Agenda Item # Page #

TO:	**CHAIR AND MEMBERS CIVIC WORKS COMMITTEE DECEMBER 9, 2013**
FROM:	**JOHN LUCAS, P.ENG DIRECTOR, WATER & WASTEWATER**
SUBJECT:	**2014 INFRASTRUCTURE RENEWAL PROJECTS - TREES**

RECOMMENDATION

That on the recommendation of Director, Water & Wastewater, the attached information report concerning tree removal, mitigation and communication as part of the 2014 Infrastructure Renewal Projects **BE RECEIVED** for information.

BACKGROUND

Purpose:

The purpose of this report is to provide Committee and Council with an overview of the planned impact to trees as part of the 2014 Infrastructure Renewal Program (IRP) and to identify a consistent approach to deal with greater than usual tree removal on four specific construction projects (see Appendix 'A'). The IRP is generally funded by a combination of Wastewater, Water and Transportation Capital Budgets.

Background:

The City of London (the City) is committed to maintaining a strong and healthy infrastructure. There is a number of large construction projects currently planned for 2014. The IRP is an annual program intended to replace municipal infrastructure that has reached the end of its service life. Typically, about 10 to 15 construction projects are assigned to City design teams and engineering consultants every year to help deliver this annual program.

The projects are typically on local streets, and generally include watermain and sewer replacement/repairs, sidewalk reconstruction, road grade changes, service extensions across boulevards, as well as restoration of areas disturbed by construction. The scope of each project varies in length, excavation depth and infrastructure components which require rehabilitation or replacement. In some cases, full road reconstruction will be part of the overall project.

Generally, IRP projects are situated in older areas of the City. Each of the projects have work plans that include the required engineering design plan to complete the project. In addition, any projects that have trees on public property which may be impacted by construction require the design consultant to retain an arborist to analyze and support tree decisions for that project. The City has adopted standards for tree protection during construction where the trees are found to be viable.

DISCUSSION

To ensure continuity within the IRP, the City has an internal strategy to manage the design and implementation of construction projects with respect to trees on public property (Appendix 'B': Environmental & Engineering Services Department (EESD) Construction Impact Tree Strategy, November 2008).

A Tree Inspection Report (TIR) is prepared for each project and provides:

- a tree species inventory
- a visual assessment of these trees for health and condition

- recommendations for tree removals and/or retention based on tree health/risk status and/or species concerns.

All trees within the right-of-way are visually evaluated to assess health and structural integrity. Evaluated trees are reviewed for health risk status based on the International Society of Arboriculture (ISA) standards. Generally, most are deemed suitable for retention pending decisions regarding the construction footprint. However, some can be deemed unhealthy, high-risk or limited life-span and not suitable for retention. More specifically, the TIR considers the following scenarios:

1. Where a tree is identified as being in good or moderate condition. **These trees will be retained and protected using all reasonable measures to minimize the impact of construction upon the tree**.

2. Where a tree is identified as being in poor health, there are two scenario's:

    a. Where the condition of a tree is agreed to be poor but where it is believed that best reasonable best efforts to protect it during construction should retain its post construction viability to more than 5 years. **These trees will not be removed. All efforts will be made to work around, avoid and protect these trees**.

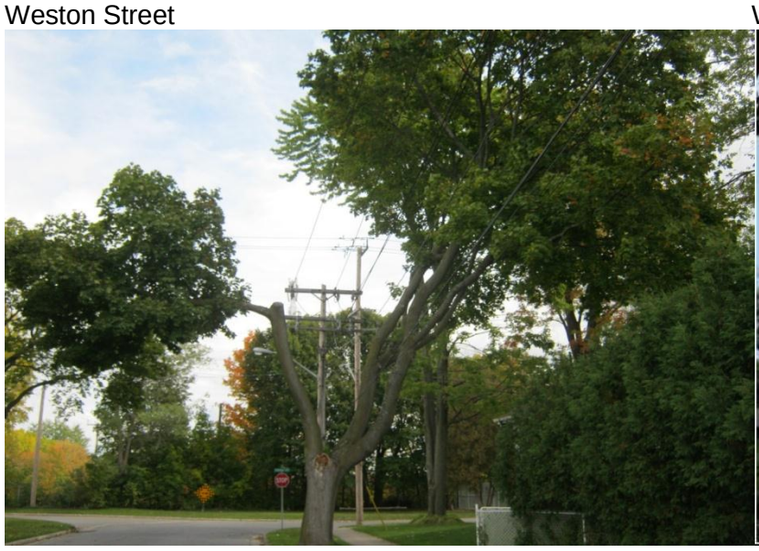
    b. Where the condition of a tree is agreed to be poor and where it is believed that a post construction viability of at least 5 years will be unlikely even if all best reasonable best efforts to protect it are utilized. **These trees should be removed by the City forces prior to construction and if they are not, they will be removed as part of the project.**

