

Appendix C: Arborist Report



City of Windsor

University Avenue EA Arborist Report

September 2018

B000917

SUBMITTED BY CIMA CANADA INC.

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City of Windsor

University Avenue EA Arborist Report

Project no B000917

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1. Introduction

CIMA+ has been retained by the City of Windsor (the City) to review the trees potentially affected by road work proposed along University Avenue and Victoria Avenue in downtown Windsor. The City is looking to transform a stretch of University Avenue approximately 3.75 km long and a crossing segment of Victoria Avenue 225 m long into an inviting, multimodal transportation corridor. This report will help determine the project's potential impacts on trees in the public realm as well as on trees on private property that may be affected by the work. This report will also provide general recommendations to avoid and/or mitigate tree loss and injury.

2. Limitations

The assessment presented in this report has been made using accepted standard arboriculture techniques as outlined in the Council of Tree and Landscape Appraisers *Guide for Plant Appraisal*, 9th Edition (2000). These techniques include visual examination of above ground parts of each tree or trees in each group. The trees observed were not climbed, cored, or dissected, and excavation for detailed root crown inspection was not performed. Since some symptoms may only be present seasonally, the extent of observations that can be made may be limited by the time of year in which the inspection took place.

Since trees are living organisms, their health and vigour continually change over time due to seasonal variations, changes in site conditions, and other factors. For this reason, the assessment presented in this report is valid at the time of inspection, and no guarantee is made about the continued health of trees that are deemed to be in good condition. It is recommended that the trees be re-assessed periodically to identify changes in condition. While every standing tree has the potential for failure and therefore poses some risk, a tree assessment is a good indication of present health and potential problems that could arise in the future.

CIMA+ has prepared this report for the sole use of the client. Any use of this report by a third party, as any decision based on this report, is the singular responsibility of the third party. CIMA+ will not be held responsible for eventual damages towards a third party resulting from decisions taken, or based, on this report.

3. Methodology

An ISA Certified Arborist from CIMA+ visited the site on July 5 and 6, 2018.

Trees and vegetation groups were located within the public right-of-way and along adjacent private property where effects of road work could affect trees. This would typically occur wherever a private tree's canopy may overhang into the right-of-way. Vegetation groups were also noted instead of individual trees or shrubs in certain cases: where a group of very similar trees or shrubs were located together or where significant planting beds may exist beneath tree and be affected by proposed work.



Trees and vegetation groups were uniquely numbered, identified, measured, and assessed for condition. The assessment methodology is outlined in Section 3 below. The tree inventory tables containing this information are included in Appendix A along with drawings TI-1 through TI-11 that show the the locations of the numbered trees and groups surveyed.

3.1 Tree Size

Size refers to trunk diameter (caliper or DBH) measured in centimetres at 1.4 m above the ground. Where trees had more than one trunk from the base, the size of each trunk was recorded. Where trees forked to codominant trunks, each trunk was measured or the diameter was measured under the flare and the approximate height of the measurement was noted.

3.2 Observations

Several structural defects and health problems are included in the Comments section of the tree inventory and assessment table. Following is an explanation of the short forms used in the table:

GR Girdling roots

COD Codominant trunks or codominant leaders

NA Narrow branch angles

INCL Included bark

CRB Crossing branches

MBR Multiple branches from the same point of attachment

DPR Decay at pruning wounds

SMD Small dead branches

ADV Adventitious shoots

These observations, along with other terms related to describing tree conditions, are defined below.

Structural defects are often insignificant when a tree is small, but can pose problems when the tree grows larger and the weight of branches put added stress on defects that can cause weakness. Larger trees also have the potential to cause more damage should they fail. The following is an explanation of some of the observations included in the inventory and assessment table, and how they can affect trees over time.

- Adventitious shoots are vigorous growth of shoots from pruning cuts, inner branches, or along the trunk that usually occur in response to stress.
- Codominant leaders (2 trunks or branches of approximately equal size) often have narrow branch angles, and are associated with weak branch attachment. Strong branch attachments occur between 2 limbs of unequal size with enough space for branch enlargement and formation of a branch bark ridge.
- Crossing branches are often associated with narrow branch angles. Branches that cross over each other often rub, causing damage and therefore weakness to one or both branches, and crossing branches can eventually girdle each other.



- Decay at pruning wounds can occur when pruning (or other bark-penetrating abrasions)
 expose a tree's heartwood, which can then be affected by a rot-causing fungi. The decay
 can lead to cavities and internal decay, and potentially affect the structural integrity of the
 tree.
- Exposed surface roots can be a result of erosion and soil compaction combined with increasing root diameter. It is important to protect exposed roots from pedestrian and vehicular traffic, and lawn mowers. Damage to roots can cause stress and can result in canopy dieback.
- Frass is the excrement of insect larvae, with an appearance similar to sawdust or small
 wood chips that can be seen at the base of a tree where wood boring insects are feeding.
 Frass can be an indicator of internal decay.
- Fruiting bodies are often recognized as mushrooms or conks on trees. Presence of fruiting
 bodies is a positive indicator of wood decay, but depending on the species of the fruiting
 body, the decay can be of little significance or an indicator of imminent failure. It is important
 to observe decay fungi during the season in which it is growing to accurately identify the
 species and consider the potential associated indications of the extent of decay.
- Girdling roots are roots that cross over each other or around the trunk of the tree. As these
 roots grow larger, they can restrict the uptake of nutrients and water, and inhibit structural
 anchorage.
- Included bark is bark that has become embedded in a crotch where limbs join, and causes
 weakened branch attachments. As the trunk and branch increase in diameter, the bark of
 each stem in the tight crotch begin to push apart, increasing the likelihood of failure.
- A tree with a *lean* can be more susceptible to windthrow and soil failure. *Self-correcting lean* refers to a natural correction of the lean by development of new growth that counteracts the lean of the trunk to provide a more balanced form.
- Lion tailing refers to branches that have a tuft of foliage at the end like a lion's tail, due to pruning of the inner branches. Branches that have been pruned in this way are end-heavy and more likely to fail.
- Live crown ratio is the ratio of the live crown to the overall height of the tree. A low live crown ratio can develop when trees are growing close together in stands, or can be created by pruning or dieback. Low live crown ratio is associated with increased likelihood of failure, depending on the cause and site factors.
- When a tree has *multiple branches from the same point of attachment*, the branches usually have characteristics of weakly attached branches.
- *Narrow branch angles*, especially where there is included bark, can be a problem as trees grow larger because the inner wood is poorly attached.
- Ribs and seams are often associated with included bark, but can also indicate internal defects or decay that cause irregular growth.
- The *root flare* refers to the base of the trunk where it widens as it transitions to the root system.



- Sapsucker holes refers to holes in the trunk or branches made by birds in search of insects.
 This damage is a sign of insects in the tree, and can make trees more susceptible to other infection.
- Small dead branches are an indicator of crown dieback and can be an early sign of stress.
- Split-gill fungus (Schizophyllum commune) is an extremely common fungus that often affects trees that with recently killed bark. It can spread to healthy tissues after establishment.
- Staghorn effect refers to dead branches protruding through the crown of a tree, and often indicates a state of significant decline.
- Suppressed trees are growing under the canopies of neighbouring trees, which can diminish vigour and affect structural form.
- Woundwood is the thickened tissue growing around the edges of a wound. The rate of its development can be a sign of the tree's vigour.

The detailed observations made concerning tree species, size, and condition are included in the tree inventory and assessment table in Appendix A.

3.3 Tree Condition

Each tree was given a subjective rating for trunk integrity, canopy structure, and crown vigour, and an overall health condition rating of Excellent, Good, Fair, Poor, or Dead. The following is a summary of how the ratings are determined:

• EXCELLENT (E): no apparent health problems; good structural form

• GOOD (G): minor problems with health and/or structural form

FAIR(F): more serious problems with health and/or structural form

• POOR (P): major problems with health and structural form

• DEAD (D): dead

3.4 Tree Protection and Compensation

The spread area (dripline, measured here as a diameter) of each tree canopy is included to help determine possible injury and branch pruning that may be required.

