



General Committee Meeting Agenda

**Tuesday, May 2, 2017
7 p.m.**

**Council Chambers
Aurora Town Hall**



Town of Aurora General Committee Meeting Agenda

Tuesday, May 2, 2017
7 p.m., Council Chambers

Councillor Kim in the Chair

1. Approval of the Agenda

Recommended:

That the agenda as circulated by Legislative Services be approved.

2. Declarations of Pecuniary Interest and General Nature Thereof

3. Presentations

4. Delegations

5. Consent Agenda

Items listed under the Consent Agenda are considered routine or no longer require further discussion, and are enacted in one motion. The exception to this rule is that a Member may request for one or more items to be removed from the Consent Agenda for separate discussion and action.

Recommended:

That the following Consent Agenda Items, C1 to C4 inclusive, be approved:

**C1. IES17-022 – Drinking Water Quality Management Standard –
Management Review**

Recommended:

1. That Report No. IES17-022 be received; and
2. That the meeting minutes of the Annual Management Review by Top Management be received.

**C2. IES17-023 – Award of Tender 2017-27-IES
Structural Watermain Relining
Tamarac Trail, Milgate Place and Albery Crescent**

Recommended:

1. That Report No. IES17-023 be received; and
2. That Tender 2017-27-IES under Capital Project No. 43054 for Structural Watermain Relining on Tamarac Trail, Milgate Place and Albery Crescent be awarded to Fer-Pal Construction Limited in the amount of \$692,355 excluding taxes; and
3. That the budget variance in the amount of \$220,605 be returned to source; and
4. That the Mayor and Town Clerk be authorized to execute the necessary Agreement, including any and all documents and ancillary agreements required to give effect to same.

C3. PBS17-027 – Long-Term Development Activity Projections

Recommended:

1. That Report No. PBS17-027 be received for information.

**C4. Economic Development Advisory Committee Meeting Minutes of March
9, 2017**

Recommended:

1. That the Economic Development Advisory Committee meeting minutes of March 9, 2017, be received for information.

6. Consideration of Items Requiring Discussion (Regular Agenda)

R1. PRCS17-020 – Property Use Agreement: York Catholic District School Board Soccer Fields

Recommended:

1. That Report No. PRCS17-020 be received; and
2. That the Director of Parks, Recreation and Cultural Services be authorized to execute the 2017 License Agreement, including any and all documents and ancillary agreements required to give effect to same; and
3. That the Director of Parks, Recreation and Cultural Services be authorized to renew the License Agreement on an on-going, annual basis, with the Director of Parks, Recreation and Cultural Services being authorized to execute the necessary renewal Agreements, including any and all documents and ancillary agreements required to give effect to same.

R2. PRCS17-019 – Award of Tender 2017-33-PRCS – Treatment of Trees for Emerald Ash Borer

Recommended:

1. That Report No. PRCS17-019 be received; and
2. That Tender 2017-33-PRCS be awarded to Green Lawn Ltd., Capital Project 73160, for the treatment of ash trees for the Emerald Ash Borer for a one-year period with an option to renew the agreement for four additional years based on contractor performance and future budget approval; and
3. That Option #2, the use of IMA-jet in the amount of \$142,800 for 2017, be approved; and

4. That the Mayor and Town Clerk be authorized to execute the necessary Agreement, including any and all documents and ancillary agreements required to give effect to same.

R3. CS17-013 – Proposed Taxi Licensing By-law Amendments

Recommended:

1. That Report No. CS17-013 be received; and
2. That amendments to Schedule 13 of Licensing By-law No. 5630-14, being a by-law to regulate licensing of business establishments, be enacted at a future Council meeting.

R4. IES17-021 – Award of Tender 2017-24-IES – Supply and Delivery of One (1) 5000lb Capacity Forklift

Recommended:

1. That Report No. IES17-021 be received; and
2. That Tender No. 2017-24-IES for the supply and delivery of one (1) new 5000lb capacity forklift be awarded to Liftow Limited, in the amount of \$30,550 excluding taxes; and
3. That additional funding in the amount of \$11,088 for Capital Project No. 34408 be provided from Fleet R&R reserve; and
4. That the Mayor and Town Clerk be authorized to execute the necessary Agreement, including any and all documents and ancillary agreements required to give effect to same.

**R5. PBS17-030 – Application for Site Plan Approval
458021 Ontario Inc. (Tilemaster)
Lots 8 and 9, Registered Plan 65M-4324
21 and 33 Eric T. Smith Way
File Number: SP-2016-08
Related Files: D14-05-04 and D12-05-1A**

Recommended:

1. That Report No. PBS17-030 be received; and
2. That site plan application number SP-2016-08 (458021 Ontario Inc.) to permit the development of the subject lands for a warehouse and office be approved subject to the resolution of any outstanding issues; and
3. That the Mayor and Town Clerk be authorized to execute the site plan agreement, including any and all documents and ancillary agreements required to give effect to same.

7. Notices of Motion

- (a) Councillor Mrakas**
Re: Vacant Property Tax

8. New Business

9. Closed Session

10. Adjournment



**Town of Aurora
General Committee Report**

No. IES17-022

Subject: Drinking Water Quality Management Standard – Management Review

Prepared by: Lindsay Hayworth, Supervisor, Water and Wastewater

Department: Infrastructure and Environmental Services

Date: May 2, 2017

Recommendation

- 1. That Report No. IES17-022 be received; and**
- 2. That the meeting minutes of the Annual Management Review by Top Management be received.**

Executive Summary

The purpose of this report is to provide the Operational Plan as part of the *Safe Drinking Water Act, 2002* and *Ontario Regulation 188/07- Licensing of Municipal Drinking Water Systems* and to share the minutes of the Annual Management Review of the Drinking Water Quality Management System (“DWQMS”).

Background

The Ontario Government implemented the Municipal Drinking Water Licensing Program in 2007 as recommended by Justice O’Conner as a result of the Walkerton Inquiry. The Operational Plan requirement was a portion of the mandated DWQMS that is required by the Ministry of Environment.

The 21 Elements of the DWQMS is based on a “plan, do, check”, and continuous improvement principle. The Operational Plan is a document that provides an understanding of the drinking water system, the roles and responsibilities of the owner, and a commitment and endorsement by the owner to provide safe drinking water.

Analysis

The operation and management of the water system achieved full compliance for 2016

Full requirements of the DWQMS are outlined in this report and are a critical component of the management framework under which staff and senior management are required to operate. This report details the Town's performance for 2016 and staff is proud to report that this was a successful year in fulfilling all requirements, resulting in confidence that the Town's water system is operated and maintained to a high standard to the benefit of the community.

Operational Plan Elements

The Town of Aurora Water System Operational Plan was prepared to meet legislative requirements and was submitted to the Ministry on August 1, 2009. A Municipal Drinking Water License was issued August 30, 2011 and renewed on June 30, 2016.

A critical step in the accreditation process is the confirmation of an understanding and acceptance of the plan by Council and Senior Management. The following sections provide a summary of the document purpose and key roles and responsibilities.

The DWQMS Operational Plan is a document that outlines all the 21 elements, which are the legislative requirements and guiding principles for each Operating Authority across the Province and that must be incorporated into its everyday operational and maintenance activities. Some of the key elements include:

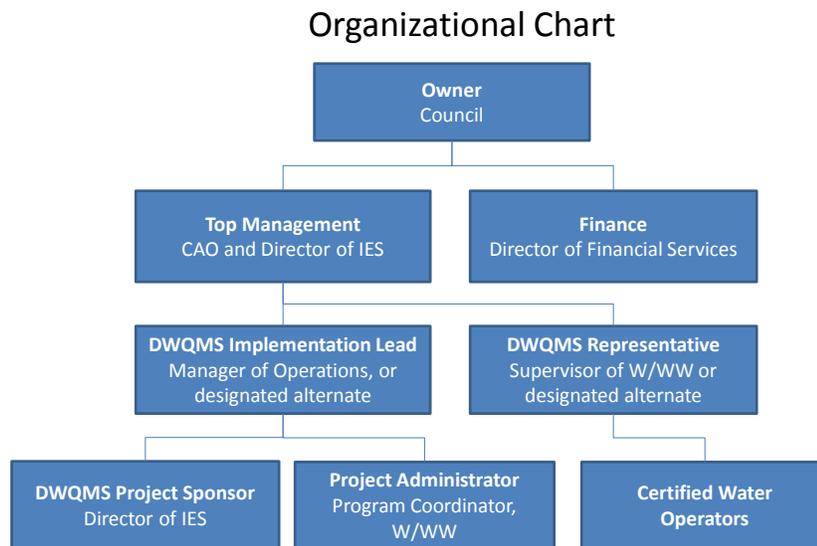
- Commitment and Endorsement
- Organizational Structure, Roles, Responsibilities and Authorities
- Risk Assessment
- Emergency Management

The elements for the commitment, endorsement and organization structure outlining the Corporation's roles and authorities must be endorsed by Council as the owner of Aurora's drinking water system.

DWQMS Management Structure

The legislation requires that proper authorities are established to ensure that the water system has qualified oversight, management support, identified ownership and financial resources. For the Town of Aurora, this structure is presented in the following

organizational chart. An important aspect of this structure is the identification of Council as the Owner and the body having overall responsibility for providing the necessary resources to deliver safe and reliable drinking water to the community.



Role of Owner - Council

One of the critical elements is that the Operational Plan is endorsed in writing by Top Management and the Owner, which in this case, are senior staff and Town Council. This element requires that Top Management demonstrates its commitment to the DWQMS by being aware of the requirements and providing direction and resources as required.

The element further describes that Top Management and Council shall provide evidence of its commitment to an effective quality management system by doing the following:

- Ensure that a Quality Management System is in place that meets the requirement of this Standard
- Ensure that the Operating Authority is aware of all applicable legislation and regulatory requirements
- Communicate the Quality Management System according to the procedure for communications

- Determine, obtain or provide the resources necessary to maintain and continually improve the Quality Management System

As described, Council and Top Management's commitment is a crucial part of the successful DWQMS implementation and must clearly be recognized in terms of acknowledgment of ownership and providing resources.

Role of Top Management - CAO and Director of IES

- Ensure QMS is in place and operational
- Endorse and lead the development, implementation and maintenance of the QMS
- Identify and obtain necessary resources to support the QMS and for the complete operation and maintenance of the drinking water system
- Ensure the system is operating in accordance with all applicable legislation and regulations
- Management review of the QMS
- Communicate with Council about the QMS and the water distribution system
- Communications lead during emergencies

Role of Finance - Director of Financial Services

- Ensure appropriate funding is available for the QMS to deliver safe drinking water
- Incorporate water delivery components of the budget within the overall budget presentation
- Conduct financial audits on the QMS and the water delivery program

Role of Project Sponsor – Director of IES

- Help orchestrate project team direction and flow
- Assuring the systematic progression through the program's action and implementation plans
- Ensures adequate funds are available
- Communicate with the Mayor and Council about the QMS and the water distribution system
- Is authorized to designate Infrastructure & Environmental Services Crew Leaders as Operators-in-Charge as required in the absence of the Infrastructure and Environmental Services Supervisors

Role of DWQMS Implementation Lead – Manager of Operations Services

- Carry out the activities and manage programs related to the water distribution system as outlined by approval policies, procedures and legislative requirements
- Appoints QMS Representative
- QMS Implementation Lead
- Preparation of budget and program
- Assessment of supervisor's personnel performance (annual)
- Ensures adequate staffing is available at all times
- Recommendation of system improvements
- Emergency response planning and training
- Reports on Operations and the QMS to Top Management and the CAO through management review meeting, on an annual basis, to evaluate the continuing suitability, adequacy, effectiveness and compliance of the DWQMS

Role of DWQMS Representative – Supervisor of Water/Wastewater

- Carry out the activities and manage programs related to the water distribution system as outlined by approval policies, procedures and legislative requirements
- Communication/liaison with the Water Treatment Plants run by the Region of York
- Act on and report incidents of non-compliance
- Assessment of operator's personnel performance (annual)
- Reporting of distribution system performance to the Manager of Operations Services
- Maintains regulatory compliance
- Is the system overall responsible operator schedules work assignments;
- Monitors water quality and demand
- Supervises operations and maintenance staff
- Maintains provincial operator licensing at system certification level
- Organizes work-safety program
- Assists in the development of the facility budget;
- Maintain and update QMS as required
- Identifies co-ordinates and communicates staff training programs to comply with appropriate legislation
- Recommendation of system improvements
- Emergency response planning and training

- Reports on Operations and the QMS to Top Management and the CEO through management review meeting, on an annual basis, to evaluate the continuing suitability, adequacy, effectiveness and compliance of the DWQMS
- Develop procedures and processes for assuring water quality
- Certified Operators
- Monitor, maintain and operate the distribution system in accordance with established standard operating procedures
- Document all operating activities in accordance with provincial legislation and established operating procedures
- Report on and act on incidents of non-compliance
- Report any abnormal conditions to the Supervisor
- Carry-out duties and tasks as assigned by the Supervisor and as per established water distribution policies and procedures
- Is the designated operator-in-charge
- Files records
- Attends training
- Receives and communicates external complaints
- Regularly communicates to the Quality Manager
- Maintains operator's license

Internal Audit, System Audit, Inspections and Management Review

As part of the oversight responsibilities, the management team is required to conduct internal program audits, external third party system and inspection audits and an annual management team review.

Aurora's annual internal audit was performed by the AET Group on December 1, 2016. All 21 Elements of Aurora's Operational Plan were audited to ensure "we do what we say we do". A copy of the AET Group Audit report, Appendix "A" is attached.

The external accreditation audit is required to be performed annually by a Ministry-approved auditor, NSF. An off-site system audit took place May 24, 2016. All 21 Elements of Aurora's Operational Plan were audited to ensure "we do what we say we do". A copy of the NSF Audit report, Appendix "B" is attached.

An unannounced inspection of The Town of Aurora's Drinking Water Distribution System was conducted by The Ministry of the Environment on January 16, 2017. The primary focus of this inspection is to confirm compliance with the Ministry of Environment and the Climate Change (MOECC) legislation as well as evaluate

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conformance with Ministry drinking water policies and guidelines during the inspection period. The MOECC System Inspection Report, Appendix “C” is attached.

The Plan also requires that a Management Review meeting be held annually to review the system performance and identify necessary actions to ensure compliance with the regulations. The Management Review meeting was held on February 27, 2017, in which the audit results were reviewed. The Management Review minutes, Appendix “D” are attached.

Advisory Committee Review

Not applicable.

Financial Implications

A budget of \$35,000 is requested annually through the water operating budget to support external audit costs and training and development costs of the DWQMS as required. This amount will be carried into future budgets as a requirement for demonstrating financial support to the ongoing maintenance of the DWQMS and will be adjusted as required to ensure adequate funding is in place.

Communications Considerations

There is no external communication required.

Link to Strategic Plan

This process supports the Strategic Plan goal of ***Supporting an Exceptional Quality of Life for All*** through its accomplishment in satisfying requirements in the following key objective within this goal statement:

Invest in sustainable infrastructure: Maintain and expand infrastructure to support forecasted population growth through technology, waste management, roads, emergency services and accessibility.

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Alternative(s) to the Recommendation

1. There are no alternatives to this report. Council's commitment and endorsement for the Aurora's DWQMS Operational Plan is a requirement under the Safe Water Drinking Act, 2002, and Ontario Regulation 188/07- Licensing of Municipal Drinking Water Systems.

Conclusions

The Town has completed all the requirements to maintain its accreditation under the DWQMS for 2016. As the owner of the system, Council will receive periodic reports on the performance and financial aspects of the Town's water distribution system.

Attachments

Appendix "A" Minutes of Management Review Meeting (February 27, 2017)

Appendix "B" NSF System Audit Report (May 24, 2016)

Appendix "C" AET Group Internal Audit Report (December 1, 2016)

Appendix "D" MOECC System Inspection Report (January 16, 2017)

Previous Reports

None

Pre-submission Review

Agenda Management Meeting review on April 13, 2017

Departmental Approval



Allan D. Downey

Director

Parks, Recreation and Cultural Services

Approved for Agenda



Doug Nadorozny

Chief Administrative Officer

 Drinking Water Quality Management System AURORA Management Review - Meeting Minutes	
Date: Monday, February 27, 2017	Prepared by: Iustina Voinea
Place: 229 Industrial Parkway, Boardroom	Reviewer: Lindsay Hayworth
Time: 2 pm to 3 pm	Page 1 of 7

Attendees:

Phillip Galin - Manager of Operations Services / DWQMS Implementation Lead
 Doug Nadorozny - CAO / Top Management
 Lindsay Hayworth - Water/Wastewater Supervisor / DWQMS Representative / ORO
 Iustina Voinea – Program Coordinator Water/Wastewater/Stormwater / DWQMS Project Administrator

Introduction to DWQMS Management Review

Top Management reviewed all DWQMS data presented as summarized below. All deficiencies identified by Top Management have been documented on the Management Review Action Items Form (SF-015) attached.

Agenda Items Reviewed

1. Incidents of Adverse Drinking Water Tests

- Lindsay reported two adverse incidences in 2016; due to hot weather low chlorine residual . All adverse incidences listed below, including report documents, re-sampling and summary of actions taken was reviewed and discussed.
 1. July 11, 2016, 58 Stone Rd.
 2. July 14, 2016, 76 Maple Street
- Proper procedures were followed for all occurrences: reporting to MOECC - SAC and resampling; results achieved and water quality adverse issue resolved.

2. The Efficiency of the Risk assessment, Deviations from Critical Control Points Limits and Response Actions

- As part of Element 7 & 8, Risk Assessment and Risk Assessment Outcomes, the currency of the information and the validity of the information used are verified once a year. The risk assessment is redone every three years at a minimum. A complete redo of the risk assessment was conducted on October 22, 2015.
- Next review is scheduled for October 2017 and a redo October 2018.

3. Internal and Third party Audit Results and Incidents of Regulatory Non-Compliance: System Audits of May 24, 2016, Internal Audit of December 1, 2016 and MOE Inspection Jan 16, 2017.

- The DWQM System Internal Audit was conducted on December 1, 2016 by AET Consultants, an external accredited auditor. Two minor non-conformities and three opportunities for improvement were identified during the audit.

AET Internal Audit December 1, 2016 – NCR and OFI		
ELEMENT #	Opportunity for Improvement Details	Action Details
Minor NC 5	Documents And Record Control: Several records were incomplete or missing: <ul style="list-style-type: none"> • Annual review of documents control • Several Tailgate Safety Meeting Minutes are not recorded • Orientation training in Training matrix 	DWQMS SOPs and Procedures have been reviewed. Proposed changes were discussed and agreed upon with W/WW Supervisor and Crew Leader..

