require patrons to rely more on the Erbsville Road access.

Ten Years (2024):

The third horizon is approximately ten years from today when the Vista Hills subdivision is expected to be built-out, and the City of Waterloo employment lands are about one third developed. At this point, the improvements put in place by the second horizon would be reaching their capacity to carry the increase in vehicle traffic.

Due to the location of the property at the edge of the City of Waterloo there is no feasible opportunity to expand the area transportation network to further increase vehicle capacity to serve the site and surrounding employment lands.

Any further widening to Erb Street West would cause significant property impact to the existing commercial development, extensive hydro utility relocations and potential natural environmental impacts on the south side of the road. Further, the intersection of Erb Street West and Ira Needles Boulevard is constrained by existing buildings close to the right-of-way and additional changes to this constrained intersection provide little benefit relative to the cost.

Impact Examples

Currently, the section of Ira Needles Boulevard between Highland Road West and Victoria Street South experiences congestion in the peak periods. The section of Ira Needles between Highview Drive and 350 metres north of University Avenue is planned for widening in 2014. This type of congestion may be indicative of the experience on Erb Street West before all of the planned improvements can be constructed (before 2019).

The intersection of Erb Street West and Ira Needles Boulevard currently experiences peak period congestion and delays. With the addition of traffic from the West Waterloo Commercial Centre it is expected that these delays would increase between 2014 and 2019. Planned modifications to this intersection by 2016, would improve traffic flow, as would the addition of the City Employment Collector Road in 2019. However, in the long term, this intersection will continue to experience delays (before 2031).

Wilmot Line may see a short term minor increase in traffic until all of the mitigation measures are in place, especially the City Employment Collector Road is constructed.

Potential Mitigation Plan

There are several transportation improvements proposed to help mitigate the congestion associated with the large increase in vehicle traffic. These proposed improvements include:

1. Proposed construction of two modern roundabouts to facilitate site access. One roundabout (easterly roundabout at WMC - Gate 1) would be required to be
constructed to allow partial development of the site in 2014 (opening of the Costco), and the second roundabout (westerly roundabout at WMC - Gate 2) would be required to be constructed prior to the development of the remainder of the site.

2. Add northbound and southbound right turn bypass lanes to the roundabout at the intersection of Erb Street West and Ira Needles Boulevard / Erbsville Road. (planned for 2015/2016).

3. Construction of a new City collector road between Erb Street West and Columbia Street West (planned for beyond 2018/2019).

4. Widen Erb Street West to four lanes (two lanes in each direction) between the west edge of the West Waterloo Commercial Centre site and Fischer-Hallman Road (subject to a Class Environmental Assessment Study, commencing in 2014, with construction planned for 2018). Included in the scope of the EA would be an assessment of improvement options for the Erb’s Road and Wilmot Line intersection (including consideration of closure, site line improvements, and realignments).

5. Connecting the subject site to the adjacent residential area with a trail extending from Paris Boulevard, bike lanes on Erb Street West, a sidewalk on the north side of Erb Street West, and a trail along the new City Employment Collector Road connecting to Vista Hills (timing connected to site development, as discussed under points 2 and 3 above).

6. Possibly remove the traffic control signal on Erb Street West at the access to the Westside Marketplace (to be evaluated).

7. Phase the full build out of the ancillary commercial component of the West Waterloo Commercial Centre until some or all of the improvements above are complete, in particular the proposed City Employment Collector Road.

While most of these improvements would not be in place for “Opening Day” of the West Waterloo Commercial Centre, they are currently being planned for and are expected to significantly assist in the coming years. In the long term, the full build out of the Vista Hills subdivision and the City of Waterloo employment lands is expected to again increase traffic pressure on the area network.

**Next Steps**

Regional staff is working with the West Waterloo Commercial Centre proponent to develop a detailed design for access to the subject site. This design will consider both the longer term requirements as well as what might be a best case scenario for opening day. Key issues that need to be resolved are hydro utility relocations, and minimizing any throw away costs. Regional and City staff along with the developer agree that some or all access improvements will need to be in place prior to opening day of the development.

Public consultation for the planned roundabouts will need to occur along with Regional Council approval. Construction tenders for the roundabouts would also be subject to Regional Council approval.
City of Waterloo staff is proposing to table a report regarding the proposed Official Plan and Zoning By-law Amendments to their Council in early April. Regional staff will continue to work with City staff, including discussion of phasing the development. It should be noted, however, that should Waterloo City Council endorse the proposed development applications, the official plan amendment would be forwarded to the Region of Waterloo as the approval authority. At this point, a final decision on the merits of the application, particularly traffic issues of Regional interest, would need to be finalized by either the Regional Planning Commissioner or Regional Council (if Regional staff do not concur with the City Council’s recommendations).

If the Official Plan and Zoning By-law approvals are secured, a site plan agreement would need to be approved by the City in consultation with the Region. Before Regional clearance is granted for the site plan, a Regional cost sharing agreement will need to be approved, the letter of credit received and the necessary lands would need to be dedicated to the Region for the roundabout construction. The City of Waterloo would also need to designate the Employment Collector as Public Highway prior to finalizing the cost sharing agreement.

In 2014, Regional staff will initiate a Class Environmental Assessment (EA) project to evaluate the widening of Erb Street West. This EA would work toward a 2018 construction date and all recommendations from the EA will be subject to Regional Council approval. While the EA and the site access designs would be closely integrated, the intersection modifications required at the site accesses (roundabout or traffic control signals) would not be subject to the EA process.

**Corporate Strategic Plan:**

By working toward the successful development of the West Waterloo Commercial Centre, the Region’s second strategic focus area, Growth Management and Prosperity, may be supported.

**Financial Implications**

The easterly roundabout at the site access and WMC - Gate 1 would be funded by the developer. The second westerly roundabout at the City Employment Collector Road and WMC - Gate 2 could be eligible for funding under Regional Development Charges when the Collector Road is deemed a public highway. The cost of the roundabouts is being developed as part of the discussion regarding site plan and engineering work for the development. Some of the Regional portion of the costs for the noted improvements would be covered through the Erb Street Widening Capital Project which was identified as part of the 2014 Transportation Capital Program (TCP). The TCP includes five projects in this area to be completed as part of this work and has a total budget of $10.8 million. If further costs are identified, they would be added to the TCP at mid-year review or in the 2015 TCP.

Traffic delays could affect the use of the WMC, which in turn could have financial impacts as a result of decreased revenue and/or increased costs for existing and future
waste collection contracts. The amount of financial impact is unknown at this time, but may be significant.

Area Municipal Consultation/Coordination

Regional and City of Waterloo Staff have been working closely on all aspects of the proposed West Waterloo Commercial Centre development.

Other Department Consultations/Concurrence:

Transportation and Environmental Services has been involved in the review and development of solutions for this project from the first preliminary meetings.

Attachments:

Attachment 1 - Area Map

Prepared By: Paula Sawicki, Manager, Strategic Transportation Planning
            Garrett Donaher, Transportation Planning Engineer

Approved By: Rob Horne, Commissioner, Planning, Housing and Community Services
Region of Waterloo
Planning, Housing and Community Services
Transportation Planning

To: Chair Jim Wideman and Members of the Planning and Works Committee
Date: March 4, 2014
File Code: T15-40/50
Subject: Amendment to Regional Municipality of Waterloo Controlled Access By-law #58-87 for Accesses to Regional Road #50 (Northfield Drive), City of Waterloo

Recommendation:
That the Regional Municipality of Waterloo approve an amendment to Controlled Access By-law #58-87 for two accesses on the north side of Regional Road #50 (Northfield Drive), one at Parkside Drive, and the other approximately 145 metres west of Parkside Drive in the City of Waterloo, as described in Report No. P-14-029, dated March 4, 2014.

Summary:
Intermarket Developments is undertaking the redevelopment of the former National Cash Register (NCR) site at corner of Northfield Drive and Weber Street in the City of Waterloo (Please see Attachment A). The redevelopment of this site involves a former industrial site transformed into a mixed use development including commercial, retail and office uses (please see Attachment B). The development requires planning approvals from the City of Waterloo.

The site currently has one access on Weber Street, and two accesses on Northfield Drive. The change of use of the site would require that new Regional Access Permits be issued for all three of the existing accesses. As Northfield Drive is designated as a Controlled Access – Prohibited road under the Region of Waterloo Controlled Access By-law #58-87 from Regional Road 50 (Westmount Road) to Regional Road 15 (King Street), an amendment to this By-law is required prior to issuance of Access Permits by staff.

City of Waterloo and the developer are in support of the redevelopment of this site, and the continued use of the accesses to Weber Street and Northfield Drive.
Report:

By-law #58-87, “A By-law to Designate and Regulate Controlled – Access Roads” was enacted to control the construction or alteration to the geometric design of any private means of access to a Regional Road. All Regional Roads are included in either Schedule A or Schedule B of the By-law. Regional Roads included in Schedule A (Controlled Access – Prohibited) include arterial roads and freeways where access to these roads must be restricted due to high speeds and volume of traffic. The main function of a Controlled Access – Prohibited road is to move through traffic. All requests for changes to existing accesses or for a new access on these roads require an amendment to the By-law.

Intermarket Developments is undertaking the redevelopment of the former National Cash Register (NCR) site at corner of Northfield Drive and Weber Street in the City of Waterloo. The redevelopment of this site would involve a former industrial site transformed into a mixed use development including commercial, retail and office uses (Please see Attachment B). The proposed development will require amendments to the City of Waterloo’s Official Plan and zoning by-law, as well as site plan approval.

The site currently has one access on Weber Street, and two accesses on Northfield Drive. The change of use of the site would require that new Regional Access Permits be issued for all three of the existing accesses. As Northfield Drive is designated as a Controlled Access – Prohibited road under the Region of Waterloo Controlled Access By-law #58-87 from Regional Road 50 (Westmount Road) to Regional Road 15 (King Street) an amendment to this By-law is required prior to issuance of Access Permits by staff (please see Attachment C for Northfield Drive access location details).

The Transportation Impact Study for this development recommends that the accesses on Weber Street and Northfield Drive remain as full movement driveways. However, the easterly access on Northfield Drive at Parkside Drive is proposed to have a westbound right turn lane, which would require property from the City of Waterloo, along the frontage of the City of Waterloo’s Fire and Rescue Northfield Station. City of Waterloo staff is in support of this development, and will work towards the dedication of the lands to the Region required for the right turn lane, following the proper protocol, for this right turn lane. The developer is in support of the access plan as well.

Any improvements to these accesses will be coordinated with the construction of the Region’s Rapid Transit project.

Area Municipal Consultation/Coordination

City of Waterloo staff has been working with Regional staff and are in support of the redevelopment of this site, as well as the continued use of the accesses to Weber Street and Northfield Drive. A copy of this report has been sent to City of Waterloo staff.
Corporate Strategic Plan:

Managing access to the Regional Road system is integral to the development approval process and is represented in Focus Area 2: Growth Management and Prosperity: Manage growth to foster thriving and productive urban and rural communities.

Financial Implications:

Intermarket Developments would be responsible for all costs for the construction of the right turn lane on Northfield Drive at Parkside Drive.

Other Department Consultations/Concurrence:

Corporate Resources would be required to amend the Controlled Access By-law #58-87. Upon issuance of a Regional Road Access Permit, Transportation Engineering would issue a Regional Work Permit to allow works within the Regional right-of-way on Northfield Drive.

Attachments:

Attachment A – Key Map

Attachment B – Concept Plan

Attachment C – Plan showing accesses to Northfield Drive and proposed amendment to Controlled Access By-law #58-87

Prepared By: Richard Parent, Transportation Planner, Corridor Management

Approved By: Rob Horne, Commissioner, Planning, Housing and Community Services
Attachment A – Key Plan

NORTHLAKE RESIDENTIAL SUBDIVISION

LAKESHORE RESIDENTIAL SUBDIVISION

REGIONAL ROAD #3 (NORTHFIELD DR W)

REGIONAL ROAD #5 (WEBER ST N)

REGINAL RD (WEBER ST)

RANDALL DR

MERRITT PARKWAY (FORMER 595)

CONESTOGA PARKWAY (FORMER 673)

SUBJECT PROPERTY
540 WEBER ST N
(FORMER NCR PROPERTIES)
Attachment C - Plan showing accesses to Northfield Drive and proposed amendment to Controlled Access By-law #58-87
Regional Municipality of Waterloo

Bridge Street Reconstruction
(University Avenue to Woolwich Street)
City of Waterloo/City of Kitchener

Information Package

Public Consultation Centre
Thursday March 20, 2014
7:00 P.M. to 9:00 P.M.

At

Bridgeport Public School
59 Bridge Street West
Kitchener, Ontario

There is a Comment Sheet at the back of this package. If you wish, please fill it out and deposit it in the designated box provided at this Public Consultation Centre. All names, addresses and comments will be included in material made available to the general public.
Why is the Region of Waterloo undertaking this project?

The Region of Waterloo is currently considering improvements to Bridge Street between University Avenue in the City of Waterloo and Woolwich Street in the City of Kitchener. Please refer to page 2 of this Information Package for a Key Plan of the project area.

Due to the age and condition of the pavement on Bridge Street, it is necessary to completely reconstruct the existing road structure. Widening of the road to more than the existing two lanes is not required except where turning lanes at intersections are being considered. The need for this reconstruction presents an opportunity to address other deficiencies along this portion of Bridge Street. These deficiencies include a lack of cycling lanes, sidewalks and turning lanes at intersections within the project limits.

The Bridge Street project is classified as a Schedule A+ undertaking in accordance with the Municipal Class Environmental Assessment planning process and is pre-approved to proceed to construction provided that appropriate public consultation is undertaken.

Who is directing this project?

The planning and design of the Bridge Street reconstruction project is being directed by a Project Team consisting of staff from the Regional Municipality of Waterloo and the City’s of Waterloo and Kitchener, and Councillors Mark Whaley (Waterloo) and Scott Davey (Kitchener). The Region has hired a local consulting engineering firm by the name of Walter Fedy to prepare the Preliminary and Detailed Designs for the project and provide contract administration services during construction.

What is the purpose of this Public Consultation Centre?

The public is invited to this Public Consultation Centre (PCC) to:

- review the improvements being considered for this project;
- ask questions of staff from the Region of Waterloo and City’s of Waterloo and Kitchener; and
- provide comments and input regarding the planning and design of the improvements being considered.

A Comment Sheet is attached to the back of this Information Package. Interested members of the public are requested to fill out this Comment Sheet and put it in the box at the Consultation Centre, or send it to the address indicated on the Comment Sheet.
Sheet. All comments received will be considered along with other information received over the course of the project to assist the Project Team in completing the planning and design for this project.
What improvements are being considered?

The Project Team is considering the following improvements to address the deteriorated pavement condition and deficiencies regarding lane configuration and cycling and pedestrian facilities:

- Complete road structure reconstruction within the existing road width including new concrete curbs where required;
- Designated on-road cycling lanes within the existing width of the roadway;
- Construction of new concrete sidewalk where none currently exists;
- Extended northbound left-turn lane at the University Avenue intersection;
- Pedestrian refuge island near the Bechtel Park entrance;
- Northbound right-turn lane at the Bridle Trail intersection;
- Construction of a centre median at the Woolwich Street intersection to eliminate left-turn movements to and from Bridge Street;
- Replacement of the existing watermain south of Bridle Trail;
- Replacement of some sections of existing storm sewer.

How Do the Improvements Being Considered Relate to the Objectives of the Regional Transportation Master Plan, The Cycling Master Plan and the Regional Transportation Corridor Design Guidelines?

The Region of Waterloo’s Transportation Master Plan (RTMP), recently updated in 2011, is a high-level strategic plan that assesses existing and future traffic patterns and volumes throughout the entire Regional road network to determine the short and long-term needs for road improvements.

Bridge Street provides an important north-south transportation link between Kitchener and Waterloo through the predominately residential areas east of the Conestoga Expressway. Based on traffic projections to the year 2031, the RTMP does not identify the need to widen Bridge Street between University Avenue and Woolwich Street beyond the existing two lanes. The RTMP, through its vision of sustainability, does support measures that will improve the cycling and pedestrian networks in the project area.

The Context Sensitive Regional Transportation Corridor Design Guidelines (CDG) is a planning policy document that guides the design of Regional Roads. The CDG identifies design parameters for necessary features within road allowances such as vehicular lanes, cycling lanes, sidewalks and boulevards. According to the CDG, Bridge Street is classified as a Neighbourhood Connector – Avenue (NAV). As a
fundamental part of this classification, Bridge Street should be designed to support active transportation modes including walking and cycling.

The Regional Cycling Master Plan and the draft Regional Active Transportation Master Plan identify Bridge Street as a core on-road cycling route. The Bridge Street corridor provides an important linkage to Bechtel Park, RIM Park and the Water Bean Trail along the Grand River via its connection to University Avenue.

The implementation of the features identified in the Transportation Master Plan, Cycling Master Plan and the Corridor Design Guidelines will enable all road users, including cyclists and pedestrians, an opportunity to travel without obstructions within this community and beyond.

**Why are Cycling Lanes being considered for this project?**

In order to facilitate alternative modes of transportation as envisioned in the RTMP and Cycling Master Plan, on-road cycling lanes are being considered within the project limits. These lanes would provide a connection to the existing and proposed cycling network on University Avenue and on Bridge Street north of University Avenue.

The existing roadway does not need to be widened to accommodate the addition of cycling lanes. Current Regional Design Standards will allow two traffic lanes and two cycling lanes within the existing road width. However, the existing provision of on-street parking on the west side of Bridge Street north of Bridle Trail would have to be eliminated to provide a safe environment for on-road cyclists. The Region will be monitoring on-street parking over the next several months to determine how much on-street parking is actually occurring. Based on this assessment, a recommendation will be made regarding the installation of cycling lanes when the Recommended Design for the project is presented to Region of Waterloo Planning and Works Committee and Council in August 2014 for approval.

**Where are new sidewalks being proposed?**

There is an existing concrete sidewalk on the western side of Bridge Street within the project limits. This sidewalk provides access for pedestrians to Bechtel Park, Bridgeport Public School south of Bridle Trail and to Grand River Transit stops. A sidewalk is available on the eastern side of the road from University Avenue southerly across the frontage of the University Downs Plaza where it connects to a walkway which provides access to Auburn Drive. The extension of this sidewalk to Woolwich Street is being considered as part of this project. This would provide improved pedestrian access not only for the properties fronting Bridge Street, but also for all properties in the adjacent residential subdivision, to the University Downs plaza, Bechtel Park and churches and schools in the area.

The installation of a new sidewalk on the eastern side of Bridge Street would require the re-grading and restoration of existing boulevards and driveways and may require the removal of several mature trees. In order to avoid as many trees as possible, the
sidewalk would be constructed abutting the eastern curb between Bridle Trail and Woolwich Street. The existing steep slopes within the boulevard between Bridle Trail and Woolwich Street would likely require the construction of a retaining wall behind the sidewalk.

As another feature to enhance the “walkability” of the corridor, a pedestrian refuge island is being considered south of the Bechtel Park entrance to provide a convenient location for pedestrians to cross the road. This island would be aligned with the walkway abutting the University Downs Plaza which provides pedestrian access to Auburn Drive.

A change is also being considered at the Bridle Trail intersection which will not require any physical changes to the road. Currently, students travelling to and from Bridgeport Public School from the residential area east of Bridge Street, cross Bridge Street at the south side of the Bridle Trail intersection with the aid of a crossing guard. This causes delays for westbound left-turning vehicles on Bridle Trail and northbound right-turning vehicles on Bridge Street. By moving the crossing location to the north side of the intersection, only westbound right-turning vehicles on Bridle Trail will be delayed. As a result, far fewer vehicles will be delayed by making this change.

What improvements are being considered to improve driver safety and lessen traffic congestion?

The Region of Waterloo monitors traffic collisions on all of the roads under its jurisdiction to determine where improvements are required to improve public safety. At the Woolwich Street intersection a total of 10 reportable vehicular collisions have been recorded in the last 5 years. This is more than would be expected at an intersection like this. The majority of these collisions involved vehicles turning left. Sightlines for drivers turning at this intersection are compromised by the curvature and grade of Bridge Street. In order to improve driver safety, the elimination of left-turns at this intersection is being considered. Left turns to and from Bridge Street would be blocked by the construction of a centre median on Bridge Street through the intersection. Left-turning vehicles would be diverted to either Bridle Trail or Lancaster Street.

At the existing Bridle Trail intersection, northbound through and right-turning vehicles must share the same lane. During periods when traffic volumes are high, this can lead to delays for right-turning vehicles. In order to alleviate some of this conflict, a dedicated northbound right-turn lane is being considered at this intersection. The construction of this right-turn lane would move the roadway and the proposed new sidewalk closer to the edge of the municipal right-of-way and would require the acquisition of all or part of three residential properties south of the intersection.
Does the Region of Waterloo need to Acquire Private Property for this Project?

The intent of the planning and design process is to minimize the need to acquire private property. However, the improvements being considered would require that the Region acquire property at the south-east corner of Bridle Trail. The plans presented at this Public Consultation Centre show the potential impact on these properties. If a decision is made to construct a right-turn lane at this location, Regional Real Estate staff will contact the affected property owners to discuss the necessary property acquisitions. It is the Region’s standard practice to negotiate agreements of purchase and sale with the affected property owner based on an independent appraisal of the land’s fair market value. If agreements cannot be reached in time to meet the project schedule, the Region may acquire the needed lands through Expropriation. For further information, please see the Property Acquisition Process Information Sheet in Appendix A.

How Will Private Property, Trees, Driveways and Lawns be Affected?

It is expected that some existing mature trees will have to be removed during construction to accommodate the proposed sidewalk being considered. The plans presented at this Public Consultation Centre show trees that will likely require removal or trimming if the proposed improvements are made. It is the Region’s practice to plant two replacement trees for each tree removed as a result of any road project where space allows within the municipal road allowance. Any grassed areas disturbed during construction will be repaired to equal or better condition with topsoil and sod. The construction of a sidewalk on the east side of the road will require that all existing driveways be repaved between the new sidewalk and the edge of the reconstructed road. In some locations, driveways may also need to be repaved behind the sidewalk where elevation differences warrant.

Are any Heritage Resources being Impacted by the Proposed Work

There are no designated Built Heritage or Cultural Heritage Landscapes identified within the project limits. There are four unofficially listed properties and three residential buildings that were built prior to the year 1900 that have been identified. However, since the proposed roadworks will be confined within the municipal right-of-way, no impacts to these buildings are expected.
When Will Construction Occur?

The reconstruction of Bridge Street between University Avenue and Woolwich Street is currently scheduled to be undertaken in 2019.

How Will Traffic and Access to Properties be Accommodated During Construction?

Due to the nature and extent of the construction work, it is likely that only one lane of the road will be available for traffic during construction. The contractor will be required to maintain vehicular access to all properties within the project limits at all times during construction; however, access will be disrupted intermittently for short periods of time when work is being done immediately in front of each driveway. When longer term disruptions to driveways are expected, the Contractor will be required to hand-deliver a notice to all impacted homeowners at least 48 hours in advance advising of the time and duration of the driveway disruption. If necessary, alternate parking arrangements will be made, such as provision for temporary parking on adjacent side streets.

Through traffic will be detoured around the construction site at certain times to minimize congestion and ensure public and worker safety. In addition to lane closures, there will be times when the construction work will require temporary closures of one or more of the side streets. During all closures or lane restrictions, signage will be placed well in advance of the closure advising of the detour and duration of the closure. A detailed construction phasing and traffic management plan will be developed during the detailed design for this project.

The City of Waterloo/Kitchener Fire Department, Waterloo Regional Police and Ambulance Services will all be advised of the traffic restrictions during the construction period. Grand River Transit service will be maintained during construction through the implementation of temporary bus stop locations as required.

Pedestrian access will be maintained on one side of the road for the duration of the construction. Signage will be erected in order to assist pedestrians through the project area.

As is customary with Regional Roads under construction, motorists will be advised of the construction timing and traffic restrictions through advance signage and the Region’s web site.

During construction, property and business owners are encouraged to contact the Region’s on-site supervisor with any concerns in relation to access, signage, or other issues, so it can be determined if reasonable changes or modifications can be made.
What is the estimated cost of this project and how will it be funded?

The Region of Waterloo is funding the roadworks portion of this project from its Roads Capital Levy Reserve Fund. The estimated cost of the proposed work including road reconstruction, new sidewalk, turning lanes, pedestrian refuge island, driveway and boulevard restoration, and landscaping is approximately $1,900,000. The replacement of the watermain south of Bridle Trail would be done at the expense of the City of Kitchener.

What are the next steps for this project?

Prior to finalizing the preliminary design of this project for Regional Council's approval, the Project Team is asking for the public's input on the improvements being considered. This Public Consultation Centre is your opportunity to ask questions, provide suggestions, and make comments. The Project Team will use the comments obtained from the public during this Public Consultation Centre to refine the proposed design in conjunction with other technical data.

When will a decision be made on the improvements to be included in this project?

The Project Team will review the public comments received from this Public Consultation Centre and use them as input for identifying a Recommended Design for the Bridge Street Reconstruction Project. The Recommended Design will be presented to Region of Waterloo Planning and Works Committee and Council in August 2014 for approval. In advance of this meeting, letters will be sent to all adjacent property owners and tenants (as well as to all members of the public specifically registering at this Public Consultation Centre) so that anyone wishing to speak to Committee or Council about this project can do so before final approval.

How will I receive further notification regarding this project?

Adjacent property owners and members of the public registering at this Public Consultation Centre will receive all forthcoming public correspondence, and will be notified of any future meetings.
How Can I Provide My Comments?

In order to assist the Project Team in addressing any comments or concerns you might have regarding this project, we ask that you fill out the attached Comment Sheet and leave it in the comment box provided at the registration table. Alternatively you can mail, fax or e-mail your comments to the Project Team member listed below, no later than Friday, March 28, 2014.

We thank you for your involvement and should you have any questions or concerns please contact:

Mr. Peter Linn, P.Eng.
Senior Project Manager
Region of Waterloo
150 Frederick Street, 6th Floor
Kitchener, ON N2G 4J3
Telephone: (519) 575-4757 x3773
Fax: (519) 575-4430
Email: plinn@regionofwaterloo.ca

How Can I View Project Information Following the PCC?

All of the PCC display materials and other relevant project information, notifications of upcoming meetings and contact information are available for viewing at the Region of Waterloo municipal office as identified above. Alternatively, you may visit the Region’s website at www.regionofwaterloo.ca.
Appendix A

Property Acquisition Process Information Sheet

The following information is provided as a general overview of the property acquisition process and is not legal advice. Further, the steps, timing and processes can vary depending on the individual circumstances of each case.

Once the Recommended Design Concept has been approved by Regional Council, the property acquisition process and the efforts of Regional Real Estate staff will focus on acquiring the required lands to implement the approved design. Regional staff cannot make fundamental amendments or changes to the approved design concept.

Property Impact Plans

After the project has been approved and as it approaches final design, the project planners will generate drawings and sketches indicating what lands and interests need to be acquired from each affected property to undertake the project. These drawings are referred to as Property Impact Plans (PIP).

Initial Owner Contact by Regional Real Estate Staff

Once the PIPs are available, Regional Real Estate staff will contact the affected property owners by telephone and mail to introduce themselves and set-up initial meetings to discuss the project and proposed acquisitions.

Initial Meetings

The initial meeting is attended by the project manager and the assigned real estate staff person to brief the owner on the project, what part of their lands are to be acquired or will be affected, what work will be undertaken, when, with what equipment, etc. and to answer any questions. The primary purpose of the meeting is to listen to the owner and identify issues, concerns, effects of the proposed acquisition on remaining lands and businesses that can be feasibly mitigated and/or compensated, and how the remaining property may be restored. These discussions may require additional meetings. The goal of staff is to work with the owner to reach mutually agreeable solutions.

Goal – Fair and Equitable Settlement for All Parties

The goal is always to reach a fair and equitable agreement for both the property owner and the Region. Such an agreement will provide compensation for the fair market value of the lands and address the project impacts (such as repairing or replacing landscaping, fencing, paving) so that the property owner will receive the value of the lands acquired and the restoration of their remaining property to the condition it was prior to the Project.

The initial meetings will form the basis of an initial offer of settlement or agreement of purchase and sale for the required lands or interests.
Steps Toward Offer of Settlement or Agreement of Purchase and Sale

The general steps towards such an offer are as follows;

1) the Region will obtain an independent appraisal of the fair market value of the lands and interests to be acquired, and an appraisal of any effect on the value of the rest of the property resulting from the acquisition of the required lands and interests;
2) compensation will be estimated and/or works to minimize other effects will be defined and agreed to by the property owner and the Region;
3) reasonable costs of the owner will be included in any compensation settlement;
4) an offer with a purchase price and any other compensation or works in lieu of compensation will be submitted to the property owner for consideration; and
5) an Agreement will be finalized with any additional discussion, valuations, etc. as may be required.

Depending on the amount of compensation, most agreements will require the approval of Council. The approval is undertaken in Closed Session which is not open to the public to ensure a level of confidentiality.

Expropriation

Due to the time constraints of these projects, it is the practice of the Region to commence the expropriation process in parallel with the negotiation process to insure that lands and interests are acquired in time for commencement of the Project. Typically, over 90% of all required lands and interests are acquired through the negotiation process. Even after lands and interests have been acquired through expropriation an agreement on compensation can be reached through negotiation, this is usually referred to as a ‘settlement agreement’.

Put simply, an expropriation is the transfer of lands or an easement to a governmental authority for reasonable compensation, including payment of fair market value for the transferred lands, without the consent of the property owner being required. In the case of expropriations by municipalities such as the Region of Waterloo, the process set out in the Ontario Expropriations Act must be followed to ensure that the rights of the property owners provided under that Act are protected.
COMMENT SHEET
REGIONAL MUNICIPALITY OF WATERLOO

BRIDGE STREET RECONSTRUCTION (University Ave to Woolwich St)

PUBLIC CONSULTATION CENTRE

Please complete and hand in this sheet so that your comments can be considered for this project. If you cannot complete your comments today, please take this home and mail, fax or e-mail your comments by Friday, March 28, 2014 to:

Mr. Peter Linn, P.Eng.
Senior Project Manager
Region of Waterloo
150 Frederick Street, 6th Floor
Kitchener, ON N2G 4J3
Telephone: (519) 575-4757 x3773
Fax: (519) 575-4430
Email: plinn@regionofwaterloo.ca

Which improvements are you in support of? ______________________________________
____________________________________________________________________________
____________________________________________________________________________

Which improvements are you not in support of? __________________________________
____________________________________________________________________________
____________________________________________________________________________

What are your reasons for support or non support? ________________________________
____________________________________________________________________________
____________________________________________________________________________

Other comments or concerns regarding this project:

____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________

Name:________________________  Address:____________________________
Postal Code:__________________  Phone:______________________________
Email:________________________

Thank you for your interest and time.