Tree impacts (protection, injury, or removal) will be evaluated and considered during the design process.

4. Summary

A total of 267 trees and tree groups were surveyed along University and Victoria Avenues. This total is comprised of 226 individual trees and 41 individual shrubs and vegetation groups.



4.1 Structure of the Urban Forest

The size class of trees is an important metric for managing urban tree populations, as they indicate the relative age of trees as well as tree maintenance requirements. The ideal distribution is skewed left, with the greatest number of trees in the smallest DBH class decreasing to the least number of trees in the largest DBH class. This adds longevity and resiliency to the flow of functional benefits provided by the urban tree population, including aesthetic and ecological benefits.

The graph below illustrates that the tree size distribution for University Avenue is generally skewed to the left, with a significant drop in tree counts beyond the 40 cm DBH threshold. Trees less than 40 cm DBH make up almost 75% of all trees surveyed. Generally, the graph below shows a healthy tree size distribution. The relative disparity in numbers between trees less than 40 cm DBH and those above 40 cm DBH indicates that the future forest is promising. It is possible that the difference in size class at the 40 cm DBH threshold may indicate that municipal urban forestry management practices may favour removing larger trees as their hazard potential and their maintenance cost increases over time.

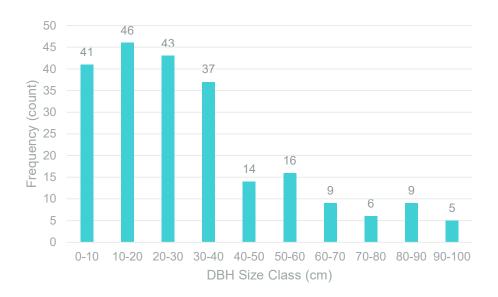


Figure 1. Tree size distribution in the study area.

4.2 Biodiversity of the Urban Forest

There were 35 tree species identified in total, with 28 genera and 18 families represented. A guideline for diversity in urban forestry is the 10-20-30 rule (as originally proposed by Frank Santamour in 1990 in his paper <u>Trees for urban planting: Diversity, uniformity, and common sense</u>). This rule maintains that an urban tree population should not have over 10% of any single species, over 20% of any single genus, or over 30% of any single family represented. This guideline promotes resiliency to specialized pests and disease, and offers protection against environmental stressors, as well as ecological benefits.



Following this rule, the graphs below indicate that honey locust and Norway maple both exceed the 10% species rule (at 16% and 14% respectively); that maples generally are slightly overrepresented as a genus (at 23%); and that family diversity among trees along University Avenue is well under the 30% mark, with the pine, legume, and rose families tied for the highest share at 11% each.

Compared to many urban streets, the species diversity of the trees inventoried along University Avenue is very good.

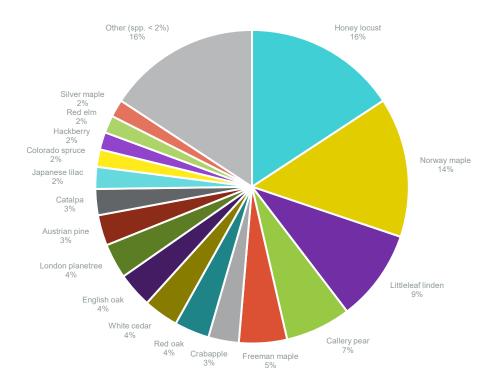


Figure 2. Tree species distribution in the study area (n=35 species).



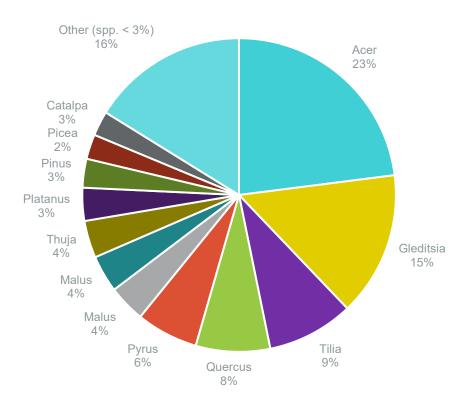


Figure 3. Tree genera distribution in the study area (n=28 genera).

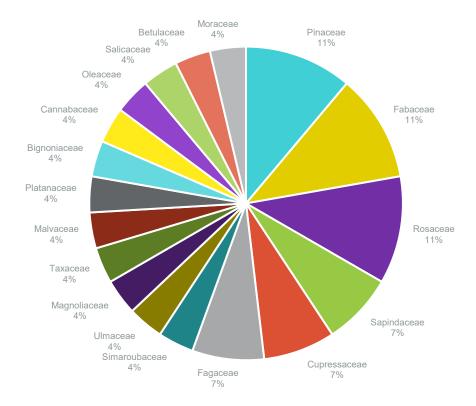


Figure 4. Tree family distribution in the study area (n=16 families).



4.3 Information About Individual Trees, Shrubs, and Vegetation Groups

Please see Appendices A and B for further descriptions and locations of each tree and vegetation group.

5. Protected Species

The *Migratory Birds Convention Act*, 1994 protects the nests of migratory birds. This effectively means that trees to be removed from the site should be removed outside of the migratory birdnesting window, the timing of which differs regionally across Canada as determined by Environment Canada. Following Environment Canada's guidelines, the window at this site is from April 1 to August 31. Trees may be removed during this restricted period only when trees are inspected for nests of protected bird species by a qualified avian biologist immediately prior to removal.

A Kentucky coffeetree (*Gymnocladus dioicus*) was found as a specimen tree on property of the University of Windsor adjacent to the right-of-way (Tree 145). Kentucky coffeetree is a protected species under the Ontario *Endangered Species Act*, 2007, however, as a specimen tree in the landscape, it is assumed to be commercially cultivated and exempt from protection under Section 12 of O. Reg. 242/08. No other species at risk were found.

6. Recommendations

The most typical construction damage to trees is root damage from compaction and severance. While the dripline of a tree's canopy is typically thought to be associated with the root area, the root zones can actually extend significantly beyond the dripline of the tree, sometimes up to 2 or 3 times the height of the tree. Some of the trees inventoried are growing close to the edge of the potential construction area and will be at risk of contact with, and damage from, heavy equipment. It is recommended that tree protection fencing be installed around such trees once the limit of disturbance is known.

Generally, to protect trees, grade changes and construction activities that could cause soil compaction should be kept away from trees as much as possible. If soil compaction from heavy equipment is anticipated, tree protection fence can exclude equipment from areas within a tree's dripline, or, if this is not possible, plywood or iron plates can be laid on top of mulch over the rooting area to mitigate soil compaction. If roots will be damaged by excavation equipment, it is better to cut roots cleanly with sharp pruning tools rather than allow them to be torn by large equipment. Clean cuts will help to minimize decay and entry points for disease. If branches are likely to hang in the way of passing equipment, the branches should be pruned by a qualified arborist to avoid tearing and undue injury to the tree.



Equipment and materials should not be stored near trees, and equipment should not be left idling where exhaust could burn foliage.

Future delineation of construction limits throughout the study area in combination with this inventory will determine the potential tree injury, removal, and protection measures required by the proposed work.

7. Certification and Closure

We certify that all the statements of fact in this assessment are true, complete, and correct to the best of our knowledge and belief, and that they are made in good faith.

Attachments:

Appendix A TREE INVENTORY DRAWINGS TI-1 to TI-11 (11 pp.) and

TREE INVENTORY TABLES (8 pp.)



