1. **Motion To Go Into Closed Session**

That a closed meeting of the Planning and Works Committee be held on Tuesday, May 27, 2014 at 8:45 a.m. in the Waterloo County Room, in accordance with Section 239 of the “Municipal Act, 2001”, for the purposes of considering the following subject matters:

a. proposed or pending disposition of land in the City of Kitchener

2. **Motion To Reconvene Into Open Session**

3. **Declarations Of Pecuniary Interest Under The Municipal Conflict Of Interest Act**

4. **Delegations**

   a) **P-14-067**, On The Line Exhibition Along the 200 iXpress Grand River Transit Corridor

      i. Rick Haldenby and Mona El Khfif, University of Waterloo School of Architecture

   b) **E-14-060**, Proposed Installation of an All-way Stop at the Intersection of Bridge Street (Regional Road 12) and Queen
Street (Regional Road 12), Township of Wilmot

i. Nelson Smith

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.

5. Request to Remove Items From Consent Agenda
6. Motion To Approve Items Or Receive for Information
   a) E-14-037, Region of Waterloo Traffic Congestion Tracker Project Results (Information) 13
   b) E-14-055, Left-turn Restriction at the King Street (Regional Road 8) and Chopin Drive Intersection, City of Cambridge (Approval) 18
   c) E-14-072, “Big Music Fest 2014” at McLennan Park (Information) 21
   d) P-14-060, Monthly Report of Development Activity for April 2014 (Approval) 23
   e) P-14-062, Amendment to Regional Municipality of Waterloo Controlled Access By-law #58-87 for an Access to Regional Road #58 (Fischer-Hallman Road), City of Kitchener (Approval) 27

Information/Correspondence
   f) Memo, Bike Month in June 32

Regular Agenda Resumes

7. Reports – Transportation and Environmental Services
   Design and Construction
   a) E-14-063, Consultant Selection – Class EA, Detailed Design and Contract Administration Services for Highland Road Improvements, Fischer-Hallman Road to Ira Needles Boulevard, City of Kitchener 33
   b) E-14-062, Consultant Selection – Class Environmental Assessment, Detailed Design and Services During Construction, Bridgeport Road/Caroline Street from King Street to Erb Street and Erb Street 41
from Caroline Street to King Street Improvements, City of Waterloo

c) **E-14-064**, Consultant Selection – Preliminary Design, Detailed Design and Construction Administration and Inspection Services for Rehabilitation of 5 Bridges in the Townships of North Dumfries, Wilmot and Woolwich

d) Uptown Waterloo King Street North Streetscape Improvement Project from ION Tracks to Central Street and King Street North Reconstruction from Central Street to University Avenue, Municipal Class Environmental Assessments – Information Package in advance of Combined Public Consultation Centre

**Rapid Transit**

e) **CR-RS-14-034**, Authorization to Expropriate Lands (2nd Report) In the City of Cambridge Designated as Part of Phase 5 of Stage 1 of the Rapid Transit Project Relating to Lands that are Necessary for Adapted Bus Rapid Transit

f) **CR-RS-14-029/E-14-074**, Waterloo Spur – Proposed Renewal of Freight Rights Agreement with Canadian National Railway

g) **F-14-062**, Stage 1 Light Rail Transit Project: Commercial and Financial Close with GrandLinq GP

**Water Services**

h) **E-14-065**, Supplemental Studies for C2012-29 – East Side Lands Pump Station and Forcemain Environmental Assessment

i) **E-14-067**, Water Supply Master Plan Notice of Completion


**Interdepartmental Reports**

k) **E-14-069/P-14-066**, 2014 Water and Wastewater Monitoring Report

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

**Community Planning**

l) **P-14-050**, A Community-Based Conservation Land Trust in Waterloo Region - Proposed Discussion Forum (staff presentation available)

m) **P-14-061**, King Victoria Multi-Modal Transit Hub – Proposed Procurement Process
Transportation Planning

n) P-14-052, Proposed 2015 Transit Service Improvement Plan – iXpress and Related Updates

8. Information/Correspondence

a) Council Enquiries and Requests for Information Tracking List

9. Other Business

10. Next Meeting – June 17, 2014

11. Adjourn
<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Description</th>
<th>Location</th>
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<tbody>
<tr>
<td>Planning and Works Committee</td>
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<tr>
<td>June 17, 2014</td>
<td>9:00 A.M.</td>
<td>Planning and Works Committee</td>
<td>Council Chamber 2nd Floor, Regional Administration Building 150 Frederick Street Kitchener, Ontario</td>
</tr>
<tr>
<td>August 12, 2014</td>
<td>1:00 P.M.</td>
<td>Planning and Works Committee</td>
<td>Council Chamber 2nd Floor, Regional Administration Building 150 Frederick Street Kitchener, Ontario</td>
</tr>
<tr>
<td>Planning, Housing and Community Services</td>
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<tr>
<td>Tue., June 17, 2014</td>
<td>4:30 P.M.</td>
<td>Improved Access to Transit/Hanson Area – Public Consultation Centre</td>
<td>The Family Centre Gymnasium 65 Hanson Ave. Kitchener, Ontario</td>
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<td></td>
<td>7:00 P.M.</td>
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<td>Transportation and Environmental Services</td>
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<tr>
<td>Thur., May 29, 2014</td>
<td>5:00 P.M.</td>
<td>Uptown Waterloo King Street North Streetscape Improvement Project from ION Tracks to Central Street and King Street North Reconstruction from Central Street to University Avenue – Combined Public Consultation Centre</td>
<td>City of Waterloo City Hall, Atrium 100 Regina Street S. Waterloo, Ontario</td>
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<td></td>
<td>8:00 P.M.</td>
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<tr>
<td>Wed., June 18, 2014</td>
<td>4:30 P.M.</td>
<td>King Street Improvements Eagle Street to Bishop Street Public Consultation Centre,</td>
<td>St. Peter’s Lutheran Church 810 King Street East Cambridge, Ontario</td>
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<td></td>
<td>8:00 P.M.</td>
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Region of Waterloo
Planning, Housing and Community Services
Administration

To: Chair Jim Wideman and Members of the Planning and Works Committee
Date: May 27, 2014  File Code: D14-02
Subject: On The Line Exhibition Along the 200 iXpress Grand River Transit Corridor

Recommendation:
That the Regional Municipality of Waterloo participate in the On The Line Exhibition with funding of up to $24,000 to be provided from the existing 2014 operating budgets for Planning, Housing and Community Services and Transportation & Environmental Services (Grand River Transit), as described in Report P-14-067, dated May 27, 2014.

Summary:
The University of Waterloo School of Architecture is planning a unique project that would use technology to connect transit riders with local culture, architecture, commerce and recreation along and near the current 200 iXpress route and future ION rapid transit route in the Central Transit Corridor, while highlighting the important role that transit could play – now and in the future – to help them reach these destinations.

The project is called On The Line: A Gallery of Publicly Accessible Destinations in Waterloo Region, and it has been proposed as one of several exhibits that will be part of the larger Building Waterloo Region exhibition. On The Line is proposed to be launched at the beginning of July and run until the end of September of 2014.

Planned elements of the project include posters installed in the existing display frame in iXpress shelters, handout brochures on the buses that transit riders can take with them, a website and an application for mobile devices that would display information about the various destinations within 800 metres of each iXpress stop. The destinations that will be displayed have been collected from existing GIS databases, such as the Creative Enterprise Initiative’s Grand Social website and the Region’s Doors Open website. Each destination would be displayed on maps that would show the area around an iXpress stop, along with accompanying graphics, photos and text providing additional information, such as the walking distance of a destination from the iXpress stop.
The project website, www.OTL.gallery, would also allow users to upload their own favourite destinations to share with others. This project would not only inform the public about the many culture, architecture, commerce and recreation sites along the corridor, it would also highlight the role transit could play – now and in the future – in helping them reach these destinations.

The Region has been asked to partner with the School of Architecture to develop the On The Line exhibition, including a funding request of up to $24,000 and in-kind assistance from Communications and Marketing staff from Planning, Housing and Community Services, and from Transportation & Environmental Services (Grand River Transit).

The Creative Enterprise Initiative and the Waterloo Region Tourism Marketing Corporation support the project in principle (but will require additional discussion regarding implementation) and staff would seek ongoing advice from both organizations throughout the project’s development. Regional staff has also had preliminary discussions internally and with the School of Architecture and other community partners about how the project data, website and application for mobile devices could be used to complement ongoing public communication efforts related to planning and rapid transit, once the On The Line exhibition finishes in September.

Staff and students from the School of Architecture who are working on the project will attend the May 27, 2014, Planning and Works Committee meeting to provide a project overview.

Report:

Building Waterloo Region (BWR) is a festival of exhibitions, special events, walking tours, public forums, and lectures celebrating the past, present and future of progressive architecture and design in Waterloo Region.


The exhibitions, eight in total, will challenge visitors to explore and better understand the cities of Waterloo Region, to recognize of the patterns of growth, phases in history and forces of change. The exhibitions taking place at the Waterloo Region Museum, Joseph Schneider Haus and McDougall Cottage are planned as part of each museum’s annual exhibition schedule. More information about all BWR exhibits can be found at buildingwaterlooregion.ca.

The Region of Waterloo has been asked to partner with the University of Waterloo School of Architecture for an exhibition that has been proposed as part of BWR. This exhibition, called On The Line: A Gallery of Publicly Accessible Destinations in Waterloo
Region, would convert the 200 iXpress route into a public gallery space during the months of July, August and September, by connecting transit riders with local culture, architecture, commerce and recreation along the Central Transit Corridor and the future ION rapid transit route.

Drawing from a number of online databases, including the Creative Enterprise Initiative’s Grand Social website and the Region’s Doors Open website, staff and students in the School of Architecture’s Data Lab would use GIS technology to map the various destinations around each iXpress stop in five categories named to correspond to the iXpress branding. These are listed below with some examples of the types of destinations that could be included:

- **iXercise** – hiking, biking, sports, water access
- **iXperience** – restaurants, theatres, entertainment facilities
- **iXhibit** – galleries, museums, cultural sites
- **iXplore** – bookstores, churches, sightseeing destinations
- **iXamine** – libraries, schools, and universities

The destinations closest to each iXpress stop would be displayed in a map format on posters installed in the existing display frame in iXpress shelters and handout brochures on the buses that transit riders can take with them. These display materials would also feature accompanying graphics, photos and text providing additional information about some of the destinations, including how far they are in walking distance from the iXpress stop. The maps and brochures would also provide information about how to access the project’s interactive website, www.OTL.gallery, and an application for mobile devices that would allow smartphone users to see the information.

The web-based technology would also allow the community to upload their own favourite destinations to the database to share with others. This information would be reviewed by the project organizers.

The final map, featuring information uploaded by the project team as well as the destinations provided by the public, would also be projected onto a wall inside the information centre for Building Waterloo Region, which will be located across from Charles Street Terminal at the Kitchener Studio, 44 Gaukel Street.

The information gathered and displayed as part of this project would provide a wealth of information to the public about the many local culture, architecture, commerce and recreation along the Central Transit Corridor and future ION rapid transit route, while highlighting the important role that transit could play – now and in the future – in helping them reach these destinations. It would also provide important data to the Region about the destinations the public wants to visit using transit, as indicated by the destinations they add to the project that could assist with future planning.

Regional staff has had preliminary discussions internally and with the School of Architecture and other community partners about how the project data, website and application for mobile devices could be used to complement ongoing public communication efforts related to planning and rapid transit, once the On The Line.
exhibition finishes in September.

Planning, Housing and Community Services and Transportation & Environmental Services have been asked to partner with the School of Architecture to develop the On The Line exhibition, including providing funding of up to $24,000 towards the overall project budget of approximately $50,000. Funds provided by the Region would be used to pay for costs associated with graphic design, printing, web development and hosting. In-kind assistance from Communications and Marketing staff from Planning, Housing and Community Services, Grand River Transit and Rapid Transit would also be provided to help develop the printed and on-line visuals, oversee the installation in iXpress shelters and distribution on iXpress buses, and communicate information about the project to the public. The remaining costs for the project not funded by the Region would be funded through additional in-kind donations from the School of Architecture and other organizations in the community.

The Creative Enterprise Initiative and the Waterloo Region Tourism Marketing Corporation support the project in principle (but will require additional discussion regarding implementation) and staff would seek ongoing advice from both organizations throughout the project's development.

Area Municipal Consultation/Coordination

Area Municipal staff from Economic Development and Communications will be consulted throughout the development of the project. A copy of this report has been sent to all Area Municipalities.

Corporate Strategic Plan:

This initiative will help support a diverse, innovative and globally competitive economy; promote and enhance arts, culture and heritage; develop, promote and integrate the use of public transit, including setting the stage for the future ION rapid transit, as well as active forms of transportation (cycling and walking); improve the accessibility of Regional programs and services to support our diverse community; and strengthen and enhance partnerships with area municipalities, academia, community stakeholders and other orders of government.

Financial Implications:

The funding request for up to $24,000 can be accommodated within the existing Planning, Housing and Community Services and Transportation & Environmental Services (Grand River Transit) budgets, with approximately $19,000 from the budget earmarked for implementing the Regional Growth Management Strategy, and approximately $5,000 from Grand River Transit. Grand River Transit can provide in-kind assistance with the donation of the display space in iXpress shelters and on buses and publicity and promotion for the project through the Grand River Transit website and social media channels.
Other Department Consultations/Concurrence:

Staff from Corporate Communications, Procurement and Supply Services and Legal Services would also be consulted during the development of the On The Line exhibition.

Prepared By: Keren Adderley, Coordinator of Communications and Marketing

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: May 27, 2014   File Code: T01-20/12 Bridge, T01-20/12 Queen
Subject: Proposed Installation of an All-way Stop at the Intersection of Bridge Street (Regional Road 12) and Queen Street (Regional Road 12), Township of Wilmot

Recommendation:

That the Regional Municipality of Waterloo amend Traffic and Parking By-law 06-072, as amended, to:

a) Remove from Schedule 11, Through Highways, Queen Street (Regional Road 12) from the South Side of Bleams Road to the South Side of Bridge Street (Regional Road 12);

b) Add to Schedule 11, Through Highways, Queen Street (Regional Road 12) from the South Side of Bleams Road to the North Side of Bridge Street (Regional Road 12); and

c) Add to Schedule 12, and Intersection Stop Signs, Bridge Street (Regional Road 12) at Queen Street (Regional Road 12), in the Northbound, Southbound, Eastbound and Westbound directions;

in the Township of Wilmot, as outlined in Report E-14-060, dated May 27, 2014.

Summary:

Staff received concerns with regard to the existing traffic control (3-way stop) at the Bridge Street (Regional Road 12) and Queen Street (Regional Road 12) intersection.

Based on the concerns received, field observations and collision history, Transportation Division recommend that an all-way stop-control be implemented. A traffic control
signal or a roundabout is not being considered at this time as traffic volumes and the collision history do not necessitate these measures. An all-way stop controlled intersection is anticipated to adequately service intersection traffic volumes and reduce collisions. An all-way stop-controlled intersection will also provide additional crosswalks for pedestrians on the north and south leg of the intersection enhancing pedestrian mobility, in particular for nearby elementary school children.

Report:

Existing Conditions

Queen Street intersects Bridge Street at a right angle forming an intersection. The northbound, eastbound and westbound directions are controlled by stop signs and the southbound direction (Queen Street) consists of a free-flow condition. The westbound right-turn movement is controlled by a yield sign. The posted speed limit approaching the intersection on both Queen Street and Bridge Street is 50km/h. The intersection attracts an Average Annual Daily Traffic volume of approximately 4500 vehicles per day. Staff received concerns with regard to the current 3-way stop at this intersection. The current 3-way stop-control is not common and based on field observations is causing driver confusion and driver expectation concerns. Drivers at this intersection expect southbound motorists to stop, but instead, they have an unrestricted movement. Figure 1 shows the intersection and existing traffic control.
Collision History

During the previous 5 years (2009 to 2013) the Bridge Street at Queen Street intersection experienced 3 collisions all of which occurred in 2013. Two of the three collisions involved an eastbound motorist not yielding the right-of-way to a southbound motorist. The remaining collision involved a southbound motorist losing control when attempting a left-turn.

The collision history shows that the 2 fail-to-yield right-of-way collisions were likely the result of driver confusion and driver expectation issues associated to the non-typical 3-way stop control.

Proposed All-way Stop

Based on the concerns received, field observations and collision history, Transportation Division recommend that an all-way stop-control be implemented. A traffic control signal or a roundabout is not being considered at this time as traffic volumes and the collision history do not necessitate these measures. An all-way stop controlled intersection is anticipated to adequately service intersection traffic volumes and reduce collisions. An all-way stop-controlled intersection will also provide additional crosswalks
for pedestrians on the north and south leg of the intersection enhancing pedestrian mobility, in particular for nearby elementary school children.

**Public Input**

Information signs were installed at the intersection for 2 weeks starting March 17, 2014 requesting comments about the proposed all-way stop from residents through the Region’s website or via telephone. An Internet questionnaire was also setup to receive comments and a phone number was provided. As a follow-up to the web survey, a total of 62 questionnaires were also mailed to residents and businesses that fronted both Queen Street and Bridge Street requesting comments on the proposed changes.

The questionnaire asked interested parties whether they were in support of, or in opposition to, the proposal to install an all-way stop at the Queen Street / Bridge Street intersection. Of the 45 respondents, 31 are in favour of the all-way stop and 14 are opposed. The majority of those that oppose the all-way stop control noted the following:

- Installing a stop sign on southbound Queen Street would cause noise pollution from heavy truck engine brakes;
- The current configuration has no history of collisions; and
- There are too many all-way stop intersections in the area.

To address concerns associated to noise pollution from heavy trucks it is recommended that “Please Avoid Engine Brakes” signage be installed in the southbound direction approaching the intersection. It should be noted that under the current configuration, heavy trucks still have to slow down significantly when approaching the intersection when turning left or right.

As noted above, the intersection of Queen Street and Bridge Street did experience 3 collisions in 2013, and that 2 fail-to-yield right-of-way collisions were likely the result of driver confusion. The third collision could have been avoided with the installation of a stop-control in the southbound direction to slow down the vehicle that lost control while making a left-turn. Staff anticipate these collisions to continue or to increase in frequency without the installation of an all-way stop.

The all-way stop controls that have been installed in this area have been warranted mainly due to collision concerns (5 intersections between May 2004 and July 2008). The all-way stop control at each intersection was necessary to reduce collisions due to a motorist pulling out and misjudging the gaps available to them at the various intersections. An analysis of the collisions at the 5 intersections indicates that there were 74 collisions 3 years before the installation of an all-way stop, versus 20 collisions 3 years after the installation of an all-way stop. This represents a 73 percent reduction in collisions following the installation of an all-way stop at the 5 locations.

There was also an all-way stop installed to address collision concerns at the intersection
of Bleams Road and Queen Street in August 2013. Since the installations of the all-way stop only 1 rear-end collision has occurred compared to 6 collisions in the previous eight months of operation.

In addition to the questionnaire the Region also received a petition with 305 signatures supporting the installation of the all-way stop at the Queen Street/Bridge Street intersection. The petition also requested a restriction of heavy truck traffic on both Queen Street and Bridge Street through the settlement of New Dundee.

The Region’s Council approved Truck Route Policy states that all Regional roads should be truck routes unless there are valid reasons for imposing prohibitions or time restrictions on a particular section of road. The policy specifically states that a heavy truck prohibition should be considered when the section of road was not designed or constructed for heavy truck traffic or long vehicles. It further states that time restrictions should be considered when the section of road is primarily front-lotted urban residential with numerous driveways, and a suitable alternate route (less than 50% longer, but not more than 4 kilometers longer) is available.

Regional staff have reviewed the section of Queen Street and Bridge Street through the settlement of New Dundee and, in accordance with the above-noted policy, does not recommend a prohibition to heavy trucks as it does not meet the conditions outlined in the policy approved by Regional Council. Specifically, the roads are designed and are constructed for heavy truck traffic and a suitable alternate route is not available.

Based on the analysis contained herein, it is recommended that an all-way stop be installed at the Bridge Street and Queen Street intersection to:

- Address growing concerns in the community;
- Enhance pedestrian mobility at the intersection;
- Standardize the intersection; and
- Mitigate any future collision problems.

This is suitable for all-way stop control, similar to other intersections within the area for motorists approaching the Bridge Street / Queen Street intersection. Sufficient advance notice will be provided and advance warning signs will be installed. Figure 2 shows the all-way stop proposal.

Those wishing to be advised of when this matter will be dealt with by the Regional Planning and Works Committee have been notified, including those who initiated the petition concerning prohibiting truck traffic.
Township of Wilmot Input

Township of Wilmot staff supports this recommendation, however has requested the addition of a flashing beacon (red) for the southbound direction due to the existing grade. Staff has reviewed the sight distance approaching the intersection and have determined that the existing sight distance meets minimum engineering standards. Therefore, a flashing beacon is not recommended. As previously noted, staff will be installing a stop ahead warning sign in advance of the intersection to warn southbound motorists of the stop control and will monitor the intersection operation and if necessary will install additional warning measures when appropriate.

Corporate Strategic Plan:

This report addresses the Region’s goal to implement proven roadway safety strategies and education to enhance the safety of our roadways (Strategic Objective 3.3.2).

Financial Implications:

The all-way stop will cost approximately $600 to implement. Funds to implement the all-way stop are available in the Region’s 2014 maintenance budget.
Other Department Consultations/Concurrence:

The Council and Administrative Services Division will be required to prepare the amending by-law.

Attachments:

Nil

Prepared By: Satinderjit Bahia, Engineering Technologist (Traffic)

Approved By: Thomas Schmidt, Commissioner, Transportation and Environmental Services
Region of Waterloo

Transportation and Environmental Services

Transportation

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

Date: May 27, 2014

File Code: T10-01

Subject: Region of Waterloo Traffic Congestion Tracker Project Results

Recommendation:

For information.

Summary:

Nil

Report:

The Region of Waterloo Transportation Division has recently completed its first pilot project aimed at identifying congested locations on the Regional road network through the use of mobile phone technology. Regional staff and public participants were recruited and provided a unique mobile phone application more commonly known as an app. The app used mobile phone GPS devices to deliver location coordinates, travel speed, time and mode of travel data to a Regional computer server as people drove their vehicles. This data was collected over a five month period and recently analysed by CIMA+ engineering consultants to identify traffic congestion spots on Regional roads.

The public interest certainly exceeded expectations. In total there were 368 applicants that were interested in participating. Of the 368 applicants, 102 applicants were approved and supplied with the app. Most of the other applicants were not provided the app due to not having a compatible mobile phone or were not using a passenger car as a primary mode of travel. In light of this issue, sourcing the development of a 2nd generation app in the near future to be compatible with a greater variety of phones, including the Blackberry 10 and iPhone will be considered.

In total over 865,000 data points were collected over a 5 month data collection period. Data points not related to the Regional road network were removed and only data situated within a 30m buffer area of a Regional road was included in the analysis. The Regional road network was broken into 333 segments for analysis purposes. Segments
would typically be defined as a section of road from a major signalized intersection to a major signalized intersection. In some cases minor signalized intersections would be used to define segments. In general, urban locations would consist of shorter segments whereas rural segments would consist of longer segments, with a maximum segment length defined as 7 km.

Congestion severity was defined by comparing observed average travel time data from the study participants to a theoretical uninterrupted travel time. Uninterrupted travel time is defined as the time it would take for a motorist to travel a segment at the posted speed limit uninterrupted (e.g. no traffic signals or stop signs). Therefore each segment having travel data supplied by mobile phones would be compared against uninterrupted travel time for a road section and given a congestion ratio. For example, if the average travel time was observed to be 50 seconds where uninterrupted travel time was calculated to be 25 second, congestion would be defined as a ratio of 2:1. In other words, that particular road segment took twice as long to travel compared to a theoretical uninterrupted travel time.

Using this methodology, the top 10 Regional road segments ranked by highest congestion ratio are as itemized in Table 1.

Table 1 – Top 10 Congested Locations

<table>
<thead>
<tr>
<th>Rank</th>
<th>Location</th>
<th>Direction</th>
<th>Length (km)</th>
<th>Period</th>
<th>Congestion Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pinebush Road between Hespeler Road and Plaza</td>
<td>EB</td>
<td>0.25</td>
<td>Off Peak</td>
<td>7.600</td>
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<tr>
<td>2</td>
<td>Franklin Boulevard between Highway 401 Eastbound off-ramp and Pinebush Road</td>
<td>SB</td>
<td>0.1</td>
<td>AM</td>
<td>6.944</td>
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<tr>
<td>3</td>
<td>Sportsworld Drive between King Street East and King Street Bypass West Intersection</td>
<td>WB</td>
<td>0.37</td>
<td>PM</td>
<td>6.231</td>
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<tr>
<td>4</td>
<td>Northfield Drive West between King Street North and Kraus Drive</td>
<td>WB</td>
<td>0.15</td>
<td>PM</td>
<td>5.667</td>
</tr>
<tr>
<td>5</td>
<td>Hespeler Road between Highway 401 North Intersection and Highway 401 South Intersection</td>
<td>SB</td>
<td>0.27</td>
<td>AM</td>
<td>5.247</td>
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<tr>
<td>6</td>
<td>University Avenue East between Conestoga Parkway East Intersection and Bridge Street West</td>
<td>EB</td>
<td>0.36</td>
<td>PM</td>
<td>5.093</td>
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<tr>
<td>7</td>
<td>Franklin Boulevard between Highway 401 Eastbound Off-</td>
<td>SB</td>
<td>0.1</td>
<td>Off</td>
<td>5.000</td>
</tr>
<tr>
<td>Rank</td>
<td>Location</td>
<td>Direction</td>
<td>Length (km)</td>
<td>Period</td>
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<tr>
<td>8</td>
<td>Erb Street West between Caroline Street North and King Street North</td>
<td>EB</td>
<td>0.23</td>
<td>Off</td>
<td>4.952</td>
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<tr>
<td>9</td>
<td>King Street East between Eagle Street North and Westminster Drive North</td>
<td>NB</td>
<td>0.46</td>
<td>PM</td>
<td>4.771</td>
</tr>
<tr>
<td>10</td>
<td>Franklin Boulevard between Highway 401 Eastbound Off-Ramp and Pinebush Road</td>
<td>SB</td>
<td>0.1</td>
<td>PM</td>
<td>4.722</td>
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It is important to note that average travel times used to develop congestion ratios for each road segment were based on the number of runs observed in each road segment. Runs observed in each road segment varied and ranged from 1 to 59 runs. In total approximately 409 km out of a possible 704 km of the Regional road network was covered by this project. A map illustrating road coverage is provided in Appendix A. Specific roadway segment analyses can be found in the full report prepared by CIMA+ Consulting Engineers. By no means is this a perfect method of ranking congestion, rather it is a new way to engage community members in identifying potential sections of road experiencing some form of congestion.

The information gathered in this study is only part of how congestion is assessed. Traffic counts, traffic studies, traffic signal reviews, field observations and other information gathering methods are all used to assess congestion and determine possible mitigation measures. This study has identified areas for further review but all of the other sources of information must be considered to develop a more complete view of congestion and possible mitigation measures.

Now that locations have been ranked according to congestion ratio, staff plans to review the top 10 locations in more detail to determine specific contributing factors of congestion and where possible, implement short and or long term strategies to reduce travel times. Potential short term strategies include but are not limited to, reviewing and revising signal timing or improving traffic signal coordination. Longer term solutions may include but are not limited to additional turn lanes, queue jump lanes or roundabouts. In some cases longer term solutions may already be planned. In other cases, there may be no solution. Staff plan to report back to committee by the end of the year regarding actions to address congestion at the top 10 locations identified through this project.

A full copy of the CIMA+ report can be requested through the Transportation Division. A copy of the full report is planned to be provided to all those who expressed an interest in the project. Staff plan to survey participants to obtain feedback on the app and to gain insight on what users may suggest could be added to the app to make it more appealing for the next generation of the app and future projects.
Corporate Strategic Plan:

This project is being completed in accordance with the Region’s 2011 – 2014 Strategic Plan Action 3.3.1 “Identify and address priority transportation bottlenecks to reduce road congestion and improve safety, e.g. roundabouts, queue jump lanes for transit, turn lanes at signalized intersections, etc.”.

Financial Implications

The cost to undertake any proposed road and signal improvements will need to be identified and included in the Transportation Capital Program.

Other Department Consultations/Concurrence:

Nil

Attachments

Appendix A – Map of Data Points

Prepared By: Bob Henderson, Manager, Transportation Engineering

Approved By: Thomas Schmidt, Commissioner, Transportation and Environmental Services
Maps of Data Points

Legend

- Roadway
- Roadway with data
Region of Waterloo
Transportation and Environmental Services
Transportation

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

Date: May 27, 2014

File Code: T01-20/08

Subject: Left-turn Restriction at the King Street (Regional Road 8) and Chopin Drive Intersection, City of Cambridge

Recommendation:

That the Regional Municipality of Waterloo amend Traffic and Parking By-law 06-072, as amended, to add to Schedule 15, Prohibited Movements, Northbound Left-turn, 2:00 p.m. to 6:00 p.m. Monday to Friday at the intersection of King Street (Regional Road 8) and Chopin Drive in the City of Cambridge, as outlined in Report E-14-055, dated May 27, 2014.

Summary:
Nil

Report:

In response to public concerns regarding the safety of motorists at the King Street (Regional Road 8)/Chopin Drive intersection, Regional staff reviewed the historical operation at the intersection to determine if appropriate measures were required to address safety.

The five-year collision history (2008 to 2012) shows that there have been a total of 27 collisions. Of the 27 collisions, 70% involve motorists turning left from Chopin Drive onto King Street. The majority of these collisions occurred between 2:00 p.m. and 6:00 p.m. Monday to Friday. Based on the collision history, this intersection currently ranks #2 within the Region for excess collisions at 3-leg stop-controlled intersections. It is recommended that left-turns from Chopin Drive onto King Street be prohibited from 2:00 p.m. to 6:00 p.m., Monday to Friday.

It is anticipated that restricting left-turns from Chopin Drive will reduce turning movement collisions by approximately 65%. The left-turn restriction is an interim...
measure until such time that the approved median is installed as part of the King Street/Fountain Street Improvements project scheduled for construction in 2016. Left turns can be made one block east of the Chopin Drive intersection at the signalized intersection of King Street and Eagle Street. An assessment shows that the current geometry at the signalized intersection can easily accommodate the additional left-turning traffic displaced from Chopin Drive. Figure 1 shows the proposed left turn restriction.

**Figure 1: Proposed Left-turn Restriction at the King Street / Chopin Drive Intersection**

Information signs were installed on King Street and on Chopin Drive approaching the intersection for 2 weeks starting March 31, 2014 requesting comments from residents through the Region’s website or via telephone. An Internet questionnaire was also setup to receive comments and a phone number was provided. As a follow-up to the web survey, questionnaires were also mailed to residents and businesses in the vicinity of the intersection requesting comments on the proposed changes.
The questionnaire asked interested parties whether they were in support of, or in opposition to, prohibiting northbound left-turning vehicles from Chopin Drive onto King Street between the hours of 2:00 p.m. and 6:00 p.m. Monday to Friday.

A total of 14 responses were received where 13 are in favour of the prohibition. Staff from the City of Cambridge have been consulted with and support this recommendation.

Those wishing to be advised of when this matter will be dealt with by Regional Planning and Works Committee have been notified.

**Corporate Strategic Plan:**

This report addresses the Region’s goal to implement proven roadway safety strategies and education to enhance the safety of our roadways (Strategic Objective 3.3.2)

**Financial Implications:**

The cost to install a sign prohibiting the northbound left-turn movement is approximately $300 and is included in the Transportation Operations maintenance budget.

**Other Department Consultations/Concurrence:**

The Council and Administrative Services Division will be required to prepare the amending By-law.

**Attachments:**

Nil

**Prepared By:** Patricia Heft, Engineering Technologist (Traffic)

**Approved By:** Thomas Schmidt, Commissioner, Transportation and Environmental Services
Region of Waterloo
Transportation and Environment Service
Waste Management Division

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

Date: May 27, 2014  File Code: E25-40 (A)

Subject: “Big Music Fest 2014” at McLennan Park

Recommendation:
For information.

Summary:
Nil

Report:
The music promoter, Big Music Fest, in connection with the City of Kitchener (City) will be hosting the inaugural “Big Music Fest 2014” at McLennan Park on July 11, 12, and 13 of 2014. It is estimated that the music festival will draw a maximum of 25,000 people per day to the park.

McLennan Park is a 39-hectare site, located at 901 Ottawa Street South, constructed on the former Kitchener Landfill site. The City of Kitchener operated the landfill from the 1950’s until 1974 when the operation and ownership of the property transferred to the newly created Regional Municipality of Waterloo (Region). The Landfill ceased operation in 1978 and continues to be owned and managed by the Region. Management activities include an annual monitoring program and the operation of engineering controls including a landfill gas collection system. In 2006, the Region entered into a lease agreement with the City to lease the surface rights (Premises) of the former Kitchener Landfill to the City to develop into a park.

The lease with the City requires that the City maintain the Premises, repair damage, obtain all necessary approvals and permits, maintain general liability insurance in the amount of $10,000,000 and indemnify the Region. In this regard, the City will also require additional insurance from the event promoter over and above that required by the lease, with the Region added as an additional insured party.
Waste Management Division staff has had preliminary discussions with the City to review the Region’s requirements in regards to protection of the Region’s infrastructure, underground utilities, and the landfill cap. The City has provided preliminary information which demonstrates that consideration for protection of the Region’s infrastructure as described above has been taken into account by the City. Waste Management Division staff will review the City’s final layout and staging drawings and plans to ensure protection of Region infrastructure.

**Corporate Strategic Plan:**

This report has been prepared consistent with the Corporate Strategic Objective of Focus Area 2 “Growth Management and Prosperity: Manage growth to foster thriving and productive urban and rural communities” and particularly action 2.4 “Promote and enhance arts, culture and heritage.”

**Financial Implications:**

Nil

**Other Department Consultations/Concurrence:**

Staff from Legal Services and Risk Management Services have been consulted.

**Attachments**

Nil

**Prepared By:** April Yochim, Environmental Project Engineer, Waste Management

**Approved By:** Thomas Schmidt, Commissioner, Transportation and Environment Services
Region of Waterloo  
Planning, Housing and Community Services  
Community Planning  

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

Date:  May 27, 2014  

File Code:  D18-01  

Subject:  Monthly Report of Development Activity for April 2014  

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 plan of condominium; and  
- Released for registration the following draft plan of subdivision and draft plans of condominium.  

Report:  
City of Waterloo  

Part Lot Control Exemption By-law 2014-023  

Applicant:  City of Waterloo  
Location:  Montpellier Drive  
Proposal:  To create 1 residential semi-detached dwelling containing 2 units.  
Regional Processing Fee:  Paid April 4, 2014  
Commissioner’s Approval:  April 7, 2014
Plan of Condominium Application 30CDM-14401
Date Accepted: April 15, 2014
Applicant: Spring Village Inc.
Location: 261 Lester Street
Proposal: To convert an existing 19 unit residential apartment building to condominium ownership.
Regional Processing Fee: Paid March 19, 2014

Registration of Draft Plan of Condominium 30CDM-12404
Phase: Entire Plan
Draft Approval Date: June 25, 2013
Applicant: Waterloo Living 3 Inc.
Location: 28 to 30 University Avenue East
Proposal: To permit the development of 13 residential apartment units.
Regional Processing Fee: Paid April 9, 2014
Commissioner's Release: April 16, 2014

City of Kitchener

Registration of Draft Plan of Subdivision 30T-11202
Phase: Entire Plan
Draft Approval Date: July 27, 2012
Applicant: Kenmore Homes (Waterloo Region Inc.)
Location: 324 Old Huron Road
Proposal: To permit the development of 51 residential single detached units and 24 residential street-fronting townhouse units.
Regional Processing Fee: Paid April 22, 2014
Commissioner's Release: April 24, 2014

Registration of Draft Plan of Condominium 30CDM-13204
Phase: Stage 3
Draft Approval Date: July 30, 2013
Registration of Draft Plan of Subdivision 30T-11202

Applicant: Deerfield Homes Ltd.

