



*A Division of The Davey Tree Expert Company*

# Street and Park Tree Inventory

## Municipality of Middlesex Centre

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**Prepared for:**

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## **Introduction**

The Davey Resource Group (DRG) was contracted by the Municipality of Middlesex Centre to collect and update their inventory of the municipal trees. This report outlines metrics of an inventory collected across the municipality limits within the spring and summer of 2023. The data will serve as a valuable reference for planning, management, and maintenance of the municipality's urban forest.

The Municipality of Middlesex Centre is located within southwestern Ontario, encompassing the former townships of Delaware, Lobo and London. It is part of the London census metropolitan area. With a population of over 18,928 residents and suburban expansion throughout the municipality, having an up-to-date inventory of assets such as street trees are important for environmental and climate change planning. Collection and maintenance of a tree inventory allows for the maintenance of trees, coordination of tree planting programs, and rapid targeted response to disturbances such as tree pests and extreme weather events.

Utilizing Geographic Information Systems (GIS) provided by the municipality to DRG, arborists surveyed the designated right-of-way within the urban areas and rural areas, as well as some parks. Data attributes describing each tree's species, location, size, condition, maintenance recommendations, the presence of pests or disease, conservation status, and life expectancy were collected by the arborists and recorded into the inventory. By collecting and updating existing information on the municipalities trees, DRG was able to provide a valuable snapshot of the current health and maintenance needs of the municipalities urban forest. Detailed information about the specifications of the inventory, as well as metrics of the final dataset are described within this report.

## Methodology

- The inventory was collected during the spring and summer of 2023, throughout the months of May through to September.
- The inventory's coverage includes both rural and urban areas within the municipal limits of Middlesex Centre. All streets within developed areas, including some outlying roads were surveyed. Some parks were included in the inventory, insofar as the project allowed.
- Arborists utilized the ArcGIS Collector app on GPS-enabled iOS devices to perform data collection.
- "Street Trees" were collected within the municipal-owned rights-of-way, as well as some selected parks and municipal properties, as chosen by the client.
- Locations of trees were placed within the GIS program utilizing GPS data and aerial imagery for reference. Addressing information was collected by referencing parcel shapefile data, along with attributes describing the tree's location in relation to the nearest parcel (Front, Side, Rear, Across). Park trees were identified as "Park" to denote existing trees within the parcel of a municipal-owned park.
- The size of each tree was collected by measuring the Diameter at Breast Height (DBH, 1.3 m above ground) in centimeters, along with the diameter of the tree's crown radius in meters.
- For trees with multiple stems at breast height, the number of stems was recorded, and the diameter of the largest stem was recorded as the dbh value. This method was used for trees that have clearly identifiable multiple leaders with unions below 1.3 m. For trees that branch out just below 1.3 m, but otherwise have a single trunk, the diameter measurement was taken of the trunk below 1.3 m, and the "observations" field of the data point included the note "DBH taken below 1.3 m". These methods of measuring size for multi-stemmed trees were used at the discretion of the arborist.
- Health and Structure condition of each tree was assessed on a scale of Good-Fair-Poor-Dead.
- Maintenance recommendations were provided to each tree, and arboricultural services were recommended based on the assessment of the tree. Priority ratings were given to tree removals based on the size and risk posed by the tree requiring removal.
- Life remaining is an estimate of the trees remaining lifespan based on the structural and overall health condition of the tree.
- After completion of inventory data collection, quality control checks were undertaken by re-assessing at least 5% of the field data. Gaps in the dataset from missing entries were filled in through re-assessment of deficient data points in the field.