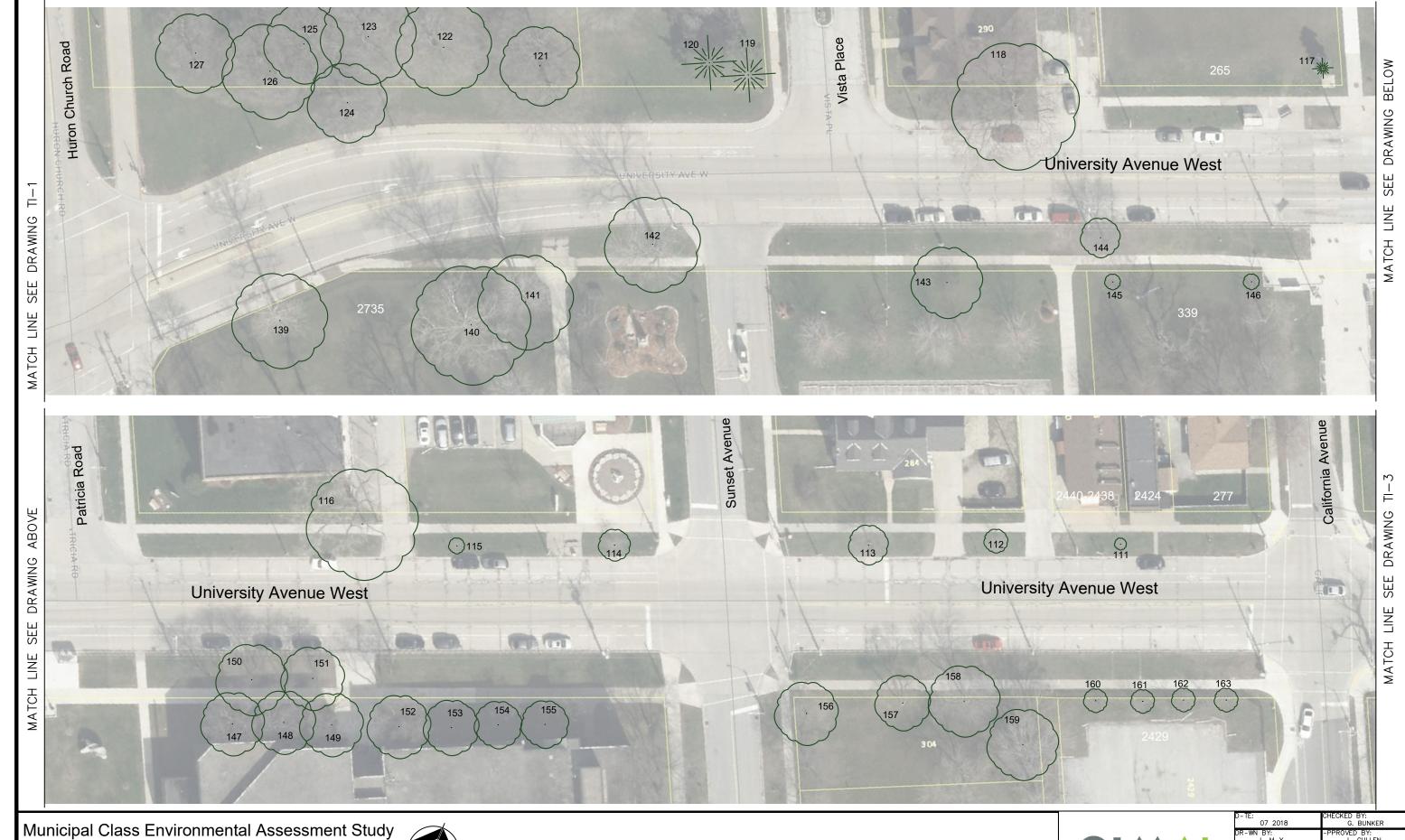
Appendix A

TREE INVENTORY DRAWINGS TI-1 TO TI-11
TREE INVENTORY TABLE





07 2018	CHECKED BY: G. BUNKER
DR-WN BY: L. M-Y	-PPROVED BY: L. CULLEN
SC-LE: 1: 500	
STD No.:	TI-1





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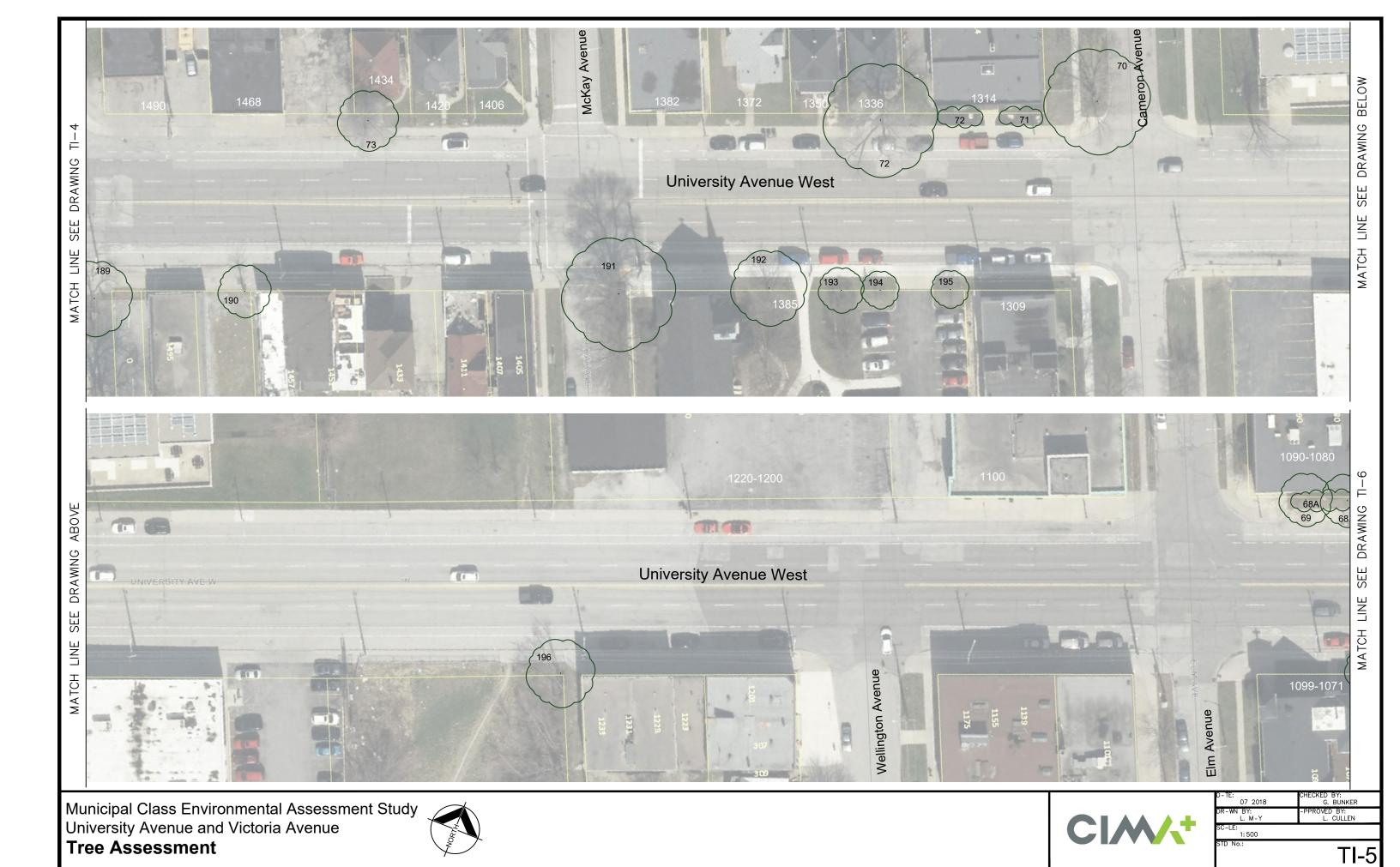