Location: 1650, 1670, 1680, 1690 and 1720 Fischer-Hallman Road

Proposal: To permit the development of 48 residential stacked townhouse units.

Regional Processing Fee: Not applicable.

Commissioner’s Release: April 4, 2014

Residential Subdivision Activity January 1, 2014 to April 30, 2014

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*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 April 30, 2013

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*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 Service
Transportation Planning

To: Chair Jim Wideman and Members of the Planning and Works Committee
Date: May 27, 2014
File Code: T15-40/58 KIT
Subject: Amendment to Regional Municipality of Waterloo Controlled Access By-law #58-87 for an Access to Regional Road #58 (Fischer-Hallman Road), City of Kitchener

Recommendation:
That the Regional Municipality of Waterloo approve an amendment to Controlled Access By-law #58-87 for a full-movement, temporary construction access on the east side of Regional Road #58 (Fischer-Hallman Road), approximately 155 metres south of Huron Road in the City of Kitchener, as described in Report No. P-14-062, dated May 27, 2014.

Summary:
Becker Estates Incorporated is the Owner of a vacant parcel of land, located at the southeast corner of the intersection of Regional Road #58 (Fischer-Hallman Road) and Huron Road in the City of Kitchener (please see Attachment A). The Owner would like to construct a temporary construction access on the east side of Fischer-Hallman Road, approximately 155 metres south of Huron Road, to facilitate area grading and import of fill material on the property (please see Attachment B). The vacant parcel is currently under Plan of Subdivision 30T-07205 and has been draft approved by the Ontario Municipal Board.

The temporary construction access to Fischer-Hallman Road is to be closed when construction activities are no longer required on the subject property. A temporary construction access from this property to Huron Road is not feasible because of a large earthen berm.

Region of Waterloo staff have reviewed the proposed location of the temporary construction access to Fischer-Hallman Road and recommend approval of the proposed By-law amendment. The proposed temporary construction access location meets Region of Waterloo design standards.
City of Kitchener Transportation Planning staff and Becker Estates Incorporated support the location of the proposed temporary construction access to Fischer-Hallman Road.

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 road and freeways where access to these roads must be restricted due to high traffic speed and volume. The main function of a Controlled Access – Prohibited Road is to move through traffic. All requests for changes to existing accesses or new accesses on these roads require an amendment to the By-law. All remaining Regional Roads are included in Schedule “B” (Controlled Access – Regulated). The function of a Controlled Access – Regulated Road is to move through traffic and provide access to adjacent lands. Typically, these roads are front-lotted with access available only to the Regional Road or are comparatively lower volume rural roads.

Becker Estates Incorporated has received draft approval from the Ontario Municipal Board of Plan of Subdivision 30T-07205. This 68 hectare parcel of land is located on the southeast corner of Fischer-Hallman Road and Huron Road in the City of Kitchener (please see Attachment A).

In order to facilitate area grading and the import of fill material on the property, Becker Estates Incorporated is requesting permission to construct a temporary construction access on the east side of Fischer-Hallman Road approximately 155 metres south of Huron Road (please see Attachment B). This temporary construction access location was chosen for its favourable grades from the property to Fischer-Hallman Road; access in this area from Huron Road is not feasible because of a large earthen berm. The temporary construction access to Fischer-Hallman Road is to be closed when construction activities are no longer required on the subject property.

Region of Waterloo staff have reviewed the proposed location of the temporary construction access to Fischer-Hallman Road and recommend approval of the proposed By-law amendment. The proposed temporary construction access location meets Region of Waterloo design standards.

City of Kitchener Transportation Planning staff and Becker Estates Incorporated are both in support of the location of the proposed temporary construction access to Fischer-Hallman Road.

As Fischer-Hallman Road is designated as a Controlled Access Prohibited Road under the Region’s Controlled Access By-law #58-87 from Regional Road #4 (Ottawa Street) to Regional Road #12 (New Dundee Road), an amendment to this By-law is required to permit this temporary construction access.
Area Municipal Consultation/Coordination

City of Kitchener Transportation Planning staff supports the location of the proposed temporary construction access to Fischer-Hallman Road.

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:

Becker Estates Incorporated would be responsible for all costs associated with the construction of the proposed temporary construction access and to close the access to Region of Waterloo standards when it is no longer required.

Other Department Consultations/Concurrence:

Design and Construction staff has been consulted with the coordination of the design and construction by Becker Estates Incorporated, of the proposed temporary construction access.

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 Fischer-Hallman Road.

Attachments:

Attachment A – Key Map
Attachment B – Plan showing temporary construction access to Fischer-Hallman Road and proposed amendment to Controlled Access By-law #58-87

Prepared By: Jason Wigglesworth, Technician, Corridor Management

Approved By: Rob Horne, Commissioner, Planning, Housing and Community Services
Attachment A – Key Map
Attachment B - Plan showing temporary construction access to Fischer-Hallman Road and proposed amendment to Controlled Access By-law #58-87
Planning, Housing and Community Services

Transportation Planning

Date: May 27, 2014

Memorandum

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

From: Patrick Fisher, Principal Planner, Transportation Demand Management

Subject: Bike Month in June

File No: D10-70

Throughout the month of June, the Region of Waterloo is working with the area municipalities, cycling clubs, commuters, families and community groups to celebrate cycling with Bike Month. A wide variety of cycling events are planned for all types of cyclists across the region. Events include bike races such as the Tour de Waterloo, Tour de Grand, family oriented events like Bikefest in Kitchener, and Bike to Work Breakfasts in Cambridge, Kitchener and Waterloo. Many cycling clubs are offering organized rides for all ages, interests and abilities including mountain biking, road riding and public art tours. The provincial Share the Road Coalition and the Waterloo Regional Police Service are hosting a cycling safety forum and Rob Horne, Commissioner of Planning, Housing and Community Services, is challenging municipal leaders to travel across all seven municipalities using seven different modes. A complete listing of events is available at www.regionofwaterloo.ca/travelwiseevents.

Bike Month will also be highlighted in the Thumbs Up Waterloo Region campaign that will remind both drivers and cyclists that we all have a role in staying safe on the roads, through radio ads, a special newspaper insert, and social media.

During Bike Month, residents are encouraged to put on their helmets, get out on their bikes and join the celebration. Prizes are available for people who take the Bike to Work Pledge (available at www.regionofwaterloo.ca/travelwiseevents) and tell us how often they bike during the month of June.

For more information about Bike Month, please contact Pat Fisher at 519-575-4019 or pafisher@regionofwaterloo.ca.
Region of Waterloo

Transportation and Environmental Services

Design and Construction

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

Date: May 27, 2014

File Code: 5752

Subject: Consultant Selection – Class EA, Detailed Design and Contract Administration Services for Highland Road Improvements, Fischer-Hallman Road to Ira Needles Boulevard, City of Kitchener

Recommendation:

That the Regional Municipality of Waterloo enter into a Consulting Services Agreement with IBI Group to provide consulting engineering services for the Class Environmental Assessment (EA), detailed design, construction contract administration and inspection services associated with Highland Road Improvements from Fischer-Hallman Road to Ira Needles Boulevard at an upset fee limit of $403,300.00 plus applicable taxes for the Class EA and design phases, with construction contract administration and inspection services to be paid on a time basis, as outlined in report E-14-063, dated May 27, 2014.

Summary:

The Region of Waterloo intends to proceed with the Highland Road Improvements Study from Fischer-Hallman Road to Ira Needles Boulevard in the City of Kitchener. The improvement work on Highland Road from Fischer-Hallman Road to Ira Needles Boulevard is currently scheduled for 2018 in the 2014 Transportation Capital Program. The location of this project is shown on the key plan included in Appendix A. In order to meet the 2018 construction timeline, an engineering consultant must be hired now to undertake this project.

An invitation to submit Letters-of-Interest to provide engineering services for this assignment was advertised in the Waterloo-Region Record. Eight (8) firms submitted Letters-of-Interest. Three (3) firms were subsequently short-listed. The selection process for this assignment included price as an evaluation factor. Based on the
evaluation criteria and review of the submitted work plans and fee estimates, the Consultant Selection Team recommends that IBI Group be retained to undertake this assignment at an upset fee limit of $403,300.00 plus applicable taxes for the Class EA and design phases, with construction contract administration and inspection services to be paid on a time basis. Sufficient funds are available in the 2014 Transportation Capital Budget to initiate the Class EA process in 2014.

Report:

1. Background

The Regional Municipality of Waterloo wishes to proceed with rehabilitation and capacity improvements on Highland Road from Fischer-Hallman Road to Ira Needles Boulevard in the City of Kitchener. This section of Highland Road is identified in the Region’s Transportation Master Plan (approved in 2011) for widening in the 10 – 20 year timeframe. Please see Appendix A for a Key Plan of the Study Area. To consider widening a road a Class Environmental Assessment Study must be completed in accordance with the Class Environmental Assessment (EA) process (Schedule “C”) for Municipal Road Projects in establishing the preferred solution for the corridor.

Highland Road from Highland Hills Mall to Ira Needles Boulevard is currently identified for widening and road improvements by 2018 in the 2014 Ten Year Transportation Capital Program. In addition, rehabilitation of Highland Road from Fischer-Hallman Road to the entrance of the Highland Hills Mall is needed and has been identified in the 2014 Ten Year Transportation Capital Program for 2018 in conjunction with the road widening.

This study is being undertaken in accordance with the Municipal Class Environmental Assessment, Municipal Engineers Association, October 2000 (as Amended in 2007). For this Class EA assignment, the consultant will: obtain all necessary background information; undertake noise, drainage, geotechnical, heritage, archaeological, natural environment and other relevant studies; evaluate and review planning alternatives; prepare preliminary design for the preferred alternatives; present preliminary design alternatives at Public Consultation Centre(s); prepare an Environmental Study Report (ESR) and prepare detailed design drawings, specifications and provide construction contract administration and inspection services.

Funding is currently available in the 2014 Ten Year Transportation Capital Program for construction of the proposed works in 2018.

Regional staff is fully committed to other capital projects at this time and therefore an external consultant must be hired to complete this project. Staff has determined that it is necessary to commence the engineering for this project now, in order to provide sufficient time to complete the planning and design phases, acquire any necessary...
property and complete utility relocations, if necessary, in advance of construction.

2. Consultant Selection

An invitation to submit Letters-of-Interest to provide engineering services was advertised in the Waterloo-Region Record on Friday March 7th, 2014. Eight (8) Letters of-Interests were submitted and evaluated by the Consultant Selection Team which consisted of the following staff:

- William Gilbert, Senior Project Manager, Design and Construction Division
- Paula Sawicki, Manager, Strategic Transportation Planning
- Egerton Heath, Supervisor Traffic Systems Management, Transportation Engineering
- Frank Kosa, Senior Project Manager, Design and Construction Division

The Consultant Selection Team short-listed the following three (3) firms:

- MMM Group Limited
- MTE Consultants Inc.
- IBI Group

The short-listed consultants were asked to provide detailed Work Plans and Upset Fee Estimates for the work on this project.

The criteria used to evaluate the Letters-of-Interest, Work Plans and Upset Fee Estimates were in accordance with the Region’s Purchasing Bylaw and included price as a factor in the selection process. These evaluation criteria and their respective weightings were as follows:

### Quality Factors
- Project Approach and Understanding 35%
- Experience of the Project Manager 20%
- Experience on Similar Projects 15%
- Experience of the Project Support Staff 10%

### Equity Factors
- Current Workload for Region 3%
- Local Office 2%
Price Factor

Upset Limit Fee 15%

The Work Plans submitted by the short-listed consultants demonstrated a comprehensive understanding of the components of the project, capable project teams and experience on similar projects.

Based on the review of Detailed Work Plans, and in consideration of the combination of quality, equity and price factors described above, IBI Group scored the highest of the three short-listed consultants and submitted the lowest upset fee. Therefore, the Consultant Selection Team recommends that IBI Group be retained to undertake the Class EA, detailed design and provide construction contract administration and inspection services for this assignment.

3. Scope of Work

The scope of the assignment shall have the consultant undertake a Class EA and design, construction contract administration and construction inspection for:

- Rehabilitation of Highland Road between Fischer-Hallman Road and Highland Hills Mall Entrance; and
- Road improvements and reconstruction with the potential widening of Highland Road from 2 to 4 lanes from Highland Hills Mall Entrance to Ira Needles Boulevard.

4. Schedule

Subject to Council’s approval of this consultant assignment, the proposed schedule for this assignment is as follows:

- Project Initiation, Data collection Summer/Fall 2014
- Class EA and Preliminary Design 2014-2015
- Public Information Centre(s) Spring and Fall 2015
- Property Acquisition 2016-2017
- Detailed Design and Approvals 2016-2017
- Construction 2018
5. Consultant’s Upset Fee

The short-listed consultants were requested to submit an upset fee for services required to complete the Class EA and Detailed Design. An estimated fee for construction contract administration and inspection services was also submitted by each short-listed consultant for budgetary purposes. As has been the Region’s practice, only the upset fee limit component was used in the consultant evaluation and selection process. IBI Group’s price was the lowest price submitted from the 3 short-listed consultants. The upset fee limit proposed by IBI Group to complete the Class EA and Detailed Design is $403,300.00 plus applicable taxes. The fee provided is within the expected range of fees for this type of assignment. A breakdown of the proposed upset fee limit for the Class EA and design for this assignment is shown in Appendix B of this report.

For road reconstruction and widening projects such as Highland Road, the fees required for construction contract administration and inspection services can vary significantly depending on the final design, weather conditions, unforeseen conditions during construction, contractor performance, and other unknown variables. Since an upset fee limit does not lend itself well to these types of services, it has been the Region’s practice to pay for construction contract administration and inspection services on a time basis. The short-listed consultants were required to submit estimated construction contract administration and inspection fees based on a fixed construction period. The estimated fee proposed by IBI Group for construction contract administration and inspection services is $155,000 plus applicable taxes and this is within the amount budgeted for this purpose in the approved 2014 Ten Year Transportation Capital Program.

Corporate Strategic Plan:

The widening and rehabilitation of Highland Road between Fischer-Hallman Road and Ira Needles Boulevard, when complete, will support Focus Area 2 – Growth Management and Prosperity and meets strategic objective number two which is to develop, optimize and maintain infrastructure to meet current and projected needs.

The Region’s consultant selection process supports Focus Area Six – Service Excellence of the Strategic Plan by meeting the objective to ensure services are responsive, efficient, effective and accountable.
Financial Implications

Based on the $403,300.00 upset fee limit of IBI Group the net cost of this consulting assignment is $390,046.85 as per the following breakdown:

IBI Group $403,300.00
H.S.T (13%) $52,429.00
Sub-Total $455,729.00
Less: Municipal Rebate of 86.46% of HST $45,330.11
Total $410,398.89

The Region’s 2014 Ten Year Transportation Capital Program includes a total of $7.9 million for this project in the years 2014 to 2019 funded from the Development Charge and Roads Capital Levy Reserve Funds. The upset fee limit proposed by IBI Group of $403,300.00 is within the amount allocated for this assignment as part of the total budget for this project.

Other Department Consultations/Concurrence:
Nil

Attachments

Appendix A: Project Key Plan
Appendix B: Breakdown of Consultant’s Upset Fee Estimate

Prepared By: William Gilbert, Senior Project Manager, Design and Construction

Approved By: Thomas Schmidt, Commissioner, Transportation and Environmental Services
Appendix A

Key Plan

REGIONAL ROAD No. 6
HIGHLAND ROAD
FISCHER-HALLMAN RD. TO IRA NEEDLES BLVD.
City of Kitchener
# Appendix B

## Breakdown of IBI Group Upset Fee Limit

**Highland Road Improvements – Fisher-Hallman Road to Ira Needles Boulevard**

**City of Kitchener**

**Upset Fee for Class EA, Detailed Design and Related Services based on Detailed Terms of Reference**

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<td>1. Data collection and preparation of base plans</td>
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<td>2. EA and Preliminary Design</td>
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<td>3. Detailed Design</td>
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<td>4. Project Management</td>
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<td>5. Preparation of Drawings, Contract Documents and Specifications</td>
<td>$ 14,000.00</td>
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<td>6. Disbursements</td>
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</tbody>
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**Total Upset Fee Limit and Disbursement (excluding HST)** $ 403,300.00
Region of Waterloo
Transportation and Environmental Services
Design and Construction

To: Chair Jim Wideman and Members of the Planning and Works Committee
Date: May 27, 2014  File Code: C04-30, 5490/6510
Subject: Consultant Selection – Class Environmental Assessment, Detailed Design and Services During Construction, Bridgeport Road/Caroline Street from King Street to Erb Street and Erb Street from Caroline Street to King Street Improvements, City of Waterloo

Recommendation:
That the Regional Municipality of Waterloo enter into a Consulting Services Agreement with WalterFedy of Kitchener, Ontario to provide consulting engineering services for a Class Environmental Assessment, detailed design, contract administration and construction inspection for Bridgeport Road/Caroline Street from King Street to Erb Street and Erb Street from Caroline Street to King Street Improvements in the City of Waterloo at an upset limit of $408,692.79 plus applicable taxes for the Class Environmental Assessment and detailed design phases, with contract administration and construction inspection to be paid on a time basis as described in Report E-14-062 dated May 27, 2014.

Summary:
The Region of Waterloo wishes to proceed with Improvements to Bridgeport Road/Caroline Street from King Street to Erb Street and Erb Street from Caroline Street to King Street in the City of Waterloo in 2018. In order to meet this timeline, an engineering consultant must be hired now to undertake the Class Environmental Assessment, detailed design and construction administration in order to obtain all necessary approvals in advance of construction.

An invitation to submit Letters-of-Interest to provide engineering services for this
assignment was advertised in the Waterloo Region Record and on the Region’s website. Thirteen (13) letters of interest were received. Three (3) firms were short-listed and invited to submit detailed work plans and fee estimates.

Based on the evaluation criteria, review of the detailed work plans, schedules and upset fees provided, the Evaluation Team recommends that WalterFedy be retained to undertake this consultant assignment at an upset fee limit of $408,692.79 plus applicable taxes for the Class Environmental Assessment and detailed design phases, with contract administration and construction inspection to be paid on a time basis.

WalterFedy’s fees of $408,692.79 plus applicable taxes for the Class Environmental Assessment and detailed design phases are within the consulting fee allowance provided for in the total project budget of $2,720,000.

Report:

1. Background

Improvements to Bridgeport Road/Caroline Street from King Street to Erb Street and Erb Street from Caroline Street to King Street in the City of Waterloo are identified in the Region’s 2014 Ten-Year Transportation Capital Program for construction in 2018 in order to address the deteriorated pavement condition. Please refer to Appendix ‘A’ for a Key Plan of the project limits. Planning of these improvements will be completed in accordance with Schedule ‘B’ requirements of the Municipal Class Environmental Assessment process. In addition to replacement of the pavement structure, these proposed roadway improvements will include rehabilitation or replacement of underground infrastructure beneath Erb Street and Bridgeport Road/Caroline Street, consideration of enhanced cycling and pedestrian facilities, minor intersection improvements and enhanced boulevard landscaping/streetscaping features. The planning phase will also consider improvements to Albert Street from Bridgeport Road to Erb Street on behalf of the City of Waterloo, including consideration of reverting this section of Albert Street to a two-way roadway.

Improvements to the intersection of Caroline Street and Erb Street are being completed in 2014-2017 as part of the Region’s Rapid Transit project. Accordingly, the planning and design for the proposed improvements to Erb Street and Bridgeport Road will be coordinated with the Region’s Rapid Transit group in order to ensure that the designs for the two projects are carefully integrated.

Regional staff is fully committed to other capital projects and therefore staff recommends that an external consultant be hired to complete this project. Staff has determined that it is necessary to commence the engineering for this project now in order to provide sufficient time to complete the Class Environmental Assessment Study, detailed design, obtain any required property, undertake utility relocations and obtain
required approvals in advance of construction in 2018.

2. Consultant Selection

An invitation to submit Letters-of-Interest to provide engineering services for this assignment was advertised in the Waterloo Region Record and on the Region’s website. Thirteen (13) consulting firms submitted Letters-of-Interest. From a review of the submissions, three (3) firms were shortlisted based on their qualifications and these consultants were asked to submit a detailed work plan and upset fee for the Class Environmental Assessment and detailed design phases. The short-listed consultants were also requested to submit an estimate of fees for contract administration and construction inspection services.

The three short-listed consultants were:

- IBI Group;
- MTE Consultants Inc.; and
- WalterFedy

The Evaluation Team involved with the consultant selection consisted of:

Geoff Keyworth, Senior Transportation Planning Engineer, Transportation Planning

Phil Hewitson, Manager, Active Transportation and LRT Co-ordination, City of Waterloo

Jim Ellerman, Project Manager, Design and Construction

The evaluation criteria used for selecting the successful consultant were in accordance with the Region’s Purchasing By-law and included price as a factor in the selection process. These evaluation criteria and their respective weightings were as follows:

**Quality Factors**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Approach and Understanding</td>
<td>35%</td>
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<tr>
<td>Experience of the Project Manager</td>
<td>20%</td>
</tr>
<tr>
<td>Experience of the Project Support Staff</td>
<td>10%</td>
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<tr>
<td>Experience on Similar Projects</td>
<td>15%</td>
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</table>
Equity Factors

Current Workload for Region 3%
Local Office 2%

Price Factor

Upset Price 15%

The Letters of Interest submitted by all three (3) short-listed consultants demonstrated a good understanding of the project, capable project teams and experience on similar projects. When considering the combination of quality, equity and price factors described above, the submission from WalterFedy scored the highest of the three short-listed consultants. WalterFedy’s upset fee of $408,692.79 plus applicable taxes for the Class Environmental Assessment and detailed design components was the second lowest of the submitted prices. Based on the total estimated project cost for the Region and City works of $3,720,000, the consultant’s upset fee limit for the Class Environmental Assessment and detailed design services of $408,692.79 plus applicable taxes represents approximately 10.9% of the estimated total cost for this project which is in the normal fee range for a project of this type, size and complexity.

Based on the above evaluation criteria, including review of the detailed work plans, schedules and upset fees provided, the Evaluation Team recommends that WalterFedy be retained to undertake the Class Environmental Assessment, detailed design, contract administration and construction inspection of this project.

3. Scope of work

For this engineering assignment, the consultant will complete the following tasks: review all background information, conduct a Schedule “B” Class Environmental Assessment Study, complete built heritage, natural environmental, and drainage studies; conduct a public consultation program; develop and present design alternatives at Public Consultation Centres; complete final design of the road improvements; prepare contract drawings, specifications and tender documents; develop traffic staging plans; obtain all necessary agency approvals; assist during the tendering period; provide contract administration and site inspection services during construction; prepare record drawings; and provide post-construction services during the warranty period. A breakdown of the successful consultant’s upset fee is included in Appendix “B” attached to this report.

4. Schedule

Subject to Council’s approval of this consultant assignment, the proposed implementation schedule is as follows:
Data Collection and Preparation of Base Plans | June 2014 – September 2014
---|---
Class Environmental Assessment, Preliminary Design and Public Consultation Centre(s) | October 2014 – September 2015
Detailed Design and Approvals | October 2015 – May 2016
Property Acquisition (if necessary) and Utility Relocations | June 2016 – March 2018
Construction | 2018

5. **Consultant’s Upset Fee**

The short-listed consultants provided an upset fee for professional services for a Class Environmental Assessment and detailed design. The upset limit for WalterFedy to undertake the Class Environmental Assessment and detailed design phase of this project is $408,692.78 (plus applicable taxes) for consultant fees and disbursements.

The time required for contract administration and construction inspection on road rehabilitation projects can vary significantly depending on weather conditions, unforeseen developments during construction, contractor performance, and other unknown variables therefore, an upset fee does not lend itself well to these types of services. It has been the Region’s practice on road rehabilitation projects to pay for contract administration and construction inspection services on a time basis. It is recommended that this same practice be followed for this project. For budgetary purposes, WalterFedy has estimated the cost of contract administration and construction inspection services to be $180,000 which is based on the preliminary estimate by WalterFedy and a review of costs on similar projects.

**Corporate Strategic Plan:**

The Bridgeport Road/Caroline Street from King Street to Erb Street and Erb Street from Caroline Street to King Street Improvements, when complete, will support “Focus Area 2 – Growth Management and Prosperity” and meets strategic objective number 2.2 to develop, optimize and maintain infrastructure to meet current and projected needs.

**Financial Implications**

Based on the upset fee schedule received from WalterFedy, the total costs for the Class Environmental Assessment and detailed design phases are as follows:

- Upset Consulting Fee: $408,692.79
- HST (13%): $53,130.06
May 27, 2014  
Report: E-14-062

Sub-Total $461,822.85
Less Municipal HST Rebate of 86.46% $45,936.25
Net Cost of Consulting Assignment $415,886.60

The Region’s approved 2014 Ten-Year Transportation Capital Program includes $2,720,000 in 2014-2019 inclusive for this project to be funded from the Road Rehabilitation Reserve Fund.

Walter Fedy’s fees for the Class Environmental Assessment and detailed design phases of this consulting assignment in the amount of $408,692.79 plus applicable taxes are within the consulting fee allowance provided for in the total budget of $2,720,000 for this project.

Other Department Consultations/Concurrence:
Nil

Attachments
Appendix “A” – Project Key Plan
Appendix “B” – Breakdown of Consultant’s Upset Fee Estimate

Prepared By: Jim Ellerman, Project Manager, Design and Construction

Approved By: Thomas Schmidt, Commissioner, Transportation and Environmental Services
Appendix ‘A’ – Key Plan

(RR 9) BRIDGEPORT RD. / CAROLINE ST. (KING ST. to ERB ST.)
AND
(RR 9) ERB ST. (CAROLINE ST. to KING ST.)
CITY OF WATERLOO
## Appendix ‘B’ - Breakdown of Consultant’s Upset Fee Estimate

1. Project Initiation/Data Collection/Base Plan Preparation $88,557.68  
2. Class EA and Preliminary Design $146,275.93  
3. Detailed Design and Approvals $125,011.73  
4. Contract Documents, Specifications and Tendering $38,982.61  
5. Disbursements $9,864.84  

Total Upset Fee Limit and Disbursements (excluding HST) $408,692.79
Region of Waterloo

Transportation and Environmental Services

Design and Construction

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

Date: May 27, 2014

File Code: C04-30, 5619, 5621, 5622, 5925, 5926

Subject: Consultant Selection – Preliminary Design, Detailed Design and Construction Administration and Inspection Services for Rehabilitation of 5 Bridges in the Townships of North Dumfries, Wilmot and Woolwich

Recommendation:

That the Regional Municipality of Waterloo enter into a Consulting Services Agreement with D.M. Wills Associates Limited of Peterborough, Ontario to provide consulting engineering services for the preliminary design, detailed design, contract administration and construction inspection for 5 Bridge Rehabilitations in the Townships of North Dumfries, Wilmot and Woolwich at an upset limit of $406,220 plus applicable taxes for the preliminary design and detailed design phases with contract administration and construction inspection to be paid on a time basis.

Summary:

The Region of Waterloo wishes to proceed in 2016 with the rehabilitation of the Nafziger Bridge at the Nith River in the Township of Wilmot and also two Hawkesville Road Bridges at the Conestogo River in the Township of Woolwich. In 2017 the Region also wishes to rehabilitate the two Trussler Road Bridges over the Nith River in the Township of North Dumfries/County of Oxford. (Trussler Road is a boundary road with the County of Oxford and the County of Oxford is responsible for 50% of the costs for the rehabilitation of these two Trussler Road bridges.) In order to meet the 2016/2017 construction timelines, an engineering consultant must be hired now to commence the engineering for this project now in order to provide sufficient time to complete the design and obtain all the necessary approvals in advance of construction. Staff has combined the rehabilitation of these five (5) bridges into one engineering assignment due to the similar nature of the work which will result in cost and schedule efficiencies in the design, approval and tender stages.

An invitation for Letters of Interest to provide engineering services for this project was advertised in the Waterloo Region Record on February 20, 2014. Thirteen (13)
consultants submitted Letters of Interest and four (4) firms were short-listed based on their qualifications and were invited to submit detailed work plans and fee estimates.

Based on the evaluation criteria, review of the detailed work plans, schedules and upset fees provided by the shortlisted consultants, the Evaluation Team (consisting of Regional staff and a County of Oxford representative) recommends that D.M. Wills Associates Limited be retained to undertake this assignment at an upset fee limit of $406,220 plus applicable taxes for the preliminary design and detailed design phases with contract administration and construction inspection to be paid on a time basis.

Report:

1. Background

The Region of Waterloo wishes to proceed in 2016 with the rehabilitation of the Nafziger Road Bridge (#0502) at the Nith River in the Township of Wilmot and also two Hawkesville Road Bridges (#1703 and #1704) at the Conestogo River in the Township of Woolwich. In 2017 the Region also wishes to rehabilitate the two Trussler Road Bridges (#7003 and #7004) over the Nith River in the Township of North Dumfries/County of Oxford. Please refer to the key plans in Appendix A showing the locations of these bridges.

1.1. Rehabilitation Requirements

For each of these five bridges, recent preliminary condition assessments indicate that the main concrete components of the bridge superstructure, including the deck and barriers, require rehabilitation or replacement. Additionally, the expansion joints require removal and conversion to semi-integral abutments and the deck requires new waterproofing and re-paving.

The sections of Nafziger Road, Hawkesville Road and Trussler Road on which these bridges are located are identified in the Region’s Active Transportation Master Plan as on-road cycling routes. Accordingly, options for the provision of on-road cycling facilities on each bridge will be developed and evaluated during the preliminary design phase.

Based on the expected scope of the rehabilitation, it will be necessary to reduce each bridge to one lane during construction with the traffic alternating in each direction by utilizing temporary traffic signals. Options to minimize the duration of the rehabilitation work will be evaluated during the planning and preliminary design stage.

It is anticipated that each bridge will not require any changes which will alter the basic structural system, overall configuration or appearance, and therefore the project can proceed in accordance with Schedule “A+” requirements of the Municipal Class Environmental Assessment (Class EA). Each of the roads on which these bridges are located are considered “scenic or of special character” by Regional Heritage staff and accordingly special attention will be paid to any barrier system replacement on each bridge.

1.2. Need for Consultant Assignment

Regional staff does not have the structural expertise to undertake these types of
structural engineering projects. For this reason, staff recommends that an external consultant be hired to complete this project now in order to provide sufficient time to consider the various alternatives for rehabilitation, complete preliminary design, obtain the necessary approvals, co-ordinate any utility relocations and complete the detailed design in advance of the scheduled 2016/2017 construction.

2. Consultant Selection

An invitation for Letters of Interest to provide engineering services for this project was advertised in the Waterloo Region Record on February 26, 2014. Thirteen (13) consultants submitted Letters of Interest. Following a review of the submissions, four (4) firms were short-listed based on their qualifications. The detailed work plans and upset fee quotes for design activities, plus an estimate of fees for contract administration and construction inspection services from the short listed consultants were then reviewed and a final selection was made based on the evaluation criteria.

The four short-listed consultants were: Aecom Canada, Delcan Corporation, D.M. Wills and MMM Group Limited.

The Evaluation Team involved with the consultant selection consisted of:

Ken Brisbois, Project Manager, Design and Construction, RMOW
John Stephenson, Senior Project Manager, Design and Construction, RMOW
Shawn Buckley, Senior Transportation Infrastructure Engineer, Transportation, RMOW
Frank Gross, Construction Co-ordinator, Oxford County

The evaluation criteria used for selecting the successful consultant were in accordance with the Region’s Purchasing By-law and included price as a factor in the selection process. These evaluation criteria and their respective weightings were as follows:

Quality Factors

Project Approach and Understanding 35%
Experience of the Project Manager 20%
Experience of the Project Support Staff 10%
Experience on Similar Projects 15%

Equity Factors

Current Workload for Region 3%
Local Office 2%

Price Factor

Upset Price 15%

The Letters of Interest submitted by the four short-listed consultants demonstrated a
good understanding of the project, capable project teams and experience on similar projects. When considering all quality, equity and price factors, the submission from D.M. Wills Associates Limited scored the highest. D.M. Wills Associates Limited also had the lowest upset fee submission. Based on the above evaluation criteria, including the review of the detailed work plans, project approach, schedules and upset fees provided, the Evaluation Team recommends that D.M Wills Associates Limited be retained to provide the preliminary design, detail design, contract administration and construction inspection services for this project.

3. **Scope of Work**

For this engineering assignment, the consultant will, for all five (5) bridges: undertake a complete review of required infrastructure for existing and future conditions; conduct/coordinate structural condition assessments and pre-design testing; develop and assess rehabilitation/replacement alternatives; complete the preliminary and detailed design for the rehabilitations/replacements; assess the advantages and disadvantages of different construction staging alternatives; make presentations to the Region and the County of Oxford; prepare contract drawings, specifications and tender documents; obtain all necessary agency approvals; assist during the tendering period; provide contract administration and site inspection services during construction; prepare as-built drawings; and provide post-construction services during the warranty period. A breakdown of the successful consultant’s upset fee is included in Appendix B attached to this report.

4. **Schedule**

Subject to Council’s approval of the consultant assignment, the proposed implementation schedule is as follows:

<table>
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<tr>
<th>Task</th>
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<tbody>
<tr>
<td>Project Initiation</td>
<td>June 2014</td>
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<tr>
<td>Pre-design testing/condition assessments</td>
<td>Summer 2014</td>
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<tr>
<td>Review of Preliminary Alternatives and Economic Analysis</td>
<td>Summer - Fall 2014</td>
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<tr>
<td>Draft Preliminary Reports</td>
<td>Fall 2014</td>
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<tr>
<td>Final Preliminary Design Reports</td>
<td>February 2015</td>
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<tr>
<td>Selection of Preferred Rehabilitation Alternative</td>
<td>March 2015</td>
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<tr>
<td>Completion of Detail Design and Tender Documents</td>
<td>October 2015</td>
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<tr>
<td>Obtain all Permits and Approvals</td>
<td>Fall 2015</td>
</tr>
<tr>
<td>Tendering (#0502, #1703 &amp; #1704) - Nafziger Road and Hawkesville Road Bridges</td>
<td>January 2016</td>
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5. Consultant’s Upset Fee

The short-listed consultants provided an upset fee for professional services for public notifications and heritage consultations, and engineering design, and also an estimate of contract administration and construction inspection fees. On road and bridge projects, the time required for contract administration and construction inspection can vary significantly depending on weather conditions, unforeseen developments during construction, contractor performance, and other unknown variables. Because an upset fee does not lend itself well to these types of services, it has been the Region’s practice on road and bridge projects to pay for contract administration and construction inspection services on a time basis. It is recommended that this same practice be followed for this project. For budgetary purposes, staff has estimated the cost of contract administration and construction inspection services to be $400,000 which is based on the preliminary estimate of fees submitted by D.M. Wills Associates Limited and a review of costs on similar projects.