 Drinking Water Quality Management System Management Review - Meeting Minutes	
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		<p>New form to record Weekly Chlorine Residuals was implemented. The form calculates time passed since last sampling and alerts on Adverse results.</p> <p>The Program Coordinator Water, Wastewater, Stormwater will take the responsibilities of DWQMS Program Administrator.</p>
Minor NC 21	<p>Continual Improvement: One non-conformity has not been addressed from the previous audits. The Corrective action from Internal Audit conducted on Dec 1, 2015 to include frozen watermains into the Operational Plan was not addressed. It is recommended that a formal procedure addressing non-conformances and opportunities for improvement be developed.</p> <p>An opportunity of improvement also exists in this element. Two opportunities for improvement (OFI) were identified in previous audits and emergency tests for which there was neither evidence of corrective action nor screening of these OFI. The OFIs from NSF audit conducted on May 24, 2016 were not addressed and the recommendation from the Emergency Table Top Exercise was not completed.</p>	<p>Element E 8 - Risk Assessment Outcomes has been updated to include frozen watermain as a risk.</p> <p>The Operational Plan SOPs and Procedures were reviewed and updated. The updates cover all the OFI from Internal Audit Dec 1, 2015, NSF Audit May 24, 2016 and Internal Audit Dec 2, 2016.</p>
9	<p>Organizational Structure, Roles, Responsibilities and Authorities: Several roles within the QMS are either temporarily vacant (Project Administrator) or filled with interim personnel (Manager of Operations), but are not accounted for in the Organizational Structure.</p>	<p>The Operational Plan Element # 9 has been updated to include references to "designated alternate" for DWQMS Implementation Lead (Manager of Operations Services) and DWQMS Representative (Water/Wastewater Supervisor).</p>
12	<p>Communications: More information about the presence of a Quality Management System could be provided through the Town's Website</p>	<p>References to the DWQMS are found in Committee Reports and Drinking Water Quality reports, and are available through the Town's Website.</p> <p>Additional information will be included on the drinking water web page.</p>
17	<p>Measurement and Recording Equipment Calibration and Maintenance: Record of field</p>	<p>Calibration checks for the colorimeters will be done by the</p>

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	calibration checks missing for several colorimeters in April 2016.	Program Coordinator Water, Wastewater and Stormwater. Pro-016 has been updated to reflect the change. Form 9 has been revised to include all 9 colorimeters on one page.
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- NSF an external Accreditation Body conducted the DWQM System third party Audit on May 24, 2016. Five opportunities for improvement were identified during the audit.

NSF-MOE VERIFICATION Audit May 24, 2016 OFI		
Element #	OFI- Details	Action Details
# 12	Communication - Protocol with the Region in case of emergency Establish a protocol with the region could be included in the Quality Manual	York Region's Intermunicipal Communication Protocol is referenced in Pro-019, Section 5 (July 15, 2016).
#6	Drinking Water System - Trends of water main breaks, loss of water, could be maintained. Program of back flow valve preventer's installation and yearly testing could be considered	Records of watermain breaks and water loss are maintained. Monthly water loss is calculated and trends over the year are graphed. Monthly water loss quantities are reported to York Region starting Jan 2017. Backflow prevention program is in research phase. Information from different municipalities was collected and a meeting with Town of Richmond Hill took place on Feb 1, 2017. The program Coordinator W/WW/SW completed the Cross Connection Specialist Backflow Tester Certification course in preparation for program development and implementation.
#9	Organizational Structure, Roles, Responsibilities, and authorities - Changes happening in the organization. New hires are going to join the organization-or chart could be modified to reflect the changes	The Operational Plan Element # 9 has been updated to include references to "designated alternate" for DWQMS Implementation Lead (Manager of Operations Services) and DWQMS Representative (Water/Wastewater Supervisor). The DWQMS Program Administrator position will be

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		covered by the Program Coordinator W/WW/SW.
#3	Commitment and Endorsement - Could consider having Mayor (top Management) to sign the commitment	As per E1 QMS, the Council is the Owner of the Drinking Water Distribution System. Endorsement of the Council was obtained in March 2015 as per extract from the Council Meeting March 31, 2015. The Endorsement is signed by Top Management as defined in E1 – QMS (CAO, Director of Infrastructure and Environmental Services).
#7	Risk Assessment - Frozen water mains or distribution water mains could be added as possible risks.	Element E 8 - Risk Assessment Outcomes has been updated to include frozen watermains as a risk.

- MOECC Inspection Jan 16, 2017: - Final Inspection rating 100%.
- MOECC suggested having electronic versions of our records. As a result a new form for recording chlorine residual was developed. The form calculates the time from the last sampling and warns when adverse results are obtained. The form was implemented from middle of January 2017.

4. Results of Emergency Response Testing October 27, 2016

- The emergency preparedness training – Table top exercise was conducted on October 27, 2016.
- Two findings were identified as listed below:

Findings	Action Taken	Action Details
1. It was apparent through discussions that this type of event would require an outside contractor to assist with a sewer by-pass operation. It was suggested that a contractor capable of this type of 24/7 emergency work should be added to our emergency contact list.	YES	MAPLE (CORPORATE OFFICE) 331 Rodinea Rd. Maple, Ontario L6A 4P5 P: 905-907-1700 F: 905-907-1701 Emergency Call 905-907-1700
2. It was suggested that at least 2 sets of watermain caps and fitting for every size of watermain	YES	Necessary parts will be purchased and added to inventory.

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within our system be in stock as part of our inventory.		
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- Town staff has conformed to the requirements of Element # 18 of the Ontario Ministry of the Environment's Drinking Water Quality Management Standard (DWQMS).

5. Operational Plan Currency, Content and Updates

- All Operational Plan SOPs and Procedures were reviewed; updates were discussed and agreed upon with Supervisor of Water/Wastewater and Crew Leader.
- The following DWQMS SOPs and Procedures have been updated:
 - E1– Quality Management System;
 - E6 – Description of Drinking Water System;
 - E 8 – Risk Assessment Outcomes;
 - E9 – Organizational Structure;
 - E10 – competencies;
 - E12 – Communications;
 - E13 – Essential Supplies and Services;
 - E16 – Sampling and Monitoring;
 - E19 – Plan for Internal Audit;
 - Pro – 001 Document control Procedure;
 - Pro – 008 Internal Audit Procedure;
 - Pro – 004 Water Sampling Procedures;
 - Pro – 10 Watermain Break Emergency Repair;
 - Pro – 016 Attachment List of Equipment;
 - Pro – 026 Watermain Disinfection Procedure;
 - SF- 009 Chlorine Tester Work Order.

6. Review of the Quality Management System Policy, Element # 2

- Management Team reviewed Element # 2, The Quality Management System Policy statement was reaffirmed.
- Doug inquired about the adequacy of policy statements. Lindsay confirmed that the drinking water system is maintained and operated to meet legal requirements and staff is certified and trained.
- The policy needs to be updated and signed by the new director.
- Iustina will update Element #2 to reflect the change

7. Drinking Water Quality Trends

- In 2015, The Region installed a chlorine booster facility on Bathurst, since the installation the water pressure has been better in the centre of town. Also, the total chlorine improved since last year. Due to this change, the combined chlorine is sometimes higher than 3 mg/l the maximum concentration established by regulation. The Town of Aurora and Town of Newmarket applied for regulatory relief with regards of higher combined chlorine residuals. The MOECC granted the Town a relief for combined chlorine up to 4 mg/l.
- Lindsay talked about the proposed bulk water filling station at the dead end on Eric T Smith Way. Due to high costs for hydro connection (estimated \$ 25,000) the electricity required for service will be provided by solar panels. A draft RFP is prepared for the three season water bulk station.

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- The location of the new bulk water station is in a dead end where regular flushing is done in order to maintain appropriate levels of chlorine residuals. The water bulk station will help reduce flushing and reduce the amount of non-revenue water.
- Lindsay estimates that the bulk water sales will increase due to the location of the new bulk water station in the proximity of the highway. Software administration fees could be passed to the contractors (buyers). It is estimated that the water bulk station will pay for itself in a few years.
- The renewed Drinking Water Licence has new conditions for Relief from Regulatory Requirements regarding sampling in private residences for lead testing. The Town is required to take twenty drinking water samples on residential properties and eight distribution system samples to be tested for lead, as per O.Reg. 170/03.

8. Changes That Could Affect the QMS

- Currently there is four qualified staff with a level 2 Drinking Water Certificate that can be designated ORO or OIC.
- One current staff is working towards his certification upgrade from OIT to Class 1. This spring he will meet the experience requirements to upgrade.

9. The Resources Needed to Maintain the QMS

- Back Flow Prevention By-law #5645-14 enacted but not enforced. Back Flow Prevention bylaw refers to Fees bylaw; no fees are established for the backflow prevention program administration and maintenance.
- Iustina took the Cross connection Control Specialist course.
- The Program Coordinator Water/Wastewater/Stormwater position in the Water/Wastewater department was created and filled.
- This role would be responsible for enacting the Back Flow Prevention Program and other preventative programs, and ensuring that Aurora complies with its regulatory requirements and internal policies and/or procedures.

10. The Results of the Infrastructure Review

- Industrial Parkway S/ Industry St. Reconstruction Project – Replacement of the existing 200mm watermain on Industry St. with 250mm watermain including new services to the existing properties.
- Disconnection of the existing services at Industrial Parkway S from the existing 200mm watermain was done under the same project as above.

11. Operational Performance

- Lindsay reported eleven watermain breaks for 2016. Compared with neighbouring municipalities is a very low number. Lindsay believes that relining of the watermains is the major contributor to such good results. More watermain lining will be done in 2017.
- Seven Frozen Services reported in 2016 all of which were private side issues.
- The valve maintenance services were contracted out in the past. This year the Water And Wastewater Operations will purchase a Valve Maintenance Trailer and conduct the work in house. Approximate savings a year: \$60,000.00.
- The Town monitors the amount of water used by the Region for construction and repairs (number of fill ups) on the Water Tower on East side of the Town (Wellington St and Highway 404).
- Eighteen hydrants were repaired last year by water and wastewater staff.

 <i>Drinking Water Quality Management System</i> Management Review - Meeting Minutes	
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- A leak detector was purchased in 2016; staff is using it to better locate watermain breaks.

12. Consumer Feedback

- Top Management reviewed the 2016 Water Quality Complaints report.
- 23 water quality complaints recorded in 2016, all of the complaints were private side issues. Complaints and low water pressure logs are maintained.
- Lindsay stated that houses with filter systems might have low chlorine due to reverse osmosis.

13. Staff Suggestions

None

Summary

All action Items are identified on the Management Review Action Item form # SF-015 attached. All records are maintained and stored electronically in the Town's record management system filing location:

<K:\Infrastructure & Environmental Services\ENV\PlanProtect\DWQMS\Records\Management Review>

Next Meeting TBD



NSF International Strategic Registrations Audit Report

The Corporation of The Town of Aurora

100 John West Way P.O. Box 1000
Aurora, Ontario L4G 6J1 CAN

C0121304

Audit Type

DWQMS System Audit(Audit Duration: 8.00 Hours)

Auditor

Subhash Chander

Standard

Ontario's Drinking Water Quality Management Standard

(Exp Date: 13-JUL-2017)

Recommendation

Ontario's Drinking Water Quality Management Standard : DWQMS System Audit Complete No Change to Certificate



Executive Summary

Ontario's Drinking Water Quality Management Standard	The system is performing well- no specific complaints - with 1500 plus hydrants; 222.5 Km of mains, booster station and other maintenance issues- staff seems to be capable of handling- even with shortage of staff.
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Opportunities

Ontario's Drinking Water Quality Management Standard	Keeping track of the trends of main breaks; water leakage and hydrant flushing could help reduce the costs.
--	---

Corrective Action Requests

There is NO Corrective Action Request in this audit.

Site Information

Industry Codes

NACE:E 41

Scope of Registration

Ontario's Drinking Water Quality Management Standard : Town of Aurora Distribution System, 115-OA1, Entire Full Scope Accreditation



Opportunities for Improvements	
Ontario's Drinking Water Quality Management Standard	
Opportunity	Observations / Auditor Notes
6: Opportunities for Improvements (DWQMS)-02	<p>Location of OFI 12. Communication- Protocol with the Region in case of emergency;</p> <p>Discussed With Angela Pucci, IES Support Administrator & Lindsay Hayworth, Water & Sewage water supervisor;</p> <p>Description Discussed with both Angela Pucci, DWQMSR & Lindsay Hayworth Water & Sewage water Supervisor; Mention of establishing a protocol with the region could be included in the Quality Manual.</p>
Opportunities for Improvements (DWQMS)-02	<p>Location of OFI 6. Drinking Water System. ; Trends of water main breaks, loss of water, could be maintained. Program of back flow valve preventor's installation and yearly testing could be considered.</p> <p>Discussed With Angela Pucci, IES Support Administrator & Lindsay HHayworth, Supervisor Water & Sewage water;</p> <p>Description Could realize savings.;</p>
Opportunities for Improvements (DWQMS)-03	<p>Location of OFI 9. Organizational structure, Roles, Responsibilities and Authorities; Changes happening in the organization</p> <p>Discussed With Angela Pucci, IES Support Administrator & Lindsay Hayworth, Supervisor Water & sewage Water;</p> <p>Description New hires are going to join the organization- OR chart could be modified to reflect the changes;</p>
Opportunities for Improvements (DWQMS)-05	<p>Location of OFI 3. Commitment and Endorsement;</p> <p>Discussed With Angela Pucci, IES Support Administrator; Lindsay Hayworth, Water, waste water Supervisor;</p> <p>Description Could consider having Mayor (top Management) to sign the commitment.;</p>
Opportunities for Improvements (DWQMS)-06	<p>Location of OFI 7. Risk Assessment;</p> <p>Discussed With Angela Pucci, IES Support Administrator; Lindsay Hayworth, Water, waste water Supervisor;</p> <p>Description Frozen water mains or distribution water mains could be added as possible risks.;</p>

General Information	
Operating Authority: Legal Name & Address	The Corporation of the Town of Aurora; 100 John West Way, P.O. Box 1000, Aurora, On. L4G 6J1 Canada
Language Preference: Correspondence	English
Language Preference: Audit	English



Owner: Legal Name and Address	The Corporation of the Town of Aurora; 100 John West Way P.O. Box 1000, Aurora, On.; L4G 6J1 Canada
Owner Language Preference: Correspondence	English
Owner Language Preference: Audit	English
Applicant Representative Information; Include Name, Title, Phone, Fax, Email & Website	Angela Pucci, IES Support Administrator, Phone-905-727-3442/3442 , Fax. 905-727-7616 apucci@aurora.on.ca; www.aurora.on.ca
Accreditation Option	Full Scope - Entire DWQMS
Date of Previous Systems Audit:	June 16, 2015
Date of Previous On-Site Verification Audit:	June 18, 19, 2014

Processes

Ontario's Drinking Water Quality Management Standard

Process Name	Observations / Auditor Notes
Processes or Activities (DWQMS)-01	Describe whether the process is effective or not (effectiveness should be supported with specific data/records/results). Include strengths & weaknesses of process: Process is effective;



Summary of Findings	
Requirement	Finding
1. Quality Management System	C
2. Quality Management System Policy	C
3. Commitment and Endorsement	OFI
4. Quality Management System Representative	C
5. Document and Record Control	C
6. Drinking-Water System	OFI
7. Risk Assessment	OFI
8. Risk Assessment Outcomes	C
9. Organizational Structure, Roles, Responsibilities, and Authorities	OFI
10. Competencies	C
11. Personnel Coverage	C
12. Communications	OFI
13. Essential Supplies and Services	C
14. Review and Provision of Infrastructure	C
15. Infrastructure Maintenance, Rehabilitation & Renewal	C
16. Sampling, Testing & Monitoring	C
17. Measurement & Recording Equipment, Calibration & Maintenance	C
18. Emergency Management	C
19. Internal Audits	C
20. Management Review	C
21. Continual Improvement	C
Mj	Major Non-Conformity. The auditor has determined one of the following: (a) a required element of the DWQMS has not been incorporated into a QMS; (b) a systemic problem with a QMS is evidenced by two or more minor conformities; or (c) a minor non-conformity identified in a corrective action request has not been remedied.
Mn	Minor Non-Conformity. In the opinion of the auditor, part of a required element of the DWQMS has not been incorporated satisfactorily into a QMS.
OFI	Opportunity for Improvement. Conforms to requirement, but there is opportunity for improvement.
C	Conforms to requirement.
	Not Applicable to this audit
*	Additional Comment added by auditor in the body of the report.



Process Matrix	
Audit	Audited Processes
DWQMS System Audit (J0495534) Jun 16, 2015	Processes or Activities (DWQMS)-01
Audit	Audited Processes
DWQMS System Audit (J0495535) May 24, 2016	Processes or Activities (DWQMS)-01
Audit	Audited Processes
DWQMS Verification Audit (J0495536) Jun 18, 2014	Processes or Activities (DWQMS)-01



Audit Summary Matrix





2016 DWQMS Internal Audit
Town of Aurora



DWQMS INTERNAL AUDIT REPORT

Project #AUR_EA1617_050:

Town of Aurora

Operating Authority for:

Aurora Drinking Water System

Prepared by:

Ryan Bourner

AET Group Inc.

Audit Date:

December 1, 2016

Report Date:

December 2, 2016

Town of Aurora DWQMS Internal Audit

December 2016

1.0 AUDIT SUMMARY

An on-site internal DWQMS audit of the Town of Aurora Drinking Water System for the Town of Aurora was conducted by AET Group Inc. (“AET”) on December 1, 2016.

There is an opportunity to improve the Quality Management System as a whole (Element 1). Communication about the presence of a QMS is strong with the QMS Policy posted at strategic locations throughout the Operating Authority, and recorded Tailgate Safety Meetings touching on details in the QMS. However, two minor non-conformities and three opportunities for improvement were identified during this assessment, as noted in Section 4 of this report.

Audit Objectives

The objective of the audit was to determine whether the drinking water Quality Management System (QMS) for the Town of Aurora conforms to the requirements of the Ontario Ministry of the Environment’s (MOE) Drinking Water Quality Management Standard (DWQMS).

Audit Scope

The facilities and processes associated with the operating authority’s QMS were objectively evaluated to obtain audit evidence and to determine whether the quality management activities and related results conform with DWQMS requirements, and if they have been effectively implemented.

Audit Criteria

- The Drinking Water Quality Management Standard (October 2006)
- Current QMS manuals, procedures and records implemented by the Town of Aurora

Audit Dates

The DWQMS internal audit was held on December 1, 2016.

Audit Team Members

- Lead Auditor: Ryan Bourner, AET Group Inc.

Town of Aurora DWQMS Internal Audit

December 2016

2.0 SUMMARY OF FINDINGS

Requirement	Finding
1. Quality Management System	OFI
2. Quality Management System Policy	C
3. Commitment and Endorsement	C
4. Quality Management System Representative	C
5. Document and Records Control	Mn
6. Drinking-Water System	C
7. Risk Assessment	C
8. Risk Assessment Outcomes	C
9. Organizational Structure, Roles, Responsibilities and Authorities	OFI
10. Competencies	C
11. Personnel Coverage	C
12. Communications	OFI
13. Essential Supplies and Services	C
14. Review and Provision of Infrastructure	C
15. Infrastructure Maintenance, Rehabilitation & Renewal	C
16. Sampling, Testing and Monitoring	C
17. Measurement & Recording Equipment Calibration and Maintenance	OFI
18. Emergency Management	C
19. Internal Audits	C
20. Management Review	C
21. Continual Improvement	Mn
Mj	Major non-conformity. The auditor has determined one of the following: (a) a required element of the DWQMS has not been incorporated into a QMS; (b) a systemic problem with a QMS is evidenced by two or more minor non-conformities; or (c) a minor non-conformity identified in a corrective action request has not been remedied.
Mn	Minor non-conformity. In the opinion of the auditor, part of a required element of the DWQMS has not been incorporated satisfactorily into a QMS.
OFI	Opportunity for improvement. Conforms to requirement, but there is an opportunity for improvement.
C	Conforms to requirement. The element is operational, implemented and performed in accordance with the requirement.
NA	Not applicable to this audit
*	Additional comment added by auditor in the body of the report.

3.0 FINDINGS/COMMENTS

DWQMS Reference: 5 Document and Records Control

Requirement: *The Operational Plan shall document a procedure for document and records control that describes how:*

b.records required by the Quality Management System are:

i. kept legible, and readily identifiable;

ii. retrievable;

iii. stored, protected, retained and disposed of.