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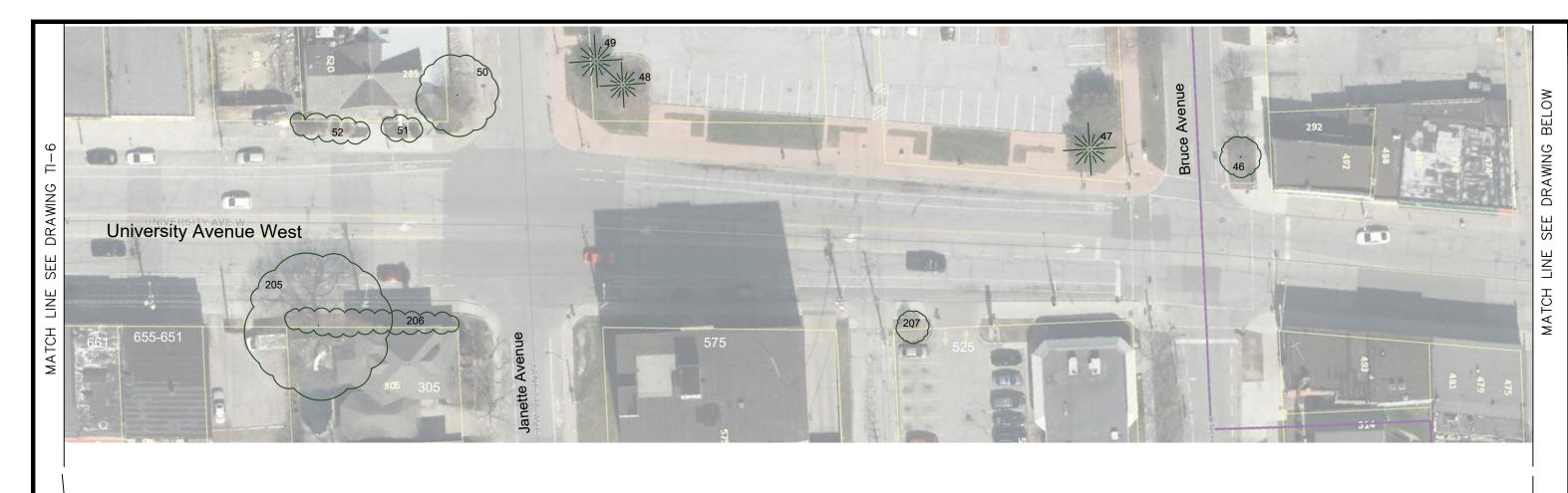






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History

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MATCH LINE SEE DRAWING TI-9

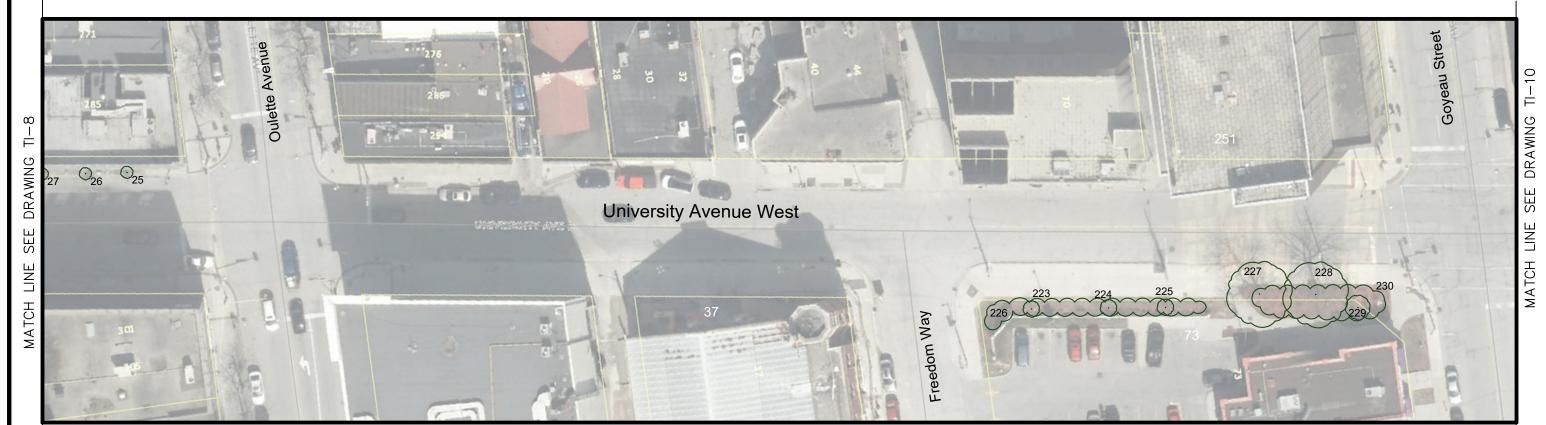


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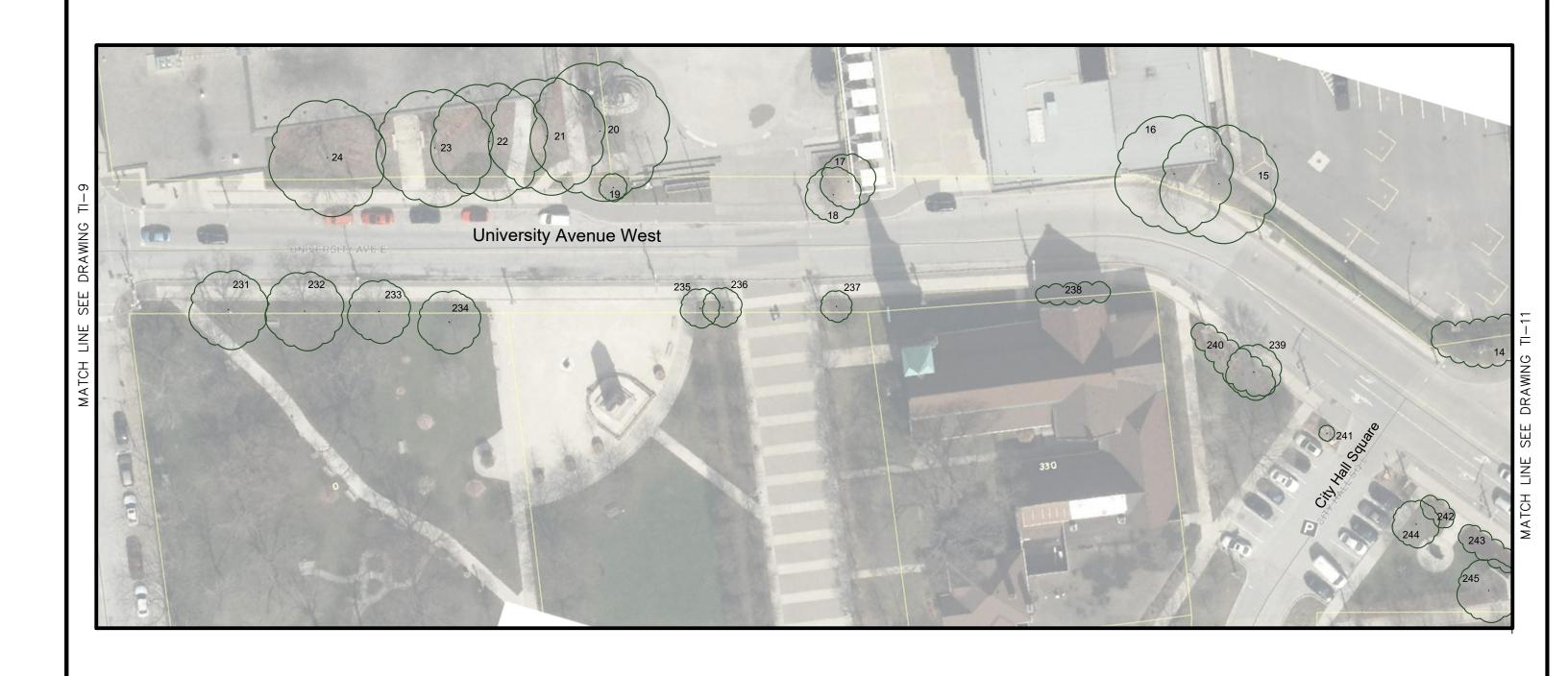
MATCH LINE SEE DRAWING TI-8