COLLECTION NOTICE
All comments and information received from individuals, stakeholder groups and agencies regarding these projects and meetings are being collected to assist the Region of Waterloo in making a decision. Under the Municipal Act, personal information (such as name, address, telephone number, and property location) that may be included in a submission becomes part of the public record. Questions regarding the collection should be forwarded to the staff member noted above.
REGIONAL MUNICIPALITY OF WATERLOO

Ayr Sewage Pumping Station, Trunk Sewer, and Forcemain Routing Municipal Class Environmental Assessment

INFORMATION PACKAGE

Public Consultation Centre
Thursday March 6th, 2014
5:00 P.M. to 7:00 P.M.

At
North Dumfries Community Complex
Dumfries Room (wheelchair accessible)
2958 Greenfield Road
Ayr, ON

Region of Waterloo
Ayr Sewage Pumping Station, Trunk Sewer, and Forcemain Routing Municipal Class EA

Public Consultation Centre

Date: March 6th, 2013
Time: 5:00 – 7:00 pm
Location: North Dumfries Community Complex Dumfries Room 2958 Greenfield Road
Project Background

The Region of Waterloo has initiated a study to identify a preferred sewage pumping station (SPS) location, forcemain route and trunk sewer route to service the area shown below. The need of a new SPS was identified in the 2012 Ayr Wastewater Servicing Master Plan.
Key Study Objectives

1. Select the preferred wastewater pump station location, forcemain route, and trunk sewer route to service the south area of Ayr in accordance with the Class Environmental Assessment (EA) Process.

2. Develop and review alternatives based on social, cultural, economic, and environmental criteria.

3. Ensure the preferred alternative allows for equitable servicing of lands currently within the settlement boundary, with respect to timing, accessibility, and allocation of servicing.

4. Ensure the technical suitability, environmental sensitivity, and cost efficiency for the preferred alternative.

This Class EA seeks to address the servicing requirements and service locations according to the study objectives.
The follows the Municipal Class Environmental Assessment process (October 2000, as amended in 2007 and 2011). This project is a Schedule B Environmental Assessment.

Public input and comment are invited for incorporation into the planning and design of this project. Please forward any comments by Friday March 28, 2014 to either Judy Beauchamp or Kevin Dolishny as per the contact information listed on the final presentation board titled ‘The Region is Interested in Your Comments’.
Environmental Constraints

The environmental constraints within and around the subject area have been compiled based on information provided by the Grand River Conservation Authority (GRCA), the Ministry of Natural Resources, and archeological assessment data from the Region of Waterloo.
The following categories and criteria were used for the evaluation process:

**Natural Environment:**
- surface and Groundwater resources
- terrestrial environment
- aquatic life
- environmental sustainability

**Social and Cultural Environment:**
- noise and traffic impacts
- odour impacts
- visual impacts
- neighboring land use
- community impact during construction
- resident and stakeholder perception
- archeological assessments

**Technical Environment**
- constructability: complexity of approvals, servicing and construction; Integration into existing infrastructure
- operation and maintenance: capacity available, robustness and reliability, operators' experience

**Cost:**
- capital costs
- operating and maintenance
- land acquisition
- overall lifecycle costs

**Schedule:**
- timing for implementation
- approvals requirement
- staging opportunities
Long-listed alternative SPS locations 1-5 were evaluated at a Stakeholders Workshop based on the natural, social, cultural, and technical evaluation criteria. Alternatives 2 and 3 were then shortlisted for further evaluation, detailed costing analysis, and trunk sewer and forcemain routing.
Long-listed alternative forcemain locations 1-3 were evaluated based on the environmental, social, cultural, and technical evaluation criteria. Due to significant cultural, environmental, and technical impacts associated with routes 1 and 2, only forcemain route 3 was shortlisted for further consideration and evaluation.
Short-listed alternative forcemain locations 1-3 were evaluated based on the environmental, social, cultural, economic, and technical evaluation criteria. Evaluation was completed by assigning a relative score for each criterion. Based on the scoring, alternative SPS Location 3, alternative forcemain route 3, and alternative trunk sewer route C were selected as the preferred alternatives.
The following categories and criteria were used for the evaluation process:

- **Natural Environment:**
  - All alternatives scored equally

- **Technical Environment**
  - Alternative 3C received the highest technical score due to:
    - Proximity to a regional road therefore allowing easier access for maintenance.
    - Topography allows for shallower sewer depths, and therefore ease of construction.

- **Social and Cultural Environment:**
  - All alternatives scored equally

- **Cost:**
  - Alternative 3C has the lowest construction cost estimate because the study area can be serviced with shallower sewer depths.
This figure demonstrates the recommended alternative sanitary pump station location, alternative forcemain route, and alternative trunk sewer route based upon environmental, social, cultural, economic, and technical evaluation criteria.
The Region is Interested in Your Comments

What happens next?

• Public, concerned organization and concerned government offices will be notified of completion of Environmental Assessment

• Notice of completion – June 2014

• Detailed design of preferred alternative – 2014

• Tender and construction of pump station, forcemain, and trunk sewer – 2015 to Mid 2016

• Pump station operational – End of 2016

Kevin Dolishny, P.Eng.
Senior Project Engineer

Region of Waterloo
519-575-4757 ext 3682
Kdolishny@regionofwaterloo.ca

Judy Beauchamp, P.Eng.
Project Manager

Stantec Consulting Ltd.
519-585-7273
judy.beauchamp@stantec.com
Notice of Public Consultation Centre No.1
Ayr Sewage Pumping Station, Trunk Sewer, and
Forcemain Routing Municipal Class Environmental Assessment

Background
In December 2012, the Ayr Wastewater Servicing Master Plan identified the need for a new sewage pumping station (SPS) and forcemain to service the south area of Ayr shown below. The SPS and associated forcemain and trunk sewer will accommodate additional sewage flows from planned population growth in the south area of Ayr to 2031 and beyond.

Municipal Class EA Study for the Ayr Sewage Pumping Station, Forcemain, and Trunk Sewer Route
In September 2013, the Region initiated a Municipal Class EA study to identify a preferred SPS location, forcemain alignment and trunk sewer route.
This study is being conducted in accordance with the requirements of a Schedule B project of the Municipal Class Environmental Assessment document (Municipal Engineers Association, October 2000 as amended in 2007 & 2011).
Through the Class EA process, alternative locations for the SPS, trunk sewer, and forcemain have been identified and assessed. The alternatives have been evaluated considering the natural and social/cultural environments, technical, and economic aspects and a recommended alternative has been selected.

In the next stages of this study, public input is being solicited to identify a recommended alternative. Following selection and council approval of a preferred alternative, preliminary design of the pump station, forcemain, and trunk sewer will commence.

Your Opinion Matters

Public consultation is a critical component of this Class EA study. A first Public Consultation Centre is planned to provide information about the project, present results of the evaluation of alternatives, and to obtain your feedback. The first Public Consultation Centre will be held:

Date: Thursday, March 6, 2014
Time: 5:00 p.m. – 7:00 p.m.
Location: North Dumfries Community Complex
Dumfries Room (wheelchair accessible)
2958 Greenfield Road
Ayr, ON, N0B 1E0

You are encouraged to attend the Public Consultation Centre to discuss and provide your comments to the project team. Comments received through the course of the study will be considered in finalizing the preferred solution.

Contact Us

If you are unable to attend, we would still like to hear from you. Please contact either of the project team members below if you have questions or comments, wish to obtain more information on the project, or would like to be included on the Project Contact List:

Kevin Dolishny, P.Eng.
Senior Project Engineer, Water Services Division
Region of Waterloo
150 Frederick Street
Kitchener ON N2G 4J3
Telephone: 519-575-4757 ext. 3682
Fax: 519-575-4452
Email: kdolishny@regionofwaterloo.ca

Judy Beauchamp, P.Eng.
Senior Project Manager
Stantec Consulting Ltd.
49 Frederick Street East
Kitchener, Ontario, N2H 6M7
Telephone: 519-575-4225
Fax: 519-579-8806
Email: judy.beauchamp@stantec.com

This notice is being provided pursuant to the “Environmental Assessment Act”, the Municipal Engineers Association’s Municipal Class Environmental Assessment, dated October 2000, as amended in 2007 & 2011 and the direction of the Ministry of Environment.
REGIONAL MUNICIPALITY OF WATERLOO

Class Environmental Assessment Study
Conestogo Plains Water Supply System

INFORMATION PACKAGE

Public Consultation Centre
Tuesday March 18th, 2014
5:30 P.M. to 7:30 P.M.

At
Conestoga Golf & Country Club
400 Golf Course Road
Conestogo

Region of Waterloo
NOTICE OF PUBLIC CONSULTATION CENTRE No.1
Class Environmental Assessment Study
Conestogo Plains Water Supply System

Background
In January 2013, the Region of Waterloo (Region) completed the West Montrose Class Environmental Assessment (Class EA) study that recommended a permanent connection from West Montrose to the Conestogo Plains water supply system to ensure a sustainable and long-term water supply option to the community of West Montrose. The Conestogo Plains water supply system currently operates well below its existing rated capacity and the water quality is considered good, providing an opportunity to supply the West Montrose system in addition to the whole community of Conestogo.

Class EA Study for the Conestogo Plains Water Supply System
In August 2013, the Region initiated a Class EA study to confirm the feasibility of servicing West Montrose from the Conestogo Plains system.

This study is being conducted in accordance with the requirements of a Schedule B project of the Municipal Class Environmental Assessment document (Municipal Engineers Association, October 2000 as amended in 2007 & 2011).

Through the initial steps of the Class EA process, potential water supply options for servicing the West Montrose and Conestogo communities have been identified and assessed. The preliminary assessment explored the feasibility of supplying West Montrose from the existing Conestogo Plains water supply system, and also other options including a potential connection of these communities to the City of Waterloo.

In the next stages of this study, water supply options will be subjected to more detailed evaluation considering technical/natural environment impacts, social / community impacts and cost impacts. The preferred water supply option will be selected to minimize potential impacts to the environment and community and maximize the opportunity to provide sustainable and reliable water servicing to the West Montrose and Conestogo communities.

Your Opinion Matters
Public consultation is a key component of this Class EA study. A first Public Consultation Centre is planned to provide introductory information about the project and present results of preliminary activities completed to-date and to obtain your feedback. The first Public Consultation Centre will be held:

Date: Tuesday, March 18, 2014
Time: 5:30 p.m. – 7:30 p.m.
Location: Conestoga Golf & Country Club
Club Room (1st floor, wheelchair accessible)
400 Golf Course Road
Conestogo, ON, N0B 1N0

You are encouraged to attend the Public Consultation Centre to discuss and provide your comments to the project team. Comments received through the course of the study will be considered in finalizing the preferred solution.

Contact Us
If you are unable to attend, we would still like to hear from you. Please contact either of the project team members below if you have questions or comments, wish to obtain more information on the project, or would like to be included on the Project Contact List:

Project Manager, Water Services Division  Project Manager
Region of Waterloo  CIMA
150 Frederick Street  3027 Harvester Road, Suite 400
Kitchener ON N2G 4J3  Burlington, Ontario, L7N 3G7
Telephone: 519-575-4757 ext. 4095  Telephone: 289-288-0287 Ext. 6839
Fax: 519-575-4452  Fax: 289-288-0285
Email: DCelmer-Repin@regionofwaterloo.ca  Email: eric.tuson@cima.ca

This notice is being provided pursuant to the Environmental Assessment Act, the Municipal Engineers Association’s Municipal Class Environmental Assessment, dated October 2000, as amended in 2007 & 2011 and the direction of the Ministry of Environment.
Region of Waterloo

Class Environmental Assessment for Conestogo Plains Water Supply System

Public Consultation Centre No.1

March 18th, 2014

Conestoga Golf & Country Club – Club Room

5:30 p.m. – 7:30 p.m.
Why are we here tonight?

- The Region is undertaking a Schedule B Class Environmental Assessment study to select the preferred water supply alternative for the Conestogo and West Montrose service areas.

- A permanent solution is necessary to ensure sustainable and long-term water supply to West Montrose, while meeting the water service requirements in Conestogo.

- Public participation is an important part of the Class EA study process.
Objectives of this Public Consultation Centre

This Public Consultation Centre provides an opportunity for the public to:

• Understand the need for this project and review background information
• Review and provide feedback on the proposed water supply alternative solutions
• Provide feedback on the proposed evaluation criteria that will be used to evaluate and select the preferred water supply solution
• Review and discuss the project with Regional staff and their consultants

Please review the information presented tonight and provide us with any comments or concerns which you may have.
Conestogo Plains Water Supply System
Class Environmental Assessment Study

Project Background – West Montrose Class EA Study

- Currently West Montrose Water Supply System experiences:
  - Water quantity issues with its supply wells
  - Operational challenges with treatment during periods of high water levels in the Grand River
  - Constant need to truck water into the community during these periods and in the summer

- A Class EA study, completed in 2013 for the West Montrose Water Supply System, recommended a connection from West Montrose to the Conestogo Plains Water Supply System to address the current issues.

- The Conestogo Plains system operates below its capacity and provides an opportunity to also supply water to West Montrose and the whole Conestogo Plains community.

- The current Class EA study will assess the Conestogo Plains Water Supply system in detail and confirm the recommendations of the 2013 West Montrose Class EA study.

Preferred Water Supply Alternative for West Montrose (West Montrose Class EA Study, Public Meeting #2, September 2012)

Alt. 9B: Use Surplus Capacity from Conestogo Plains Water Supply System

- Rated capacity of water supply: 9.1 L/s
- Current average taking: 0.95 L/s
- Current maximum day taking: 3.8 L/s
- Further detailed investigation to confirm Conestogo Plains source (Region to undertake a Class EA study starting in 2013)
Opportunities of the Conestogo Plains Class EA study:

• To assess the overall present and future water servicing requirements of the Conestogo and West Montrose service areas.

• To explore in detail and confirm the feasibility of connecting West Montrose to the Conestogo Plains Water Supply System.

• To define the water system infrastructure required to maintain the security of water supply in a way that is sensitive to the environment.

• To identify the most sustainable, technically and environmentally sound, and cost-effective water supply solution for the West Montrose and Conestogo service areas.
Overview of Activities under the Municipal Class EA Process

Phase 1
Identify Problem or Opportunity

Phase 2
Identify Alternative Solutions to Problem or Opportunity

- Identify Impact of Alternative Solutions on Natural, Social and Economic Environments and Prepare Mitigating Measures

- Evaluate Alternative Solutions

- Select Preferred Solution

Phase 3
Develop and Evaluate Alternative Design Concepts and Identify Preferred Design

Phase 4
Environmental Study Report (ESR)

Phase 5
Implementation (Design and Construction)

We are here PCC No.1

We will complete Phases 1 and 2 for this Class EA study
Conestogo Plains Water Supply System – Existing Conditions

Why does the Conestogo Plains System have Spare Capacity?
- System Rated Capacity = 9.1 L/s
- Current Water Use:
  - Average day demand = 1.0 L/s
  - Maximum day demand = 2.7 L/s

Why is the Conestogo Plains System Safe?
- Existing treatment effectively provides:
  - Disinfection
  - Iron Concentration Control
  - Standby power to avoid interruptions of supply
Nine water supply alternative solutions were identified and assessed. This is how we selected the short-listed alternative solutions:

<table>
<thead>
<tr>
<th>Preliminary Criteria</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of Service</td>
<td>As a minimum, the existing level of service will be maintained, in terms of treated water quality and service pressures</td>
</tr>
<tr>
<td>System Security</td>
<td>The supply of treated water is protected from emergency situations, equipment failures, and other vulnerabilities</td>
</tr>
<tr>
<td>System Flexibility and Redundancy</td>
<td>Ability to continue to provide adequate water supply in the event of an emergency</td>
</tr>
</tbody>
</table>

Three water supply alternative solutions were short-listed and will be examined in detail in the next phases of the Class EA study.
Water Supply Alternative Solution No. 1 – Supply West Montrose with surplus capacity from Conestogo Plains System

Common to all Options
- New 100 mm Ø transmission main to transfer treated water from Conestogo Plains to West Montrose reservoir
- Watermain alignment to be verified in the next stages of the Class EA

Conestogo Plains Water System Requirements
Supply:
- Continue using Well C3, replace Well C4
- Complete long-term aquifer and well testing

Treatment:
- Minor upgrades to existing disinfection system
- Continue using sequestration system for iron control (Scenario 1) or new filtration system (Scenario 2)

Storage:
- Continue using existing reservoir

Distribution:
- Install new transfer pumps to transfer treated water to West Montrose reservoir
- Continue using existing pumps to pump into distribution system

West Montrose Water System Requirements
Supply:
- Decommission existing supply wells

Treatment:
- Install new re-chlorination system
- Decommission existing treatment systems

Storage:
- Continue using existing reservoir

Distribution:
- Continue using existing pumps to pump into distribution system
Water Supply Alternative Solution No.2 – Supply West Montrose and Conestogo Plains from the Integrated Urban System (IUS) at St. Jacobs

Conestogo Plains Water System Requirements

**Supply:**
- Decommission existing supply wells

**Treatment:**
- Decommission existing treatment systems

**Storage:**
- Continue using existing reservoir

**Distribution:**
- Install new transfer pumps to transfer treated water to West Montrose reservoir
- Continue using existing pumps to pump into distribution system

**Common to all Options**
- New 100 mm Ø transmission main to transfer treated water from Conestogo Plains to West Montrose reservoir
- Watermain alignment to be verified in the next stages of the Class EA
- New 300 mm Ø watermain to transfer treated water from IUS to Conestogo Plains reservoir

**West Montrose Water System Requirements**

**Supply:**
- Decommission existing supply wells

**Treatment:**
- Install new re-chlorination system
- Decommission existing treatment systems

**Storage:**
- Continue using existing reservoir

**Distribution:**
- Continue using existing pumps to pump into distribution system

- New 300 mm Ø watermain for connection of Conestogo Golf Course (Opportunity)
Conestogo Plains Water System Requirements

**Supply:**
- Decommission existing supply wells

**Treatment:**
- Decommission existing treatment systems

**Storage:**
- Decommission existing reservoir

**Distribution:**
- Conestogo Plains service area will be fed directly from IUS
- New 300 mm Ø watermain to provide for looping in the IUS (Future)
- New 300 mm Ø watermain to transfer treated water from IUS to West Montrose reservoir and Conestogo Plains distribution system

West Montrose Water System Requirements

**Supply:**
- Decommission existing supply wells

**Treatment:**
- Install new re-chloramination system
- Decommission existing treatment systems

**Storage:**
- Continue using existing reservoir

**Distribution:**
- Continue using existing pumps to pump into distribution system
- New 300 mm Ø watermain for connection of Conestogo Golf Course (Opportunity)

Common to all Options

- New 100 mm Ø transmission main to transfer treated water from Conestogo Plains to West Montrose reservoir
- Watermain alignment to be verified in the next stages of the Class EA

Connection Point to IUS

Legend:
- Designated Green Field Area_RCP10
- Enbridge/Polychlorides_RCP10
- Pipelines_RCP10
- Rivers
- Urban Area_RCP10
- Wetland/Protection Area_RCP10
- Waterline_RCP10
- Dewatering_RCP10
- Environmental Alert Area_RCP10
## Water Supply Alternative Solutions – Preliminary Assessment Results

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Option No.1</strong>&lt;br&gt;– Supply West Montrose with surplus capacity from Conestogo Plains System</td>
<td>• Use of most of existing water supply facilities&lt;br&gt;• Security of supply through Conestogo Plains reservoir</td>
<td>• May require new filtration system&lt;br&gt;• Need separate pumping to West Montrose</td>
<td>$7.0 – $8.0 Million</td>
<td>$8.0 – $9.0 Million</td>
</tr>
<tr>
<td><strong>Option No.2</strong>&lt;br&gt;– Supply West Montrose and Conestogo Plains from IUS at St. Jacobs</td>
<td>• Security of supply through Conestogo Plains reservoir and Integrated Urban System (IUS)&lt;br&gt;• Opportunity to connect Conestogo Golf Course (CGC)</td>
<td>• Higher capital and life cycle cost than Option 1&lt;br&gt;• Requires watercourse crossing</td>
<td>$8.5 – $10.5 Million</td>
<td>$10.5 – $12.0 Million</td>
</tr>
<tr>
<td><strong>Option No.3</strong>&lt;br&gt;– Supply West Montrose and Conestogo Plains from the IUS at City of Waterloo with provision for looping</td>
<td>• Security of supply through two separate connections to the IUS&lt;br&gt;• Opportunity to connect CGC&lt;br&gt;• Provides redundancy to St. Jacobs&lt;br&gt;• Optimizes water circulation in Waterloo&lt;br&gt;• Lowest operational and maintenance costs</td>
<td>• Highest capital and life cycle costs&lt;br&gt;• Requires watercourse crossings</td>
<td>$10.5 – $12.5 Million</td>
<td>$12.0 – $13.5 Million</td>
</tr>
</tbody>
</table>
An inventory of natural heritage features within the project area, completed to date, included:

- Physical geography and soils
- Significant natural features (i.e., core environmental features, wetlands, valleylands, woodlands)
- Wildlife and wildlife habitat (i.e., mammals, birds, reptiles, amphibians)
- Aquatic habitat and fish communities (i.e., rivers, creeks and watersheds)

Potential impacts to the natural heritage features and mitigation measures to be identified
Natural Heritage Field Investigations – West Montrose Transmission Main

Field investigations for the West Montrose transmission main – common to all options – have been completed.

Main considerations:

- 8 watercourses crossings, with 4 regulated: Canagagigue Creek (C6 on adjacent figure) and three minor tributaries of the Grand River (C2 to C4)
- Species at risk (SAR), including fish and mussels in the Grand River

Mitigation measures for impacts to watercourse crossings to be completed.

Watercourse Crossings Location – Transmission Main
Criteria to be used to evaluate the three short-listed water supply alternative solutions include:

- **Technical / Natural Environment**
  - Water quality / quantity (including sustainability)
  - Level of service (i.e., service pressures)
  - Ease of implementation
  - Operational complexity
  - System redundancy, flexibility and reliability
  - Use of existing infrastructure
  - Natural heritage features (e.g., stream crossings, sensitive species, wetlands, etc.)
  - Archaeological features
  - Regulatory approvals
  - Coordination with other planned infrastructure projects

- **Community / Social Considerations**
  - Public health and safety
  - Public perception
  - Noise and traffic (temporary, during construction)
  - Potential impacts on private property

- **Economic Considerations**
  - Capital
  - Operation & maintenance costs
  - Life Cycle costs
Next Steps

• Water supply alternative solutions and proposed evaluation criteria will be confirmed subject to comments received from this Public Consultation Centre.

• The three alternative solutions will be refined and evaluated based on potential impacts on the proposed criteria and mitigation measures. A preliminary preferred water supply alternative solution will be selected.

• A second Public Consultation Centre will be held to present the results of the evaluation process and the preliminary preferred water supply alternative solution. This will provide another opportunity for you to give feedback on the project.

• Comments received will be considered in finalizing the preferred water supply alternative solution.

• A Project File Report, presenting the Class EA study, will be prepared and made available for a 30-day public review period, where you will have a final chance to comment on the recommendations.
Project Contacts

Please complete a Comment Sheet and leave it here today, or return it to the Region by fax, mail or email (please see the instructions below) by April 2, 2014.

For more information about this project, or to view the Public Consultation Centre displays online
Please visit our website:
http://www.regionofwaterloo.ca/en/aboutTheEnvironment/MasterPlansandProjects.asp

Should you have any questions or concerns at any time during the project, please contact either of the following individuals:

Dominika Celmer-Repin
Project Manager, Water Services
Region of Waterloo
150 Frederick Street, 7th Floor
Kitchener, Ontario, N2G 4J3
Telephone: 519-575-4757 Ext.4095
Fax: 519-575-4452
Email: Dcelmer-Repin@regionofwaterloo.ca

Eric Tuson
Project Manager
CIMA
3027 harvester Road, Suite 400
Burlington, Ontario, L7N 3G7
Telephone: 289-288-0287 Ext. 6839
Fax: 289-288-0285
Email: eric.tuson@cima.ca
Region of Waterloo
Planning, Housing, and Community Services
Community Planning

To: Chair Jim Wideman and Members of the Planning and Works Committee

Date: March 4, 2014  File Code: D03-30/LAU/301

Subject: North Waterloo Scoped Sub-Watershed Study

Recommendation:

THAT the Regional Municipality of Waterloo take the following actions with respect to the North Waterloo Scoped Sub-watershed Study as described in Report P-14-026, dated March 4, 2014:

a) Approve the North Waterloo Scoped Sub-watershed Study (prepared by Ecoplans Ltd., MHBC Planning, and Stantec Consulting, dated November, 2013) pursuant to Regional Official Policies Plan Policy 3.1.5 and Regional Official Plan policy 7.F.6 to the extent that it addresses matters of Regional interest, and more specifically that Regional staff collaborate with City of Waterloo and Grand River Conservation Authority staff to incorporate policies in the City’s planning documents for the affected area to implement an environmental management framework pursuant to the applicable Source Water Protection policies in the Regional Official Policies Plan, Regional Official Plan, and the proposed Grand River Source Protection Plan that would, among other matters:

i) require Hydrogeologic Assessments for future development applications to ensure the quantity, quality, and distribution of groundwater recharge is maintained through the design of stormwater management facilities and buried infrastructure;

ii) require Salt Impact Assessments that include consideration of the design of storm water management facilities to reduce need for winter de-icing practices for plans of subdivision, new employment and multiple-unit residential land uses;

iii) require Salt Management Plans that mitigate the risks of winter de-icing for all new employment and multi-unit residential land uses with large parking lots; and,
v) Implement a Monitoring Program to assess changes to the quantity and quality of surface water and groundwater as a result of development and to verify that the pre-development water balance is being maintained as the area is developed.

b) Address the following in a future amendment to Map 4 (Greenlands Network) of the Regional Official Plan:

i) include the additional Core Environmental Feature areas identified in Attachment 1; and

ii) whether all or part of the natural features on the rear portion of 640 Conservation Drive warrant retention as part of the Greenlands Network shown on Map 4;

c) Continue to work with City of Waterloo staff to include linkages and Supporting Environmental Features identified in the sub-watershed study in the City’s planning documents.

d) Continue to collaborate with staff of the City of Waterloo and Grand River Conservation Authority to implement recommendations for the protection, stewardship, enhancement, and monitoring of the Greenlands Network within the study area.

Summary:

Beginning with the Laurel Creek Watershed Study (1993), a series of watershed studies has been guiding extensive new development in areas of the three cities and townships. The North Waterloo Scoped Sub-watershed Study (MHBC, Stantec, Ecoplans, November, 2013) is the most recent watershed study completed. The primary study area, where urban development is anticipated, covers 168 hectares within the northwestern part of the City of Waterloo. It is centred along Conservation Drive generally between Beaver Creek Road and Erbsville Road. It comprises the lower reach of Beaver Creek to its confluence with Laurel Creek as well as the reach of Laurel Creek discharging to the Laurel Creek Reservoir. The secondary study area, which extends up Beaver Creek into Woolwich and Wellesley Townships, covers a further 634 hectares much of which is within the Laurel Creek Headwaters Environmentally Sensitive Landscape (See Figure 1).

The Regional Official Policies Plan and Regional Official Plan require completion of watershed studies prior to the approval of substantial areas of new development. They set out four areas of Regional interest which must be addressed in watershed studies and approved by Regional Council prior to adoption of Area Municipal Official Plan Amendments or Community/District Plans for the study area. Those areas are:

- **sustainable** management of groundwater resources;
- surface water quality with reference to Regional water-taking requirements and the capability of receiving watercourses to cumulatively assimilate effluent from wastewater treatment plants to ensure the ecological integrity of the river system;
- identification, protection and management of the Greenlands Network; and
implications of proposed development on the provision and upgrading of Regional infrastructure.

Regional staff from the Community Planning and Water Services Divisions participated on the study team along with the staff of the City of Waterloo and Grand River Conservation Authority. Staff is satisfied that the matters of Regional interest have been appropriately addressed, and recommend that the watershed study be approved insofar as these matters are concerned. City and GRCA staff has reviewed the draft of this report and concur with the recommendations.

1. Hydrogeology and Source Water

The Water Resources Protection Master Plan identifies a Wellhead Protection Sensitivity Area (WPSA) associated with the Waterloo North Well Field (W5A) within the study area. Therefore, the source water protection policies in the Regional Official Plan would be applied in the review of future development applications on the subject lands. In addition, the subject lands will also be within the future WPSAs for a new production well on Conservation Drive. WPSAs for this well will not be delineated until after completion of the Tier 3 Local Area Risk Assessment will be required by the Grand River Source Protection Plan (SPP) now in preparation.

The sub-watershed study recommends an environmental management framework relying on Source Water Protection Policies in the ROP and those in the proposed SPP to address impacts arising from stormwater development, spills, and the application and storage of winter salt. Stormwater management facilities would also have to address maintaining the local water balance and mitigating risks to groundwater quality. A Monitoring Program for surface water and groundwater quantity and quality, and changes to the water table is also recommended to ensure that the pre-development water balance is being maintained as development occurs.

2. Greenlands Network

The Regional Official Plan has identified several natural features in the study area as Core Environmental Features. These have been confirmed in the study, and some additional natural areas have been identified through the detailed fieldwork carried out by the environmental consultants. ROP policy 7.F.6 requires that the ROP be amended to reflect the recommendations of the sub-watershed study. The recommended additions to the Core Environmental Features are illustrated on Attachment A.

The limits of the natural features along the western boundary of the study area were determined in the field by the study consultants and agency staff in 2009. This mapping appears to correspond to a portion of the designated Greenlands Network on ROP Map 4. Following the June 19, 2013 Public Information Centre, the owner of 640 Conservation Drive questioned the feature limits on the rear portion of his property. At his request, Waterloo Council deferred a decision on the rear portion of the property when it endorsed the balance of the study on December 2, 2013. The owner has been requested to provide the project study team the detailed information on the characteristics and boundaries of the...
features being gathered by his environmental consultant in 2014. This will enable the study
team to determine whether the features continue to warrant inclusion in the Greenlands
Network system.

The Laurel Creek Forest Environmentally Sensitive Policy Area [ESPA 80] occupies the
central portion of the southern part of the study area. Since the ESPA was designated in
1995, a farm lane into the agricultural clearing within the ESPA has been significantly
widened by the gradual removal of trees. No permission for this clearing was given
pursuant to the Regional Woodland Conservation By-law. The tree cutting was
investigated by a Regional Municipal Law Enforcement Officer, but no charges were laid at
that time. When the perimeters of natural features were being flagged in the field by the
study consultants and agency staff in 2009, Regional staff did not accept the altered
woodland edge as the new boundary of the ESPA. Instead, the area was marked with
asterisks on all the mapping and identified as “Future Study Area.” It was agreed not to
attempt to resolve the status of the cleared area at the watershed study stage, but defer it
to the Environmental Impact Statement required for the anticipated development
application for the affected lands.