## Summary of Findings

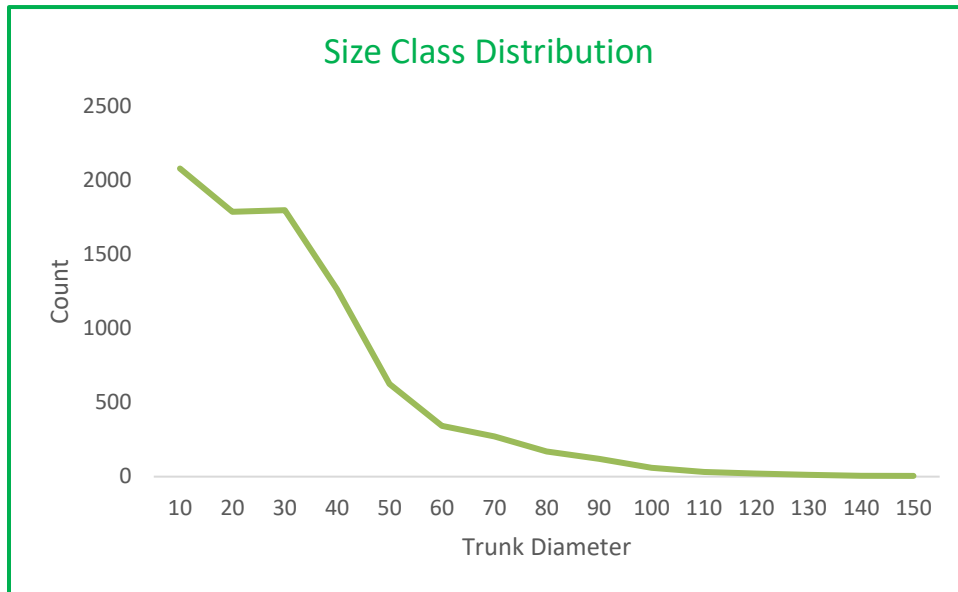
The final metrics from the tree inventory are listed within this section:

Tree Status	Count
Total Active	<b>8587</b>

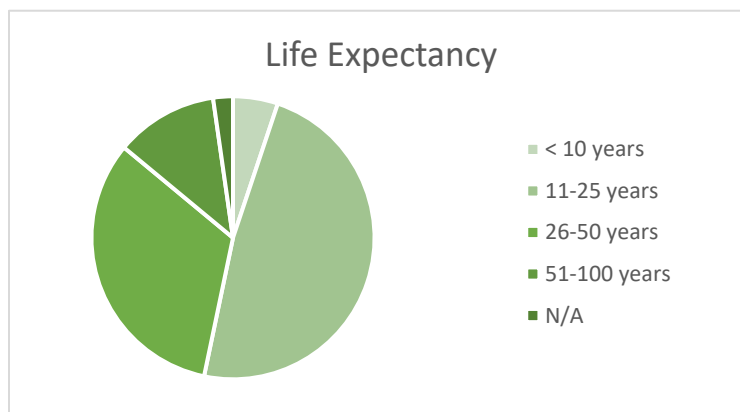
Location Type	Count
Rural Roads	<b>1164</b>
Urban Limits	<b>7423</b>
<b>Total</b>	<b>8587</b>

Health Condition	Count
Good	<b>7330</b>
Fair	<b>932</b>
Poor	<b>132</b>
Dead	<b>193</b>
<b>Total</b>	<b>8587</b>

DBH (cm)	Count
<b>1-10</b>	2078
<b>11-20</b>	1786
<b>21-30</b>	1796
<b>31-40</b>	1263
<b>41-50</b>	626
<b>51-60</b>	342
<b>61-70cm</b>	271
<b>71-80cm</b>	170
<b>81-90cm</b>	120
<b>91-100cm</b>	60
<b>101-110cm</b>	31
<b>111-120cm</b>	20
<b>121-130cm</b>	13
<b>131cm-140cm</b>	6
<b>140cm+</b>	5



Life Expectancy	Count
< 10 years	<b>440</b>
11-25 years	<b>4135</b>
26-50 years	<b>2811</b>
51-100 years	<b>1007</b>
N/A (Dead)	<b>194</b>
<b>Total</b>	<b>8587</b>