The upset limit for D.M. Wills Associates Limited to undertake the preliminary and detailed design phases of this project is $406,220 (plus applicable taxes) for consultant fees and disbursements. Based on an estimated total project cost of $4 million, the consultant’s upset fee limit for structural condition assessments, preliminary and detailed design phases of $406,220 plus applicable taxes represents approximately 10.2% of the estimated total cost for this project, which is considered in the normal fee range for an assignment of this type.

Corporate Strategic Plan:

This project meets the Region’s (2011-2014) Corporate Strategic Plan objective 2.2 to “Develop, optimize and maintain infrastructure to meet current and projected needs” under Focus Area 2 “Growth Management and Prosperity”.

Financial Implications

Based on the $406,220 upset fee limit of D.M Wills Associates limited the net cost of this consulting assignment is $413,370.30 as per the following breakdown:

- D.M. Wills Associates limited $406,220.00
- H.S.T (13%) $52,808.60
- Sub-Total $459,028.60

May 27, 2014
Report: E-14-064

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May 27, 2014

Report: E-14-064

Less: Municipal Rebate of 86.46% of HST $45,658.32

Total $413,370.30

The 2014 Transportation Capital Program includes $1,245,000 in the years 2015-2017 for all five bridges to be funded from the Road Rehabilitation Reserve Fund. The current total budget for these five bridges was established using very preliminary information on the rehabilitation needs for these bridges. Since the time that this preliminary budget was developed, further investigation of the needs has been done and has identified that additional rehabilitation likely will be required resulting in a total estimated project cost in the order of $4 million. This updated project cost estimate will be refined and confirmed as part of the process to develop the 2015 Ten Year Transportation Capital Program. Trussler Road is a boundary road with the County of Oxford and therefore Oxford is responsible for 50% of the costs for the rehabilitation of these two bridges. Since the preliminary design for this project is now scheduled to start in 2014, additional funds to commence engineering work in 2014 will be advanced to 2014 as part of the Mid-Year Review of the 2014 Transportation Capital Budget.

Other Department Consultations/Concurrence:

Nil

Attachments

Appendix A: Project Key Plans

Appendix B: Breakdown of Consultant's Upset Fee

Prepared By: Ken Brisbois, Project Manager, Design and Construction

Approved By: Thomas Schmidt, Commissioner, Transportation and Environmental Services
Appendix A-2

Key Plan

HAWKESVILLE ROAD BRIDGES
AT CONESTOGO RIVER
TOWNSHIP OF WOOLWICH
Appendix B

Preliminary and Detailed Design 5 Bridge Rehabilitations in Townships of Wilmot, Woolwich and North Dumfries

Breakdown of Consultants Upset Fee

<table>
<thead>
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<th>Description</th>
<th>Amount</th>
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<tr>
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<td>$406,220.00</td>
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<tr>
<td>HST</td>
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</tr>
<tr>
<td>Total Upset Fee</td>
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City of Waterloo
and
Regional Municipality of Waterloo
Combined Public Consultation Centre For:

Uptown Waterloo King Street North Streetscape Improvement Project
from ION Tracks to Central Street
and
King Street North Reconstruction
From Central Street to University Avenue

Municipal Class Environmental Assessments
Information Package
Thursday, May 29, 2014
Drop-In Anytime: 5:00 p.m. – 8:00 p.m.
City of Waterloo City Hall, Atrium
100 Regina Street S., Waterloo

Please fill out the Comment Sheet at the end of this Information Package and place it in the box at this Consultation Centre or send it to the address on the Comment Sheet.
1. **Background**

In 2010 the City of Waterloo started a Schedule ‘B’ Municipal Class Environmental Assessment (EA) of planned streetscape improvements in Uptown Waterloo along King Street North from Erb Street to Central Street. In early 2011 the project was put on hold to await final information on the approved route of the Region’s Rapid Transit line through Uptown Waterloo, and the results of a study of underground utility conditions and overall servicing needs in the Uptown. Information on these important subjects has been finalized, and the Streetscape Improvement Project recommenced with the intent to complete the EA process in early 2014.

The Streetscape Improvement Project aims to make improvements to King Street North in the Uptown core from Central Street to just south of Erb Street at the Rapid Transit (ION) Tracks. This project has several objectives:

- To make King Street North more accessible for all modes of transportation, including pedestrians and cyclists;
- To create a streetscape environment that offers a safe, lively, accessible and attractive place to work, live, shop, learn and play; and
- To enhance streetscape elements and improve the quality of business and economic life in Uptown Waterloo.

The City’s project was recommenced in early 2013, and now includes the Region of Waterloo’s concept for changes to King Street North from Central Street to University Avenue. The complete study area is shown in Appendix A.

King Street North through both projects is a Regional Road, so the Region is the road authority and owns the road allowance. The two projects are being planned and presented together to ensure there is consistency and continuity along the entire King Street corridor from the ION Tracks to University Avenue.

2. **Who is directing the Project?**

A Project Team consisting of staff from the City of Waterloo and Region of Waterloo is directing this project along with City Councillor Melissa Durrell and consultants from the Waterloo office of IBI Group. The City’s Streetscape Improvement Project has also received assistance from a seven-member Task Force of representatives from the Uptown Waterloo Business Improvement Association and the community.

3. **Preferred Design Alternatives – November 2013**

The Public Consultation Centre (PCC) on November 13, 2013 was the third held as part of the City’s Uptown Waterloo King Street North Streetscape Improvement Project, and the first for the Region’s King Street North Reconstruction project. The purpose of that combined PCC was for the public to:
1. Review why changes are being planned for King Street North in Waterloo;

2. Consider streetscape improvements and design changes preferred by the Project Team;

3. Ask questions of staff from the City, Region and their consultants from IBI Group;

4. Provide any comments about the changes being planned; and

5. Learn more about next steps in the planning and design process.

At the previous PCC’s, it was indicated that traffic volumes now and in the future on King Street do not require the four traffic lanes that currently exist. In addition, the current lanes are very narrow and result in some of the highest collision rates in the Region. It has been recommended therefore that as part of this project, the current four lanes will be reduced to two through lanes with turn lanes at selected locations where required. This reduction in the number of through lanes allowed the Project Team to recommend improvements to other elements of the road cross-section, namely widening the sidewalks, including bike lanes and enhancing the streetscaping. All information presented at the previous PCCs for this project can be viewed at the following websites:

Uptown Streetscape Improvement: www.waterloo.ca/uptownstreetscape


At the November 13, 2013 Public Consultation Centre, the City and the Region presented preferred cross-sections and drawings for King Street from the Rapid Transit ION Tracks to University Avenue as shown in Appendix B, with the following cross-section features:

- Rapid Transit ION Tracks to Bridgeport Road:
  - One 3.25m travel lane in each direction (to match the planned lane widths south of the Rapid Transit ION Tracks) with 1.0m wide painted centre median
  - 1.25m bike lane in each direction
  - 3.0m left turn lanes at Erb Street and Bridgeport Road
  - On-street parking on both sides
  - Widened sidewalks and streetscape enhancements

- Bridgeport Road to Central Street:
- One 3.25m travel lane in each direction with a continuous 3.0m centre left turn lane
- 1.25m bike lane in each direction
- On-street parking on both sides
- Widened sidewalks and streetscape enhancements

- Central Street to University Avenue:
  - One 3.25m travel lane in each direction with a continuous 3.0m centre left turn lane or raised pedestrian refuge/landscaped islands at strategic pedestrian crossing locations
  - 1.25m bike lane in each direction
  - Widened sidewalks and streetscape enhancements

4. How did the public respond to the preferred King Street North cross-sections shown at the Public Consultation Centre on November 13, 2013?

Many comments received at and following the PCC support the wider sidewalks, the reduction in the number of vehicle lanes, the enhanced Uptown pedestrian environment and the opportunity to slow traffic speeds on King Street North. There were also comments supporting the retention of all the existing on-street parking, and that adding more spaces where possible should be considered.

Many other comments received include concerns about two important elements of the preferred plan, namely:

- Accessibility challenges along the street for people with disabilities (i.e. lack of space for wheelchair ramping to eliminate steps at business entrances); and
- The lack of any separation between the traffic lanes and the proposed bike lanes to improve comfort for cyclists and to encourage more use by average cyclists.

5. What is the new information being presented at this Public Consultation Centre on May 29, 2014?

As a result of the public response to date about the preferred design concepts shown at the PCC on November 13, 2013, the Project Team has decided to hold a fourth PCC specifically to present new project information relating to this response. The Project Team has prepared for public review and comment a new King Street North alternative between the ION Tracks and University Avenue. It addresses the concerns about better accommodating people with disabilities, and physically
separating cyclists from the flow of motorized auto traffic. This new alternative is shown in cross-section views in Appendix C and now includes:

- **Rapid Transit ION Tracks to Erb Street:**
  - One 4.0m travel lane in each direction **
  - On-street parking on both sides
  - Wider sidewalks and streetscape enhancements
  - No bike lanes since there are no dedicated bike lanes planned south of the ION tracks
  ** Wider travel lanes are required to allow space for emergency service vehicles to bypass stopped vehicles

- **Erb Street to Central Street:**
  - One 3.8m travel lane in each direction **
  - 3.0m left turn lane at Erb Street, Bridgeport Road, Spring Street and Central Street
  - 1.8m segregated bike lane each direction, separated from traffic by a “rollover” curb (west side) and by a “rollover” curb and parking (east side)
  - On-street parking on the east side only, with west side parking removed to accommodate segregated bike lanes
  - Wider sidewalks that will allow for ramps or sidewalk sloping to provide space for barrier-free wheelchair entrances to be constructed by businesses
  - Opportunity for added parking on side streets and off-street parking spaces
  - Options to convert 1-2 parking spaces each block into a dedicated loading/unloading zone (to be confirmed during the detailed design stage in consultation with the Uptown Waterloo Business Improvement Association)
  ** Wider travel lanes are required to allow space for emergency service vehicles to bypass stopped vehicles

- **Central St. to University Avenue:**
  - One 3.25m travel lane in each direction
3.0m left turn lanes at side streets

- where turn lanes not required, raised landscaped islands or raised pedestrian refuge islands at strategic crossing locations
- 1.8m segregated bike lane in each direction separated from traffic by a rollover curb
- Sidewalks and landscaped boulevards

6. Why is the Project Team considering changes to the bike lanes?

The Project Team believes that based on the City’s initiative to achieve “Complete Streets”, and the strategic location of Uptown Waterloo with its business attractions and proximity to the surrounding community and University area, space for cyclists needs to be provided on King Street between Erb Street and University Avenue. For the Uptown section between Erb Street and Central Street, the preferred plan presented at the PCC on November 13, 2013 provided an on-road 1.25m bike lane for cyclists located between parked cars and vehicular traffic.

Numerous public responses were submitted at the PCC, and as of March 31, 2014 approximately 975 names have been received on an on-line petition requesting changes to the proposed design alternative. This feedback indicates a lack of support for the proposed on-road bike lanes in this type of environment and asked that the Project Team consider other alternatives to separate cyclists from traffic. The main concern noted was that narrow bike lanes are not safe or comfortable for cyclists on a busy street in such close proximity to the adjacent traffic.

Many responders commented that if bike lanes on King Street are not safe and comfortable for users, they simply will not be used. In response, the Project Team has explored various other bike lane options to encourage maximum usage by all types of cyclists. The new alternative puts cyclists in wider bike lanes along each side of King Street that are separated from moving traffic by parked cars and/or curbs. The separation of cyclists and motorized vehicles will enhance cyclist comfort, thereby making the King Street corridor more attractive for cyclists.

7. How does the new alternative for King Street compare to the preferred alternative presented at the November 13, 2013 Public Consultation Centre?

The new alternative with wider travel lanes, segregated bike lanes, wider sidewalks and on-street parking removed from the west side was compared to the previously preferred alternative using evaluation criteria representing transportation, streetscape, natural environment, economic environment and physical infrastructure. The evaluation results are summarized in Appendix D, and show that overall, the previously preferred alternative has advantages over the new alternative in terms of transportation and economic considerations, especially with the retention of all on-street parking.
8. **What are the economic benefits of improved cycling facilities and sidewalks in Uptown Waterloo?**

Two important requirements for successful Uptown business are accessibility and provision of a safe, comfortable environment. Providing bike lanes and ample sidewalk space serves users of the Uptown that chose these travel modes. Also, once outside of a parked automobile, most movement in the Uptown is on foot. If infrastructure is provided that serves all users of the Uptown, making it more accessible for all, this in turn supports Uptown business. If the quality of the walking and cycling spaces makes the user feel comfortable, this again attracts more users, thereby supporting businesses along the street.

Cycling facilities can improve local economies by increasing the number of street users who might stop and shop, improve the pedestrian environment to encourage non-cyclists to shop in the area, and by changing the demographics and spending habits of some consumers. For example, a recent study by the ‘Toronto Cycling Think and Do Tank’ on the economic impacts of cyclists, bike lanes and on-street parking concluded that bicycle infrastructure can bring very positive impacts to business communities in urban shopping strips. Today, North American urban cyclists are a desirable demographic for local businesses, and cycling infrastructure is important to them. Therefore cycling infrastructure is also important for businesses who want to attract them. The report concluded that in walkable urban cores, bicycle infrastructure is likely to provide a bigger boost to local businesses than on-street parking, especially where off-street parking exists nearby.

9. **What are the potential changes to on-street parking south of Central Street?**

Between Erb Street and Central Street, there are currently 48 on-street parking spaces. The new alternative being presented at the May 29, 2014 PCC would remove all of the 22 spaces existing on the west side in this section of King Street. The elimination of the parking on the west side is necessary to provide sufficient width to accommodate the wider sidewalks and the wider segregated bike lanes separated from traffic. Opportunities will be investigated to add more parking on side streets, and to increase the supply of off-street parking spaces in the Uptown area.

10. **When will final decisions be made for these projects?**

The Project Team will review the public comments received from this evening’s Public Consultation Centre and use them as input for recommending a final design concept. This final recommendation will be presented to the Region of Waterloo and City of Waterloo Councils in the fall of 2014 for approval. In advance of these meetings, letters will be sent to all adjacent businesses, property owners and tenants (as well as members of the public who registered at this Public Consultation
Centre or project website) so that anyone wishing to speak to Committee or Council about these projects can do so before final approval.

Once approved, the notice of study completion of both projects will be advertised in the Waterloo Chronicle / Waterloo Region Record and mailed to all contacts on the project mailing list or to those who signed the PCC information sheet. The project file will then be placed on the public record for viewing over a 30 day period. This process will complete the Class Environmental Assessment of both projects.

11. When is construction anticipated to occur?

**Uptown Waterloo King Street North Streetscape Improvement Project from the Rapid Transit (ION) Tracks to Central Street:**

Following confirmation of all required funding and completion of detailed design and construction tendering, construction of the section from the Rapid Transit (ION) Tracks to Central Street is tentatively scheduled to start in 2015 depending on the staging of the work and construction budget approved by Waterloo Region and City Councils. Overall, this project is anticipated to take approximately 6-8 months to be completed in its entirety and will be phased over two construction stages; the first stage of construction is tentatively planned between the Rapid Transit (ION) Tracks and Bridgeport Road; and, the second stage between Bridgeport Road and Central Street.

**King Street North Reconstruction Project from Central Street to University Avenue:**

Once construction is complete on the Uptown Streetscape Improvement project, detailed design and construction preparation will begin on the Region’s King Street North Reconstruction Project from Central Street to University Avenue. It is anticipated that detailed design will be completed on the Region’s project in 2016/17 with construction tentatively scheduled for 2019. This project is anticipated to take approximately 6-8 months to be completed in its entirety and will be phased over two construction stages; the first stage of construction is tentatively planned between Central Street and Marshall Street; and, the second stage between Marshall Street and University Avenue.

12. How can I voice my comments at this time?

In order to assist us in addressing any comments or concerns you might have about this project, we ask that you please fill out the attached Comment Sheet and leave it in the box provided at the registration table. Alternatively, you can mail, fax or e-mail your comments to the City of Waterloo and/or Region of Waterloo no later than **Thursday, June 12, 2014.** We thank you for your involvement and should you have any questions please contact:
Uptown Waterloo Streetscape Improvement: Barb Magee Turner, O.A.L.A., C.S.L.A
Landscape Architect
Engineering & Construction, Integrated Planning & Public Works Department, City of Waterloo
100 Regina Street S, P.O. Box 337, Stn Waterloo
Waterloo, ON N2J 4A8
Phone: 519-747-8757
Fax: 519-747-8523
E-mail: barb.mageeturner@waterloo.ca

King Street North Reconstruction: Eric Saunderson, PMP CET EIT
Project Manager
Design & Construction, Transportation and Environmental Services Department, Region of Waterloo
150 Frederick Street, 6th Floor
Kitchener, ON N2G 4J3
Phone: 519-575-4746
Fax: 519-575-4430
Email: esaunderson@regionofwaterloo.ca

Additional information on previous consultation materials prepared for the Uptown Waterloo King Street Streetscape Improvement Project is included on the project website at www.waterloo.ca/uptownstreetscape.
Appendix A: Study Areas

[Map showing study areas with labels for Streetscape Improvement Project and Reconstruction Study Area]
Appendix B: Previously Preferred Design Alternatives

(Public Consultation Centre on November 13, 2013)

Rapid Transit (ION) Tracks to Bridgeport Road

Bridgeport Road to Central Street
Appendix B: Previously Preferred Design Alternatives – continued

(Public Consultation Centre on November 13, 2013)

Central Street to University Avenue - with centre left turn lane

Central Street to University Avenue - with pedestrian refuge / landscape island
Appendix C: New Alternative Design Concept
(Public Consultation Centre on May 29, 2014)

Rapid Transit (ION) tracks to Erb Street

Erb Street to Central Street
Appendix C: New Alternative Design Concept - continued

Central Street to University Avenue – Pedestrian Island or Two Way Left Turn Lane
## Appendix D: Evaluation of Final Alternatives

<table>
<thead>
<tr>
<th>Environment/Transportation</th>
<th>Criteria</th>
<th>Indicator</th>
<th>PREVIOUSLY PREFERRED November 2013 2/3-Lane Adjusted with Parking / Cycling Lanes</th>
<th>NEW ALTERNATIVE April 2014 2-Lane with Segregated Bike Lanes and Parking 1 Side</th>
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<tbody>
<tr>
<td>1. Social: Transportation</td>
<td>1.1 Traffic Safety</td>
<td>Ability to mitigate specific types of collisions (Q)</td>
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<td></td>
<td>1.2 Traffic Diversion Potential</td>
<td>Amount of traffic diverted off King St. (M)</td>
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<td>1.3 Transit Accessibility</td>
<td>Operational quality of transit service on King St. (Q)</td>
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<td>1.4 Pedestrian Movement</td>
<td>Available sidewalk width (M)</td>
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<td>1.5 Pedestrian Safety</td>
<td>Number of traffic lanes to cross (M)</td>
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<td>1.6 Pedestrian Environment Quality</td>
<td>Ability to remove walking obstacles and add improved walking features (i.e. shade, seating) (Q)</td>
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<td>1.7 Cycling Safety</td>
<td>Ability to reduce conflicts between motorists, cyclists and pedestrians (Q)</td>
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<td>1.8 Cycling Comfort Level</td>
<td>Ability to attract new cyclists by improving cycling comfort</td>
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<td>1.9 Accessibility for Physically/Visually Challenged</td>
<td>Ability to enhance sidewalk and building access for mobility challenged (Q)</td>
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<td>1.10 King St. Geometric Compatibility</td>
<td>Compatibility with potential future King St. geometry north and south of Uptown (Q)</td>
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<td>SUMMARY SOCIAL: TRANSPORTATION RANK</td>
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<td>2. Social: Streetscape</td>
<td>2.1 Street Activity</td>
<td>2.1.1 Ability to enhance/add sidewalk activity i.e. patios, seating, street furniture (Q)</td>
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<td>2.1.2 Ability to program special events (parades, street festivals) (Q)</td>
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<td>2.2 Policy Conformance</td>
<td>2.2.1 Conforms to Regional Active Transportation Plan re: cycling routes (Q)</td>
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## Appendix D: Evaluation of Final Alternatives - continued

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<thead>
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<th>Environment</th>
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<td>November 2013</td>
<td>April 2014</td>
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<td>M - Measurable</td>
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<td>2/3-Lane Adjusted</td>
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<td>with Parking / Cycling Lanes</td>
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<td>Segregated Bike Lanes</td>
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<td>2.2.2 Conforms to Context-Sensitive Design Guidelines re: bikeway dimensions(Q)</td>
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<td>2.2.3 Conforms to City Urban Design Guidelines re: streetscape (Q)</td>
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<td>2.2.4 Conforms to Region illumination policy re: street lighting(Q)</td>
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<td>2.2.5 Conforms to GRT guidelines re: transit shelter/stop design (Q)</td>
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<td><strong>SUMMARY SOCIAL: STREETSCAPE RANK</strong></td>
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<td>3. Natural</td>
<td>3.1 Street Vegetation</td>
<td>Ability to improve/add vegetation along King St. (Q)</td>
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<td><strong>SUMMARY: NATURAL RANK</strong></td>
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<td>4. Economic</td>
<td>4.1 Uptown Business Vitality</td>
<td>Ability to maintain existing business, attract new business and support Uptown economic vitality (Q)</td>
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<td>4.2 New Development</td>
<td>Ability to provide transportation capacity for new Uptown development (Q)</td>
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<td>4.3 Loading /Unloading Space</td>
<td>Ability to provide convenient loading/ unloading space while maintaining traffic function (Q)</td>
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<td>4.4 On-Street Parking *</td>
<td>Ability to maintain existing on-street parking (M)</td>
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<td>4.5 Capital Cost Investment</td>
<td>Relative capital construction cost (Q) excluding rehabilitation, illumination, utilities.</td>
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<tr>
<td>5. Physical Infrastructure</td>
<td>5.1 Overall Infrastructure Improvement</td>
<td>Opportunity to improve road surface, sidewalks, illumination, etc. (Q)</td>
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<tr>
<td>Environment</td>
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<tr>
<td>5.2 Street Maintenance</td>
<td>Ability to improve King Street maintenance (i.e. snow removal, landscape, etc.) (Q)</td>
<td>![Circle]</td>
<td>![Semi-Circle]</td>
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<tr>
<td>5.3 Impact on King Street Operations</td>
<td>Change in traffic volume, level-of-services, transit movement, collision (M)</td>
<td>![Circle]</td>
<td>![Circle]</td>
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<tr>
<td>5.4 Transit Stop Quality</td>
<td>Ability to improve quality of transit stop environment and visibility (i.e. shelters, benches, info) (Q)</td>
<td>![Semi-Circle]</td>
<td>![Circle]</td>
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<tr>
<td>5.5 Cycling</td>
<td>Ability to accommodate cycling on King St. (Q)</td>
<td>![Circle]</td>
<td>![Circle]</td>
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</table>

**SUMMARY: INFRASTRUCTURE RANK**

|  | 1 | 1 |

**OVERALL RANK**

|  | 1 | 2 |

*New criteria added since November 2013*
COMMENT SHEET
City of Waterloo and Regional Municipality of Waterloo
PUBLIC CONSULTATION CENTRE – May 29, 2014

UPTOWN WATERLOO KING STREET NORTH STREETSCAPE IMPROVEMENT PROJECT
and
KING STREET NORTH RECONSTRUCTION

The personal information you provide in this Comment Sheet is gathered under the authority outlined in the Municipal Freedom of Information and Protection of Privacy Act (28-2) and will be used to assist the Project Team in making decisions on this project. All names, addresses and comments will be included in this material will be made available to the general public.

Please complete and hand in this sheet so that your views can be considered for this project. If you cannot complete your comments today, please take this sheet home and mail, fax or e-mail your comments by Thursday, June 12, 2014 to:

Uptown Waterloo Streetscape Improvement:
Barb Magee Turner, O.A.L.A., C.S.L.A
Landscape Architect, Engineering & Construction, Integrated Planning & Public Works Department, City of Waterloo
100 Regina Street S, P.O. Box 337, Stn Waterloo Waterloo, ON N2J 4A8
Phone: 519-747-8757
Fax: 519-747-8523
E-mail: barb.mageeturner@waterloo.ca

King Street North Reconstruction:
Eric Saunderson, PMP CET EIT
Project Manager, Design & Construction, Transportation and Environmental Services Department, Regional Municipality of Waterloo
150 Frederick Street, 6th Floor
Kitchener, ON N2G 4J3
Phone: 519-575-4746
Fax: 519-575-4430
Email: esaunderson@regionofwaterloo.ca

QUESTION 1: What do you LIKE about the new alternative design concept for King Street North?

From the Rapid Transit (ION) Tracks to Central Street?

_______________________________________________________________________________________
_______________________________________________________________________________________
_______________________________________________________________________________________

From Central Street to University Avenue?

_______________________________________________________________________________________
_______________________________________________________________________________________
_______________________________________________________________________________________

Turn Page Over
QUESTION 2: What do you NOT LIKE about the new alternative design concept for King Street North?

From the Rapid Transit (ION) Tracks to Central Street?
_______________________________________________________________________________________
_______________________________________________________________________________________
_______________________________________________________________________________________

From Central Street to University Avenue?
_______________________________________________________________________________________
_______________________________________________________________________________________
_______________________________________________________________________________________

Other comments or concerns regarding the projects:
_______________________________________________________________________________________
_______________________________________________________________________________________
_______________________________________________________________________________________

QUESTION 3: Which design concept do you prefer?

☐ New alternative design concept with segregated bike lanes.

☐ Previously preferred design alternative with on-road bike lanes.

DEMOGRAPHIC INFORMATION (Optional)
For purposes of data analysis, please provide your age, gender and interest. This is entirely optional:

☐ Male   ☐ Female

☐ under 19 ☐ 19-34 ☐ 35-44 ☐ 45-54 ☐ 55-64 ☐ 65-74 ☐ 75+

Your use of Uptown:

☐ I work Uptown ☐ I live in Uptown ☐ I have a business Uptown

☐ I live or work outside Uptown ☐ Other ________________________________

Name: ______________________________________________________________________________
Address: __________________________________________________ Postal Code:________________
Email:_______________________________________________________________________________

Thank you for your time and input into this project
Region of Waterloo
Corporate Resources
Legal Services

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

Date: May 27, 2014  File Code: L07-90

Subject: Authorization to Expropriate Lands (2nd Report) in the City of Cambridge designated as part of Phase 5 of Stage 1 of the Rapid Transit Project relating to Lands that are necessary for Adapted Bus Rapid Transit

Recommendation:

That The Regional Municipality of Waterloo approve the expropriation of lands for the construction of part of Phase 5 of Stage 1 of the Rapid Transit Project comprised of property and interests located at various locations along the adapted Bus Rapid Transit alignment at the City of Cambridge, in the Regional Municipality of Waterloo as detailed in Report CR-RS-14-001 dated February 11, 2014 and more specifically listed below:

Fee Simple Partial Taking:

aBRT

1. Part Lot 29, Plan 610, being Part 1, 58R18066, Part of PIN 03795-0012, City of Cambridge (Part of 181 Hespeler Road, Cambridge, ON N1R 3H6);

2. Part Lot 29, Plan 610, being Part 2, 58R18066, Part of PIN 03795-0013, City of Cambridge (Part of 179 Hespeler Road, Cambridge, ON N1R 3H6).

And that staff be instructed to register a Plan of Expropriation with respect to the said properties, or such lesser portions of any of the said properties as may be determined through the preliminary design process, within three months of the granting of approval to expropriate said properties, in accordance with the Expropriations Act (Ontario) (the “Act”);
And that the registered owners be served with a Notice of Expropriation and a Notice of Possession with respect to the said properties after the registration of the Plan of Expropriation;

And that if no agreement as to compensation is made with an owner, the statutory Offer of Compensation and payment be served upon the registered owners of applicable properties in the amount of the market value of the interests in such lands as estimated by the Region’s appraiser in accordance with the Act;

And further that the Regional Solicitor be authorized to discontinue expropriation proceedings with respect to any above-referenced lands in the event that the Region is able to otherwise obtain registered title to such lands or if Regional staff determine that the expropriation is not advisable.

Summary:

NIL

Report:

A. Project Authorizations

On June 15, 2011 Regional Council approved LRT as the preferred rapid transit technology from Conestoga Mall in the City of Waterloo through the City of Kitchener to the Ainslie Street Terminal in the City of Cambridge (the “Rapid Transit Project”). Stage 1 of the Rapid Transit Project will include LRT service from Conestoga Mall in the City of Waterloo to Fairview Park Mall in the City of Kitchener, as well as, aBRT service from Fairview Park Mall in the City of Kitchener to the Ainslie Street Terminal in the City of Cambridge.

B. Project Details

The Region initiated a Transit Project Assessment (“TPA”) with respect to Stage 1 of the Rapid Transit Project (“Stage 1”) in November of 2011. Notice to Proceed with respect to Stage 1 was issued by The Ministry of the Environment in May of 2012.

The procurement of services for the construction of aBRT has now been commenced. It is expected that most or all of the work required for the implementation of aBRT will be completed this year.

The land acquisition/expropriation process for the Rapid Transit Project has been divided into several separate and distinct phases. At this time, all lands that form part of Phases 1 and 2 and 3 of the land acquisition/expropriation process for the Rapid Transit Project have either been acquired or expropriated with the exception of lands owned by the City of Kitchener and the City of Waterloo which are the subject of ongoing negotiation.
The Region has also commenced the expropriation process in connection with Phases 4 and 5 of the land acquisition/expropriation process for the Rapid Transit Project. Regional Real Estate Services staff are currently engaged in negotiations with all land owners that are affected by Phases 4 and 5. It is to be noted that the expropriation of Phase 4 and 5 lands required for aBRT is being fast tracked in order to meet aBRT construction timelines.

C. Phase 5 Properties

The land requirements identified in this Report have been designated as part of Phase 5 (“Phase 5”) of the land acquisition/expropriation process for the Rapid Transit Project. For clarity, the property list that is contained in the Recommendation to this Report only includes Phase 5 properties that are required for aBRT. The expropriation of Phase 5 aBRT properties has been separated from the expropriation of Phase 5 LRT properties in order to accommodate earlier aBRT construction timelines.

The expropriation of Phase 5 properties required for LRT as defined in Report CR-RS-14-001 will be the subject of a separate staff Report at a later date, in accordance with required possession dates for those properties.

The commencement of the expropriation process for the properties that are the subject of this Report was approved by Regional Council on February 11, 2014 pursuant to Report CR-RS-14-001. The appropriate forms were served to initiate formal proceedings under the Act for these properties. All of the affected property owners were previously contacted by Legal Services staff and informed of the project, as well as, the Region’s intention to commence the expropriation process and the Region’s Expropriation Information Sheet was provided to each of them. The Region did not receive any Notices for a Hearing of Necessity for properties that are the subject matter of this Report and, therefore, no Hearings of Necessity were held.

Legal Services staff contacted all property owners that are affected by this Report and informed them of the Region’s intention to continue with the expropriation process including this Report CR-RS-14-034 in order to ensure that the construction timeline is maintained. Legal Services staff will continue to correspond with all property owners affected by aBRT in order to reach a negotiated settlement with as many as possible.

The next step in the expropriation process for the above-listed properties is for Council to approve the expropriation of those property interests. This approval will ultimately be endorsed upon a certificate of approval on the Plan of Expropriation (the “Plan”) for those properties not acquired under agreement. The Plan must then be registered within three months of Regional Council’s approval. Ownership of affected properties vests with the Region upon the registration of the Plan. Notices of Expropriation are then served upon all registered owners, including tenants as shown on the assessment roll.
Once ownership by the Region is secured through the registration of the Plan, it is possible to service Notices of Possession upon affected parties. The date for possession can be no sooner than three months following the date of service of the Notices of Possession. The Notices of Expropriation and Notices of Possession may be served at the same time. In order to meet the construction time line, possession of all the lands that are the subject of this Report will be secured by fall of 2014. Accordingly, Legal Services staff will be proceeding expeditiously to register the Plans and serve the Notices of Expropriation and Notices of Possession following approval by Regional Council.

After registration of the Plans and prior to the taking of possession of affected properties, the expropriating authority is required to serve the registered owners with an offer in full compensation for their expropriated interests in land. The offer must be accompanied by the immediate payment of one hundred percent (100%) of the appraised market value of the land to the registered owners as estimated by the Region’s appraiser. The registered owners are also to be served with a report appraising the market value of the property which forms the basis for the offer of compensation.

It is to be noted that the expropriation of land is on an “as is” basis and upon the registration of the Plan, the Region assumes responsibility for the lands, subject to minor caveats.

The subject lands are shown on the maps attached as Appendix "A" hereto.

**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:**

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 RT project and improvements to conventional transit are financed through an annual tax rate increases.

Land acquisition is being carried out by the Region outside of the DBFOM. This has been accommodated within the overall Rapid Transit Project budget.

**Other Department Consultantions/Concurrence:**

Rapid Transit staff and Finance staff have been consulted in the preparation of this Report.
Attachments

Appendix “A” – Maps

**Prepared by:** Liviu Cananau, Solicitor, Property (Rapid Transit)

**Approved by:** Gary Sosnoski, Commissioner, Corporate Resources
Appendix “A”

179 Hespeler Road, Cambridge, ON
181 Hespeler Road, Cambridge, ON
Region of Waterloo
Corporate Resources
Legal Services
Transportation & Environmental Services
Rapid Transit

To: Chair Jim Wideman and Members of the Planning and Works Committee
Date: May 27, 2014     File Code: L04-20
Subject: Waterloo Spur – Proposed Renewal of Freight Rights Agreement with Canadian National Railway

Recommendation:

That the Regional Municipality of Waterloo enter into a new Freight Rights Agreement with Canadian National Railway for continued use of the Waterloo Spur railway as described in Report CR-RS-14-029/E-14-074 dated May 27th, 2014; and

And that the Regional Municipality extend the current agreement with the Southern Ontario Locomotive Restoration Society ("SOLRS"), a non-profit corporation, for use of the Waterloo Spur railway as described in Report CR-RS-14-029/E-14-074 dated May 27th, 2014.

Summary:

Stage 1 of the light rail project requires the use of approximately 4.8 kilometers of rail corridor owned by the Region of Waterloo, namely “the Waterloo Spur”, from Uptown Waterloo to Northfield Drive. In accordance with a contract with the Region of Waterloo permitting use of the railway line, Canadian National Railway currently operates heavy freight service on this railway line primarily for two (2) companies located in Woolwich Township. The contract between the Region of Waterloo and CN expires in December of 2016. The existing contract is proposed to be replaced with a new contract for the primary purposes of:

(a) reconciling the need for uninterrupted access to the rail corridor during the LRT
construction starting in 2014 and continued freight operations; and

(b) establishing a timetable and process to permit both LRT and heavy freight to operate within the railway corridor once the LRT becomes operational.

This report is intended to provide an outline of the proposed legal agreement that has been reached with CN to accommodate the above-noted objectives.

Report:

Background - The Region acquired the Waterloo Spur railway line in 2001 from CN at a cost of $1.2 million. At the time of purchase, CN stipulated a number of terms and conditions, most notably that the Region enter into an exclusive “running rights agreement” with CN (“the CN Agreement”) which granted rights to operate freight service on the Waterloo Spur to CN. The CN Agreement expires in December of 2016.