The Greenlands Network articulated in the ROP contains Supporting Environmental
Features and landscape linkages. The ROP gives direction for such features identified in
sub-watershed studies to be addressed in relevant Area Municipal planning documents.
The sub-watershed study has identified hedgerows in the study area, which will be
addressed in the forthcoming Beaver Creek Meadows District Plan.

3. Regional Infrastructure

There are no Regional Roads within the primary study area.

The future Pressure Zone 5 watermain required to service the area lands is anticipated to
be in joint ownership with the City of Waterloo.

As directed by the ROP, Regional staff will seek to implement the findings and
recommendations of the watershed study through amendments to the ROP, following
resolution of the pending appeals, as well as through the City of Waterloo’s future Beaver
Creek Meadows District Plan.

Report:

Watershed studies are defined in the Regional Official Plan (ROP) as
“comprehensive scientific studies that describe how surface water and groundwater
and terrestrial and aquatic ecosystems function within a defined drainage area.
These investigations result in recommendations as to where and how development
activity can safely occur so as to minimize flood risks, stream erosion, degradation
of water quality, and negative impacts on natural systems. Recommendations may
also identify opportunities for ecological enhancement and recreation”.

Since the completion of the Laurel Creek Watershed Study (1993), the first full-scale
watershed study to be carried out in Waterloo Region, numerous other similar studies have been completed for areas in the three cities and some Township Urban Areas where significant new development was anticipated. Watershed studies have become a standard planning tool for newly developing areas. The 2005 Provincial Policy Statement identifies watersheds as “the ecologically meaningful scale for planning.” Since 1995, successive Regional Official Plans have required completion of watershed studies for major new areas of development (ROPP Policy 3.1.2, ROP policy 7.F.3).

The North Waterloo Scoped Sub-watershed Study (MHBC, Stantec, Ecoplans, November, 2013) is the most recent watershed study to be completed. The lands fall within the greater Laurel Creek watershed studied twenty years ago. The present study goes into greater detail than that study and provides specific direction to inform the development of the lands.

The primary study area, where urban development is anticipated, covers 168 hectares within the northwestern part of the City of Waterloo. It is centred along Conservation Drive generally between Beaver Creek Road and Erbsville Road. It comprises the lower reach of Beaver Creek to its confluence with Laurel Creek as well as the reach of Laurel Creek discharging to the Laurel Creek Reservoir. The secondary study area, which extends up Beaver Creek into Woolwich and Wellesley Townships, covers a further 634 hectares. No significant development is anticipated in this area, most of which lies within the Laurel Creek Headwaters Environmentally Sensitive Landscape.

![Figure 1: Primary and Secondary Study Areas](image_url)
ROPP Policy 3.1.5 and ROP policy 7.F.6 direct that no area-specific Area Municipal Official Plan Amendments or Community/District Plans may be adopted until the Region has approved the aspects of watershed studies that affect defined matters of Regional interest. The same policy requires the Region to amend the ROP to implement recommendations of the sub-watershed study. Regional Official Policies Plan Policy 3.1.4 and Regional Official Plan Policy 7.F.5 identify the four areas of Regional interest as:

a) sustainable management of the quality and quantity of groundwater resources;

b) surface water quality with reference to Regional water-taking requirements and the capability of receiving watercourses to cumulatively assimilate effluent from wastewater treatment plants to ensure the ecological integrity of the river system;

c) identification, protection and management of Landscape Level Systems and Core Environmental Features; and

d) implications of proposed development on the provision and upgrading of Regional infrastructure.

Regional staff has participated on the study team and has also reviewed the final draft of the sub-watershed study with respect to the areas of Regional interest, and are recommending that the study be approved as it affects those matters.

1. **Hydrogeology and Source Water**

For the purposes of this report, the first two areas of Regional concern relating to groundwater and surface water-taking will be addressed under one heading which reflects the integrated approach being taken in this area.

The Water Resources Protection Master Plan, approved by Council in 2008, guides source water protection activities over the period 2007-2016. It informs activities and programs leading to the development of the Grand River Source Protection Plan (SPP) under the Clean Water Act, 2006; and integrates those initiatives in the Master Plan and SPP. On January 8, 2013, Council approved recommendations to support the policies that apply to Waterloo Region as part of the submission of the final proposed SPP to the Province. The Master Plan has delineated Wellhead Protection Sensitivity Areas (WPSAs) around the Region’s municipal water supply wells and Intake Protection Zones (IPZs) upstream of the Hidden Valley Surface Water Intake. The ROP identifies the WPSAs and IPZs and provides for policies to minimise risks to water quality and quantity from future land uses and activities within the vulnerable areas.

The Wellhead Protection Sensitivity Areas (WPSAs) of a municipal water supply well associated with the Waterloo North Well Field (W5A) extend into the study area. The ROP source water protection policies will be applied in the review of future development applications in these areas on the subject lands. In addition, the subject lands will also fall within the future WPSAs for a new production well on Conservation Drive. WPSAs for this well will not be delineated until after completion of the Tier 3 Local Area Risk Assessment as required by the SPP.
The study identified a surficial aquifer (Aquifer 1) which is protected by an aquitard (layer of less pervious soil materials) of clayey silt approximately 10 metres thick in the eastern and western portions of the study area. Aquifer 1 is exposed at surface in the central portion of the study area and exhibits upward hydraulic gradients (i.e. artesian conditions). As water levels tend to respond quickly to rainfall events and fluctuate seasonally, this aquifer plays an important role in maintaining the hydrology of local surface water features in Beaver Creek and area wetlands. This hydrological regime will need to be sustained as the lands in the study area undergo urban development. The high water table and artesian conditions of Aquifer 1 will require measures to protect infrastructure such as buried services and roadbeds.

Although the study area is underlain by water supply aquifers, the aquifers are considered to be at low risk of contamination due to the nature of the local hydrogeology. Several deeper aquifers and aquitards associated with the Waterloo Moraine (Aquifers 2, 3, and 4) lie beneath the surficial aquifer (Aquifer 1). Aquifers 3 and 4 are the main water supply aquifers in the study area. Nevertheless, it is understood that recharge to them likely originates outside rather than inside the study area. A former glacial meltwater channel associated with Beaver Creek has eroded portions of Aquitards 2 and 3 in the central study area and this has resulted in a hydraulic connection between the lower aquifers and Aquifer 1 in this area. Normally, a hydraulic connection of this nature would mean that groundwater resources could be susceptible to development-related impacts. In this locality, however, upward hydraulic gradients (artesian conditions) minimise infiltration of water from the surface and thereby reduce the overall vulnerability of groundwater to the type of residential development anticipated in the primary study area. In any case, detailed stormwater management plans for future developments will be carefully reviewed by Water Services staff to ensure that reasonable precautions are taken to prevent impacts to groundwater quality.

Future development of the North Waterloo Sub-Watershed has the potential to affect both the quantity and quality of surface water and groundwater resources. The sub-watershed study recommends that the quantity and distribution of recharge under existing conditions be preserved or enhanced subsequent to development through implementation of stormwater management plans. It will also be necessary to protect groundwater from spills and chloride impacts due to the application of winter salt on roads and large parking lots.

The sub-watershed study recommends an environmental management framework to implement Source Water Protection Policies in the ROP and the proposed SPP to address impacts arising from stormwater development, spills and the application and storage of winter salt. Stormwater management facilities will also have to address maintaining the local water balance and mitigating risks to groundwater quality. Finally, the sub-watershed study recommends a Monitoring Program to monitor surface water and groundwater quantity and quality, and changes to the water table as a result of development to ensure the pre-development water balance is being maintained as development occurs.
2. Greenlands Network

Several natural features in the study area are identified in the ROP as Core Environmental Features. These have been confirmed through fieldwork by the study consultants and detailed boundary delineation in the field with agency staff. Some additional natural areas have been identified by the environmental consultants. In particular, a significant area north of Conservation Drive has been added to the Beaver Creek corridor. While this would form part of the Core Environmental Feature along the creek, further analysis has demonstrated that it would not warrant designation as a new ESPA. ROP policy 7.F.6 requires that the ROP be amended to reflect recommendations of the sub-watershed study. The recommended additions to the Core Environmental Features are illustrated on Attachment 1. It is recommended that they be added to the Greenlands Network the next time Map 4 is amended.

The limits of the natural features along the western boundary of the study area were flagged by the study consultants and agency staff during the 2009 fieldwork. The features appear to correspond to a portion of the designated Greenlands Network on ROP Map 4. Following the June 19, 2013 Public Information Centre, the owner of 640 Conservation Drive questioned the feature limits on the rear portion of his property. At his request, Waterloo Council deferred a decision on the rear portion of the property when it endorsed the balance of the study on December 2, 2013. The Council resolution directed “That the landowner provide supplementary information, prepared by a qualified professional, to staff and the other agencies comprising the Technical Steering Committee in summer 2014, for the rear portion of the lands municipally known as 640 Conservation Drive, and that staff report back to Council on the outcome of the supplementary work…”

The requested report will enable the sub-watershed study team to determine whether the feature continues to warrant inclusion in the Greenlands Network system. As the feature is already mapped on ROP Map 4, this further assessment will guide Regional staff as to whether to retain or delete it from ROP Map 4 as part of the amendment process described above.

The Laurel Creek Forest Environmentally Sensitive Policy Area [ESPA 80] occupies the central portion of the southern part of the study area. Since the ESPA was designated in 1995, a farm lane into the agricultural clearing within the ESPA has been significantly widened by the gradual removal of trees (See Attachment 2). No permission for the tree clearing was given pursuant to the Regional Woodland Conservation By-law. The tree cutting was investigated by a Regional Municipal Law Enforcement Officer, but no charges were laid at that time. When the perimeters of natural features were being flagged in the field by the study consultants and agency staff in 2009, Regional staff did not accept the altered woodland edge as the boundary of the ESPA. Instead, the area was marked with asterisks on all the mapping in the study and identified as a “Future Study Area.” Regional staff has agreed to defer resolving the status of the cleared area to the Environmental Impact Statement required for the anticipated development application for the affected lands.
Extensive fieldwork carried out in the study has not identified habitat of Endangered and Threatened Species that would require protection under the Endangered Species Act. All natural features can be protected and managed by the policies of the Provincial Policy Statement, ROP, Waterloo Official Plan, and GRCA. Linkages along Beaver Creek would be protected and enhanced with an eco-passage beneath Conservation Drive. Natural areas would be increased in some localities and surrounded by buffers that meet Regional policy. The study also gives guidance as to appropriate locations for stormwater management facilities which would discharge into Beaver Creek and the Laurel Creek Reservoir.

The Greenlands Network articulated in the ROP contains Supporting Environmental Features and landscape linkages. While these are not “Regionally significant” per se, the ROP gives direction for such features identified in sub-watershed studies to be addressed in relevant Area Municipal planning documents. The sub-watershed study has identified hedgerows in the study area, which will be addressed in the forthcoming district plan.

1. Regional Infrastructure

There are no Regional Roads in the primary study area.

The future Pressure Zone 5 watermain required to service the area lands is anticipated to be in joint ownership with the City of Waterloo.

As directed by the ROP, Regional staff will seek to implement the findings and recommendations of the watershed study through amendments to the ROP, following resolution of the pending appeals, as well as in amendments to the Waterloo Official Plan, in the district plan, as well as through the approval of individual development applications. Waterloo Council has directed staff “to use the North WaterlooScoped Sub-watershed Study to inform the Beaver Creek Meadows District Plan and Environmental Assessment processes as well as broader environmental stewardship and management activities.”

Area Municipal Consultation/Coordination

Staff has worked closely with City of Waterloo and Grand River Conservation Authority staff on the project team for the sub-watershed study. This collaboration will continue through the ensuing district plan process. Drafts of this report were provided to City of Waterloo and GRCA staff for review on January 28, 2014 and February 14, 2014. Waterloo and GRCA staff concur with the recommendations contained in this report.

Corporate Strategic Plan:

The completion and implementation of the sub-watershed study will help achieve the strategic objective to integrate environmental considerations into Regional decision-making processes.
Financial Implications:
Nil.

Other Department Consultations/Concurrence:
Community Planning and Hydrogeology and Source Water Protection staff have collaborated in the review of the watershed study and the preparation of this report.

Attachments:
Attachment 1 - Proposed amendments to Core Environmental Features on ROP Map 4 (Greenlands Network)
Attachment 2 – Northern portion of Laurel Creek Forest showing farm lane widening, 2003-06

Prepared By: Chris Gosselin, Manager of Environmental Planning
Approved By: Rob Horne, Commissioner, Planning, Housing and Community Services
Region of Waterloo

Transportation and Environmental Services

Transportation

To: Chair Jim Wideman and Members of the Planning and Works Committee

Date: March 4, 2014

File Code: T04-20/7313

Subject: Fischer-Hallman Road South Culvert at Strasburg Creek – City of Kitchener

Recommendation:

That the Regional Municipality of Waterloo approve the construction of combined pedestrian and creek culverts as the replacement for the existing Fischer-Hallman Road culvert at Strasburg Creek in the City of Kitchener, as per Alternative 3 noted in the City of Kitchener Strasburg Creek Flood Environmental Study Report dated December 2013, subject to the City of Kitchener’s Class EA Environmental Study Report clearing the statutory minimum 30-day public review period.

Summary: Nil

Report:

The City of Kitchener completed the Strasburg Creek Master Watershed Plan in 1991 recommending major flood control measures to reduce potential downstream flooding and erosion of the Strasburg Creek watershed located in southwest area of Kitchener. In 2008 the City of Kitchener commenced the Strasburg Creek Flood Control Class Environmental Assessment (EA) Study. The Class EA Study recommends replacing the existing Region of Waterloo 900mm diameter corrugated steel culvert under Fischer-Hallman Road at Strasburg creek with combined pedestrian and creek culverts (see appendix A for a Map showing the location of the culvert). A copy of the report that was presented to the City of Kitchener Planning and Strategic Initiatives Committee on January 13, 2014 regarding the Strasburg Creek Flood control ESR is attached as Appendix B. City of Kitchener Council at its meeting on January 27, 2014 approved the recommendations noted in the January 13, 2014 report.
Regional staff has been involved in the development and evaluation of the four alternatives noted in the City of Kitchener report for the replacement of the Fischer-Hallman Road culvert. Design alternative 3 was selected as the preferred design alternative and based on the preliminary design includes the construction of two culverts; one with inside dimensions of approximately 2.4 metres wide by 1.2 metres high to handle regular storm flows and a second with dimensions of approximately 4.2 metres wide by 4.0 metres high to take the regional storm flow and to permit pedestrians to cross under Fisher-Hallman Road. Please see Appendix “C” for a drawing of Design Alternative No. 3.

The location of the Strasburg Creek culvert is within the limits of the Region’s planned widening of Fischer-Hallman Road from Bleams Road to Plains Road which is currently scheduled for construction in 2019. It is expected that the final design details for the culverts for items such as the size and length of the culvert, headwalls, grading, property, etc will be completed as part of the final design of the road project.

The Region is responsible for the design, construction and maintenance of the proposed box culvert under Fischer-Hallman Road for conveyance of storm water and Kitchener will be responsible for the additional costs to provide the larger sized box culvert and associated works to accommodate for pedestrian passage through the box culvert. Preliminary cost sharing details have been discussed between Regional and City of Kitchener staff and further detail design work and discussion is required in order to finalize a cost sharing agreement for the construction and future maintenance and replacement of the pedestrian passageway.

Regional staff is recommending that alternative 3 (the construction of combined pedestrian and creek culverts) be approved as the replacement for the existing Fischer-Hallman Road culvert at Strasburg Creek in the City of Kitchener as noted in the City of Kitchener Strasburg Creek Flood Environmental Study Report dated December 2013, subject to the City of Kitchener’s Class EA Environmental Study Report clearing the statutory minimum 30-day public review period and completing detailed design.

It is planned to tender construction of the culvert in conjunction with the Fischer-Hallman Road improvements from Bleams Road to Plains Road in 2019, however if the culvert is required sooner due to adjacent development, a separate tender could be issued earlier subject to approvals and property acquisitions.

**Corporate Strategic Plan:**

Strasburg Creek culvert improvements on Fischer-Hallman Road support the Region’s Corporate Strategic Objectives and Actions as follows:

2.2 Develop, optimize and maintain infrastructure to meet current and projected needs.

2.2.1 Continue to prioritize and implement capital program projects required to meet community needs and ensure sustainability.
Financial Implications

The Region’s approved 2014 Transportation Capital Program includes $15.8 million in the years 2014 to 2020 to undertake the Class EA, the road reconstruction/widening and the culvert construction for the section of Fischer-Hallman road from Bleams Road to Plains Road.

Based on very preliminary cost estimates provided in the Strasburg Creek Flood Control Environmental Study Report, the total preliminary estimated cost of the culverts is $1.9 million of which the City of Kitchener would be responsible for approximately $0.7 million for the additional costs to provide for a pedestrian passageway. The cost sharing between the Region and the City will require further discussion and refinement as design details are determined with associated costs.

Other Department Consultations/Concurrence:

Staff at the Grand River Conservation Authority has been involved in the review of the alternatives and is supportive of alternative 3 as the preferred option.

Attachments

Appendix “A” – Key Plan – Strasburg Creek Culvert Location on Fischer-Hallman Road
Appendix “B” – City of Kitchener Planning and Strategic Initiates Committee Report
Appendix “C” – Drawing of Design Alternative No. 3

Prepared By: John Hammer, Director, Transportation

Approved By: Thomas Schmidt, Commissioner, Transportation and Environmental Services
Appendix “B”

Staff Report
Infrastructure Services Department

REPORT TO: Planning & Strategic Initiatives Committee
DATE OF MEETING: January 13, 2014
SUBMITTED BY: Barbara Robinson, Director of Engineering Services, 519 741 2200 X 7410
PREPARED BY: Binu Korah, Manager of Development Engineering, 519 741 2200 X 7974
WARD(S) INVOLVED: Ward 5
DATE OF REPORT: January 2, 2014
REPORT NO.: INS–13–082
SUBJECT: STRASBURG CREEK FLOOD CONTROL STRUCTURE – ENVIRONMENTAL STUDY REPORT (ESR)

RECOMMENDATION:
THAT the Strasburg Creek Flood Control Environmental Study Report (ESR) prepared by Stantec Consulting Limited, dated December, 2013, be received, and further

THAT the Strasburg Creek Flood Control Environmental Study Report (ESR) be filed with the Ministry of the Environment for the mandatory thirty (30) day review period as required by the Environmental Assessment (EA) Act.

BACKGROUND:
The Strasburg Creek watershed is located in the southwest part of the City of Kitchener. The main/middle branch of Strasburg Creek originates northwest of the intersection of Fischer-Hallman Road and Bleams Road and flows generally southeast through a well-defined, well-vegetated valley crossing Huron Road approximately 1 km west of Strasburg Road.

The Strasburg Creek Master Watershed Plan (SCMWP) was completed by Paragon Engineering Ltd. (now Stantec Consulting Ltd.) and Ecologists Ltd. in 1991. As part of the study, hydrologic modelling for the watershed was completed based on assumed development patterns and recommended a series of major on-line flood control structures to minimize the potential for downstream flooding and erosion impacts. The Grand River Conservation Authority (GRCA) and the City of Kitchener approved the SCMWP shortly after its completion.

One of the primary results of the SCMWP was the recommended construction of a flood control structure, at a location just upstream of the main branch’s crossing of Huron Road. This structure was to replace the existing berm / spillway structure that historically created the former Battier’s Pond. The function of the proposed structure is to control outflows during infrequent storm events to minimize the potential for negative downstream flooding impacts due to the development of the upstream catchments.

As a result of the SCMWP, the City had identified the necessity of preparing a Schedule “B” Environmental Assessment (EA) for this project to examine alternatives for the proposed means of providing sufficient controls upstream of Huron Road to minimize the potential for flooding within this area, refer Figure 1.1, Site Location.
B - 2

Stantec Consulting Ltd. was retained to initiate the work in 2003 (Council resolution, DTS-03-038) and work continued until late 2003, when it was decided to wait for the updated watershed modelling to be completed as part of the Alder/Upper Strasburg Watershed Study before finalizing the Strasburg Creek Flood Control Structure EA. Subsequently in 2008, the City authorized additional work (Council resolution, DTS-08-066) to complete the Class EA project. The Strasburg Creek Flood Control Class EA study uses information from several complimentary projects that were completed from 2008 to 2012, including:

- Alder Creek Watershed Study and Upper Strasburg Creek Subwatershed Plan Update (2008)
- Upper Strasburg Creek Class EA (Fischer-Hallman Road crossing) (2008)
- Huron Road Improvements Class EA (2010)
- Rosenberg Secondary Plan (Southwest Urban Area Study), Stormwater Management Strategy (2011)
- Huron Road Re-construction final engineering plans (2012)

The technical analyses and public consultation has been concluded and Council endorsement is required prior to finalizing and posting the report for the 30-day review period required to fulfill the Class EA process.

REPORT:

The Class EA for this project has been undertaken in accordance with the approved provincial document titled Municipal Class Environmental Assessment, as prepared by the Municipal Engineers Association (October 2000, amended September 2007 and August 2011). As part of the Class EA process, the background technical reports, aerial mapping, Official Plans, land use information, GRCA regulations mapping and documentation, as well as other information relevant to the natural environment were collected and reviewed.

A preferred option was developed as a result of an evaluation of alternatives and public/agency input, and is considered representative of the most appropriate option to achieve the required controls, while maximizing opportunities to conserve existing natural conditions. Details of the Study process, from conceptual development of alternatives through to selection and preliminary design of the preferred alternative, are summarized in the Environmental Study Report.

The following alternatives were evaluated through this Class EA process:

- **Alternative 1 – The “Do-Nothing” Approach.** The “Do-Nothing” alternative includes no provision of flood control for the developing areas upstream of Huron Road. Under this scenario, the peak runoff rates exceed critical downstream rates following development of lands upstream of Huron Road.

- **Alternative 2 – Multiple Off-Line Facilities throughout the Developing Areas.** This alternative consists of numerous stormwater management facilities (SWMFs) scattered throughout the drainage area within individual development parcels. As development proceeds, each individual landowner or group of landowners would be required to design and construct a stormwater management facility to provide the necessary controls for all events up to and including the Regional Storm from their lands. Each of these facilities would also be required to operate in concert, so that downstream peak flow rates and timing targets are achieved.

- **Alternative 3A – Multiple On-line Control Facilities.** This alternative is equivalent to that presented within the SCMWP and includes on-line structures at the Former Battler’s Pond and upstream at the Board of Education Pond. These facilities would be designed and constructed to operate in tandem to achieve the specified targets.
B - 3

- **Alternative 3B – Single On-line Control Facility at the Former Battler’s Pond.** This alternative was also presented within the SCMWP. It includes a single on-line structure at the Former Battler’s Pond designed and constructed to replace the failed dam at this location. A proposed facility would meet the specified target flow rates and timing requirements to minimize impact on downstream areas.

- **Alternative 3C – Single On-line Control Facility at Huron Road.** This alternative would be similar to Alternative 3B, except the location would be moved from the Former Battler’s Pond to Huron Road. The recently constructed Huron Road and associated structures have the ability to provide flood control measures. The culvert crossing design would meet the target flow rates and timing requirements specified in the SCMWP.

A set of evaluation criteria/indicators was selected to reflect the issues, constraints and concerns considered most important when comparing the alternative alignments. The preferred solution, Alternative 3C, entails a flood control structure combined with Huron Road.

While the primary focus of this study has been to ensure that the flow control targets are achieved downstream of Huron Road, further evaluation was also completed at the Fischer-Hallman Road crossing upstream of Huron Road to address floodplain issues with existing and future development, and to accommodate a pedestrian crossing. The following alternatives were evaluated:

- **Alternative 1 – The “Do-Nothing” Approach.** The “Do-Nothing” alternative includes no modifications to reduce flooding levels upstream of Fischer-Hallman Road or to provide a below grade pedestrian crossing.

- **Alternative 2 – Separate Pedestrian and Creek Culverts.** This alternative utilizes two separate groups of culverts; one for pedestrian use and one for flow passage. The pedestrian culvert would be usable during flood events.

- **Alternative 3 – Combined Pedestrian and Creek Culverts.** This alternative utilizes one group of culverts to provide pedestrian and flow passage under Fischer-Hallman Road. The pedestrian walkway would not be usable during flood events.

- **Alternative 4 – Bridge.** This alternative utilizes a bridge to provide pedestrian and flow passage under Fischer-Hallman Road. The pedestrian walkway would be located above frequent flood levels, but would not be usable during major flood events.

The four alternatives were evaluated and the preferred solution for Fischer-Hallman Road is Alternative 3 – Combined Pedestrian and Creek Culverts.

**Study Recommendations:**

The Strasburg Creek Flood Control Class EA provides the following key recommendations:

1) Identify the newly constructed Huron Road and associated infrastructure as a flood control structure to meet the specified target flow rates and timing requirements specified in the SCMWP (Alternative 3C). No additional work or mitigation measures are required at this time.

2) Construct the Fischer-Hallman Road crossing (Alternative 3) in accordance with appropriate standards and coordinated with the Fischer-Hallman Road improvements. This recommendation supersedes that from the Upper Strasburg Creek Class EA (CH2M Hill, 2008).
Next Steps:
- Obtain City of Kitchener Council endorsement of the Strasburg Creek Flood Control Class EA and allow staff to file the Environmental Study Report with the Ministry of the Environment for the 30 day mandatory public review period.
- Allow Region of Waterloo staff to present the study findings to Regional Council in January/February 2014.
- Allow Grand River Conservation Authority staff to present the study findings to the GRCA Board for approval in February/March 2014.
- File the Environmental Study Report with the Ministry of the Environment for the 30 day mandatory public review period in March 2014.

ALIGNMENT WITH CITY OF KITCHENER STRATEGIC PLAN:
The Strasburg Creek Flood Control Class EA project is aligned with the City of Kitchener Strategic Plan (refer to Strategic Plan document, Community Priorities – Development, sections 1 & 3). Further, this project is also one of the priority projects identified in the Kitchener Growth Management Plan, as it provides service to lands identified as Priority B.

FINANCIAL IMPLICATIONS:
This project was identified in the City’s 2004 and 2009 Development Charge Background studies. The project is to be funded 100% from the Development Charges with a total estimated cost for the preferred Alternative 3 to be $1,928,604. The Region of Waterloo and the City will share the cost to complete this project.

COMMUNITY ENGAGEMENT:
As required by the Class EA process, community engagement and communication were key elements of the study throughout the process, including the following points of contact with various stakeholders:
- The Project Team, including the consultant, City and agency staff members had formal meetings at various key stages in the Study process to review pertinent data, alternative options, design concepts, public and agency responses, and other information.
- Written submissions and review by agencies were also used to solicit specific feedback for the Study.
- A series of meetings were held with the adjacent landowners and their representatives to keep them informed on the study progress/findings and to solicit relevant feedback.
- Opportunities for Public Involvement related to this Class EA included:
  - Public Information Centre (PIC) Meeting #1 held on October 28, 2008, in conjunction with the Huron Road EA PIC. A series of displays introduced the public to the various alternative flood control options and background information. No decisions on a preferred alternative were presented at this meeting. The PIC was attended by approximately 56 people and all attendees were invited to provide written comments to the Project Team on any issues of interest on the Study.
  - Public Information Centre Meeting #2 held on May 9, 2013. A series of displays illustrated the preferred alternatives. The PIC Meeting was attended by approximately 9 people and all attendees were invited to provide written comments to the Project Team on any issues of interest on the study.

CONCLUSION:
In accordance with Class Environmental Assessment process together with studies and detailed assessment completed by the Consultant Team, the Project Team has selected a preferred alternative, which was presented to stakeholders, public and the City of Kitchener Environmental Committee.
There were two PIC’s and other consultation process mechanisms used to solicit stakeholder input to review the study findings and receive comments on this project. As part of the Class EA process, staff also met with various agencies and affected property owners to address their concerns. In conclusion, staff recommend that the Strasburg Creek Flood Control Environmental Study Report (ESR) prepared by Stantec Consulting Limited, dated December, 2013, be received.

Further, staff recommend that the Strasburg Creek Flood Control Environmental Study Report (ESR) be filed with the Ministry of the Environment for the mandatory thirty (30) day review period as required by the Environmental Assessment (EA) Act.

ACKNOWLEDGED BY: Pauline Houston, DCAO, Infrastructure Services Department

Attachments:
Appendix A - Strasburg Creek Flood Control - Site Location
B - 6

Strasburg Creek Flood Control - Site Location

Appendix A
Region of Waterloo
Transportation and Environmental Services
Water Services

To: Chair Jim Wideman and Members of the Planning and Works Committee
Date: March 4, 2014
File Code: E04-80/MOE.SUM; C06-60/PW/WS.14

Recommendation:

That the Regional Municipality of Waterloo receive the 2013 Summary Report, as required by Ontario Regulation 170/03, the minutes from the annual Management Review of the Drinking Water Quality Management System and maintenance plan update.

Summary:

This report provides an overview of the 2013 Summary Report as required by Ontario Regulation 170/03, the results of the 2013 management review and a summary of the infrastructure maintenance plan as required by the provincial Drinking Water Quality Management System (DWQMS).

Report:

Background

Ontario Regulation 170/03 has several provisions including a requirement to keep Regional Council informed. The provision requires:

1. The preparation of a summary report for the period January 1 to December 31, 2013, to be issued by March 31, 2014 that includes:
a. A statement identifying compliance with requirements including the Act, Regulations, Approvals and Ministry of the Environment (MOE) orders
b. The details of non-compliances with any requirement including duration
c. A summary of the quantities and flow rates of water supplied
d. A comparison of quantities and flow rates to system’s approvals

2. That top management report the results of the management review, identify deficiencies, and note decisions and action items to the system owner. The management review is conducted annually evaluating the quality management system for suitability, adequacy and effectiveness. The review also follows-up on previous management reviews and staff suggestions, and reviews the status of management action items identified throughout the year.

3. That the report on the infrastructure maintenance plan highlights any changes.

Overview of Summary Report

Annually, the Ministry of the Environment (MOE) performs 22 inspections of the Region’s water supply systems including seven inspections of the distribution systems in the Townships of Wellesley and North Dumfries. A Drinking Water System Inspection Report (DWSIR) is prepared after each inspection that reviews all regulatory issues and provides non-compliance and/or best management corrective actions. The Region’s 2013 Summary Report includes all non-compliance issues identified by Waterloo Region staff through the MOE inspections and any other relevant legislation. Then prepare reports on all related corrective action or mitigating measures.

The key findings from the 2013 Summary Report (attached as Appendix A) identified that there were a few minor incidents that were detected and corrected quickly. There were no significant issues in the Region’s water supply systems or in the Townships of Wellesley and North Dumfries distribution systems. The Region’s Water Services department has initiated plans to address all best management and non-compliance issues identified by the MOE. In summary, the water quality meets the Safe Drinking Water Act requirements.

A copy of the 2013 Summary report will be placed in the Councillors’ Library after the Council meeting on March 19, 2014. Copies of the report are available free of charge from Water Services and the report will be posted on the Region’s website at www.regionofwaterloo.ca/water.