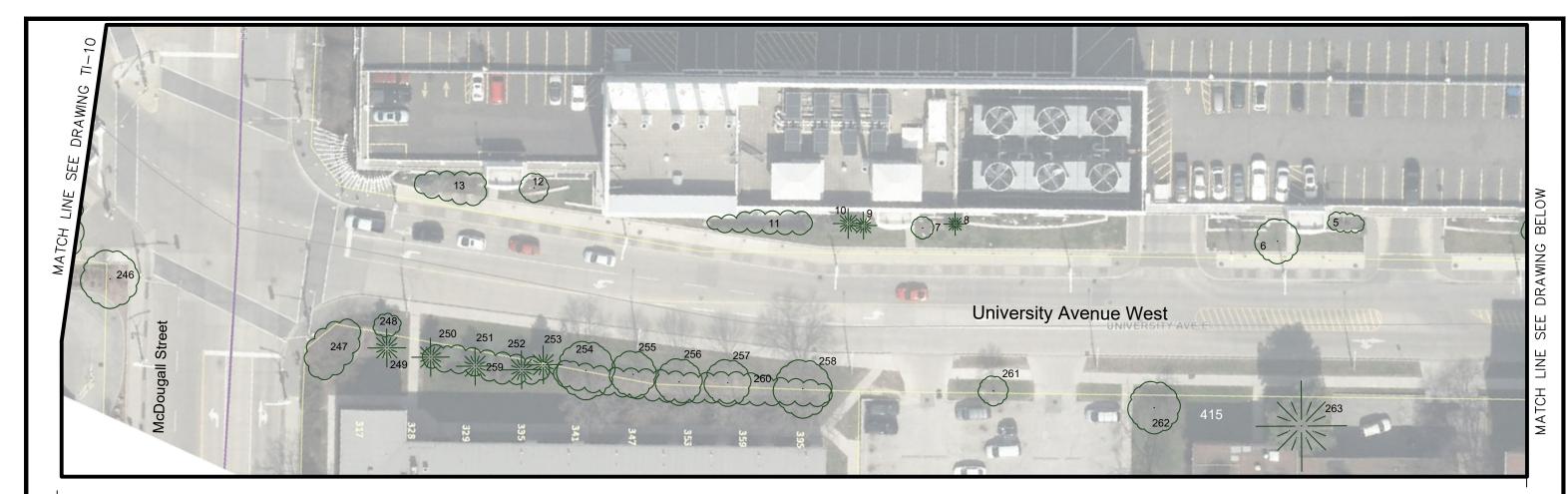
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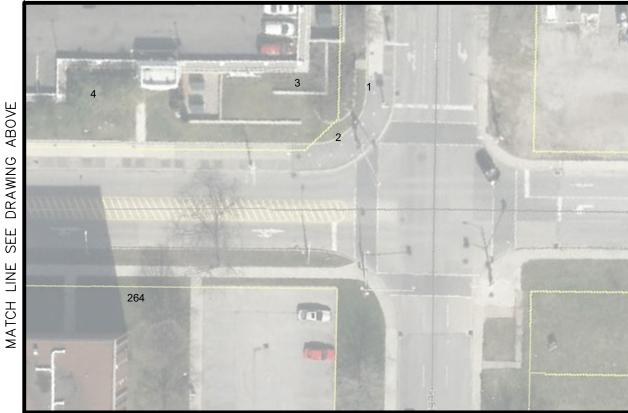




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L. M-Y	L. CULLEN
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Tree	Common	Scientific	DBH	Add'l Stem	Spread	Overall Condition		(se	ee page			efects Report fo		nd)		Comments
#	name	name	(cm) * approx.	DBH (cm) * approx.	(m)	(D), (P), (F), (G), or (E)	GR	COD	NA	INCL	CRB	MBR	DPR	SMD	ADV	
1	Crabapple	Malus sp.	26	NA	6	G		1.5								
2	Crabapple	Malus sp.	24	NA	6	G		1.5								
3	White cedar	Thuja occidentalis	10	NA	1.5	G										Beside retaining wall; part of group of nine behind wall
4	Group		26	12-26	7	G										Nine multistem serviceberries; ten white pine in raised planting bed
5	Group		NA	NA	2	G										7 burning bushes in raised planting bed
	Red oak	Quercus rubra	27	NA	6	_										Chlorotic
7	White fir	Abies concolor	20	NA	3	G										Slight lean east
8	Japanese maple	Acer palmatum	9	NA	3	G		0.3								
	White fir	Abies concolor	22	NA	3.5	G		0.5								Shaded with dieback on lower branches
10	White fir	Abies concolor	20	11	4	G										Crown dieback lowest 2 m
	Group		NA	NA	1	G										24 white cedar hedge 2 m tall
	Japanese lilac	Syringa reticulata	5	5,5	4	G										Multistem
	Group	o),ga realealata	15	NA	3.5											Multistem lilac; Colorado spruce
	Group		13	5-13												7 multistem lilac
	Honey locust - cultivar	Gleditsia triacanthos	50	NA	15			2					X	7		Dripline 2 m over road
	Honey locust - cultivar	Gleditsia triacanthos	41	NA	15			2					,		×	Dripline 4 m over road
	Serviceberry	Amelanchier sp.	7	4-7	6	_										Multistem
	Littleleaf linden	Tilia cordata	18	NA	6							v			V	DBH measured at 1 m height
	Littleleaf linden	Tilia cordata	9	NA NA	Ū	G	Х					^				Some recent pruning
	London planetree	Platanus x acerifolia		NA NA	18		^	2								Some recent pruning
	London planetree	Platanus x acerifolia	61		15									^		Bark damage lower 1 m
	•	•	52	NA												•
	London planetree	Platanus x acerifolia	52	NA	15								V	,		Cavity forming at base
	London planetree	Platanus x acerifolia	52	NA	15								\ \ \			Dripline over sidewalk
	London planetree English oak	Platanus x acerifolia Quercus robur	52	NA 10	15 1.5			0.3								Crown 2 m over road Columnar; bark damage to 2 m height; three 0.3 m wounds; 10%
23	Eligiisii Oak	Quercus robur	15	10	1.3	r-G		0.5						×	•	dieback
26	English oak	Quercus robur	18	8	1.5	G								Х		95% live crown
27	English oak	Quercus robur	11	7, 8	1.5	G										
28	Hackberry	Celtis occidentalis	5	NA	1.5	G										Irrigation bag
29	English oak	Quercus robur	17	NA	1.6	F-G										DBH measured at 1 m height; Christmas lights throughout; 50% dieback
30	Swamp white oak	Quercus bicolor	5	NA	1.5	G										Irrigation bag
	Littleleaf linden	Tilia cordata	5	NA										X		80% dieback; irrigation bag
	Callery pear	Pyrus calleryana	24	NA	7	G		1.2					l x	x x		DBH measured at 1 m height; in raised bed
	Crabapple	Malus sp.	19	NA	7	G		1.6			Х					Recent pruning evident
	Japanese lilac	Syringa reticulata	12		5 to 6	G										Tree form
	Japanese lilac	Syringa reticulata	12		5 to 6	G										Tree form
	Honey locust - cultivar	Gleditsia triacanthos	28		8 to 15	G		2								
	Honey locust - cultivar	Gleditsia triacanthos	24		8 to 15	G		2								
	Honey locust - cultivar	Gleditsia triacanthos	22		8 to 15	G		2								
	Honey locust - cultivar	Gleditsia triacanthos	18		8 to 15	G										