GEXR, under subcontract to CN, currently operates approximately four to five weekly freight movements on this railway line primarily for two industrial customers located in Elmira. Two other commercial customers, based in St. Jacobs and Elmira, also utilize the railway line but on a less frequent basis. In recent months, a fifth company has approached the Region for permission to construct a rail siding in Elmira to begin servicing its existing commercial operations there as well. With the addition of the fifth shipper on the rail line, CN will ship approximately 900 railway cars annually on the Waterloo Spur, with approximately 4-5 train movements (a movement is back and forth) per week.

The Region requires approximately 4.8 km of this railway line for the LRT system from Uptown Waterloo to approximately Northfield Drive. On this section of railway corridor (“the Joint Use Section”) it is proposed that heavy freight movements will operate, primarily in the late night/early morning hours, outside of LRT operating hours. Currently, the timing of heavy freight movements on the Waterloo Spur fluctuate with the majority of movements occurring in the evening hours.

Since the fall of 2012, Regional staff has been working with all stakeholders including CN, GEXR and the companies that use and intend to utilize the Waterloo Spur to coordinate the need for both LRT construction and operations on the Waterloo Spur.

Staff explored various options of accommodating LRT and freight service on the Waterloo Spur and the parties have tentatively agreed upon the terms of an agreement which will achieve the objectives of all parties.

Proposed Agreement with CN for Continuation of Freight Rights - The proposed means of both accommodating LRT construction on the railway line and separating freight and LRT movements can be incorporated into a legal agreement with CN. This legal agreement will replace the existing agreement that expires in 2016. The following key conditions would form the basis of the new agreement with CN subject to Regional Council approval:
• During LRT construction commencing in 2014, freight movements will be restricted to Monday – Thursday between 11:00 pm and 7:00 am thereby allowing the LRT Contractor uninterrupted periods to work within the railway corridor;

• Once LRT is operational in 2017, freight movements will be restricted to Monday – Friday between 11:00 pm and 5:00 am the next day. Between 11:00 and 1:00 am, only one northbound movement will be permitted allowing LRT service to continue during this two hour period utilizing one of the two tracks that will be constructed in the Joint Use Section;

• Under the current agreement, CN pays an annual fee of $125,000. Under the new agreement, the annual fee will be reduced to $75,000 taking into consideration the reduced operating window that will be available to CN and its customers;

• The initial term of the agreement will be July 1, 2014 – December 31, 2021 with two subsequent renewals of five years, each subject to mutual consent with such consent not to be unreasonably withheld. The proposed agreement will provide “it will not be unreasonable for the Region to withhold consent if the Region demonstrates renewal would cause disruption to the operation or expansion of the LRT service”;

• The agreement will contain a joint use operating protocol that will require the LRT Contractor and CN to meet periodically to co-ordinate any operational or safety matters for joint operation on the Waterloo Spur;

• Upon renewal in 2021, the parties must also agree upon the applicable fee subject to a cap of $125,000 per year;

• In the event that the agreement is not renewed in 2021, and CN demonstrates that it has expended sums to repair one of the bridges north of the Joint Use Section in St. Jacobs during the initial term, then the Region would reimburse CN for such expense subject to a total of $50,000; and

• CN will maintain and be responsible for all track outside of the Joint Use Section. The Region will maintain all track within the Joint Use Section.

Freight Operations on the Railway Corridor – As noted above, GEXR, under subcontract to CN, transports between four and five trains per week between the rail sidings in downtown Kitchener and the industries located at the end of the Waterloo Spur in Elmira. Each train typically has between five and ten cars although this can vary depending on demand.

Under the CN Agreement, CN (and its subcontractors) indemnify the Region of Waterloo for any direct damages caused by CN’s operations. CN’s obligation to indemnify the Region also includes any third party claims which might result from its
operations (for example, a claim from an adjacent property owner whose property may be damaged). CN holds a “Certificate of Fitness” for operations on the Waterloo Spur. Under federal law, operators having a certificate of fitness for operations on a particular railway line must carry sufficient insurance to cover the costs of any accidents resulting from their operations.

As an operator on the railway line, CN is required to periodically inspect the railway line to ensure that it is maintained in a condition suitable for railway operations based on certain speed and tonnage specifications for the track. The track within the first two miles (from the station on Victoria Street to Waterloo) is rated for operations at 10 miles per hour while the remainder of the track (from Uptown Waterloo to Elmira) is rated for a speed of 15 miles per hour.

**Southern Ontario Locomotive Society (“SOLRS”)** – SOLRS has operated a tourist train service on the Waterloo Spur since 2007. The existing agreement between the Region and SOLRS expires on June 30, 2014. Once LRT construction on the Waterloo Spur commences, use of the railway line by SOLRS will be subject to the same restrictions as proposed for the freight operations and accordingly daytime access to the railway line will not be permitted. It is not anticipated that construction on the Waterloo Spur will impede the proposed daytime operations of SOLRS for the month of July, 2014. Therefore, it is recommended that the existing agreement with SOLRS be extended beyond June 30, 2014 to allow SOLRS to operate on the railway line for July 2014 and thereafter, to permit SOLRS to operate on the railway line for the remainder of 2014 on a month to month basis subject to short cancellation should the lands be required by the LRT contractor. SOLRS has planned to re-locate its operations to the north, from Northfield Drive to Elmira commencing in 2015. SOLRS continues to work on its plan to relocate its operations to Northfield Drive and once these plans are finalized, staff will provide a further report to Council in early 2015 recommending a new agreement with SOLRS to operate on the railway line north of Northfield Drive starting with the 2015 season.

**Next Steps** – Subject to Regional Council’s direction, Regional staff will conclude an agreement with CN incorporating the above-noted provisions which will serve to extend the use of the Waterloo Spur by CN to 2021 with options for renewal beyond that date. Staff will also extend the existing agreement with SOLRS to permit use of the Waterloo Spur for the month of July, 2014 and, thereafter on a month to month basis for the remainder of their proposed operating schedule for 2014.

**Corporate Strategic Plan:**

This 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:**

The revised agreement with CN will result in a reduction in the base fee that is currently paid by CN for use of the Waterloo Spur by an amount of $50,000 per year. This reduction will be accounted for by way of an adjustment to the 2015 budget and may partially be offset by additional revenue through the license of a portion of the railway
corridor to an additional shipper in Elmira as noted earlier in this Report.

**Other Department Consultations/Concurrence:**
Staff from the Finance department have been consulted regarding this report.

**Attachments:**
N/A

**Prepared By:** Jeff Schelling, Solicitor, Corporate
Phil Bauer, Acting Director, Transportation
Darshpreet Bhatti, Director, Rapid Transit

**Approved By:** Debra Arnold, Regional Solicitor, Director Legal Services
Thomas Schmidt, Commissioner, Transportation and Environmental Services
Region of Waterloo
Finance Department
Financial Services and Development Financing

To: Chair Jim Wideman and Members of the Planning and Works Committee
Date: May 27, 2014
File Code: T16-01
Subject: Stage 1 Light Rail Transit Project: Commercial and Financial Close with GrandLinq GP

Recommendation:
For Information

Summary: Nil

Report:
This report provides an update on financial matters with respect to the Light Rail Transit project through contract signing and final pricing of financing (Commercial Close and Financial Close).

Background
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.

In March 2014, the Region approved entering into a contract with GrandLinq GP for the construction of Stage 1 of the Light Rail Project, together with financing, operations, maintenance and lifecycle rehabilitation for a term of up to 30 years.

**Commercial Close – May 6, 2014**

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

GrandLinq provided a Letter of Credit to the Region in the amount of $20 million three business days after notification from the Region that it was the Preferred Proponent. Such notification occurred on March 20, 2014. This Letter of Credit secured 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.

Approximately two weeks before Commercial Close, GrandLinq and CIBC World Markets began the marketing of GrandLinq’s long term debt, in the approximate amount of $103 million. This financing was priced on the date of Commercial Close, which occurred on May 6. At that point, the PA was executed, with the exception of final pricing information thereby achieving Commercial Close.

The final short and long term interest rates were then set based on the prescribed rate set protocol. As described in previous reports, 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 was 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 was used to create a benchmark that tracked 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 were finalized and the PA populated with the final pricing information, and at that point the financial model was finalized and attached to the PA. Additional information regarding the impact of the final rate setting exercise is found in the Financial Implications section of the report (see Tables 1, 2, and 3).

Financial Close – May 9, 2014

Financial Close occurred on May 9, 2014 (three business days following Commercial Close) when all Lending Agreements were in place and funding was 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).

Independent Certifier Contract

Report E-14-046/F-14-045 authorized the CAO to approve the award and finalization of a contract with a firm to provide independent certifier services. This contract was jointly awarded with GrandLinq. The contract was signed on May 6, 2014 with Altus Group in the amount of $359,887.50 plus applicable taxes. The Region and GrandLinq had maintained a budget of $450,000 each or $900,000 in total for independent certifier services. The final amount has been included in the adjusted construction contract for GrandLinq.

Next Steps

With the finalization of the PA, the Region, in coordination with GrandLinq, will release a redacted version of this document with commercially confidential and personal information removed.

Phase 1 of the project commenced immediately following Financial Close, and is anticipated to be approximately 100 days in length. During this period GrandLinq will mobilize its resources and enhance its designs to at least a preliminary engineering level, complete most of Standard and Directive Drawings and perform most of the data gathering needed for the commencement of Phase 2, which is the final design, construction, testing and commissioning phase.

Corporate Strategic Plan:

This report supports Focus Area 3 Sustainable Transportation of the Region’s Corporate Strategic Plan to 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 1 ($ in millions)

Project Agreement Capital Costs

<table>
<thead>
<tr>
<th>Project Agreement Component</th>
<th>Capital cost as of contract award (March 4)</th>
<th>Capital Cost at contract signing</th>
<th>Payment details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design and construction (includes the LRT and Public Infrastructure Works)</td>
<td>$583.3 m + net HST</td>
<td>$580.7 m + net HST</td>
<td>The first $130.7 million is funded by GrandLinq (i.e. not paid by the Region during construction). The remaining $450.0 million is paid monthly based on the value of work completed during the course of construction.</td>
</tr>
<tr>
<td></td>
<td>$593.7 m</td>
<td>$591.3 m</td>
<td></td>
</tr>
<tr>
<td>Less Public Infrastructure Works</td>
<td>$61.6 m</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.</td>
</tr>
<tr>
<td>LRT Component</td>
<td>$532.1 m</td>
<td>$529.7 m</td>
<td>This represents the net design and construction cost of the LRT project.</td>
</tr>
</tbody>
</table>

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 Project Agreement with GrandLinq and 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 (previously $)</th>
<th>Total cost (30 years) (previously $)</th>
<th>Payment details</th>
<th>Subject to inflation (yes/no)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finance (note 1)</td>
<td>$10.6 (previously $11.0)</td>
<td>$318.9 (previously $330.4)</td>
<td>Paid monthly for 30 years (mid 2017-mid 2047). This includes the $130.7m 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 (note 1)</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)</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>$29.6 (previously $30.0)</strong></td>
<td><strong>$890.0 (previously $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 was 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 was set on the date of Commercial Close (May 6, 2014) and Financial Close occurred on May 9, 2014. These costs are now fixed for the 30 year term and not subject to inflation or refinancing risk.
2. The Operations, Maintenance, Lifecycle and Insurance costs shown above reflect the base service level only, and are unchanged from the amounts presented to Committee on March 4, 2014.

Table 3
Financing Rates

<table>
<thead>
<tr>
<th>Provider/Underwriter</th>
<th>Short term construction financing</th>
<th>Long term debenture financing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alberta Treasury Branches</td>
<td>$40.6 m</td>
<td>CIBC World Markets</td>
</tr>
</tbody>
</table>

| Amount | $40.6 m | $103 m |
| Cost of financing per bid submission (December 16, 2013) | 2.622% | 5.218% |
| Cost of financing at closing (May 9, 2014) | 2.292% | 4.771% |

The PA has come into effect 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 expires in mid 2047. The Region is now committed 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 (in $2014) was established in June 2011. This was prior to the Region’s decision to procure the project in the form of a DBFOM contract. A comparison of the approved and revised capital budgets (both expenditure and sources of financing) is provided in the following table.
### Table 4 ($ in millions)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></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>$545.0</td>
<td>$532.1</td>
<td>$529.7</td>
</tr>
<tr>
<td>Intersecting projects, utilities, and betterments</td>
<td>$61.0</td>
<td>$61.6</td>
<td>$61.0</td>
</tr>
<tr>
<td>Total DBFOM construction (incl. net HST)</td>
<td>$606.0</td>
<td>($61.0)</td>
<td>($61.6)</td>
</tr>
<tr>
<td>Recoveries (area municipalities and Roads and Water capital budgets)</td>
<td>$606.0</td>
<td>($61.0)</td>
<td>($61.6)</td>
</tr>
<tr>
<td>Net DBFOM Total</td>
<td>$545.0</td>
<td>$532.1</td>
<td>$529.7</td>
</tr>
<tr>
<td>Non-DBFOM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vehicles</td>
<td>$96.0</td>
<td>$95.5</td>
<td>$95.5</td>
</tr>
<tr>
<td>Land</td>
<td>$45.0</td>
<td>$42.3</td>
<td>$42.3</td>
</tr>
<tr>
<td>Project Office &amp; Consulting</td>
<td>$58.0</td>
<td>$51.8</td>
<td>$51.8</td>
</tr>
<tr>
<td>MTO Underpass construction</td>
<td>$11.0</td>
<td>$11.2</td>
<td>$11.2</td>
</tr>
<tr>
<td>Hydro One – Transmission line relocation</td>
<td></td>
<td>$26.3</td>
<td>$26.3</td>
</tr>
<tr>
<td>Early Works and Other Infrastructure</td>
<td>$39.0</td>
<td>$29.3</td>
<td>$29.3</td>
</tr>
<tr>
<td>Non-DBFOM Total</td>
<td>$249.0</td>
<td>$256.4</td>
<td>$256.4</td>
</tr>
<tr>
<td>LRT Total</td>
<td>$794.0</td>
<td>$788.5</td>
<td>$786.1</td>
</tr>
<tr>
<td>aBRT Vehicles and Construction</td>
<td>$24.0</td>
<td>$19.5</td>
<td>$19.5</td>
</tr>
<tr>
<td>Contingency allowance</td>
<td>$10.0</td>
<td>$12.4</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>$818.0</td>
<td>$818.0</td>
<td>$818.0</td>
</tr>
</tbody>
</table>

The Rapid Transit project remains on-time, on-budget and the costs remain affordable based on the Region’s funding strategy.

### 4. Provincial and Federal Funding

The Province of Ontario has committed $300,000,000 for this project. The Transfer Payment Agreement with the Province of Ontario was signed on March 19, 2014.

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 is in the process of negotiating the Contribution Agreement (CA), which is expected to be completed and signed within the next 12 weeks.

### Other Department Consultations/Concurrence:

This report was prepared with input from Corporate Resources (Legal Services) and Rapid Transit.
Attachments: Nil

Prepared By: Calvin Barrett, Director, Financial Services and Development Financing

Approved By: Craig Dyer, Chief Financial Officer

Debra Arnold, Regional Solicitor
Region of Waterloo
Transportation & Environmental Services
Water Services Division

To: Chair Jim Wideman and Members of the Planning & Works Committee
Date: May 27, 2014  File Code: C06-60(A); E13-20(A)/08302
Subject: Supplemental Studies for C2012-29 – East Side Lands Pump Station and Forcemain Environmental Assessment

Recommendation:

That the Regional Municipality of Waterloo approve an increase in scope for contract C2012-29 previously awarded to Associated Engineering Ltd., at a total cost of $149,000 plus applicable taxes, as per Report E-14-065, dated May 27, 2014.

Summary:

The East Side Lands Master Environmental Servicing Plan (MESP) was approved by Regional Council on April 9, 2014 (Report P-13-043) and will advance the development of approximately 300 net hectares (741 net acres) of land for employment uses. The MESP identified construction of a new pumping station and forcemain to convey wastewater to the Kitchener Wastewater Treatment Plant (WWTP) as the preferred servicing solution for the entire East Side Lands (consistent with the Region’s Wastewater Treatment Master Plan, 2007).

In 2013 the Region initiated a Municipal Class Environmental Assessment (EA) process to facilitate the implementation of this infrastructure (Contract C2012-19; Planning & Works Report E-13-021).

The EA process has identified more potential pump station locations and potential forcemain routes than originally anticipated. Also, review of available natural environment data and consultation with regulatory authorities in the course of the EA project has determined the need for a more extensive environmental field investigation.
than originally envisioned. The consulting team will need to expend additional effort to address these project changes.

The additional budget required to complete the increased scope is $149,000. The project team has reviewed the additional scope and original contract and considers the additional amount reasonable and fair. The current approved budget for C2012-29 is $456,690. Upon council approval, the contract budget will be increased to $605,690.

Report:

Background

The "East Side Lands" refers to an area of land located in the eastern portion of Waterloo Region (Region) surrounding the Waterloo Regional Airport. These lands have been identified as an area to accommodate future Greenfield growth in the Region. New infrastructure will be required to service the needs of the near-term development and also be able to accommodate ultimate anticipated growth for the area.

The East Side Lands Master Environmental Servicing Plan (MESP) was approved by Regional Council on April 9, 2014 (Report P-13-043) and will advance the development of approximately 300 net hectares (741 net acres) of land for employment uses. The MESP identified construction of a new pumping station and forcemain to convey wastewater to the Kitchener Wastewater Treatment Plant (WWTP) as the preferred servicing solution for the entire East Side Lands (consistent with the Region’s Wastewater Treatment Master Plan, 2007).

Regional Council awarded consulting contract C2012-29 to Associated Engineering Ltd. for completion of a Class Environmental Assessment (EA) and preliminary design for the proposed East Side Lands Wastewater Pumping Station and Forcemain (refer to Planning & Works Committee Report E-13-021). These facilities will convey wastewater from the new development in the East Side Lands to the Kitchener WWTP, as recommended in the Region’s Wastewater Treatment Master Plan (2007).

Additional Study Needs

At the time of consulting contract award, it was not known how many potential pumping station locations and forcemain routes would be chosen for detailed evaluation and comparison. To allow for competitive consultant procurement on equal grounds, the Region’s Terms of Reference specified an assumption of five candidate pump station locations and two potential forcemain routes. However, based on the findings of the consultant team during the alternative development task of the EA project, a total of eight potential pumping station sites and five forcemain routes were approved by the project team for further evaluation. The consulting team and Regional staff agreed that reducing the list of options further without more detailed evaluation of the alternatives would risk eliminating good solutions from consideration. The increased number of
alternatives increases the work required for the consultant team and consequently project costs.

A key component of the consulting assignment is the assessment of habitat and inventory of important plant and animal species (potentially including federally-protected “Species at Risk”) in natural areas that may be impacted by the project. The extent of environmental field work and assessment that would be required for completion of the ESR was unknown at the time of consulting contract award, and the Region specified a set allowance amount in the Terms of Reference for this component of the work to allow for competitive consultant procurement on equal grounds. Through project development and consultation with federal, provincial, and other regulatory authorities, the required scope for the habitat and species investigation has now been developed. The extent of field work and evaluation needed exceeds the budget and schedule allowances in the contract terms, in part because of the greater number of alternative forcemain routes included in the evaluation.

The consultant and Region staff have reviewed the additional scope in detail. The additional study work required beyond the scope of the existing contract includes the following additional costs:

- Additional engineering for developing and analyzing alternatives $55,000.00
- Additional environmental field Investigation and analysis $94,000.00

**Total** $149,000.00

An increase to the C2012-29 contract upset budget limit of $149,000 plus applicable taxes is required to complete the project. The existing approved budget is $456,690, thus the recommended revised budget upset limit is $605,690 plus applicable taxes.

In accordance with the Region’s Purchasing By-Law, the Chief Purchasing Officer can acquire any goods or services through negotiations where the extension of the existing contract is more cost-effective or beneficial for the Region [By-Law No. 04-093, clause 21 (1) (g)].

It is recommended that the consulting assignment previously awarded to Associated Engineering be extended to include the additional services outlined above.

**Updated Schedule**

The environmental field work will continue through to October 2014, which is substantially later than the schedule originally anticipated. The project team will not have sufficient information to complete the comparative evaluation of the alternative solutions until the environmental work is complete. As a result, it is necessary to revise the anticipated milestone schedule as follows:
• Completion of EA including publication of ESR:
  o Original schedule June 2014
  o Revised schedule February 2015

• Completion of preliminary design:
  o Original schedule March 2015
  o Revised schedule August 2015

Upon completion of preliminary design, the Region will proceed to procurement of
detailed design and construction services to implement the project.

**Corporate Strategic Plan:**

The East Side Lands Pumping Station and Forcemain Class EA and Preliminary Design
support the Corporate Strategic Focus Area 2: “Growth Management and Prosperity,”
Strategic Objective 2.2: “Develop, Optimize and Maintain Infrastructure to Meet Current
and Projected Needs.”

**Financial Implications:**

The value of the Council-awarded contract C2012-29 was $456,690. A total of
$144,743 of this contract was expended in 2013, leaving a remaining contract value of
$311,947 as of the beginning of 2014. With the required additional study funding of
$149,000, a revised total of $460,947 would be allocated between January 2014 and
contract completion in 2015.

The 2014 Ten Year Wastewater Capital program includes a total combined budget of
$15,599,000 for the implementation of the East Side Lands Pumping Station and
Forcemain, including $599,000 allocated over the years 2014 – 2015. This budget is
sufficient to fund the additional work and the remaining work from the original C2012-29
contract.

All figures in this section are exclusive of applicable taxes.

**Other Department Consultations/Concurrence:** Nil

**Attachments:** Nil

**Prepared By:** Dave Arsenault, Senior Project Engineer, Water Services

**Approved By:** Thomas Schmidt, Commissioner, Transportation and Environmental Services
Region of Waterloo

Transportation & Environmental Services

Water Services Division

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

Date: May 27, 2014    File Code: C06-60(A); E02-40(A)/4007

Subject: Water Supply Master Plan Notice of Completion

Recommendation:

That the Regional Municipality of Waterloo approve the strategy recommended in the Water Supply Master Plan (WSMP) Update summarized in Report E-14-067 dated May 27, 2014;

And that the Regional Municipality of Waterloo publish the Notice of Completion for the WSMP and provide the WSMP Update Report for public review and comment for a 30 day period in accordance with Municipal Engineers Association’s Master Planning Process.

Summary:

The Region periodically updates its long-term water supply strategy and capital program to reflect changes in water demand, regulations, growth patterns, and other transient factors. An update to the existing Water Supply Master Plan (WSMP) was initiated to address a declining trend in water demands experienced in recent years, and to address new constraints on groundwater usage arising from the provincial 2006 Clean Water Act and the outcome of recent studies triggered by this new legislation.

Generally, new water supply projects and upgrades previously planned are still needed, but with an adjustment in timing. Most critically, the WSMP update has found that a new water supply from outside of the Region (the proposed Great Lake displacement pipeline), can be delayed beyond 2051 (instead of by 2035), and the Region can be adequately supplied by local sources of water in the interim, through implementation of improvement, expansion and reconfiguration projects on existing sources and distribution infrastructure.

The Region should continue water conservation efforts to minimize water consumption and delay the need for costly displacement pipeline as long as possible.
The proposed changes to the long-term water supply strategy have resulted in reductions for the Region of approximately $65 million in the 2014 Ten Year Capital Program and any costs related to the Great Lakes pipeline.

The updated Master Plan addresses the needs for water supply arising from future development, and supports extending the life of the existing systems and operating them in the most efficient manner, reducing the operational costs and the potential impacts on the environment.

The Water Supply Master Plan Update report has been prepared, and it is recommended that the Notice of Completion of the WSMP be published, and that the report be posted for public review and comment for a 30-day period, beginning on June 15, 2014, as required by the Municipal Engineers Association Master Planning Process.

Comments received during the above public review period will be filed, addressed and incorporated into the report.

Report:

Background

The Region’s Integrated Urban Supply (IUS) is a large and complex drinking water supply network that supplies potable water to the cities of Kitchener, Cambridge and Waterloo, and parts of the Townships of Woolwich (St. Jacob’s, Elmira and Breslau), Wilmot (Mannheim, Shingletown and St. Agatha), and North Dumfries (Lloyd Brown). The long-term water supply strategy for these communities is documented in the Region’s Water Supply Master Plan (WSMP).

The previous version of the WSMP was completed and approved by Regional council in 2007 (Report E-07-065 dated June 12, 2007). This study was completed to address the impacts of planning, regulatory and technical changes since the Region’s long-term water supply strategy was approved by Council in May 2000. Based on the population and employment growth at the time, the 2007 WSMP showed that the planned infrastructure and implementation schedule of the 2000 WSMP was still appropriate.

The Region periodically updates the WSMP and capital works program to reflect changes in water demand, regulations, growth patterns, and other transient factors. The current update to the Water Supply Master Plan (WSMP) is primarily needed to address the following important new information:

1. A declining trend in water demands experienced throughout the Region in recent years;
2. Latest population and employment growth forecasts;
3. New constraints on groundwater usage arising from the provincial Clean Water Act (CWA) and new detailed groundwater studies triggered by the CWA;
The Region awarded the consulting contract for updating the WSMP project to Stantec Consulting Ltd. in 2011 (Report E-11-055 dated May 3, 2011). The project was originally scheduled to be completed in 2013. However, the need to integrate the supply strategy with the outcome of the CWA-related studies (currently nearing completion) necessitated the delay of the WSMP update completion to 2014.

The 2007 WSMP forecasted fairly modest reductions in per capita water usage, and an overall increasing trend in total water demands. This study forecasted an average daily water demand of approximately 220 ML/day and maximum week daily demand of 275 ML/day by the year 2031. This forecast would require the expansion of the Region’s water supply system over the next two decades and the construction of a Great Lake displacement pipeline by the year 2035. However, over the past five years, residential per capita water usage has decreased more than expected, and total water demands in the Region have shown a declining trend, as also observed in many other municipalities across North America. The current average day demand forecast is now approximately 160 ML/day with a maximum week daily demand of approximately 195 ML/day. This substantially changes the assumptions upon which previous master planning decisions had been made, such as the quantity of new water supply needed, the schedule for developing those new supplies, and the rate of capital fund expenditures needed to implement the required infrastructure. The graph in Appendix A shows the updated water demand forecast in comparison to the previous 2007 forecast.

The population and employment projections used in the Master Plan update were developed by Planning, Housing, and Community Services, using Ontario’s Places To Grow figures for the 2031, and an extrapolation to 2051 using similar growth rates.

The CWA regulatory changes and required studies have brought awareness of previously unknown constraints on some of the Region’s existing and proposed water supply systems. The “Tier 3 Water Budget and Water Quantity Risk Assessment” (Tier 3 Study), required as part of the CWA, has indicated that the amount of water that can be sustainably extracted from the Region’s wells could be different from values previously included in the Region’s water-taking permits. The Region will still be able to use higher volumes of water during months of elevated water demand in the Summer or for supplying emergencies. However, the long term sustainable average supply of existing sources will likely be lower than these permitted values, requiring additional sources located at other locations to maximize the Region’s water supply capacity and to minimize the stress on the existing sources. Overall, the total volume of long term water use during periods of elevated water consumption (Summer) and months of lower water consumption (Fall, Winter and Spring) will need to be within the long term sustainable average water capacity. Recent water-taking permits have included restrictions to average day and peak day water-taking that were not part of previous supply system permits. Consequently, the assumptions that formed the basis of the 2007 WSMP strategy are no longer accurate, and a revised strategy was needed. Appendix B shows the average daily water demand until 2051 and the available long term sustainable supply capacity. Appendix C shows the maximum week water demand until 2051 and the maximum available supply capacity. These appendices also show the incremental capacity added by individual projects recommended in the WSMP.
In 2013, the Region completed the Water Supply and Distribution Operations Master Plan (WSDOMP) (Report E-13-044 dated April 30, 2013). The focus of this study was primarily on the optimization and efficiency of the IUS water distribution system, whereas, the focus of the WSMP is primarily on the management and development of the sources of water. Recommendations of 2013 WSDOMP were considered and incorporated in the WSMP update.

**WSMP Summary**

A preliminary summary of the WSMP update was presented to Regional Council late in 2013 (Report E-13-123 dated December 3, 2013), prior to the public consultation detailed in the next section. The public and area municipalities generally supported the key recommendations of the WSMP update, summarized below:

- Delay the construction of a Great Lake displacement pipeline beyond 2051;
- Extend the life of the existing sources and operate/maintain them more efficiently. The combined capacity of the IUS well fields, the Grand River intake and the work recommended to address the Tier 3 Study constraints will be sufficient to meet water demands beyond 2051;
- Implement water supply operating strategies to meet the Clean Water Act requirements as identified in the WSMP;
- Construct infrastructure identified in the WSDOMP to optimize the IUS water distribution system;
- Continue with the Water Efficiency Program to reduce average and peak water demands;
- Continue with the Groundwater Monitoring Program;
- Continue to monitor and evaluate the trends in the Region’s water demands;
- Continue to update the MP approximately every five years, considering the latest information and new regulatory changes.

Declining water demands have shifted the Region’s 20 to 30-year needs away from a Great Lake pipeline in favour of investments to improve and extend the life of the existing supply systems. Generally, new water supply projects and upgrades previously planned are still needed, but not as soon as previously planned. The attached table in Appendix D compares the changes in strategy, timeline and budget from the 2014 WSMP Update to the 2007 WSMP.

The proposed changes to the long-term water supply strategy resulted in capital savings of approximately $65 million over the next ten years, a change already reflected in the 2014 Ten Year Water Capital Program and costs associated with the Great Lakes pipeline.

The Water Supply Master Plan Update report has been prepared, and it is recommended that the Notice of Completion of the WSMP be published, and that the report be posted for public review and comment for a 30-day period, beginning approximately June 15, 2014, as required by the Municipal Engineers Association Master Planning Process.
Comments received during the above public review period will be filed, addressed and incorporated into the report.

**Public and Other Stakeholder Consultation**

The project team consulted with the public, area municipalities, and regulatory agencies in the development of the updated WSMP, to ensure that the WSMP considers the needs and expectations of all impacted stakeholders. A summary of the key consultations is provided below:

The Notice of Commencement for the Water Supply Master Plan was issued by mail, local newspaper advertising, and Region website posting in July, 2011.

- Stakeholder meetings were convened in December 2011 and September 2013, with participation from City of Kitchener, City of Cambridge, City of Waterloo, Township of Woolwich, the Ministry of the Environment, the Grand River Conservation Authority, and Region staff. Additional meetings with City of Waterloo and City of Cambridge were also held in September 2013 to consult with staff that were unable to attend previous consultation meetings.

- Public Consultation Centres (PCC) were advertised in local newspapers in November and December 2013, and held as follows:
  - December 10, 2013 in Waterloo
  - December 11, 2013 in Kitchener
  - December 12, 2013 in Cambridge

  Attendance at the PCC’s was low. The comments received were in favour of the Master Plan recommendations, and supported more use of local sources instead of a Great Lake pipeline and continuation of the Region’s water efficiency and conservation programs.

- Pending Council approval of the WSMP update, the Notice of Completion will be mailed to the stakeholders and others on the project mailing list, and advertised in local newspapers and on the Region website in June 2014. As required by the Municipal Engineers Association Master Planning Process the project title will be available for public and stakeholder review and comment for a 30 day period.

Based on the consultation completed to date, the project team is satisfied that the WSMP update meets the needs of the stakeholders.

**Corporate Strategic Plan:**

The strategy recommended in the WSMP update will support the Region’s Strategic Plan Focus Area 1: “Protect and Enhance the Environment”, Strategic Objective 1.2: “Reduce greenhouse gas emissions and work to improve air quality”, and Strategic Plan Focus Area 2: “Growth Management and Prosperity”, Strategic Objective 2.2: “Develop, optimize and maintain infrastructure to meet current and projected needs.”

**Financial Implications:**

As a result of the Region’s long-term water supply strategy recommended in the 2014
WSMP Update, a total reduction of $65 million was reflected in the 2014 Ten Year Water Capital Program compared to the 2013 Capital Program.

Most of the projects deferred or removed from the 2013 Capital Program were growth-related projects, which had most of their funding covered by development charges. Impacts on development charges are being evaluated on the ongoing study for supporting the Development Charge By-law to be updated in July 2014.

New projects recommended in the WSMP and WSDOMP have lower development charge recovery rate and will be funded at a higher percentage by the user rate. The latter increases offset the user-funded portion of the capital budget decreases, and there is no net impact to the user rate.

Other Department Consultations/Concurrence:

Nil

Attachments

Appendix A - Comparison of Previous and Updated Water Demand Forecasts

Appendix B – Average Daily Water Demand vs. Long Term Sustainable Supply Capacity

Appendix C – Maximum Week Water Demand vs. Maximum Available Supply Capacity

Appendix D - Changes between 2007 WSMP and the 2014 WSMP Update

Prepared By: Dave Arsenault, Senior Project Engineer, Water Services

Approved By: Thomas Schmidt, Commissioner, Transportation and Environmental Services
Appendix A – Comparison of Previous and Updated Water Demand Forecasts
Appendix B – Average Daily Water Demand vs. Long Term Sustainable Supply Capacity

- **193 MLD**
- **215 MLD (w/ CAM 2E Restoration)**
- **222 MLD (w/ Waterloo North WTP)**
- **225 MLD (w/ G4 Increase)**
- **246 MLD (w/ Maple Grove & Grand River Wells)**

**Historical**

**Forecast**


- Red line: Average Day Demand
- Blue line: Average Available Rate
Appendix C – Maximum Week Water Demand vs. Maximum Available Supply Capacity
## Appendix D – Comparison of Key Recommendations from the 2007 WSMP and the 2014 WSMP Update

<table>
<thead>
<tr>
<th>2007 WSMP</th>
<th>2014 WSMP Update</th>
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<tbody>
<tr>
<td>Construction of Phase 2 of the ASR facility to meet seasonal peak demands by 2011 ($12M capital)</td>
<td>Construction of Phase 2 of the ASR facility by 2026 ($12M capital)</td>
</tr>
</tbody>
</table>
| Construct up to 23ML/d of additional groundwater sources by 2018 ($47M capital) | • Construct new Waterloo North Supply System by 2022 ($10M capital)  
• Construct new Maple Grove Supply System by 2025 ($5.7M capital)  
• upgrade existing aging supply sources and facilities until 2040 ($76M capital)  
For a total of 31 ML/d additional supply by 2040 |
| Construction of a Great Lake displacement pipeline supply by 2035 ($700M capital) | Need for Great Lake Supply deferred beyond planning period (projected need 2051). Re-evaluate need for Great Lake Supply, and alternatives to it, in future MP updates |
| Continued support of the Water Efficiency Master Plan and other water efficiency measures | Continue with the Water Efficiency Programs |
| Continued maintenance and improvements to existing water supply facilities | Address constraints in the supply and distribution systems (e.g. strategically develop supplies closer to the communities where more water is needed; plan for continued intensification) |
| Continued update the MP every five years | Update the MP every five years |
Region of Waterloo
Transportation and Environmental Services
Water Services Division

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

Date: May 27, 2014  File Code: E07-08

Subject: Water Efficiency Master Plan 2015 – 2025 Final Report

Recommendation:

That the Region of Waterloo takes the following actions:

- Approve the Water Efficiency Master Plan 2015 – 2025 as detailed in Report E-14-061.1, dated May 27, 2014 with an estimated average annual budget of $1.3 million, funded from Development Charges and user rates subject to annual budget deliberations, and;
- Convert one temporary full-time equivalent (FTE) position to permanent FTE, funded from the capital program, subject to the approval of the 2015 budget.