3. Where a tree is identified in such poor condition that it is an immediate or imminent safety concern. **These trees should be removed by City forces prior to construction and if not, they will be removed as part of the project**.

This approach is meant to balance the desire to preserve trees and the need to limit the City's liability related to them. It deals with trees within the right of way, on a condition basis only and does not speak to trees that may need to be removed exclusively for construction purposes, on private property or for trees with special circumstances (i.e. species or diversity).

<u>Photo (s) of high risk Tree (s)</u>

Weston Street



William Street

In accordance with EESD's Tree Strategy, on projects where greater than 5 tree removals are planned or there is perception of a major tree impact, a design meeting is called immediately at the 50% design stage to discuss and confirm tree impacts. At this time, the City's Design Project Manager will invite the City's Urban Forester and Operations Forestry staff to review the consultants TIR (Appendix 'C' – sample drawing from Typical TIR; 2014 Contract #6,

Central/Cartwright, IBI Group, Biologic, November 7, 2013) and to walk the site to obtain consensus on the condition of each tree. If greater than 5 trees are recommended to be removed, the issue is elevated to Division Managers and Directors and a communication plan is triggered.

The table below provides a listing of four 2014 IRP projects that will have significant trees removed and the opportunity to mitigate the loss.

PROJECT	STREET	STREET LENGTH	TREES	TREES TO BE REMOVED	% REMOVAL
Contract #2	St. James	610 m	~ 125	±3	~ 2%
	Willingdon	230 m	~ 36	±6	~ 17%
Contract #3	William	630 m	~124	±5	~ 4%
Contract #6	Central	220 m	~ 22	±5	~ 23%
	Cartwright	240 m	~ 26	±9	~ 31%
Contract #7	Weston	190 m	~ 15	±4	~ 27%
	Fairview	560 m	~ 73	±20	~ 27%

The IRP is well underway noting engineering designs are over 50% complete for most projects. At this time, about 50 mid to large diameter trees are scheduled to be removed in 2014 as it relates to four IRP projects. The entire 2014 IRP consists of about 15 projects and is expected to include the removal of about 70 trees either due to their high-risk nature, poor health, or short life expectancy.

The IRP program in the past has averaged about 30 tree removals per year since 2011 at an average cost of about $1000 per tree. Large diameter removals can average over $2000 per tree. Within the IRP, tree removal costs have been added to the overall Project Cost and is generally sourced from Wastewater and Water Capital budgets. The major increase in tree removals forecasted for 2014 will have an unexpected impact to the above noted budgets.

High-risk and non-retainable trees will be felled and removed from as part of these reconstruction projects to address future safety concerns. About 50 trees on site of the four noted projects are currently high risk or non-retainable trees and will not be considered for retention. In areas where curb, sewers, watermain and services will be replaced in the same or close to the same location, portions of tree roots will likely have to be removed to accommodate forming and other construction requirements, noting those trees will remain if not a hazard.

As a result of the greater than usual amount of trees scheduled to be removed in 2014, it is prudent to formulate a communication plan to ensure a consistent approach is carried out for all IPR projects throughout the City.