Ггее	ree Common Scien		DBH	Add'l Stem	Spread	Overall Condition		(s	see page	Struct e 4 of Ar				nd)		C
#	name	name	(cm) * approx.	DBH (cm) * approx.	(m)	(D), (P), (F), (G), or (E)	GR	COD	NA	INCL	CRB	MBR	DPR	SMD	ADV	Comments
40	Honey locust - cultivar	Gleditsia triacanthos	33	NA	8 to 15	G		3								
41	Japanese maple	Acer palmatum	7	NA	2 to 3	F-G										Leaf scorch
42	White cedar	Thuja occidentalis	4	NA	1	G										2 m tall
43	White cedar	Thuja occidentalis	4	NA	1	G										
44	Schubert cherry	Prunus virginiana	6.5	NA	1	F-G		base	2							var. 'Schubert'; purple and green reversion
45	White cedar	Thuja occidentalis	4	NA	1	G										
46	Callery pear	Pyrus calleryana	27	NA	8	G		1.3	3						Х	DBH measured at 1 m height; slight lean
47	Austrian pine	Pinus nigra	31	NA	7	G										Sapsucker evidence
48	Austrian pine	Pinus nigra	30	NA	6	F										50% dieback; sapsucker evidence
49	Austrian pine	Pinus nigra	30	NA	7	F										30% dieback; sapsucker evidence
50	Littleleaf linden	Tilia cordata	36	36	10	G		1.4	+							Overhangs sidewalk, green but severely wilted
51	Group		NA	NA	2	G										Globe white cedar, yew, juniper in raised bed
52	Group		3	NA	1	G										Creeping juniper, potentilla, spirea, Japanese maple, 2 junipers
53	Honey locust - cultivar	Gleditsia triacanthos	23	NA	5	G								X		Staghorn effect
	Honey locust - cultivar	Gleditsia triacanthos	22	NA	7	G								Х		
55	Callery pear	Pyrus calleryana	22	5		G	Х									DBH measured at 1 m height
56	Callery pear	Pyrus calleryana	34	NA	7	G		1.2						Х	Х	-
	Callery pear	Pyrus calleryana	30	NA	7	F-G	Х									DBH measured at 1 m height
	Callery pear	Pyrus calleryana	28	NA	8	F-G	Х	0.5	5					X		DBH measured at 0.5 m height; mechanical damage
	Callery pear	Pyrus calleryana	40	NA		F-G		1						Х		DBH measured at 1 m height; mechanical damage
	Austrian pine	Pinus nigra	31	NA	6	F-G										30% dieback
	Schubert cherry	Prunus virginiana	17	NA	5	G										var. 'Schubert'
	, Group		NA	NA	1	G										11 boxwood, 4 yew, 6 columnar cedar, spirea, black-eyed Susans, potentilla
63	Group		NA	NA	1	G										Low shrub-form juniper, yew
	Group		7	NA	1	F-G										4 yew in poor condition, 1 lilac green but wilted
	Group		5	NA	1	F-G										2 yew, low shrub-form juniper, yucca, lilac green but wilted
	Common lilac	Syringa vulgaris	7	NA		P-F										Leaf scorch; green but severely wilted
	Honey locust - cultivar	Gleditsia triacanthos	26	NA				2.5								Lean, overhanging road 2 m
	Group	Greatesta ertaeanenes	NA NA	NA				2.5							,	1 Alberta spruce, 2 m tall, 5 cm DBH; 1 weeping white spruce, 1 m tal
68	Honey locust - cultivar	Gleditsia triacanthos	26	NA	7	G		2	,						х	Lean, overhanging road 2 m
	Group	C. Cartora triacaritinos	NA	NA	1	G										2 yews, 2 creeping junipers, 2 spirea
	Honey locust - cultivar	Gleditsia triacanthos	26	NA NA	7	G		2								Lean, overhanging road 2 m
	Hackberry	Celtis occidentalis	55	NA NA		_		2								250, 575
	Group	Series Secretaritaris	NA	NA NA		G										Japanese maple 1.5 m tall, small euonymus shrubs
	Freeman maple	Acer x freemanii	87	NA NA	15	_										Overhanging to middle of street
	Freeman maple	Acer x freemanii	67	NA NA		G										Overhanging to initiatic of street
	White cedar	Thuja occidentalis	2	NA NA		G										Columnar; adjacent to building
	White cedar	Thuja occidentalis	2	NA NA		G										Columnar; 3 m tall, 1 m wide
			3			G										Columnar Columnar
70	White cedar White cedar	Thuja occidentalis Thuja occidentalis	3	NA NA		G										Columnar

Tree	Common	Scientific	Scientific	DBH	Add'l Stem	Spread	Overall Condition		(se				Defect Report fo		nd)		Comments
#	name	name	(cm) * approx.	DBH (cm) * approx.	(m)	(D), (P), (F), (G), or (E)	GR	COD	NA	INCI	CRB	MBR	DPR	SMD	ADV	Comments	
78	Group		13	10	8	G									Х	Two leaning Tree of heaven	
79	Group		NA	NA	1	G										4 yew, creeping juniper, 2 Schubert cherry shrubs in landscape bed	
80	White cedar	Thuja occidentalis	4	NA	1	G										Corner of picket fence; 1 m wide, 2 m tall	
	Freeman maple	Acer x freemanii	89	NA		G										Wounds with internal decay, structurally sound	
	Group	,	NA	NA	1	G										4 tree-form junipers 2 m tall and 1 m wide	
83	Norway maple	Acer platanoides	30	NA	9	G		3									
	Honey locust - cultivar	Gleditsia triacanthos	43		10											2 m over road	
	Norway maple	Acer platanoides	26		7	F-G								Х		15% dieback	
	Honey locust - cultivar	Gleditsia triacanthos	39		12	G		2						Х	Х	Lean towards road	
	Honey locust - cultivar	Gleditsia triacanthos	30		7	F					Х			Х	Х	Bark damage at base, 20% dieback	
	Horse-chestnut	Aesculus hippocastanun	67	NA	9	G		3								Overhanging street by 2 m	
	Freeman maple	Acer x freemanii	87	NA	13	G								Х		Overhanging street by 2 m	
	·	,														11 1.3 m tall saplings: 2 hickory, 1 sycamore, 1 white oak,	
89A	Group		2	1	0.5	G										1 red oak, 3 hackberry, 3 blue beech	
90	Freeman maple	Acer x freemanii	91	NA	15	G		4								Minor bark damage on lower 2 m, overhanging street by 3 m	
	Freeman maple	Acer x freemanii	87	NA												Minor bark damage on lower 0.2 m, overhanging street by 3m	
	Group	,	NA	NA		G										2 shrubs 3 m wide and 2 m tall	
	Japanese lilac	Syringa reticulata	6	NA	1.5											Tree form	
	White birch	Betula papyrifera	30					0.5	>	x >	(x			Х		15% dieback, lean towards street	
	White birch	Betula papyrifera	27	NA	5	G		2								,	
	Red elm	Ulmus rubra	81	66	18			?								Overhanging street by 2 m	
	Littleleaf linden	Tilia cordata	31	NA	5	G		3								Overhanging street by 1 m	
	Littleleaf linden	Tilia cordata	40		7	G		2						Х		Overhanging street by 3 m	
								_								Some bark decay on street side to 2m	
99	Littleleaf linden	Tilia cordata	38	NA	7	G									Х	Some bark decay on street side 3m	
100	Honey locust - cultivar	Gleditsia triacanthos	65	NA	14	G		4								Overhanging street by 5 m	
	Norway maple	Acer platanoides	24	NA	7	G	x	1.5								overnanging street by 5 m	
	Norway maple	Acer platanoides	31	NA	7	G	X	1.5									
	Norway maple	Acer platanoides	31	NA	7	G	, ,										
	Norway maple	Acer platanoides	37	NA	7	G	Х	2									
	Littleleaf linden	Tilia cordata	8	NA	2.5		, ,	_								Two 0.2 m wounds on lower trunk with woundwood	
	Littleleaf linden	Tilia cordata	8													The oil in heart of the real and the real an	
	Littleleaf linden	Tilia cordata	8	NA NA													
	Littleleaf linden	Tilia cordata	8	NA NA													
	Common lilac	Syringa vulgaris	NA NA	NA NA		G										Multistem; 2 m wide and 2 m tall	
	Sugar maple	Acer saccharum	11	NA NA		G								Х		A few broken branches; leaf scorch	
110	Jugai Illapic	ACET SUCCITUTUITI	11	INA	4	J								^		Significant bark peeling 50% circumference. Staghorn effect. Leader	
111	Red oak	Quercus rubra	8	NA	1.5	F-G								Х		dead.	
112	Red oak	Quercus rubra	10	NA	3	F								Х			
113	Sugar maple	Acer saccharum	23	NA	5	Р								x		90% dieback; split-gill fungus brackets throughout tree, further decli likely	