Management Review

One requirement of the DWQMS is to conduct a management review every twelve months. The management review occurred December 12, 2013, at the Mannheim WTP and included operations management staff, Dave Young – Director, Health Protection & Investigation, Public Health and top management who as defined by the QMS procedure are Thomas Schmidt – Commissioner, Transportation and Environmental Services; Nancy Kodousek – Director, Water Services; Olga Vrentzos – Manager, Operations and Maintenance.
The purpose of the management review is to evaluate the quality management system for suitability, adequacy, and effectiveness and to follow-up on previous management reviews, staff suggestions, and review the status of management action items identified throughout the year. There were no major non-conformances identified and no staff suggestions. As part of the annual management review process, top management is required to provide the results of the management review, identify deficiencies, and note decisions and action items to the system owner - Regional Council. The minutes from the management review along with the identified deficiencies, decisions, and action items can be found in Appendix B: QMS Management Review 2013 Meeting Minutes.

**Infrastructure Management Plan**

Elements 14 and 15 of the DWQMS require that the operational plan documents a procedure for the annual review of the adequacy of the infrastructure necessary to operate and maintain the system. The purpose is to review what infrastructure is necessary to maintain the system and to determine that the required infrastructure is in place as needed. The "do" component of Element 14 requires that the operating authority carry out the review and report findings to the owner. Element 15 requires a summary documenting the maintenance, rehabilitation, and renewal programs for the infrastructure. These summaries must be updated as changes occur and must be communicated to the owner. The report also includes an assessment on the effectiveness of the maintenance program.

Preventative maintenance is based on industry standards, regulatory requirements, past history, manufacturers’ recommendations, and risk analysis. A summary of the preventative maintenance being performed can be found in the 2013 Summary Report Section 5.0.

**Corporate Strategic Plan:**

The Annual Summary Report, the DWQMS Management Review and the Infrastructure Maintenance Plan supports Focus Area 1: Protect and enhance the environment.

**Financial Implications:**

Nil

**Other Department Consultations/Concurrence:**

The Public Health Department has reviewed this report.

**Attachments:**

**Appendix A:** 2013 Summary Report for Integrated Urban and Rural Water Systems – no tables or appendices

**Appendix B:** 2013 Management Review Minutes

**Prepared By:** Olga Vrentzos, Manager, Water Operations and Maintenance

**Approved By:** Thomas Schmidt, Commissioner, Transportation and Environmental Services
2013 Summary Report

Presented to Regional Council

March 2014

(DOCS# 1434243)
### Table of Contents

1.0 Overview and background ........................................................................... 4
1.1 SDWA ............................................................................................................. 4
1.2 DWQMS Conformance and MDWLP ............................................................ 4
2.0 Health Related Notifications BWA/DWA...................................................... 5
3.0 Regulatory Compliance ................................................................................ 6
4.0 Hydraulic Performance ............................................................................... 11
5.0 Preventative Maintenance Programs.......................................................... 13
6.0 Well Maintenance ........................................................................................ 14

Appendix A – Treated Water Flow Data ............................................................. 15

Appendix B – Adverse Water Quality Incidences (AWQI) For Regional Distribution Systems ............................................................................................. 46

Appendix C – System Information...................................................................... 47

Appendix D – MOE Inspection Compliance Ratings.......................................... 56

Appendix F – Average Compliance Ratings...................................................... 59
List of Tables

Table 1 - Regulatory Non-Compliance Summary .................................................. 9

Table 2 – Permit to Take Water (PTTW) and Municipal Drinking Water License (MDWL) Exceedances ................................................................. 10
1.0 Overview & Background

1.1 Safe Drinking Water Act

Schedule 22-2 of Ontario Regulation 170/03 states that owners of municipal drinking water systems shall ensure that, not later than March 31st of each year, a summary report is prepared for the preceding calendar year and presented to the members of municipal council. The Regulation stipulates the criteria to be included in the report are as follows:

- list the requirements of the Act, the regulations, the system’s approval, drinking water works permit, municipal drinking water license, and any order applicable to the system that was not met at any time during the period covered by the report;
- for each requirement in (1) specify the duration of the failure and the measures that were taken to correct the failure;
- a summary of the quantities of flow rates of water supplied during the period covered by the report, including monthly average and maximum flows;
- a comparison of the summary referred in (3) to the rated capacity flow rates approved by the system’s approval, drinking water works permit or municipal drinking water license.

The Region of Waterloo is responsible for the bulk delivery of drinking water to seven local Area Municipalities and the distribution systems in the Townships of North Dumfries and Wellesley.

This summary report covers all Region of Waterloo owned and operated drinking water treatment systems for the cities of Cambridge, Kitchener, Waterloo, and the townships of North Dumfries, Wellesley, Woolwich, and Wilmot. The report also covers the distribution systems in the two townships.

The format of the summary report is as follows; non-compliance issues with respect to the SDWA and the regulations, the systems drinking water works permits, and municipal drinking water licenses and corresponding corrective action(s) or mitigating measure(s) is identified in Table 1. The summary and analyses of water quantity supplied and flow rates are in appendix A, and the Adverse Water Quality Incidents (AWQIs) not captured in the 2013 Annual Water Quality Report (issued February 28) are in Appendix B.

1.2 Drinking Water Quality Management System Conformance and Municipal Drinking Water Licensing Program

The Regional Municipality of Waterloo, Water Services obtained its first Full Scope-Entire DWQMS accreditation in March 2013.

In order to maintain a drinking water license the following criterion must be met:
Appendix A

- Hold a valid Drinking Water Works Permit (DWWP) for the drinking water system
- Hold a valid Permit To Take Water (PTTW)
- Have an operational plan based on the Drinking Water Quality Standard (DWQMS) and approved by the MOE. Operational Plans were accepted in early 2009.
- Be an accredited operating authority. Full Scope-Entire DWQMS accreditation has been obtained and re-accreditation by a third party must occur every 3 years.
- Issue a financial Plan. Financial plans were issued July 2011 and are updated every 5 years.

The Municipal Drinking Water License must be renewed every 5 years; the Region must reapply to the MOE Approvals branch by November 22, 2015 to meet the May 2016 renewal deadline.

Accreditation requires a management review every twelve months to evaluate the quality management system for suitability, adequacy and effectiveness. Also it supports follow-up on previous management reviews, staff suggestions, and review of status of management action items identified throughout the year. Top management is required to provide the results of the management review, identify deficiencies and note decisions and action items to the system owner, Regional Council. The minutes from the management review along with the identified deficiencies, decisions and action items will be presented to council March 19, 2014.

The Quality Management System annual management review was conducted on December 12, 2013. The management review included discussion of non-compliance issues and corresponding corrective action(s) to reduce and prevent subsequent non-compliance events. There were not major non-conformances identified with the quality management system and no staff suggestions. The minutes from the management review along with the identified deficiencies, decisions, and action items are found in Appendix C.

Element 15 of the DWQMS requires that the operational plan document a summary and monitor the effectiveness of the Operating Authority’s infrastructure maintenance, rehabilitation and renewal programs for the systems and to communicate these programs and updates to the Owner. Asset management and maintenance management programs have been established to ensure repair and replacement of all water system infrastructure including instrumentation calibration, diesel pump operations and well rehabilitation. An overview of the infrastructure maintenance is found in section 5.

2.0 Health Related Notifications— Boil Water Advisories (BWA)/Drinking Water Advisories (DWA)

The Region of Waterloo Water Services Division in collaboration with the Public Health Department ensures a safe water supply.

There were no boil water advisories or drinking water advisories issued during 2013.
3.0 Regulatory Compliance

All regionally owned and operated drinking water systems have extensive water quality and quantity monitoring and reporting requirements. These requirements include the following:

- proper documentation
- analytical testing
- adverse incident reporting
- corrective actions
- calibration of flow meters, and
- continuous water quality monitoring instrumentation.

The Ministry of the Environment (MOE) drinking water system inspections focuses on compliance with the SDWA and related regulation(s). During 2013, 22 drinking water system inspections were completed (refer to Appendix D). The following inspections for the 2012/2013 period were not captured in the 2013 Summary Report are included in Appendix D:

- Heidelberg Drinking Water System and Distribution System
- Linwood Drinking Water System and Distribution System
- Wellesley Drinking Water System and Distribution System

The following MOE inspections for the 2013/2014 inspection period are not included in this report and will be captured in the 2014 Annual Summary Report:

- Heidelberg Drinking Water System and Distribution System
- Linwood Drinking Water System and Distribution System
- Wellesley Drinking Water System and Distribution System

Table 1 summarizes non-compliance issues and associated corrective actions(s) under the SDWA, the Ontario Water Resources Act (OWRA) and relevant regulations, identified by RMOW staff and/or MOE Drinking Water Inspection Reports.

Table 1 - Regulatory Non-Compliance Summary

<table>
<thead>
<tr>
<th>Regulatory Requirement &amp; Location</th>
<th>Date (All 2013 Unless Noted)</th>
<th>Description</th>
<th>Root Cause</th>
<th>Corrective Action</th>
</tr>
</thead>
</table>
| O.Reg.170/03 Sch. 6-5 Continuous Monitoring | Jan. 31 | Data was lost for 75 minutes Chlorine residual monitoring was not conducted hourly as required. | Power lost to chlorine analyzer | **Short Term**
| | | | | Power restored and UPS installed. **Long Term**
<p>| Ayr Elevated Tank | | | | Revised UPS maintenance. |</p>
<table>
<thead>
<tr>
<th>Regulatory Requirement &amp; Location</th>
<th>Date</th>
<th>Description</th>
<th>Root Cause</th>
<th>Corrective Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>O.Reg.170/03 Sch. 6-5 Continuous Monitoring Branchton WTP</td>
<td>Feb. 12</td>
<td>Data was lost for 8 minutes. Primary disinfection continuous chlorine residual monitoring was not conducted every 5 minutes.</td>
<td>UPS failure during power transfer.</td>
<td>Short Term UPS was reset and normal chlorine monitoring was restored Long Term Revised UPS maintenance.</td>
</tr>
<tr>
<td>O.Reg.170/03 Sch. 6-5 Continuous Monitoring Shingletown Well System</td>
<td>Mar. 22</td>
<td>Data lost for 7 minutes. Primary disinfection continuous chlorine residual monitoring was not conducted every 5 minutes.</td>
<td>Ground fault issue. UPS was plugged into GFI receptacle.</td>
<td>Short Term Ground fault issue was corrected and normal continuous chlorine residual was re-established Long Term Proper receptacle was installed.</td>
</tr>
<tr>
<td>O.Reg.170/03 Sch. 6-5 Continuous Monitoring Pinebush, Shades Mill, Turnbull WTP and PS, Rahmands Wells H3 &amp; H4</td>
<td>Mar.</td>
<td>Primary disinfection chlorine analyzer was taken off-line during calibration</td>
<td>Grab chlorine samples were missed during this period.</td>
<td>Short Term Training provided to I&amp;C staff. Long Term Review and update of maintenance procedure</td>
</tr>
<tr>
<td></td>
<td>Jun.</td>
<td>Required chlorine analyzer calibrations were not completed.</td>
<td>CMMS reconfiguration failed to trigger Chlorine analyzers calibration work orders (w.o.).</td>
<td>Short Term Missed calibrations were conducted. CMMS program corrected. Long Term</td>
</tr>
<tr>
<td>Regulatory Requirement &amp; Location</td>
<td>Date</td>
<td>Description</td>
<td>Root Cause</td>
<td>Corrective Action</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>------------</td>
<td>--------------------------------------------------</td>
<td>------------------------------------------------</td>
<td>----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>O.Reg.170/03 Sch. 6-5 Continuous Monitoring</td>
<td>Apr.</td>
<td>UV duty sensor calibrations not completed for UV Reactor #2.</td>
<td>Work orders inadvertently missed</td>
<td>CMMS ; provides a summary of open work order status on a weekly basis</td>
</tr>
<tr>
<td>Mannheim WTP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>O.Reg.170/03 Sch. 6-5 Continuous Monitoring</td>
<td>Sept. 19</td>
<td>Loss of continuous monitoring data for 13 minutes.</td>
<td>RPU breaker tripped resulting in loss of primary chlorine monitoring. Unable to determine cause of RPU breaker tripping.</td>
<td>Short Term RPU breaker was reset. Long Term N/A</td>
</tr>
<tr>
<td>K90 Wells</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>O.Reg.170/03 Sch. 6-5 Continuous Monitoring</td>
<td>Sept 24</td>
<td>Loss of continuous monitoring data for 21 minutes during RPU program uploading.</td>
<td>Incorrect RPU program uploaded.</td>
<td>Short Term Correct RPU program uploaded to restore proper continuous monitoring and recording. Long Term Ensure that proper program is uploaded.</td>
</tr>
</tbody>
</table>
### Appendix A

<table>
<thead>
<tr>
<th>Regulatory Requirement &amp; Location</th>
<th>Date</th>
<th>Description</th>
<th>Root Cause</th>
<th>Corrective Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>O.Reg.170/03 Sch.16 &amp; 18</td>
<td>Aug. 7</td>
<td>Total Coliform (TC) sample result was not immediately reported. The AWQI was reported approximately 2 hours after being notified.</td>
<td>Operator inadvertently reported AWQI approximately 2 hours after notified.</td>
<td>Short Term AWQI was reported and the SCADA Operator was reminded that all AWQIs must be reported immediately. Long Term Additional regulatory training was provided.</td>
</tr>
<tr>
<td>AWQI Reporting &amp; Corrective Action Roseville Dist.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>O.Reg.170/03 Sch1 &amp; O.Reg. 903 (Wells) Monitoring well TW2-13 (located on well K22 property)</td>
<td>Oct. 11</td>
<td>Monitoring well (TW2-13) was not properly capped to prevent foreign material from entering the well.</td>
<td>Contractor conducting testing failed to ensure that well was properly secured.</td>
<td>Short Term Contractor secured well on October 2\textsuperscript{nd}. Long Term Ensure contractors are aware of requirements prior to conducting well testing.</td>
</tr>
<tr>
<td>Regulatory Requirement &amp; Location</td>
<td>Date (All 2013 Unless Noted)</td>
<td>Description</td>
<td>Root Cause</td>
<td>Corrective Action</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>-----------------------------</td>
<td>-------------</td>
<td>------------</td>
<td>-------------------</td>
</tr>
</tbody>
</table>
| PTTW Condition 4.1 Well G17      | Mar. & May                  | Monthly level monitoring was not conducted as required | March After well rehabilitation the level port was not accessible. The issue was not reported. | **Short Term** Level port was repaired.  
**Long Term** Staff trained on well level monitoring basis. Well level monitoring is scheduled on the first week of each month to allow re-scheduling |
| Drinking Water License & DWWP Conditions William Street wells W1B & W2 | Dec. 13, 2011 & Nov. 7, 2012 | Drinking Water Works Permit Form 2 not completed as per condition 12.1 and MOE Director notification was not provided as required by condition 2.4 for replacing wells W1B and W2 vertical turbine with submersible pumps. | Administrative error | **Short Term** Form 2 completed and MOE notification provided as required.  
**Long Term** Ensure that form 2 is completed anytime a modification is completed and provide MOE Director notification when an alteration changes a description of drinking water component |
4.0 Hydraulic Performance

A summary of the monthly average and maximum flow rates of water supplied during the period can be found in appendix A.

The Region of Waterloo Drinking Water systems have 43 Permits to Take Water (PTTW) and 14 Municipal Drinking Water Licenses and Drinking Water Works Permits. For a full list of PTTW, MDWLs/DWWPs refer to Appendix C.

A flow exceedance is defined as a flow rate that exceeds the allowable limit specified in the PTTW for a period of greater than 10 minutes in duration or an exceedance of the maximum daily treated water volume that flows from the treatment subsystem into the distribution system, as identified in the MDWL. Table 2 lists site(s) exceeding the flow limits in 2013.
### Appendix A

#### Table 2 – Permit to Take Water (PTTW) and Municipal Drinking Water License (MDWL) Exceedances

<table>
<thead>
<tr>
<th>Location</th>
<th>Date (2013) &amp; Duration (hr:min)</th>
<th>Description</th>
<th>Root cause</th>
<th>Corrective Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ayr Drinking Water System</td>
<td>December 31 00:41</td>
<td>Instantaneous flow exceedance for wells A1, A2, A3 (71 L/s) (PTTW limit 63.4 L/s)</td>
<td></td>
<td>Valve repaired</td>
</tr>
<tr>
<td>Cambridge Drinking Water System</td>
<td>July 22 00:24</td>
<td>Instantaneous flow exceedance for well G6 (25.3 L/s) at start up (PTTW limit 25 L/s)</td>
<td></td>
<td>Valve repaired</td>
</tr>
<tr>
<td>Mannheim Drinking Water System</td>
<td>October 5 01:27</td>
<td>Instantaneous flow exceedance for well K91(53.10 L/s) PTTW limit 40 L/s</td>
<td>Flow control valve malfunction</td>
<td>Valve adjusted</td>
</tr>
<tr>
<td>Mannheim Village</td>
<td>June 4 00:14</td>
<td>Maximum allowable flow rate exceedance for well K26 (110.1 L/s) PTTW limit 106 L/s</td>
<td></td>
<td>Valve replaced</td>
</tr>
<tr>
<td>Wellesley Drinking Water System</td>
<td>May 15 00:31</td>
<td>Instantaneous flow exceedance for well WY06 (23.05 L/s) at start up PTTW limit 17.4 L/s</td>
<td></td>
<td>Valve adjusted</td>
</tr>
<tr>
<td>Mannheim Drinking Water System</td>
<td>June &amp; July 61 days</td>
<td>Instantaneous flow exceedance for HVLL, various spikes PTTW limit 917.9 L/s</td>
<td>Flow meter malfunction</td>
<td>Meter replaced</td>
</tr>
<tr>
<td>Ayr Drinking Water System</td>
<td>September 23 00:14</td>
<td>Instantaneous flow exceedance for wells A1 and A2 (73.2 L/s) started for samples (PTTW limit 63.4 L/s)</td>
<td>Undetermined</td>
<td>Wells were shut down when sampling complete</td>
</tr>
<tr>
<td>Mannheim Drinking Water System</td>
<td>September 13</td>
<td>Instantaneous flow exceedance for well K91(42.99 L/s)</td>
<td>Undetermined</td>
<td>No action taken</td>
</tr>
</tbody>
</table>
Appendix A

<table>
<thead>
<tr>
<th>Location</th>
<th>Date (2013) &amp; Duration (hr:min)</th>
<th>description</th>
<th>Root cause</th>
<th>Corrective Action</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>01:01</td>
<td>PTTW limit 40 L/s</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>October 4 02:13</td>
<td>Instantaneous flow exceedance for well K91(40.08 L/s) PTTW limit 40 L/s</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>October 15 00:21</td>
<td>Instantaneous flow exceedance for well K91(40.21 L/s) PTTW limit 40 L/s</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>December 23 01:51</td>
<td>Instantaneous flow exceedance for Well K91(40.09 L/s) PTTW limit 40 L/s</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5.0 Preventative Maintenance Programs

Elements 14 and 15 of the DWQMS require that the operational plan documents a procedure for the annual review of the adequacy of the infrastructure necessary to operate and maintain the system. The purpose is to review what infrastructure is necessary to maintain the system and to determine if that infrastructure is in place as needed. The “do” component of Element 14 requires that the operating authority carry out the review and report what is found to the owner. This ensures that the owner is regularly informed of infrastructure needs so that the owner can plan accordingly. Element 15 is about documenting a summary of the maintenance, rehabilitation and renewal programs for the infrastructure. These summaries must be updated as changes occur and must be communicated to the owner. Monitoring the effectiveness of the maintenance program by periodically reviewing the maintenance program to check how well the program is working.

Avantis is a computerized maintenance management software package which identifies the infrastructure, equipment and components at water stations. Avantis allows us to develop, monitor, and report on preventative maintenance plans for the equipment and components. The information collected is entered into the system to track the work history. Preventative maintenance is based on industry standards, regulatory requirements, past history, manufacturers’ recommendations and risk analysis. As of 2013, the following preventative maintenance programs exist.

As per the MDWL and/or Reg. 170/03, instrumentation is calibrated and/or verified in accordance with manufacturers’ instructions. A contractor calibrates and/or verifies the flow meters annually. Instrumentation such as UV sensors, UVT, chlorine, and turbidity analyzers, ozone monitors, and other equipment are calibrated and/or verified in-house. There is a program to maintain currency with the SCADA RPU and communications
system. The P&IDs (process and instrumentation drawings) are being reviewed and maintained as needed.

Electrically, the UV ballasts are run to failure and the UV bulbs are replaced every 5000 hours and 9000 hours at Middleton. CSA guidelines have specific requirements for diesel generators. An annual load bank test, run under load for rated power, oil changes, coolant, filters, electrical test of alternator, test oil for engine problems and efficiency. There is a contract with Toromont for the annual CSA requirements. In house the diesels are run monthly under load and preventative maintenance occurs as per the CSA guidelines.

Sub Station Maintenance involves a visual inspection, oil testing of transformers, check connections for tightness, electrical integrity of components by Meagher testing. This work is done twice per year during the summarizing and winterizing of the stations.

All other electrical components are run to failure.

Mechanically, chlorine injectors are rebuilt monthly at all sites except Mannheim, booster pumps are maintained as required, chemical pumps are checked monthly and rebuilt as required. Piping and valve work is done as required. Air chambers are checked yearly and pumped out as required and process flow diagrams (PFD) are updated as needed.

Distribution maintenance for North Dumfries and Wellesley Townships includes annual water main flushing and hydrant maintenance. All valves are operated over a 3 to 4 year span. Water main repairs, service leaks and locates occur as needed.

Distribution maintenance, including water main repairs on the trunk mains are done by the cities. Programs exist and vary by city for leak detection analysis, locates, and flushing. A more enhanced program is being developed to ensure that valves are operational.

As part of the DWQMS, an overview of the infrastructure maintenance performed on the Region’s water supply systems and North Dumfries and Wellesley distribution systems is to be presented to Regional Council.

6.0 Well Maintenance

Routine well inspections conducted by RMOW staff and MOE inspectors indicate drinking water supply wells and monitoring wells were in compliance. Wells are maintained in accordance with O. Reg. 903, made under the Ontario Water Resources Act and O.Reg. 170/03 (Sch.1). A contract exists that assesses each well and recommends corrective action. A well rehabilitation program is developed from the assessment. Unplanned emergency repairs to wells and well pumps are covered under this contract as well.

Permit to Take Water (PTTW) flow exceedances persisting for greater than 10 minutes and Municipal Drinking Water License (MDWL) daily flow exceedances are considered non-compliances. These flow exceedances are indentified in Section 4 – Table 2.

In the following tables, each flow exceedance highlighted in yellow persisted for less than 10 minutes and is NOT considered non-compliance and each flow exceedance highlighted in red persisted for greater than 10 minutes and is considered non-compliance.
Water Services

Annual QMS Management Review 2013
Meeting Minutes

Date: December 12, 2013
Time: 1:30 – 4:30
Place: Mannheim Training Room

Present:

Thomas Schmidt  Nancy Kodousek  Olga Vrentzos
Dave Young (PH)  Frank Infante  Tim Walton
Tim Cloutier  Alan Couch
Pete Clarke  Matt Bender

ABSENT:
John Melfi  Luis Figueiredo

1) QMS Management Review

Frank provided a summary of the Management Review purpose and objectives-to evaluate the effectiveness and appropriateness of the QMS and to address any deficiencies.

2) QMS Policy Review and Approval

The QMS policy (DOCS#981236) was reviewed and it was agreed that the policy is appropriate.

3) DWQMS Management Review Requirements

Required Management Review agenda items were discussed in accordance with the procedure DOCS#500605.

4) Roundtable Discussion

Management Review discussion conducted as per presentation (DOCS#1515414) and agenda (DOCS # 1522763).

5) Follow-up on Previous Action Items

The status of the following 2013 Management Review (DOCS#) action items was reviewed:

   I. Management Review reports to Owner

       To be communicated to council after NSF audit.

       Action: Nancy K. /Olga V. to prepare 2013 Management Review Report
Appendix B

Status: Completed

II. Adverse Water Quality Incidents

Chloramine Adverse Events

Water Operations and Maintenance management personnel will consider if chloramine exceedances (>3.0 mg/L) reporting regulatory relief is feasible during events where the corresponding upstream free chlorine analyzer indicates a concentration within the 1 to 2 mg/L, suggesting that the chloramine exceedance is most likely false. Regulatory relief may result in a significantly reduced number of chloramine AWQI’s. Tim indicated that MOE has agreed in principle that events <15min are not reportable if upstream FCR is <2.5mg/l. Forms are complete and need to be submitted to MOE for review.

Action: Tim W.

Status: Early 2014

III. UPS Testing

Due to UPS failures resulting in non compliance issues testing and maintenance should proactively be conducted (included as part of PMs) to minimize the potential re-occurring failures. Currently the larger UPS units receive PM. The smaller units require upgrades to the panels in order to bypass the UPS in the event of a failure. Currently, 20-25 panels have the capability to bypass.

Action: Systems Group

Timeline: Ongoing

IV. Mannheim Filters ESTW

Regulatory relief application for filter-to-waste will be submitted to MOE approvals once the finalized plan is complete. Tim Walton indicated that the MOE appears supportive of the ESTW. When Stantec's updated procedure and recommendations are completed the MOE application will be submitted for final approval.

Action: Tim W.

Status: 2014

V. Capital Works Summary

Capital Works (current and future) will be summarized, in consultation with appropriate groups (D&C, Engineering Services etc.) for annual management review (December 2013).

Action: Frank Infante

Timeline: Complete

VI. Essential Services- Chemical Delivery Verification
Appendix B

Personnel ordering water treatment chemicals are responsible for confirming certificate of approval (CoA) prior to delivery and bill of lading (BoFL) after delivery. An alternate person will be designated when the primary person ordering chemicals is unavailable.

**Action:** Tim Walton

**Timeline:** 2014

VII. Flood Protocol

Review and testing of existing well flooding response protocol is required. Nancy K. stated that she would like to be involved in this process.

**Action:** O&M Supervisors and other Water Service personnel as applicable

**Timeline:** 2014

6) Incidents of Regulatory Non-Compliance Review

I. **Branchton Meadows Loss of Regulatory Continuous Monitoring Data**

   The loss of regulatory continuous monitoring data occurred because the UPS was plugged into a GFI receptacle. The Systems Group has installed a correct receptacle to prevent this problem from reoccurring.

II. **Missed Chlorine Analyzers Calibrations**

   The monthly regulatory chlorine analyzer calibrations were not completed as required. The work orders were not triggered due to CMMS changes.

   To minimize the potential of missed calibrations a process has been developed to flag open work orders. The status of open work orders are communicated to the supervisors on a weekly basis.

   It is noted that even though the monthly calibrations were missed, the weekly verifications were completed. This appears to meet the manufacturer’s requirements but need to be communicated to the MOE Guelph Office.

III. **K90’s Wells Loss of Regulatory Continuous Monitoring Data**

   A power failure occurred at K91/92 well house resulting in power loss wells K93/94 chlorine analyzers. During this period wells K93/94 continued to operate while power was lost to the chlorine analyzer.

   This problem will be resolved when network upgrades have been completed.

7) Verification Audit Non-conformance Action Plan

   The 2013 Verification Audit Nonconformity Action Plan implementation status was reviewed (refer to DOCS# 1394074). Action items are on track to be completed by the target dates.
8) Internal Audit Non-conformance Action Plan

The 2013 Internal Audit nonconformities were reviewed (refer to DOCS folder #1525577)

The deadlines may be extended.

9) Action Items:

I. Critical Control Limits (CCLs)

The QMS Team will assess the current CCLs and determine appropriate CCL settings and response actions.

**Action:** Compliance Group

**Timeline:** Meeting scheduled for December 17, 2013

II. 2013 Verification Audit Corrective Action

Audit nonconformity corrective action will be reviewed by the QMS Team and Top Management prior to submitting the QMS documents to NSF auditor for the 2014 surveillance audit.

**Action:** QMS Team/Top Management

**Timeline:** Early 2014

III. RPU Maintenance

Discussion is required to determine if long term corrective action suggested for Branchton Meadows and Ayr drinking water systems non-compliance issue is appropriate.

**Action:** Systems Group

**Timeline:** 2014

IV. Protocol for Operating Hidden Valley, WM Wells and K80’s During Grand River Watershed Upsets

A peer review of the current operating protocol should be conducted to determine if the current actions are appropriate.

**Action:** Tim W

**Timeline:** 2014

10) Next Steps

- Confirm verification audit nonconformity corrective action plans effectiveness
- Full implementation of 2013 verification audit nonconformity corrective action prior to 2014 surveillance audit deadline
- Surveillance audit February 17 to 20, 2014 (documentation needs to be submitted by the first week of February
- Implementation of 2013 internal audit nonconformity corrective action plans and confirmation of effectiveness
Appendix B

- 2014 Emergency Management Review and Testing
- 2014 Risk Assessment Review
- Mid-term QMS effectiveness review with Top Management
- Continual improvement
February 25, 2014

Attention:
Chair and Members
Planning and Works Committee
Region of Waterloo

Re. Planning and Works Committee Meeting and River Rd. Extension

I will be out of the country March 4th, the date of the above cited meeting. I would like to have this letter attached to the agenda and be made available to all members of the committee.

Since I attended the Public Information Meeting on Dec 3rd, 201, I am in receipt of Report EEAC-14-001 through the kindness of Mr. C. Gosselin.

I had a frank discussion with Mr. W. Cheater on Feb. 24th. I reiterated my concerns that I outlined at the Dec. 3rd meeting. I also made some further suggestions re. the proposed 4 lane highway.

These included:

- The removal of the current bridge in the location shown and the construction of a tunnel or bridge that would link Hidden Valley from the north-west to River Road more directly toward the Stonegate stop lights and thus remove the need for destruction of the adjacent ESPA and Provincially Significant Wetland as per Alternatives 4 and 5.
- Removal of the ingress from River Road to Hidden Valley Rd. This would remove potential extra traffic on Hidden Valley Road, but also reduce considerably the impact on the PSW, yet accommodate the need for ingress of emergency service vehicles.
- Limit trails and sidewalks to one side of the proposed highway to reduce the impervious surface and to reduce the destruction of natural habitat as per Alternative 5.
- Use of roundabouts at Fairway at the current #8 as well as at point straight through the current off ramp from # 8 where it would intersect with River Rd.
- Concerns re. regulated areas for several other Species At Risk, particularly Cerulean Warbler.
- Lack of request from the Region and receipt of permission from Provincial Ministries to destroy Provincially Significant Wetlands even though each of the alternatives would result in such destruction.
Mr. Cheater assured me that the Region is still open to such suggestions as I have outlined. For my part, I acknowledged that through some 25 years of planning proposals, much has been done to improve and correct earlier plans, though much more must be done to further improve the proposed project. I ask members to consider how many times staff has already submitted what was to have been the final design.