Client Reference: QMS-PRO-001 Document Control Procedure (Ver. 5, 4-Feb-2016)

QMS-PRO-002 Record Control Procedure (Ver. 4, 1-Oct-2015)

DWQMS Training Matrix

Results: Minor non-conformity

Details: Several records were incomplete or missing including:

- annual review of documents record
- several Tailgate Safety Meeting Minutes are not recorded
- orientation training in Training Matrix

DWQMS Reference: 21 Continual Improvement

Requirement: *The Operating Authority shall strive to continually improve the effectiveness of its Quality Management System through the use of corrective actions.*

Client Reference: Corrective Action Request (1-Dec-15): Element 1 – Frozen Water Mains

Emergency Scenario Tabletop Exercise (27-Oct-2016)

DWQMS Internal Audit- OFI Matrix(1-Dec-2015)

DWQMS System Audit- OFI Matrix (24-May-2016)

Results: Minor non-conformity

Details: One non-conformity has not been addressed from previous audits. It is recommended that a formal procedure for

Town of Aurora DWQMS Internal Audit

December 2016

addressing non-conformances and opportunities for improvement be developed.

An opportunity of improvement also exists in this element. Two opportunities for improvement (OFI) were identified in previous audits and emergency tests for which there was neither evidence of corrective action nor screening of these OFI.

DWQMS Reference: **9 Organizational Structure, Roles, Responsibilities and Authorities**

Requirement: *The Operational Plan shall:*

a. describe the organizational structure of the Operating Authority, including respective roles, responsibilities and authorities;

Client Reference: OP-EI 9 Organizational Structure, Roles, Responsibilities and Authorities (Rev.4, 30-Nov-2015)

Results: **Opportunity for Improvement**

Details: Several roles within the QMS are either temporarily vacant (Project Administrator) or filled with interim personnel (Manager of Operations), but are not accounted for in the Organizational Structure.

DWQMS Reference: **12 Communications**

Requirement: *The Operational Plan shall document a procedure for communications that describes how the relevant aspects of the Quality Management System are communicated between Top Management and:*

d. the public.

Client Reference: Operational Plan – Element 12 - Communications (Rev. 2, 4-Feb-2016)

Results: **Opportunity for Improvement**

Details: More information about the presence of a Quality Management System could be provided through the Town's Website

Town of Aurora DWQMS Internal Audit

December 2016

DWQMS Reference:	17 Measurement and Recording Equipment Calibration and Maintenance
Requirement:	<i>The Operational Plan shall document a procedure for the calibration and maintenance of measurement and recording equipment.</i>
Client Reference:	Operational Plan – Measurement and Recording Equipment Calibration and Maintenance (Rev. 3, 11-Jan-2012) Field Service Report (11-Jan-16)
Results:	Opportunity for Improvement
Details:	Record of field calibration checks missing for several colorimeters in April 2016.

4.0. CONCLUSIONS

This audit report presents an overview of DWQMS conformance findings, reflecting AET's best judgment using information reasonably available to the auditors at the time of AET's audit. AET has prepared this audit report using information understood to be factual and correct and shall not be responsible for conditions arising from information or facts that were concealed or not fully disclosed to AET during the period of time for which the work was being conducted.

This DWQMS audit report, which was derived from a sampling of document/record reviews and site observations, aims to establish the current position of the Town of Aurora with respect to conformance to the DWQMS. While comments were made throughout the report, an in-depth inspection was not carried out.

Respectfully Submitted,

AET Group Inc.

Prepared by:



Ryan Bourner, B. Eng, Dip EMA, EP
Environmental Technologist

**Ministry of the Environment and
Climate Change**

Central Region,
York Durham District Office
230 Westney Road South, 5 Floor
Ajax, ON L1S 7J5
Tel. (905) 427-5600
Fax (905) 427-5602

**Ministère de l'Environnement et de
l'Action en matière de changement
climatique**

Région du Centre
Bureau de district de York Durham
230, chemin Westney sud, 5e étage
Ajax, ON L1S 7J5
Tel. (905) 427-5600
Fax (905) 427-4502



February 22, 2017

The Town of Aurora
100 John West Way
Aurora, Ontario L4G 6J1

Attention: Philip Galin, Manager of Operations Services

**RE: Aurora Distribution System (260003227)
Drinking Water Inspection Report 1-D8OT0**
File: SI YO AU SC 540

Please find attached the Ministry of the Environment's inspection report for the above facility. The report details the findings of the inspection that began on January 16, 2017.

The Appendix section of the inspection includes the Stakeholder Appendix A with links to key reference and guidance materials available on the Ministry of the Environment and Climate Change' (MOECC) website. Appendix B contains the inspection rating record and a risk methodology memo.

In the inspection report, any "*Actions Required*" are linked to incidents of non-compliance with regulatory requirements contained within the Act, a regulation, or site-specific approvals, licenses, permits, orders or instructions. Such violations could result in the issuance of mandatory abatement instruments including Orders, tickets, penalties, or referrals to the ministry's Investigations and Enforcement Branch.

"*Recommended Actions*" convey information that the owner or operating authority should consider implementing in order to advance efforts already in place to address such issues as emergency preparedness, the availability of information to consumers, and conformance with existing and emerging industrial standards. Please note that items which appear as recommended actions do not, in themselves, constitute violations.

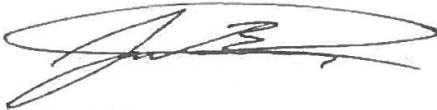
Please note, you will find in the report that bullets are shown in bold print and are the consistent and standard responses to the information gathered during the inspection. Statements shown in regular font provide additional site-specific details.

Section 19 of the Safe Drinking Water Act (Standard of Care) creates a number of obligations for individuals who exercise decision-making authority over municipal drinking water systems. Please be aware that the Ministry has encouraged such individuals, particularly municipal councillors, to take steps to be better informed about the drinking water systems over which they have decision-making authority. These steps could include asking for a copy of this inspection report and a review of its

findings. Further information about Section 19 can be found in *"Taking Care of Your Drinking Water: A guide for members of municipal council"* found under "Resources" on the Drinking Water Ontario website at www.ontario.ca/drinkingwater.

I would like to thank the Town of Aurora staff for the assistance afforded to me during this compliance assessment. If you have any questions or concerns please contact myself or Demetra Koros, Drinking Water Program Supervisor, Central Region at 905-427-5630.

Yours truly,



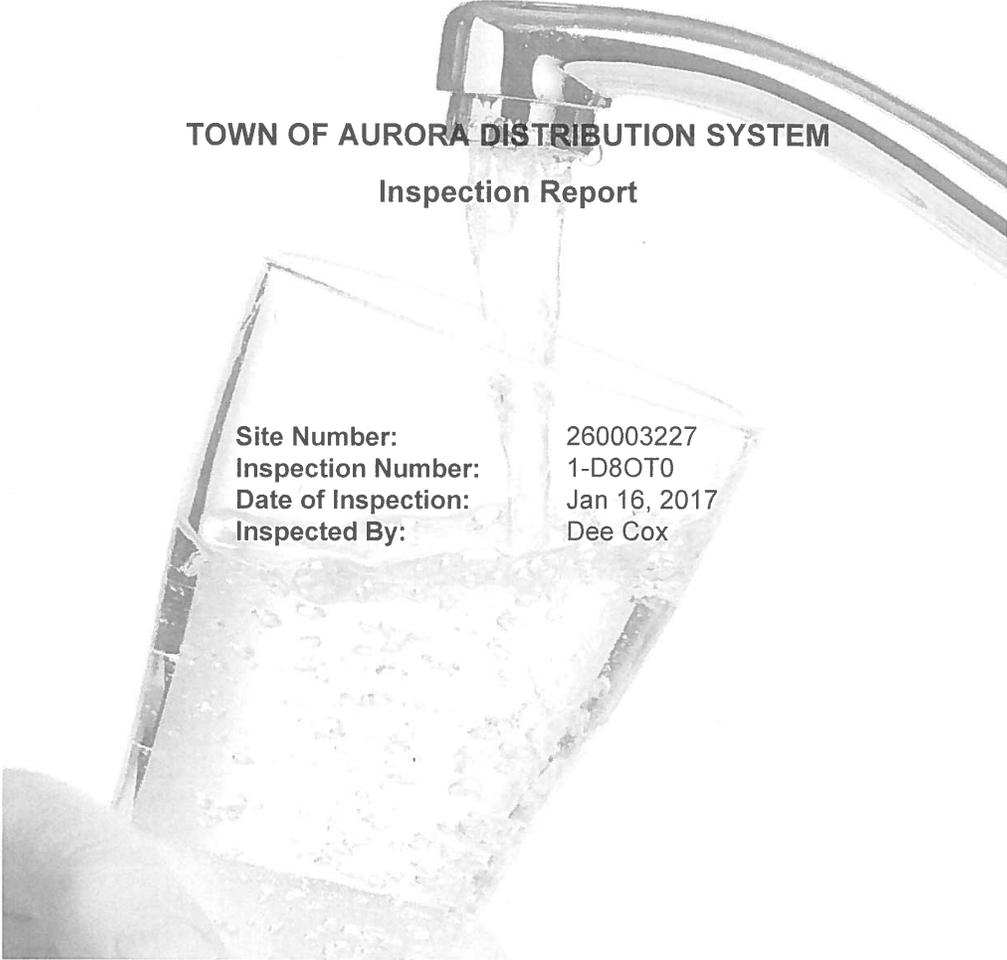
Brad Jackson
Water Inspector
Drinking Water Branch
Ministry of the Environment and Climate Change
Phone: (905) 427-2367

C:

Lindsay Hayworth, Water & Wastewater Supervisor
Bernard Mayer, Manager of Environmental Health, York Region Health Department
Joe La Marca, Director of Health Protection, York Region Health Department
Marion Young, Administrative Clerk, York Region Health Department
Ben Longstaff, Director, Watershed Management, Lake Simcoe Region Conservation Authority
Demetra Koros, Water Supervisor, York Durham District Office



Ministry of the Environment and Climate Change

A black and white photograph of a water tap pouring water into a clear glass. The water is captured mid-pour, creating a dynamic splash. The background is plain white.

**TOWN OF AURORA DISTRIBUTION SYSTEM
Inspection Report**

Site Number:	260003227
Inspection Number:	1-D8OT0
Date of Inspection:	Jan 16, 2017
Inspected By:	Dee Cox



Ministry of the Environment Drinking Water Inspection

TABLE OF CONTENTS

1. Drinking Water System Owners Information
2. Drinking Water System Inspection Report

Appendix:

- A. Stakeholders Appendix
- B. Inspection Rating Record



OWNER INFORMATION:

Company Name: AURORA, THE CORPORATION OF THE TOWN OF
Street Number: 100 **Unit Identifier:**
Street Name: JOHN WEST Way
City: AURORA
Province: ON **Postal Code:** L4G 6J1

CONTACT INFORMATION

Type: Manager **Name:** Philip Galin
Phone: (905) 727-3123 **Fax:** (905) 727-7616
Email: pgalin@aurora.ca
Title: Manager of Operations (Acting)

Type: Supervisor **Name:** Lindsay Hayworth
Phone: (905) 727-3123 **Fax:** (905) 727-7616
Email: lhayworth@aurora.ca
Title: Water and Wastewater Supervisor

INSPECTION DETAILS:

Site Name: TOWN OF AURORA DISTRIBUTION SYSTEM
Site Address: 100 JOHN WEST WAY AURORA L4G 6J1
County/District: Aurora
MOECC District/Area Office: York-Durham District
Health Unit: YORK REGION HEALTH SERVICES DEPARTMENT
Conservation Authority:
MNR Office:
Category: Large Municipal Residential
Site Number: 260003227
Inspection Type: Unannounced
Inspection Number: 1-D8OT0
Date of Inspection: Jan 16, 2017
Date of Previous Inspection:

COMPONENTS DESCRIPTION

Site (Name): MOE DWS Mapping
Type: DWS Mapping Point **Sub Type:**

Site (Name): Aurora Distribution System
Type: Other **Sub Type:**

Comments:

The Aurora Distribution System (The System) is owned and operated by the Town of Aurora (The Town) and serves a population of approximately 57,000. The Town is responsible for the operation and maintenance of approximately 220 kilometers of watermain, a booster pumping station, watermain valves, fire hydrants, service connections, and water meters.



The System receives a mix of treated surface water and groundwater from six production wells that are owned and operated by the Region of York (The Region) and surface water that is treated by the City of Toronto and the Region of Peel. Chloramination is used in the treatment process. The transmission lines and storage facilities are owned and operated by the Region of York.

Site (Name): Vandorf Booster Pumping Station
Type: Other **Sub Type:**
Comments:

The Vandorf Booster Pumping Station (The Pumping Station) located at the south-east corner of Vandorf Side Road and Industrial Parkway South is equipped with two booster pumps each rated at 65 L/s, one fire booster pump rated at 131 L/s, and a 125 kW standby diesel generator.



INSPECTION SUMMARY:

Introduction

- The primary focus of this inspection is to confirm compliance with Ministry of the Environment and Climate Change (MOECC) legislation as well as evaluating conformance with ministry drinking water policies and guidelines during the inspection period.

This drinking water system is subject to the legislative requirements of the Safe Drinking Water Act, 2002 (SDWA) and regulations made therein, including Ontario Regulation 170/03, "Drinking Water Systems" (O. Reg.170/03). This inspection has been conducted pursuant to Section 81 of the SDWA.

This report is based on an inspection of a "stand alone connected distribution system". This type of system receives treated water from a separately owned "donor" system. This report contains the elements required to assess key compliance and conformance issues associated with a "receiver" system. This report does not contain items associated with the inspection of the donor system, such as source waters, intakes/wells and treatment facilities.

This report is based on a "focused" inspection of the system. Although the inspection involved fewer activities than those normally undertaken in a detailed inspection, it contained critical elements required to assess key compliance issues. This system was chosen for a focused inspection because the system's performance met the ministry's criteria, most importantly that there were no deficiencies as identified in O.Reg. 172/03 over the past 3 years. The undertaking of a focused inspection at this drinking water system does not ensure that a similar type of inspection will be conducted at any point in the future.

This inspection report does not suggest that all applicable legislation and regulations were evaluated. It remains the responsibility of the owner to ensure compliance with all applicable legislative and regulatory requirements.

On January 16, 2017, Water Inspectors, Dee Cox and Brad Jackson conducted an unannounced on-site inspection of the Aurora Distribution System. Documents pertaining to the system were reviewed both on-site and off-site. Information and assistance with the inspection was provided by the Town of Aurora.

The data reviewed for the inspection period covered by this report is August 2015 through to January 2017.

The Town of Aurora Distribution System operates under Municipal Drinking Water Licence (the Licence) Number 115-101 and Drinking Water Works Permit (the Permit) Number 115-201.

Treatment Processes

- The owner had ensured that all equipment was installed in accordance with Schedule A and Schedule C of the Drinking Water Works Permit.

The Drinking Water Works Permit references an emergency standby booster pumping station located at the south-east corner of Vandorf Side Road and Industrial Parkway South. This pumping station includes two booster pumps and one fire booster pump along with a standby diesel generator.

- The owner/operating authority was in compliance with the requirement to prepare Form 1 documents as required by their Drinking Water Works Permit during the inspection period.

The Town of Aurora had eight (8) Form 1 documents for the inspection period. The documents were reviewed on site and appeared to be in compliance with the Drinking Water Works Permit.



Treatment Process Monitoring

- **The secondary disinfectant residual was measured as required for the distribution system.**

Ontario Regulation 170/03, Schedule 7-2 (3), requires the owner of a large municipal residential system that provides secondary disinfection, to take at least seven (7) distribution samples each week and test immediately for:

- a) Free chlorine residual, if the system provides chlorination and does not provide chloramination, or
- b) Combined chlorine residual, if the system provides chloramination.

Unless one sample is collected each day of the week, four (4) of the samples must be taken on one day of the week and three (3) of the samples are to be taken on a second day of the week, at least 48 hours after the last sample was taken on the previous day in the same week.

The Town of Aurora collects grab samples for free and total chlorine residuals while conducting routine distribution microbiological sampling. Grab samples for free chlorine residuals are also collected at locations within the distribution system twice per week. During the week of December 29, 2015, it was noticed that a sample was taken 46 hours between the last of the first 4 samples instead of 48 hours.

After speaking with the supervisor, a new digital procedure was put into place to ensure a chlorine residual is always taken 48 hours after the last sample. A review of the spreadsheet allows an operator to see the hours passed since the last sample was conducted ensuring samples are always taken 48 hours after the last.

The supervisor has also noted that a review of the sampling procedures was conducted on January 25, 2017.

Distribution System

- **Existing parts of the distribution system that are taken out of service for inspection, repair or other activities that may lead to contamination, and all new parts of the distribution system that come in contact with drinking water, were disinfected in accordance with Schedule B, Condition 2.3 of the Drinking Water Works Permit, or an equivalent procedure (i.e. the Watermain Disinfection Procedure).**

The Drinking Water Works Permit, Schedule B, 2.3, requires that all parts of the drinking water system in contact with drinking water which are added, modified, replaced, extended or taken out of service for inspection, repair or other activities that may lead to contamination, shall be disinfected before being put into service in accordance with the provisions of the AWWA C651- Standard for Disinfecting Water Mains or an equivalent procedure.

The documents were reviewed on site and the current AWWA Standard C651 is being followed by the Town of Aurora.

Operations Manuals

- **The operations and maintenance manuals contained plans, drawings and process descriptions sufficient for the safe and efficient operation of the system.**
- **The operations and maintenance manuals met the requirements of the Drinking Water Works Permit and Municipal Drinking Water Licence issued under Part V of the SDWA.**

Logbooks

- **Records or other record keeping mechanisms confirmed that operational testing not performed by continuous monitoring equipment was being done by a certified operator, water quality analyst, or person who suffices the requirements of O. Reg. 170/03 7-5.**



Logbooks

Security

- The owner had provided security measures to protect components of the drinking water system.

Certification and Training

- The overall responsible operator had been designated for each subsystem.

Subsection 23(1) of Ontario Regulation 128/04 states that the owner or operating authority of a municipal residential subsystem shall designate an overall responsible operator (ORO). The ORO shall be an operator who holds a certificate for that type of subsystem and that is of the same class as or higher than the class of that subsystem.

The Town of Aurora is in compliance with this legislative requirement.

- Operators in charge had been designated for all subsystems which comprised the drinking-water system.

Subsection 25(1) of Ontario Regulation 128/04 states that the owner or operating authority of a subsystem shall designate one or more operators as operators-in-charge (OIC) of the subsystem. Subsection 25(5) states that a person who holds an operator-in-training certificate shall not be designated as an OIC. Duties of the OIC are listed in Section 26 of O. Reg. 128/04.

The Town of Aurora is in compliance with this legislative requirement.

Water Quality Monitoring

- All microbiological water quality monitoring requirements for distribution samples were being met.

The Town of Aurora exceeded the requirement for bacteriological sampling in the distribution system for this inspection period.

- All trihalomethanes water quality monitoring requirements prescribed by legislation were conducted within the required frequency.

O. Reg. 170/03, Schedule 13-6, requires the owner of a drinking water system to ensure that at least one distribution sample is taken in each calendar quarter, from a point in the drinking water system's distribution system, or plumbing that is connected to the drinking water system, that is likely to have an elevated potential for the formation of trihalomethanes.

The Town of Aurora is in compliance with this legislative requirement.

- Records confirmed that chlorine residual tests were being conducted at the same time and at the same location that microbiological samples were obtained.