Communications Plan

The social impact is being mitigated through design team coordination and public communication. In an effort to ensure continuity within the program, the specific communication strategies for the various projects include:

- 2014 IRP Civic Works Report (December 2013);
- Communication with Ward Councillors, Community Associations (prior to Public meeting (PIC);
- Homeowner Letter #2 sent 2-4 weeks prior to PIC will describe the tree impact that is anticipated, with further information to be available at the PIC on condition and removals.
- Tree removals will be shown on plans and discussed at the PIC. The difference between construction removals and health and safety trees should be highlighted.

- Homeowner Letter #3 sent 1-3 weeks prior to construction to show a list of all tree removals by address and to highlight any added/saved trees since PIC.
- When residents enquire about sanitary and/or storm private drain connections (PDC's) or water service installation, tree impact should be assessed and discussed.
- Consistent messaging will be that trees are an important asset to the City of London and we are making our best efforts to protect them during construction. The final number of trees slated for removal may change recognizing that tree location may conflict with the installation of water services and private drain connections. Considerable effort will be made to minimize impact of construction on any tree.
- Following the construction, the City's Forestry Co-ordinator will review the tree inventory on those streets. At that time, a determination will be made on the number and species of trees that will be replanted based on available space and planting guidelines. Generally, the City plants trees after construction in every viable planting location. An average street might get 3 trees removed and 10 planted. About 300 to 400 trees get planted on reconstructed streets per year. The strategy stays away from replacing with a specific ratio, i.e. one tree replanted for every one removed.

SUMMARY

The 2014 Infrastructure Renewal Program is experiencing higher than average planned tree removals at multiple projects that could each individually exceed a typical year's program wide tree removal budget, and could elevate social impacts. All Engineering design assignments included Tree Inspection Report where all trees within the right-of-way are visually evaluated by an arborist to assess health and structural integrity against International standards. At this time, we expect about 50 large trees will be removed either due to their high-risk nature, poor health, or short life expectancy. This correlates to about 10-30% of existing trees on those four projects noting an additional 20 or so are recommended to be removed from the 10 other IRP projects.

A communication plan is automatically triggered by our Departmental protocols for projects with 5 or more trees to be removed, including additional effort to communicate with the WARD Councillor, neighborhood association and homeowners. Mitigation involves planting new trees of suitable species after construction is complete. Up to 3 new trees planted for every tree lost may occur noting over 300 new trees will ultimately get planted on Infrastructure Renewal Projects per year post construction.

Acknowledgements:

This report was prepared with the assistance of Ugo DeCandido, P.Eng, Environmental Services Engineer with support from the Division Managers of Water Engineering, Roland Welker P.Eng., and Wastewater and Drainage Engineering, Tom Copeland, P.Eng. Project Managers for the individual projects listed provided supporting information for this report.

PREPARED BY:	RECOMMENDED BY:
JOHN LUCAS, P. ENG. **DIRECTOR, WATER AND WASTEWATER**	**JOHN BRAAM, P. ENG.** **MANAGING DIRECTOR, ENVIRONMENTAL & ENGINEERING SERVICES & CITY ENGINEER**