I look forward to a written response to the concerns I have outlined in this letter.

Respectfully submitted,

Neil E. Taylor

Cc. Interested parties
<table>
<thead>
<tr>
<th>Meeting date</th>
<th>Requestor</th>
<th>Request</th>
<th>Assigned Department</th>
<th>Anticipated Response Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-Jun-13</td>
<td>Council</td>
<td>Operation of Raised Crosswalks Study</td>
<td>Transportation and Environmental Services</td>
<td>Mid 2014</td>
</tr>
<tr>
<td>11-Dec-13</td>
<td>Budget</td>
<td>Business Plan for Waste Management</td>
<td>Transportation and Environmental Services</td>
<td>1-Jun-2014</td>
</tr>
<tr>
<td>07-Jan-14</td>
<td>S. Strickland</td>
<td>Staff to report back on Tim Mollison's suggested GRT Route changes</td>
<td>Planning, Housing and Community Services</td>
<td>29-Apr-2014</td>
</tr>
<tr>
<td></td>
<td>J. Haalboom</td>
<td>Staff continue to lobby the Province for changes to the Highway Traffic Act providing right of way to pedestrians and on an as needed basis provide an update to Council</td>
<td>Transportation and Environmental Services</td>
<td>as required</td>
</tr>
</tbody>
</table>
Region of Waterloo
Transportation and Environmental Services
Rapid Transit
Finance Department
Procurement and Supply Services
Financial Services and Development Financing

To: Chair Jim Wideman and Members of the Planning and Works Committee
Date: March 4, 2014
File Code: A02-30
Subject: Stage 1 Light Rail Transit Project: Selection of a Design-Build-Finance-Operate-Maintain Consortium

Recommendation:

That the Regional Municipality of Waterloo (hereinafter called “the Region”):

1. Receive the results of Request for Proposal No. 2012-01 - Stage 1 Light Rail Transit (LRT) Project: Selection of a “Design-Build-Finance-Operate-Maintain Consortium”, as described in this report with the results obtained using Infrastructure Ontario procurement best practices including an independent Fairness Monitor;

2. Approve the selection of GrandLinq as the Preferred Proponent to design, build, finance, operate and maintain the Stage 1 LRT Project;

3. Approve a Project Agreement between the Region and the single purpose legal entity to be established by GrandLinq to undertake the Stage 1 LRT Project, in accordance with the following:
a. Construction of the Stage 1 LRT Project at a cost of $583,296,727.01, plus HST, to be paid through construction period payments of $452,054,963.43 plus HST and payment of GrandLinq’s long term debt and equity at a cost of $11,013,651 annually, plus HST, for 30 years following Substantial Completion, subject to final interest rate adjustments at the time of Financial Close;

b. Operation of the LRT system for a period of 10 years following Substantial Completion, with renewals for successive 5 year terms, to a maximum of 30 years, at a cost of $4,036,013 per year, plus HST, subject to annual inflation adjustment;

c. Maintenance of the LRT system for a period of 30 years following Substantial Completion at a cost of $4,530,064 per year, plus HST, subject to annual inflation adjustment;

d. Life Cycle rehabilitation of the LRT system for a period of 30 years following Substantial Completion at a total cost of $263,120,208, plus HST, to be paid in varying annual amounts averaging $8.77 million per year, subject to annual inflation adjustment;

e. Insurance for the LRT system for a period of 30 years following Substantial Completion at a cost of $1,700,000 per year, plus applicable taxes, subject to annual inflation and rating adjustment;

4. Delegate to the Regional Chief Administrative Officer the authority to finalize and execute the Project Agreement and associated ancillary agreements, and to execute documents and certificates in accordance with the terms and conditions of the Project Agreement on behalf of The Regional Municipality of Waterloo for the Stage 1 LRT Project and to do all things as may be necessary or required to give effect to the above-described resolutions, with the foregoing authority to be subject to the terms and conditions described in Report E-14-032/F-14-019;

5. Authorize and direct the Regional Clerk and the Chief Financial Officer to sign certificates and any other documents and to do all things as may be necessary or required to give effect to the above-described resolutions, subject to the terms and conditions described in Report E-14-032/F-14-019.

Summary:

The Region of Waterloo has been working on the development of a rapid transit system for more than 10 years. Rapid Transit is a key element of the Region’s Growth Management Strategy. It will help to limit urban sprawl, protect sensitive environmental areas and farmland, ease traffic congestion and provide greater transportation choice for the Region’s residents as our population grows by approximately 200,000 people over the next 20 years.
In June, 2011, Regional Council approved Light Rail Transit (LRT) from Waterloo to Cambridge as the preferred rapid transit solution for the Region. Council also approved constructing LRT in stages, to best match technology with projected ridership and development, and to ensure the project could be built affordably. Stage 1 includes LRT from north Waterloo to south Kitchener, and adapted Bus Rapid Transit from south Kitchener to downtown Cambridge (Galt). Also in 2011, Council approved a capital budget of $818 million for the project, and a funding strategy (based on net property tax increases of 0.7% per year for 7 years) to fund the operating, maintenance and financing costs of the system.

In February, 2012, Regional Council approved developing the project through a Design-Build-Finance-Operate-Maintain (DBFOM) approach with a private-sector partner. This approach was selected because it provided the best balance of Regional control and ownership, while transferring appropriate risks to the private sector, and taking advantage of private sector innovation. It also provided the greatest assurance of completing the project on time and within budget.

In March, 2013, the Region identified a short-list of 3 DBFOM teams, and issued a request for proposals (RFP) to these 3 teams. In December, 2013, the Region received proposals from the 3 short-listed teams. Since mid-December, Regional staff and the Region’s technical, financial and legal advisors, supported by Infrastructure Ontario, have undertaken a comprehensive review of the 3 proposals. The entire procurement and evaluation process has been monitored by P1 Consulting (the “Fairness Monitor”), to ensure it was conducted in a fair, objective and transparent manner.

The 3 proposals were evaluated on a range of technical and financial criteria. Technical submissions were evaluated based on six technical criteria (project management, civil design, system design, construction, maintenance and rehabilitation, and operations). Financial submissions were evaluated on the basis of net present value and the quality of each team’s financing plan. Each submission was technically and financially compliant. The highest overall score, as well as the lowest overall cost (lowest net present value) was achieved by the GrandLinq team.

Highlights of the GrandLinq proposal include the following:

- The capital cost of the LRT project in GrandLinq’s proposal is consistent with the Region’s capital cost estimate, and can be accommodated within the project capital budget of $818 million.

- GrandLinq’s projected operating, maintenance, life-cycle and financing costs can all be accommodated within the Region’s approved funding strategy.

- Based on the GrandLinq proposal, the Rapid Transit project remains on-time, on-budget and the costs remain affordable based on the Region’s funding strategy.
The GrandLinq team brings world-class expertise in the development of light rail transit systems to the implementation of ION. Key members of the GrandLinq team include: Plenary (one of Canada’s largest dedicated Public-Private Partnership (P3) developers, Meridiam (a major international infrastructure investor), Aecon (Canada’s largest publicly traded construction company), Kiewit (one of the largest construction, mining and engineering organizations operating in North America), and Keolis (a world leading public transport operator).

Report:

1. Background

The Region of Waterloo continues to plan for significant population and employment growth over the next two decades. The Provincial Growth Plan for the Greater Golden Horseshoe forecasts the Region’s population will increase to 729,000 people by 2031 and that employment will increase to 366,000 by 2031. This is an increase from today of nearly 200,000 people and 80,000 jobs.

To provide for the projected growth, the Region will have to either continue its pattern of outward growth or encourage greater intensification in existing developed areas. High-quality rapid transit has been identified as a crucial component in managing growth, facilitating intensification and minimizing/reducing future “urban sprawl.” A high-quality rapid transit system is vital for the Region to evolve into a more compact urban form, helping to prevent sprawl and protect sensitive environmental landscapes and high quality farmlands from urban encroachment. The rapid transit system being considered in the Region has the multiple goals of providing transportation choice, meeting future transportation needs, and building a viable, vibrant and sustainable community.

If the Region continues with current trends of auto use, the road network will need to expand by at least 500 additional lane-kilometres of traffic by 2031. As development spreads outward and congestion grows on the major arterial roads, further road construction will become necessary, including impractical road widenings through mature neighbourhoods. Without rapid transit, the road expansion costs including property would be in the range of $1.4 to $1.5 billion. On top of the high cost, this road expansion would seriously threaten the quality of life in much of the community. Building a rapid transit system and increasing transit ridership will reduce the amount of road construction required by approximately 40% and reduce road expansion costs by $400 to $500 million.

Regional Council approved the technology, route, stations, staging and funding for Stage 1 of the Region’s Rapid Transit (RT) project in June 2011. Stage 1 includes 19 km of Light Rail Transit (LRT) from Conestoga Mall to Fairview Park Mall and 17 km of adapted Bus Rapid Transit (aBRT) from Fairview Park Mall to the Ainslie Street Terminal.

In February 2012, Council approved a Design-Build-Finance-Operate-Maintain (DBFOM) procurement and delivery model for the LRT portion of the RT project. As part of their deliberations, Council directed staff to review options that would allow the Region to take advantage of operations by a private contractor without losing significant
flexibility for future system expansion. In September 2012, Council approved an initial term of 10 years for the operations component of the project, with up to four renewal options (each for five years) to be exercised at the discretion of the Region.

In October 2012, Regional staff issued a Request for Qualifications (RFQ) and received seven submissions. In February 2013 Council approved three pre-qualified teams, being GrandLinq, Kitchener Waterloo Cambridge Transit Partners and TriCity Transit System to proceed to the Request for Proposal (RFP) stage. Each consortium’s prime team members are listed in Appendix A to this report.

2. Request for Proposal

2.1 Procurement Documents

On June 6, 2013, Request for Proposal No. 2012-01 was issued to the three pre-qualified teams. Included in the RFP was a draft Project Agreement (PA) and the Project Specific Output Specifications (PSOS). The PA includes a series of interconnected legal agreements and schedules that provide the commercial terms and forms of contract to be executed between the Region, the Preferred Proponent (i.e. the team chosen by Regional Council to proceed with the project) and other project parties (e.g. the Lender’s Agent). The PA articulates the responsibilities and obligations of the parties. The PSOS sets out all of the Region’s design, technical quality, operations and maintenance requirements and standards. The PSOS defines the project scope and objectives which are essential to the enabling of private sector innovation, and acts as the source document for design evaluation and technical compliance.

The Region retained Infrastructure Ontario (IO) to act as the “Procurement Lead,” providing advice and assistance to the Region throughout the procurement process. P1 Consulting was engaged to act as a “Fairness Monitor” to ensure the procurement process was conducted with an established process, that the process was followed and there was no bias.

2.2 RFP Process

Regional Council established a Steering Committee for the procurement process that included Regional Councillors Jim Wideman, Sean Strickland, Tom Galloway and Claudette Millar and Regional staff (Mike Murray – CAO, Craig Dyer – CFO, Rob Horne – Commissioner, Planning, Housing and Community Services, Debra Arnold – Regional Solicitor, and Thomas Schmidt – Commissioner, Transportation and Environmental Services).

With the release of the RFP in June 2013, the three pre-qualified teams began to prepare their submissions. A series of commercially confidential meetings took place with each team between July and November. These meetings allowed the teams to ask questions and seek clarification relating to all aspects of the project, and helped ensure a common understanding of the project. The Region’s service specifications set out in the PSOS were refined throughout the procurement process to ensure that the resulting system would fully meet the Region’s needs. The PA itself was reviewed and refined for clarity and reissued at certain points in the process. On December 16, 2013 the Region
received proposals from each of the teams. Technical submissions were received at Regional offices at 50 Queen Street in Kitchener, while the financial submissions were received at Infrastructure Ontario offices in Toronto.

Proposals from the teams are irrevocable and remain in effect and open for acceptance for 180 days after submission close (June 13, 2014), or until financial close (currently targeted for April 25, 2014), whichever occurs first.

2.3 RFP Evaluation

An Evaluation Framework to govern the review of the proposals was developed by the Region and its consultants. This framework was described in detail in Report E-14-027/F-14-016 dated February 11, 2014 which is attached as Appendix B to this report.

The objectives of this Evaluation Framework were to:

• Ensure that the evaluation process is open, fair, transparent and applied consistently, free of conflicts of interest, and treated confidentially;
• Define the authority, decision making process and reporting structure relating to the evaluation of the RFP responses while ensuring an appropriate separation of roles and responsibilities related to approvals, conflict of interest determination, fairness oversight, due diligence, overall co-ordination, and scoring;
• Provide multiple levels of due diligence to confirm that all material facts have been considered in determining the Preferred Proponent;
• Provide direction to participants by describing the methodology that is used to evaluate proposals by outlining timing requirements and defining key actions;
• Ensure that the evaluation process is conducted in a secure environment;
• Ensure that an appropriate document control process is applied to create a record of the evaluation process that will support the determination of the Preferred Proponent;
• Align the evaluation process with best practices and industry expectations; and
• Provide evaluation oversight and a process to select the most qualified team.

In accordance with the established Evaluation Framework, the submissions were reviewed to ensure compliance with mandatory requirements and completeness of the proposals. All bids were compliant, complete and met the mandatory requirements.

Evaluation teams established by the Region, involving numerous Regional staff and the Region’s technical and financial advisors, then assessed the Technical and Financial submissions. In order to maintain fairness and integrity in the process, separate Technical and Financial evaluation teams were established, and the evaluations were conducted in different locations. The technical submission review was based out of 50 Queen Street in Kitchener, while the financial submissions were stored and evaluated at Infrastructure Ontario (IO) offices in Toronto. The technical team had no knowledge of the financial submissions, evaluation process or results, and vice versa to ensure that the evaluators were completely objective and unbiased.

Each technical submission was evaluated by Regional staff and numerous consultants based on how well it met the mandatory requirements outlined in the PSOS and the
Technical Submission Requirements. Each submission was required to achieve a minimum score of 70% in each of the technical components noted above.

Each financial submission was evaluated by a team from the Region, Deloitte and IO. Each submission had the following two mandatory components:

1. Net Present Value (NPV): a financial model was designed by the Region and its consultants to calculate the NPV of each proposal including capital, financing, long-term operations, maintenance and lifecycle costs. Staff and the Region’s consultants performed detailed due diligence analysis of the financial model and NPV calculations provided by the bidders. The lowest NPV was awarded the maximum available points (450) for this portion of the evaluation. Thirty (30) points were deducted from the 450 point maximum for every percentage point by which the next bidder exceeded the lowest NPV.

2. Financial Plan: The balance of the financial score (maximum 50 points) relates to the quality of the proposed financial plan. The proposals were assessed based on the achievability and robustness of the financing plan, stability of financial structure, level of support from lenders and performance security provided by prime team members, etc. A minimum score of sixty percent (60%) was required. Each team achieved at least the minimum score.

As Council had previously set the budget and funding envelope in 2011, the Region established an Affordability Cap as a threshold for bidders to measure their costs against. The Affordability Cap indicated the funding available and the interplay between the costs for which the Region has responsibility (principal and interest, other works, land, project office, traction power and other utilities) and the costs for which the bidder has responsibility (construction costs – with debt and equity, operations, maintenance and lifecycle/rehabilitation). This test was set to create competitive tension and encourage bidders to propose affordable solutions for the Region and provide maximum scope for the available funding.

The results of the technical and financial evaluations were then presented separately to and confirmed by the Evaluation Committee comprised of the CAO, CFO, Commissioner of Transportation and Environmental Services, Commissioner of Planning, Housing and Community Services, and the Regional Solicitor. The evaluation results were then presented to the Rapid Transit Steering Committee.

2.4 RFP Evaluation Results

Each submission met the minimum 70% score in each of the technical components. All of the teams were technically compliant with the Region’s requirements and the overall technical scores were within a very narrow range. The highest overall score, as well as the lowest overall cost (lowest NPV), was achieved by the GrandLinq team. The GrandLinq bid met the Affordability Cap. Based on the completed evaluation process, staff recommends that Committee and Council approve the selection of GrandLinq as the Preferred Proponent to design, build, finance, operate and maintain the Stage 1 LRT Project.
3. The GrandLinq Submission

3.1 Project Team

GrandLinq is a specialized consortium with an effective project governance structure, facilitated through the inclusion of equity investors in all phases of the project. Their equity investment in GrandLinq allows them to adopt a holistic, long-term approach to the development of the Project. This financial interest of team members also ensures that they collaborate to deliver the project successfully from start to end and not just focus on their particular role. The Prime Team Members include:

- Plenary – One of Canada's largest dedicated Public-Private Partnership (P3) developers, with 13 projects successfully closed in Canada, 9 of which are in operations.

- Meridiam – A major international infrastructure investor, with 26 successfully closed transactions in Europe and North America, including a number of rail projects.

- Aecon – Canada's largest publicly traded construction company that will be fulfilling the design and construction obligations alongside Kiewit.

- Kiewit – One of the largest construction, mining and engineering organizations operating in North America and Australia, and will be fulfilling the design and construction obligations alongside Aecon.

- Keolis – A world leading public transport operator, established in 14 countries on four continents, and will be fulfilling the operations, maintenance and rehabilitation obligations.

These companies will form a joint venture not only to design and build the project, but to also operate and maintain the system to ensure the availability of its service for 30 years. Additional background information relating to the GrandLinq team can be found in Appendix C.

3.2 Technical Highlights

Civil and System Design

GrandLinq has presented a guideway design solution that effectively integrates the structural, civil, alignment, trackwork, systems and landscape elements. They will deliver all fixed facilities comprising of 16 station stops, 13 Traction Power Substations and the Operations and Maintenance Storage Facility. Further engineering refinements will continue through detailed design.

- Station Stops - The approach to station stops establishes consistent and recognizable architecture that delivers quality, comfort and flexibility for future
extensions. The overall design of the station stops places strong emphasis on connections and integration with the surrounding communities and future development. Passenger safety, convenience, capacity and accessibility are also key principles required in the design. In addition, stops will employ treatments tailored to their location in order to integrate well with the surroundings.

- Operations and Maintenance Storage Facility (OMSF) - The OMSF design provides for the required maintenance and operating procedures for the LRT system. The design delivers an efficient work environment that ensures proper traffic access, materials handling and workflow. The OMSF site design takes into account initial requirements but will also accommodate expansion for future vehicle storage. The OMSF building design will also achieve LEED Silver Certification.

Construction Methodology and Project Schedule

- Aecon and Kiewit are industry leaders in the road and rail construction sectors and are fully capable of delivering a comprehensive and high-quality solution for the Project.

- Construction - The proposed construction methodology and schedule is focused on having the system in operation as early as possible while minimizing traffic impacts during construction. The sections of work are strategically planned and scheduled to avoid disrupting major events and festivals. These are also planned so as to avoid working concurrently on major routes in the Cities of Kitchener and Waterloo. GrandLinq will ensure that suitable, safe, convenient, free and accessible short term parking is available to the local Community within each of the individual stages of work. Access to garbage/trash collection and removal, recycle, yard waste pickup and transportation will be provided at all times. GrandLinq will provide adequate and secure pedestrian access for each stage of the construction, and ensure proper protection to adjacent structures are in place prior to commencing the work on any of the operations.

- Schedule - The construction schedule retains some flexibility to minimize the risk of delays and facilitating schedule recovery as needed. A Critical Path Method is adopted by GrandLinq that will provide valuable insight into construction progress and will identify the need for recovery strategies in the event of unforeseen delays. The schedule provides defined and measurable activities and milestones for managing and reporting on the progress of the Work from preliminary design to revenue service, and is the means for measuring the progress of the Work against the Schedule of Values of the Work through a resource loaded schedule.

- Construction/ Operation System Safety - The health and safety of the public, as well as the protection of property and the environment are key priorities during construction, operations, maintenance and service of the Project. The safety of employees, contractors and other authorized personnel onsite during construction will be covered by the Construction Safety Plan, which will include safe working
practices. All construction areas will be secured to prevent unauthorized entry. Appropriate safety program(s) will be developed by GrandLinq to protect work areas from inadvertent or unauthorized entry and to ensure that the public, motorists, businesses and the surrounding community are protected from the construction.

Operations and Maintenance

GrandLinq will have full responsibility for the operations and maintenance of the system in accordance with Region established performance requirements (including safety and customer service) and agreed upon schedules.

Operations - The operating approach proposed by GrandLinq is passenger focused and is based on performance and reliability. This approach complements the key guiding principle of Zero Harm, which places safety for passengers, employees and the public at the forefront. The passenger-focused culture will ensure that the needs of transit users are recognized at every level of the organization, and be the catalyst by which operational activities are developed and implemented. This aligns with the Region’s commitment to deliver safe, timely and reliable service for all passengers.

- Maintenance – GrandLinq’s maintenance and rehabilitation approach focuses on System service availability and, ultimately, the System User. This approach will support the Region’s objective of increasing transit ridership, by creating a positive association of transit as a convenient alternative choice to the car. GrandLinq’s maintenance and rehabilitation approach will minimize disruption to System operations and System Users, while maximizing asset value and life. To achieve their goal, GrandLinq will be responsible for the required custodial, preventative, and corrective maintenance for the entire System.

3.3 Financial Plan Highlights

GrandLinq has proposed a strong financial structure with a well planned bond distribution plan and significantly advanced documents including: Term Sheet, Commitment letter, Drop Down Agreements and Interface Agreements.

Financial structure – GrandLinq has created a partnership which includes the financial partners (Plenary and Meridiam) each with a 35% interest and the construction and operations partners (Keolis, Aecon and Kiewit) each with a 10% interest. If one team member from the financial partners or construction and operations partners does not contribute its share, the others have agreed to assume the difference. With each team member having a financial interest in the project from construction to operations and maintenance they are all motivated to deliver the optimal project that best meets the needs of the Region during all phases of the Project and not just the individual portions they are responsible for. This results in an alignment of short and long term interests of the consortium members.

Debt and Equity Financing

- Construction financing (short term) – the Project Agreement requires GrandLinq to
fund the first 22.5% of the design-build (construction) costs and only after this threshold has been reached will the Region make monthly milestone payments withholding 15% until substantial completion is achieved. To fund the construction costs, GrandLinq has arranged short-term construction financing through Alberta Treasury Branches, which is well experienced in P3 financing.

- Long term debt and equity – the 22.5% of construction costs initially funded by GrandLinq will be paid by the Region during the 30-year term, which is one of the anchoring principles of P3 projects. The majority (80%) of GrandLinq’s financing will be provided through issuance of long term bonds that are underwritten by CIBC World Markets. The balance (20%) will be provided by equity contributions from the five partners, which will also be repaid by the Region during the 30-year term. CIBC World Markets is well experienced at underwriting and arranging bond issuances in the P3 market and has provided a commitment letter to arrange the bond financing for the project.

Letters of Credit/Parent Company Guarantees

Both the consortium contractors (Keolis, Aecon and Kiewit) and the financial partners (Plenary and Meridiam) will provide equity financing to the project at time of Financial Close via Letter of Credit. In addition, the contractor partners are each obligated to “back-stop” or guarantee each other in the unlikely event that one contractor is unable to fund their portion of equity. This provision and guarantee is also required of the financial partners.

In addition, as part of the performance security package, Letters of Credit will be provided during construction by the general contractors Aecon and Kiewit, which will be released in full on the second anniversary of construction completion. A Letter of Credit will be provided by the operating partner Keolis with an amount equal to 6 months of the annual operating, maintenance and lifecycle costs and this Letter will be replaced annually during the term of the Project.

Parental Company Guarantees to meet any liquidated damages resulting from delays to construction are provided in an amount equal to 40% of the construction contract price. Also, a Parental Company Guarantee is provided by the operating partner during operations and maintenance with a maximum aggregate liability amount equal to 30 months of the operations and maintenance fees.

The financial structure, including debt and equity financing from the consortium, is repaid by the Region over the project term. These payments are subject to the Performance Monitoring regime, which applies deductions for poor performance. In extreme cases the entire payment amount could be deducted. The Performance Monitoring regime includes monitoring of: Operations including schedule and trips performance to defined service levels, Maintenance including alignment of GrandLinq’s maintenance activities with vehicle safety standards and performance indicators to ensure that the service will meet the Region’s standards on quality. Failure to meet the standards results in deductions from the monthly payments which can put the equity and debt at risk, thereby ensuring due diligence on the part of lenders and all partners in
the consortium.

4. Value for Money Update

As the Region’s financial advisor on the LRT project, Deloitte previously completed a Value for Money (VFM) analysis in the spring of 2013 which was presented to Council on May 22, 2013 prior to the release of the RFP. This May 22, 2013 report noted that the costs used to develop the assessment were based on those provided by the Region’s advisor, and that the VFM would be updated at a subsequent date with the results from the recommended Preferred Proponent (GrandLinq). Deloitte has provided this revised report based on the GrandLinq submission which has yielded a VFM result of 12.1% as compared to 12.3% in the May 22, 2013 VFM report (Deloitte has noted that this difference is statistically insignificant). The VFM result of 12.1% is well within an expected range of 5% to 15%.

A VFM analysis compares all design, construction, financing, operating and maintenance costs of a project using a traditional contract delivery approach (Design-Bid-Build) against a DBFOM contract delivery approach. This comparison includes:

- The difference between the cost of Regional long term financing and private financing; and
- The costs to the Region for the Risk that it retains.

In general terms, a VFM is a form of cost-benefit analysis which ensures that all costs, including those related to risk, are included to create an “apples-to-apples” comparison.

A 12.1% VFM result on the Region’s LRT project means that given the comparison of all costs of the DBFOM contract model (i.e. including the incremental private financing costs) against the benefits of the high amount of risk that is transferred to the private sector partner, the use of the DBFOM model will cost 12.1% less than the traditional approach, once all risks are considered.

5. Fairness Monitor Findings

P1 Consulting was hired as the Fairness Monitor on this project. Their role consisted of:

- Participation in all stages of the procurement process
- Review of the procurement documentation (e.g. RFQ, RFP, addenda)
- Observation of all communication with Proponents, both written and verbal (e.g. attending all Commercially Confidential Meetings, reviewing all Requests for Information and Requests for Clarification)
- Observation of bid receipt, opening, and evaluation,
- Review and assessment conflict of interest assessments,
- Addressing matters related to fairness as required,
- Attend scoring consensus meetings and validate evaluation results, and
- Provide guidance and advice to the Rapid Transit Steering Committee, Rapid Transit Senior Management Team, and Rapid Transit Evaluation Committee.
All of the above was undertaken in order to ensure that the procurement process was conducted, fairly, openly and in a transparent manner. P1 Consulting has certified:

1. That the procurement process was clearly established in the implementation guidelines (RFQ, RFP and Evaluation Framework).
2. That the evaluation process and criteria described in the procurement documents were applied consistently and equitably.
3. That evaluators demonstrated diligence in their responsibilities, that they were able to support their individual evaluation assessments and that they held no bias for or against any of the three Proponents.
4. Conflict of Interest and Confidentiality were treated with the highest regard throughout the process. Attestation of no Conflict of Interest was reconfirmed by those participating in the evaluation stage of the process. There were no unresolved issues at the RFP stage of the procurement.
5. For the DBFOM RFP (No.2012-01), issued by Waterloo Region, P1 Consulting certified that the principles of openness, fairness, consistency and transparency have been properly established and maintained throughout the entire process.

Correspondence from P1 Consulting is attached as Appendix E.

6. Infrastructure Ontario’s Role

Infrastructure Ontario was engaged by the Region as the Procurement Lead through Report E-12-082. The scope of IO’s work to date includes:

- Providing the Region with financial advice, analysis, oversight and guidance throughout the entire procurement process;
- Conducting comprehensive and detailed due diligence at various project stages including pre-transaction, during the RFP open period, during evaluations and prior to financial close;
- Ensuring that the financing solution is viable with minimal risk;
- Working with the Region’s legal counsel and external counsel to customize documents for the project;
- Overseeing drafting the RFQ, RFP, Output Specifications, Project Agreement and any addenda;
- Managing preparation of responses to requests for information/clarifications from proponents;
- Participating in Commercially Confidential Meetings with proponents;
- Assisting Regional staff with the management of and responses to Requests for Information during the RFP open period;
- Assisting with completeness reviews on RFQ and RFP bid submissions;
- Participating in evaluation consensus meetings.

IO has worked closely with the Region and its advisors to ensure that procurement best practices have been followed throughout the procurement phase of this project.
7. Next Steps

7.1 Commercial Close

Commercial Close is the term used to describe the execution of the finalized Project Agreement and ancillary agreements.

GrandLinq is required to provide a Letter of Credit to the Region in the amount of $20 million no later than three business days after notification from the Region that it is the Preferred Proponent. Such notification would occur on March 20, 2014 subject to Council approval. This Letter of Credit will secure GrandLinq’s obligations to achieve Commercial Close, execute the Project Agreement and provide the Region with any technical and financial information required for the Region to complete its due diligence. GrandLinq must provide a timetable to achieve the Financial Close milestone dates within 5 days of being advised that it is the Preferred Proponent. The Letter of Credit is used as an incentive for the Preferred Proponent to close the deal in the absence of bid tension, which falls away once such notification occurs.

Approximately two weeks before Commercial Close, GrandLinq and CIBC World Markets will begin the marketing of GrandLinq’s long term debt, in the approximate amount of $110 million. This financing will be priced on the date of Commercial Close, which is expected to be on or about April 22, 2014. At that point, the PA will be executed, with the exception of final pricing information which will be completed during the final rate set call, thereby achieving Commercial Close.

It is noted that GrandLinq is comprised of a group of corporate “team members” as described in Appendix A to this Report and has not yet completed the governmental registration to create the legal entity that will sign the Project Agreement and ancillary agreements with the Region. Once this is completed, the precise name of GrandLinq’s legal entity will be inserted in these finalized documents for execution.

The Project Agreement will be in accordance with the Region’s Request for Proposals 2012-01, subject to finalization of matters with GrandLinq including clarifications pertaining to technical matters, inclusion of certain extracts from its Proposal, finalization of certain scheduling matters, and other non-material revisions. In order to facilitate this finalization and execution of the Project Agreement and the numerous ancillary agreements including agreements required pursuant to Schedules to the Project Agreement (e.g. Independent Certifier Agreement, the Lenders’ Direct Agreement and the Insurance Trust Agreement) and other documents contemplated by the terms and conditions of the Project Agreement such as notices and certificates pertaining to implementation of the Project Agreement, it is recommended that the Chief Administrative Officer be delegated authority on behalf of the Region in this regard, with such authority being subject to:

- The terms and conditions of this Report E-14-032/F-14-019 dated March 4, 2014 including that any Regional expenditures contemplated by the execution of such documents are accommodated within the funding described in Table 3 of this Report.
• The agreements are in a form and content satisfactory to the Region’s legal, technical and financial advisors

In addition, there are certain certificates and other documents that the Regional Clerk and Chief Financial Officer will be required to complete and sign to give effect to the recommendations contained within this report. Staff recommends that Regional Council authorize such signing.