Tree	Common	Scientific	DBH	Add'l Stem	Spread	Overall Condition		(s	see page			Defec Report		jend)		0
#	name	name	(cm) * approx.	DBH (cm) * approx.	(m)	(D), (P), (F), (G), or (E)	GR	COD	NA	INCL	CRI	ВМВ	R DPI	RSM	D AD	Comments /
114	Red oak	Quercus rubra	17	NA	4	G										Chlorotic; under overhead wires
115	Crabapple	Malus sp.	9	NA	2	G										Chlorotic; under overhead wires
116	Cottonwood	Populus deltoides	89	NA	14	F									х	Broken leader at 6 m height; overhangs street by 1 m; dead fungal conks at base next to asphalt
117	Colorado spruce	Picea pungens	23	NA	3	G										Leader (top 1 m) bending towards road
118	Red elm	Ulmus rubra	82	NA	16	F-G								х		Some wounds with woundwood to 2 m. Overhangs street by 6 m.
119	Austrian pine	Pinus nigra	31	NA	8	G										Sapsucker holes
120	Austrian pine	Pinus nigra	33	NA	8	G										Phototropic towards street; dieback on other side; sapsucker holes
121	Norway maple	Acer platanoides	61	NA	10	G										Overhangs street by 2 m
122	Norway maple	Acer platanoides	61	NA	12	G										Small cavity at ground to 0.5 m height
123	Norway maple	Acer platanoides	59	NA	12	G										Lion tailing from 4-stem crotch
124	Norway maple	Acer platanoides	57	NA	10	G	Х									
125	Norway maple	Acer platanoides	49	NA	10	G										
126	Norway maple	Acer platanoides	76	NA	12	G		2	1							X Frass leading into small cavity at base
127	Norway maple	Acer platanoides	49	NA	10	G		2	-							Buried trunk flare
128	Littleleaf linden	Tilia cordata	35	NA	7	G	x 1.5									x
129	London planetree	Platanus x acerifolia	54	NA	13	G		2	-							Overhangs street by 7 m
130	Tree of heaven	Ailanthus altissimia	60	NA	12	G		5	,							Overhangs street by 1 m; trunk located on private side of chainlink fence
131	Honey locust - cultivar	Gleditsia triacanthos	55	NA	13	G									Х	
132	Norway maple	Acer platanoides	4	NA	1	G										Immediately adjacent to Bell telephone pedestal
133	Hackberry	Celtis occidentalis	6	NA	1	G										Staked; newly planted with no mulch and exposed feeder roots
134	Silver maple	Acer saccharinum	39	NA	8	G		1.5	,							Some adventitious shoots pruned and tied back to tree from sidewalk
135	Norway maple	Acer platanoides	18	14	7	G		0.5	,							
136	Callery pear	Pyrus calleryana	6	NA	1	G`										Staked
137	Callery pear	Pyrus calleryana	6	NA	1	G										Staked
138	Freeman maple	Acer x freemanii	66	NA	12	G		3	;							
139	London planetree	Platanus x acerifolia	70	NA	12	F-G									X	Overhangs street by 3 m just inside fence
140	London planetree	Platanus x acerifolia	75	NA	15	G										Overhangs sidewalk by 1 m
141	Freeman maple	Acer x freemanii	71	NA	12	G										Overhangs street by 3 m
142	Freeman maple	Acer x freemanii	77	NA	12	G		6	į						Х	Overhangs street by 5 m
143	Crabapple	Malus sp.	17	NA	9	G									X	x
144	Honey locust - cultivar	Gleditsia triacanthos	35	NA	5	G		2.5	,							
145	Kentucky coffeetree	Gymnocladus dioicus	8	NA	2	G										
146	European beech	Fagus sylvatica	12	NA	2	G										Weeping form
147	Honey locust - cultivar	Gleditsia triacanthos	43	NA	8	G		4	ŀ							
148	Honey locust - cultivar	Gleditsia triacanthos	41	NA	8	G		3	,							
149	Honey locust - cultivar	Gleditsia triacanthos	34	NA	8	G		3	į							Slight lean over sidewalk
150	Norway maple	Acer platanoides	26	NA	9	F		2	1							

Tree	Common	Scientific	DBH	Add'l Stem	Spread	Overall Condition		(s		Struct le 4 of Ar				nd)		Communita
#	name	name	(cm) * approx.	DBH (cm) * approx.	(m)	(D), (P), (F), (G), or (E)	GR	COD	NA	INCL	CRB	MBR	DPR	SMD	ADV	Comments
151	Norway maple	Acer platanoides	29	NA	8	F		1.8								
152	Honey locust - cultivar	Gleditsia triacanthos	44	NA	8	F-G		3								
153	Catalpa	Catalpa speciosa	18	NA	7	G										Slight lean toward sidewalk
154	Catalpa	Catalpa speciosa	23	NA	6	P-F										70% dieback; bark beginning to peel
155	Catalpa	Catalpa speciosa	33	NA	6	P-F		1.5								70% dieback; bark beginning to peel. Black fungus on bark
156	Norway maple	Acer platanoides	26	NA	8	G	Χ									
157	Crabapple	Malus sp.	32	22, 26	7	F		1					Х		Χ	40% dieback; poor structure; woundwood
158	Silver maple	Acer saccharinum	32	28, 28	9	F-G		1			Х					Pruning evident; heavy chain included in crotch of tree
159	White mulberry	Morus alba	35	NA	9	G										Overhang sidewalk by 2 m
160	Red oak	Quercus rubra	12	NA	3	G										
161	Red oak	Quercus rubra	14	NA	3	G		2								
162	Red oak	Quercus rubra	20	NA	3	P-F										60% dieback; chlorotic
163	Red oak	Quercus rubra	18	NA	3	F										Chlorotic
164	Cottonwood	Populus deltoides	65	NA	8	G										Overhang street by 2 m; lion tailing; grown clear of overhead wires
165	Cottonwood	Populus deltoides	85	NA	10	G		3								Overhang street by 2 m; lion tailing; grown clear of overhead wires
166	Littleleaf linden	Tilia cordata	15	NA	6	G		1.3								DBH measured at 1 m height
167	Littleleaf linden	Tilia cordata	15	NA	6	G		3								_
168	English oak	Quercus robur	35	NA	8	G										Overhangs sidewalk by 1 m
	Catalpa	Catalpa speciosa	33	30	8	G		base								Overhangs sidewalk by 2 m
	Honey locust - cultivar	Gleditsia triacanthos	8	NA	4	G										Trunk buried in 0.3 m of mulch
	Littleleaf linden	Tilia cordata	8	NA		G									Х	Trunk buried in 0.3 m of mulch
172	Honey locust - cultivar	Gleditsia triacanthos	8	NA		G								Х		Trunk buried in 0.3 m of mulch
	Silver maple	Acer saccharinum	54	NA		F										Overhangs sidewalk by 2 m; many surface roots; 40% dieback; bark damage at 1 m height in 2 areas
174	Norway maple	Acer platanoides	24	NA	8	G	Х									Overhangs street by 2 m
	Crabapple	Malus sp.	26	21		F-G		1						х	Х	20% dieback
	Sugar maple	Acer saccharum	15	NA		F		_							, ,	20% dieback
	Freeman maple	Acer x freemanii	93	NA		G		6								
	Honey locust - cultivar	Gleditsia triacanthos	56	NA				2						х	Х	Pruned to avoid overhead wires; overhangs street by 4 m at 3 m heigh
179	Honey locust - cultivar	Gleditsia triacanthos	57	NA	13	F-G		3							Х	Pruned similar to Tree 178; overhangs street by 5 m at 3 m height
180	Honey locust - cultivar	Gleditsia triacanthos	59	NA	13	F-G		3							Х	Pruned similar to Tree 178; no street overhang
	Group		NA	NA		G										2 shrubs 1 m wide and 1 m tall
	Silver maple	Acer saccharinum	98	NA		G										Overhangs street by 1 m
	Common lilac	Syringa vulgaris	NA	NA		G										3 m wide and 2 m tall
	Freeman maple	Acer x freemanii	94	NA		G								Х	Х	Chain included into tree at 1 m height
	Yew	Taxus sp.	20	17, 18		G										Multistem; on property line; 1 m overhang over sidewalk
	Japanese Maple	Acer palmatum	16	15		G		0.2						Х		On property line; 1 m overhang over sidewalk
	Honey locust - cultivar	Gleditsia triacanthos	31	NA												, , , , , , , , , , , , , , , , , , , ,