Water Quality Assessment

- Records showed that all water sample results taken during the inspection review period did not exceed the values of tables 1, 2 and 3 of the Ontario Drinking Water Quality Standards (O.Reg. 169/03).

Three (3) AWQIs were reported to the Spills Action Centre (SAC) for the presence of Total Coliform (TC) on September 9, 2015, July 13, 2016 and July 20, 2016. All three AWQIs were resolved.

Reporting & Corrective Actions



Reporting & Corrective Actions

- Corrective actions (as per Schedule 17) had been taken to address adverse conditions, including any other steps that were directed by the Medical Officer of Health.
- All required notifications of adverse water quality incidents were immediately provided as per O. Reg. 170/03 16-6.
- All changes to the system registration information were provided within ten (10) days of the change.



NON-COMPLIANCE WITH REGULATORY REQUIREMENTS AND ACTIONS REQUIRED

This section provides a summary of all non-compliance with regulatory requirements identified during the inspection period, as well as actions required to address these issues. Further details pertaining to these items can be found in the body of the inspection report.

Not Applicable



SUMMARY OF RECOMMENDATIONS AND BEST PRACTICE ISSUES

This section provides a summary of all recommendations and best practice issues identified during the inspection period. Details pertaining to these items can be found in the body of the inspection report. In the interest of continuous improvement in the interim, it is recommended that owners and operators develop an awareness of the following issues and consider measures to address them.

Not Applicable



SIGNATURES

Inspected By:

Dee Cox

Signature: (Provincial Officer)

A handwritten signature in black ink, appearing to be "DCox", written over a horizontal line.

Reviewed & Approved By:

Demetra Koros

Signature: (Supervisor)

A handwritten signature in black ink, appearing to be "DKoros", written over a horizontal line.

Review & Approval Date:

Feb. 8/17.

Note: This inspection does not in any way suggest that there is or has been compliance with applicable legislation and regulations as they apply or may apply to this facility. It is, and remains, the responsibility of the owner and/or operating authority to ensure compliance with all applicable legislative and regulatory requirements.



**APPENDIX A
STAKEHOLDER APPENDIX**



**APPENDIX B
INSPECTION RATING RECORD**

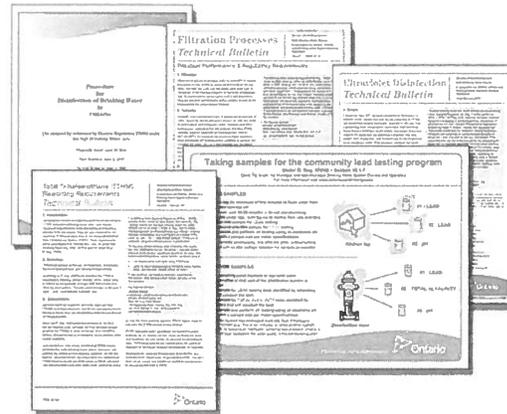
March 2015

Key Reference and Guidance Material for Municipal Residential Drinking Water Systems

Many useful materials are available to help you operate your drinking water system. Below is a list of key materials owners and operators of municipal residential drinking water systems frequently use.

To access these materials online click on their titles in the table below or use your web browser to search for their titles. Contact the Public Information Centre if you need assistance or have questions at 1-800-565-4923/416-325-4000 or picemail.moe@ontario.ca.

For more information on Ontario's drinking water visit www.ontario.ca/drinkingwater and email drinking.water@ontario.ca to subscribe to drinking water news.



PUBLICATION TITLE	PUBLICATION NUMBER
Taking Care of Your Drinking Water: A Guide for Members of Municipal Councils	7889e01
FORMS: Drinking Water System Profile Information, Laboratory Services Notification, Adverse Test Result Notification Form	7419e, 5387e, 4444e
Procedure for Disinfection of Drinking Water in Ontario	4448e01
Strategies for Minimizing the Disinfection Products Trihalomethanes and Haloacetic Acids	7152e
Total Trihalomethane (TTHM) Reporting Requirements Technical Bulletin (February 2011)	8215e
Filtration Processes Technical Bulletin	7467
Ultraviolet Disinfection Technical Bulletin	7685
Guide for Applying for Drinking Water Works Permit Amendments, Licence Amendments, Licence Renewals and New System Applications	7014e01
Certification Guide for Operators and Water Quality Analysts	
Guide to Drinking Water Operator Training Requirements	9802e
Taking Samples for the Community Lead Testing Program	6560e01
Community Sampling and Testing for Lead: Standard and Reduced Sampling and Eligibility for Exemption	7423e
Guide: Requesting Regulatory Relief from Lead Sampling Requirements	6610
Drinking Water System Contact List	7128e
Technical Support Document for Ontario Drinking Water Quality Standards	4449e01

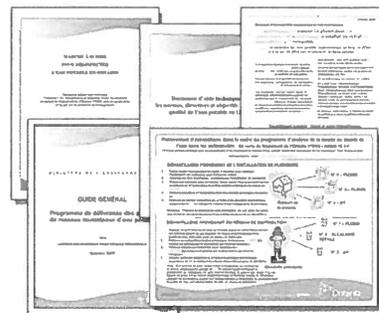
ontario.ca/drinkingwater

Mars 2015

Principaux guides et documents de référence sur les réseaux résidentiels municipaux d'eau potable

De nombreux documents utiles peuvent vous aider à exploiter votre réseau d'eau potable. Vous trouverez ci-après une liste de documents que les propriétaires et exploitants de réseaux résidentiels municipaux d'eau potable utilisent fréquemment.

Pour accéder à ces documents en ligne, cliquez sur leur titre dans le tableau ci-dessous ou faites une recherche à l'aide de votre navigateur Web. Communiquez avec le Centre d'information au public au 1 800 565-4923 ou au 416 325-4000, ou encore à picemail.moe@ontario.ca si vous avez des questions ou besoin d'aide.



Pour plus de renseignements sur l'eau potable en Ontario, consultez le site www.ontario.ca/eaupotable ou envoyez un courriel à drinking.water@ontario.ca pour suivre l'information sur l'eau potable.

TITRE DE LA PUBLICATION	NUMÉRO DE PUBLICATION
Prendre soin de votre eau potable – Un guide destiné aux membres des conseils municipaux	7889f01
Renseignements sur le profil du réseau d'eau potable, Avis de demande de services de laboratoire, Formulaire de communication de résultats d'analyse insatisfaisants et du règlement des problèmes	7419f, 5387f, 4444f
Marche à suivre pour désinfecter l'eau potable en Ontario	4448f01
Strategies for Minimizing the Disinfection Products Trihalomethanes and Haloacetic Acids (en anglais seulement)	7152e
Total Trihalomethane (TTHM) Reporting Requirements: Technical Bulletin (février 2011) (en anglais seulement)	8215e
Filtration Processes Technical Bulletin (en anglais seulement)	7467
Ultraviolet Disinfection Technical Bulletin (en anglais seulement)	7685
Guide de présentation d'une demande de modification du permis d'aménagement de station de production d'eau potable, de modification du permis de réseau municipal d'eau potable, de renouvellement du permis de réseau municipal d'eau potable et de permis pour un nouveau réseau	7014f01
Guide sur l'accréditation des exploitants de réseaux d'eau potable et des analystes de la qualité de l'eau de réseaux d'eau potable	
Guide sur les exigences relatives à la formation des exploitants de réseaux d'eau potable	9802f
Prélèvement d'échantillons dans le cadre du programme d'analyse de la teneur en plomb de l'eau dans les collectivités	6560f01
Échantillonnage et analyse du plomb dans les collectivités : échantillonnage normalisé ou réduit et admissibilité à l'exemption	7423f
Guide: Requesting Regulatory Relief from Lead Sampling Requirements (en anglais seulement)	6610
Liste des personnes-ressources du réseau d'eau potable	7128f
Document d'aide technique pour les normes, directives et objectifs associés à la qualité de l'eau potable en Ontario	4449f01

ontario.ca/eaupotable

Ministry of the Environment - Inspection Summary Rating Record (Reporting Year - 2016-2017)

DWS Name: TOWN OF AURORA DISTRIBUTION SYSTEM
DWS Number: 260003227
DWS Owner: Aurora, The Corporation Of The Town Of
Municipal Location: Aurora

Regulation: O.REG 170/03
Category: Large Municipal Residential System
Type Of Inspection: Adhoc
Inspection Date: January 16, 2017
Ministry Office: York-Durham District

Maximum Question Rating: 208

Inspection Module	Non-Compliance Rating
Treatment Processes	0 / 18
Distribution System	0 / 21
Operations Manuals	0 / 28
Logbooks	0 / 14
Certification and Training	0 / 14
Water Quality Monitoring	0 / 43
Reporting & Corrective Actions	0 / 49
Treatment Process Monitoring	0 / 21
TOTAL	0 / 208

Inspection Risk Rating | **0.00%**

FINAL INSPECTION RATING: | **100.00%**

Ministry of the Environment - Detailed Inspection Rating Record (Reporting Year - 2016-2017)

DWS Name: TOWN OF AURORA DISTRIBUTION SYSTEM
DWS Number: 260003227
DWS Owner: Aurora, The Corporation Of The Town Of
Municipal Location: Aurora

Regulation: O.REG 170/03

Category: Large Municipal Residential System

Type Of Inspection: Adhoc

Inspection Date: January 16, 2017

Ministry Office: York-Durham District

Maximum Question Rating: 208

Inspection Risk Rating	0.00%
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FINAL INSPECTION RATING:	100.00%
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**Town of Aurora
General Committee Report**

No. IES17-023

**Subject: Award of Tender 2017-27-IES
Structural Watermain Relining
Tamarac Trail, Milgate Place and Albery Crescent**

Prepared by: Dan Vink, Coordinator, Capital Delivery

Department: Infrastructure and Environmental Services

Date: May 2, 2017

Recommendation

- 1. That Report No. IES17-023 be received; and**
- 2. That Tender 2017-27-IES under Capital Project No. 43054 for Structural Watermain Relining on Tamarac Trail, Milgate Place and Albery Crescent be awarded to Fer-Pal Construction Limited in the amount of \$692,355 excluding taxes; and**
- 3. That the budget variance in the amount of \$220,605 be returned to source; and**
- 4. That the Mayor and Town Clerk be authorized to execute the necessary Agreement, including any and all documents and ancillary agreements required to give effect to same.**

Executive Summary

The purpose of this report is to seek Council authorization to award the tender for structural watermain relining on Tamarac Trail, Milgate Place and Albery Crescent.

- The sole compliant bidder was Fer-Pal Construction Ltd. with a bid of \$692,355 which is below the approved capital project budget.
- Structural relining will substantially increase the service life of the existing watermains on these streets and prevent future breaks and emergency repairs.

Background

Tamarac Trail, Alberty Crescent and Milgate Place were selected for watermain relining due to several watermain breaks that have occurred in this area of the Town over the past five (5) years.

This structural watermain relining project was slated for 2017 as part of the 2015 Ten-Year Capital Investment Plan. The capital funding for this project has been approved by Council for delivery in 2017 in the amount of \$1,000,000 and this report provides the details of the tendering results and a recommendation to proceed to construction.

Analysis

Tender Opening

A total of seven (7) companies picked up the tender documents and on April 6, 2017 the Tender Opening Committee received one (1) compliant bid. The compliant bidder for this tender was Fer-Pal Construction Ltd. as summarized in Table 1.

Table 1 – Bid Summary

	Firm Name	Total Bid (excluding taxes)
1	Fer-Pal Construction Ltd.	\$692,355

Verification of the submitted tender was undertaken by Town staff and deemed to be compliant.

Fer-Pal Construction Limited has successfully completed similar projects within the Town including the watermain relining on Haida Drive and MacDonald Drive in 2015 and on Spruce Street, Walton Avenue and Keystone Court in 2011.

Project Schedule

The Contract is expected to commence in July 2017.

Advisory Committee Review

Not applicable.

Financial Implications

Table 2 is a financial summary for Capital Project No. 43054 as based on the tender submitted by Fer-Pal Construction Ltd.

Table 2 – Financial Summary

Approved Budget	
Capital Project No. 43054	\$1,000,000
Total Approved Budget	\$1,000,000
Less previous commitments	\$0
Funding available for subject Contract	\$1,000,000
Contract Award excluding HST	\$692,355
Non-refundable taxes (1.76%)	\$12,186
Geotechnical Inspection (Under Separate P.O.)	\$2,000
Arborist Inspection (Under Separate P.O.)	\$2,000
Sub-Total	\$708,541
Contingency amount (10%)	\$70,854
Total Funding Required	\$779,395
Favorable Budget Variance	\$220,605

Communications Considerations

There are no communication related issues.

Link to Strategic Plan

This report supports the Strategic Plan goal of ***Supporting an Exceptional Quality of Life for All*** through its accomplishment in satisfying requirements in the following key objective within this goal statement:

Invest in sustainable infrastructure: Maintain and expand infrastructure to support forecasted population growth through technology, waste management, roads, emergency services and accessibility.

Alternative(s) to the Recommendation

1. Council may choose to not award this project. The Tender evaluation process meets all requirements of the Procurement By-law and awarding this contract is the next step in fulfilling the requirements of the tendering process. If Council chooses to not award this contract, the lifespan of the watermain on these streets will decrease and there will be a greater risk of future watermain breaks and higher costs to maintain this infrastructure.

Conclusions

The tender review has complied with the Procurement By-law requirements and it is recommended that Tender 2017-27-IES for structural watermain relining on Tamarac Trail, Milgate Place and Albery Trail be awarded to Fer-Pal Construction Limited in the amount of \$692,355 excluding taxes.

Attachments

Appendix 'A' – Key plan showing the location of proposed structural watermain lining work.

Previous Reports

None.

Pre-submission Review

Agenda Management Team Meeting review on April 13, 2017.

Departmental Approval

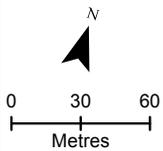
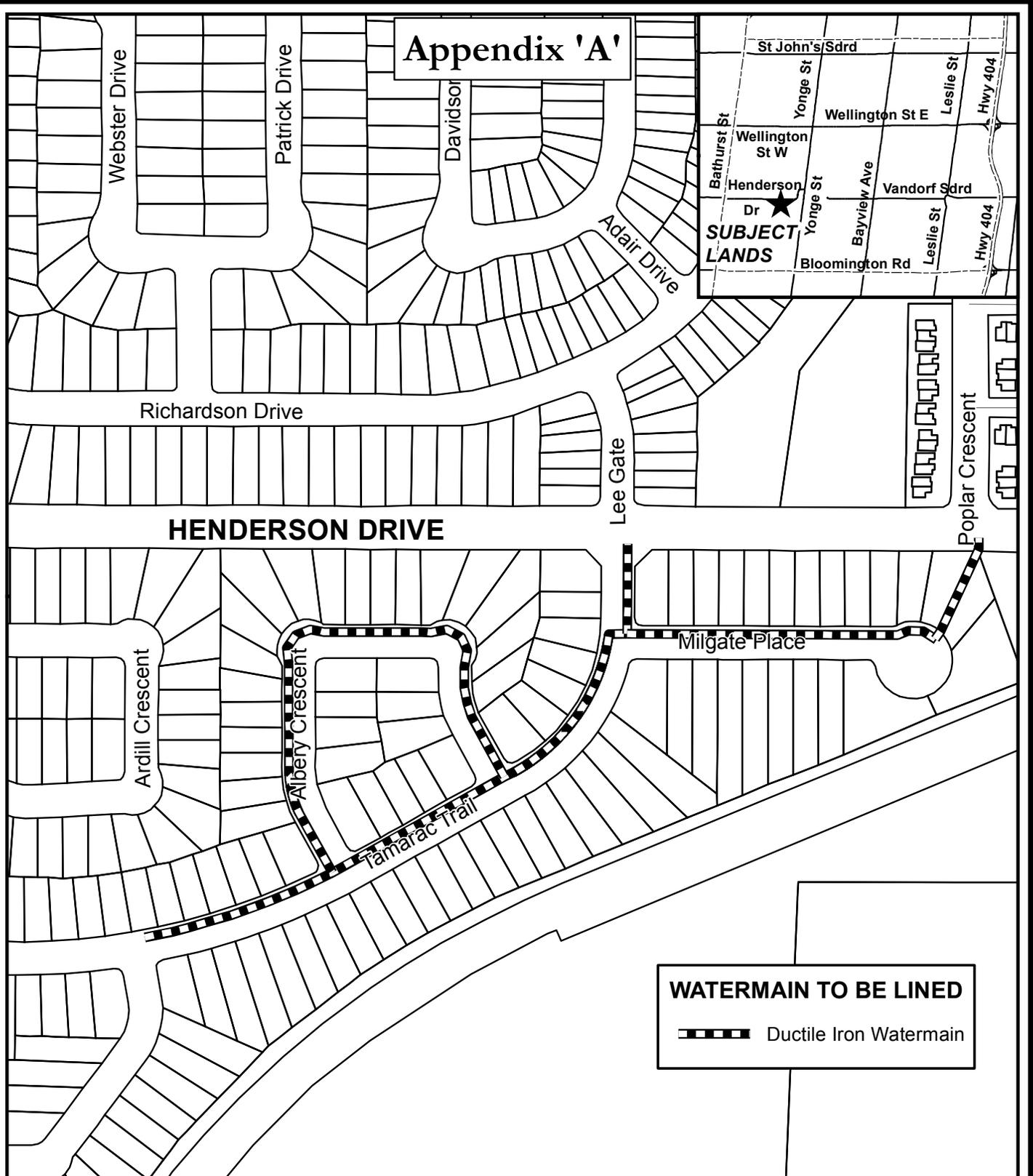


Marco Ramunno
Acting Director, Infrastructure and
Environmental Services

Approved for Agenda



Doug Nadorozny
Chief Administrative Officer



KEY PLAN
STRUCTURAL WATERMAIN LINING ON
TAMARAC TRAIL, MILGATE PLACE AND ALBERY CRESCENT



IES17-023



**Town of Aurora
General Committee Report No. PBS17-027**

Subject: Long-Term Development Activity Projections
Prepared by: Michael Logue, Program Manager, Economic Planning
Department: Planning and Building Services
Date: May 2, 2017

Recommendations

- 1. That Report No. PBS17-027 be received for information.**

Executive Summary

This report provides Council with a ten-year snapshot of development activity projections, based on currently approved, applied for, and anticipated applications:

- Building permits to be issued for approximately 690 new units per year over the next five years, 2017-2021;
- Building permits to be issued for approximately 600 units per year over the subsequent five-year period, 2022-2026;
- Average of approximately 650 building permits issued for new dwellings, or 6,500 total, 2017-2026;
- Projections anticipate a shift towards compact forms of development, as lands for ground-related housing become more limited in Aurora;
- The average annual number of permits issued by structure type over the next ten years is projected to be 200 single detached (31%), 120 townhouses (18%), and 330 apartments (51%);
- Projected development activity, upon occupancy, will result in population totals of 68,400 by 2021, and 76,500 by 2026. These population figures exceed the Official Plan targets and are reflective of a stronger than anticipated demand for residential units.
- The Town of Aurora does not currently have sufficient servicing allocation capacity to achieve Official Plan target population, or reach the ten- or five-year projections.

Background

Development activity is tracked and projected for a number of reasons, including monitoring servicing allocation balances, verifying population growth estimates, and tracking progress towards Official Plan targets.

Since the 2C Planning Area has come online, Aurora has experienced a return to robust building permit activity. After some slower years of activity in the mid-2000's period, Aurora has averaged over 1,000 permits issued for new dwelling units over the last two years, 2015-2016.