7.2 Financial Close

Upon Commercial Close, the final short and long term interest rates will be set based on the prescribed rate set protocol. As previously described, the bid submitted by GrandLinq reflected short and long term Government of Canada bond yields in place as of December 13, 2013, and a “spread” above these rates to reflect GrandLinq's expected cost of borrowing. The “re-setting” of these rates is in recognition of:

• The movement of the underlying Government of Canada bond yields, which is outside the control of GrandLinq and the Region.

• Fluctuations in the interest rate spreads (i.e. the amount of risk premium associated with this project above and beyond the Government of Canada yield noted above) over time based on market conditions and investor expectations. Since there are no publically available “benchmarks” to track movements in the Infrastructure Bond market (in contrast to government bonds), GrandLinq submitted a set (or basket) of bonds (e.g. Greater Toronto Airport Authority) that were similar to the Region’s LRT project. This set of bonds is then used to create a benchmark that tracks movements in GrandLinq’s spread. This pre-established benchmark was proposed by GrandLinq and approved by the Region to act as the "floor" and "ceiling" for the interest spreads on the GrandLinq debt.

Through the rate set protocol the financing costs for the project are finalized and the PA populated with the final pricing information as it relates to financing rates, and at that point the financial model is set and attached to the PA. Additional information regarding the potential impact of the final rate setting exercise is found in the Financial Implications section of the report (see Table 2 – note 1).

Financial Close (expected to be on or about April 25, 2014) will occur approximately three business days following Commercial Close when all Lending Agreements are in place and funding is available to GrandLinq from its lenders (i.e. the flow of funds, in the form of debt and equity, from the lenders to GrandLinq has occurred).

Corporate Strategic Plan:

The report supports Focus Area 3.1 of Council’s Strategic Focus: Implement a light rail transit system in the central transit corridor, fully integrated with an expanded conventional transit system.
Financial Implications:

1. Project Capital Costs

The capital cost of the “Design-Build” component of the project is set out in the following table.

<table>
<thead>
<tr>
<th>Project Agreement Component</th>
<th>Capital cost</th>
<th>Payment details/Notes</th>
<th>Subject to inflation (yes/no)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design and construction</td>
<td>$583.3 m</td>
<td>The first 22.5% or $131.3 million is funded by GrandLinq (i.e. not paid by the Region during construction). The remaining 77.5% or $452.0 million is paid monthly based on the value of work completed during the course of construction.</td>
<td>No</td>
</tr>
<tr>
<td>(includes the LRT</td>
<td>+ net HST</td>
<td></td>
<td></td>
</tr>
<tr>
<td>and Public Infrastructure</td>
<td>$593.7 m</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Works)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less Public Infrastructure</td>
<td>$61.6 m</td>
<td>Projects that are being undertaken as part of the GrandLinq proposal but are being funded from sources other than the LRT budget. (Note 1)</td>
<td>No</td>
</tr>
<tr>
<td>Works</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LRT Component</td>
<td>$532.1 m</td>
<td>This represents the net design and construction cost of the LRT project.</td>
<td>No</td>
</tr>
</tbody>
</table>

Note 1: Public Infrastructure Works are projects that are being undertaken as part of the GrandLinq proposal but are being funded from sources other than the LRT budget. These are primarily projects which were already planned and budgeted and would have been implemented regardless of LRT construction. The Water Capital program includes $4.4M for construction of a watermain on Charles Street. The Roads capital program includes a number of projects, such as King Street and Northfield Drive rehabilitation and reconstruction, rehabilitation and reconstruction of King Street (Victoria to Union), Underpass construction on King Street and GEXR Crossing, and reconstruction and rehabilitation on Frederick Street, Ottawa Street and Courtland Avenue, that will be completed as part of the GrandLinq proposal. The total budget from the Roads Capital Program is $46.9M. Cost sharing with City of Kitchener and Waterloo is documented in Report E-14-003/F-14-001 dated January 7, 2014 and totals $10.3M.

2. Project Financing, Operations, Maintenance and Lifecycle Costs

The financing, operating, maintenance and lifecycle costs and associated payment details are set out in the following table. These are the costs included in the GrandLinq
bid that will form the basis of the PA payments over the 30 year operations and maintenance term. The costs reflect the base service level only, and do not include inflation (which will be calculated and applied annually) on all components with the exception of the Financing component.

### Table 2 ($ in millions)

**Project Agreement Costs During the 30 Year Operations and Maintenance Term**

<table>
<thead>
<tr>
<th>Project Agreement Component</th>
<th>Annual cost</th>
<th>Total cost (30 years)</th>
<th>Payment details</th>
<th>Subject to inflation (yes/no)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finance (note 1)</td>
<td>$11.0</td>
<td>$330.4</td>
<td>Paid monthly for 30 years (mid 2017-mid 2047). This includes the $131.3 million in withheld capital described above plus the costs of GrandLinq’s financing and other corporate costs such as audit, legal, agency rating fees, etc.</td>
<td>No</td>
</tr>
<tr>
<td>Operations</td>
<td>$4.0</td>
<td>$121.1</td>
<td>Paid monthly for 30 years (360 payments) from mid 2017 to mid 2047</td>
<td>Yes (note 2)</td>
</tr>
<tr>
<td>Maintenance</td>
<td>$4.5</td>
<td>$135.9</td>
<td>Paid monthly for 30 years (360 payments) from mid 2017 to mid 2047</td>
<td>Yes (note 2)</td>
</tr>
<tr>
<td>Lifecycle</td>
<td>$8.8</td>
<td>$263.1</td>
<td>Paid monthly for 30 years (360 payments) from mid 2017 to mid 2047 – payments vary by year</td>
<td>Yes (note 2 / note 3)</td>
</tr>
<tr>
<td>Insurance</td>
<td>$1.7</td>
<td>$51.0</td>
<td>Paid monthly for 30 years (360 payments) from mid 2017 to mid 2047</td>
<td>Yes (note 2)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$30.0</strong></td>
<td><strong>$901.5</strong></td>
<td>Payments vary by year for lifecycle costs.</td>
<td></td>
</tr>
</tbody>
</table>

Notes:

1. The cost of financing in GrandLinq’s bid is based on long term Government of Canada bond yields in effect as of December 13, 2013 (one business day prior to the date the bids were submitted). The final cost of long term financing will be set on the date of Commercial Close (approximately three days prior to Financial Close) and will be based on the long term bond yields in effect at that time plus a “spread” or premium which will apply to GrandLinq’s debt. These costs will then be fixed for the 30 year term and not subject to inflation or refinancing risk.
It is noted that both short and long term interest rates are currently lower (as of February 27, 2014) than they were on December 13, 2013. If the current rates were to remain in effect until Financial Close, the annual payment for this portion of the contract would be reduced by approximately $250,000 per year, or approximately $7.5 million over 30 years. A one basis point (1/100 of a percent) change in interest rates (either up or down) results in approximately a $10,000 per year annual impact to this component of the payment.

2. The Operations, Maintenance, Lifecycle and Insurance costs shown above reflect the base service level only, and will only be altered as follows:

   a. For inflation – which is calculated annually based on a set of inflation factors that have been bid by GrandLinq and which will be enshrined in the Project Agreement

   b. For monthly volume (i.e. service level) adjustments based on the actual level of service provided for a particular month

   c. For any deductions relating to non-performance relative to the output specifications

   d. For service level changes approved by Council – each bidder was required to provide firm pricing for 6 additional and enhanced service levels. The decision to increase service levels (by adding more vehicles and/or running vehicles more frequently) is entirely at the discretion of Regional Council. Any future request to expand the ION service level would likely come forward in the form of a Budget Issue Paper during the Region’s annual budget process.

   e. Insurance – bidders were instructed to bid a standard IO insurance package cost. Costs will be determined through an insurance procurement process and are subject to annual adjustment based on actual costs.

3. The Lifecycle portion of the project costs represents periodic asset rehabilitation work required to maintain the LRT system. This includes work to be performed on tracks and the overhead catenary system, the OMSF and vehicles. The typical Lifecycle spending profile is periodic and should be mostly in the latter half of the 30 year term. To accommodate the Region’s funding strategy (which includes relatively smooth annual funding over the 30 year contract period) GrandLinq included in their proposal a lifecycle cost profile that includes payments in each of the 30 years. Payments made in advance of work being completed will be managed through a Lifecycle reserve. Deductions for not meeting performance standards would be made to the monthly payments for Lifecycle costs in the same manner as financing, operations and maintenance costs.

Subject to approval of the recommendations in this report, the PA would come into
effect on or about April 25, 2014 and includes the construction (Design and Build) period to mid 2017 and the 30 year Finance, Operations and Maintenance period (with Operations subject to approval by Council every 5 years starting at year 11). The Project Agreement therefore would expire in mid 2047. By adopting the recommendations set out in this report, Council will be committing to the payment regime for the capital investment over the next 3.5 years as well as operations, maintenance, lifecycle and insurance payments to GrandLinq over a 30 year period.

3. Capital Budget

The original capital cost estimate of $818 million was established in June 2011, in $2014. This was prior to the Region’s decision to procure the project in the form of a DBFOM contract. A comparison of the approved and revised capital budgets (both expenditure and sources of financing) is provided in the following table:

**Table 3 ($ in millions)**

<table>
<thead>
<tr>
<th>Project Component</th>
<th>Notes</th>
<th>2013 Capital Cost Budget (DBFOM)</th>
<th>2014 (Contract Award)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LRT Project</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DBFOM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LRT</td>
<td></td>
<td>$545.0</td>
<td>$532.1</td>
</tr>
<tr>
<td>Intersecting projects, utilities, and betterments</td>
<td></td>
<td>$61.0</td>
<td>$61.6</td>
</tr>
<tr>
<td>Total DBFOM construction (incl. net HST)</td>
<td>2</td>
<td>$606.0</td>
<td>$593.7</td>
</tr>
<tr>
<td>Recoveries (area municipalities and Roads and Water capital budgets)</td>
<td>3</td>
<td>($61.0)</td>
<td>($61.6)</td>
</tr>
<tr>
<td>Net DBFOM Total</td>
<td></td>
<td>$545.0</td>
<td>$532.1</td>
</tr>
<tr>
<td>Non-DBFOM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vehicles</td>
<td>4</td>
<td>$96.0</td>
<td>$95.5</td>
</tr>
<tr>
<td>Land</td>
<td>5</td>
<td>$45.0</td>
<td>$42.3</td>
</tr>
<tr>
<td>Project Office &amp; Consulting</td>
<td>6</td>
<td>$58.0</td>
<td>$51.8</td>
</tr>
<tr>
<td>MTO Underpass construction</td>
<td>7</td>
<td>$11.0</td>
<td>$11.2</td>
</tr>
<tr>
<td>Hydro One – Transmission line relocation</td>
<td>8</td>
<td></td>
<td>$26.3</td>
</tr>
<tr>
<td>Early Works and Other Infrastructure</td>
<td></td>
<td>$39.0</td>
<td>$29.3</td>
</tr>
<tr>
<td>Non-DBFOM Total</td>
<td>9</td>
<td>$249.0</td>
<td>$256.4</td>
</tr>
<tr>
<td>LRT Total</td>
<td></td>
<td>$794.0</td>
<td>$788.5</td>
</tr>
<tr>
<td>aBRT Vehicles and Construction</td>
<td>10</td>
<td>$24.0</td>
<td>$19.5</td>
</tr>
<tr>
<td>Contingency allowance</td>
<td></td>
<td></td>
<td>$10.0</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>$818.0</td>
<td>$818.0</td>
</tr>
</tbody>
</table>

Note 1 – per Report E-14-027/F-14-016, attached as Appendix B.
Note 2 – per Table 1 above

Note 3 – as included in the Region’s Capital Programs (e.g. King St. grade separation and Charles St. watermain replacement) and cost sharing reports as previously approved by Council (see table 1 note 1 for more details).

Note 4 – Contract for 14 Bombardier Light Rail Vehicles as previously approved by Council.

Note 5 – Estimate of costs based on land requirements as previously approved by Council.

Note 6 – costs for Rapid Transit project office, GEC (Parsons Brinckerhoff), Procurement assistance (Infrastructure Ontario), Legal (Norton Rose Fulbright), Financial (Deloitte) and other consulting requirements.

Note 7 – Contract through MTO as previously approved by Council.

Note 8 – Contract with Hydro One Networks Inc. to relocate an overhead transmission line underground along the hydro corridor parallel to Fairway Road. Approved by Council in Report E-14-008 dated January 7, 2014. This was previously budgeted for in Early Works.

Note 9 – aBRT construction tender to be issued in Spring 2014, vehicle purchase tender expected to be issued in 2016.

Note 10 – The overall capital cost of the RT project is currently estimated at $818 million, including the contingency allowance. Staff will continue to manage the project to this budget and report back regularly through the Periodic Financial Reporting process.

Regional Capital Budgets since 2012 have included the RT project and have been based on the original cost estimate from June 2011.

4. Capital Financing

Sources of financing for the RT project are set out in Table 4 below.

<table>
<thead>
<tr>
<th>Source of funding</th>
<th>Notes</th>
<th>2011 (Original Estimate)</th>
<th>2014 (Contract Award)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government of Canada</td>
<td></td>
<td>$265</td>
<td>$265</td>
</tr>
<tr>
<td>Province of Ontario</td>
<td></td>
<td>$300</td>
<td>$300</td>
</tr>
<tr>
<td>ROW long term debt and reserve funding</td>
<td></td>
<td>$253</td>
<td>$122</td>
</tr>
<tr>
<td>GrandLinq long term financing (22.5% of construction cost)</td>
<td></td>
<td>$0</td>
<td>$131</td>
</tr>
<tr>
<td><strong>Total sources of financing</strong></td>
<td></td>
<td><strong>$818</strong></td>
<td><strong>$818</strong></td>
</tr>
</tbody>
</table>
The original estimates developed in 2011 did not contemplate a DBFOM procurement model, and as such the $253 million not funded by the federal and provincial governments was assumed to be debt financed by the Region. The revised sources of financing include a reduced amount of debt and reserve financing from the Region, offset by GrandLinq’s financing of the first 22.5% of construction costs.

5. Long Term Financing and Regional Debenture Authority

As shown in the previous table, the original Capital Budget established by Council for the project contemplated Regional financing in the amount of $253 million. Under the DBFOM contract structure, long term financing for the project will be in two forms:

- **GrandLinq financing:** The $131.3 million in capital costs withheld by the Region and paid over 30 years (following substantial completion) is converted to GrandLinq debt and equity. The equity portion will be in place at the outset of the project, and GrandLinq’s long term debt will be in place as of financial close (scheduled for April 25, 2014 – see discussion under Next Steps). The annual payments associated with GrandLinq’s financing are $11,013,651 for 30 years, and will be fixed on or about April 22, 2014 based on prevailing interest rates in effect at that time.

- **Regional Debentures:** Total long term financing in the form of Regional debentures is estimated at $104.5 million. Of this amount, the Region issued $50 million in 30 year debt in May of 2013 (as set out in Council Report F-13-044 and under the authority of By-law 13-016). Staff are currently working with the Region’s fiscal agency syndicate to price and place a second 30 year Regional debenture issue for the RT project as early as March 5, 2014 (subject to the Committee’s approval of the recommendations in this report). Long term interest rates continue to be favourable, although are not as low as the rates achieved by the Region in May 2013. Issuing this debt now will eliminate any interest rate risk for the Region over the next 30 years, and allow the Region to benefit from an extended period of historically low borrowing rates. Debt ($4.5 m) will also be required for the project is for aBRT (adapted Bus Rapid Transit) vehicles and will be issued in 2016 or 2017 for a 10 year period, similar to Grand River Transit vehicle purchases.

Staff will report back to Council after financial close with the final GrandLinq long term finance

6. Provincial and Federal Funding

The Province of Ontario has committed $300,000,000 for this project. Staff at the Region and Ontario are in the process of concluding negotiations for the Transfer Payment Agreement (TPA), which, among other things, establishes eligible and ineligible costs, the process for submitting grant claims (Region) and processing payments (Ontario), audit and oversight. Grant claims will be submitted on a quarterly basis by the Region throughout construction, and the balance of the grant amount will
be paid out shortly after substantial completion. The agreement will expire the earlier of 24 months after substantial completion or December 31, 2019.

The Government of Canada has committed to fund 1/3 of eligible costs up to a maximum of $265,000,000 for this project. Staff at the Region and Canada are in the process of negotiating the Contribution Agreement (CA). Approval for the Region to enter into the CA with Canada is the subject of Report F-14-026/CR-RS-14-019 on the March 4, 2014 Administration and Finance Committee agenda. Treasury Board approval is expected within the next 8-12 weeks. The content of the CA with Canada will be very similar to that of the Ontario TPA. Grant claims will be submitted on a quarterly basis by the Region throughout construction, and the entire grant amount will be paid out shortly after substantial completion. The CA will expire shortly after substantial completion.

7. Project Funding Strategy

The funding strategy approved by Council in June of 2011 provided for the implementation of Stage 1 of the LRT system including LRT from Conestoga Mall to Fairview Park Mall and adapted bus rapid transit from Fairview Park Mall to the Ainslie Street terminal, with funding for the Region's portion of the capital costs and operating and maintenance costs, based on a 1.2% tax rate increase in each year from 2012 to 2018, area rated to the urban transit service area, subject to annual budget approval. The intent was that by 2018 (first full year of revenue service), Regional revenue in the form of property taxes and fares would be sufficient to fund the ongoing costs of the RT project (i.e. long term financing, operations and maintenance costs associated with the Project Agreement, traction power costs, regional debt servicing costs, aBRT operating costs, the Cambridge transit supportive strategy and Rapid Transit division operating costs).

Funding was also approved for improvements to Grand River Transit bus service, based on an annual tax rate increase of 0.3% per year (2012-2018), area rated to the urban transit service area.

The tax rate increases were to be offset by other savings, including the uploading of Ontario Works costs, and the retirement of debt on Regional buildings. The result was a projected average annual net increase in property taxes of 0.7% per year from 2012 to 2018 to fund the RT project. A 0.7% property tax increase in 2014 represented a tax increase of $11 per year on an average home in Waterloo Region.

Council approved the 1.5% tax rate increase in both 2012 and 2013 and adjusted the increase in 2014 to 1.25%. As described more fully in Budget Committee Report F-13-120 in the Budget Information Paper: Funding Strategy Options for the Regional Transportation Master Plan, an additional tax rate increase will be required in 2019 as a result of the 0.25% reduction in the 2014 tax rate increase. This increase is currently estimated at 0.75% to achieve the funding strategy objective. The need and amount of such increase will be re-evaluated annually during the Region's Budget process.

Based on the bid submitted by GrandLinq and updated costs relating to other components of the project, the Council approved funding strategy for the RT project.
remains achievable. Using modest inflationary figures (1.5%-2.0% per year) for both expenditures (e.g. payments to GrandLinq, project office costs, etc.) and revenues (e.g. ridership), the Region’s funding strategy is projected to be sufficient to fund all annual operating costs associated with the project, including:

1. Monthly service payments to GrandLinq in accordance with its bid, including financing, operations, maintenance, lifecycle and insurance
2. Debt servicing costs for the Region’s debt
3. Traction power costs
4. Ongoing project office costs
5. The Cambridge Transit Supportive Strategy (for 10 years)

As with all other Regional programs, long term LRT cost and revenue projections will be monitored regularly and updated during the course of each year’s budget preparation exercise. With the majority of the RT project costs now known or close to being finalized, there is little room for deviation from the approved funding strategy over the next 4 years.

The Province of Ontario may make additional revenue tools available to municipalities to fund transit and rapid transit initiatives. This could mitigate future tax rate increases anticipated in the funding model.

8. Estimated Annual Costs/Revenues for Full Year Operations in 2018

The following table outlines the anticipated annual costs/revenues of the RT project in 2018/2019.
### Table 5 ($ in millions)

#### 2018 RT Operating Budget Projection

<table>
<thead>
<tr>
<th>Project Component</th>
<th>Operating Budget</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Annual Revenues</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Property tax</td>
<td>$35.42</td>
<td>Property tax is calculated for 2019 based on tax rate increases to date, 1.5% for 2015-2018 and 0.75% for 2019</td>
</tr>
<tr>
<td>Ridership</td>
<td>$9.05</td>
<td>Based on ridership from the Environmental Project Report and advertising estimates based on experience with Grand River Transit</td>
</tr>
<tr>
<td>Advertising</td>
<td>$0.25</td>
<td></td>
</tr>
<tr>
<td><strong>Total Annual Revenues</strong></td>
<td>$44.72</td>
<td></td>
</tr>
<tr>
<td><strong>Annual Expenditures</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Allocation to Cambridge</td>
<td>$1.00</td>
<td>Funding for 10 years to 2022. Annual spending plans are approved by Council.</td>
</tr>
<tr>
<td>transit supportive strategy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GrandLinq</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Debt &amp; general</td>
<td>$11.21</td>
<td>Contract costs as described in Table 3 (above), subject to final interest rate at Financial Close (debt), inflation (operating, maintenance, lifecycle and insurance) and experience rating (insurance)</td>
</tr>
<tr>
<td>Operating</td>
<td>$4.43</td>
<td></td>
</tr>
<tr>
<td>Maintenance</td>
<td>$4.97</td>
<td></td>
</tr>
<tr>
<td>Lifecycle</td>
<td>$7.28</td>
<td></td>
</tr>
<tr>
<td>Insurance</td>
<td>$1.87</td>
<td></td>
</tr>
<tr>
<td>Sub-total</td>
<td>$29.76</td>
<td></td>
</tr>
<tr>
<td>Region (Debt servicing)</td>
<td></td>
<td>Principal and interest costs based on actual costs for $50 m issued in May 2013, and estimated costs for $50 m debenture issue in March 2014 and $4.5 m debenture issue in 2016/2017</td>
</tr>
<tr>
<td>aBRT ($4.5 m)</td>
<td>$0.55</td>
<td></td>
</tr>
<tr>
<td>RT ($100 m)</td>
<td>$5.78</td>
<td></td>
</tr>
<tr>
<td>Sub-total</td>
<td>$6.33</td>
<td></td>
</tr>
<tr>
<td>Region (Operating)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>aBRT</td>
<td>$3.70</td>
<td>Cost estimates based on GRT operating costs for aBRT, and estimated costs for traction power and utilities and staffing required in 2018.</td>
</tr>
<tr>
<td>RT Division</td>
<td>$1.64</td>
<td></td>
</tr>
<tr>
<td>Traction power &amp; utilities</td>
<td>$2.29</td>
<td></td>
</tr>
<tr>
<td>Sub-total</td>
<td>$7.63</td>
<td></td>
</tr>
<tr>
<td><strong>Total Annual Expenditures</strong></td>
<td>$44.72</td>
<td></td>
</tr>
</tbody>
</table>

#### 9. Conclusion

The original estimates of the Stage 1 LRT Project’s capital, operating and maintenance costs were established pursuant to report E-11-072 dated June 15, 2011. These estimates were made in $2014

The estimates developed by the Region in 2011 remain intact today. Specifically:
The capital cost of the LRT project in GrandLinq’s proposal is consistent with the Region’s capital cost estimate, and can be accommodated within the project capital budget of $818 million.

GrandLinq’s projected operating, maintenance, life-cycle and financing costs can all be accommodated within the Region’s approved funding strategy.

Based on the GrandLinq proposal, the Rapid Transit project remains on-time, on-budget and the costs remain affordable based on the Region’s funding strategy.

As approved in June 2011, the net property tax requirement for the Rapid Transit project in each year will be area rated to the urban transit service area.

Other Department Consultations/Concurrence:

This report was prepared with input from Finance, from Planning, Housing and Community Services, and from Transportation and Environmental Services.

Attachments:

Appendix A: Pre-Qualified Teams: Prime Team Members
Appendix B: Report E-14-027/F-14-016 dated February 11, 2014
Appendix C: GrandLinq Team Member Profile
Appendix D: Value for Money Report from Deloitte
Appendix E: Correspondence from the Fairness Monitor re: Procurement Process

Prepared By: Darshpreet Bhatti, Director, Rapid Transit

Calvin Barrett, Director, Financial Services and Development Planning
Lisa Buitenhuis, Interim Director, Procurement and Supply Services

Approved By: Mike Murray, Chief Administrative Officer

Thomas Schmidt, Commissioner, Transportation and Environmental Services
Craig Dyer, Chief Financial Officer
Debra Arnold, Regional Solicitor
Appendix “A”

Pre-Qualified Teams: Prime Team Members

<table>
<thead>
<tr>
<th>Pre-Qualified Teams</th>
<th>Prime Team Members</th>
</tr>
</thead>
</table>
| GrandLinq                                    | • Plenary Group Canada Ltd.  
• Meridian Infrastructure Waterloo LRT ULC  
• Aecon Construction and Materials Ltd.  
• Aecon Concessions  
• Peter Kiewit Infrastructure Co.  
• Kiewit Canada Development Corp.  
• Mass Electric Construction Canada Co.  
• Keolis SA  
• Keolis Canada Inc.  
• AECOM Canada Ltd.  
• STV Canada Construction Inc.  
• CIBC World Markets Inc. |
| Kitchener Waterloo Cambridge Transit Partners| • Gracorp Capital Advisors Ltd.  
• Fluor Canada Ltd.  
• Connor, Clark & Lunn GVEST Traditional Infrastructure Partnership  
• Parsons Canada Ltd.  
• Parsons Enterprise Inc.  
• Graham Infrastructure LP  
• IBI Group  
• exp Services Inc.  
• E & E Seegmiller Ltd.  
• Guild Electric Ltd.  
• Alternate Concepts Inc.  
• Investec North America Ltd. |
| Tricity Transit System                       | • SNC Lavalin Capital Inc.  
• SNC Lavalin Constructors  
• SNC Lavalin Operations & Maintenance Inc.  
• SNC Lavalin Inc.  
• EllisDon Capital Inc.  
• Fengate Capital Management Ltd.  
• URS Canadian Operations Ltd.  
• Hatch Mott MacDonald Ltd. |
Appendix B

Region of Waterloo
Transportation and Environmental Services
Rapid Transit
Finance
Financial Services and Development Financing

To: Chair Jim Wideman and Members of the Planning and Works Committee

Date: February 11, 2014

Subject: ION Request for Proposals Evaluation Process

Recommendation:
For Information

Summary:

In February 2012, Regional Council approved a Design-Build-Finance-Operate-Maintain (DBFOM) delivery model for Stage 1 of the Light Rail Project.

In October 2012, the Region issued the Request for Qualification (RFQ) document and subsequently received submissions from seven teams interested in delivering the Project on behalf of the Region.

In February 2013, Council approved GrandLinq, Kitchener Waterloo Cambridge Transit Partners and TriCity Transit System as the three pre-qualified teams selected to submit proposals for the project.

In April 2013, Council approved the Request for Proposal (RFP) Technical Matters report.

In May 2013, Council approved issuing the Request for Proposals for the Light Rail Project to the three shortlisted teams.

The three bidders submitted their proposals including financial and technical components to the Region on December 16, 2013. The proposals are currently being reviewed by teams of Region staff and consultants with a recommendation for a
preferred proponent scheduled to be at Planning and Works Committee on March 4, 2014.

This report describes the evaluation process being undertaken.

Report:

Introduction:

In June 2011, Council approved the technology, route, stations, staging and funding of Stage 1 of the Region's rapid transit project. Stage 1 includes 19 km of light rail transit (LRT) from Conestoga Mall to Fairview Park Mall and 17 km of adapted bus rapid transit (aBRT) from Fairview Park Mall to the Ainslie Street Terminal. Council also directed staff to complete an evaluation of project procurement and delivery options with the goals of maximizing project innovation and quality, leveraging private sector expertise, and managing risks to the Region of Waterloo.

Structure of Project Agreement

On February 7, 2012 Regional Council (Report E-12-011) approved Design-Build-Finance-Operate-Maintain (DBFOM) as the procurement and delivery model for the implementation of light rail transit in the Region of Waterloo. The DBFOM option was chosen because it provides potential cost savings over other alternatives, makes use of private sector expertise and experience in delivering this type of project including operations and maintenance, and best allocates risks of construction, operations and maintenance to the party best suited to managing those risks.

Council approved a 30 year term for the finance and maintenance portions of the project, and the term for the operations portion was referred back to staff for further review. On September 26, 2012 Regional Council (Report E-12-098/F-12-079) approved a 10 year operations term with renewals for 5 years to a maximum total term of 30 years.

Through Report E-12-098/F-12-079 Council also approved the long term financing (i.e. the amount of capital withheld and paid back over 30 years) to be approximately 25% of the capital costs of the project. It is noted that the 25% figure was adjusted to 22.5% in the RFP document to reflect the inclusion of the Public Infrastructure Works in the DBFOM contract, which are not required to be financed by or maintained by Project Co. Including long term financing as part of the procurement approach ensures that the private sector partner has incentive to perform to the Region's standards. The project is structured to ensure that the Region's interests are protected through the entire period from start of construction to the end of the 30 year operations and maintenance period.

Staff has been working with the Region's consultants and Infrastructure Ontario to structure the project agreement based on the DBFOM procurement model and Council's direction. The major responsibilities of the Region and Project Co (Project Co is the generic name for a company that the Region will enter into a project agreement with) are described below, and are categorized by the different sections of the procurement and delivery model. If the Region's standards related to design and construction are not met, construction payments are withheld. If the standards for
operations and maintenance are not met, the Region would have the ability to withhold some or all of the monthly payments to ensure satisfactory performance.

Design-Build

Project Co is responsible for:

- Completing detailed LRT design drawings and plans
- Building the LRT including all necessary permits and approvals
- Obtaining financing to pay contractors, employees, etc. in advance of the Region’s payments

Construction payments will be made based on progress completed (after the withholding portion is achieved as noted below) until Substantial Completion.

The Region is responsible for the ongoing review and management of the design and construction process, the supply of Vehicles, Fare Technology procurement and various early works such as Hydro One hydro line relocation and the MTO underpass at Highway 7/8

Finance

Project Co is responsible for obtaining financing to pay all costs during construction, operations, maintenance and lifecycle activities in advance of the Region’s payments. The first 22.5% of construction costs (approximately $125M) are not paid during construction and are converted to long term debt/equity, and the resulting capital and financing costs are paid by the Region in monthly installments over the 30 year term. The balance of construction costs is paid based on progress payments with 15% held back until final settlement payment at Substantial Completion (approximately $80M).

The Region is responsible for financing, through funding from the RTMP Reserve Fund and the issuance of debt, its portion of the project costs including vehicles, land, the Hydro One hydro line relocation, the MTO underpass, and the Region’s share of the construction costs. (A significant portion of the construction costs is financed through the contribution of the Province of Ontario and the Government of Canada.)

Operate

Project Co is responsible for:

- Managing the day-to-day operations of the LRT system, including supplying the operators to drive the light rail vehicles, meeting the Region’s service schedule and safety requirements
- Reporting to the Region on Key Performance Indicators

Payments are made monthly based on the service level, and are subject to deductions for unsatisfactory performance. Unsatisfactory performance can result in financial deductions and points deductions. Point deductions can lead to termination of the contract.
February 11, 2014  Report: E-14-027/F-14-016

The Region is responsible for determining the schedule of service, planning enhancements, utilities, and managing the contract.