Summary:

With the successful implementation of programs under the current Water Efficiency Master Plan, Water Services initiated an update to the plan for the period 2015 – 2025. Report E-14-061.1 and Attachment A – “Water Efficiency Master Plan 2015 – 2025,” outlines the proposed new program directions and targets for the water efficiency program. The key targets proposed for 2025 are to:

- reduce cumulative drinking water usage by 1,370 million litres (ML) per year,
- decrease detached and semi-detached residential water use from 202 to 165 litres per capita per day,
- avoid the release of a cumulative 7,700 tonnes of greenhouse gases, and
- defer a Great Lakes displacement pipeline indefinitely
The objective is to deliver the proposed water efficiency programs with approximately the same annual budget as current programs. Following approval of Water Efficiency Master Plan 2015 - 2025, staff will table reports with refined program implementation and costing information.

Report:

Waterloo Region has worked effectively with residents and businesses to promote drinking water conservation since 1974. This focus on water efficiency and conservation stems from the fact that water efficiency helps protect our environment and new infrastructure is more costly than reducing water demands.

Since 1998, programs have been delivered under Council-approved water efficiency master plans. These master plans established water saving goals, outlined key program offerings, and detailed budget requirements.

Programs delivered under the current Water Efficiency Master Plan (WEMP), 2007 – 2015, have been very successful to date. In 2013, programs achieved a cumulative water savings of 9,524 million litres per day (MLD) of water, at a total cost of $8 million. The water saved is enough to supply the needs of 13,500 average households, and exceeds the 2013 target by 2,457 MLD.

Programs are currently delivered under the following WEMP categories:

- Public education and marketing on water efficiency
- Outdoor water use reduction
- Efficient toilet replacements
- Commercial, Industrial and Institutional (CII) Efficiencies
- Municipal Infrastructure Leak Reduction
- Research and Development

Water Efficiency Vision

In January of 2013, Water Services began the process of updating the WEMP for the planning period 2015 – 2025 (E-12-105.1). The WEMP update was undertaken to support the broader Long Term Water Supply Strategy now being completed. The following vision statement was developed to guide the WEMP update.

“The Region of Waterloo Water Efficiency Program contributes to sustaining a clean and reliable drinking water supply for the future; a supply that draws primarily from our groundwater and river water sources.”

The Project

The consultant team of LURA, Econics and Metrolinx assisted staff and the Water Efficiency Advisory Committee (WEAC) with research, documentation and public input
on the draft Region of Waterloo Water Efficiency Master Plan 2015 – 2025. Figure 1 below details the timeline and work flow.

**Figure 1 – WEMP Update Work Flow and Timeline**

The WEMP report (Attachment A) is informed by the documents listed below that were made available to the public, stakeholders and WEAC in order to facilitate discussion and record feedback on potential new program directions.

- Technical Memo #1: Background Report (May 2013)
- Technical Memo #2: Commercial, Industrial and Institutional Status Report (May 2013)
- Technical Memo #3: Residential Survey Report (June 2013)
- Technical Memo #4: Best Practices Review (June 2013)
- Technical Memo #4 Appendix: Measures Descriptions; Communications Review
- Technical Memo #5: Program Quantitative Modelling (September 2013)
- Stakeholder Workshop Outcomes Report (July 2013)
- Focus Group Report (August 2013)
- Public and Stakeholder Consultation Feedback Report (March 2013)

The proposed Water Efficiency Master Plan 2015 – 2025 acknowledges that the existing program mix has been successful and many of these activities should continue.

With the objective of spending close to the same level as the current program, WEMP 2015 – 2025 recommends several program enhancements. The recommended continuing and enhanced program offerings are detailed in Table 1 below.
Table 1 – Proposed Water Efficiency Master Plan 2015 – 2025 Program Offerings

<table>
<thead>
<tr>
<th>Sector</th>
<th>Continuing Activities</th>
<th>New or Enhanced Activities</th>
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<tr>
<td>Commercial, Industrial and Institutional Sectors (CII)</td>
<td>Water Efficiency Technology (W.E.T.) Program</td>
<td>CII E-newsletter; Restaurant Certification Program; Cooling System Program</td>
</tr>
<tr>
<td>Partner Professions</td>
<td>Trades Training</td>
<td>New Home Building Incentives; Plumber Sustainability Training</td>
</tr>
<tr>
<td>Community-wide</td>
<td>Water Conservation By-Law; Municipal Infrastructure Leakage Management</td>
<td>Enhanced Interactive Website and Communications</td>
</tr>
<tr>
<td>Research and Development</td>
<td>Water Softener Research</td>
<td>Residential Hot Water recirculation System Research; Commercial Sub-Metering Education and Advocacy; Landscape Topsoil Depth Advocacy</td>
</tr>
</tbody>
</table>

Projected Benefits

Developing and delivering programs under the proposed Water Efficiency Master Plan 2015 – 2025 will fulfill requirements under Ministry of Environment legislation. There will be several other projected benefits, including:

- Savings of 1,370 million litres (ML) of drinking water per year by 2025
- Decreasing detached and semi-detached residential water use from 202 to 165 litres per capita per day
- Savings on water and wastewater operating costs
- Deferring a Great Lakes displacement pipeline from 2035 to beyond 2051
- Deferring growth related water capital projects
- Avoiding release of an estimated 7,700 tonnes of CO₂e into the atmosphere
- Promoting the intrinsic value of water as an important community resource

With Council approval, these benefits will be considered program targets and promoted to the public as such.
Public Input

Public consultation on the Draft WEMP 2015 - 2025 occurred from December 2013 to the end of February 2014, as approved by WEAC, Planning and Works and Council (E-13-133.1, December 3, 2013). Public feedback was collected through on-site interviews at four public consultation centres (“Places and Spaces conversations”), paper comment cards, and an online survey.

Public consultation centres were advertised and held at the following locations:

- The Museum, Surface Tension Exhibit, Kitchener
- Cambridge Centre Mall, Cambridge
- Conestoga Mall, Waterloo
- Fairview Mall, Kitchener

Comment cards were handed out at consultation centres and were made available through the Region web site. A seven-question survey regarding the draft WEMP was also sent directly to key stakeholders including groups and agencies with a direct interest in the WEMP or who would be directly affected by the WEMP. Stakeholders included environmental and other non-governmental organizations, municipal government representatives, businesses and community groups.

A total of 81 public and eight stakeholder responses were received during the public consultation period. Overall, the feedback received on the draft WEMP 2015 – 2025 was positive. There was wide support for the goals of the plan, especially in terms of delaying the Great Lakes pipeline. In many areas, feedback pointed to the need for more emphasis and support in measures such as general public education and rainwater harvesting. There was no strong opposition to any aspect of the plan.

Staffing Requirements

Four full-time and one contract staff currently deliver water efficiency programs to the residential and CII sectors. A Water Efficiency Technologist has been contracted as a temporary full-time employee since 2007 to coordinate the CII Water Efficient Technology (W.E.T.) program. The WEMP confirms the need to continue with five staff. It is recommended that the Technologist position be transitioned from temporary to full time. Funding for the Technologist would continue under the Capital Budget. This recommendation is subject to the annual budget review process.

Water Efficiency Advisory Committee Endorsement, May 13, 2014

The Water Efficiency Advisory Committee and WEMP Update Steering Committee have provided input on the project at strategic points from October 2012 to present. On May 13, 2014 WEAC voted in support of recommendations as contained in this report (E-14-061.1).
Next Steps

Following approval of the WEMP 2015 – 2025, staff will continue to bring reports forward to WEAC, Planning and Works and Council that further detail proposed new programs and budget details for 2015 and beyond. In some cases, new approaches will be proposed as pilot projects in order to measure public participation, water savings and operating costs before finalizing. Staff will also explore potential partnerships with local municipalities, other organizations and contractors that may support program delivery.

Corporate Strategic Plan:

Implementation of Water Efficiency programs relates to the Strategic Objective 1.4, to “Protect the quality and the quantity of our drinking water sources.” Action 1.4.3 states the Region of Waterloo should “Update and continue to implement the Water Efficiency Master Plan.”

Financial Implications:

Water Efficiency Program expenditures totalled $8 million from 2007 to 2013, with half coming from Capital Budget and half coming from Operating Budget. Average annual expenditures from 2009-2011 were $1.3 million per year. The proposed Water Efficiency Master Plan 2015 – 2025, as attached, was developed with an estimated budget allocation of $1.3 million per year, for a total of $14.3 million over 11 years. Annual budget requirements for the water efficiency program will be developed and approved by Council through the normal annual budget review process.

Water Efficiency Capital Budget is financed through development charges, and Operating Budget is financed through water user rates.

Other Department Consultations/Concurrence:

Nil

Attachments

Attachment A – Water Efficiency Master Plan 2015 – 2025

Prepared By: Steve Gombos, Manager, Water Efficiency

Approved By: Thomas Schmidt, Commissioner, Transportation and Environmental Services
Region of Waterloo

Water Efficiency Master Plan (2015-2025)

May 2014

Region of Waterloo
This report was prepared by Lura Consulting and Econics on behalf of the Region of Waterloo. If you have any questions or comments regarding the information included in this report, please contact:

Steve Gombos,
Manager, Water Efficiency, Region of Waterloo
519-575-4503
SGombos@regionofwaterloo.ca
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Water Efficiency Master Plan (2015-2025): An Overview

VISION: The Region of Waterloo Water Efficiency Program contributes to sustaining a clean and reliable drinking water supply for the future; a supply that draws primarily from our groundwater and river water sources.

GOALS
- To engage municipalities, residents, businesses, and institutions in actions and behaviours that promote water efficiency and conservation;
- To positively impact our communities, environment and economy through the benefits that result from water efficiency and conservation;
- To defer large capital infrastructure projects decades into the future, and focus on a sustainable water supply with groundwater and river sources;
- To effectively monitor and report on the measurable benefits of the water efficiency program; and
- To be recognized as innovative leaders in water efficiency.

OBJECTIVES
- To further reduce indoor and outdoor water demand in the residential sector.
- To reduce total system demand for water (i.e. metered residential and commercial, institutional and industrial sectors).
- To keep summer peak demands ratios at or below existing levels.
- To avoid increases to Water Efficiency Program budget and staff levels.

RECOMMENDED WATER EFFICIENCY PROGRAM: 2015-2025

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<td>Water Softener Research</td>
<td>Residential Hot Water Recirculation System Research</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Commercial Sub-Metering Education and Advocacy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Landscape Topsoil Depth Advocacy</td>
</tr>
</tbody>
</table>
RECOMMENDED ALLOCATION OF EFFORT AND BUDGET

The recommended programs were screened from a long list of industry best practices. The estimated implementation cost for the proposed WEMP is $800,000 per year in capital, which matches current budget allocations. The benefits of the proposed WEMP 2015 – 2025 are listed below.

It is recommended that the available capital budget be allocated roughly in proportion to sectoral demand (see below).

This amounts to the following allocation by program sector in the table below. Note that these allocations will be revised on an annual basis to match program priorities for that year.

<table>
<thead>
<tr>
<th>SECTOR</th>
<th>ALLOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>47%</td>
</tr>
<tr>
<td>CII</td>
<td>26%</td>
</tr>
<tr>
<td>Community Wide</td>
<td>19%</td>
</tr>
<tr>
<td>Partner Professions</td>
<td>8%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>100%</td>
</tr>
</tbody>
</table>

EXPECTED BENEFITS

- In the year 2025, the program will be saving 1370 million litres (ML) a year
- Over the ten years of the program, the cumulative total water savings will be 9023 ML
- Detached and semi-detached single family residential water consumption will decrease from 202 to 165 litres per capita per day by 2025
- Cumulative water and wastewater operating cost savings of $2.5 million by 2025
- Deferral of a Great Lakes displacement pipeline from 2035 to beyond 2051
- Estimated 7700 tonnes of CO₂e avoided from release into atmosphere

The continued water use reductions and deferred water supply infrastructure is also projected as part of the 2013 Water Supply Master Plan Update (Report E-13-123).
An Updated Water Efficiency Master Plan for the Region

The Region of Waterloo has been actively engaged in water efficiency programs since 1974. The Region is a recognized leader in water efficiency and conservation and has taken proactive measures to foster behaviour change in water use. Utilities across North America view many of the water efficiency activities in the Region as best practices in the field.

A key component of the Region’s overall strategic approach to water conservation planning is the Water Efficiency Master Plan (WEMP). The first WEMP was approved by Council in 1998, with the goal of reducing water consumption by 1.5 million gallons per day (MGD) by 2009. With the approval of the Region’s Long Term Water Strategy in 2000 (LTWS), designed to supply water to the Region until 2041, the 1998 WEMP was enhanced in 2001 to include a subsidized rain barrel distribution program, the Ayr Water Efficiency Program, a new Water Conservation By-Law, and increased public education.

The WEMP was updated again in 2006 for the period between 2007 and 2015 (WEMP 2007-2015). This most recent WEMP has already achieved significant water savings – 42% ahead of the target for 2011, and has exceeded the 2015 WEMP target of 8146 m³/day. These water savings have resulted in reduced costs, lower greenhouse gas emissions, and most importantly, have contributed to the deferral of large water infrastructure projects.

While the Region’s current water efficiency program has achieved success, there is a pressing need to continue to improve water efficiency across all sectors. The Region’s population is growing faster than projected, requiring plans to ensure water demands can be met. While large capital projects such as the Great Lakes Pipeline are an option, they represent a significant cost to taxpayers. The Water Supply and Distribution Master Plan proposes that large capital work projects for water supply can be deferred decades into the future – at cost savings of more than $100 million dollars – if water demand declines to below 160 litres per person per day by 2031, driven in part by water conservation measures. Currently, the Tri-City average single family residential daily per capita demand sits at 202 litres per person per day, indicating we have a ways to go to reach that target.

An updated water efficiency program will provide financial and ecological benefits to the Region. Modelling indicates that annual system production will be lower as a result of savings across community sectors, and detached and semi-detached single family residential consumption will fall to about 165 litres per capita per day by 2025. In addition, the program will save an estimated total of 7,705 tonnes of CO₂e, and help to reduce environmental impacts from water extraction and wastewater outflows. The community will also benefit through improved customer service and regulatory compliance, as well as reduced water risks during drought.

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Region of Waterloo Water Efficiency Master Plan 2015-2025
The new program will ensure the Region of Waterloo continues to be an innovative leader in water efficiency. The current water efficiency program is broad and comprehensive, and has already achieved deep market penetration in several areas because of its maturity – notably with toilet rebates and rainwater barrel sales. There is a need now to put forward creative and innovative programming to reach beyond the “low hanging fruit”.

How this Report is Organized

This Water Efficiency Master Plan for the period of 2015 to 2025 consists of four sections:

- **Section 1: Background** – provides the background and context for the Plan, including how the Plan was developed, where we are today, and key findings from the research;
- **Section 2: Water Efficiency Master Plan 2015-2025** – outlines the Plan itself, including:
  - a Vision for water efficiency in the Region of Waterloo;
  - Specific Goals and Targets for the time period; and
  - Recommended water efficiency program activities across all sectors to reach the Vision. These include both current activities that should be continued and proposed new activities.
- **Section 3: Program Benefits** – outlines the estimated water savings and financial, ecological and social benefits from the water efficiency program activities; and
- **Section 4: Implementation** – provides an approach for how the Plan will be implemented, including budget implications.

Scope of the Water Efficiency Master Plan

Activities included in the Water Efficiency Master Plan are specifically targeted at entities connected to a municipal water supply (e.g. residents, businesses, institutions, etc.). Because agricultural producers are typically not on a municipal supply, measures for the agricultural sector are not included in this Plan. Other organizations are doing extensive research and work with the agricultural community in water efficiency, for example programs through the Grand River Conservation Authority.

It should also be noted that detailed exploration of water rates and their role in managing water demand was outside the scope of this project. Water rates are set by individual local municipalities throughout the Region and are developed based on each city or township’s specific drivers and context. The reader can find information on rates throughout the region in Technical Memo #1.
Section 1: Background

WEMP Update Process

The WEMP Update process began in January 2013 and involved five key phases (Figure 1). The key objectives of the process were to:

- **Understand:** Further understand program achievements and developments in water efficiency to date;
- **Improve:** Update the current water efficiency goals and targets in light of past and new program achievements, perspectives of stakeholders, and advances in technology;
- **Advance:** Develop a water efficiency program for the period 2015 to 2025 that is sustainable, well-received by stakeholders and residents, embraces new approaches and innovations where appropriate, and supports other initiatives in the Region; and
- **Be Accountable:** Ensure all requirements in relevant legislation are met, such as the Water Resources Act (1990) and the Water Opportunities and Water Conservation Act (2010).

Activities conducted at each phase have been documented in separate reports, a list of which can be found in the Appendix and copies are available on the Region’s website. A brief description of each of the key phases, and the resulting reports, can be found below.

**Figure 1: Water Efficiency Master Plan Update Process**

![Diagram of the WEMP Update Process]

- **1. Data Collection and Review (Jan - May 2013):**
  - TM#1: Background Report
  - TM#2: CII Status Report
  - TM#3: Residential Survey

- **2. Develop & Refine Program Options (May - July 2013):**
  - TM#4: Best Practices Report
  - Measures Descriptions (TM#4, Appendix 1)
  - TM#5: Program Quantitative Modelling
  - Communications/Engagement Review
  - Stakeholder Workshop Outcomes Report
  - Focus Group Report

- **3. Draft Updated WEMP (Aug - Nov 2013):**

- **4. Consult with Public and Stakeholders (Dec - Feb 2014):**
  - Public and Stakeholder Feedback Report

- **5. Final WEMP 2015-2025 (Mar - June 2014):**
Phase 1: Data Collection and Review
Phase 1 involved collecting baseline and background information to support the development of the updated WEMP. This included the following activities:

- **Baseline information collection** – including quantitative historical water demand trends, implementation of water conservation programs to date, and the impact of these programs on the community’s sustainability objectives (Technical Memo #1: Background Report);

- **Improving our understanding of water use and perspectives in the Commercial, Industrial and Institutional (CII) Sectors** – through: 1) a quantitative analysis of available water use data using Municipal Property Assessment Corporation (MPAC) codes; 2) 15 exploratory telephone interviews with representatives from commercial, industrial and institutional sectors on successes, challenges and opportunities in implementing water efficiency measures in each sector; and 3) a literature review of best practices in water efficiency in the CII sector from select jurisdictions in North America and Australia (Technical Memo #2: CII Sector Status); and

- **Gaining an in-depth understanding of residential water conservation activities and perspectives** – through a 10 minute telephone survey, randomly administered to 1000 Region of Waterloo residents (Technical Memo #3: 2013 Residential Telephone Survey).

Phase 2: Develop and Refine Program Options
With the background information in hand, Phase 2 involved researching and selecting Water Efficiency Program measures for the 2015 to 2025 WEMP and refining these options based on feedback and additional information. The WaterWorx™ Measures Assessment Tool (MAT Tool) was used to narrow down the potential water efficiency measures most suitable and relevant to the Region of Waterloo moving forward. Specific steps conducted during this phase included:

- **Selecting potential new water efficiency measures** – this started with a coarse screening of program options from a list of 137 fully researched water efficiency measures documented in the MAT Tool. Screening criteria customized to suit the context of the Region were developed and applied to this list to qualitatively evaluate and assess current and potential new program measures. A staff workshop was held to refine and rank these measures. The result was 14 potential new water efficiency measures for the Region (see Technical Memo #4: Best Practices Report, Including Appendix 1: Potential Measures Description).

- **Obtaining feedback on the 14 potential new water efficiency measures** – the 14 measures were presented to stakeholders at a ½ day workshop in June 2013. The feedback from stakeholders was used to make further refinements to the potential new measures. As a result of this meeting, the level of effort for some measures was reduced. Feedback on select new measures was also obtained from residents during 3 focus groups held in July 2013 (see June 19th Stakeholder Meeting Outcomes Report; WEMP Focus Group Report).
• Quantitative modelling of potential new measures – the Alliance for Water Efficiency’s (AWE) Water Conservation Tracking Tool was used to model water savings, budget implications, and other indicators of the proposed new measures. Three budget allocation scenarios were also modelled for water savings potentials (see Technical Memo #5: Quantitative Modelling).

• Reviewing current water efficiency communication and engagement activities – current communication and engagement activities related to water conservation were reviewed, and a desktop review of best practices in using social media for water conservation was conducted. From these analyses, recommendations for enhancing existing communication efforts were provided (see Technical Memo #4 Appendix 2: Review of Communication and Engagement Activities).

Waterloo Region staff and members of the Region’s Water Efficiency Advisory Committee were involved throughout the new measures selection and refinement process.

Phase 3: Draft WEMP Update Report
The information compiled in Phase 1 and Phase 2 – including technical analysis, consumer feedback, and other relevant information – was integrated into a recommended Water Efficiency Program. This proposed program was documented in the Draft Water Efficiency Master Plan 2015 to 2025, as a basis for stakeholder and community consultation.

Phase 4: Consult with Public and Stakeholders
Feedback on the Draft WEMP 2015 to 2025 was obtained between December 2013 and February 2014 through a variety of mechanisms to ensure extended reach. This feedback is summarized in the Consultation Feedback Report. Consultation activities included:

• Public Information Centre Places and Spaces Conversations – held at The Museum’s Surface Tension exhibit during Christmas Break, and at the three area malls. Project Team representatives engaged passersby in conversations about the updated WEMP and asked for their feedback.

• Comment Cards/On-line survey – interested individuals provided their feedback about the updated WEMP through three focused questions on a paper comment card. The same three questions were available as an on-line survey on the Region’s website;

• Stakeholder survey – with 7 detailed questions e-mailed to a stakeholder list; and

• Web updates – a dedicated WEMP page with supporting documents and the online surveys. The link was shared through Facebook, Twitter, e-mail and other means.

Phase 5: Final WEMP 2015 to 2025
Public and stakeholder feedback was analyzed and used to refine the final Water Efficiency Master Plan 2015 to 2025. The final WEMP will be presented to the Water Efficiency Advisory Committee and subsequently to Regional Council for approval in June 2014.
Where We are Today – A Snapshot

The Region of Waterloo has had a long and successful history with encouraging water efficiency and conservation. The first programs were delivered in the 1970s – including a lawn watering restriction in Kitchener and Waterloo well before similar initiatives were in place in other municipalities.

Since that time, the Region has added water efficiency education and incentive programs for indoor and outdoor water use, material for children and schools, programs for businesses, the Water Conservation By-Law and other activities to produce the broad and comprehensive program seen today (see Table 1).

These programs have resulted in significant water savings across the Region. From 2007 to 2011, the base residential and CIU programs achieved an estimated combined water savings of 8,504 m³ per day. This was 42% ahead of the target for that year (5,988 m³ per day), and also exceeded the 2015 target (8,146 m³ per day). Savings attributed to the outdoor water use program are conservatively estimated at an additional 795 m³ per day on average. Benefits associated with these water savings include:

- Low program costs compared to the cost of new supply side measures;
- Reduced operating costs associated with less energy and chemical use and other variable cost savings;
- Reduced seasonal peaking factors; and
- Reduced greenhouse gas emissions from lower demands for electricity and/or gas to pump, treat, and heat water, with an estimated cumulative annual GHG savings from 2007 to 2011 of 496.7 tonnes equivalent carbon dioxide (CO₂eq).\(^2\)

Water demand by sector in the Region is displayed in Figure 2. Figure 3 provides an illustration of how water is allocated to various end-uses inside the average home in the Region.

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\(^2\) Equivalent carbon dioxide, or CO₂eq, quantifies the combined radiative forcing of all greenhouse gasses emitted for a given activity using carbon dioxide as the reference.
Table 1: Current Water Efficiency Program Elements in the Region of Waterloo by Sector

<table>
<thead>
<tr>
<th>Residential Sector</th>
<th>Commercial, Industrial, Institutional Sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Broad education program including:</td>
<td>The primary water efficiency program for</td>
</tr>
<tr>
<td>o School and teacher resources</td>
<td>businesses, institutions and multi-unit residences is</td>
</tr>
<tr>
<td>o Display booths and attendance at</td>
<td>the Water Efficient Technology (W.E.T.) Program,</td>
</tr>
<tr>
<td>community events</td>
<td>which offers:</td>
</tr>
<tr>
<td>o Public presentations and seminars</td>
<td>• On-site services for free to conduct simple water</td>
</tr>
<tr>
<td>o Print material on specific topics (e.g. water</td>
<td>use reviews, install data-logging equipment, and</td>
</tr>
<tr>
<td>efficiency in your garden, pools, etc.)</td>
<td>retrofit small fixtures (e.g. showerheads,</td>
</tr>
<tr>
<td>o Dedicated website and print material to</td>
<td>aerators)</td>
</tr>
<tr>
<td>promote efficiency in water softeners</td>
<td>• Rebates (e.g. toilets, commercial-grade front</td>
</tr>
<tr>
<td>o Articles in EnviroNews</td>
<td>load clothes washers)</td>
</tr>
<tr>
<td>o Promotion of programs in media</td>
<td>• A spray valve replacement program</td>
</tr>
<tr>
<td>o Region of Waterloo’s Water Efficiency</td>
<td>• Cost sharing for in-depth water audits</td>
</tr>
<tr>
<td>Website</td>
<td>• Funding opportunities for a broad range of</td>
</tr>
<tr>
<td>• Toilet Rebate Program</td>
<td>proven water efficiency technologies (e.g.</td>
</tr>
<tr>
<td>• Giveaways such as shower timers, by-law</td>
<td>rainwater harvesting)</td>
</tr>
<tr>
<td>reminders, aerators etc.</td>
<td>• Water efficiency training resources</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Professionals Sector</th>
<th>Community-Wide</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Trade training projects including meeting with</td>
<td>• Water Conservation By-Law</td>
</tr>
<tr>
<td>gardeners and landscapers, plumbing retailers</td>
<td>• Pressure and leakage management in</td>
</tr>
<tr>
<td>and others</td>
<td>partnership with local municipalities</td>
</tr>
<tr>
<td></td>
<td>• Research and development</td>
</tr>
</tbody>
</table>

Figure 2: Water Demand in the Region of Waterloo by Sector (2011)

Figure 3: Average Allocation of Indoor Water Use (Residential) (2012)

Source: Econics and Lura Consulting (2013), Technical Memo #1

Source: Aquacraft and NRC (2013), Residential End Uses of Water Study Update: Region of Waterloo Site Report
### Table 1: Current Water Efficiency Program Elements in the Region of Waterloo by Sector

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</thead>
<tbody>
<tr>
<td>Broad education program including:</td>
<td>The primary water efficiency program for businesses, institutions and multi-unit residences is the Water Efficient Technology (W.E.T.) Program, which offers:</td>
</tr>
<tr>
<td>o School and teacher resources</td>
<td>o On-site services for free to conduct simple water use reviews, install data-logging equipment, and retrofit small fixtures (e.g. showerheads, aerators)</td>
</tr>
<tr>
<td>o Display booths and attendance at community events</td>
<td>o Rebates (e.g. toilets, commercial-grade front load clothes washers)</td>
</tr>
<tr>
<td>o Public presentations and seminars</td>
<td>o A spray valve replacement program</td>
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<td>o Print material on specific topics (e.g. water efficiency in your garden, pools, etc.)</td>
<td>o Cost sharing for in-depth water audits</td>
</tr>
<tr>
<td>o Dedicated website and print material to promote efficiency in water softeners</td>
<td>o Funding opportunities for a broad range of proven water efficiency technologies (e.g. rainwater harvesting)</td>
</tr>
<tr>
<td>o Articles in EnviroNews</td>
<td>o Water efficiency training resources</td>
</tr>
<tr>
<td>o Promotion of programs in media</td>
<td>o Water Efficiency Excellence Awards</td>
</tr>
<tr>
<td>o Region of Waterloo’s Water Efficiency Website</td>
<td></td>
</tr>
<tr>
<td>• Toilet Rebate Program</td>
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</tr>
<tr>
<td>• Giveaways such as shower timers, by-law reminders, aerators etc.</td>
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</tbody>
</table>

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<td>• Pressure and leakage management in partnership with local municipalities</td>
</tr>
<tr>
<td></td>
<td>• Research and development</td>
</tr>
</tbody>
</table>

### Figure 2: Water Demand in the Region of Waterloo by Sector (2011)

![Water Demand Pie Chart]

**Source:** Econics and Lura Consulting (2013), Technical Memo #1

### Figure 3: Average Allocation of Indoor Water Use (Residential) (2012)

![Water Use Pie Chart]

**Source:** Aquacraft and NRC (2013), Residential End Uses of Water Study Update: Region of Waterloo Site Report
Key Findings from the Research

Background research to inform the development of the updated WEMP occurred between January and July of 2013. Key highlights from this research are described below. For further details, please refer to the individual reports listed in the Appendix.

1. **Water demand in the Region is on the decline even when the influence of climate is controlled, indicating that the Region’s Water Efficiency Program is contributing positively to water savings.** The research shows that by virtually every measure, and over the past decade in particular, water demand in the Region has been steadily declining. This in part can be explained by the small decline in large manufacturing companies, but the falling demand is seen across the community in aggregate total water demand, total water demand per capita, summer peak demand periods, residential capita demand and indoor residential demand. This decline has been consistent despite variations in climate during the period. Also, timing of reductions in overall demand (and declines in the magnitude of summer peak periods) correlate closely with the introduction of new conservation measures (e.g., changes to the Water Conservation By-law) (see Technical Memo #1).

2. **Water efficiency gains have been made in the Commercial, Industrial and Institutional (CII) sectors, motivated largely by cost savings.** There are opportunities for further improvements by working with the unique water needs of different companies and institutions. There is a wide diversity of water uses and consumption rates across 99 identified sub-sectors of the broader CII sector. For example, the sub-sectors of Standard Industrial, Neighborhood Shopping, and Heavy Manufacturing show preliminary potential for targeted water efficiency program measures because these sectors are high water consumers, have a large number of water accounts, have high average demands per account and/or have a strong upward trend in water use over the past 5 years. Key barriers to improving water efficiency in the CII sector include cost and lack of knowledge about practices or technologies appropriate for different sub-sectors. Information about water efficiency in the CII sector is shared primarily through word-of-mouth and CII representatives were supportive of direct one-to-one contact from the Region to explore water efficiency suited to unique needs. Improved communication mechanisms – to share best practices, benchmarks, and promote existing programs – was identified as a key opportunity for improved water efficiency in the CII sector (see Technical Memo #2).

3. **Region of Waterloo residents are supportive of water efficiency and conservation.** In the 2013 Residential Telephone Survey, 98% of respondents considered water conservation to be “important” or “very important”, a perception that is increasing compared to past surveys. Focus group participants similarly expressed the importance of water conservation for a variety of reasons, including the fact that local water may become a non-renewable resource, the Region’s supply is groundwater-based, and because of the higher cost of water. Support for the Water Conservation By-Law was
also high, with 87% of telephone respondents aware of the By-law and 67% reporting they “strongly agree” it is needed (see Technical Memo #3 and Focus Group Report).

4. **There are opportunities to further improve water efficiency in the residential sector, bridging the gap between the existing 202 litres per capita per day (Lcpd) detached and semi-detached single family residential use and the targeted 165 Lcpd.** Opportunities identified in the research include addressing leakage within the home, particularly the small minority of households with large water losses; working directly with the minority of households that consume disproportionately larger volumes of water than their neighbours in the community; finding new ways to promote efficient water softener purchases (given that up to 87% of single family homes indicate that they have a water softener); and providing incentive programs for new housing development to incorporate water efficiency into new projects (see Technical Memo #1, Technical Memo #4).

5. **There are opportunities to extend education about and engagement in water efficiency through on-line resources and tools.** Best practice reviews in both the CII and residential sectors show that web-based resources and tools are being used more and more to inform and engage residents, businesses and institutions in water conservation. Resources range from on-line calculators to benchmarking data to “how-to” videos and blogs. This is supported by evidence in the 2013 Residential Telephone Survey which shows that more Region of Waterloo residents are visiting the Region’s water efficiency website (37%, up from 12% in 2009).
Section 2: Water Efficiency Master Plan 2015 to 2025

Vision Statement

The Region of Waterloo Water Efficiency Program contributes to sustaining a clean and reliable drinking water supply for the future; a supply that draws primarily from our groundwater and river water sources.

WEMP Goals

- To engage municipalities, residents, businesses, and institutions in actions and behaviours that promote water efficiency and conservation;
- To positively impact our communities, environment and economy through the benefits that result from water efficiency and conservation;
- To defer large capital infrastructure projects such as the Great Lakes Pipeline decades into the future, and focus on a sustainable water supply with groundwater and river sources;
- To effectively monitor and report on the measurable benefits of the water efficiency program, including key indicators of participation, water and energy savings, and other environmental benefits; and
- To be recognized as innovative leaders in water efficiency.

Objectives and Targets

<table>
<thead>
<tr>
<th>OBJECTIVES</th>
<th>2011 STATUS</th>
<th>2025 TARGET</th>
</tr>
</thead>
<tbody>
<tr>
<td>To further reduce indoor and outdoor water demand in the residential sector. ³</td>
<td>202 Litres per capita per day (Lc/d) (Tri-City average, detached and semi-detached single family residential).</td>
<td>165 Litres per capita per day (Lc/d), in line with the documented assumptions in the Water Supply Master Plan Forecast</td>
</tr>
<tr>
<td>To further reduce total system per capita demand. ⁴</td>
<td>285 Litres per capita per day (Lc/d).</td>
<td>235 Litres per capita per day (Lc/d).</td>
</tr>
<tr>
<td>To keep summer peak demands at or below existing levels.</td>
<td>Peaking factor (ratio of maximum day demand to average day demand) averaged 1.28 from 2006 to 2010.</td>
<td>Peaking factor remains same or less than 1.28.</td>
</tr>
</tbody>
</table>

³ This is daily single family residential consumption in Litres divided into the population living in single family homes for 2011, which includes indoor and outdoor use.
⁴ This is the daily total system production in Litres divided by total population.
Proposed Water Efficiency Program 2015 to 2025

This section provides brief descriptions of the recommended continuing and new measures for the 2015 to 2025 WEMP, separated under 5 categories: 1) Residential Programming; 2) Commercial, Institutional and Industrial (CII) Programming; 3) Partner Profession Programming; 4) Community-Wide Programming; and 5) Research and Development (Figure 4 – note, research and development are included in their respective sectors).

The proposed Water Efficiency Program has been designed to be broad and distribute risk evenly across sectors and activities. Specific implementation details will be determined as part of more detailed plans developed for individual initiatives upon approval of the WEMP 2015 to 2025. Further information about these continuing and proposed new measures can be found in Technical Memo #4, including Appendices 1 and 2.

Figure 4: Summary of Proposed Water Efficiency Program for WEMP 2015-2025

Region of Waterloo Water Efficiency Master Plan 2015-2025
RESIDENTIAL PROGRAMMING

The Region has a long-standing and strong water efficiency program in the residential sector. It is recommended that WEP programming in the residential sector continue assisting residents with reducing both indoor and outdoor water use through the general education activities (including those designed for schools and children) and incentives such as giveaways. To reach the target for residential water demand, extra effort should be placed towards helping residents who use a disproportionately large amount of water reduce their water use.

Recommended Continuing Activities

General Education and Awareness
The Region has implemented extensive communication and outreach activities associated with the Water Efficiency Program since 1974 – including use of print material, mass media to raise public awareness around specific program elements, talks and workshops, and promotional giveaway items (water fixtures, shower timers, etc.). The Region has also taken proactive measures to foster behaviour change to reduce water use through public presentations and seminars and other activities. These activities have proven successful, have been well received, and should continue.