The timelines associated with these projections assume continued strong market demand for housing over the forecast period. However, if the housing market begins to soften, then projections are at risk of not being realized. As described in the analysis of this report, these forecasts include a shift from predominantly ground-related housing, to more apartment units. While from a planning policy perspective, a shift towards more apartments over the forecast period is a positive, demand for traditional ground-related housing in Aurora has always been strong. Apartment units, on the other hand, generally come with the risk of being more susceptible to subtle changes in market forces.

Analysis

The Current Five-Year Period 2017-2021

The current five-year period, starting in 2017, should see annual growth average slightly below the robust pace seen between 2015-2016. Annual growth is expected to fluctuate between approximately 500 and 1,000 units on an annual basis, averaging 690 new dwelling units per year.

The mix of housing built 2017-2021 is still expected to remain ground-related, on balance: 38% single detached, 22% townhouses, and 41% apartments. Over 70% of the applications that constitute the 2017-2021 forecast have already been before Council in some form (Official Plan Amendment, Zoning By-law Amendment, Draft Plan Approval, etc.).

The Subsequent Five-Year Period 2022-2026, and Ten Years 2017-2026

Building activity is expected to slow over the course of this five-year period, from a high of approximately 800 units to a low of 400 units per year; averaging approximately 600 new dwelling units per year for the period. The mix of housing is also expected to shift further towards more compact forms of development.

Over the entire ten-year period 2017-2026, 6,500 units, or an average of 650 per year, are anticipated. The housing mix over the ten-year horizon is 31% singles (2,000 units), 18% rows (1,200 units), and 51% apartments (3,300 units). Generally, the assumptions that

form the basis for the projections reflect a planning policy context of pre-existing permissions as per the Town's Official Plan.

The shift towards more apartment units to 2026 reflects the Town of Aurora running out of greenfield land for ground-related housing, and a shift toward intensification, including along the Aurora Promenade.

Projected Building Permits for New Dwellings, 2017-2026				
Year	Single	Row	Apt	TOTAL
2017-2021	1,330	790	1,420	3,540
2022-2026	690	440	1,950	3,080
2017-2026	2,000	1,200	3,300	6,500

Resulting Population & Servicing Allocation Concerns

The 2017-2021 development projected would result in a 2021 population of 68,400 persons, an average increase of approximately 1,700 persons per year. The 2022-2026 population growth rate will continue at a slightly lower pace of 1,600 persons per year (based on a slight lag between building permits and occupancy), reaching an estimated population total of 76,500 by 2026. While this figure would exceed the current Official Plan 2031 target of 70,200, it is worth noting that a new Regional forecast incorporating new Provincial *Growth Plan* policies and forecasts is expected shortly. And in report PDS16-046 of June 2016, staff outlined draft forecast scenarios from York Region that would bring Aurora to a population in excess of this 2026 projection – approximately 80,000 persons by 2041. As with Aurora's current Official Plan targets, forecasts generally front-end growth and project slower growth in the latter portion of the forecast period.

A subsequent report is being prepared to outline the Town of Aurora's servicing allocation balances, upon reconciliation of totals with York Region in the coming weeks. However, it appears evident that remaining allocation balances will be insufficient to service even the five-year growth forecast – potentially only up to two years.

Advisory Committee Review

No Communication Required.

Financial Implications

There are no direct financial implications.

Communications Considerations

No Communication Required.

Link to Strategic Plan

The Long Term Development Activity Projections report supports multiple Strategic Plan objectives under the Community section.

Under the objective of investing in sustainable infrastructure, the report helps inform towards the goal of developing policies to ensure that growth is phased and coordinated with existing and planned infrastructure.

And under the objective of strengthening the fabric of our community, this report helps inform towards the goal of developing a coordinated approach to Town planning that manages growth, plans for the necessary infrastructure and aligns fiscal accountability.

Alternative to the Recommendation

None.

Conclusions

After a two-year spurt averaging over 1,000 units per year for 2015 and 2016, building permits issued for new dwelling units are expected to average 690 new units per year over the next five years, 2017-2021, and 600 units per year over the subsequent five-year period, 2022-2026. Over the ten-year period, this averages 650 building permits issued for new dwellings, or 6,500 units total, 2017-2026.

A shift towards compact forms of development is anticipated, as lands for ground-related housing become more limited in Aurora. By structure type, the average year projected 2017-2026 is 200 single detached (31%), 120 townhouses (18%), and 330 apartments (51%). Projected development, upon occupancy, would result in population totals of 68,400 as of 2021, and 76,500 as of 2026.

Attachments

None.

May 2, 2017

Page 5 of 5

Report No. PBS17-027

Previous Reports

General Committee Report No. PDS-046, dated June 7, 2016.

Pre-submission Review

Agenda Management Team Meeting review on April 13, 2017

Departmental Approval

Approved for Agenda



**Marco Ramunno, MCIP, RPP
Director
Planning and Building Services**



**Doug Nadorozny
Chief Administrative Officer**



**Town of Aurora
Economic Development Advisory Committee
Meeting Minutes**

Date:	Thursday, March 9, 2017
Time and Location:	7 p.m., Holland Room, Aurora Town Hall
Committee Members:	Councillor John Abel (Chair), Councillor Paul Pirri (Vice Chair), Don Constable, Richard Farmer (Aurora Chamber of Commerce representative)
Members Absent:	Rosalyn Gonsalves, Marilee Harris, and Bruce Walkinshaw
Other Attendees:	Councillor Tom Mrakas, Anthony Ierullo, Manager of Long Range and Strategic Planning, and Linda Bottos, Council/Committee Secretary

The Chair called the meeting to order at 7:21 p.m.

1. Approval of the Agenda

**Moved by Councillor Pirri
Seconded by Richard Farmer**

That the agenda as circulated by Legislative Services be approved.

Carried

2. Declarations of Pecuniary Interest and General Nature Thereof

There were no declarations of pecuniary interest under the *Municipal Conflict of Interest Act*.

Economic Development Advisory Committee Meeting Minutes
Thursday, March 9, 2017

Page 2 of 3

3. Receipt of the Minutes

Economic Development Advisory Committee Meeting Minutes of December 8, 2016

**Moved by Richard Farmer
Seconded by Councillor Pirri**

That the Economic Development Advisory Committee meeting minutes of December 8, 2016, be received for information.

Carried

4. Delegations

None

5. Matters for Consideration

- 1. Extract from Council Meeting of February 14, 2017
Re: General Committee Report No. CAO17-001 – Economic
Development Board – Terms of Reference**

Staff provided background and a brief overview of the report. The Committee inquired about whether the Committee's concerns had been addressed, and about Community Improvement Plan (CIP) funding. Staff advised that the concerns of the Committee had been taken into consideration, and provided details regarding the allocated and available funding for CIP projects.

**Moved by Don Constable
Seconded by Richard Farmer**

1. That the Extract from Council Meeting of February 14, 2017, regarding General Committee Report No. CAO17-001 – Economic Development Board – Terms of Reference, and report be received; and
2. That the Economic Development Advisory Committee endorse the Terms of Reference for the proposed Economic Development Board.

Carried

Economic Development Advisory Committee Meeting Minutes
Thursday, March 9, 2017

Page 3 of 3

6. Informational Items

2. Extract from Council Meeting of January 31, 2017

**Re: Economic Development Advisory Committee Meeting Minutes of
December 8, 2016**

Moved by Don Constable

Seconded by Richard Farmer

1. That the Extract from Council Meeting of January 31, 2017, regarding the Economic Development Advisory Committee meeting minutes of December 8, 2016, be received for information.

Carried

7. New Business

None

8. Adjournment

Moved by Councillor Pirri

Seconded by Don Constable

That the meeting be adjourned at 7:31 p.m.

Carried

Committee recommendations are not binding on the Town unless adopted by Council at a later meeting.



Town of Aurora

General Committee Report No. PRCS17-020

**Subject: Property Use Agreement: York Catholic District School Board
Soccer Fields**

Prepared by: John Firman, Manager of Business Support

Department: Parks, Recreation and Cultural Services

Date: May 2, 2017

Recommendation

- 1. That Report No. PRCS17-020 be received; and**
- 2. That the Director of Parks, Recreation and Cultural Services be authorized to execute the 2017 License Agreement, including any and all documents and ancillary agreements required to give effect to same; and**
- 3. That the Director of Parks, Recreation and Cultural Services be authorized to renew the License Agreement on an on-going, annual basis, with the Director of Parks, Recreation and Cultural Services being authorized to execute the necessary renewal Agreements, including any and all documents and ancillary agreements required to give effect to same.**

Executive Summary

The purpose of this report is to ensure that there are enough Town owned facilities to meet the full need for soccer fields by various user groups. The Town has arranged to use third party sports fields to supplement Town own facilities.

Each year the York Catholic District School Board (YCDSB) authorizes the Town to issue permits to its user groups for the use of soccer fields on various YCDSB school properties. This has been an informal arrangement reviewed on a year-to-year basis. Staff recommend that this arrangement be formalized through a License Agreement.

Background

The purpose of this agreement is to ensure the Town has access to an adequate supply of soccer fields to meet the seasonal needs of various user groups.

In the past, the YCDSB has authorized the Town to issue permits to Town user groups for the use of various soccer fields on YCDSB school properties, provide that the Town take responsibility for regular summer maintenance, such as mowing, fertilization and line painting. The rationale for this request is not dissimilar to the property use agreement with The Stronach Group and St. Andrew's College property use agreements whereby the Town will be required to indemnify YCDSB for liability purposes as well as setting out the rules for use of the premises.

The specific fields utilized by the Town may vary each year, but typically includes the following locations:

- St. Maximillian Kolbe CHS Junior Field
- Holy Spirit CES Senior Field
- Light of Christ CES Senior Field
- Cardinal Carter CHS Senior Field
- St. Joseph CES Junior Field

Analysis

- YCDSB property is licensed by the Town for use of the soccer fields;
- Specific fields are identified and agreed to on an annual basis;
- The term is typically from mid-May to late September;
- The YCDSB will have access until 6:00 p.m. on school days; and
- The Town will have access from 6:00 p.m. on school days and all day on non-school days.

Ongoing annual renewal

The renewal of the agreement is handled annually on request, and is subject to the availability of the soccer fields from YCDSB and demand by user groups. Usage dates and times will change from year to year, but typically fall within the period of mid-May to late September.

Agreement form and content

The original agreement will be reviewed by Legal Services to ensure it is satisfactory, with the only subsequent changes made on an annual basis being that of the specific dates and/or times for field use and specific fields to be included in each annual agreement.

May 2, 2017

Page 3 of 4

Report No. PRCS17-020

Advisory Committee Review

None required.

Financial Implications

The YCDSB provides access to these fields at no cost to the Town and, in return, the Town maintains the fields during the soccer season at no cost to the YCDSB. The Town maintains these fields in accordance with the Town's field maintenance standards, as approved by Council. These fields are permitted to user groups in accordance with the rates listed in the Fees & Charges By-law.

Communications Considerations

No communication considerations at this time.

Link to Strategic Plan

The property use agreement with YCDSB supports the Strategic Plan goal of Supporting an Exceptional Quality of Life for all through its accomplishment in satisfying requirements in the following key objectives within this goal statement:

Encouraging an active and healthy lifestyle by supporting multi-generational programming in cultural and recreational activities to encourage every age cohort to interact and share experiences.

Alternative(s) to the Recommendation

1. Council can decline entering into this agreement and leave responsibility of obtaining playing field locations to individual user groups; however, this would be a significant departure from previous process and may jeopardize their playing field opportunities.
2. Council can enter into this agreement, but decline to provide authorization to the Director for annual ongoing renewals.
3. As directed by Council.

Conclusions

That Council authorize the Director of Parks, Recreation and Cultural Services to execute the 2017 License Agreement and subsequent annual renewal agreements for so long as the fields are available.

Attachments

None.

Previous Reports

None.

Pre-submission Review

Agenda Management Meeting review on April 13, 2017.

Departmental Approval



Allan D. Downey
Director, Parks, Recreation and Cultural
Services

Approved for Agenda



Doug Nadorozny
Chief Administrative Officer



Town of Aurora

General Committee Report No. PRCS17-019

Subject: Award of Tender 2017-33-PRCS Treatment of Trees for Emerald Ash Borer

Prepared by: Jim Tree, Manager of Parks

Department: Parks, Recreation and Cultural Services

Date: May 2, 2017

Recommendation

- 1. That Report No. PRCS17-019 be received; and**
- 2. That Tender 2017-33-PRCS be awarded to Green Lawn Ltd., Capital Project 73160, for the treatment of ash trees for the Emerald Ash Borer for a one-year period with an option to renew the agreement for four additional years based on contractor performance and future budget approval; and**
- 3. That Option #2, the use of IMA-jet in the amount of \$142,800 for 2017, be approved; and**
- 4. That the Mayor and Town Clerk be authorized to execute the necessary Agreement, including any and all documents and ancillary agreements required to give effect to same.**

Executive Summary

The purpose of this report is to approve Award of Tender 2017-33-PRCS Treatment of Trees for Emerald Ash Borer (EAB), as follows:

- To obtain Council approval to award Tender 2017-33-PRCS;
- To obtain direction from Council for the selection of the EAB treatment product;
- To provide Council with an update on the remaining ash tree Inventory;
- To provide Council with rationale on the financial implications as they relate to the approved project budget;

At its May 24, 2016 meeting, Council approved the continued treatment of the remaining ash tree inventory for the prevention of the EAB insect infestation for the final year of the treatment contract which concluded at the end of 2016.

Staff indicated in Report No. PRS16-024 that the treatment program which commenced in the summer 2013 had generally been successful as the majority of trees that were suitable candidates for this treatment had responded favourably.

As such, and in accordance with the EAB treatment program, staff re-tendered for the treatment of ash trees and recommend that the EAB treatment program continue as previously recommended.

Analysis

Direction of Council is required in the selection of the EAB Treatment Product

At its May 24, 2016 meeting, Council indicated to the Director of Parks, Recreation and Cultural Services that, prior to the commencement of the following year of EAB Treatment, information be obtained on the residual levels of IMA-jet (neonicotinoids) which might be present in leaf litter, wood and soils following the application of this material in the ash trees.

Staff have attached documentation on this matter for Council review and consideration; however, it has been indicated in previous reports that there is insufficient evidence to suggest that the use of IMA-jet is cause for major concern.

Also, it was noted that the use of neonicotinoids has come under immense debate and concern as a result of its use in the agricultural industry where it is used as a seed coating to prevent insect damages to both seeds and crops. This has led to a larger controversy in that there is some evidence to suggest that pollinating insects become exposed to the pesticide thorough plants and water.

Since IMA-jet is applied internally via sealed off injection sites directly into the vascular system of the ash tree, there is no direct contact or introduction of the chemical to soil or water unlike the agricultural use and methods of application of this pesticide. From the information available, it is not completely conclusive as to whether or not residual levels of neonicotinoid within the tree or leaf litter are a major cause for concern.

Current remaining inventory of ash trees in parks and streets totals 2,378

The treatment of ash trees has generally been successful as all trees that continue to show good health continue to respond favorably to treatment.

Street trees were primarily selected for treatment but smaller quantities of ash trees in our parks were also treated. All other Ash trees within woodlots and open space areas have now completely expired or are so heavily infested with EAB that they will soon be deceased.

A few of the most affected areas where losses of ash trees were particularly heavy occurred primarily in the northwest section of Aurora. Supplementary trees have been planted in some of these areas with suitable tree species and there are plans to continue planting in these areas over time. Fortunately Ash was not the dominant species in the balance of our woodlots and natural open spaces areas and any trees that required removal for safety related reasons did not have a major visual or ecological impact. Table 1 below is the remaining ash tree Inventory as of April 1, 2017.

TABLE 1

YEAR	ASH INVENTORY	NUMBER REMOVED	REMAINING INVENTORY
2013	2,920	62	2,858
2014	2,858	248	2,610
2015	2,610	112	2,498
2016	2,498	100	2,398
2017	2,398	20	2,378

As of the end of 2016 all candidate ash trees have received three successive treatments

Since the EAB treatment program commenced in 2013, all surviving ash trees on our streets and in our parks have been treated three times. Initially, staff were using the only registered product available for the treatment of EAB being TreeAzin which is a biological control product developed through the use of products derived from the Neem tree. Staff had been advised at that time, by the product manufacturer, that the treatment should be administered on a bi-annual basis; therefore, staff proceeded to treat 50% of the candidate trees in the summer of 2013 and the remaining 50% in the summer of 2014. In the autumn of 2014, two significant developments had occurred in EAB treatments being:

- The manufacturer of TreeAzin revised its recommendation to treat trees in heavily infested areas on annual basis rather than their previous suggested bi-annual treatment;
- Staff were alerted to the fact that a new EAB control product IMA-jet had been registered for use by Health Canada with the recommended application for this product being annual; however, there was a significant cost reduction associated with the use of this product.

Council authorized staff to utilize this product in the control of EAB and concluded that the remaining treatments over the life of the contract be done using this product.

Tender Results

Staff released Tender 2017-33-PRCS for the Treatment of trees for Emerald Ash Borer for one-year with an option to renew the contract for four consecutive years upon satisfactory performance for a total five-year contract.

The Tender was released on March 15, 2017 and closed on April 6, 2017.

A total of two (2) firms submitted Tenders and two (2) Tenders were deemed compliant.

The lowest compliant Tender was submitted by Green Lawn Ltd. operating as TruGreen.

TABLE 2

Option #1 - TreeAzin

YEAR	Quantity (cm)	Green Lawn Ltd. / Trugreen	
		Unit Price	Extended Price
2017	60,000	\$3.59	\$215,400
Option Year 1 - 2018	60,000	\$3.61	\$216,600
Option Year 2 - 2019	60,000	\$3.63	\$217,800
Option Year 3 - 2020	60,000	\$3.64	\$218,400
Option Year 4 - 2021	60,000	\$3.66	\$219,600
FIVE YEAR TOTAL - OPTION # 1			\$1,087,800

Option #2 - IMA-JET

YEAR	Quantity (cm)	Green Lawn Ltd. / Trugreen	
		Unit Price	Extended Price
2017	60,000	\$2.38	\$142,800
Option Year 1 - 2018	60,000	\$2.39	\$143,400
Option Year 2 - 2019	60,000	\$2.40	\$144,000
Option Year 3 - 2020	60,000	\$2.42	\$145,200
Option Year 4 - 2021	60,000	\$2.43	\$145,800
FIVE YEAR TOTAL - OPTION # 2			\$721,200

Advisory Committee Review

None required.

Financial Implications

Table 3 is a financial summary for Capital Project 73160 based on the Tender submitted Green Lawn Ltd. / Trugreen for Option #1 using biological control TreeAzin.

TABLE 3: Option #1 TreeAzin application over five years

Approved Budget	
Capital Project 73160	\$1,175,000
Total Approved Budget \$235,000/year x 5 years	\$1,175,000
Less previous commitments	\$0
Funding available for subject Contract	\$1,175,000
Contract Award (Option #1) excluding HST	\$1,087,800
Non-refundable taxes (1.76%)	\$19,145
Sub-Total	\$1,106,945
Total Funding Required	\$1,106,945
Budget Variance	\$68,055

Table 4 is a financial summary for Capital Project 73160 based on Tender submitted by Green Lawn Ltd./Trugreen for Option #2 using IMA-jet (neonicotinoid):

Table 4: Option #2 IMA-JET application over five years

Approved Budget	
Capital Project 73160	\$1,175,000
Total Approved Budget \$235,000 ea. year x 5 years	\$1,175,000
Less previous commitments	\$0
Funding available for subject Contract	\$1,175,000
Contract Award (Option #2) excluding HST	\$721,200
Non-refundable taxes (1.76%)	\$12,693
Sub-Total	\$733,893
Total Funding Required	\$733,893
Budget Variance	\$441,107

Communications Considerations

Pending Council approval of the EAB Treatment Plan, there are mandatory public notification requirements that must be adhered to. Staff will coordinate this notification process via the Town of Aurora's Communications Department.