Tree	Common	Scientific	DBH	Add'l Stem	Spread	Overall Condition		(s	see page			Defect Report f		nd)		Q a manus mate
#	name	name	(cm) * approx.	DBH (cm) * approx.	(m)	(D), (P), (F), (G), or (E)	GR	COD	NA	INCL	CRB	MBR	DPR	SMD	ADV	Comments
188	Crabapple	Malus sp.	8	NA	2	F		1.5								30% dieback
189	Honey locust - cultivar	Gleditsia triacanthos	39	NA	10	G									Х	Overhangs sidewalk by 2 m; pruned for overhead wires
190	Tree of heaven	Ailanthus altissimia	41	24	7	G		base							Х	Small co-dominant stem broken at 2 m height
191	Red elm	Ulmus rubra	84	NA	15	G		2							Х	
192	Norway maple	Acer platanoides	35	NA	10	G										var. 'Crimson King'
193	Japanese lilac	Syringa reticulata	22	NA	6	G										Tree form
194	Magnolia	Magnolia sp.	13	8	5	G										Multistem; crown raised to 2 m
195	Magnolia	Magnolia sp.	13	10, 11	35	G										Multistem; crown raised to 2 m
196	Red Elm	Ulmus rubra	28	NA	9	G									Χ	Lean towards road
197	Red cedar	Juniperus virginiana	37	NA	7	G										Canopy reaches sidewalk
198	Catalpa	Catalpa speciosa	75	NA	11	G		2.5	,						Х	
	Group		9	< 10	< 2	G										3 juniper; 2 euonymus; 1 spirea l; 1 Mugho pine; 1 white cedar; 1 multistem white mulberry
200	Group		18	13	4	G		0.5								1 Japanese maple; 1 smokebush; 5 holly; 2 boxwood; 2 spirea; 1 burnir bush; 1 nest spruce
201	Group		NA	NA	1	G										3 Alberta spruce 1 m wide and 1.5 m tall
202	Catalpa	Catalpa speciosa	96	NA	11	G		2								Lean over side street, with 3m clearance
203	Callery pear	Pyrus calleryana	34	30	8	F-G		base								Some decay in crotch; woundwood @ 1m; growing through OH wires
204	Norway maple	Acer platanoides	32	NA	10	G		2								
205	Norway maple	Acer platanoides	75	NA	18	G										Overhangs street by 4 m
206	Group		NA	NA	1	G										Japanese barberry; potentilla; 3 euonymus; 1 Alberta spruce; 3 boxwood; 1 burning bush; 1 hydrangea; 1 short white cedar cultivar
207	White mulberry	Morus alba	25	NA	4	G		1.5	,							Weeping; seams in trunk to 1m height
	Group		NA	NA	1-2											4 junipers; 1 boxwood; 2 white cedars
	Norway maple	Acer platanoides	18	NA												var. 'Crimson King'; 40% dieback
	Norway maple	Acer platanoides	19	NA		G	Х									var. 'Crimson King'
	Norway maple	Acer platanoides	22	NA		G	х									var. 'Crimson King'; woundwood lower scaffold branches
	Littleleaf linden	Tilia cordata	38	NA	10										Х	0 , 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	Littleleaf linden	Tilia cordata	36	NA	10											Overhangs street at 2 m height
	Littleleaf linden	Tilia cordata	35	NA	10											Overhangs street at 2 m height
	Group		26	15, 18												White cedar specimen (1.5 m wide and 1.5 m tall), euonymus (3 m wide and 1.5 m tall), 2 globe cedar (2 m wide and 1 m tall), cedar (1.5 m wide and 2 m tall)
216	Group	Ailanthus altissimia	28	15-28	10	G										4 tree of heaven: 3 have 1 or 2 stems, 1 has 3 stems
	English oak	Quercus robur	16	NA	2	F-G								Х		20% dieback, Christmas lights throughout crown
	English oak	Quercus robur	12	11	2	F-G										15% dieback, Christmas lights throughout crown
	English oak	Quercus robur	22	NA	3	G										Christmas lights throughout crown
	Red oak	Quercus rubra	5	NA		D										Irrigation bag present
	Hackberry	Celtis occidentalis	5	NA		Р										Irrigation bag present
	Honey locust - cultivar	Gleditsia triacanthos	6	NA		G										Irrigation bag present

Tree #	Common name	Scientific name	DBH (cm) * approx.	Add'I Stem DBH (cm) * approx.	Spread (m)	Overall Condition (D), (P), (F), (G), or (E)	Structural Defects (see page 4 of Arborist Report for Legend)									Comments
							GR	COD	NA	INCL	CRB	MBR	DPR	SMD	ADV	Comments
223	Eastern redbud	Cercis canadensis	10	NA	2	G										DBH measured at 1 m height
224	Eastern redbud	Cercis canadensis	9	NA	2	G										
225	Eastern redbud	Cercis canadensis	11	NA	2	G									Х	Girdled by staking wire left installed around tree
226	Group	Euonymus alatus, Spired	NA	NA	1	G										1 burning bush, 28 spirea
227	Honey locust - cultivar	Gleditsia triacanthos	39	NA	8	G		2			Х					
228	Honey locust - cultivar	Gleditsia triacanthos	45	NA	8	F-G		2								10% dieback
229	European beech	Fagus sylvatica	10	NA	3	G										Columnar
230	Group		NA	NA	1	G										11 spirea, 22 potentilla
231	Norway maple	Acer platanoides	41	NA	10	F-G	Х									Dead leader, 10% dieback
232	Norway maple	Acer platanoides	41	NA	10	G	Х									
233	Norway maple	Acer platanoides	24	NA	8	G		2								
	Honey locust - cultivar	Gleditsia triacanthos	19	NA	8			2								
	Callery pear	Pyrus calleryana	20		5	G		2								
	Callery pear	Pyrus calleryana	20		5	G		1.8								
	Callery pear	Pyrus calleryana	17		4	G										
	Group	Amelanchier laevis	NA	NA	3	G										4 multistem serviceberry 3 m tall and 3 m wide
	Callery pear	Pyrus calleryana	37	NA	7	G		1.8	x	x		x				
	Group	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	NA	NA	1	G										66 spirea, 10 burning bush all in 1 m tall planter
	Norway maple	Acer platanoides	10		2	G										and the same of the same of the same products
	Group	Euonymus alatus	NA		1.5											2 burning bush 1.5 m tall
	Group	Spirea sp.	NA	NA	1	G										1 m tall shrubs
	Callery pear	Pyrus calleryana	20		6	G										Tim tall sill ass
	Red maple	Acer rubrum	16		8											Chlorotic; seam from base to 1.5 m with woundwood
	Littleleaf linden	Tilia cordata	15		7	G				x	x					6 yews; spirea
	Group	Tina coraata	12	8-12	,	G				^						5 crabapples with base planting of 50% yews, 50% rose
	Group	Euonymus alatus	NA		2	G										5 burning bush
	White spruce	Picea glauca	17		1	G										S burning busin
	White spruce	Picea glauca			4	G										
	· ·	-	17		4 -											
	Colorado spruce	Picea pungens	17	NA NA	5	G										Loon to cost
	Colorado spruce	Picea pungens	17	NA NA	5	G G										Lean to east
	Colorado spruce	Picea pungens	17	NA NA	13	_									V	Lean to east
	Littleleaf linden	Tilia cordata	54		12		V	4							Х	
	Norway maple	Acer platanoides	29	NA NA	10		X	2								
	Norway maple	Acer platanoides	31		10		Х	2								
	Norway maple	Acer platanoides	27	NA	10											
	Honey locust - cultivar	Gleditsia triacanthos	56		12			2						Х		
	Burning bush	Euonymus alatus	NA		2	G										Hedge under Trees 250-254; 1.5 m tall
	Group		NA		1	G										Currant hedge and burning bush ending at Tree 258
	Littleleaf linden	Tilia cordata	23		4	F-G		2	Х	Х						Rotting heartwood up to 1 m height
	Crabapple	Malus sp.	25		7	G		2						Χ	Χ	
	Austrian pine	Pinus nigra	49		12											Sapsucker holes
264	Honey locust - cultivar	Gleditsia triacanthos	47	NA	12	G		3								15% dieback, slight lean to south

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