Areas where general education and awareness could be further enhanced include:

- Coordinating the look of communication material to convey that various program elements are working together towards the broader Water Efficiency Program goals;
- Increasing personal contact at public booths/displays to engage the public in conversation and seeking commitments to change;
- Targeting communication to specific audiences; and
- Enhancing and promoting the Region’s water efficiency website (see Technical Memo #4, Appendix 2).

Region of Waterloo’s Toilet Replacement Program

The Region of Waterloo’s Toilet Replacement Program has had a long and successful history. Since it began in 1994, 73,778 rebates have been issued, and by 2011 the estimated cumulative water savings from this program was 6,500 m³/day. At the same time, there have been changes in both building code and consumer preferences towards higher efficiency toilets – increasing the number of these toilets in the Region and decreasing the attractiveness of a rebate. Given the major changes in the toilet marketplace and regulatory environment, there is an opportunity to shift Water Efficiency Program resources away from cash rebates and into new and more innovative education and incentive programs to promote toilet replacement. The role of toilet replacement as a strategy for water efficiency will be redefined in the Implementation Plan for the updated WEMP; with the goal of ensuring high efficiency toilets are going to the homes that need them the most to save water. A natural fit would be including toilet replacement incentives and education under the Residential Water Savings Assistance Program.
**Recommended New Program Activities**

Residential Water Savings Assistance Program
This program involves providing a suite of tools to help residents reduce their water use. It is available to all residents, and those who are known to have especially high household water use will be actively contacted and encouraged to participate in the program. This program will help address the challenge shown frequently in market research that many residents are unaware that their consumption is markedly higher than the norm. The program design will be equitable, acknowledging that residents have varying reasons for high water use which may not be amenable to large changes – for example high occupancy households. The program involves building relationships with a segment of residents and offering a range of tools until each participant has found a water conservation approach that works with their particular life context, ideally in a way that saves them money or complements their lifestyles.

The suite of tools can be considered under three components:

1. **Education and Awareness** – tools could include personalized communication through inserts in water bills or special letters and/or customized savings plans through questionnaires, online tools, self-assessment forms, and other means. This may involve use of a Customer Relationship Management (CRM) information system. The objective at this stage is to create mindfulness about personal water use and facilitate ongoing communication between the Region and participating households.

2. **Detecting inefficiencies** – done through free home audits, to assist residents in understanding which appliances and activities use the most water in their home, and how they can be more water efficient. Leak repair and low-cost fixture replacements (e.g. toilet flapper replacement, see below) would be a key part of this component.

3. **Incentives through Targeted Product Rebates** – building on the success of the Toilet Replacement Program, this component would include offering various types of rebates on a short-term basis (e.g., “this month only”, “while supplies last”). Rebates could be offered for fixtures such as high efficiency toilets, toilet flappers, rainwater harvesting systems, etc. and would require an assessment to ensure eligibility.

All participants would start with the first component of education, and other elements could be delivered sequentially over a number of months or years. Participation in all components is voluntary. A flowchart of how participants might move through the program is shown in Figure 5.
Toilet Flapper Program

Toilet flappers can be a large source of leaks in a residential setting. This program uses a combination of measures to encourage people to replace toilet flappers. Details will be determined upon the development of an implementation plan, but could include: online tutorials and buying guides; print material distributed through hardware stores or plumbing wholesalers; rebates against the purchase prices of new flappers; flapper giveaways; and direct installation by Region-hired contractors (e.g., as part of a home audit program in the Water Savings Assistance Program above).

Residential Rainwater Harvesting Program

Given that significant market penetration has already been achieved in the Region for smaller rain barrels, this program uses a combination of education and incentives for using larger systems (e.g., >1000 litres) that capture rainwater for reuse. An example includes large tanks to irrigate outdoor areas. The program would be aimed at single family residences and designed to complement the stormwater fee credit programs already being implemented in Kitchener and Waterloo. The details will be determined upon the development of an implementation plan.
COMMERCIAL, INSTITUTIONAL AND INDUSTRIAL PROGRAMMING

The Region’s current CII program is strong and diverse by national standards. It is recommended that the Water Efficient Technology (W.E.T.) program continue, with new measures to enhance the existing program and achieve higher results for inputs.

Recommended Continuing Activities

W.E.T. Program
The Water Efficient Technology (W.E.T.) Program has been a successful flagship program for the CII sector. It includes subsidies on a case-by-case basis for technology enhancement at 40 cents per litre of water saved per day up to a maximum of 50% of capital costs for proven water saving measures (up to $100,000). The program is primarily advertised through word of mouth and various promotions. A recommended enhancement of the program is to enhance communication and promotion of the program – e.g., through e-mail networks, the website, new measures promoted below – to increase awareness about what is currently offered.

**Recommended New Program Activities

CII E-newsletter
This measure focuses on building a community of practice in the CII sector and awareness for efficiency measures. An e-newsletter allows for rapid, periodic communication. It can be used as a promotional tool to market existing and new programs and to provide updates on best practices, new technology, and case studies. To make it stand out, the e-newsletter could include success stories, weblinks, small “bytes” of information or relevant water conservation facts, and images or photos. For the most effective outcome, separate publications could be developed for specific user-groups to provide specific information related to each field and end-use (e.g., irrigators, restaurants, manufacturers).

Restaurant Certification Program
This program focuses on reducing consumption of water in restaurants and providing them with certification or recognition for water conservation efforts. Rebates can be used as incentives to encourage replacement of inefficient toilets, urinals, pre-rinse spray valves, ice machines, and walk-in cooling systems with more efficient models. An outreach coordinator would visit establishments to promote the program and provide information and guidance to those interested. Additional recognition might include program decals for the establishment’s front door, menu stickers, a logo that can be included in advertisements, or a promotional listing on the Region’s website.
Cooling System Program

Once-through cooling systems, also known as single-pass cooling systems, remove heat by transferring it to a supply of cold municipal drinking water that is discharged directly to the sewer. Examples of such equipment include commercial and industrial air conditioners ("cooling towers"), refrigerators, coolers, and ice machines. This program would involve a systematic and efficient approach to encouraging more efficient options which are readily available (e.g., closed loop piping or air cooled equipment). Activities could include: targeted rebates, preparing and distributing best management practices, methodically targeting facilities that are known to have cooling towers and providing audits at low cost or no cost. It could also include working with local municipalities and other stakeholders to prohibit installation of new once-through cooling systems through bylaws.

PARTNER PROFESSION PROGRAMMING

The Region currently delivers some programs under this category on an ad hoc basis – for example outreach to retailers about rebates. It is recommended that the Region be more targeted and systematic with programming delivered to trades and professions that have significant influence over the purchase decisions and behaviours of both residential and business customers (e.g., plumbing and appliance retailers, plumbers, and property developers).

Recommended Continuing Activities

Trades Training

This measure includes continuing activities such as meeting with gardeners and landscapers, face-to-face meetings and workshops with plumbing retailers about fixture rebates, and efforts to catalyze national plumber sustainability training with the Canadian National Water Efficiency Network.

Recommended New Program Activities

New Home Building Incentives

A development incentive program provides grants or other incentives to those who construct high performance buildings. Low-impact development features are not always implemented due to poor awareness or fear of trying something new, and such programs can be used to foster water efficiency. Incentives under this program could include both direct and indirect market-driven incentives. The Region will work with local municipalities to investigate incentives that would support the building of new, water efficient homes. Specific details will be determined in the implementation plan.
Plumber Sustainability Training
Plumbers currently receive only a few hours of training in the area of sustainability at the apprentice level and have almost no opportunities for extension training after basic certification. In partnership with the Canadian National Water Efficiency Network, the Region recently completed a pilot project using the GreenPlumbers® program with 25 plumbers from the Region of Waterloo and the City of Guelph. Along with national market research completed in parallel, this work is helping inform development of an ongoing plumber sustainability training program for the Region. GreenPlumbers® is a training and accreditation program for professional plumbers focused on developing water efficiency awareness, upgrading skills, and bolstering their role in addressing sustainability challenges. It is recommended that the Region continue to communicate with local plumbers about water conservation, and support training initiatives where appropriate.

COMMUNITY-WIDE PROGRAMMING

Measures in this fourth category affect the wider Region of Waterloo community. There is strong evidence from the 2013 Residential Telephone Survey that the community is on board with the Water Conservation By-Law, and water demand analysis indicates that the by-law is working and reducing peak demand. It is recommended that current activities continue, with enhancement of web-based tools and resources to further inform and engage water consumers.

Recommended Continuing Activities

Water Conservation By-Law and Education
This includes the By-Law (#07-069 and amendments) with one day per week lawn watering, up to six by-law officers as well as three summer students hired each year, and associated education and promotion activities.

Pressure and Leakage Management
The Region is looking across the integrated urban system to ensure there is appropriate pressure in the appropriate zone, and if not, how modifications can be made to reach that pressure. This program is ongoing, and includes partnering with and providing funding to cities and townships to improve their water distribution system leak programs. Additionally, as part of the research informing the update of this WEMP, water audits based on the International Water Association’s best practice framework were conducted in Wellesley and North Dumfries. These analyses used water system data to calculate a range of operational and financial indicators, such as the infrastructure leakage index. These indicators are useful for assessing system efficiency and highlighting where the Region should place effort to improve system management. It is recommended that this type of analysis be conducted in other municipalities within the Region of Waterloo, with each municipality setting up their own targets for reducing water leakage.

5 See www.greenplumbertraining.org/
It is important to note that local municipalities are responsible for managing their own
distribution networks and that there are many different approaches to managing system loss
and non-revenue water. How to go about doing so, and what level of resources to invest in
these kinds of initiatives, is a local decision that must be informed by site specific data and
operational considerations. Participation by local municipalities in the Region’s efforts in this
area is entirely voluntary and elective on their part.

**Recommended Program Enhancements**

Enhanced Interactive Website and Communications
This measure involves enhancing the existing Region of Waterloo water efficiency website and associated communications in order
to increase engagement of the broader Region of Waterloo community. This could include elements such as a Water
Conservation Blog to distribute information, videos, interesting articles, and links to events or other organizations to followers;
adding short “how-to” videos or videos of water conservation success stories featuring residents, community leaders, and
businesses; or using an interactive on-line calculator and tools to help residents become more informed about and track their
household water use.

RESEARCH AND DEVELOPMENT (ONGOING)

Water Softener Research – Sector: Residential
Research commissioned by the Region in 2013 found that over 87% of single and semi-detached homes have water softeners that consume water\(^6\). These appliances remove hard minerals that are typically found in groundwater. For homeowners, the benefits include
reduced scale build up in fixtures and appliances, more efficient water heaters and more
pleasing water for washing. Most water softeners use ion-exchange technology, which uses
resin beads and a brine solution to remove hard elements. While these types of systems are
quite effective at softening, they consume substantial volumes of water when they recharge
day after day. Cumulatively across many households, they also add significant discharges of salt
to the wastewater system (and subsequently to the receiving environment).

The Region has collaborated with the City of Guelph to help people make informed decisions
when choosing a more efficient system. This includes educational materials such as pamphlets
and a dedicated website [www.watersoftenerfacts.ca](http://www.watersoftenerfacts.ca). These tools provide guidance on how to

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\(^6\) Aquacraft and NRC Inc. (2013). Residential End Uses of Water Study Update - Site Report. Prepared for the Region of
measure water hardness, estimate household consumption, and calculate required system size.  

In order to continue to improve the efficiency of water softeners in homes, this program involves maintaining or increasing efforts in the following areas: continued education and provision of information to retailers and homeowners on water softener best practices; support for research and development into new technology alternatives; and, advocacy for improved product performance standards.

### Water Softeners: A Water Consumer

For every 1000 litres of soft water produced using ion-exchange, an average of 73 litres of regeneration water is expelled down the drains. It is estimated that there are over 111,500* systems currently in use in single detached and semi-detached homes throughout the Region, each producing 12m² of regeneration water on average per year. This equates to over 1.3 megalitres entering the sewer systems annually. In fact, this figure is conservative because it does not include contributions from additional water softeners found in low-rises and condominiums.

While educational efforts will certainly result in greater efficiency, most of the models available on the local market still use ion-exchange technology, and will therefore continue to consume water. Emerging systems, such as electromagnetic-treatment and template assisted crystallisation, may prove to be effective alternative technologies that consume no water or salt at all. Although these technologies have limited domestic-scale testing and are not yet widely available, they offer great potential for reducing demand in the future. Hypothetically, if ion-exchange units in single-detached and semi-detached homes in the Region were phased out or replaced with “waterless” systems over a fifteen-year period starting in 2015, annual consumption of up to 1.7 megalitres could be avoided by 2030*. Savings would be even greater if systems in low-rises, condominiums and other multi-family developments were also retrofitted or removed.

### Hot Water Recirculation System Research – Sector: Residential

Homes with hot water recirculation systems have a pump that constantly circulates a small amount of hot water through the pipes from the heater to the farthest fixture and back to the heater. This way, water in the pipes is always hot, creating convenience for residents and no water is wasted while waiting for it to heat up. Newer systems include features such as programmable timers so that the pump only operates during selected hours, minimizing energy lost when hot water is in low demand (e.g., at night; mid-day). This measure involves conducting research into the effectiveness of these systems, similar to the work the Region has sponsored on water softener systems. Depending on the outcomes of the research, the Region may decide to offer rebates or other measures to promote installation of such systems.

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9 This estimate takes additional savings from not installing into housing stock growth into account and is based on savings in the year at the end of the period. Average annual savings over a 15-year phase out period equals approximately 1.1 m²/year.
Commercial Sub-Metering Education and Advocacy – Sector: CII
When individual organizations are billed based on actual consumption, they are more likely to reduce demand to lower their costs. Monitoring businesses and multi-family residential units individually also yields data that are useful for billing by consumption, highlighting high-volume users, designing education and awareness campaigns, and providing incentives to reduce consumption. Installation of sub meters in individual CII establishments, such as stores and restaurants in strip malls, is already being implemented in new developments, where the infrastructure can be more easily incorporated into building design. Ideally, all existing and new establishments with multiple independent businesses would be sub-metered, with a meter for each business. However, retrofitting existing infrastructure to install sub-meters is a costly endeavour that may not be practical in all situations. This measure involves working with local municipalities to identify opportunities where sub-metering of buildings such as strip malls can practically be retrofitted. It can also include encouraging large industrial complexes to sub-meter according to different segments of their plant, allowing identification of which areas in the plant are using the most water – an activity that can be cost-shared under the W.E.T. Program.

In some cases, these kinds of meters can be installed within customers’ properties and be used for internal data collection and cost apportionment purposes. However, it should be noted that management of CII customer meters used for billing purposes is typically a responsibility of local municipalities. As a result, any efforts in this area will need to be undertaken in partnership with the responsible cities and townships.

Landscape Topsoil Depth Advocacy – Sector: Community-Wide
If topsoil is too shallow, poor root development hinders a plant’s ability to access water and the soil’s storage capacity is reduced, resulting in the need for more frequent irrigation. Research shows that deeper topsoil (e.g., 12 inches) can lead to a lower watering frequency and reduced storm-water runoff. Regulating topsoil thickness would ensure that all new developments implement best practices in soil management. By-laws regulating topsoil thickness would benefit the Region most during the annual peak demand period, where it would help to reduce consumption from irrigation. Most local municipalities within the Region will already have some regulatory provisions around topsoil, and they would be responsible for implementation and enforcement of this measure. As such, this research program’s first task would be to inventory current implementation across the Region and the receptiveness of cities, townships, developers and residents to a topsoil thickness code.
Recommended Allocation of Effort

The recommended level of programming effort is to apply the available capital budget to measures roughly in proportion to sectoral demand (see Figure 2, this document, and Technical Memo #5). This is the most equitable approach, and spreading resources more evenly across sectors minimizes risk from failure in any one program area. Figure 6 shows the recommended percent budget allocations for Water Efficiency Program elements. Allocation is generally proportionate to the total potential savings — e.g., programs with large savings potential receive significantly more funding while activities or programs with relatively smaller potential savings receive less.

Figure 6: Budget Allocations for Recommended Program

More information about how this budget was derived (and some alternative scenarios that were also explored) can be found in Technical Memo #5.
Section 3: Program Benefits

Water Savings

The following water savings analysis is based on the level of programming effort described in the previous section. Modelling estimates indicate that by the end of the water efficiency program in 2025, the annual savings will reach 1,370 megalitres\(^{10}\) (ML) per year (Figure 7), which equates to 3,754 m\(^3\) saved per day.

![Figure 7: Estimated Annual Program Savings](image)

Savings from the conservation program and building code will lead to lower total system production in the future. In Figure 8, the three lines represent production estimates for: the unadjusted baseline (blue); baseline minus savings from the Ontario Building Code and natural replacement of fixtures and appliances with more efficient models (red); and, additional savings from the conservation program (green). By 2025, the program will have achieved an estimated cumulative total savings of 9,023 ML.

![Figure 8: Estimated Total System Production](image)

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\(^{10}\) One megalitre is equal to one million litres.
According to modelling estimates, per capita consumption in single family residences will consistently decrease each year to 168 Lcd by 2025 (Figure 9).

![Figure 9: Estimated Residential Lites per Capita per Day](image)

**Financial Benefits**

The program will achieve a number of financial benefits for both the Region and retail water service providers, and in turn for the community. Most notably, it will allow for the deferral of future capital investment in new bulk supplies. It is estimated that, in simple least cost planning terms, the 2015 to 2025 program cost will equate to $1.81 per litre per day.\(^\text{11}\) This compares favourably to the 2006 estimated cost of $2.00 per litre per day for the Ayr Drinking Water Supply Expansion (Region of Waterloo, 2012).\(^\text{12}\) The same cost comparison for conservation efforts made between 2007 and 2011 contributed to the deferral of approximately $100 million in water capital expansion projects. Savings from the future program will continue to defer this need for capital expansion, making demand-side management an attractive investment.

Specifically, program water savings will reduce operating costs through lower demands for energy used in pumping and chemicals used for treatment. Financial modelling shows that by 2025, the Region will achieve a cumulative savings of approximately $1 million (2015 dollars) for avoided supply and $1.5 million (2015 dollars) for avoided wastewater. This equates to a total cumulative operational savings of $2.5 million (2015 dollars) for the entire program.

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\(^{11}\) This reflects the initial program cost and may vary slightly over time due to factors such as free ridership and decay in education related savings.

Ecological Benefits

Greenhouse Gas Mitigation
Water use in the Region results in greenhouse gas emissions from activities in three areas:

- Supply – pumping and treating water that is supplied to customers;
- Wastewater – pumping and treating wastewater that is used by customers; and,
- Heating – e.g., hot water used in the home.

The volume of water saved in each of these three areas was determined using results from the water savings model. Total greenhouse gas (or CO₂e) savings by activity were then calculated using latest research on emissions factors and energy intensities for Ontario by the Polis Project on Ecological Governance (Maas, 2009).\(^\text{13}\)

By 2025, it is estimated that the Region’s program will be saving 1,176 tonnes of CO₂e per year (Figure 10). The sum of the annual savings over the 11 year period equates to 7,700 tonnes of CO₂e, which is a significant contribution for the Region towards reaching its 2019 emissions targets.

\[\text{Figure 10: Estimated Equivalent Carbon Dioxide Annual Savings}\]

\[\text{[Graph showing estimated carbon dioxide savings from 2015 to 2025]}\]

Other Ecological Benefits
Other ecological benefits associated with the program include:

- Avoided environmental impacts from construction of new bulk supply infrastructure;
- Reduced aquifer withdrawals, resulting in greater water availability downstream for fish and aquatic ecosystems;
- Reduced chemical use in water treatment;
- Reduced point source wastewater disposal to the environment;
- Benefits for stormwater attenuation and improved groundwater recharge from rainwater harvesting; and
- Reduced salt discharges to wastewater systems, and ultimately the receiving environment, from reducing use of ion exchange water softeners.

Social and Community Benefits

Enhanced Customer Service
The program is a vehicle to improved relationships between water service providers and customers. It also provides opportunities for residents to gain an improved understanding of where their water comes from. Between 2003 and 2012, program staff had direct contact with over 25,773 residents through various forums and will maintain this level of community engagement in the new program.

These direct communication channels, as well as indirect contact points through print media, mass media and the internet, operate with the following objectives:

- Promote the intrinsic value of water as a resource to be conserved and protected;
- Educate audiences about water conserving behaviours;
- Educate audiences about Region-specific plans, programs and incentives; and,
- Trigger actions that result in measurable water savings (Region of Waterloo, 2012)\textsuperscript{14}.

Enhanced Regulatory Compliance
Delivery of the program also ensures that the Region and local municipalities maintain their social licences by complying with relevant regulatory requirements (see box below). Having a robust water efficiency program in place enhances compliance with requirements under all of these Acts.

Ontario Regulations Relevant to Water Supply and Conservation

The Ontario Water Resources Act (1990) Water Taking and Transfer Regulation – requires permit applicants to submit a list of best management measures and practices in water conservation that they have or will be undertaking.15

The Water Opportunities and Water Conservation Act (2010) – requires municipalities to prepare water sustainability plans that include an asset management plan, a financial plan, a water conservation plan, strategies for maintaining and improving the service, a risk assessment and other prescribed information.16

The Places to Grow Act (2005) and resulting Growth Plan for the Greater Golden Horseshoe – has a policy (Policy 3.2.5 (4a)) that states construction or expansion of municipal or private communal water and wastewater systems should only be considered when strategies for conservation and other demand management initiatives are being implemented.

Other Social and Community Benefits

Other social benefits associated with the program include:

- Stimulation of innovation – for example, through the Region’s support for nationally relevant R&D projects including the water softener testing facility, the Residential End Use Study, and the plumber sustainability training;
- Improved resiliency to drought;
- Greater retention of water in reservoirs in summer for firefighting and other emergency needs; and
- Promotion of a broader environmental stewardship ethic in the community.

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Section 4: Implementation

Budget Implications

For modelling purposes, it was assumed the Region’s Water Efficiency Program had a fixed budget of $1,300,000 (in 2013 dollars) for the 2015 to 2025 period. Of this, $500,000 is allocated to operational expenditures, such as staffing, and the remaining $800,000 would be available for capital investments in specific conservation initiatives, measures, and programs in the community. These figures were based on historical budget availabilities and allocations provided by the Region.

Recommended budget allocations for the four program categories in the WEMP (20015-2025) are displayed in Table 2 (budget for the research and development program is included within its relevant sector). This allocation will likely vary on an annual basis depending on the planned program focus for a given year. Budget reports will be brought forward on an annual basis by staff for any allocation adjustments needed while keeping within budget parameters.

Table 2: Budget Implications for Proposed Water Efficiency Program

<table>
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<th>SECTOR</th>
<th>ALLOCATION</th>
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<tr>
<td>CIW</td>
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<td>Community Wide</td>
<td>19%</td>
</tr>
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</tr>
<tr>
<td>TOTAL</td>
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</tr>
</tbody>
</table>

Roles and Responsibilities

The Water Efficiency Advisory Committee (WEAC) will continue its advisory role at key stages of the Water Efficiency Master Plan implementation, from 2015 to 2025. Staffing at the Region’s Water Efficiency Department will remain consistent with key roles that include:

- Manager, Water Efficiency
- Technologist, Water Efficiency (Commercial, Industrial, Institutional Programs)
- Communications Coordinator, Water Efficiency (all programs)
- Coordinator, Water Efficiency (residential programs)
- Program Assistant Water Efficiency (support all programs)
- Student, Water Efficiency (3 seasonal by-law)
The Region of Waterloo is committed to continuing its position as a leader and innovator in water efficiency. Partnerships and cooperation will be essential to achieve the goals outlined in the WEMP (2015 to 2025), with both partner professions and across the two levels of the Region’s municipal system. The formation of a CII Advisory Board with CII representatives could help advance programming in the Commercial, Institutional and Industrial sectors.

**Schedule and Tasks**

Detailed implementation plans for each proposed new measure will be required after approval of the Water Efficiency Master Plan. These will clearly identify the specific target audiences, desired messages and behaviours, general approach, implementation tasks and responsibilities, timing, and measures to assess progress. Feedback from participants at the Stakeholder Workshop (June 2013) and focus groups (July 2013) will be important in developing these more detailed plans. Other approaches, such as Community-based Social Marketing, could be useful in the implementation of many new measures proposed in the Residential sector (see Technical Memo #4, Appendix 2).

The Water Efficiency Master Plan will be reviewed annually, with performance measured against the desired targets documented in the Plan.

**Looking Forward**

What is documented in this Plan is the beginning, not the end, of our journey to improved water efficiency across the Region of Waterloo. This WEMP is a “living” document – one that is flexible, adaptable, and responsive to changes in technology, awareness, and other factors that will occur during the 10 year implementation period. Throughout the 10 years of this Plan, we will continually be looking forward as to where the WEMP needs to evolve. We will continue to explore up-and-coming areas of water efficiency, such as the feasibility of variable water rates, best-practices in residential rainwater harvesting systems and water softeners as technology evolves and costs decrease, and areas for further education and awareness. At the end of the 10 year period of the WEMP 2015-2025 we will be well positioned for the next phase to reach even stronger water efficiency targets in the future.
Appendices

Technical Memos:
Technical Memo #1 (TM#1): Background Report (May 2013)
Technical Memo #3 (TM#3): Residential Survey Report (June 2013)
Technical Memo #4 (TM#4): Best Practices Review (June 2013)
Measures Descriptions: Potential New Water Efficiency Measures (TM#4, Appendix 1)
Technical Memo #5 (TM#5): Program Quantitative Modelling (September 2013)

Consultation Reports:
June 19th Stakeholder Workshop Outcomes Report (July 2013)
Focus Group Report (August 2013)
Review of Communication and Engagement Activities (TM#4, Appendix 2)
Public and Stakeholder Consultation Feedback Report
Region of Waterloo
Transportation and Environmental Services
Water Services
Planning, Housing and Community Services
Community Planning

To: Chair Jim Wideman and Members of the Planning and Works Committee
Date: May 27, 2014
File Code: E12-40(A)
Subject: 2014 Water and Wastewater Monitoring Report

Recommendation:

That the Regional Municipality of Waterloo accept the 2014 Water and Wastewater Monitoring Report summarized in Report E-14-069/P-14-066, dated May 27, 2014, as the account of water supply and wastewater treatment capacity as of December 31, 2013.

Summary:

The 2014 Water and Wastewater Monitoring Report (2014 WWWMR) outlines the ability of the Regional water supply and wastewater treatment facilities to accommodate demands to 2026. The full report will be made available on the Region’s Water Services website and at the Water Services administration office. Draft copies of the report have been circulated to the cities of Cambridge, Kitchener and Waterloo and also to the townships of North Dumfries, Wellesley, Wilmot and Woolwich.

Water supply capacity was adequate to meet the actual maximum demands in all communities supplied by a Regional system in 2013. Wastewater treatment capacity was sufficient at all Regional plants to treat the actual average flows in 2013. Water supply and wastewater capacities in 2026 are based on the implementation of works from the Region's current capital programs and both water supply capacity and wastewater capacity is anticipated to be adequate to accommodate all current development commitments. The allocation of remaining capacity to new development is determined by Region of Waterloo staff in consultation with the Area Municipalities. The available capacity expressed in this report is the capacity available to service all future Planning Act approvals (subdivisions, condominiums, consents, zoning bylaw
amendments and minor variances) and/or any building permits issued for development outside of residential plans of subdivision that complies with existing zoning (e.g. site plans).

Report:

Water Services produces the annual Water and Wastewater Monitoring Report with input from the Region's Planning, Housing and Community Services (PHCS). The purpose of this report is to:

1. Document actual water consumption and wastewater flows;
2. Provide a basis for water consumption and wastewater flow forecasts required in preparing the capital budgets and user rates;
3. Document water production and wastewater treatment capacities;
4. Update Regional Council with respect to remaining uncommitted capacities of water supply and wastewater treatment infrastructure; and
5. Provide a basis for Water Services staff to provide comment on the water and wastewater aspects of development applications.

In addition, the 2014 WWWMR report will be one of the inputs used in preparing the 2015 water and wastewater capital budget, longer term water and wastewater capital forecast, and in formulating responses to development applications.

Comparison the 2013 WWWMR

There have been no changes to the methodology used in the 2014 WWWMR from the 2013 report.

Water consumption patterns and wastewater flows are a function of yearly weather fluctuations. In 2013, the annual precipitation was the highest ever recorded in the 99 years of records at the University of Waterloo weather station. This total is quite a contrast to 2012 which was a dry year. Seasonal impacts at some wastewater treatment plants showed generally average or slightly above average flows. Because the precipitation was very high and the increase in flow at some of the wastewater treatment plants was not significant, it indicates an improvement in Inflow and Infiltration issues in systems associated with those plants. The increase in precipitation resulted in a lower than average water consumption over the course of the year, particularly in the summer months. This is in-line with the continuing decrease in water consumption demands.

2013 Water Supply Capacity and Commitments

Water supply capacity was adequate to meet the actual maximum demands in all communities supplied by a Regional system in 2013. Water supply capacities up to 2026 are based on the implementation of works from the Region's current capital programs. Table 1, attached, summarizes the remaining water capacity as of December 31, 2013. The long-term water supply strategy is currently under review through the Water Supply Master Plan Update. Recommendations forthcoming from the master plan update will be incorporated into this monitoring report.
The Integrated Urban System (IUS) (Cambridge, Kitchener, Waterloo, Elmira and St. Jacobs water systems) has 49,430 m$^3$/d of remaining capacity, which is equivalent to approximately 134,000 people.

The Baden/New Hamburg water system has 7,540 m$^3$/d of remaining capacity, which is equivalent to approximately 20,800 people.

The Ayr water system has 2,660 m$^3$/d of remaining capacity, which is equivalent to approximately 5,300 people.

The Wellesley water system has 1,830 m$^3$/d of remaining capacity, which is equivalent to approximately 5,400 people.

The St. Clements water system has 1,330 m$^3$/d of remaining capacity, which is equivalent to approximately 3,800 people.

**Small Water Supply Systems**

There are 12 small water supply systems owned and operated by the Region. These systems include Conestogo (Conestogo Golf Course and Conestogo Plains), Maryhill (Maryhill and Village Heights) and West Montrose in Woolwich; Linwood and Heidelberg (reported as one system including a portion of Heidelberg in Woolwich) in Wellesley; Foxboro Green and New Dundee in Wilmot; and Roseville and Branchton Meadows in North Dumfries. In 2011 the community of St. Agatha was connected to the IUS and the St. Agatha wells were decommissioned.

Most of these small systems were designed to only service specific subdivisions in the respective settlement areas and have no additional capacity to service units beyond those subdivisions. Given the complexity of calculating available capacity for the small systems, available system capacity will be evaluated on an individual basis prior to commenting on development applications. Table 2 summarizes the data on small water systems.

**2013 Wastewater Treatment Capacity**

Wastewater treatment capacity was sufficient at all Regional plants to treat the actual average flows in 2013. Wastewater capacities up to 2026 are based on the implementation of works from the Region's current capital programs; Table 1 summarizes the remaining wastewater capacity as of December 31, 2013.

The Kitchener WWTP has 42,550 m$^3$/d of remaining capacity, which is equivalent to approximately 140,000 people.

The Waterloo WWTP has 6,340 m$^3$/d of remaining capacity, which is equivalent to approximately 18,200 people.

The Galt WWTP has 20,360 m$^3$/d of remaining capacity, which is equivalent to approximately 48,600 people.

The Preston WWTP has 5,830 m$^3$/d of remaining capacity, which is equivalent to approximately 12,600 people.
In the 2011 WWWMR wastewater capacity was reserved for the Boxwood Industrial Subdivision in the Preston Wastewater Service Area in the amount of 1,860 m$^3$/d. This number will be assessed annually and adjusted according to the rate of build out of the subdivision. Since there has been no occupancy of the Boxwood Industrial Subdivision no adjustment has been made in the 2014 WWWMR.

The Hespeler WWTP has 1,460 m$^3$/d of remaining capacity, which is equivalent to approximately 4,800 people.

The Elmira WWTP has 1,970 m$^3$/d of remaining capacity, which is equivalent to approximately 4,400 people.

The St. Jacobs WWTP has 490 m$^3$/d of remaining capacity, which is equivalent to 940 people. In 2012 the Region completed the Elmira and St Jacobs Wastewater Master Plan to optimize wastewater treatment in Elmira and St. Jacobs. One of the key recommendations of the master plan was to direct the flows from the St Jacobs WWTP to the Waterloo WWTP once the Waterloo WWTP undergoes an expansion. Based on the timing of the planned capacity expansion for Waterloo, the preferred solution will be available before the capacity is reached at the St Jacobs WWTP. Once the flows have been directed to the Waterloo WWTP, the St Jacobs WWTP will be decommissioned.

The Baden/New Hamburg WWTP has 980 m$^3$/d of remaining capacity, which is equivalent to approximately 3,200 people.

The Ayr WWTP has 1,300 m$^3$/d of remaining capacity, which is equivalent to approximately 4,400 people.

The Wellesley WWTP has 300 m$^3$/d of remaining capacity, which is equivalent to approximately 1,300 people.

**Servicing Commitments**

Section 51 (24) (i) of the Planning Act obliges the Region to ensure the “adequacy of utilities and municipal services.” In addition ROP Policy 5.D.1 states that the “servicing requirements for planned development and projected growth will be monitored to ensure that the total system capacities are not exceeded, and to provide sufficient lead time for the planning, design, approval, financing and construction of new facilities.”

Except for site plan approvals, most Planning Act approvals, including plans of subdivision, zoning amendments, and consents require acknowledgement by the Region of Waterloo Water Services Division that water and wastewater servicing capacity is available. Draft approvals are granted based upon the availability of uncommitted capacity in existing water and wastewater systems.

Servicing commitments are made through separate servicing agreements between the Region and the developer, which are executed prior to the registration of a plan of subdivision. The servicing agreement expires within six to 18 months of being signed, at which time the developer would be required to seek a new commitment for servicing if registration of the plan of subdivision has not occurred.

In 1996, Regional Council by Report PC-96-061/ E-96-138 revised the conditions of draft approval for plans of subdivision to include a new condition requiring an
Agreement for Servicing and allowing future, unbuilt service capacity to be considered, if three criteria are met:

1. The capacity expansion project must be imminent for construction and thereby included within the first five years of the 10 Year Capital Forecast;
2. There must be a sound technical basis for the anticipated new capacity associated with the project, as a result of completion of the Environmental Assessment, a suitable master plan or other Regional engineering evaluation; and
3. Approval of new draft plans of subdivision will be guided by Area Municipal Staging of Development programs and will not exceed 50 per cent of the estimated capacity of major planned service capacity projects or 75 per cent of minor planned projects.

It is important to note that the actual service capacity of a water or wastewater facility to be delivered from a future project cannot be guaranteed until a Certificate of Approval is issued by the MOE.

Since 1996, the registration of a plan of subdivision has been the point at which the capacity of water and wastewater systems is committed in accordance with MOE policies. However, a significant portion of all residential development is occurring outside of plans of subdivision. For example, in 2013, approximately 50% of residential building permits issued were outside of plans of subdivision. This includes development on lands within the built up areas and within the designated greenfield areas. This trend is expected to continue. Currently, there is no mechanism to provide for a servicing commitment for lands that have zoning in place that would allow development to proceed without additional planning approvals.