Link to Strategic Plan

This Award of Tender supports the Strategic Plan Goal of Supporting an Exceptional Quality of Life for All by encouraging an active and healthy lifestyle.

Develop a long-term needs assessment for recreation programs, services and operations to march the evolving needs of the growing and changing population.

Alternative(s) to the Recommendation

1. Council could select Option #1 as outlined in this report and direct staff accordingly.

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2. Council could direct staff to discontinue the EAB treatment program and allow all remaining ash trees to expire; however, this will dramatically alter the streetscape in several locations and will result in significant costs associated with removal and replacement of the trees. This option may also be met with dissatisfaction among area residents.

Conclusions

Based on the lowest compliant bid submitted for this project and the results of the continued treatment of our remaining ash tree inventory, as well as the past performance of this contractor, staff recommend the use of IMA-jet as the EAB treatment product and award Tender No. 2016-33-PRCS Treatment of ash trees for Emerald Ash Borer to Green Lawn Ltd. Operating as Trugreen for a one-year period with an option to renew the agreement for four (4) additional years.

Attachments

Attachment #1 - Technical Data on the use of Neonicotinoids in the treatment of ash trees

Previous Reports

PRS16-024 Emerald Ash Borer Management Plan Update, May 17, 2016

Pre-submission Review

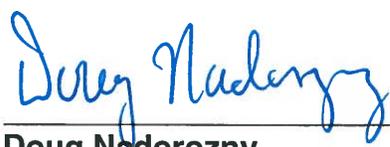
Agenda Management Meeting review on April 13, 2017.

Departmental Approval



Allan D. Downey
Director, Parks, Recreation and Cultural
Services

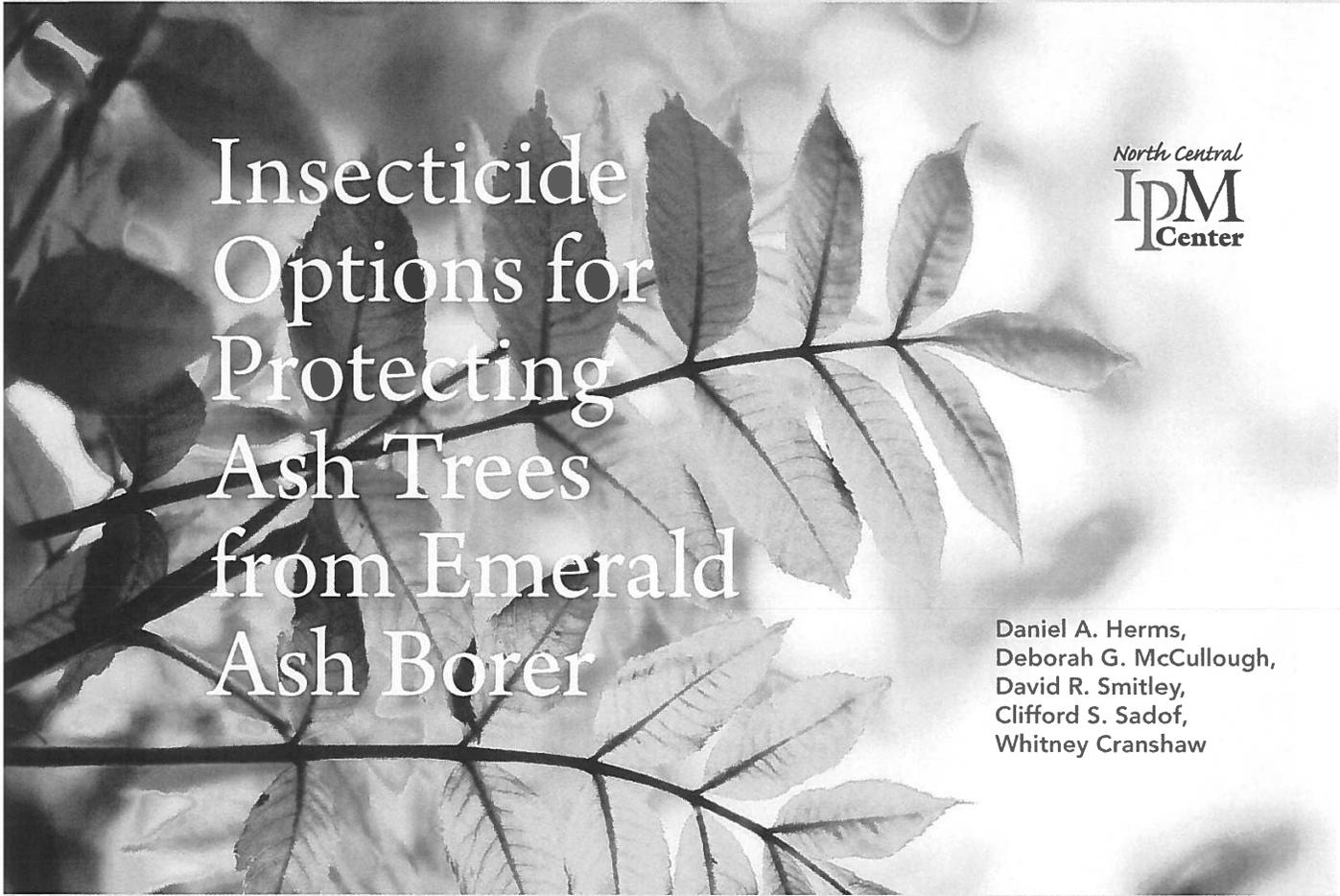
Approved for Agenda



Doug Nadorozny
Chief Administrative Officer

SECOND EDITION

Attachment #1



Insecticide Options for Protecting Ash Trees from Emerald Ash Borer

North Central
IPM
Center

Daniel A. Herms,
Deborah G. McCullough,
David R. Smitley,
Clifford S. Sadof,
Whitney Cranshaw

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SECOND EDITION

Insecticide Options for Protecting Ash Trees from Emerald Ash Borer



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Insecticide Options for Protecting Ash Trees from Emerald Ash Borer (Second Edition) is funded in part by the USDA-NIFA North Central Integrated Pest Management Center (Funding Award: 2011-51120-31160).

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Insecticide Options for Protecting Ash Trees from Emerald Ash Borer

Emerald ash borer (*Agrilus planipennis* Fairmaire), an invasive insect native to Asia, has killed untold millions of ash trees (*Fraxinus* species) in urban, rural and forested settings. This beetle was first identified in 2002 in southeast Michigan and Windsor, Ontario. As of April 2014, emerald ash borer (EAB) infestations were known to be present in 22 states as well as two Canadian provinces. Surveys continue and additional infestations will be found as EAB continues to invade North America. Ash trees are common in urban landscapes and residential areas across much of the continental US. Many homeowners, tree care professionals, and municipalities would like to protect valuable ash trees from EAB.

Since 2002, our ability to control EAB and effectively protect ash in the landscape has progressed substantially. Scientists have learned much about this insect and how it interacts with its host trees. New insecticide products and application methods have been developed and tested. Results of field trials

have shown that even large ash trees can be effectively and consistently protected over multiple years, even in areas with high densities of EAB. Recent economic analyses have concluded that treating landscape ash trees with effective systemic insecticides is much less costly than removing trees.

Our understanding of how EAB can be managed successfully with insecticides has advanced since this bulletin was initially published in 2009. This version has been revised to address frequently asked questions and reflect the current state of understanding of insecticide options for controlling EAB and their effectiveness. It is important to note that research is an ongoing process. Scientists from universities, government agencies and companies will continue to make discoveries and advance EAB management and ash conservation.



Answers to Frequently Asked Questions

What options do I have for treating my ash trees?

Several insecticide options are available to effectively treat landscape ash trees threatened by EAB. Products listed in Table 1 have been evaluated by university and government scientists in field trials. Keep in mind, however, that controlling insects that feed under the bark with insecticides has always been challenging. This is especially true with EAB because most of our native North American ash trees have little natural resistance to this pest. Effective control of EAB requires some care when selecting an insecticide product and application method to ensure the product is applied at the proper rate and time.

I know my tree is already infested with EAB. Will insecticides still be effective?

It is best to begin using insecticides while ash trees are still relatively healthy. By the time most people notice canopy thinning or dieback, EAB has already caused considerable injury to the vascular system of the tree. An effective insecticide may stop additional damage, but it cannot reverse damage that has already occurred and it takes time for trees to recover. Most insecticides used for EAB control act systemically - the insecticide must be transported within the tree. In other words, a tree must be healthy enough to carry a systemic insecticide up the trunk and into the branches and canopy. Trees are damaged by EAB larvae feeding in galleries under the bark. These galleries injure the phloem and xylem tissue that plants use to transport nutrients and water. A few galleries have only a small effect on most trees. As the EAB population grows and more larvae feed on a tree, however, the galleries interfere with the ability of the tree to transport nutrients and water, as well as insecticides. As a tree becomes more and more infested, the injury becomes more severe. Canopies become

thin because fewer leaves can be supported by the tree. Large branches or even the trunk can be girdled and killed by the larval galleries.

Multi-year studies have shown that if more than 50% of the canopy has been killed by EAB or if the canopy appears to be thin and carrying less than half as much foliage as it should, it is probably too late to save the tree. The ability of trees to recover from low to moderate EAB injury can vary, depending on the extent of the damage and which control options are used. Studies have also shown that if the canopy of a tree is already declining when insecticide treatments are initiated, the condition of the tree may continue to deteriorate during the first year of treatment. If treatment is effective, the tree canopy will usually begin to improve in the second year of treatment. This lag in the reversal of canopy decline probably reflects the time needed for the tree to repair its vascular system after the EAB infestation has been reduced.

My ash tree looks fine but EAB has been detected in the vicinity of my property. Should I start treating my tree?

Detecting new EAB infestations and identifying ash trees that have only a few larvae is very difficult. Ash trees with low densities of EAB larvae often have few or even no external symptoms of infestation. In addition, scientists have learned that most female EAB lay their eggs on nearby trees, i.e. within 100 yards of the tree from which they emerged. A few female beetles, however, appear to disperse much further, anywhere from 0.5 miles to 2-3 miles. Therefore, if your property is within 10-15 miles of a known EAB infestation, your ash trees are probably at risk. If your ash trees are more than 10-15 miles beyond an infestation, it is probably too early to begin insecticide treatments. Treatment programs that begin too early waste money and result in unnecessary use of insecticide. Conversely, treatment programs that begin too late will not be as effective.



Remember, however, that new EAB infestations have been discovered every year since 2002 and existing EAB populations will build and spread over time. Quarantine maps found on the www.emeraldashborer.info website can help you stay up-to-date regarding locations of known infestations. You can use the links in this website to access specific information for individual states. When an EAB infestation is detected in a state or county for the first time, it will be added to these quarantine maps.

Note, however, that once EAB has been found in a county, surveys by regulatory officials end. Similarly, once an entire state is declared to be infested, regulatory surveys may cease. Therefore, quarantine maps may or may not adequately reflect the current distribution of EAB in such areas. Personnel from city, county or state agencies sometimes continue to survey or monitor local EAB infestations. City foresters, county extension offices or state departments of agriculture may have information on local EAB distribution. There is no substitute for local knowledge and tree care professionals should actively monitor changes in the condition of local ash trees.

When is the best time to treat my trees?

As with any pest management effort, optimal timing is required to achieve best control.

Two life stages of EAB are targeted by treatments: adult beetles and young larvae. Therefore, systemic insecticide applications should be made in time to allow for uptake and distribution of the insecticide within the tree to ensure adult beetles and very young larvae encounter the toxin. Non-systemic cover sprays, which are less commonly used, should be applied to foliage to target adult beetles, as well as the trunk and branches to help control newly hatched larvae. Thorough coverage is critical for achieving successful control.

Adult EAB feed on ash foliage throughout their life span and females must feed on leaves for at least 14 days before they begin



laying eggs. This provides a window of opportunity to control the adults before any new eggs or larvae are produced. The onset of adult beetle emergence begins from early May (southern Ohio) to early June (central Michigan) and peaks two to three weeks later. Beetle emergence may begin sooner at locales farther south or later in more northern areas. Regardless of location, emergence of adult EAB consistently begins at 450-550 growing degree days, based on a threshold of 50 °F and a starting date of January 1. Beetles are most abundant at about 1,000 growing degree days. Cumulative growing degree days are tracked and posted on websites of many land grant universities as well as the NOAA website. First emergence

Ash trees on a street in Toledo in 2006 and 2009 before and after being impacted by EAB.

of EAB also closely coincides with the period when black locust trees bloom. This phenological indicator is a reliable predictor of EAB emergence across a wide region, ranging from southern Michigan to Kentucky and Maryland.

Peak egg hatch and larval establishment occur between early June and mid-August, depending on location and weather. As a general rule, young larvae are more susceptible to insecticides than are older larvae. Moreover, controlling young larvae prevents damage to the tree caused by older larvae that feed in larger galleries and thus injure more area on the tree. The efficacy of insecticide treatments will likely decline if they are applied later in the growing season when larger, more mature larvae are present. Consistent with this, MSU scientists found

that imidacloprid trunk injections made in mid-May were 70% more effective against EAB than those made in mid-July.

For imidacloprid soil treatments, which require four to six weeks for uptake and distribution of the insecticide within the tree, applications should be made in mid-March to late April, depending on your region. Treatments should be applied on the earlier side of these schedules in more southerly locations and later side in more northerly regions. Soil applications of dinotefuran can be applied 2-3 weeks later than imidacloprid because it is more soluble and is taken up and transported through the tree more rapidly. Basal trunk sprays of dinotefuran move into trees even faster and can be made between late May and mid-June. Optimal timing for trunk injected products is just after trees have leafed out, typically from mid-May through early or mid-June. When treating larger trees, treat on the earlier side of the recommended timing, because large trees may require more time for uptake and transportation of the insecticide than small trees. Imidacloprid soil applications can also be made in fall, from mid-October to mid-November. However, this timing is less efficient and studies have shown that higher rates must be applied in the fall than in spring to achieve similar levels of control.

Sometimes, a tree is not known to be infested until in late June or early July. Although late treatments are not optimal, there may still be some benefit to treating the tree if the treatment can be made promptly. Consider using a treatment approach that maximizes rate of uptake and within-tree distribution. Uptake of dinotefuran is faster than imidacloprid because it is more soluble. Basal trunk sprays with dinotefuran will be taken up faster than soil applications (see discussion below). Trunk injections will be taken up faster than soil applications, assuming the injections can be made under favorable conditions (e.g. adequate soil moisture, moderate humidity and air temperature). Even in a best case scenario, it will still likely take one to two weeks for the systemic insecticide to move throughout the tree.

How can I convince my community that action must be taken before it is too late to save the ash trees?

The first step is to educate your community about the threat posed by EAB and the value of the ash trees in the community. Members of some communities have acquired permission to mark ash trees with visual tags. This allows residents to clearly see the extent of the resource at risk. Other suggestions for organizing communities can be found in the "Neighbors Against Bad Bugs" website. You will want to cooperate with your city forester who may already have an inventory of street trees. An inventory will help identify where the ash trees are located, the size and species of the ash trees, and the proportion of the public forest at risk. Some cities use sophisticated inventory systems that even calculate the value of the services provided by the ash trees. In Milwaukee, WI, for example, the capacity of ash trees to filter storm water saves the city more than enough money to justify the cost of treating the trees. Other cities use similar programs to create visible tree tags that tally the dollar value of the services provided by each tree. The National Tree Benefits Calculator website provides information on calculating the value of trees for professional arborists and urban foresters. You may also wish to estimate or compare costs of different management responses to the EAB invasion over time. The EAB Cost Calculator website at Purdue University, for example, allows users to enter their own tree inventory, compare local costs of treatment options or tree removal, and print reports. Links to these websites are available at www.emeraldashborer.info or by using the website name in a google search.



I realize that I will have to protect my ash trees from EAB for several years. Is it worth it?

The economics of treating ash trees with insecticides for EAB protection are complicated and depend on several factors. Tree size, health, location and value should be considered, along with the cost of the insecticide and expense of application, the likelihood of success, and potential costs of removing the trees. Scientists, however, have compared costs of removing urban ash trees versus treating the same trees with emamectin benzoate, which provides two years of EAB control. Results consistently show treatment costs are much lower than removal costs. As treatment options continue to evolve, costs of treatment will likely change. It will be important to stay up to date on these options and management recommendations.

Benefits of treating trees can be more difficult to quantify than costs. Healthy landscape trees typically increase property values, provide shade and cooling, and contribute to the quality of life in a neighborhood. Landscape trees, especially mature trees, capture storm water, reducing potential pollution of streams and rivers. The economic benefits provided by trees increase with the size of the tree, as does the cost of removal. Hence, it may be particularly economical to treat larger trees. Many people are sentimental about their trees. These intangible qualities are important and should be part of any decision to invest in an EAB management program.

It is also worth noting that the size of EAB populations in a specific area will change over time. Populations initially build very slowly, but later increase rapidly as more trees become infested. As EAB populations reach peak densities, a high proportion of the untreated ash trees in a given area will decline and die, usually over a 3-5 year period. Once untreated ash trees in the area succumb, however, the local EAB population will decrease substantially. Ongoing studies in southeast Michigan and northwest Ohio,

My customers want to know about the environmental effects of systemic insecticides used to protect ash trees from EAB.

People often have questions about whether systemic insecticide products used to protect ash trees will harm the environment or other organisms such as woodpeckers. A bulletin entitled "Frequently Asked Questions Regarding Potential Side Effects of Systemic Insecticides Used to Control Emerald Ash Borer" is available on the www.emeraldashborer.info website. The 4 page bulletin can be viewed on the website or downloaded and printed for distribution.

for example, indicate EAB populations still persist but at much lower densities simply because few mature ash trees remain in this area. Young ash saplings in forests or woodlots will likely be colonized by EAB eventually, so landscape ash may continue to face some risk of EAB infestation. It seems likely, however, that surviving ash trees can be managed with less frequent treatments once the EAB invasion has passed. Studies on the dynamics of EAB populations and whether the intensity of insecticide treatments can decrease after the local EAB population has collapsed are underway in Michigan and Ohio.

Insecticide Options for Controlling EAB

Insecticides that can effectively control EAB fall into four categories: (1) systemic insecticides that are applied as soil injections or drenches; (2) systemic insecticides applied as trunk injections; (3) systemic insecticides applied as lower trunk sprays; and (4) protective cover sprays that are applied to the trunk, main branches, and (depending on the label) foliage.

Insecticide formulations and application methods that have been evaluated for control of EAB are listed in Table 1. Some are marketed for use by homeowners while others are intended for use only by professional applicators. The "active ingredient" refers to the compound in the product that is actually toxic to the insect.



Formulations included in Table 1 have been evaluated in multiple field trials conducted by the authors and other university and governments researchers. Inclusion of a product in Table 1 does not imply that it is endorsed by the authors or has been consistently effective for EAB control. Please see the following sections for specific information about results from these trials.

Strategies for the most effective use of these insecticide products are described below. It is important to note that pesticide labels and registrations change constantly and vary from state to state. It is the legal responsibility of the pesticide applicator to read, understand and follow all current label directions for the specific pesticide product being used.