Maintain

Project CO is responsible for:

- Planning and completing all required LRT system repairs and upkeep, including tracks, vehicles, catenary (overhead wires), maintenance facility, etc.
- Reporting to the Region on Key Performance Indicators
- Establishing lifecycle plans (major refurbishments and maintenance of vehicles, tracks and systems)
- Completing all required lifecycle activities to ensure that the LRT system is operational for the full 30 year term and that the system is "handed back" to the Region in an appropriate state of repair at the end of 30 years

Payment is made monthly based on the maintenance activities planned and on a regular basis for the lifecycle activities predicted, and subject to deductions for unsatisfactory performance.

The Region is responsible for reviewing maintenance schedules and managing the contract.

Project Cost Elements

The Region of Waterloo’s usual method of delivering capital projects is called Design-Bid-Build (DBB). The DBB process involves completing a final design of a project, issuing a contract that exactly specifies what is to be built and then having the construction completed. The project budget includes Design & Construction division design costs, external engineering design and construction management and the DBB tender, and financing provided through the Region’s capital budget. A bidder provides a bid for the construction of the project (capital cost only). The cash flows for a DBB project typically consist of monthly progress payments that are made during construction until the project is complete. Future operating, maintenance, life cycle and financing costs (if any financing is required) are not included in the evaluation of the project and are the responsibility of the Region. The contract is awarded solely on the basis of lowest construction cost for bids meeting specifications.

In the DBFOM process used for the ION project, the bid includes the design and construction cost as well as financing, operating, maintenance and life cycle costs. The design is a combination of in-house design (through Rapid Transit and Parsons Brinkerhoff) and Project Co and the financing is a combination of Project Co financing and Region financing. Therefore, it is not possible to directly compare a DBB tender price with a DBFOM bid. It is, however, possible to extract construction costs from a DBFOM project and develop a construction cost that is somewhat comparable to a DBB tender price.

The capital cost of the ION project includes DBFOM portions and non-DBFOM portions as shown in the table that follows. Non-DBFOM costs include intersecting projects, utility upgrades and relocations and betterments that are funded outside of the ION
budget, (for example through the Region’s roads capital budget). These are generally works that either would be completed whether the ION was going ahead or not or are not directly required to complete the ION. Examples of intersecting projects include the King/Victoria grade separation, King Street sanitary sewer replacements and sidewalk improvements.

The capital budget for the Rapid Transit project is based on the 2011 capital project approved by Council and shown using the DBFOM methodology with total capital costs of $918M. Financing for the long term debt (both Project Co and Region), operations, maintenance and life cycle costs are not included in this table. Financing during the construction period is included.

<table>
<thead>
<tr>
<th>Item</th>
<th>2013 Capital Cost Budget DBFOM Methodology</th>
</tr>
</thead>
<tbody>
<tr>
<td>LRT Project</td>
<td></td>
</tr>
<tr>
<td>DBFOM</td>
<td></td>
</tr>
<tr>
<td>LRT</td>
<td>$545</td>
</tr>
<tr>
<td>Intersecting projects, utilities, and betterments</td>
<td>$81</td>
</tr>
<tr>
<td>Total DBFOM</td>
<td>$606</td>
</tr>
<tr>
<td>Recoveries (area municipalities and Roads capital budget)</td>
<td>($81)</td>
</tr>
<tr>
<td>NET DBFOM TOTAL</td>
<td>$545</td>
</tr>
<tr>
<td>Non DBFOM</td>
<td></td>
</tr>
<tr>
<td>Vehicles</td>
<td>$98</td>
</tr>
<tr>
<td>Land</td>
<td>$45</td>
</tr>
<tr>
<td>Project Office &amp; Consulting</td>
<td>$58</td>
</tr>
<tr>
<td>MTO Underpass construction</td>
<td>$11</td>
</tr>
<tr>
<td>Early Works and Other Infrastructure</td>
<td>$39</td>
</tr>
<tr>
<td>Non DBFOM TOTAL</td>
<td>$249</td>
</tr>
<tr>
<td>LRT TOTAL</td>
<td>$794</td>
</tr>
<tr>
<td>abRT (Vehicles and Construction)</td>
<td>$24</td>
</tr>
<tr>
<td>Total</td>
<td>$818</td>
</tr>
</tbody>
</table>

A DBB contract typically ends with substantial completion, with the Region responsible for financial costs (debt principal and interest), operations, maintenance and lifecycle costs.

For the DBFOM contract, following the completion of construction in 2017, the Region will make monthly payments to Project Co. These monthly payments will cover the financial costs (Project Co principal and interest), operations, maintenance and lifecycle, similar to the payments following completion of a DBB project. The Region will also be responsible for the principal and interest on Region issued debt. The monthly payments for operations, maintenance and lifecycle costs will increase with inflation and changes in level of service over the term of the agreement, while the financial costs are fixed through a 30-year debt issuance.

Proposal submission process

The first phase of selecting a proponent to complete the ION project was a Request for Qualifications (RFQ). Seven teams submitted statements of qualifications documenting
February 11, 2014

Report: E-14-027/F-14-016

why they felt they were the best team to complete the ION project for the Region. The seven statements of qualifications were evaluated and three teams were shortlisted to move on to the Request for Proposals (RFP) stage.

The RFP was issued in June 2013. Since then each of the 3 shortlisted prequalified teams has been working to complete proposals that meet the requirements of the RFP (i.e. are compliant) and achieve the lowest overall cost (as measured by Net Present Value). The Region and its consultants held a series of individual confidential meetings with each of the teams to discuss the technical, financial and legal aspects of the project. This process allowed each of the teams to present various aspects of the project to determine if they were compliant with the RFP. The process also allowed the teams to ask questions and request clarifications of the Region. During that time the Region also issued revisions to the RFP documents to reflect any changes that were made based on the questions raised, clarifications etc.

On December 18, 2013 each team submitted their proposal. The proposals consisted of a Technical submission delivered to 50 Queen Street in Kitchener and a financial submission delivered to the Infrastructure Ontario Offices in Toronto. Each of the teams successfully provided the necessary submissions.

Proposal Evaluation Framework

The first step in the review process was evaluation of the proposal responses to ensure that each of the submissions was complete. The submissions were all determined to be complete.

In order to maintain fairness and integrity in the process the evaluation teams of the Technical and Financial submissions were completely separate and they were not aware of what was being reviewed by the other team or the outcomes of those reviews. All evaluating team members were required to sign confidentiality agreements and declarations that they had no conflicts of interest.

Throughout January the evaluation teams evaluated the Technical and Financial submissions.

The technical submissions are evaluated on the following factors:

- Project Management
- Civil Design
- Systems Design
- Construction
- Maintenance and Rehabilitation
- Operations

All of the technical submissions must meet a minimum score (70% on each factor) to be compliant. The technical score makes up 50% of the total score.
February 11, 2014  

The Financial submissions include the following components:

- Design and build costs (the capital costs of designing and constructing the project, financing costs during construction and also the cost of the intersecting projects and betterments which are funded from Roads Capital Program and by local municipalities).
- Financing costs over the 30 year term
- Operations and Maintenance costs over the 30 year term
- Lifecycle costs

For scoring purposes the above costs are converted to a net present value (NPV) for each of the bids received. The NPV is both a comparison of the costs, similar to the DBB bid, and also a test to ensure that the bids are fair and provide value over the term and through changing service levels. The majority (90% or 450 points) of the financial score is based on the NPV. The remainder (10% or 50 points) of the financial score is based on the quality of the financial plan and bidders must score 60% on this factor to be considered. The financial score makes up 50% of the total score.

A second test was developed by Regional staff in conjunction with our consultants so that the bidders would be encouraged to put forward bids that fit within the Region’s funding envelope. This test, the “affordability cap”, is based on a combination of the Region’s estimated cost for the project (capital, operating, maintenance, financial and lifecycle) and the anticipated revenues developed through the Region’s financing strategy (ridership revenues, property tax and other) to develop what the annual maximum amount is that the Region can “afford”. This concept was also used in the City of Ottawa LRT project. The intention of the affordability cap was to create competitive tension, encourage bidders to propose affordable solutions and ultimately ensure that bids fit within the Region’s funding envelope.

Evaluation Committee

Each of the technical and financial evaluation teams prepare summary presentations to explain the review that has been completed and the scores given. This information will be presented to an Evaluation Committee (EC), comprised of the CAO, CFO, Commissioner of Transportation and Environmental Services, Commissioner of Planning, Housing and Community Services and the Regional Solicitor. The EC may accept all of the information as presented or may request that the evaluation teams go back and reassess and re-evaluate certain parts of each proponent’s proposal. Once both the technical and financial scores are accepted by the EC the scores are summed and the team with the highest score is identified as the “First Negotiations Proponent” (FNP).

During the technical review or financial review there may be minor aspects of a bid that are identified as needing to be clarified or refined. The RT Project team would work with the FNP to reach agreement on any changes required to finalize the FNP’s bid prior to a recommendation being presented to Regional Council.
February 11, 2014

Structure

The overall structure for the evaluation portion of the project is:

- **Council**
  - Planning & Works Committee
  - Rapid Transit Steering Committee
  - Rapid Transit Evaluation Committee
    - Fairness Monitor
    - Completeness Review Team
    - Conflict Review Team
  - Evaluation Coordination Team
    - Evaluation Coordination Team
    - Technical Evaluation Team
    - Financial Evaluation Team

The entire evaluation process involves over 60 individuals (Regional staff from various departments, engineering consultant Parsons Brinckerhoff, financial advisors Deloitte and procurement advisors Infrastructure Ontario). The Fairness Monitor was represented at every evaluation meeting. The Fairness Monitor takes on the following roles during the evaluation process:

- Review and provide comments on the Evaluation Framework
- Monitor evaluation process to ensure fair and consistent application of the Evaluation Framework
- Participate in process to resolve issues relating to confidentiality and conflict of interest
- Prepare an independent report on the evaluation process

The Fairness Monitor’s report will be included with the recommendation for award report. This will confirm to Regional Council and the bidders that the evaluation framework was applied appropriately.

Next Steps

Staff are targeting the March 4, 2014 Planning and Works Committee meeting to present a report for the approval of a preferred proponent for the ION project. The report is scheduled to be considered by Planning and Works Committee at 3:00 pm to
allow ample opportunity for public participation. This report will include the final scope of work and the total cost for the ION project including capital, operations and maintenance, lifecycle and financial costs. Following consideration by Planning and Works Committee the recommendations would be presented to Regional Council on March 19, 2014.

The successful team would start the design process immediately following Council approval. The various agreements needed for project implementation would be finalized and signed in April/May 2014. Actual start of construction would follow closely on the design process possibly as early as fall 2014.

Corporate Strategic Plan:

The report supports Focus Area 3.1 of Council’s Strategic Focus: Develop an implementation plan for light rail transit including corridor and station area planning.

Financial Implications:

In June 2011, Council approved the implementation of the RT project, including LRT and aBRT, with estimated capital costs of $818 million, in 2014 dollars, with capital funding to be provided by the Province (up to $300 million), the federal government (one third of eligible project costs to a maximum of $265 million) and the Region ($253 million). The net costs of the RT project and improvements to conventional transit are financed through annual tax rate increases.

Other Department Consultations/Concurrence:

This report was prepared with input from Corporate Resources.

Attachments: Nil

Prepared By: Thomas Schmidt, Commissioner, Transportation and Environmental Services

Calvin Barrett, Director of Financial Services and Development Financing

Approved By: Craig Dyer, Chief Financial Officer

Thomas Schmidt, Commissioner, Transportation and Environmental Services
Appendix “C”

GrandLinq Team Member Profile

Plenary Group (Canada) Ltd.

Development Prime Team Member and Finance Prime Team Member

- Long-term investors, developers and concessionaires of public infrastructure P3 development teams.
- Have secured 22 projects valued at over $11 billion since 2004.
- Projects in Asia, Pacific and the Americas
- Offices located in Toronto, Ottawa, Vancouver, Edmonton, Los Angeles, Seattle and Denver along with a number of site offices
- Sample projects:
  - Gold Coast Rapid Transit Australia (DBFOM), capital cost $1.07 billion, - 14 vehicles/16 stations and accommodation for up to 75,000 passengers per day
  - Disraeli Bridges, Winnipeg, Manitoba (DBFOM), capital cost $138 million, bridge work across the Red River and spans the Canadian Pacific Railway
- Plenary Group has issued over half of the Public-Private Partnership (P3) bonds in the Canadian market
- Plenary Fund has $295M of committed capital of which approximately $123M remains available for investment
- Recognized as the 2010 North American Sponsor of the Year by Project Finance Magazine
- Infrastructure Journal ranked Plenary Group second in global P3 developer space with 8% of global market share in 2011

- Paul Dunstan – President – Project Director – will provide senior guidance on the project – experienced in negotiation of P3 models, structuring and underwriting developments through the bid, construction and operating phases. Paul has over 13 years of project finance experience.

- Martin Stickland – Senior Vice President of Plenary Group, Toronto office – Project Role: Bid Director - management of day to day project developments and integration. Martin has led a full spectrum of publicly procured infrastructure projects. Over 15 years of P3 experience including DBFOM – our primary point of contact

- Jean-Marc Arbaud, Project Manager – team lead for Design and Construction and Operations- 25 years experience with concession contract negotiation, has a thorough knowledge of P3 projects
# GrandLinq Team Member Profile

## Meridiam Infrastructure Waterloo LRT ULC

**Development Prime Team Member and Finance Prime Team Member**

- Wholly owned subsidiary of Meridiam Infrastructure North America Fund II, a Delaware limited partnership with no single investor holding a controlling interest
- Office – Toronto, ON
- Part of three 25 year infrastructure funds with total committed capital exceeding $3 billion.
- Invests exclusively in long-term “buy and hold” P3 - DBFOM projects
- $1.3 billion successful equity investments in 20 P3 projects – 16 transportation, including 3 rail projects with a total capital value exceeding $30 billion.
- Recognized as 2011 Global Infrastructure Fund of the Year by Infrastructure Journal

**Sample projects:**

- Nottingham Express Transit (DBFOM), Nottingham England, value $947M, 14 KM long with 23 stops
- Montpellier High Speed Rail – France – (DBFM) – 80 km of new rail infrastructure of which 60 km is high speed rail with 26 stops, value $2.32 billion
- Northeast Anthony Henday Drive – Edmonton, Alta. (DBFOM) - $1,534 Million ring roads

- Elisabeth Hivon – Deputy Bid Director – Senior professional with over 15 years experience in infrastructure project development and financing. Elisabeth will be responsible for management and oversight of all commercial aspects during theProcurement Process and through to Financial Close
### GrandLinq Team Member Profile

<table>
<thead>
<tr>
<th>Aecon Construction and Materials Ltd. - Construction Prime Team Member</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aecon Concessions (division of Aecon Construction)</strong> - Development and Finance Team Member</td>
</tr>
<tr>
<td>• A wholly owned subsidiary of Aecon Group specializing in complex infrastructure projects</td>
</tr>
<tr>
<td>• Office – Toronto, ON</td>
</tr>
<tr>
<td>• Aecon’s Construction and Materials Civil team supports efforts across Canada</td>
</tr>
<tr>
<td>• Voted as one of Canada’s Best Employers by MacLean’s magazine</td>
</tr>
<tr>
<td>• In 2012, Aecon reported revenues of $2 billion</td>
</tr>
<tr>
<td>• Aecon have secured over $7 billion in committed financing for domestic and international P3 projects</td>
</tr>
<tr>
<td>• Experience in major excavation work, tunnel construction, highway, sewer &amp; water, environmental projects, winter road maintenance and concrete slip-forming work</td>
</tr>
<tr>
<td>• Sample projects:</td>
</tr>
<tr>
<td>• Highway 407 ETR (DBFOM), $2.5 billion</td>
</tr>
<tr>
<td>• Eglinton Crosstown LRT Toronto (50/50 with ACS Dragados Canada), $177M</td>
</tr>
<tr>
<td>• Quito International Airport Ecuador (DBFOM), $750M – Aecon 45.5% equity partner, and 50% partner in the construction joint venture</td>
</tr>
<tr>
<td>• Cross Israel Highway, Israel – (DBFOM) $1.4 billion – 103 km of new highway - 25% stake in the Concession Company and co-led consortium in project finance, 33.3% partner in construction JV, controlling interest of 30.6% in the highway operator</td>
</tr>
<tr>
<td>• Airport Rail Link Spur Line between Toronto Pearson Intl. Airport and Georgetown GO station</td>
</tr>
<tr>
<td>• Paul Warnant – Quality Assurance and Quality Controls Manager - Over 25 years experience on large infrastructure projects in Ontario and Quebec with an array of experience in QA/QC systems project specific programs</td>
</tr>
</tbody>
</table>
GrandLinq Team Member Profile

Kiewit Infrastructure Group/Kiewit Canada Development Corp.

Construction Prime Team Member and Development and Finance Prime Team Member

- A wholly owned subsidiary of Peter Kiewit Infrastructure Group based in Newmarket, ON and Kiewit Canada Corp. head office is based in Edmonton, Alberta, local office is in Milton, ON
- One of North America’s largest construction and engineering organizations, with its roots dating back to 1884
- In 2012 revenues were more than $11 billion, workforce employs 26,000 staff
- Kiewit Canada Development Corp. (KCDC) is a subsidiary of Peter Kiewit Infrastructure Co. (PKIC), and was formed in 2009 to support Kiewit’s development and equity investments in P3 projects
- Kiewit has been a leading highway/heavy civil contractor in Texas, Oklahoma and Louisiana for more than 30 years
- In 10 years have completed over 1,100 transportation projects with a value of more than $30 billion in contract revenue
- Sample projects:
  - MidTown Tunnel, Queens, New York (DBFOM), $2.98 billion, highway, tunnel and toll road
  - vivaNext H2, Vaughan, ON, developed to facilitate community transit, $158,070,000 is being built by Kiewit-EllisDon (KED) Joint Venture, widening 4.2 KM along Hwy. 7 between Hwy. 400 and GO Bradford/Barrie Railway. All work is being done while maintaining three lanes of live traffic in each direction along Hwy. 7
  - vivaNext D1, Newmarket, ON, (DB) design build project is 3.3 KM of widening Davis Drive to add two dedicated center bus lanes in the corridor rapidway
  - Developed a light rail system in Denver, Colorado, USA (DBF), $336 US million, 10.5 mile light rail line
  - Hibernia Oil Platform in Newfoundland, 5.3 billion
  - Services include track construction, grade crossings, thermite welding, surfacing, maintenance of way, grading, utilities, bridges, tunnels, stations and emergency work

- Norman Nandkeshwar – District Engineer – Manager of Project Controls – managing project schedules, budget and all cost control and documentation. Has overseen projects with a combined value of over $1.5 billion including major projects
GrandLinq Team Member Profile

Keolis SA, Keolis Canada

Development Prime Team Member, Finance Prime Team Member, and Maintenance, Rehabilitation and Operations Prime Team Member

- A wholly owned subsidiary of Keolis, SA, Keolis is present in 13 countries worldwide
- Office – Montreal, PQ
- Keolis two main shareholders are French Railways SNCF in France and Caisse de Depot et Placement du Quebec
- The largest provider of public service transportation services in France
- In January 2014 the Massachusetts Department of Transportation Public Transport Authorities of Boston chose Keolis Commuter Services (KCS) to take over operation of the Greater Boston commuter rail service. KCS is the brand name of Keolis-SNCF joint venture (60%/40%) that will run the service. It comprises of 13 lines, 1000 KMS of track, 134 stations and carries 36 million passengers per year.
- Currently manages over 2.2 billion passenger trips per annum across rail and bus networks globally, operates 550km of tram networks and 900 tramsets
- Keolis has been present in Canada for 10 years
- Keolis Canada operates a fleet of 430 vehicles, 30 million km/year serving 1.1 million passengers per year
- Over 50,000 employees worldwide, with 814 Canadian employees, Keolis is the 2nd largest interurban operator in Canada.
- Keolis Canada operates 365 days per year within the Montreal-Quebec corridor and serve 200 municipalities from Gaspe to Montreal and including the lower Saint Lawrence, Quebec City, the Maurice and Centre-du-Quebec Regions
- Keolis designs transportation systems jointly with governments
- Sample projects: 2011 leading sponsor of two light rail P3 projects, Gold Coast Rapid Transit (DBFOM) in Australia and Nottingham Rapid Transit Phase 2 (DBFOM) project in England and contributed 10% equity on both projects
- In January 2012 Keolis SA acquired 25% of minority interest in Group Orleans Express Inc., thereby making Keolis SA 100% owner of Keolis Canada Inc.

- Dominique Hetuin – Manager of Maintenance – responsible for developing O&M and during operation supervision of the entire system’s maintenance and rehabilitation. Dominique has 27 years experience with Keolis.
GrandLinq Team Member Profile

Mass Electronic Construction Canada Co. (MECC)

System Integration

• A subsidiary of Kiewit specializing in systems work for transit and rail system construction including train signals, communications, control centers and traction electrification.
• Office – Milton, ON
• Completed over $3 billion transit work projects to date including $1 billion in Design-Build
• The largest North American installer of transit systems
• Have an extensive and effective safety program winning the National Railroad Construction & Maintenance Association (NRC) Contractor Safety Award in six of the last seven years
• Sample Projects:
  • Charlotte South Corridor Light Rail, North Carolina, USA (DB), $53.8 US million, - 9.6 mile double tracked light rail 19 passenger stations with street running in downtown.
  • Central Phoenix/East Valley Light Rail, Arizona, USA (DB), $93 US million, - 20 miles of intercity light rail, including 9 signal buildings/ interlocking’s and 12 signal case locations , 33 passenger stations, 5 transit centers complete with over 140,000 optic cables
GrandLinq Team Member Profile

Aecom Canada Inc.

Design Lead

- Aecom have more than 45,000 professionals worldwide with 4,100 employees in Canada and nearly 1500 in Ontario
- Have been working in Waterloo Region for more than 50 years
- Office – Whitby, ON
- Aecom have experience working with 30 of the largest transit providers in North America, projects include Toronto, Calgary, Edmonton, Vancouver, Montreal just to name a few
- Ranked No. 1 in Transportation and Mass Transit Rail by ENR's top 500 Design Firms Sourcebook in 2012
- Served as lead designer for more than 60 Design-Build projects in North America
- Samples of successful P3 projects have been Highway 407ETR, Confederation Bridge, VivaNext BRT, Toronto Air Link
- Will be the lead design role for this project
- Sample Projects:
  - Central Corridor LRT Minnesota, USA (DBB), $92M, 10 Mile light rail system
  - North LRT Downtown to Nail, Alberta, (CMR), $69M, 3.3 KM LRT extension and in 2010 4.5 KM extension
  - Los Angelos Metro Gold Line, California, USA, (DB), $35M, eight stations and 1.8 mile long tunnels, Denver Fas Tracks rail expansion and Multimodal Hub

- Rex Brejnik – Chief Engineer – 22 years experience in transportation/transit engineering, has worked on LRT projects such as Central Corridor LRT, Minneapolis, St. Paul MN -value of $958M, Hiwatha Line Rail Transit Design, Build Project, Minneapolis, MN – value $675M
- Jeff Spence – Senior Project Engineer – 28 years experience, worked with Toronto Transit Commission
## GrandLinq Team Member Profile

### STV Canada Construction Inc.
**Design Sub consultant**

- Founded in 1912, leader in rail transportation consulting
- Office – Toronto, ON
- 1700 personnel in more than 30 offices in North America
- 100% employee owned company
- Experience encompasses all aspects of transportation, including stations, terminals, shops and yards, line segments bus and rail vehicles, signals, communications and rights-of-way, subsystems, etc.
- Sample Projects:
  - Airtrain, JFK, (DBOM), $2M
  - Charlotte Area Transit Lynx Blue Line, North Carolina $74M (DBB), 9.6 Mile LRT, 15 stations
  - Working on Ottawa’s LRT project, other projects include Houston METRORail, DART LRT extension in Texas (DBB), $43.5M
  - Received 2011 Innovative Transportation Solution Award for providing the Southeastern Pennsylvania Transportation Authority (SEPTA) for their solutions to project management, engineering and quality assurance

### Alberta Treasury Branches
**Short Term Debt Provider**

- Established in 1938, a provincial crown corporation since 1997
- Largest Alberta-based deposit taking institution
- Significant experience bidding and funding AFP project across Canada, including Evergreen Rapid Transit, Humber College and Pan Am Games Aquatic Centre

### CIBC World Markets
**Long Term Debt Underwriter**

- A leading Canadian Investment Bank – in 2012 named strongest bank in North America by Bloomberg Markets Magazine
- Have over $12 billion in financings for P3 transactions in Canada
- Short-listed team on Ottawa’s LRT project
- Led the $535M bond issue for Northeast Anthony Henday Project (DBFM)
- Led the $87M Alberta Schools Phase III project (DBFM)
Appendix “D”

Value for Money Update from Deloitte

Deloitte.

Region of Waterloo Light Rail Transit Project

Value for Money Report

Final Version
Preliminary results issued on May 22, 2013
Revised on February 24, 2014 to incorporate results from the First Ranked Proponent

STRICLTY CONFIDENTIAL
Table of contents

Introduction .......................................................... 2
Overview of the LRT Project ........................................... 2
Overview of the DBFOM ............................................... 3
Overview of the Value for Money Assessment ................. 5
Purpose of this Report ............................................... 5
Purpose of VFM ..................................................... 6
VFM Process, Inputs and Assumptions ....................... 7
  Process .................................................................. 7
  VFM Methodology .................................................. 7
  VFM Components .................................................. 9
  Key Assumptions ................................................... 12
VFM Results ............................................................ 14
  Risk Analysis Results ............................................ 14
  VFM Results ....................................................... 14
  Interpretation of Results ....................................... 15
Conclusions ............................................................. 17
Introduction

Overview of the LRT Project
In June of 2011, the Region of Waterloo (the “Region”) approved a 36km Rapid Transit System to improve the connection of Waterloo, Kitchener, and Cambridge. The system is expected to help mitigate urban sprawl, shape efficient transportation choices, re-urbanize/intensity the Region and improve overall environmental conditions.

Included in the project is a 19km Light Rail Transit (“LRT”) from Conestoga Mall to Fairview Park Mall, and a 17-kilometre Adapted Bus Rapid Transit (“aBRT”) south from Fairview Park Mall to the Ainslie Street Terminal. The aBRT technology will include a distinctive and frequent limited-stop service, with transit signal priority and queue jump lanes. In addition, major connections to an expanded bus service will be provided at the LRT Terminals and other station stops along the alignment. Major destination points include the downtown business areas in Waterloo and Kitchener, the planned intermodal facility at King Street and Victoria Street, as well as the University of Waterloo.

As outlined in Figure 1, the project includes two components (collectively “the Project”):

1. The LRT vehicles, aBRT vehicles, acquisitions of land, construction of the aBRT works and overall management of the project (collectively the “Other Components”); and
2. The LRT as delivered using a design-build-finance-operate-maintain (“DBFOM”) contract structure, which is a form of public-private-partnership or, as referred to in Ontario Alternative Finance and Procurement (“AFP”) with a private consortium (“Project Co.”). This contract structure for the LRT was approved by Regional Council in February 2012.
Overview of the DBFOM

The DBFOM approach is expected to result in overall benefits for the Region over the long term, as it will transfer responsibility for the design, construction, operation, and long-term maintenance of the LRT system to Project Co. for the construction period as well as the 30 year operation period. The primary advantage of the DBFOM approach is that the Region only “pays for performance” and therefore Project Co.’s invested capital in the project is at risk. This incentivizes Project Co. to provide timely, on-budget performance over the long-term. Since design, construction, operations and maintenance are bundled, a single counterparty, Project Co., is held accountable to the Region. Ownership and control over the project assets remains with the Region at all times. This “risk anchoring” concept is illustrated in Figure 2 below.

---

1 Project Co. invests a certain amount during construction before the Region makes any payments and this invested capital is repaid over the operating term only if the performance specifications set by the Region are met.
Figure 2: Risk Anchoring in DBFOM

Traditional Public Sector Project

- Public sector/Region pays for assets/services as they are provided
- Full costs of construction are paid in advance of operational commencement
- Due to limited payment security, most cost overruns also become liabilities for the Region

DBFOM

- Payment during construction is linked to performance
- Project Co. has lifecycle performance risk and must consider maintenance as part of design/build phase
- Operating risk is mostly assumed by Project Co. and secured by Capital Payment
- Ongoing payments reflect amortized capital costs and ongoing operating/maintenance costs
- Performance and asset condition is considered in development of output-based specifications
- Interests of 3rd parties (Lenders) are aligned with the Region
Overview of the Value for Money Assessment

Purpose of this Report

Deloitte has been engaged by the Region to provide financial advice on the Project, which includes the development of a Value for Money ("VFM") analysis to assess the benefits of the DBFOM. Please note that this report provides a VFM assessment for the LRT only, as the Other Components defined earlier are not part of the DBFOM contract with Project Co.

This report was originally presented to the Region on May 22, 2013, using cost estimates for the DBFOM created by the Region and its advisors Deloitte, Parsons Brinckerhoff ("PB") and Infrastructure Ontario ("IO"). Following the release of the May 22, 2013 report proposals have been received and evaluated; and a First Ranked Proponent has been identified. As a result, the VFM input cost and financing input assumptions has been updated with data from the First Ranked Proponent's proposal and the VFM has been re-run for presentation to the Region. The risk matrix and overall VFM methodology for determining have remained unchanged since the original report.

Purpose of VFM

A VFM assessment is a comparison of the costs of delivering an infrastructure project using an AFP (in this case as a DBFOM) to a Public Sector Comparator based on a "traditional" procurement method using a Design-Bid-Build ("DBB") approach, as follows:

1. **Alternative Finance and Procurement:** These are the total costs to the Region of delivering the LRT based on the DBFOM model. These costs are based on the Region's future service payments to the private sector partner, including re-payment of the construction costs that are privately financed, and also includes an adjustment for risks retained by the Region under the DBFOM.

2. **A Public Sector Comparator ("PSC"):** The PSC is an estimate of the total costs to the Region of delivering the LRT based on the Region's traditional DBB method of delivering public infrastructure projects and also includes an adjustment for risks
Strictly Confidential

Retained by the Region under this model. Under this approach (i.e. the DBB), the Region is assumed to finance the LRT’s capital costs.

The VFM analysis is conducted by comparing the Net Present Value (“NPV”) of the risk-adjusted project costs of the DBFOM against that of the PSC. The premise is that by including the cost of all risks to the Region a fulsome risk-adjusted cost comparison of the DBFOM and the PSC can be completed. It should be noted that a VFM is a comparative assessment and, as such, any quantification of risk should only be viewed within this context and not interpreted on an absolute basis. The impact to the Region of an actual risk event occurring may or may not be similar to the results generated through the VFM risk quantification assessment.