With the adoption of the Places to Grow: Growth Plan for the Greater Golden Horseshoe, municipalities are now required to provide for a minimum of 40% of new residential units (phased in with full implementation by 2015) within the built-up areas. The implementation of the Growth Plan is carried out through the Regional and Area Municipal official plans.

The “Remaining Capacity” expressed in this report is the present capacity available in the water system and/or wastewater treatment plant to service all future Planning Approvals (subdivisions, condominiums, consents, zoning amendments, part lot control and minor variances) as well as/or building permits issued for all development outside of residential plans of subdivision.

For the purposes of this report, a “commitment” is presented in terms of number of people and includes the estimated population within: plans of subdivision which have Draft Approval, building permits issued but not yet occupied, and unbuilt registered plans.

**Area Municipal Consultation/Coordination**

A draft copy of this report was circulated to Area Municipal Planning staff for comment.
Corporate Strategic Plan:

The Water and Wastewater Monitoring Report supports “Focus Area 2: Growth Management - Manage and shape growth to ensure a livable, healthy, thriving and sustainable Waterloo Region.”

Financial Implications

The financial implications of this report will be addressed in the preparation of the 2015 Water and Wastewater Capital Programs.

Other Department Consultations/Concurrence:

Nil.

Attachments:

Table 1 - Remaining Water and Wastewater Capacity as of December 31, 2013
Table 2 - Small Rural Water System Summary as of December 31, 2013
Table 3 - Commitments as of December 31, 2013

Prepared By: Kevin Dolishny, Senior Project Engineer, Servicing and Development Planning

Brenna MacKinnon, Manager, Greenfield Planning

Approved By: Thomas Schmidt, Commissioner, Transportation and Environmental Services

Rob Horne, Commissioner, Planning, Housing and Community Services
### TABLE 1: REMAINING WATER AND WASTEWATER CAPACITY AS OF DECEMBER 31, 2013

<table>
<thead>
<tr>
<th>A</th>
<th>2013 MAX CAPACITY (1000 m$^3$/d)</th>
<th>B</th>
<th>MAX DAY / WEEK PROJECTED FLOW (1000 m$^3$/d)</th>
<th>C</th>
<th>COMMITTED FLOW (1000 m$^3$/d)</th>
<th>D = A - (B+C)</th>
<th>E</th>
<th>MAX DAY / WEEK FLOWS PER CAPITA (m$^3$/d/c)</th>
<th>F = D / E * 1000 REMAINING CAPACITY (PEOPLE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTEGRATED URBAN WATER SYSTEM</td>
<td>250.00</td>
<td>180.71</td>
<td>19.86</td>
<td>49.43</td>
<td>0.3678</td>
<td>134,405</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BADEN-NEW HAMBURG</td>
<td>12.61</td>
<td>4.67</td>
<td>0.41</td>
<td>7.54</td>
<td>0.3823</td>
<td>20,816</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AYR WATER SYSTEM</td>
<td>5.53</td>
<td>2.40</td>
<td>0.47</td>
<td>2.66</td>
<td>0.4972</td>
<td>5,412</td>
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<td></td>
</tr>
<tr>
<td>WELLESLEY ST. CLEMENTS</td>
<td>3.00</td>
<td>1.08</td>
<td>0.09</td>
<td>1.83</td>
<td>0.3386</td>
<td>3,768</td>
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<td>WATER INTEGRATED URBAN WATER SYSTEM</td>
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<td>19.86</td>
<td>49.43</td>
<td>0.3678</td>
<td>134,405</td>
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<tr>
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<td>0.41</td>
<td>7.54</td>
<td>0.3823</td>
<td>20,816</td>
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</tr>
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<td>2.40</td>
<td>0.47</td>
<td>2.66</td>
<td>0.4972</td>
<td>5,412</td>
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<tr>
<td>WELLESLEY ST. CLEMENTS</td>
<td>3.00</td>
<td>1.08</td>
<td>0.09</td>
<td>1.83</td>
<td>0.3386</td>
<td>3,768</td>
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<tr>
<td>KITCHENER WWTP</td>
<td>122.70</td>
<td>70.29</td>
<td>9.86</td>
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<td>0.3044</td>
<td>139,775</td>
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<tr>
<td>WATERLOO WWTP</td>
<td>57.50</td>
<td>46.93</td>
<td>4.23</td>
<td>6.34</td>
<td>0.3480</td>
<td>18,212</td>
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<td>GALT WWTP</td>
<td>56.80</td>
<td>35.25</td>
<td>1.19</td>
<td>20.36</td>
<td>0.4189</td>
<td>4,840</td>
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<tr>
<td>PRESTON WWTP</td>
<td>16.82</td>
<td>8.12</td>
<td>2.87</td>
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<td>0.4643</td>
<td>12,562</td>
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<tr>
<td>HESPELER WWTP</td>
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<td>7.73</td>
<td>0.13</td>
<td>1.46</td>
<td>0.3021</td>
<td>4,366</td>
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<tr>
<td>BADEN-NEW HAMBURG WWTP</td>
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<td>3.87</td>
<td>0.35</td>
<td>0.98</td>
<td>0.3078</td>
<td>3,195</td>
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<tr>
<td>AYR WWTP</td>
<td>3.00</td>
<td>1.42</td>
<td>0.28</td>
<td>1.30</td>
<td>0.2954</td>
<td>4,392</td>
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<tr>
<td>ST. JACOBS WWTP</td>
<td>1.45</td>
<td>0.96</td>
<td>0.00</td>
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<td>0.5186</td>
<td>936</td>
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<tr>
<td>WELLESLEY WWTP</td>
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<td>0.74</td>
<td>0.06</td>
<td>0.30</td>
<td>0.2312</td>
<td>1,293</td>
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</table>

### TABLE 2: SMALL RURAL WATER SYSTEM SUMMARY AS OF DECEMBER 31, 2013

<table>
<thead>
<tr>
<th>A</th>
<th>2013 CAPACITY (m$^3$/d)</th>
<th>B</th>
<th>MAX DAY PROJECTED FLOW (m$^3$/d)</th>
<th>C</th>
<th>COMMITTED FLOW (m$^3$/d)</th>
<th>D = A - B</th>
<th>E</th>
<th>MAX DAY FLOWS PER CAPITA (m$^3$/d/c)</th>
</tr>
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<tbody>
<tr>
<td>WOOLWICH CONESTOGA GOLF COURSE</td>
<td>601</td>
<td>459</td>
<td>N/A</td>
<td>142</td>
<td>0.9476</td>
<td>Case by Case</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WOOLWICH CONESTOGA PLAINS</td>
<td>786</td>
<td>239</td>
<td>N/A</td>
<td>547</td>
<td>0.6322</td>
<td>Case by Case</td>
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<tr>
<td>WOOLWICH MARY HILL</td>
<td>157</td>
<td>110</td>
<td>N/A</td>
<td>47</td>
<td>0.7645</td>
<td>Case by Case</td>
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<tr>
<td>WOOLWICH MARY HILL VILLAGE HEIGHTS</td>
<td>820</td>
<td>116</td>
<td>N/A</td>
<td>704</td>
<td>0.8529</td>
<td>Case by Case</td>
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<tr>
<td>WOOLWICH WEST MONTROSE</td>
<td>238</td>
<td>211</td>
<td>N/A</td>
<td>27</td>
<td>0.9009</td>
<td>Case by Case</td>
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<tr>
<td>WOOLWICH HEIDELBERG</td>
<td>629</td>
<td>324</td>
<td>N/A</td>
<td>505</td>
<td>0.3075</td>
<td>Case by Case</td>
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<tr>
<td>WOOLWICH LINWOOD</td>
<td>605</td>
<td>245</td>
<td>N/A</td>
<td>360</td>
<td>0.3044</td>
<td>Case by Case</td>
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<tr>
<td>WOOLWICH FOXBORO</td>
<td>527</td>
<td>165</td>
<td>N/A</td>
<td>362</td>
<td>0.3946</td>
<td>Case by Case</td>
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<tr>
<td>WOOLWICH NEW DUNDEE</td>
<td>983</td>
<td>426</td>
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<td>557</td>
<td>0.3779</td>
<td>Case by Case</td>
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<tr>
<td>WOOLWICH ROSEVILLE</td>
<td>358</td>
<td>189</td>
<td>N/A</td>
<td>169</td>
<td>0.6346</td>
<td>Case by Case</td>
<td></td>
<td></td>
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<tr>
<td>WOOLWICH BRANCHTON</td>
<td>130</td>
<td>102</td>
<td>N/A</td>
<td>28</td>
<td>0.9286</td>
<td>Case by Case</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(A) See Water Distribution Master Plan and Wastewater Treatment Master Plan for capacity details of each system

(B) See section 2.5 and 2.6 and appendix B & C for details of how average flow is calculated for individual systems

(C) See Table 3 for details about how committed flow is calculated from committed population in the DGA and BUA

(D) Both Water systems and Wastewater systems average/max day/week flow equals the average of the previous 5 years per capita flow

(E) See Section 2.4 and 2.5 for an explanation of average/max flows per capita

(F) Remaining Capacity divided by Average/Max Flow Per Capita multiplied by 1000. Any new service in the small rural systems must be reviewed by the Region of Waterloo Water Services staff and will be evaluated on a case by case basis.
### TABLE 3: COMMITMENTS AS OF DECEMBER 31, 2013

<table>
<thead>
<tr>
<th>WATER</th>
<th>COMMITMENTS (PEOPLE)</th>
<th>MAX DAY / WEEK FLOWS PER COMMITMENTS (m3/d)</th>
<th>COMMITMENTS (m3/d)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DGA</td>
<td>BU A</td>
<td>TOTAL</td>
</tr>
<tr>
<td>INTEGRATED URBAN WATER SYSTEM</td>
<td>42,100</td>
<td>11,894</td>
<td>53,994</td>
</tr>
<tr>
<td>BADEN-NEW HAMBURG</td>
<td>1,117</td>
<td>7</td>
<td>1,124</td>
</tr>
<tr>
<td>AYR WATER SYSTEM</td>
<td>939</td>
<td>4</td>
<td>943</td>
</tr>
<tr>
<td>WELLESLEY</td>
<td>246</td>
<td>7</td>
<td>253</td>
</tr>
<tr>
<td>ST. CLEMENTS</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

### WASTEWATER

<table>
<thead>
<tr>
<th>WASTEWATER</th>
<th>COMMITMENTS (PEOPLE)</th>
<th>AVERAGE FLOWS PER COMMITMENTS (m3/d/c)</th>
<th>COMMITMENTS (m3/d)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DGA</td>
<td>BU A</td>
<td>TOTAL</td>
</tr>
<tr>
<td>KITCHENER WWTP</td>
<td>26,137</td>
<td>6,268</td>
<td>32,405</td>
</tr>
<tr>
<td>WATERLOO WWTP</td>
<td>8,089</td>
<td>4,067</td>
<td>12,156</td>
</tr>
<tr>
<td>GALT WWTP</td>
<td>1,928</td>
<td>919</td>
<td>2,847</td>
</tr>
<tr>
<td>PRESTON WWTP</td>
<td>1,948</td>
<td>223</td>
<td>2,171</td>
</tr>
<tr>
<td>HESPELER WWTP</td>
<td>37</td>
<td>378</td>
<td>415</td>
</tr>
<tr>
<td>ELMIRA WWTP</td>
<td>3,109</td>
<td>22</td>
<td>3,131</td>
</tr>
<tr>
<td>BADEN-NEW HAMBURG WWTP</td>
<td>1,117</td>
<td>7</td>
<td>1,124</td>
</tr>
<tr>
<td>AYR WWTP</td>
<td>939</td>
<td>4</td>
<td>943</td>
</tr>
<tr>
<td>ST. JACOBS WWTP</td>
<td>0</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>WELLESLEY WWTP</td>
<td>246</td>
<td>7</td>
<td>253</td>
</tr>
</tbody>
</table>

(A) See appendix D for a detailed breakdown of committed population from known development
(B) Average of the previous five years. See Section 2.5 and 2.6 for an explanation of the Average/Max Flow Per Capita Per Day in Column ‘B’
(C) Column ‘A’ multiplied by column ‘B’

Preston WWTP commitments include 1,860 m3/day for the Boxwood Industrial Subdivision
Region of Waterloo
Planning, Housing and Community Services
Community Planning

To: Chair Jim Wideman and Members of the Planning and Works Committee
Date: May 27, 2014
File Code: D03-80/Land Trust
Subject: A Community-Based Conservation Land Trust in Waterloo Region - Proposed Discussion Forum

Recommendation:

That the Regional Municipality of Waterloo authorize Planning, Housing and Community Services staff to hold a community forum to discuss the merits of an independent community-based multi-property conservation land trust, with the associated expenses for the forum to be allocated from the Stewardship Stream of the Community Environmental Fund, all as described in Report P-14-050, dated May 27, 2014.

Summary:

The purpose of this report is to initiate a conversation in Waterloo Region about the potential creation of a community-based conservation land trust comparable to those established in neighbouring jurisdictions. A land trust may be generally defined as a non-profit registered charity which can hold land, conservation easements, or enter into covenants with landowners. The purpose of a land trust is to maintain, protect, and steward properties having notable natural, cultural heritage, and/or agricultural values. Such a land trust would not be a part of government, but a non-profit registered charity based in the community.

The website of the Ontario Land Trust Alliance (OLTA) currently lists 32 local land trusts and two provincial land trusts (the Ontario Farmland Trust and Ontario Nature) (see Attachment A). In recent years, land trusts have been created for the long-term conservation of significant and unique properties There are two site-specific privately initiated land trusts in Waterloo Region: the Branchton Village Land Trust which is conserving a small tract of Carolinian woodland adjacent to the village and the rare Charitable Research Reserve, a unique entity in Ontario which focuses on the conservation of one large contiguous property in North Dumfries Township and Cambridge.
Currently a multi-property conservation land trust does not exist within Waterloo Region. A multi-property land trust would be primarily interested in conservation properties not suited to sustained recreational or public use. As essentially private landowners, land trusts are not necessarily obligated to open their properties for public visitation. Where there are sensitive ecological features, a land trust may restrict access to trust volunteers in order to focus on stewardship and research with minimal human disturbance. In contrast to site-specific organisations, a multi-property land trust would have the flexibility to take advantage of the fact that suitable properties become available sporadically as individual landowners in scattered localities decide to sell or donate land or conservation easements to the trust.

The Region has been anticipating the examination of a community-based multi-property land trust for some time as evidenced by Regional Official Plan (ROP) (policy 7.I.11) and Strategic Focus 2011-2014 (1.5.3) which states, “Foster partnerships to promote and protect Waterloo Region’s environmentally sensitive lands (e.g. rare Charitable Research Reserve, Grand River Corridor, Conservation Easements, potential land trust, etc.).” A multi-property land trust could provide maintenance, enhancement and restoration of ecological functions within the Greenlands Network, including Regional Recharge Areas and Environmentally Sensitive Landscapes, without requiring the Region to own the land or contribute financially.

Staff is recommending that the Region host a one-day community forum, potentially in September or October 2014, to bring together representatives of appropriate organisations, interested members of the public, and Area Municipalities to learn more from others who have been involved in the successful creation and operation of land trusts. The forum would indicate whether there is sufficient desire to initiate a process to establish a multi-property community-based land trust in Waterloo Region. Such a gathering would also help identify individual citizens or voluntary organisations having the vision, commitment, and skills to form a working group to develop a more detailed proposal for further consultation with the larger community. In addition, this initial process could identify one or two private properties in the Region which could form the nucleus of a potential land trust. The Region’s role at this time is simply to act as a catalyst to attempt to initiate the process. At the outset, Regional staff could provide some logistical support and technical advice but as people with the requisite skills stepped forward, the involvement of Regional staff would be correspondingly reduced.

Staff recommends that up to $7,000 be allocated from the 2014 Community Environmental Fund (Stewardship Stream) to defray expenditures associated with holding the forum such as advertising, speakers’ expenses, catering, and other related expenses.

Area Municipal staff has reviewed a draft of this report and they will be invited to participate in the forum.

Report:

In recent years, there has been considerable interest in the creation of land trusts for the long-term conservation of properties having notable natural, cultural heritage, and/or
agricultural values. Beginning in the 1890s in the United States, and more recently in Canada, land trusts have brought thousands of significant properties under informed stewardship and involved citizens from all walks of life in hands-on conservation of natural and cultural heritage resources.

A land trust, for the purposes of this report, is defined as a non-profit registered charity which can hold land, conservation easements, or enter into covenants with landowners under the Conservation Lands Act (Ontario). The purpose of a land trust is to maintain, protect, and steward properties having significant ecological, cultural heritage, or agricultural values. Stewardship may take the form of maintaining the ecological attributes of high quality natural areas, managing cultural heritage properties or landscapes, restoring partially degraded natural features, providing opportunities for education and research, pursuing sustainable agricultural use, or opening natural areas to appropriate low-impact recreation.

Community-based land trusts have now been established in many jurisdictions throughout Ontario. The website of OLTA currently lists 32 local land trusts and two provincial land trusts (the Ontario Farmland Trust and Ontario Nature). A map prepared by OLTA shows that land trusts are widely distributed throughout the Province (Attachment 1). Somewhat surprisingly, however, Waterloo Region is blank on the map. In actual fact, however, a small locally-based land trust was established by a group in Branchton in 1997 to conserve a tract of Carolinian woodland within the Branchton Swamp Environmentally Sensitive Policy Area (ESPA 67) adjacent to the village. Further, the privately-initiated rare Charitable Research Reserve is a unique entity within Southern Ontario which focuses on one large contiguous property in North Dumfries Township and Cambridge. Rare is a member of OLTA.

A land trust in Waterloo Region?

Staff are now recommending that the Region initiate a conversation to explore the feasibility of creating a community-based land trust in Waterloo Region that could potentially encompass multiple properties in different parts of the region. Such a land trust would not be a government organisation, but a non-profit registered charity based in the community. In contrast to site-specific land trusts such as the Branchton Village Land Trust and rare, a multi-property land trust could own multiple properties or Conservation Easements in various parts of the Region. This model is typical of many of the land trusts represented in OLTA. When the Region endorsed the “Outline of the Greenlands Strategy” on April 13, 2005 (Report P-05-021 dated April 5, 2005) to inform the development of policies in the first draft of the new Regional Official Plan (ROP), there was an item to “Explore the feasibility of creating a region-wide conservation land trust to harness community resources to acquire and steward lands within the Greenlands Network.” Four years later, a policy was incorporated in the ROP to the effect that “The Region will consider the establishment of a Land Trust to hold, purchase and manage elements of the Greenlands Network, or to hold conservation easements” (policy 7.1.11). Subsequently, item 1.5.3 in Strategic Focus 2011-2014 gave direction to “Foster partnerships to promote and protect Waterloo Region’s environmentally sensitive lands (e.g. rare Charitable Research Reserve, Grand River Corridor, Conservation Easements, potential land trust, etc.)"
Why should a multi-property land trust be seriously considered in Waterloo Region? Over several decades, significant natural heritage properties have been acquired by Area Municipalities as parks, by the GRCA as Conservation Areas, and by the Region as Regional Forests. Most of these are open to the general public, and have become well-loved and well-visited recreational resources. It is expected that additional natural features within the Urban Area of the Region will continue to be dedicated to the public agencies through future development approvals. Such properties would probably not be the primary interest of a potential land trust. Rather, it would be expected that a land trust would focus on the conservation of primarily natural heritage properties in rural areas, properties that would be unlikely to be acquired by the Townships as parkland or by the GRCA or Region. Nevertheless, some urban conservation properties not suited to recreational use might also be appropriate for a land trust. A multi-property land trust would be set up in a manner that would allow for the acceptance of properties as they became available over time. It is expected that priority would be given to acquiring lands or conservation easements in the Greenlands Network with special attention to the four Environmentally Sensitive Landscapes, ESPAs, Provincially Significant Wetlands, lands within the significant valleylands of the Grand River and its major tributaries or other natural lands accessed by the Kissing Bridge Trailway, Grand Valley Trail, or Trans Canada Trail.

As essentially private landowners, land trusts are not necessarily obligated to open their properties for regular public visitation. To protect sensitive ecological features, they may restrict access to trust members and volunteers for the purpose of carrying out required stewardship activities, conducting research, and allowing natural processes to continue with minimal human interference. Typically, such properties are located outside cities and are quite compatible with the needs and sensitivities of rural areas.

**Community forum on land trusts**

The purpose of this report is to initiate a conversation in Waterloo Region about the potential creation of a land trust comparable to those now established in neighbouring jurisdictions. This could take the form of a locally-based organisation or one in association with such provincial-level bodies as the Ontario Farmland Trust or Ontario Nature. After attending the October 9-11, 2013 OLTA conference in Orillia, Regional staff are convinced that our region has the natural heritage, private financial resources, together with many individual citizens with the range of knowledge, skills, networks, energy, interest and commitment required to establish and operate a successful land trust to preserve our environmental and cultural heritage.

Staff are recommending that the Region host a one-day community forum, potentially in September or October, to bring together representatives of appropriate organisations, interested members of the public, and Area Municipalities to learn more about land trusts from persons who have been involved in the successful creation and operation of land trusts. Participation would be by invitation as well as in response to a general advertisement on the Region’s website and in the media. The outcome of the forum would be an assessment of whether there is sufficient desire to initiate a process to establish a community-based land trust in Waterloo Region. More importantly, such a gathering would also help identify individual citizens or voluntary organisations having...
the vision, commitment, and skills to form a working group to develop a more detailed proposal for further consultation with the larger community. In addition, this initial process could identify one or two private properties which could form the nucleus of a potential land trust.

As land trusts are usually charitable not-for-profit corporations, a potential land trust would not be an agency of the Region or any government. Rather, a community-based land trust would be primarily financed by private donations and staffed by volunteers or staff paid for by donations. The Region’s role at this time is simply to act as a catalyst to initiate the discussions. At the outset, Regional staff could provide some logistical support to a working group in the form of clerical assistance with agendas and minutes, technical advice on natural and cultural heritage values in the Region, and where appropriate, assistance related to options for governance. As people with the requisite skills stepped forward, the involvement of Regional staff would be correspondingly reduced.

As holding a forum is expected to entail costs for advertising, speakers, catering, and other related expenses, staff recommend that up to $7,000 be allocated from the approved budget for the 2014 Community Environmental Fund (Stewardship Stream) to defray these expenditures.

There would be no expected future financial commitment required by the Region should a community-based land trust be established within Waterloo Region. However, in the event a land trust is established, it could be a suitable organisation to apply to the Community Environmental Fund for funding assistance with land acquisition or other needs fulfilling the criteria for applying for grants, subject to the availability of funds in future Regional Budgets and Council approval. In the past, for example, the Community Environmental Fund has assisted the rare Charitable Research Reserve and the Grand River Conservation Authority (GRCA) with major conservation land purchases within the Region, and has assisted the Branchton Village Land Trust with stewardship actions.

Area Municipal Consultation/Coordination:

A draft of this report has been circulated to Area Municipal environmental planning staff, and they will be invited to participate in the forum.

Corporate Strategic Plan:

This report would initiate a process to help achieve a component of item 1.5.3 of Strategic Focus 2011-2014 “Foster partnerships to promote and protect Waterloo Region’s environmentally sensitive lands (e.g., rare Charitable Research Reserve, Grand River Corridor, Conservation Easements, potential land trust, etc.)“

Financial Implications:

The recommended allocation of up to $7,000 from the Community Environmental Fund (Stewardship Stream) would be used to defray expenditures associated with holding the forum such as advertising, speakers’ expenses, catering, and other related expenses. There is $235,883 remaining in the 2014 Community Environmental Fund.
budget and the recommended allocation of up to $7,000 can be funded from the current budget. If a land trust is eventually established, it would be financed by private donations.

Other Department Consultations/Concurrence:

Legal Services has provided advice in the preparation of this report.

Attachments:

Attachment 1 - Map showing land trusts in Ontario

Prepared By: Chris Gosselin, Manager, Environmental Planning

Approved By: Rob Horne, Commissioner, Planning, Housing and Community Services
Attachment 1 - Land Trusts in Ontario
Recommendation:

That Regional Council endorse Report No. P-14-061, dated May 27, 2014, as the basis for advancing development of the King-Victoria Multi-modal Transit Hub;

That the Region of Waterloo authorize the establishment of a Steering Committee and Senior Management Team, as described in this report, to oversee the process of selecting a proponent for the King-Victoria Transit Hub;

That Regional Council appoint three representatives from Regional Council to sit on the Transit Hub Steering Committee;

That Regional staff investigate options for partnerships with Metrolinx and, as appropriate, VIA Rail regarding development of the transit infrastructure on the King-Victoria Multi-modal Transit Hub lands;

And that the current King-Victoria Multi-modal Transit Hub Project Team be concluded and thanked for its participation in the project.

Summary:

Over the past six years, the Region of Waterloo has purchased and assembled a number of properties located at or near the intersection of King and Victoria Streets for the purpose of developing a multi-modal transit hub (Transit Hub) (see Attachment A for locational context). The development of the Transit Hub will provide for seamless connections between various public transportation systems and provide for approximately one million square feet of private sector mixed-use development. The development of the Transit Hub is directly linked to a number of other intersecting
projects, including: the expansion of GO service to Kitchener; the Central Transit Corridor Community Building Strategy; the Active Transportation Master Plan; the King Street Grade Separation; the implementation of ION; and the GRT Route Network Redesign.

To date, all required properties have been purchased and arrangements have been made to transfer the portion of Waterloo Street between Breithaupt Street and Victoria Street North from the City of Kitchener to the Region of Waterloo. In addition, the required environmental assessment and Planning Act processes along with any supporting studies necessary for the project have been completed, with the exception of site plan approval under the provisions of the Planning Act. Site plan approval will be applied for once the design integrating the public and private sector components of the site are finalized in negotiation with a future private sector partner. Environmental clean-up of the site is on-going and will be finalized through the completion of a risk assessment later this year with the eventual remediation occurring in conjunction with construction of the Transit Hub.

A market scoping and sounding analysis was also been completed for the Transit Hub by Cushman & Wakefield (in conjunction with Brook McIlroy, ARUP and Stantec Consulting) which indicates there is both a viable market for the proposed development if appropriately staged and reasonable interest in the private sector related to participation in such a project. The recent announcement of the future implementation of two-way all day GO train service to the Region further enhances both the importance of the Transit Hub within Greater Golden Horseshoe and the anticipated private sector interest associated with the future development of the site.

With the completion of the above noted planning processes, development of the Transit Hub now moves from planning into the implementation phases of the project. The nature of the remaining phases, which involve very specific processes related to the preparation and issuance of a Request for Proposal (RFP) similar in nature to that which occurred with the ION system, necessitates a realignment of both the resources assigned to the project as well as the project management structure associated with it.

Following consultation with a number of groups involved in projects of this nature, Regional staff recommends that the remaining phases of the project be overseen by a Steering Committee, made up of senior staff and political representation from Regional Council, and a Senior Management Team assisted as required by external advisors with specialized financial, procurement, engineering and legal experience (please see Attachment E for recommended project management structure). Coordination with and involvement of the City of Kitchener will be maintained throughout the process, with the formal mechanisms being determined by the Steering Committee and Senior Management Teams.

The various steps in the remainder of the project implementation process, including the development of a municipal business case and financial plan, the preparation and issuance of the RFP and related documents, the selection of a preferred proponent and the oversight of the construction of the Transit Hub are proposed as described in the Next Steps section of the report below. It is anticipated that a two stage RFP process could be commenced in the fall of 2015, with there being the potential for the start of
construction on a portion of the site beginning in early 2017.

In addition, this report also recommends that Regional staff initiate more detailed discussions with Metrolinx regarding potential partnerships related to the construction of the required transit infrastructure on the Transit Hub lands, particularly as they relate to GO transit services. Regional staff will also investigate, as appropriate, any potential partnership opportunities with VIA Rail, which maintains daily service to the existing train station.

Report:

Project Description

Over the past six years, the Region of Waterloo has purchased and assembled a number of properties located at or near the intersection of King Street and Victoria Street in the City of Kitchener for the purpose of developing a multi-modal transportation hub (Transit Hub) (see Attachment A for locational context). Development of the Transit Hub is intended to bring together ION Light Rail Transit, GO train and VIA Rail service, Grand River Transit (GRT) and inter-city bus services such as GO bus and other private sector carriers into one centralized facility so as to permit seamless movement between these systems. The convergence of higher order transportation in this location will support the future development of the City of Kitchener’s planned Innovation District, which is intended to provide for up to 15,000 people and jobs. Development within the Innovation District is expected to generate significant transit ridership within the Central Transit Corridor.

In addition to seamlessly connecting various public transportation systems and supporting future development within the Innovation District, the Transit Hub itself is expected to become a major transit oriented destination that includes up to one million square feet of residential, office and retail uses integrated with the required public transportation infrastructure on site. It is important that any future development of the Transit Hub demonstrate a high standard of design to help set the standard for other developments in the Innovation District.

Project Team

To assist in the feasibility and planning phase of the Transit Hub, in 2012 the Region established the Transit Hub Project Team to provide strategic guidance on project deliverables and to ensure coordination between several intersecting projects, including the expansion of GO service to Kitchener, the Central Transit Corridor Community Building Strategy, the Active Transportation Master Plan, the King Street Grade Separation, the implementation of ION and the GRT Route Network Redesign (see Report P-11-074).

The make-up of the Project Team, project work plan and schedule was provided to Council in Report P-12-076. Project Team members included Regional Councillors Jean Haalboom, Jim Wideman and Sean Strickland, City of Kitchener Councillor Dan Glenn-Graham, Region of Waterloo and City of Kitchener staff representatives from planning, engineering and economic development, as well as representatives from GO,
VIA Rail and Metrolinx. The engagement of Project Team members in several working groups proved very effective for establishing and maintaining a high degree of understanding and collaboration between the intersecting projects.

**Progress to Date**

Development of the Transit Hub is intended to occur in four phases (see Attachment B:

- Phase 1 – Planning and Feasibility;
- Phase 2 – Preparation for and Issuance of a Request For Proposal;
- Phase 3 – Selection of Development Proponent; and
- Phase 4 – Construction.

The Region has completed the planning and feasibility phase (Phase 1), including purchase of the properties, completion of the required Environmental Assessments and a preliminary cost assessment of the transit-related infrastructure, and final approval for the Official Plan and Zoning By-law amendments. Two significant studies relating to design feasibility (IBI) and market scoping and sounding (Cushman & Wakefield in conjunction with Brook Mcllroy, ARUP and Stantec Consulting) have also been completed. Copies of these two reports can be found in the Councillor’s library.

The project deliverables associated with Phase 1 are effectively complete as summarized below.

1. Property Purchases - All properties required for the development of the Hub are now owned by the Region of Waterloo with the exception of the Waterloo Street road allowance, which is anticipated to be transferred from the City of Kitchener to the Region of Waterloo in May of this year (see Report E-14-026/P-14-035). City of Kitchener Council has agreed to the transfer of these lands. In total, the properties purchased for the Transit Hub represent approximately 1.6 hectares (four acres) (see Attachment A for locational context).

2. Planning Approvals – The Official Plan and Zoning By-Law Amendments for the Transit Hub were approved by the City of Kitchener on February 25, 2013. A high density mixed-use development is now permitted onsite, with a Floor Space Ratio of 7.5, which translates into a permitted Gross Floor Area of approximately 1-million square feet. To support the Region’s transit-oriented development objectives, these amendments provided for the broadest range of uses possible so as to facilitate innovative proposals during the RFP process. The City also approved a reduced parking standard for the site in recognition of the high level of access to transit services associated with the site. As part of the formal application to amend the City of Kitchener Official Plan and Zoning By-law, a Heritage Impact Assessment and Urban Design Brief were also approved by the City of Kitchener.

3. Environmental Assessments – A Municipal Class Environmental Assessment (Schedule ‘B’) for the transportation facilities associated with the Transit Hub is complete. A separate Municipal Class Environmental Assessment (Schedule A+) was completed to support the eventual closure of Waterloo Street through the Transit Hub site. Waterloo Street will be closed at the time the railway tracks in that
section are raised to match in with the grades associated with the King Street grade separation.

4. Market Scoping and Sounding Analysis - The market scoping and sounding analysis headed by Cushman & Wakefield reviewed two development concepts with varying emphasis on office, retail and residential uses. The analysis concluded that from a real estate perspective, sufficient market exists within Waterloo Region to support future development of the site for a mix of uses, including residential (particularly rental residential) and office. Future development of the site will likely be subject to phasing, depending on the specific market conditions at the time the project moves forward.

Cushman & Wakefield also performed a high level review of the range of potential legal structures and partnership arrangements (procurement models) that could be used to develop the site, including a variety of property sale and lease options that provide for various forms of ownership of the transportation related infrastructure and the private sector components of the site. Based on Cushman & Wakefield’s analysis, which primarily focussed on the real estate perspective, selection of the appropriate procurement model is dependant on two factors: i) the Region’s financial objectives for early capital income through direct sale, versus recurring revenue through various leasing options; and b) the interest expressed by the private sector through the RFP process. Development of a comprehensive municipal business case and financial plan and the associated selection of the procurement model to be incorporated in the RFP are to be completed as part of the next phase. Additional details relating to the Market Scoping and Sounding analysis are contained in Attachment C.

Preliminary Site Design and Station Area Access Plan – This report was prepared by IBI for the Region in consultation with the City of Kitchener. The Preliminary Site Design and Station Area Access Plan (the Plan) provides two proof-of-concept site designs that maintain the property’s heritage resources and achieve the City building and transit related objectives of the Transit Hub, while maximizing the development potential of the site. The Plan prioritizes pedestrian and cyclist connections, as well as transfers between ION, GRT, and GO transit and VIA Rail service, while also considering measures to reduce conflicts with taxis, cars, and service vehicles in and around Transit Hub site.

The Plan identified several transit-related infrastructure components that need to be constructed in conjunction with the Transit Hub to support the seamless integration of the various forms of transportation. In particular, it is essential that the final design of the King Street grade separation provides ample sidewalk space for high volumes of pedestrians. It is also important to consider the development plans of adjacent properties to ensure that there continues to be high degree of access and visibility through the grade separation.

The Plan concludes that a high-density mixed use development fully integrated with the proposed transit-related infrastructure can be achieved on the Transit Hub site. It is not expected that the preferred development proponent would replicate the
designs in the Plan. Rather, the Plan is intended to inform the RFP process through which a final design will be developed. More details relating to the findings of the Plan are contained in Attachment D.

5. Site Demolitions - Demolition of the structures formerly located at 50 Victoria Street North (the former End of Roll site) and 510 King Street West (the former grocery store site) is complete and these sites are currently being used for temporary parking as described below. The structure located at 520 King Street West (the Beer Store) is expected to be demolished in fall 2014 to make way for staging areas associated with the King Street grade separation and ION construction projects. The structure at 16 Victoria Street North (Ambulance Waiting Station) is, for logistical reasons, expected to be demolished as late as 2016. Future development of the portion of the site currently occupied by the Rumpel Felt building will be undertaken through adaptive reuse of the existing structure consistent with the Heritage Impact Assessment approved by the City of Kitchener. Following the relocation of GO train and VIA Rail services to the Transit Hub lands, any future use of the existing railway station (located east of Weber Street) will be subject to processes under the Ontario Heritage Act and approval by the City of Kitchener.

6. Temporary Use of the Lands - The lands at 50 Victoria Street North and 510 King Street West are currently being used as temporary parking lots. In addition to providing free parking to GO train commuters arriving before 7 a.m., the Region continues to sell monthly permits for surplus parking spaces not required by GO train commuters to major tenants at The Tannery, thereby helping to alleviate near term parking issues in the area. Revenue from the sale of permits is offsetting the cost to construct and administer the temporary parking lots and the cost to maintain the building at 16 Victoria Street and the Rumpel Felt building.