Using Insecticides to Control EAB

Soil-Applied Systemic Insecticides

Imidacloprid and dinotefuran are systemic insecticides that can be applied as soil drenches or soil injections. Both are sold under numerous brand names for use by professional applicators and homeowners. Those that have been tested by the authors are listed in Table 1; other similar products are also available. Soil applications can be applied as a drench by mixing the product with water, then pouring the solution directly on the soil around the base of the trunk, or injected a few inches below ground at multiple locations near the base of the tree. The insecticide is taken up by the roots of the tree and then moves (translocates) throughout the tree.

Products designed for homeowners have some restrictions that do not apply to professional formulations. Homeowner products can be applied as a soil drench or as granules that are watered into the soil, but not as a soil injection. Homeowners are also restricted to making only one application per year.

Professionals can apply these products as a soil injection as well as a soil drench. Soil

injections require specialized equipment, but offer the advantage of placing the insecticide below mulch or turf and directly into the root zone of the tree. This also can help to prevent runoff on slopes. Injections should be made just deep enough to place the insecticide beneath the soil surface (2-4 inches). Soil injections should be made within 18 inches of the trunk. Studies have shown uptake is higher and the treatment more effective when the product is applied at the base of the trunk where the density of fine roots is highest. As you move away from the tree, large radial roots diverge like spokes on a wheel and fine root density decreases. Soil drenches offer the advantage of requiring no special equipment for application other than a bucket or watering can. However, imidacloprid can bind to surface layers of organic matter, such as mulch or leaf litter, which can reduce uptake by the tree. Before applying soil drenches, it is important to remove, rake or pull away any mulch or dead leaves so the insecticide solution is poured directly on the mineral soil.

Rates of soil applied insecticides needed to provide effective control may vary depending on the size of the tree and the intensity of pest pressure at the site. Higher rates of some imidacloprid products available to professionals and homeowners can be applied to large trees with trunk diameters greater than 15 inches. Lower rates are effective on smaller trees and when EAB populations and pest pressure are relatively low. When treating larger trees with imidacloprid or dinotefuran soil treatments, particularly when EAB density is high, studies have shown that applying the highest labeled rate is most effective. Only some imidacloprid products can be applied at the higher rate and only if trees are greater than 15 inches in diameter, so please review the label closely when selecting a product.

Treatment programs must also comply with the limits specified on the label regarding the maximum amount of insecticide that can be applied per acre during a given year.



Table 1. Insecticide options for professionals and homeowners for controlling EAB that have been tested in multiple university trials. Some products may not be labeled for use in all states. Inclusion of a product in this table does not imply that it is endorsed by the authors or has been consistently effective for EAB control. Additional imidacloprid products may be available in your area. See text for details regarding effectiveness.

Insecticide Formulation	Active Ingredient	Application Method	Recommended Timing
<i>Products Intended for Sale to Professional Applicators</i>			
Merit® (75WP, 75WSP, 2F)	Imidacloprid	Soil injection or drench	Early to mid-spring or mid-fall
Safari™ (20 SG)	Dinotefuran	Soil injection or drench	Mid- to late spring
Transect™ (70WSP)	Dinotefuran	Soil injection or drench	Mid- to late spring
Xytect™ (2F, 75WSP)	Imidacloprid	Soil injection or drench	Early to mid-spring or mid-fall
Zylam® Liquid Systemic Insecticide	Dinotefuran	Soil injection or drench	Mid- to late spring
Azasol™	Azadirachtin	Trunk injection	Mid- to late spring after trees have leafed out
Imicide®	Imidacloprid	Trunk injection	Mid- to late spring after trees have leafed out
TREE-äge™	Emamectin benzoate	Trunk injection	Mid- to late spring after trees have leafed out
TreeAzin®	Azadirachtin	Trunk injection	Mid- to late spring after trees have leafed out
Safari™ (20 SG)	Dinotefuran	Systemic bark spray	Mid- to late spring after trees have leafed out
Transect (70 WSP)	Dinotefuran	Systemic bark spray	Mid- to late spring after trees have leafed out
Zylam® Liquid Systemic Insecticide	Dinotefuran	Systemic bark spray	Mid- to late spring after trees have leafed out
Astro®	Permethrin	Preventive trunk, branch, and foliage cover sprays	Two applications at 4-week intervals; first spray should occur at 450-550 degree days (50°F, Jan.1); coincides with black locust blooming
Onyx™	Bifenthrin		
Tempo®	Cyfluthrin		
Sevin® SL	Carbaryl		
<i>Products Intended for Sale to Homeowners</i>			
Bayer Advanced™ Tree & Shrub Insect Control	Imidacloprid	Soil drench	Early to mid-spring
Optrol™	Imidacloprid	Soil drench	Early to mid-spring
Ortho Tree and Shrub Insect Control Ready to Use Granules®	Dinotefuran	Granules	Mid- to late spring

This restricts the number of trees that can be treated in an area.

Soil applications should be made when the soil is moist but not saturated. Insecticide uptake will also be limited when soil is excessively dry. You may need to irrigate the soil surrounding the base of the tree before and possibly after the insecticide application if soils are dry. However, water-logged soil can result in poor uptake if the insecticide becomes excessively diluted and can also result in puddles of insecticide that could wash away, potentially entering surface water or storm sewers. To further protect surface and ground water, soil applications should not be made to excessively sandy soils with low levels of organic matter that are prone to leaching, especially where the water table is shallow, or where there is risk of contaminating gutters, lakes, ponds, or other bodies of water.

No soil applications should be made where there are roots of flowering plants that are visited by bees and other pollinators. This situation is most likely to occur where flowering plants are established around the base of an ash tree. In these situations the flowering plants should either be destroyed or insecticide should be applied via trunk injection to ensure the toxins will not be taken up by the flowering plants.

Trunk-Injected Systemic Insecticides

Several systemic insecticide products can be injected directly into the trunk of the tree including formulations of azadirachtin, emamectin benzoate, and imidacloprid (see Table 1). An advantage of trunk injections is that they can be used on sites where soil treatments may not be practical, effective or appropriate, including trees growing on excessively wet, sandy, compacted or restricted soil environments. Trunk injections generally involve drilling through the bark and into the outer sapwood at the base of the tree. Drilling wounds could cause long-term damage, especially if treatments are applied annually. Recent studies of

emamectin benzoate (TREE-age™) injected with Arborjet equipment and imidacloprid (Imicide®) injected with Mauget capsules in May, however, showed ash trees rapidly recovered and began producing new wood over the wounds in late summer. Application methods that rely on high pressure injections of insecticide through needles inserted into small holes may damage the tree if the pressure causes the bark to bulge and separate from the cambium. This is most likely to occur in spring and can cause larger wounds that result from death of the vascular tissue at the point of separation.

Products applied as trunk injections are typically absorbed and transported within the tree more quickly than soil applications. Allow at least two and preferably three to four weeks for most trunk-injected products to move through the tree. Optimal timing of trunk injections occurs after trees have leafed out in spring but before EAB eggs have hatched, or generally between mid-May and mid-June. Uptake of trunk-injected insecticides will be most efficient when trees are actively transpiring. Best results are usually obtained by injecting trees in the morning when soil is moist but not saturated. Uptake will be slowed by hot afternoon temperatures and dry soil conditions. Irrigating trees during droughty conditions will help with insecticide uptake and translocation within the tree.

Noninvasive, Systemic Basal Trunk Sprays

Dinotefuran is labeled for application as a noninvasive, systemic trunk spray for EAB control. It belongs to the same chemical class as imidacloprid (neonicotinoids) but is much more water soluble and moves more readily through plants. The formulated insecticide is sprayed on the lower five to six feet of the trunk using a common garden sprayer and low pressure. Research has shown that the insecticide penetrates the bark and is transported systemically throughout the tree.

The basal trunk spray offers the advantage of being quick and easy to apply and requires



EAB adults must feed on foliage before they become reproductively mature.

no special equipment other than a garden sprayer. This application technique does not wound the tree, and when applied correctly, the insecticide does not enter the soil. Sprayers must be calibrated to ensure the appropriate amount of the formulated product is applied to each tree.

Dinotefuran can be mixed with surfactants that may facilitate its movement into the tree, particularly on large trees with thick bark. However, in field trials, adding a surfactant did not consistently increase the amount of insecticide recovered from the leaves of treated trees or improve the effectiveness of the application.

Protective Cover Sprays

Insecticides can be sprayed on the trunk, branches and (depending on the label) foliage to kill adult EAB beetles as they feed on ash leaves, and newly hatched larvae as they chew through the bark. Thorough coverage is essential for best results. Products that have been evaluated as cover sprays for control of EAB include some specific formulations of permethrin, bifenthrin, cyfluthrin and carbaryl (see Table 1).

Protective cover sprays are designed to control EAB adults and perhaps very young larvae that have just hatched from eggs. Sprays will have no effect on larvae feeding under the bark. Cover sprays should be timed to occur when most adult beetles have emerged and are feeding on ash leaves. For best results, consider two applications, one at 500 DD₅₀ (as black locust approaches full bloom) and a second spray four weeks later.

How Effective Are Insecticides for Control of EAB?

Extensive testing of insecticides for control of EAB has been conducted by researchers at Michigan State University (MSU) and The Ohio State University (OSU). The following sections summarize key results of these trials.



Keep in mind that maintaining good growing conditions and avoiding major stresses will improve your chances of successfully protecting your trees. Be sure to water trees during extended dry periods.

Soil-Applied Systemic Insecticides

Efficacy of soil-applied systemic insecticides for controlling EAB has been inconsistent. In some OSU and MSU trials, EAB control was excellent, while others yielded poor results.

Healthy ash trees that have been protected with imidacloprid soil drenches in 2009 growing next to untreated ash trees injured by EAB. The same street in 2011 following six consecutive years of treatments during a peak EAB outbreak. Untreated trees declined and were removed.



EAB larvae damage the vascular system of the tree as they feed, which interferes with movement of systemic insecticides in the tree.

Application protocols and conditions of the trials have varied considerably, making it difficult to reach firm conclusions about sources of variation in efficacy. This inconsistency may reflect the fact that application rates for soil-applied systemic insecticides are based on amount of product per inch of trunk diameter or circumference. As the trunk diameter of a tree increases, the amount of vascular tissue, leaf area and biomass that must be protected by the insecticide increases exponentially. Consequently, for a particular application rate, the amount of insecticide applied as a function of tree size is proportionally decreased as trunk diameter increases. Hence, application rates based on diameter at breast height (DBH) may effectively protect relatively small trees but can be too low to effectively protect large trees. Some systemic insecticide products address this issue by increasing the application rate for large trees.

Some imidacloprid formulations can be applied to trees with a trunk diameter greater than 15 inches at a rate that is twice as high (2X rate) as the rate used for smaller trees (1X rate). In an OSU study in Toledo, Ohio underway since 2006, imidacloprid soil drenches have effectively protected ash trees ranging from 15-22 inches in diameter when applied at the 1X rate in spring, or at the 2X rate when applied in spring or fall. These treatments were effective even during years of peak pest pressure when all of the untreated trees died. Trees treated in fall with the 1X rate, however, declined and were removed. In another OSU multi-year trial with trees up to 22 inches DBH, dinotefuran soil applications, as well as basal trunk sprays (see below) were effective when applied at the highest labeled rate. However, lower rates were less effective. We are not aware of any studies that evaluated soil applied insecticides with trees larger than 22 inches DBH.

Insecticide placement may also affect efficacy. Recent studies have shown that soil drenches and injections made at the base of the trunk result in more effective uptake than applications made on grid or circular patterns under the canopy away from the trunk.

Trunk-Injected Systemic Insecticides

Emamectin benzoate • In several intensive studies conducted by MSU and OSU researchers, a single injection of emamectin benzoate (TREE-äge™) in mid-May or early June provided excellent control of EAB for at least two years, even when EAB densities were high. For example, in a highly-replicated study conducted on trees ranging in size from 5 to 21-inch DBH at three sites in Michigan, untreated trees had an average of 68 to 132 EAB larvae per m² of bark surface, which represents high pest pressure. In contrast, trees treated with low rates of emamectin benzoate (0.1-0.2 g ai / inch DBH) had, on average, only 0.2 larvae per m², a reduction of >99 percent. When additional trees were felled and debarked two years after the emamectin benzoate injection, there were still virtually no larvae in the treated trees, while adjacent, untreated trees at the same sites had hundreds of larvae.

In two Ohio studies with street trees ranging in size from 15- to 25-inch DBH, a single application of emamectin benzoate provided excellent control for two years, even at the lowest rate. There was no sign of canopy decline in treated trees and very few emergence holes, while the canopies of adjacent, untreated trees exhibited severe decline and extremely high numbers of emergence holes. In another trial, large trees, ranging from 32 to 47 inches DBH, were treated in alternate years with emamectin benzoate at medium-low or medium-high rates. Canopies of all treated trees remained healthy four years later (after two treatments) despite high pest pressure and numerous declining (untreated) trees in the immediate vicinity.

Additional studies have been conducted since then in other sites and all have produced similar results. Injections of emamectin benzoate, even at the lowest rate on the label (0.1 ga ai/DBH inch), provide nearly complete EAB control for two years. Depending on application rate and pest pressure, treatment with emamectin benzoate may

even protect trees for three years. Moreover, in side-by-side comparisons, emamectin benzoate was more effective than other systemic neonicotinoid products.

Azadirachtin • Results from a two-year study in Michigan replicated at three sites showed azadirachtin products affect EAB differently than other insecticide products. For example, adult EAB beetles fed for six days on leaves from trees treated with a high rate of azadirachtin (TreeAzin®), then fed on leaves from untreated trees for the remainder of their life span. In contrast to trees treated with either emamectin benzoate (trunk injection) or dinotefuran (basal trunk spray), leaves from the azadirachtin trees were not acutely toxic to adult beetles. However, azadirachtin reduced the ability of mature female beetles to produce viable eggs that successfully hatched. Young females, conversely, appeared to recover and were able to reproduce normally.

When the trees in this study were felled and debarked after two years of exposure to EAB, it was apparent that numerous EAB larvae had begun feeding on trees treated with TreeAzin but died while still young and small. Very few live larvae were present on the trees treated in both years with TreeAzin. When trees were treated only the first year but not the second year, density of live larvae was 75-80% lower than on untreated control trees. Results from this study suggest that in most years, TreeAzin will effectively protect ash trees for two years, but when EAB densities are high, annual applications may be prudent.

Imidacloprid • Trunk injections with imidacloprid products have provided varying degrees of EAB control in trials conducted at different sites in Ohio and Michigan. In an MSU study, larval density in trees treated with Imicide® injections were reduced by 60 percent to 96 percent, compared to untreated controls. There was no apparent relationship between efficacy and trunk diameter or infestation pressure. In another MSU trial, imidacloprid



trunk injections made in late May were more effective than those made in mid-July, and IMA-jet® injections provided higher levels of control than did Imicide®, perhaps because the IMA-jet® label calls for a greater amount of active ingredient to be applied on large trees. In an OSU study in Toledo, IMA-jet® provided excellent control of EAB on 15- to 25-inch trees under high pest pressure when trees were injected annually. However, trees that were injected every other year were not consistently protected.

In a discouraging study conducted in Michigan, ash trees continued to decline from one year to the next despite being injected in both years with either Bidrin (Inject-A-Cide B®) or imidacloprid. The imidacloprid treatments consisted of two consecutive years of Imicide® (10% imidacloprid) applied using Mauget® micro-injection capsules, or an

Healthy ash trees protected with emamectin benzoate trunk injections behind an untreated, declining tree.

experimental 12% formulation of imidacloprid in the first year followed by Pointer™ (5% imidacloprid) in the second year with both applied using the Wedgle™ Direct-Inject™ System. All three treatment regimens suppressed EAB infestation levels in both years, with Imicide® generally providing best control under high pest pressure in both small (six-inch DBH) and larger (16-inch DBH) caliper trees. However, larval density increased in treated and untreated trees from one year to the next. Furthermore, canopy dieback increased by at least 67 percent in all treated trees (although this was substantially less than the amount of dieback observed in untreated trees). Even consecutive years of these treatments only slowed ash decline under severe pest pressure.

In a head-to-head comparison of products conducted by OSU researchers, emamectin benzoate trunk injections (0.4 g a.i. / inch DBH applied during the first year in May) and imidacloprid soil drenches (applied in both years in May at the highest labeled rates) provided effective control of EAB. In contrast, trees treated with Pointer™ (5% imidacloprid applied in both years in May at the highest labeled rate) and the untreated trees declined substantially over the two year study period. In another MSU study, ACECAP® trunk implants (active ingredient is acephate) did not adequately protect trees > 15-inch DBH under high pest pressure.

Noninvasive Systemic Basal Trunk Sprays

Studies to date indicate that the effectiveness of dinotefuran basal trunk sprays are similar to soil applications of dinotefuran or imidacloprid. MSU and OSU studies have evaluated residues in leaves from trees treated with the basal trunk spray. Results show that the dinotefuran effectively moved into the trees and was translocated to the canopy at rates similar to those of other trunk-injected insecticides, and faster than other soil-applied neonicotinoid products.

As with imidacloprid treatments, control of EAB with dinotefuran has been variable in

research trials. In an MSU study conducted in 2007 and 2008, annual dinotefuran trunk sprays reduced EAB larval density by approximately 30 to 60 percent compared to the heavily infested untreated trees. As with dinotefuran and imidacloprid soil applications, the basal trunk treatment was effective for only one year and would have to be applied annually.

In a five-year OSU study with trees up to 22 inches DBH, dinotefuran basal bark sprays provided effective protection when applied at the highest labeled rate (average of less than 5% canopy decline compared with nearly 80% average canopy decline for untreated trees). A lower rate was not as effective (almost 20% average canopy decline).

Protective Cover Sprays

MSU studies have shown that applications of Onyx™, Tempo® and Sevin® SL provided good control of EAB, especially when the insecticides were applied in late May and again in early July. Acephate sprays were less effective. BotaniGard® (*Beauveria bassiana*) was also ineffective under high pest pressure. Astro® (permethrin) was not evaluated against EAB in these tests, but has been effective for controlling other species of wood borers and bark beetles.

In another MSU study, spraying Tempo® just on the foliage and upper branches or spraying the entire tree were more effective than simply spraying just the trunk and large branches. This suggests that some cover sprays may be especially effective for controlling EAB adults as they feed on leaves in the canopy. A single, well-timed spray was also found to provide good control of EAB, although two sprays may provide extra assurance given the long period of adult EAB activity.

It should be noted that spraying large trees is likely to result in a considerable amount of insecticide drift, even when conditions are ideal. Drift and potential effects of insecticides on non-target organisms should be considered when selecting options for EAB control.