Figure 3 illustrates how the value is demonstrated through the VFM calculation. The cash cost in the DBFOM before adjusting for risk is higher than the cash cost under PSC. However, after adjusting for risks transferred, the DBFOM may present a lower risk adjusted cost. This is because the higher financing costs incurred by the private sector are potentially offset by the risk transfer and mitigation of public sector risks under a DBFOM model.

Figure 3: VFM – Comparison between PSC and DBFOM Delivery Model

- **Retained Risks** are the risks that are managed by the public sector and cannot be transferred to another counterparty.

- **Risk Premium** is a theoretical premium charged by Project Co. to bundle design, build, maintenance, and operational risks into one contract.

- **Ancillary Costs** are costs associated with planning and delivery of a project. These costs include project management costs, transaction costs, and procurement costs and are typically higher under a DBFOM but may vary depending upon each project.

- **Financing Costs** are typically greater under a DBFOM than the PSC since the Project Co. borrows at private financing rates to pay for its portion of the construction costs versus the Region borrowing directly.

- **Base Costs** comprise of the design and construction costs as well as O&M and lifecycle costs. The base cost under the PSC and DBFOM are assumed to be the same. This is a conservative assumption as it does not account for potential efficiencies from the DBFOM’s bundled structure.
VFM Process, Inputs and Assumptions

Process
The VFM assessment quantifies risk transfer in dollar terms based on IO's VFM methodology which is considered a best practice in Canadian DBFOM transactions. Some key distinctions of IO's methodology are as follows:

- The risk assessment process is based on an estimate of the probability and cost impact of a range of risks associated with transit projects, in consultation with technical experts and key stakeholders. Estimated risk probability and impact under both the PSC and the DBFOM delivery models are assessed based on historical data for risks associated with transit projects, adjusted for project-specific factors.
- All design, construction, maintenance, and operating cost inputs are equal in both PSC and DBFOM model; no cost efficiencies are assumed for the DBFOM.
- A Risk Premium (refer to Figure 3) is removed from the First Ranked Proponent's Base Costs for the DBFOM to determine the PSC costs.
- The discount rate for calculating the net present value in the VFM is assumed to be the long-term borrowing rate of the public sector (i.e. the Region).

Deloitte facilitated a series of risk workshops with the Region and its advisors, including PB and IO, all of whom contributed based on their respective technical expertise, professional experience and judgment. Prior to the workshops, a draft risk matrix was prepared based on IO methodology and augmented by the team's experiences in the public transit/transportation sector. This risk matrix was refined for Project-specific risks and finalized over the risk workshops.

VFM Methodology
On completion of the risk matrix Deloitte ran a statistical simulation (a Monte Carlo simulation) in order to calculate the value of risk retained by each party under the PSC and DBFOM models. This simulation yields a distribution of impacts for each risk based on a range of inputs provided in the matrix. The resultant statistical mean is then used as the expected impact for each risk. Most risk impacts have a “triangular” distribution.

---

3 This is done as the bid results only contain DBFOM costs.
(as illustrated in Figure 4 below), meaning that the range of potential impacts is skewed toward the right. The mode (typical value) often fails to reflect the wider range of worse-than-typical outcomes. Therefore, the mean value is used as the expected impact.

Figure 4: Illustration of Risk Impact Quantification

![Image of Risk Impact Quantification]

The statistical simulation provides an expected value for the impact of each risk, under both the DBFOM and the PSC and is calculated as follows:

\[
D = A \times B \times C
\]

where:

- **A**: Each risk was assigned a potential cost value in dollars
- **B**: A probability of occurrence (as a percentage) for each risk was agreed upon through the workshops
- **C**: A “low” and “high” impact of each risk (as a percentage) was agreed upon through the workshops, with the average generated through the Monte Carlo simulation
- **D**: The quantified value of the risk is the product of A, B, and C. This value is allocated between the Region and Project Co. based on an assumed risk allocation under the DBFOM and PSC

It should be noted that VFM is a comparative assessment and, as such, the quantification of risk as presented above should only be viewed within this context and not interpreted on an absolute basis. The impact to the Region of an actual risk event occurring may or may not be similar to results generated through the VFM risk quantification assessment.
VFM Components

During the preliminary stage of the VFM assessment, cost inputs were based on the technical consultant’s cost estimates and formed the basis for the Deloitte report of May 22, 2013. At this stage, with the Region in the process of identifying the Preferred Proponent, this version of the report utilizes cost inputs from the First Ranked Proponent’s bid.

The Public Sector Comparator Costs

The PSC represents the estimated costs to the Region for procuring the design and construction of the LRT using a Traditional or DBB method, financing the project using Region financing, and operating and maintaining the LRT for a period of 30 years.

Following the receipt of the DBFOM costs, the PSC costs have been updated in line with the First Ranked Proponent’s submissions.

DBFOM Costs

The estimated project costs for the DBFOM model are the costs associated with Project Co. designing, and building the LRT, as well as financing, operating and maintaining the LRT for the 30-year operation period. The costs under a DBFOM are typically higher than under a PSC, as they include additional costs related to private sector financing as well as a risk premium to account for the added risk borne by Project Co. in a DBFOM structure.

Costs and financing assumptions for the DBFOM have been extracted from the First Ranked Proponent’s proposal.

The Risk Matrix

The structure of a DBFOM transaction allows the Region to transfer and/or mitigate risks associated with designing, constructing, operating and maintaining large infrastructure projects such as the LRT. Some examples of risk transfer and/or mitigation include:

- **Contractual Risk Transfer**: The contractual terms of the DBFOM requires Project Co. to bear most of the risks associated with design deficiencies, construction cost overruns, and maintenance and major capital (lifecycle) repair cost overruns. Typically, a DBB approach requires the Region to assume many of these risks.
- **Co-ordination**: The DBFOM requires a single party, Project Co., to undertake the design, construction, and long-term operations and maintenance of the asset, thereby greatly reducing co-ordination risks.
PRIVATE CAPITAL DUE DILIGENCE: Financing risk in the DBFOM is borne by private
debt and equity investors, who undertake thorough, up-front due diligence and
long-term planning, thus reducing both the probability and impact of certain risks.

The risk analysis carried out by the Region’s team examined risks in the categories
listed in the Table 1 below.

Table 1: Risk Categories

<table>
<thead>
<tr>
<th>Project Risk Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Policy and Strategic Risks</td>
</tr>
<tr>
<td>2. Project Agreement</td>
</tr>
<tr>
<td>3. Design &amp; Tender</td>
</tr>
<tr>
<td>4. Site Conditions / Environmental</td>
</tr>
<tr>
<td>5. Construction Risk</td>
</tr>
<tr>
<td>6. Permits and Approvals</td>
</tr>
<tr>
<td>7. Completion Commission</td>
</tr>
<tr>
<td>8. Maintenance Risks</td>
</tr>
<tr>
<td>9. Operational Risks</td>
</tr>
</tbody>
</table>
Certain key risks are set out below for summary purposes in Table 2. These are the key risks that have been determined to have a significant impact on the value of risk retained by the Region under each of the delivery models assessed. The key risks were assessed by the Region and its advisors in the spring of 2013 and are as presented to Council through Deloitte’s previous report of May 22, 2013.

Table 2: Key Project Risks

<table>
<thead>
<tr>
<th>Risk Category</th>
<th>Risk</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy / Strategic</td>
<td>Planning, Process And Allocation Practices</td>
<td>Risks that internal Region approvals are not received in a timely manner and ultimately results in delays in the procurement process.</td>
</tr>
<tr>
<td></td>
<td>Changes In Government Funding Policies</td>
<td>The risk that a change in government policy (which includes the Region, the Province and the Federal government) impacts or terminates the Project. There may also be an impact on the Region’s reputation and ability to carry out future procurements.</td>
</tr>
<tr>
<td>Design &amp; Tender</td>
<td>Incomplete RFP / Tender Documentation</td>
<td>The risk that RFP / Tender documentation (including construction contract or Project Agreement) incompletely or poorly defines Project scope and/or risk allocation, or is poorly coordinated. This results in uncertainty for bidders and may compel them to increase contingencies in their pricing to reflect the fact that the services cannot be priced accurately.</td>
</tr>
<tr>
<td></td>
<td>Scope Changes By Owner - During Construction</td>
<td>The risks associated with the Region changing the scope of work during the construction period through issuing change orders. Change orders are not priced under competitive tension and therefore these risks include risks of non-market pricing. This category also includes the risk that the method for pricing change orders is not fully prescribed in the contract resulting in change order costs exceeding estimated amounts. An unclear, incomplete or internally inconsistent specification will increase the probability of scope changes.</td>
</tr>
<tr>
<td>Construction</td>
<td>Acceleration to Maintain Schedule</td>
<td>The risk associated with the construction contractor having to accelerate the schedule in order to achieve the completion date. Acceleration can result in increased costs to the contractor (such as increased equipment utilization, higher prices for urgent materials); additionally acceleration may also have a quality assurance impact due to sub-trades working longer hours.</td>
</tr>
<tr>
<td></td>
<td>Project Integration</td>
<td>Risk that all the design elements of the project, including structures, roadways, tracks, systems, ITS, electrical, facilities and communications have not properly been prescribed and integrated. Risk that individual discipline areas have failed to properly coordinate design and construction in time, space and connectivity to meet final performance requirements, incurring additional costs and delays.</td>
</tr>
</tbody>
</table>
Strictly Confidential

<table>
<thead>
<tr>
<th>Operational</th>
<th>Cost of Labour and Materials</th>
<th>Risk that the cost of labour and materials is greater than predicted. Risk is associated with the extra cost for service contracts, staffing and material suppliers.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Technological Obsolescence And Upgrade</td>
<td>Risk of the contracted services and its method of delivery not keeping pace from a technological perspective with public or industry expectations of service standards. Risk is the cost associated with the need to upgrade the assets or service delivery over the term of the contract.</td>
</tr>
<tr>
<td>Maintenance</td>
<td>Asset Residual</td>
<td>The risk of the residual value of the asset at the end of the term, i.e. the condition of the facility at the end of the term and the magnitude of any investment required to restore the facility such that it can deliver the service as required.</td>
</tr>
<tr>
<td></td>
<td>Inflation</td>
<td>Risk that inflation is greater than estimated. Risk is that budgets will be insufficient to address needs and costs will increase.</td>
</tr>
</tbody>
</table>

Since the risk matrix is based on the AFP risk allocation, it does not need to be revised based on the results of the First Ranked Proponent's submission.

Key Assumptions

Table 3 provides a summary of other key assumptions, including those which have been revised based on the First Ranked Proponent's proposal.

Table 3: Key VFM Assumptions

<table>
<thead>
<tr>
<th>Assumption Item</th>
<th>Overview</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Schedule</td>
<td>Extracted from the First Ranked Proponent's proposal.</td>
</tr>
<tr>
<td>Base Date</td>
<td>As costs in a VFM analysis are considered on a NPV basis, they have to be discounted to a specified Base Date (i.e. the date to which all costs in NPV terms are discounted back). For purposes of the LRT the Base Date has been set as the expected Financial Close date of April 2014.</td>
</tr>
<tr>
<td>Region Borrowing Rate</td>
<td>The VFM assessment has assumed an all-in cost of borrowing rate for the Region based on current trends.</td>
</tr>
<tr>
<td>Discount Rate</td>
<td>The VFM assessment assumes a discount rate which is equal to the Region's notional borrowing rate.</td>
</tr>
<tr>
<td>Ridership revenue</td>
<td>The VFM calculation focuses purely on gross costs and thus does not take into consideration any sources of revenue (e.g. Ridership) that may be available to the Region to cover project costs.</td>
</tr>
<tr>
<td><strong>Federal and Provincial funding</strong></td>
<td>Similar to Ridership revenue, the VFM calculation does not reflect sources of funding available to the Region such as Federal or Provincial funding.</td>
</tr>
<tr>
<td><strong>Cost Inputs</strong></td>
<td>Extracted from the First Ranked Proponent’s proposal.</td>
</tr>
<tr>
<td><strong>Risk Premium</strong></td>
<td>An adjustment factor is applied to design and construction costs for VFM purposes to account for the additional risk premium associated with the bundling of design and construction. This premium is only applied to the DBFOM delivery model and not the PSC. The purpose of this standard VFM assumption is to capture the added risk profile that Project Co. takes on in a DBFOM project as compared to a traditional project delivery.</td>
</tr>
<tr>
<td><strong>Harmonized Sales Tax (HST)</strong></td>
<td>All cost inputs have been adjusted to include a non-recoverable portion of HST. This assumption has been applied for both the PSC and DBFOM models.</td>
</tr>
<tr>
<td><strong>Cost Inflation</strong></td>
<td>To account for inflation during the construction and operational periods of the project an annual inflation factor has been applied to all costs.</td>
</tr>
<tr>
<td><strong>Project Co. Partnership Costs</strong></td>
<td>Extracted from the First Ranked Proponent’s proposal.</td>
</tr>
<tr>
<td><strong>Payments to Project Co. during construction (DBFOM)</strong></td>
<td>Project Co. will finance the initial capital costs without receiving any payments from the Region. Subsequently, the Region will be making monthly payments to Project Co. equivalent to 85% of the work completed during the month with the remaining 15% withheld as a holdback. At the end of the construction and commissioning period, the Region will be making a Substantial Completion Payment to Project Co. equal to the total amount of holdbacks withheld during construction leaving the initial capital costs to be repaid to Project Co. throughout the 30-year operational period.</td>
</tr>
<tr>
<td><strong>DBFOM Financing Structure</strong></td>
<td>Project Co. will finance initial capital costs through long-term financing. This long-term financing is covered through long-term debt (bond structure) and equity. In order to finance the 15% holdback withheld from payments made by the Region during construction, Project Co. will also draw on a short-term debt (bank loan) facility that will be entirely repaid by the Substantial Completion Payment.</td>
</tr>
<tr>
<td><strong>Private Sector Financing</strong></td>
<td>Extracted from the First Ranked Proponent’s proposal.</td>
</tr>
<tr>
<td><strong>Transaction Costs</strong></td>
<td>Transaction costs consist of the upfront costs required by the Region to deliver the LRT (i.e. take it from the planning phase throughout procurement). These costs are typically higher in AFP projects, relative to the PSC, because of the greater complexity of AFP transactions which require the involvement of external transaction, financial and legal advisors.</td>
</tr>
<tr>
<td><strong>Project Management Costs</strong></td>
<td>Project Management costs represent the Region’s internal costs required to oversee the LRT until the commencement of operations as well as the cost of retaining a technical advisor. These costs have been assumed to be the same for the PSC and AFP delivery models.</td>
</tr>
</tbody>
</table>
VFM Results

Risk Analysis Results

Table 4 below summarizes the risk transfer profile for the LRT, by key categories of risks, based on the mean of the results obtained through the Monte Carlo simulation. Note that each risk category is comprised of a number of more detailed risks, each assessed individually as part of a proprietary model. These results are reflective of the costing assumptions extracted from the First Ranked Proponent’s proposal.

Table 4: Risks Retained by Each Party by Risk Category

<table>
<thead>
<tr>
<th>Type of Risk</th>
<th>Estimated Quantified Risk Retained Under Each Option</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DBFOM Region</td>
</tr>
<tr>
<td>Policy / Strategic</td>
<td>$33,575,549</td>
</tr>
<tr>
<td>Project Agreement</td>
<td>$3,736,069</td>
</tr>
<tr>
<td>Design &amp; Tender</td>
<td>$4,007,046</td>
</tr>
<tr>
<td>Site Conditions/Environmental</td>
<td>$7,850,610</td>
</tr>
<tr>
<td>Construction</td>
<td>$15,314,654</td>
</tr>
<tr>
<td>Permit and Approvals</td>
<td>$291,012</td>
</tr>
<tr>
<td>Completion Commissioning</td>
<td>$ -</td>
</tr>
<tr>
<td>Maintenance</td>
<td>$13,100,410</td>
</tr>
<tr>
<td>Operational</td>
<td>$6,300,565</td>
</tr>
<tr>
<td><strong>SUB-TOTAL:</strong></td>
<td><strong>$87,069,210</strong></td>
</tr>
</tbody>
</table>

VFM Results

As discussed earlier the value of risk retained by the Region is obtained through a Monte Carlo simulation\(^1\) on the impacts of each risk. The resulting statistical distribution of total risk retained by the Region is presented in Figure 5 below.

---

\(^1\)Monte Carlo simulation is an estimation method based on a broad class of computational algorithms that rely on repeated random sampling to obtain numerical results i.e. by running simulations many times over in order to calculate probabilities.
Figure 5: Statistical Distribution of Risk Retained by the Region

By using the mean value of risk retained presented in Figure 5 the resulting VFM is approximately 12.1%, which is consistent with the VFM result of 12.3% presented in May 2013.

Interpretation of Results

When reviewing these results, the following considerations should be noted:

- The results illustrate the difference between two vastly different forms of contracts for an infrastructure project the Region has limited experience with. The VFM result is not intended as a criticism of the Region’s typical DBB contracting approach, which is not suited for the LRT project for the following reasons:

  - The Region’s typical construction delivery model is a DBB model using a standard form of construction contract that has been tested and applied against numerous projects that are typically less than $100m and does not include a long-term operating and maintenance obligation in the scope of the contractor. Current AFP uses the best practice of bundling design-construction-operations and maintenance through the design-life of the infrastructure for new legacy, large scale projects such as the LRT. The VFM illustrates this difference, with the main advantage of the DBFOM being that the same contract counterparty is responsible for all components, thus eliminating any “finger pointing” if the LRT does not perform.

  - One of the motivations for the Region to select the DBFOM model was to have Project Co. assume operations and maintenance, since the Region has no

---

VFM results are typically presented as a percentage calculated by taking the difference between the risk-adjusted cost of the AFP against that of the PSC (please see Figure 3) divided by the risk-adjusted cost of the PSC.
expertise in operating LRTs. In other words, the VFM factors in the Region’s ability to be an LRT operator as compared to a private partner under the DBFOM whose core business is LRT operations.

- The DBB form of contract is prescriptive as the contractor bids against a 100% level design prepared by the Region, while the DBFOM relies on a performance based set of output specifications that are not prescriptive. The VFM contrasts the difference in the form of compliance, as Project Co. has flexibility to operate the LRT system and therefore must accept consequences if the system does not perform.

- The VFM captures the opportunities that exist under the AFP model to achieve cost synergies through innovations due to: (i) the use of non-prescriptive output-based specifications; and (ii) the integration of design, construction, operations and maintenance enables Project Co to make cost trade-off decisions as it is responsible for long-term asset performance and therefore has incentive to design, construct, and plan based on a “full lifecycle” view of the infrastructure.
Conclusions

Based on the results of the procurement process and the First Ranked Proponent's proposal, the VFM analysis demonstrates that the DBFOM project delivery model continues to achieve value for money savings for the Region when compared to the PSC.
Appendix “E”

Region of Waterloo
Stage 1 Light Rail Project
RFP No. 2012-01

Final
Fairness Monitor’s Report

February 21, 2014
# Table of Contents

1.0 Introduction .......................................................................................................................... 1
2.0 Project Background .................................................................................................................. 1
3.0 Scope of the Fairness Monitor Engagement ......................................................................... 1
4.0 Request for Qualification Process ......................................................................................... 2
  4.1 Evaluation Teams ................................................................................................................ 3
  4.2 Proposal Receipt ................................................................................................................ 3
  4.3 Location of the Proposals ................................................................................................. 4
  4.4 RFQ Debriefing Sessions ............................................................................................... 4
5.0 Request for Proposal Process ............................................................................................... 4
  5.1 Review of Solicitation Documents and Addenda ............................................................... 4
  5.2 Commercially Confidential Meetings .............................................................................. 5
  5.3 Proposal Receipt .............................................................................................................. 5
  5.4 Location of the Proposals ............................................................................................... 5
  5.5 RFP Evaluation .............................................................................................................. 5
  5.6 Evaluation Teams ........................................................................................................... 6
  5.7 Final Result .................................................................................................................... 6
6.0 Conclusion ............................................................................................................................ 7
1.0 Introduction

On June 6th, 2013, an RFP was issued by the Region of Waterloo ("the Region") to seek submissions from Proponents who were pre-qualified to participate in the Region of Waterloo Stage 1 Light Rail Project ("the Project").

P1 Consulting ("Fairness Monitor") was retained in September 2012 to perform fairness monitoring services and provide independent attestation on the procurement process. Our mandate was to review and monitor the bid documents and communications, provide advice on best practices, review and monitor the evaluation and decision-making processes that were associated with the procurement to ensure fairness, equity, objectivity, transparency and adequate documentation throughout the evaluation process. As Fairness Monitors we were also to attend, observe and provide guidance at the Region’s meetings, as well as the Applicant presentation. In particular, in our role as Fairness Monitor, we ascertained that the following steps were taken to ensure an open, fair and transparent process:

- compliance with the requisite procurement policies and procedures and the laws of tendering for the acquisition of services relating to public sector procurement
- adherence to confidentiality with respect to the bids and the evaluation process
- objectivity and diligence during the procurement process
- proper definition and use of evaluation procedures and assessment tools in order to ensure that the process was unbiased
- compliance of project participants with strict requirements related to conflict of interest and confidentiality during the procurement and evaluation processes
- security of information
- oversight to provide a process where all bidders were treated fairly

2.0 Project Background

The Region is at a critical point in the development and implementation of Rapid Transit ("RT"). The Region, over the last decade, has carefully studied and planned on how to address the Region’s challenges and opportunities associated with population and employment growth (over 200,000 new residents and 80,000 new jobs are expected over the next 20 years). The Region went through several planning phases (including alternative transportation strategies, funding options, field/engineering reviews and community input processes) to formalize the preferred RT Program, Rapid Transit Technologies of Light Rail Transit (LRT) and adapted Bus Rapid Transit (aBRT), alignment/route, and station locations. The preferred RT System, as approved by Regional Council for implementation on June 15, 2011, is fully aligned with the 2003 Regional Growth Management Strategy (RGMS). The approved system is expected to help mitigate urban sprawl, shape efficient transportation choices, re-urbanize/intensify the Region and improve overall environmental conditions.

3.0 Scope of the Fairness Monitor Engagement

The following are the tasks that P1 Consulting performed:
Review of the RFQ, RFP, Q&A and Addenda:
P1 Consulting reviewed the RFP and Addenda, as required, and all other documents related to the procurement process to ensure that the requirements were met.

Review of Requests For Clarifications (RFC), Requests for Information (RFI) and the Responses:
P1 Consulting reviewed all RFIs and the responses submitted to the Proponents. P1 Consulting also reviewed any RFCs submitted by IO and their responses.

RFQ and RFP Submission Deadlines:
P1 Consulting attended and monitored the Submission Deadlines as well as the subsequent Procurement and Legal Completeness Review.

Review of Evaluation Criteria and Procedures:
P1 Consulting reviewed the evaluation criteria and procedures for the RFQ and RFP to ensure that the requirements were met.

Advice on Best Practices:
P1 Consulting attended sessions to ensure that all Project Team members were provided with briefings on best practices, including the principles and duties of fairness, care and protection of confidential information, avoidance and disclosure of conflict of interest, bias and undue influence, scoring procedures and sign-off on individual scoring sheets, preparation, treatment and retention of evaluation documents.

Meetings:
P1 Consulting attended Project Team meetings, as directed by the Region of Waterloo, for the purpose of observing and providing guidance or advice on the proposed processes and issues related to the Project.

Evaluation Meetings:
P1 Consulting observed and documented evaluation meetings of the proposals, including the consensus sessions of the technical and financial evaluation teams and their presentations to the evaluation committee. Additionally, during the evaluation process, we provided verbal and written advice with respect to fairness, objectivity, consistency of process, conflict of interest and confidentiality to ensure strict accordance with the specifications and criteria set out in the RFQ and RFP documents, as well as consistency with the policies and practices of the Region of Waterloo.

Proponent Interaction:
P1 Consulting attended and monitored all presentations with Applicants and Proponents.

All of the tasks above were completed in a manner that was fair, open and transparent.

4.0 Request for Qualification Process

The Fairness Monitor received, reviewed and approved from a fairness perspective, copies of the draft and final RFQ and documents prior to their release. As addenda were issued, P1
Consulting also received, reviewed and approved copies of addenda documents from a fairness perspective. The evaluations were performed by the appropriate teams. The Fairness Monitor was represented at all evaluation meetings. The Fairness Monitor concluded that the review was performed fairly and in compliance with the Region’s evaluation guideline.

4.1 Evaluation Teams

The members of the Project Team, including the Evaluation Committees confirmed that they did not have any Conflicts of Interest and attended evaluator orientation training sessions, which the Fairness Monitor attended. The RFQ preparation and evaluation teams all signed the Code of Conduct prior to participating in the evaluation.

4.2 Proposal Receipt

The Region of Waterloo- Stage 1 Light Rail Project RFQ Submissions were due on November 23rd, 2012 at 14:00. The following Applicants submitted a proposal for evaluation on or before the Submission Deadline:

<table>
<thead>
<tr>
<th>Consortium</th>
<th>Equity Partners</th>
<th>Prime Team Members</th>
</tr>
</thead>
<tbody>
<tr>
<td>KW Transit Partners</td>
<td>Gracorp (C,C&amp;L) Fluor Parsons</td>
<td>Fluor Guild Electric ACI Gracorp ACI Gracorp Connor, Clark, andE&amp;E Seegmiller Parsons Lunn Infra.</td>
</tr>
<tr>
<td>KW Transit Solutions</td>
<td>AQUILA OHLCC FCC Co</td>
<td>Aquila Arup OHLCC Dillon FCC Co IDOM ACS Vias ACS Forum Delcan Bot Morrison Infrastructure Hershfield The Louis Berger Group</td>
</tr>
<tr>
<td>RWTG</td>
<td>ACS Infrastructure Canada Forum Equity Partners</td>
<td>ACS Vias Forum Delcan Bot Morrison Infrastructure Hershfield The Louis Berger Group</td>
</tr>
<tr>
<td>Transit Link Partners</td>
<td>Cintra Acciona Concessions Macquarie Capital Group</td>
<td>Cintra AIA Engineers Acciona Ferrovial Macquarie Bombardier Capital Stantec</td>
</tr>
</tbody>
</table>
### 4.3 Location of the Proposals

The original RFQ submissions were securely held at the Region’s offices, and the proposal storage was maintained in accordance with the Region of Waterloo's Evaluation Framework, during the review.

### 4.4 RFQ Debriefing Sessions

The Fairness Monitor attended the debriefing sessions related to the RFQ submissions and confirmed that they were conducted in a fair manner.

### 5.0 Request for Proposal Process

In accordance with the RFQ, only those Proponents who pre-qualified in the RFQ process ("Pre-Qualified Parties") were eligible to participate in the RFP as RFP Proponents. The RFP was released on June 6th, 2013 to the following Proponents:

- GrandLinq (“GrandLinq”)
- Kitchener Waterloo Cambridge Transit Partners (“KWCTP”)
- Tricity Transit System Team (“TTS”)

### 5.1 Review of Solicitation Documents and Addenda

The Fairness Monitor received, reviewed and approved from a fairness perspective, copies of the draft and final RFP documents and the final procurement documents prior to their release. All RFIs and their responses were reviewed from a fairness perspective. As addenda were issued, P1 Consulting also received, reviewed and approved copies of those addenda documents and reviewed them from a fairness perspective, prior to their release.
5.2 Commercially Confidential Meetings

Commercially Confidential Meetings were held during the procurement process and were all attended by a Fairness Monitor.

5.3 Proposal Receipt

The submission date of the Financial and Technical Submission for the RFP was December 16th, 2013 at 14:00:00. The following Proponents submitted a proposal for evaluation:

- GrandLinq
- KWCTP
- TTS

The Fairness Monitor was on site to observe the receipt process for the Technical and Financial Submission Closing.

5.4 Location of the Proposals

The evaluation center for the Technical Submissions was securely located at Rapid Transit Division - Region of Waterloo, 50 Queen Street North, Suite 800, Kitchener, ON, N2H 6P4. The evaluation center for the Financial Submissions was securely located at Infrastructure Ontario (IO), 777 Bay Street. Suite 900, Toronto, ON, M5G 2C8.

5.5 RFP Evaluation

The Evaluation Guide developed by the Region of Waterloo and Infrastructure Ontario’s Procurement Department was received, reviewed and approved by the Fairness Monitor from a fairness perspective and it was provided to the members of the Evaluation Committee and sub-committees.

The evaluation included the following:

5.5.1 Completeness Review

The Completeness Review Team received, opened and conducted the Completeness Review of the RFP submissions. The results of the completeness review were reviewed by the Fairness Monitor who concluded that the review was performed fairly and in compliance with Region of Waterloo’s Evaluation Guide.

5.5.2 Legal / Compliance Review

The RFP submissions were reviewed by the Legal / Compliance Sub-committee and issues
were discussed and addressed by the Fairness Monitor. The Fairness Monitor concluded that the review was performed fairly and in compliance with the Region of Waterloo’s Evaluation Guide.

5.5.3 **Technical Review**

The Technical Submissions were reviewed and evaluated by the Technical Sub-Committees in accordance with the established criteria. The Technical Submissions were deemed to be compliant based on the results of the review and evaluation by the Technical Sub-Committees. Fairness Monitor concluded that the review was performed fairly and in compliance with Region of Waterloo’s Evaluation Guide.

5.5.4 **Financial Review**

The financial information was severed from the Technical Submission to prevent any price bias during the technical evaluation. The Financial Submission was scored in accordance with the RFP and the evaluation matrix which was received, reviewed and approved by the Fairness Monitor from a fairness perspective. The Fairness Monitor concluded that the review was performed fairly and in compliance with Region of Waterloo’s Evaluation Guide.

5.5.5 **Clarification Process**

Questions of clarification from the Technical, and/or Financial evaluation teams were sent to and responded by the Proponents, and all clarifications and their responses were reviewed by the Fairness Monitor. The responses were taken into consideration during the evaluation. Any relevant fairness issues were received, reviewed and approved by the Fairness Monitor and was addressed to the satisfaction of the Sponsors and the Fairness Monitor.

5.6 **Evaluation Teams**

The members of the Project Team, including the Evaluation Committees confirmed that they did not have any Conflicts of Interest and attended evaluator orientation training sessions, which the Fairness Monitor attended. The RFP preparation and evaluation teams all signed the Code of Conduct prior to participating in the evaluation.

Jill Newsome was the Lead Fairness Monitor and James Tonn was the Fairness Monitor. They or their delegates (P1 Consulting) attended and monitored all of the committees and sub-committee meetings as observers.
5.7 Final Result

As a result of the RFP evaluation, and in accordance with the Region of Waterloo's Evaluation Guideline, GrandLinx was selected as First Negotiations Proponent.

6.0 Conclusion

As the Fairness Monitor for the Region of Waterloo- Stage 1 Light Rail Project, we certify, in our opinion that, up to the point at which this Report was delivered, the procurement process was undertaken in a fair, open, and transparent manner.

Jill Newsome
Lead Fairness Monitor