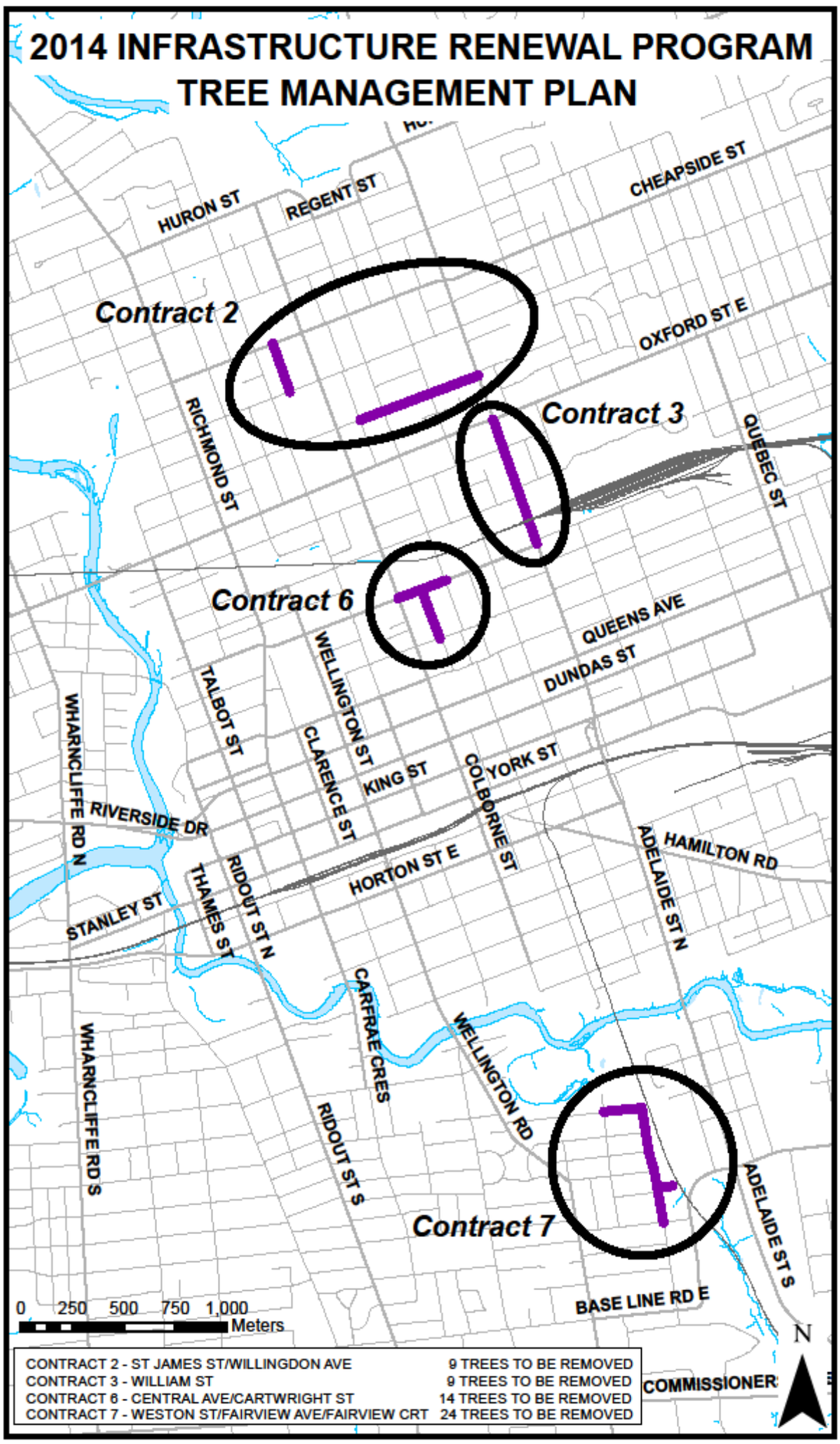
Attach: Appendix "A" 2014 Projects: Tree removals
Appendix "B" EESD Construction Impact Tree Strategy (November 2008)
Appendix "C" Typical Tree Assessment Report Drawing

c.c. John Parsons
Edward Soldo
Justin Lawrence
Tom Copeland
Roland Welker

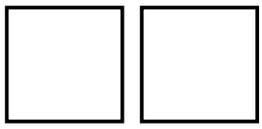
Agenda Item # Page #

APPENDIX 'A'

2014 Projects: Tree Removals



Agenda Item # Page #



APPENDIX 'B'

EESD Construction Impact Tree Strategy (November 2008)

Purpose:
This is an internal City of London strategy to manage the design and implementation of capital construction projects with respect to street trees. The strategy includes both tendered projects and in-house built projects through the annual road reconstruction program (ARRP).