Key Points and Summary Recommendation

- ✦ Insecticides can effectively and consistently protect even very large ash trees from EAB, even under intense pest pressure.
- ✦ Drought stress inhibits uptake and transport of systemic insecticides. Supplemental irrigation will be needed during dry periods.
- ✦ Unnecessary insecticide applications waste money. However, EAB infestations are very difficult to detect when populations are low. Once EAB has been detected within 10-15 miles, your trees may be at risk. Be aware of the status of EAB in your location. Current maps of counties and states where EAB has been found are available at www.emeraldashborer.info. Remember, however, that once a county is quarantined, regulatory surveys end and maps for that county are no longer updated. In some areas, local information on EAB infestations may be available from city, county or state officials.
- ✦ Trees exhibiting more than 50 percent canopy decline (thinning or dieback) are unlikely to recover even if treated with a highly effective systemic insecticide. Trees that are already infested and showing signs of canopy decline when treatments are initiated may continue to decline the first year after treatment, and then begin to improve the second year, as the trees recover. Effectiveness of products varies and depending on the product applied and the pest pressure, trees with lower levels of canopy decline may not recover despite treatment.
- ✦ Emamectin benzoate consistently provides at least two years of EAB control with a single application, even in large and very large trees under intense pest pressure. It also provided a higher level of control than other products in side-by-side studies.
- ✦ Trunk injections of azadirachtin affect EAB differently than other systemic insecticides. Results from a recent study indicate azadirachtin should provide effective protection for one to two years, depending on EAB pressure.
- ✦ Basal trunk sprays with dinotefuran applied annually effectively protected ash trees up to 22 inches DBH in several studies. It is important to calibrate sprayers to ensure the proper rate of the formulated product is applied.
- ✦ Imidacloprid and dinotefuran soil applications provided effective EAB control of trees up to 22 inches DBH (larger trees were not tested) when applied annually at the highest labeled rate, even under intense pest pressure. Soil drenches and injections are most effective when the product is applied at the base of the trunk. Generally, imidacloprid soil applications are more effective when applied in the spring than in the fall. Soil injections should be no more than 2-4 inches deep, to avoid placing the insecticide beneath feeder roots of the tree. To facilitate uptake, systemic trunk and soil insecticides should be applied when the soil is moist but not saturated or excessively dry.
- ✦ When treating trees greater than 15 inches DBH with imidacloprid soil applications, select a product that allows a higher rate (2X rate) to be used. Not all imidacloprid products can be applied at that rate, so check the label carefully. Users must comply with all restrictions on the frequency of applications and the amount of insecticide that can be applied per acre in a given year.



The Cooperative Emerald Ash Borer Program

For more information and to download
additional copies of this bulletin:

www.emeraldashborer.info/

The Ohio State University EAB Outreach Team

www.ashalert.osu.edu

Purdue Extension

www.eabindiana.info

Colorado State

www.ext.colostate.edu/pubs/insect/emeraldashborer

June 2014



Bibliographic Citation: Herms DA, McCullough DG, Smitley DR, Clifford CS, Cranshaw W. 2014. Insecticide options for protecting ash trees from emerald ash borer. North Central IPM Center Bulletin. 2nd Edition. 16 pp.



**Town of Aurora
General Committee Report**

No. CS17-013

Subject: Proposed Taxi Licensing By-law Amendments

Prepared by: Mandie Crawford, Manager of By-Law Services

Department: Corporate Services

Date: May 2, 2017

Recommendation

- 1. That Report No CS17-013 be received; and**
- 2. That amendments to Schedule 13 of Licensing By-law No 5630-14, being a by-law to regulate licensing of business establishments, be enacted at a future Council meeting.**

Executive Summary

The purpose of this report is to provide Council with an overview of recommended amendments regarding taxis to Schedule 13 of Licensing By-Law No.5630-14 being a by-law to regulate licensing of business establishments, which would improve the licensing process and make it consistent with best practices in other municipalities.

- Amendments to Schedule 13 of the Licensing By-law No 5630-14 respecting vulnerable sector checks, age of vehicles and registration requirements, will expedite the renewal process and reduce costs for drivers and owners
- These amendments will not compromise safety and will modernize our by-law
- Other municipalities have implemented similar licensing provisions

Background

Schedule 13 of Licensing By-law No 5630-14, enacted on May 27, 2014 regulates the licensing of taxi drivers, owners, and brokers. Over the past several years staff have received concerns from drivers and brokers about redundancy in the renewal process regarding duplication of the vulnerable sector check and other minor changes that

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Report No. CS17-013

would better streamline the licensing process and reduce their costs and administrative wait times.

Analysis

Amendments to Schedule 13 of the Licensing By-law No 5630-14, respecting vulnerable sector checks, age of vehicles and registration requirements, will expedite the renewal process and reduce costs for drivers and owners

The licensing of drivers under Schedule 13 requires drivers to provide Vulnerable Sector check upon initial application and again upon every renewal. This is redundant for drivers as they are providing an updated Criminal Record check at the same time. Removal of this requirement will expedite the process by eliminating RCMP administrative wait times of between 2 to 6 weeks.

Currently, an administrative error in Schedule 13 of By-law No 5630-14 requires each taxi vehicle owner to register their vehicle titles in the name of the Broker. This error has been corrected in the licensing procedure but has yet to be amended in the by-law. Removing this requirement, but maintaining that the registration must be current will ensure that taxi vehicle owners keep their vehicles registered in their own names.

Finally, the current age restriction on vehicles is five (5) years, with a discretionary extension of another two (2) years and any vehicle over that age may not be registered as a taxi. This penalizes Drivers and Brokers who keep well maintained vehicles.

Extending the age restriction to a maximum of ten (10) years with provisions that they are inspected and approved by the Licensing Coordinator and a licensed mechanic will assist Drivers and Brokers in becoming more competitive by eliminating the need to replace a well maintained vehicle after seven (7) years.

These amendments will not compromise safety and will modernize our by-law

Each of the recommended changes will not impact public safety and will ensure that the by-law reflects current best practices within the industry.

The Vulnerable Sector check submitted on initial application provides a thorough search for convictions that may affect the vulnerable in society. Criminal record checks on renewals ensures no convictions are added to the applicant's record.

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Additionally, with respect to the age of vehicles, yearly renewal of taxi license requires that each vehicle be inspected by a Ministry of Transportation approved licensed mechanic. This will ensure that taxis are kept in a safe condition while in use.

Other municipalities have implemented similar licensing provisions

Staff have investigated these changes with other municipalities and have found that schedule 13 of By-law No 5630-14 requires updating to improve the implementation of the by-law and better reflect current practices in the industry.

Municipalities such as East Gwillimbury have increased the age restriction on vehicles from seven to ten years for well maintained vehicles.

Markham, Richmond Hill and Vaughan are currently working on their current vehicle age limit for taxis and are changing the limit to a maximum of seven (7) years with a possibility of three (3) year extension depending on the physical and mechanical condition of the vehicle.

Advisory Committee Review

N/A

Financial Implications

These changes will not affect fees collected for licensing so there is no financial impact to The Town of Aurora.

Communications Considerations

No formal communication strategy is required as the Licensing Coordinator is already in regular communication with the taxi industry's drivers and brokers.

Link to Strategic Plan

Amending Schedule 13 of Licensing By-law No 5630-14 will support Aurora's strategic plan by enabling a diverse, creative and resilient economy.

Alternative(s) to the Recommendation

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Report No. CS17-013

Council may consider the following options as alternatives:

1. Recommend one or more but not all of the recommendations
2. Council may choose to take no action at this time. The licensing of drivers and brokers will remain unchanged, incurring unnecessary costs and paperwork for Drivers and Brokers.

Conclusions

The taxi industry is currently undergoing many changes, requiring that drivers and brokers become more competitive within the current market.

Removing redundancy in the licensing process and extending the allowable life of well maintained vehicles will assist both brokers and drivers in becoming more efficient and reducing their operating costs.

Attachments

None

Previous Reports

None

Pre-submission Review

Agenda Management Meeting review on April 13, 2017

Departmental Approval



**Techa van Leeuwen
Director
Corporate Services**

Approved for Agenda



**Doug Nadorozny
Chief Administrative Officer**



**Town of Aurora
General Committee Report**

No. IES17-021

**Subject: Award of Tender 2017-24-IES – Supply and Delivery of one (1)
5000lb Capacity Forklift**

Prepared by: Greg McClenny, Supervisor, Facilities and Fleet

Department: Infrastructure and Environmental Services

Date: May 2, 2017

Recommendation

- 1. That Report No. IES17-021 be received; and**
- 2. That Tender No. 2017-24-IES for the supply and delivery of one (1) new 5000lb capacity forklift be awarded to Liftow Limited, in the amount of \$30,550 excluding taxes; and**
- 3. That additional funding in the amount of \$11,088 for Capital Project No. 34408 be provided from Fleet R&R reserve; and**
- 4. That the Mayor and Town Clerk be authorized to execute the necessary Agreement, including any and all documents and ancillary agreements required to give effect to same.**

Executive Summary

The purpose of this report is to seek Council approval to award tender for the supply and delivery of one (1) 5000lb capacity forklift for shared use between the Infrastructure and Environmental Services Department and the Parks, Recreational and Cultural Services Department at the Joint Operations Centre (“JOC”).

Background

At the JOC there is a requirement to lift heavy objects onto high racks and mezzanines for storage. This is a Health and Safety concern for staff as the Town does not own any type of lifting device or equipment to allow access to high areas and to safely carry out these tasks.

Analysis

Table 1 shows a summary of the compliant bids received for this project

Table 1

	Company Name	Total Bid (excluding taxes)
1	Liftow Limited	\$30,550.00
2	Wajax	\$33,400.00
3	Yale Industrial Trucks Inc.	\$37,321.22

Verification of the tenders was undertaken by Town staff. The lowest compliant bid was submitted by Liftow Limited, in the amount of \$30,550.00, excluding taxes, for the supply of one (1) 2017 Toyota 8FGCU25 Forklift.

Advisory Committee Review

Not applicable.

Financial Implications

Table 2 is a financial summary for Capital Project No. 34408 as based on the tender submitted by Liftow Limited:

Table 2 – Financial Summary

Approved Budget	
2017 Capital Project No. 34408	\$20,000
Total Approved Budget	\$20,000
Less previous commitments	\$0
Funding available for subject Contract	\$20,000
Contract Award excluding HST	\$30,550
Non-refundable taxes (1.76%)	\$538
Total Funding Required	\$31,088
Budget Variance	-\$11,088

As indicated in Table 2, the project is \$11,088 over budget. The original cost estimate was based on purchasing a refurbished piece of equipment; however consultation with Procurement Services, and the Capital Projects' user departments concurred, that a

new piece of equipment be tendered. Staff recommends that this additional funding be provided from the Fleet R&R Reserve.

Communications Considerations

There is no external communication required.

Link to Strategic Plan

This project supports the Strategic Plan goal of ***Supporting an Exceptional Quality of Life for All*** through its accomplishment in satisfying the requirement in the following key objective within this goal statement:

Invest in sustainable infrastructure: Establish policies and programs that enhance the accessibility and safety of new and existing facilities and infrastructure.

Alternative(s) to the Recommendation

1. Council may choose to not award this project. The tender evaluation process meets all requirements of the Procurement By-law and awarding this contract is the next step in fulfilling the requirements of the tendering process. If Council chooses to not award this contract, various areas of the JOC will not be accessible for storage use for which they were designed and alternative storage locations will have to be determined.

Conclusions

The tender review has complied with the Procurement By-law requirements and staff recommend that Tender No. 2017-24-IES for the supply and delivery one (1) 2017 5000lb capacity forklift be awarded to Liftow Limited, in the amount of \$30,550 excluding taxes.

Attachments

None.

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Report No. IES17-021

Previous Reports

None.

Pre-submission Review

Agenda Management Meeting review on April 13, 2017

Departmental Approval



Allan D. Downey
Director
Parks, Recreation and Cultural Services

Approved for Agenda



Doug Nadorozny
Chief Administrative Officer



Town of Aurora

General Committee Report

No. PBS17-030

Subject: Application for Site Plan Approval
458021 Ontario Inc. (Tilemaster)
Lots 8 & 9, Registered Plan 65M-4324
21 & 33 Eric T. Smith Way
File Number: SP-2016-08
Related Files: D14-05-04 & D12-05-1A

Prepared by: Fausto Filipetto, Senior Policy Planner

Department: Planning and Building Services

Date: May 2, 2017

Recommendations

- 1. That Report No. PBS17-030 be received; and**
- 2. That site plan application number SP-2016-08 (458021 Ontario Inc.) to permit the development of the subject lands for a warehouse and office be approved subject to the resolution of any outstanding issues; and**
- 3. That the Mayor and Town Clerk be authorized to execute the site plan agreement, including any and all documents and ancillary agreements required to give effect to same.**

Executive Summary

This report seeks Council approval of a site plan application.

- This report provides background information, evaluation and recommendations regarding the site plan application submitted by 458021 Ontario Inc. Inc. to permit the development of the subject lands for a warehouse and office building with a total Gross Floor Area of 10,228.28 m².
- Planning and Building Services has reviewed the subject application in accordance with the provisions of the Town's Official Plan, Zoning By-law and municipal development standards respecting the subject lands.
- All departments and agencies have provided comment and are able to support the site plan application provided technical comments are addressed.

- All technical revisions to the proposed plans will be reviewed by Town Staff prior to the execution of the site plan agreement. Staff recommend approval of site plan application number SP-2016-08.

Background

The subject lands were formerly part of the larger Town owned lands known municipally as 15059 Leslie Street. The lands were rezoned by the Town from Rural General to a site-specific Business Park zone and a Plan of Subdivision was registered.

Location / Land Use

As illustrated in Figure 1, the subject lands are located within the former Town Lands Business Park Subdivision on the south side and west end of Eric T. Smith Way. The lands are 3.13 Hectares (7.74 Acres) in size and are currently vacant.

Surrounding Land Uses

The surrounding land uses are as follows:

North: Eric T. Smith Way and vacant employment land;
South: Oak Ridges Moraine Non-Settlement Area;
East: vacant employment land; and
West: Richardson House (vacant employment land).

Policy Context and Zoning

The site plan application is consistent with Provincial, Regional and Town land use planning policy including the policies of the Oak Ridges Moraine Conservation Plan.

Oak Ridges Moraine Conservation Plan

Approximately three quarters of the site is located on the Oak Ridges Moraine within the "Settlement Area." There are no "Natural Heritage or Hydrologically Sensitive Features" on the site. The lands are within an area of "Low Aquifer Vulnerability" and a small portion on the northwest corner of the site is located in a "Wellhead Protection Area" (10 - 25 Year Time of Travel Zone), which means that storage of certain materials are prohibited within that area. The lands are located in a "Category 2" (Moderately Complex Landform Conservation Area).

An Oak Ridges Moraine conformity exercise, included the preparation of any studies and supporting materials, was undertaken through the rezoning and subdivision

process. The proposed site plan therefore is in conformity with the Oak Ridges Moraine Conservation Plan as implemented through the Town's Official Plan by Official Plan Amendment No. 48.

Town of Aurora Official Plan

The subject lands are designated "Business Park" in the Bayview Northeast Area 2B Secondary Plan. "The Business Park designation is intended to provide opportunities for a mix of high quality employment uses and a variety of supporting commercial and community facilities geared to satisfying the needs of residents, businesses and employees in the Town of Aurora and the Region. The Business Park designation permits an integrated mix of employment activities and businesses that occur within buildings and on sites that are designed, and landscaped to present a high quality, prestige image." The Business Park designation specifically permits business and professional offices and warehousing; the proposed site plan is therefore in conformity with Town's Official Plan.

Zoning By-law 2213-78, as amended

The subject lands are zoned "Business Park (BP-4i) Exception Zone." The BP-4i Zone specifically permits the site to be used for an office and warehouse. Furthermore, the site plan was reviewed for zoning compliance by Building Administration and through the review it was determined that the site plan was in compliance with the Zoning By-law.

Analysis

Proposed Site Plan

As illustrated on Figure 2, the site plan proposes a 10,228.28 m² building; of which 9,187.62 m² will be used for a warehouse. The remainder of the building will be used for offices. A total of 130 parking spaces will be provided to the north and east of the building. The rest of the site will be landscaped, as illustrated on Figure 3. The Building Elevations are illustrated on Figure 4. Cladding is proposed as follows:

Elevation	Warehouse	Office
North (Street Facing)	Architectural White Panels	Grey Vented Tiles
South	Metal Panels	Not Applicable
East	Grey Ribbed Panels	Grey Vented Tiles
West	Grey Ribbed Panels with Glazing in Northwest Corner	Not Applicable

Site Plan Review and Comments

The proposed site plan was reviewed by both internal departments and external agencies. There were no objections to the proposed site plan, however comments were provided which were technical in nature. The applicant has since resolved the majority of technical comments provided. Planning and Building Services are currently working with the applicant in order to obtain an upgraded building elevation where visible from the street. The applicant is also currently working with the Lake Simcoe Region Conservation Authority with respect to the provision of information regarding Hydrogeology, Water Balance, Engineering and Stormwater Management.

Given the Town's goal of promoting development of their employment lands, and given that the majority of the technical issues have been addressed by the applicant, staff are recommending site plan approval at this time, subject to the resolution of any outstanding issues.

Advisory Committee Review

The site plan was before the Accessibility Advisory Committee on December 1, 2016 and the Committee's comments were provided to the applicant as part of the comprehensive set of first submission comments. All of the Committee's comments were addressed by the applicant through the subsequent site plan submission.

Financial Implications

At the time of site plan agreement, fees and securities will be applied to the development. The development of the subject lands generates development charges and cash in lieu of parkland fees.

Communications Considerations

Site plan applications submitted under Section 41 of the Planning Act do not require public notification. All planning applications are listed on the Town's website through the Planning Application Status List which is reported to Council and updated quarterly.

Link to Strategic Plan

The proposed site plan application supports the Strategic Plan goal of Enabling a diverse, creative and resilient economy through the following key objective within this goal statement:

Promoting economic opportunities that facilitate the growth of Aurora as a desirable place to do business:

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Report No. PBS17-030

The application will assist in attracting business in accordance with the Develop plans to attract businesses that provide employment opportunities for our residents action item.

Alternatives to the Recommendation

1. Council has the option of directing staff to report back once all outstanding comments are addressed; or
2. Council may also defuse the application with an explanation for the refusal.

Conclusions

Planning and Building Services reviewed the subject site plan application in accordance with the provisions of the Town's Official Plan, Zoning By-law and municipal development standards. All technical revisions to the proposed plans will be reviewed by Town Staff prior to the execution of the site plan agreement. Staff are therefore recommending approval of the site plan application number SP-2015-07 at this time.

Attachments

- Figure 1 - Location Map
- Figure 2 - Proposed Site Plan
- Figure 3 - Proposed Landscape Plan
- Figure 4 - Proposed Building Elevations

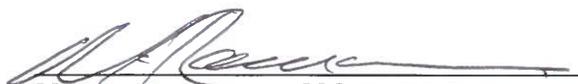
Previous Reports

None.

Pre-submission Review

Agenda Management Team Meeting review on April 13, 2017.

Departmental Approval



Marco Ramunno, MCIP, RPP
Director, Planning and Building Services

Approved for Agenda



Doug Nadorozny
Chief Administrative Officer



LOCATION MAP

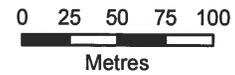
APPLICANT: 458021 Ontario Inc. (Tilemaster)

FILES: SPA-2016-08

FIGURE 1



SUBJECT LANDS



Map created by the Town of Aurora Planning & Building Services Department, April 5, 2017. Base data provided by York Region & the Town of Aurora. Air Photos taken Spring 2016, © First Base Solutions Inc., 2016 Orthophotography.



Notice of Motion	Councillor Tom Mrakas
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Date: May 2, 2017

To: Mayor and Members of Council

From: Councillor Mrakas

Re: **Vacant Property Tax**

Whereas housing prices have seen a significant increase in the past couple of years;
and

Whereas residents—especially young residents—are experiencing difficulty entering the
housing market due to a lack of affordable homes; and

Whereas there has been an increase in buyers purchasing properties and, upon
closing, many of these homes remain unoccupied; and

Whereas some buyers are not living or working in Aurora and may or may not be
properly reporting and paying income tax on their investment capital gains; and

Whereas the Province of Ontario has announced a new tax authority on vacant homes
that will give Toronto and other interested municipalities the power to impose such a tax
to encourage owners to sell or rent such spaces;

1. Now Therefore Be It Hereby Resolved That staff be directed to investigate options
for imposing a vacant home tax under the new provincial initiative, and report back
with recommendations in Q3 for Council's consideration.