Through a short-term tenancy agreement, the 16 Victoria Street property is temporarily housing the sales office for Momentum Developments’ on-going redevelopment of 1 Victoria Street South and 100 Victoria Street South. The EMS Station is being relocated to Water Street, and the tenancies at 16 Victoria Street North as well as at 520 King Street West (The Beer Store) will end by September 2014.

It is anticipated that the portion of the Transit Hub lands west of Waterloo Street will be used for a temporary staging area for the King Street grade separation and ION construction projects. At that time, temporary parking will be restricted to the 50 and 60 Victoria Street North properties.

7. Record of Site Condition – A Record of Site Condition is required under the Environmental Protection Act for residential use on the Transit Hub lands and by the City of Kitchener as a condition of approval. Before filing a Record of Site Condition, all portions of the Transit Hub site require some degree of soil remediation, which is anticipated to proceed concurrently with the phased development of the site. A Risk Assessment is currently underway to determine mitigation measures for residual environmental issues and will be complete by mid-
2014. A Certificate of Property Use, which registers mitigation measures identified by the Risk Assessment on title, will be a condition for filing the RSC at a later date.

It is intended that in the Risk Assessment, the Transit Hub lands will be defined in two sections to allow for a phased filing of the Records of Site Condition required for the site. The first section is the portion of land west of Waterloo Street that will be remediated after its use as a temporary staging area for the King Street grade separation and ION construction projects. The second section, which constitutes the remainder of the site, could be remediated before the temporary staging area, thereby allowing earlier development of the site. The transfer of ownership of Waterloo Street to the Region is required for Ministry of the Environment acceptance of the Risk Assessment.

Proposed Next Steps

Development of the Transit Hub is now moving into the next phase of the process, that being the preparation of and issuance of a RFP. Given the specialized nature of the remaining phases of the project, it is necessary and prudent to realign and supplement both the resources assigned to the project as well as the project management structure associated with it. Building on the work completed in the planning and feasibility phase, the following are the key steps (with proposed timelines) in the remaining three phases of the project:

Phase 2

1. Establish a Revised Project Management Structure - Following consultation with a number of groups involved in projects of this nature, Regional staff recommends that this phase and all subsequent phases of the project be overseen by a Steering Committee and a Senior Management Team assisted as required by external advisors with specialized financial, procurement, engineering and legal experience (see Attachment E for recommended project management structure). This structure is similar to that being used in the implementation of the ION project.

The Steering Committee would consist of three Regional Councillors and all the members of the Senior Management Team (see below). The role of the Steering Committee would be to advise and provide direction to staff at key decision points in the process. It is proposed that the Steering Committee would replace the Transit Hub Project Team, which held its last meeting on March 3, 2014.

The Senior Management Team would consist of a Project Director, the Regional CAO, the Commissioners of Transportation and Environmental Services, Planning Housing and Community Services, Finance and representatives from Legal Services and Facilities Management, supported as required by other Regional staff. The role of the Senior Management Team would be to oversee: i) the day to day management of the project; hiring of any external advisors; ii) preparation and issuance of the RFP and related documents; iii) preparation of any associated legal agreements; and iv) any required supervision related to the site development. (June - July 2014)
Coordination with and involvement of the City of Kitchener will be maintained throughout the process, with the formal mechanisms being determined by the Steering Committee and Senior Management Teams.

2. Selection of a Financial / Procurement Advisor and Development of a Municipal Business Case and Financial Plan - The next major step in the development of the Transit Hub is the refinement of the financial and infrastructure objectives, the creation of a municipal business case and financial plan that addresses a preferred approach for recovering all or a portion of the costs associated with the transit related infrastructure, and selection of appropriate legal structure(s) or partnership options (procurement models) for consideration through the RFP process. The development of a municipal business case and financial plan for the Transit Hub will provide Regional Council with a municipal financing perspective and will complement and build on the work already undertaken by Cushman & Wakefield through the Market Scoping and Sounding Analysis. It is recommended that external resources with expertise in municipal financing and procurement processes be retained to complete this task similar to the roles that Deloitte and Infrastructure Ontario played with respect to the ION project. Funding for this process is available through the 2014 capital budget approved for the development of the Transit Hub (Fall 2014).

3. Selection of Legal and Engineering Advisors and Development of the RFP Documents – Following selection of a preferred procurement model and development of the municipal business case and financial plan (see 2 above), it is recommended that external resources with expertise in appropriate areas of municipal law be retained to assist in the preparation of the RFP and related documents. Depending on the nature of the procurement model selected, this process could involve specialized expertise not available through internal staff. Preparation of the RFP documents would also involve the completion of conceptual engineering design work requiring external engineering services. Such engineering work would include completion of a thirty percent design for each of the transit and transportation related infrastructure components. A thirty percent design is a conceptual design required to inform the preparation of detailed budget estimates, phasing plans and construction schedules to be included in the RFP submissions. (February 2015 to August 2015)

4. Issuance of a Request for Qualifications (RFQ) - The purpose of the first stage of the RFP process is to complete an initial screening of the proponents’ qualifications, their proposed implementation of the preferred procurement model, and conceptual depictions of the proposed development including proposed uses, massing, density and integration with the transit-related infrastructure  (Fall 2015).

Phase 3


6. Issuance of Second Stage of the RFP – This stage of the RFP process involves the submission of more detailed design and financial / procurement model related
information relating to the development and phasing of the Transit Hub (first half of 2016).


8. Closing of the RFP – Negotiation of contracts and associated legal agreements with the preferred proponent (late 2016).

Phase 4

9. Construction – Construction of the property east of Waterloo Street could begin in early 2017, with the remainder of the site becoming available following completion of the use of the Transit Hub lands for staging associated with the King Street grade separation and ION system construction anticipated by mid-year 2017.

Potential Partnerships and Grants
Given the need for the construction of infrastructure directly related to the operations of GO transit and VIA Rail, it is recommended that the Region initiate discussions with Metrolinx, and as appropriate VIA Rail, regarding potential partnerships in the development of the Transit Hub.

Applications for available funding through such programs as the New Building Canada Fund and the Federation of Canadian Municipalities Green Municipal Fund will also be prepared for Council’s consideration at appropriate times in the process.

Coordination with Intersecting Projects
Projects intersecting with the Transit Hub include: GO transit expansion to the City of Kitchener; the Central Transit Corridor Community Building Strategy; the Active Transportation Master Plan Study; the King Street Grade Separation; ION construction; and the GRT Route Network Redesign. Representatives from these projects have been included in the project management structure of this project through the Project Team. The necessary feedback relating to the intersecting projects has been incorporated through the first phase of this project. Continued coordination with these projects will be maintained through ongoing liaison.

Public and Stakeholder Consultation
Public consultation relating to this project occurred through two open houses and two statutory public meetings held in 2012 and 2013. These public engagement opportunities addressed the associated Planning Act applications, the Preliminary Site Design and Station Area Access Plan, and the Environmental Assessment required for the transit infrastructure. The open house associated with Preliminary Site Design and Station Area Access Plan attracted over 250 residents who actively engaged staff with detailed questions about the site, but no objections were received. The key concerns identified include:

- the prioritization of pedestrians and cyclists;
- direct and easy to follow connections between rail transit and buses;
the potential impact of construction on surrounding developments, business and neighbourhoods;
that the final design should be market-real and achievable; and
amenities such as food stores and retail are critical to the success of the hub.

In addition to the public open houses, specific stakeholder consultation sessions were held with the Active Transportation Advisory Committee, Rapid Transit, Metrolinx, and adjacent property owners, including the Kaufman Lofts, the University of Waterloo, Momentum Development, Zehr Group, and Perimeter Development. Metrolinx reviewed the Preliminary Site Design concepts as they relate to GO transit and confirmed that they provide an acceptable pedestrian access strategy for their purposes. At the request of the City of Kitchener, a traffic assessment of nine intersections was also conducted to confirm that continuous bike lanes on King Street through the Victoria Street intersection would have a limited impact on vehicle turning movements. Finally, in consultation with Rapid Transit staff, cost estimates were produced that integrate the GO train and VIA Rail platform and the recommended Transit Hub design.

### Area Municipal Consultation/Coordination

City of Kitchener staff has been extensively involved in all of the studies completed to date. City of Kitchener staff also oversaw the review of the required Planning Act applications and approval of the Heritage Impact Assessment and Urban Design Brief. The City of Kitchener was represented on the Project Team by three staff members, one each from planning, engineering and economic development, and by Councillor Dan Glenn-Graham. A draft of this report was also shared with City of Kitchener staff.

The Preliminary Site Design and Station Area Action Plan was guided by a multi-disciplinary working group consisting of engineering and planning staff from the City of Kitchener and the Region of Waterloo. In addition, numerous meetings were held with stakeholders representing the interests of active transportation, accessibility, rail operations and the surrounding property owners.

### Corporate Strategic Plan:

This initiative directly supports Strategic Action 3.4.1, “Implement the multimodal transportation hub at Victoria and King Streets”.

### Financial Implications:

Transit Hub Expenditures to March 31, 2014 are $11.6 million. These expenditures include costs associated with the purchase of property, planning and feasibility studies, building demolition and associate costs, building and property maintenance and construction of temporary parking. These expenditures have been partly offset by revenues in the amount of $230,000. Capital costs incurred to the end of December 31, 2013 have been financed through debenture financing. The 2014 capital program provides $360,000 of parking revenues and debenture financing for the continued planning of the Transit Hub.
Other Department Consultations/Concurrence:

Staff from Transportation Planning, Legal Services, Facilities Management, Finance and Rapid Transit have been consulted in the preparation of this report.

Attachments:

Attachment A – Transit Hub Location
Attachment B – Project Implementation Plan Summary
Attachment C – Summary: Market Scoping and Sounding Study
Attachment D – Summary: Preliminary Site Design and Station Area Access Plan
Attachment E – Recommended Project Management Structure

Prepared By: John Hill, Principal Planner
              Kevin Eby, Director, OMB Appeals and King-Victoria Transit Hub

Approved By: Rob Horne, Commissioner, Planning Housing and Community Services
Project Implementation Plan Summary

### Feasibility

- Phase One: Planning and Feasibility
  - Purchase Property (complete)
  - Planning approvals OPA/ZBA (complete)
  - Environmental Assessments (complete)
  - Preliminary Site Design and Station Area Access Plan (complete)
  - Market Scoping (complete)
  - Market Sounding (complete)

### Implementation

- Phase Two: Preparation for and Issuance of a RFP
  - Subject to Regional Council Approval
    - Establish revised project management structure
    - Hire Project Advisors as required
    - Develop municipal business case and financial plan
    - Budget Issue Paper
    - Develop RFP documents
    - Stakeholder engagement, liaise with approval bodies and agencies (ongoing)

- Phase Three: Selection of Development Proponent
  - Issue Stage 1 RFP documents
  - Selection of short listed proponents
  - Issue Stage 2 RFP
  - Selection of preferred proponent

### Post-RFP

- Phase Four: Construction
  - Negotiations with proponent(s)
  - Sign Agreements
  - Start construction
  - Monitor Progress
  - File Record of Site Condition (ongoing)

- We are here
The Cushman & Wakefield Advisory Team (inclusive of sub-contract partners Brook McIlroy, ARUP and Stantec Consulting) was engaged the Region of Waterloo to complete a Market Scoping Study for the Region of Waterloo Multimodal Hub. The objectives of the Study were to:

- To provide planning, design and investment recommendations.
- To deliver Development Concepts that are Visionary and Catalytic, but solidly grounded in market and investment fundamentals.
- To complete a Market Sounding of the Region of Waterloo and Greater Toronto Hamilton Area development, investment and tenant community, to confirm the viability of the Development Concepts.
- To prioritize and select Development Concepts that offer the best opportunity for Multimodal and broader Waterloo RT success, at a level of mitigable risk that is acceptable to the Region.
- To describe, financially analyze, assess and prioritize Monetization Options for the Multimodal Hub lands.
- To complete Regional Cash Flow Projections, inclusive of projections of Multimodal Hub land disposition, development charge and real estate tax revenue.
- To provide a Multimodal Hub Infrastructure Investment Business Case and Implementation Strategy.

**Market Moves**

To spur timely multimodal development success

- **Module I:** Market Demand
- **Module 2:** Market Sounding
- **Module 3:** Evaluation of Options
Development Concepts

Cushman & Wakefield’s market analysis led to two development concepts with the following metrics:

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<th>Concept 2</th>
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<td>Office</td>
<td>365,000 sf</td>
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<tr>
<td>Retail (square feet / number of units)</td>
<td>25,000 sf</td>
<td>35,000 sf</td>
</tr>
<tr>
<td>Residential Condominium</td>
<td>385,000 sf</td>
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<tr>
<td>Walls and common area</td>
<td>45,000 sf</td>
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</tr>
<tr>
<td>Gross Building Area</td>
<td>820,000 sf</td>
<td>990,000 sf</td>
</tr>
<tr>
<td>Number of parking stalls</td>
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<td>1681</td>
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</table>

* Square feet is abbreviated as “sf” in the above table

Concept 1 – 3D Model
### Concept 2 – 3D Model

![3D Model Diagram]

### Procurement (Monetization) Options

Cushman & Wakefield identified, described and assessed the procurement options summarized in the table below.

<table>
<thead>
<tr>
<th>Procurement Option</th>
<th>Definition</th>
<th>Benefit</th>
<th>Risk</th>
</tr>
</thead>
</table>
| **Direct Land (Density) Disposition** | Selling the developable density of the Transit Hub lands | • Optimum immediate monetization proceeds  
• Lower risk | • Loss of control over development |
| **Density Transfer**     | Selling density permitted on the Transit Hub lands to the owner of another property | • Retains core asset ownership and achieves density monetization opportunities | • Not possible under current regulatory regime |
| **Land Lease**           | Lands are leased to a developer who owns the improvements. Annual revenue in land rent. | • Maintains land ownership and end of term occupancy  
• Recurring revenue stream | • Reduced immediate capital benefit  
• Reduced liquidity |
<table>
<thead>
<tr>
<th>Procurement Option</th>
<th>Definition</th>
<th>Benefit</th>
<th>Risk</th>
</tr>
</thead>
</table>
| Joint Venture Development | Region maintains financial interest in the development, sells partial interest to third party partner. | • Potential increased revenue through development profit participation | • Revenue uncertainty  
• Cost liabilities  
• Management burden |
| Sale – Public Sector Asset Leaseback | Selling the developable density and leasing back the transit components. | • Generation of one time revenue from core assets  
• Long term right of occupancy | • Some loss of control  
• Exposure to rent increases |
| Lease – Public Sector Asset Leaseback | Lands are leased to a developer who owns the improvements and the Region leases back the transit components. | • Maintains land ownership  
• Recurring revenue stream | • More applicable to core assets  
• Offsetting rent costs |
| Public-Private Partnership | Options for private partner to design, build, finance, operate and maintain public infrastructure with the right to develop available density. | • Retains core asset ownership and long term right of occupancy  
• Transfers risk to private sector | • Higher financing costs  
• Higher minimum capital investment thresholds |
| Density Bonus             | Additional density is granted for onsite transit improvements. | • Creates value and revenue through planning regulation | • Only attainable if current zoning rights are fully utilized |
| Transit Benefit Charge (Transfer Tax) | Real estate charge, levied at the time of transaction in Transit Hub station area. | • A useful revenue generation tool | • Adversely impacts condo unit pricing |
| Securitization            | A corporation is formed to hold Transit Hub assets. Shares are sold in the corporation with proceeds returning to the Region. | • Monetization with potential for retained investment interest | • Higher financing costs  
• Higher minimum capital investment thresholds |
## Procurement Option

<table>
<thead>
<tr>
<th>Procurement Option</th>
<th>Definition</th>
<th>Benefit</th>
<th>Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Area Partnerships</strong></td>
<td>Area stakeholders agree that transit improvements are important and agree to help pay for them.</td>
<td>• A useful revenue generation tool</td>
<td>• Adversely impacts land value</td>
</tr>
<tr>
<td><strong>Tax Increment Financing Districts</strong></td>
<td>Incremental increases in assessed property tax values are allocated to fund debt service on an infrastructure bond.</td>
<td>• A useful capital financing tool</td>
<td>• Provincial approval currently limited to Community Improvement Areas and brownfield sites</td>
</tr>
</tbody>
</table>

Cushman & Wakefield's benefit and risk assessment, and associated financial analysis, led them to recommend that the following procurement options be considered:

- **Direct Disposition**, which has the potential to produce real estate revenues (excluding real estate taxes and development charges) of $9 to $16 million ($12.50 million midpoint).
- **Landlease (Without Participation) of Office lands and Direct Disposition of Residential lands**, that has the potential to produce real estate revenues (excluding real estate taxes and development charges) of $9 to $16 million ($12.5 million midpoint).
- **Landlease (With Participation) of Office and Direct Disposition of Residential lands**, which has the potential to produce real estate revenues (excluding real estate taxes and development charges) of $10 to $18 million ($14.0 million midpoint).

Given all of the preceding benefit, risk and financial analysis, Cushman & Wakefield recommend that the Region consider Direct Disposition for non-core assets, if it wishes to optimize early capital receipts and is not concerned about control over land assets. Conversely, if the Region prefers a mix of early capital income and recurring revenue, the Land Lease option will provide a mix of land rent (for office/retail lands) and capital disposition proceeds (for residential condominium lands).

If the Region is willing to accept a contained amount of development risk transfer, then a Participating Land Lease will result in approximately 20 percent overall higher revenues (on a Present Value basis).

## Market Sounding

The following is a summary of the market's perspective on the Multimodal Hub in 2013.

- A scenario of reduced development density (below that envisaged in the development concepts) should be considered and mathematically demonstrated.
• Residential rental should be an integral part of the development mix.
• A phased approach is paramount to success, provided that a phased development can be designed in a manner that ensured economic viability for all phases.
• Parking needs should (to a significant degree) be met offsite, to reduce on site development costs.
• Greater Toronto and Hamilton Area developers see a need for more parking (at least 3.0 stalls per 1,000 sf).
• Local developers desire less parking, largely driven by the uneconomically high cost of decked or underground parking.
• Both GTA and local developers see the provision of municipal parking as a solution to parking needs and costs.
• Municipal planning initiatives must provide approval certainty, but be sufficiently flexible to address changes in economic, market and political conditions.
• The Region may need to defer (back load) its land value capture, through transaction or JV structuring.
• Fee simple disposition is preferable to land lease.
• Development charges need to be waived. Real estate tax increases need to be abated, to incentivize success.
• The marketing and disposition of the office component may need to be postponed until office vacancy levels decrease (and rents increase) to economic levels.

Conclusions

If the Region wishes to pursue the immediate development of the transit infrastructure, and the market is not ready to for a mixed use development of this size, innovative phasing solutions are possible which may need to be explored in further detail.

Cushman & Wakefield notes that the placement of the Transit Station abutting the rail corridor (along King Street), if not integrated into the broader Transit Oriented Development, could take up significant site land area and likely limit the size of the office floor plate that could be developed thereon. This will, at minimum, reduce the developable density (and achievable land value) and could potentially result in an unmarketable office floor plate (or development proposal). Therefore, if to be developed separately, the Transit Station should be designed and constructed with adequate allowance (e.g. stronger columns/foundation) that will accommodate the requirements for space and structural loads due to the future design of the broader Transit Oriented Development. Ideally, the transit station should be jointly designed by the Region and The Developer for optimal integration.

Only a flexible Request for Qualifications and/or Request for Proposals process can truly determine:
• The depth, breadth and timing of development interest, for the King/Victoria site and the balance of the lands.
• Whether that interest is for the King/Victoria corner parcel, the central parcel and/or the Rumple Felt Building or the site in its entirety.
• Whether interest will emanate from larger, well resourced developers capable of completing a phased mixed use development upon the entire site, or individual developers focused on specific land uses and sites.

It is recommended that the Region remain flexible in terms of the delivery times and phasing of the Transit Station and package the component of the Transit Station infrastructure with the transit oriented land development.
Attachment D

Summary

Preliminary Site Design and Station Area Access Plan

In March 2012, the Region and the City of Kitchener launched the Preliminary Site Design and Station Area Access Plan (“the Plan”) to develop a proof-of-concept for the Transit Hub that achieves the city building and transit related objectives of the site. The Project Steering Committee was comprised of staff from Planning and Transportation from the City of Kitchener, as well as Grand River Transit, Rapid Transit, Transportation Planning and Transportation Engineering from the Region of Waterloo.

The Plan was prepared in parallel with other projects, including the extension of GO Transit service to Kitchener, the procurement of ION Light Rail Transit, the King Street grade separation and the Weber Street grade separation. The two design concepts are based on the best available information at the time they were produced. They are not intended to present definitive designs for the Transit Hub, but rather are intended to inform the ongoing design and procurement process of the Transit Hub and related projects.

To achieve Council’s vision for the Transit Hub as summarized in the Project Charter1, the following critical transit-related infrastructure elements were identified for the site:

- GO and Via rail platform and platform accesses;
- Passenger pick-up and drop-off adjacent to the GO platform;
- Transit Hall connecting ION and GRT passengers to GO and Via rail platform, and intercity bus bays;
- Six on-site bus bays;
- Waterloo Street pedestrian tunnel and pedestrian corridor; and
- Limited long-term parking for GO and Via rail passengers, and two Parking accesses.


1 Region of Waterloo Transit Hub Project Charter, Docs #987712
Planning Context

The Transit Hub and the area immediately around the property, known as the Transit Hub precinct, will play an important role in the revitalization of the Innovation District (including the Bramm Yards) and of downtown Kitchener. Public investment in the area, such as the University of Waterloo’s Health Sciences Campus and Wilfred Laurier University’s School of Social Work, the revitalization of the King Street streetscape, the Communitech business accelerator, and the Kitchener Market have helped to catalyze increased activity and development interest in downtown. New residential developments have followed, while retail, restaurants, and other services are expanding to meet the needs of downtown residents, workers, students, and visitors.

Multi-Modal Context of the Transit Hub

The King and Victoria Street intersection plays a significant transportation role as the intersection of two major arterials at the geographic centre of the cities of Kitchener and Waterloo. As such, there are heavy volumes through this intersection by car, by transit, and by walking and cycling. The Region’s main rail corridor, on which GO and VIA rail services run, traverses the Transit Hub site.

Facilitating access to and from the Transit Hub precinct is of utmost importance to its success. To do that, it is essential to keep the transportation system running efficiently while ensuring that all users are safely accommodated on roads leading to and from the site. This objective can be met by creating a high quality pedestrian, transit passenger and cycling environment.

Pedestrian Priority Recommendations

Pedestrian access is the priority mode of access and circulation within the Transit Hub and will require the provision of direct linkages, high quality pedestrian environments, and most importantly, safe and accessible sidewalks and crosswalks for people with disabilities.

Key elements of the pedestrian realm include:

Public Spaces - Two public plazas, one at the main entry at the corner of King Street and Victoria Street, and the second adjacent to the northbound LRT platform. These public spaces would provide gathering and rendezvous space, create focal points for pedestrian circulation, and provide opportunities for formal and informal street-level activity. Retail spaces fronting onto the plazas could help create an interface between the plaza and indoor spaces at the Transit Hub with patios, moveable glass walls, and other design features.

Pedestrian Focused Design - A pedestrian-sensitive built form, where the massing of buildings is designed to not overwhelm pedestrians and create bright and open spaces. Special design considerations are also recommended for pedestrians through the King Street grade separation to improve pedestrian conditions and maximizing light and space on the sidewalk. The location of rail platform entrances and the creation of the
Transit Plaza are two key design elements to achieve these objectives.

Maintain Pedestrian Access Along Waterloo Street - A new pedestrian underpass along the Waterloo Street corridor would serve as the main entrance from Breithaupt Block and the residential area north of the Transit Hub. Wide sidewalks, landscaping, pedestrian level lighting and street furniture from the underpass and through the Transit Hub could be extended to Breithaupt Street to form a strong pedestrian connection through the Hub site.

It is recommended that the Transit Hub area be designed to provide a fully accessible and barrier free environment, following the best practices in universal design and meeting or exceeding the legislated requirement of the Accessibility for Ontarians with Disabilities Act. As a transit precinct, the Transit Hub should be held to the highest standard.

**Cycling Recommendations**

There is a high potential for cycling in the Transit Hub precinct with several neighbourhood streets and the planned Waterloo Spur Line Trail being particularly attractive for cycling. The density of destinations in the Innovation District (including the Bramm Yards) also makes it attractive for cycling. It is possible for cycling to play a major role in accommodating access to the Transit Hub, provided that safe, direct, and maintained routes are available to and from surrounding areas.

Wide vehicle lanes for emergency vehicles through the ION corridor, bike lanes on Victoria Street South and King Street, between Victoria Street and Francis Street, and the recommended Waterloo Street Pedestrian Underpass would significantly enhance existing opportunities to cycle to the Transit Hub. Other important considerations for cyclists include:

**Short-term Bike Parking:** To encourage cycling access to commercial uses in the area, the Transit Hub should provide a large number of bike racks adjacent to the ION platforms.

**Long-term Bike Parking:** An enclosed bike station is recommended on the Transit Hub lands to provide secure, long-term bike parking and other potential services, such as bike share.

**Transit Priority Recommendations**

It is anticipated that the Transit Hub will be the main transfer point between intra-regional and inter-regional transit service in Waterloo Region, as well as a destination itself along the ION Central Transit Corridor. As such, the Transit Hub will need to be designed to allow for safe and efficient movement of transit vehicles in the Transit Hub precinct. For transit passengers, it is important to create direct, barrier-free, access into the Transit Hub from the northbound and southbound ION platforms with short, clear and direct connections between transit modes. Redundancy in barrier-free routes between transit modes should also be provided to ensure accessibility at all times.
A total of five bus stops are proposed at the intersection of King Street and Victoria Street to accommodate planned bus routes in the area. Accommodating GRT to ION transfers on-street would provide efficient movement between transit modes and eliminate the need for off-street looping like at the Charles Street Terminal. Transfer movements would require transit customers to walk less than 100 metres from the ION platforms to connecting bus stops. In addition, a bus stop island is proposed for westbound buses on King Street at Victoria Street, between the LRT runningway and the general-purpose lanes (please see Figure 1 below).

Six on-site bus platforms are also recommended in the two design concepts. In Concept A, the platforms are located under the 50 Victoria Street phase of the development. In Concept B, the platforms are oriented to the Victoria Street frontage. In addition to providing on-site, direct and convenient access to GO bus and other inter-regional bus platforms, these platforms also ensure space for MobilityPLUS with drop-off and pick-up areas in close proximity to sheltered waiting areas and customer service.

**Figure 1 – Recommended King Street Cross Section, South of Victoria Street**
Recommendations for Vehicle Access and Parking

Vehicular access needs are dependent on a number of factors including: the density of the development; the range and mix of uses; the amount of GO and VIA rail parking provided; and the total number of municipal parking spaces provided off-site. At this time, the exact density and mix of uses is not known, but the approved zoning permits 93,000 square metres or approximately 1,000,000 square feet of development. The City of Kitchener approved a reduced parking rate for the site in recognition of the high level of access to transit services associated with the site. The key findings for vehicle access include:

**GO Passenger Pick-up and Drop-off** – Up to 100 parking spaces could be provided for GO and Via rail passengers, but Metrolinx identified the provision of convenient pick-up and drop-off locations as a higher priority. The two concepts developed for the Transit Hub recommend a passenger pick-up and drop-off on the rail platform level (second floor) of the Transit Hub, with an access from Duke Street. The closest existing parallel to a priority pick-up and drop-off station in the Greater Toronto Area is the Hunter Street Station in Hamilton, which has an on-site bus facility and a GO Rail service but no on-site parking. By most accounts, this station functions well from a commuter perspective, achieving high ridership and significant walking and cycling access mode shares. Parking demand for GO trains in Waterloo Region will be partly managed by the proposed Green House Road GO Station location.

**Vehicle Access and the Maximum Number of Parking Stalls** – To capitalize of the Transit Hub’s development potential, the goal of parking is to provide enough to support private sector development but not so much as to encourage auto use. The configuration of the site leaves two options available for vehicle access, these include:

a) An entry to underground parking adjacent to the off-street bus terminal; and,

b) An entry to the above ground parkade and the passenger pick-up and drop-off from Duke Street.

To reduce congestion at these accesses, the Plan recommends a maximum of 800 parking stalls on-site, or 400 spaces per access. Depending on the density of the site, demand for parking at the Transit Hub could be between 1300 and 1500 spaces. Municipal parking in the station area is recommended to help manage the demand for parking in the area.

**Traffic Analysis** – The volume of vehicles accessing the Transit Hub is not expected to create a significant impact, due to the limited supply of parking, dispersed travel patterns, and higher expectation of access by other modes. The widening of Weber Street will help to divert traffic off of the King Street corridor. A traffic assessment of nine surrounding intersections concluded that vehicle movements could be accommodated without significantly impacting operations.
Concept A – Victoria Street Level

1. GO Train Platform
2. ION Station
3. Access over King Street
4. Inter-Regional bus platforms
5. Waterloo Street pedestrian tunnel
6. Mixed-use development
7. Rumpel Felt building
8. Transit Plaza
9. GRT stops
Concept A – Rail Platform Level

10. Passenger Pick-up and Drop-off
11. GO Train Platform
Concept A - Isometric
Concept B – Victoria Street Level

1. GO Train Platform
2. ION Station
3. Access over King Street
4. Inter-Regional bus platforms
5. Waterloo Street pedestrian tunnel
6. Mixed-use development
7. Rumpel Felt building
8. Transit Plaza
9. GRT stops
Concept B – Rail Platform Level

10. Passenger Pick-up and Drop-off
11. GO Train Platform
Concept B – Isometric

Attachment E - Recommended Project Management Structure
Steering Committee
- Three Regional Councillors
- The Senior Management Team

Senior Management Team
- Project Director
- Regional CAO
- Commissioner of Transportation and Environmental Services
- Commissioner of Planning Housing and Community Services
- Commissioner of Finance
- Representatives from Legal Services and Facilities Management

External Project Advisors
- Finance
- Procurement
- Engineering
- Legal

Additional Region of Waterloo Staff (as required)
Region of Waterloo

Planning, Housing and Community Services

Transportation Planning

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

Date: May 27, 2014

File Code: D28-50

Subject: Proposed 2015 Transit Service Improvement Plan – iXpress and Related Updates

Recommendation:

For information.

Summary:

Nil.

Report:

The approved Regional Transportation Master Plan and Grand River Transit Business Plan, include a transit network based on a series of iXpress lines that are integrated with rapid transit. The first iXpress was implemented along the central transit corridor in September 2005. Through the GRT Business Plan and annual budget deliberations, Regional Council approved the priority for implementing the rest of the iXpress network. In September 2011, the 201 Fischer-Hallman iXpress was implemented; in September 2013 the University iXpress was implemented and in April 2014 the 203 Maple Grove iXpress was implemented. iXpress has become a highly recognized brand of GRT and ridership on existing iXpress lines has either met or surpassed ridership projections.

The next iXpress line is scheduled for September 2015 and is the focus of the 2015 Transit Service Improvement Plan that is currently being developed. The Highland/Victoria iXpress would be an east-west corridor connecting with ION in downtown Kitchener at the Benton/Frederick Station and the Victoria Hub Station. Major restructuring of local routes in west and east Kitchener is also being planned to improve service integration, directness of travel and ease of comprehension. Figure 1 illustrates the study area that will be reviewed for potential restructuring.

The implementation of the 2015 Transit Service Improvement Plan which includes the Highland/Victoria iXpress service along with the restructuring of a number of local...
routes is estimated to require 35,000 annual service hours and 12 buses. The proposed 2015 Transit Service Plan will be included in a budget issue paper to be brought forward as part of the 2015 budget process.

Public consultation is scheduled to occur in Fall 2014 and Winter 2015, and new service would be implemented in September 2015.

During the 2014 budget process Mr. Tim Mollison representing TriTAG presented several changes to the transit network for staff to consider for implementation in 2014. Council requested that staff report back on his suggested changes as outlined below:

- Streamline Route 7 by eliminating the two branches destined to the University of Waterloo via University Avenue and Columbia Street and maintain the one branch to Conestoga Mall via King Street.
- Reallocate the resources from the two Route 7 branches to i) increase the frequency of service on iXpress to attract and accommodate riders from the eliminated Route 7 branches and ii) introduce a loop route along University Avenue and Columbia Street to accommodate an increase in passenger transfers with the remaining Route 7 branch on King Street and with iXpress on University Avenue and Columbia Street.
- Install additional iXpress stations at future LRT station locations to develop travel patterns supportive of the LRT and to facilitate the shift of riders from the two eliminated Route 7 branches.

The GRT Business Plan anticipated the restructuring of Route 7 to occur in 2017 with the start-up of ION operations. Staff are suggesting that the evaluation of restructuring Route 7 would be advanced to be included in the 2015 service improvement planning process. Staff would determine the required increase in frequency of service on the 200 iXpress to accommodate the increase in ridership from passengers that would be shifting from the discontinued Route 7 D and E branches.

A version of the loop route similar to that suggested by TriTAG was implemented in September 2013 in response to increased university student ridership demand along the University Avenue and Columbia Street corridors. The route was slightly modified in February 2014 and renamed the Route 92 University Loop. Staff will evaluate the need to increase the frequency of service on loop route to accommodate the potential increase in transferring riders from the remaining Route 7 branch.

Staff will evaluate the benefits of implementing additional Route 200 iXpress stations at future ION station locations through the 2015 service planning process and in particular in the development of options to restructure Route 7. Factors to consider will include the relationship to existing iXpress stations, the timing of any construction related to the ION at that location and the potential short-term benefit of the particular location. The implementation timing of restructuring Route 7 and adding additional iXpress stations may be earlier than the targeted September 2015 date subject to Regional Council approval.

In summary, the proposal from TriTAG to restructure Route 7 and add additional Route 200 iXpress stations at future ION station locations has merit and will be evaluated as part of the development of the proposed 2015 Transit Service Improvement Plan.
Area Municipal Consultation/Coordination

Area municipalities were circulated a copy of the GRT Business Plan for information. Staff and Councillors from the area municipality would be members of the Steering Committee for the 2015 Transit Service Improvement Plan.

Corporate Strategic Plan:

The 2015 service review process and the review of the TriTAG proposal supports the implementation of Council’s Strategic Focus, identified under Focus Area 3: Sustainable Transportation: Develop greater, more sustainable and safe transportation choices. The final plan that is developed will contribute to Strategic Objective 3.1.2. Expand the bus network and begin to integrate it with the future Light Rail Transit System.

Financial Implications:

Costs associated with the implementation of service improvements included in the GRT Business Plan are generally approved through the budget process each year and are funded from the RTMP Reserve Fund. A budget issue paper discussing the planned service improvements and capital requirement for fleet expansion will be brought forward during the 2015 budget process.

Any service improvements proposed on Route 7 will have to be accommodated within the current service funding envelope.

Other Department Consultations/Concurrence:

This report, as well as discussions about the TriTAG options, was done in collaboration with Transit Services staff.

Attachments:

Figure 1 - 2015 Transit Service Improvement Plan Review Area

Prepared By: Blair Allen, Acting Manager of Transit Development

Approved By: Rob Horne, Commissioner, Planning, Housing and Community Services
Figure 1 - 2015 Transit Service Improvement Plan Review Area
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<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>
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