Design:
1. Existing trees that will be impacted by construction should be identified and assessed when choosing an alignment for new infrastructure. Age, condition and species can be used to value impacted trees. The value of protection should not exceed the existing value of the tree. As a rough guideline, healthy trees can range from $500 (new 50mm cal.) up to $10k for a healthy, medium aged, in desirable species.
2. In heritage districts, consult with Heritage Planner regarding tree impact.
3. Road width and profile has a major impact on existing trees. If the street trees have medium to high value to the City, then consideration should be made to make road narrower to avoid curb machine impact. Have consideration for property and driveway grade. Consult with Transportation Planning and Design Division.
4. On projects with less than 5 tree removals, tree protection plans showing removals and protection zones should be prepared by project manager and forwarded to Urban Forester for review.
5. On projects where greater than 5 tree removals and less than 10 are planned or where there is a perception of major tree impact, a design meeting should be convened at the 50% stage to discuss and confirm cross section vs. tree impact. Project manager should include an arborist to analyze and support tree decisions. Urban Forester will provide the tree advice on ARRP. Attendance at meeting should be project manager, program manager, consultant (& arborist) and Urban Forester. If no consensus is reached, the issue should be elevated to Division Manager level and then subsequently to Director level.
6. On projects where greater than 10 tree removals are planned, design meeting should automatically include Division Managers and those mentioned in 5 (above).
7. Submissions to UCC should reflect the consensus from previous steps.
8. Trees identified as pre-existing dead, unsafe condition, or very poor health should be identified for removal. Cost should be split by the budgets that are contributing to the project.
9. Trees identified by property owners as unsightly, undesirable, or overly pruned by overhead wires should not be identified for removal unless they are unsafe.
10. Project Manager for Design should log sequence of events related to trees on project, including site visits, sign-off, etc. PM to hand over log to PM for Construction for back up.

Public Relations:

1. All project communication should be funneled through City program manager or division manager unless the issue has been elevated to a director or City Engineer level.
2. Homeowner Letter #2 sent 2-4 weeks prior to PIC should describe the tree impact that is anticipated with further information to be available at the PIC on condition and removals.
3. Tree removals should be shown on plans and discussed at public meeting. The difference between construction removals and health and safety trees should be highlighted.
4. Homeowner Letter #3 sent 1-3 weeks prior to construction to show a list of all tree removals by address and to highlight any added/saved trees since PIC.
5. When residents enquire about PDC or water service installation, tree impact should be assessed and discussed.
6. Common message should be that trees are an important asset to the City of London and we are making our best efforts to protect them during construction. The final number of trees slated for removal may change recognizing that tree location may conflict with the installation of water services and private drain connections. Please be assured that considerable effort will be made to minimize impact of construction on any trees. Following the construction, the City's Forestry Co-ordinator will review the tree inventory on your street. At that time, a determination will be made of the number and species of trees that will be replanted based on available space and planting guidelines.

Construction:

1. Tree protection should be installed during first week of project. It should be installed and removed phase by phase (as per tree management standards / specifications).
2. On projects with major tree impact, each site meeting should discuss removals/protection.
3. The components of the 2008 tree protection tender item include:
- Lump sum to install, maintain, and remove all barriers
- Pruning of limbs included
- Mechanical cutting of large roots included
- Placement of soil / wet burlap to protect root dry out included
- Tree removals are a separate item divided by trunk diameter
4. Trenchless technologies for services should be considered if an open excavation will cause major root damage and if there a reasonable location for both a sending and receiving pit.
5. Old infrastructure is often in non-standard location, therefore assumptions about the tree impact and removals may change during construction.

Tree Planting:

1. For the ARRP, CA group compiles a list of trees removed and forwards to Parks Planning. Minor Roads account contributes $100k per year for replacement and infill of these streets.
2. For tendered projects, CA group compiles a list of trees removed and forwards to Parks Planning for replacement. Project accounts from road, water, and sewer provide account numbers for PP to charge against at 1 to 1 ratio where possible.
3. If a balance remains in $100k, then it is used for infill on tendered projects.
4. Size of trees is 2" caliper as determined to provide the best value.
5. Planting season is ideally in the spring of following year. Fall of construction year is possible if project is finishes with enough time to plan and plant in October.
6. Major projects (Western Road, Oxford Widening, etc) should include a planting plan as part of their tender packages to be reviewed by PP. Sources of financing can be determined at BOC reports stage. 2 year warranty should be included in contract.

Agenda Item # Page #

APPENDIX 'C'

Typical Tree Assessment Report Drawing