Rank	Species (20 most common)	Count
1	Black Walnut ( <i>Juglans Nigra</i> )	649
2	Sugar Maple ( <i>Acer saccharum</i> )	639
3	White Spruce ( <i>Picea glauca</i> )	582
4	Norway Maple ( <i>Acer platanoides</i> )	548
5	Norway Spruce ( <i>Picea abies</i> )	503
6	Silver Maple ( <i>Acer saccharinum</i> )	500
7	Freeman Maple ( <i>Acer x Freemanii</i> )	455
8	Littleleaf Linden ( <i>Tilia cordata</i> )	388
9	Colorado Spruce ( <i>Picea pungens</i> )	356
10	Eastern White Cedar ( <i>Thuja occidentalis</i> )	297
11	Red Maple ( <i>Acer rubrum</i> )	282
12	White Pine ( <i>Pinus strobus</i> )	242
13	Honey Locust ( <i>Gleditsia triacanthos</i> )	203
14	London Plane ( <i>Platanus x acerifolia</i> )	192
15	Cedar species ( <i>Thuja spp</i> )	173
16	Red Oak ( <i>Quercus rubra</i> )	168
17	Hackberry ( <i>Celtis occidentalis</i> )	153
18	Scotch Pine ( <i>Pinus sylvestris</i> )	143
19	Black Locust ( <i>Robinia pseudoacatia</i> )	128
20	Sugar Hackberry ( <i>Celtis laevigata</i> )	127

**126 Total Species were collected in the inventory.**

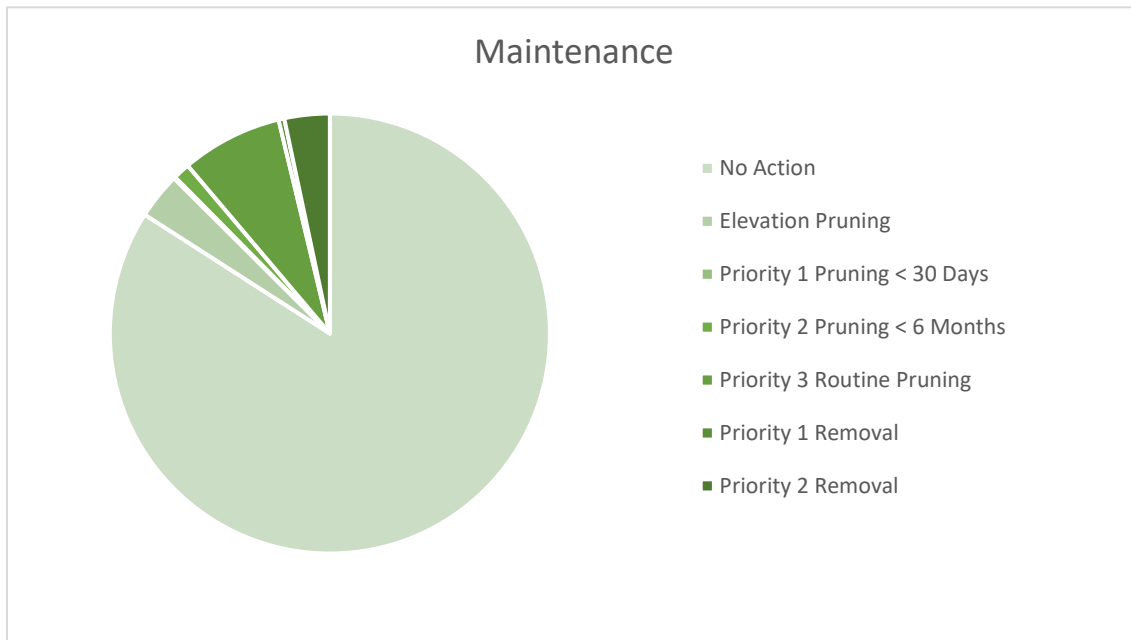
### Urban Trees and Climate Change

The value of Urban Tree’s to the well-being of a municipality increases with canopy coverage. The environmental benefits that come with mature trees and large canopies manifest with the increased shade relief that can counteract “heat islands” that are exacerbated by increasing summertime temperature extremes. To achieve increased canopy coverage and conservation of mature trees in the face of the increased expectancy of extreme weather; a thorough monitoring and pruning regime must be pursued to ensure the structural integrity and health of the urban canopy is maintained. The results of well-maintained urban forests are established to be climate stability, increased mental health, lower crime rates, increased property values and generally a greater well-being for the community.

Estimated Worth	Tree Count
\$101,836,526.03	8587

TreeKeeper’s plant appraisal tool is based estimated replacement costs. The methodology relies on the Trunk Formula Technique as described in the Guide for Plant Appraisal, 10th Edition (CTLA, 2018)

All Trees	
Primary Maintenance Recommendation	Count
No Action	7221
Elevation Pruning	291
Priority 1 Pruning < 30 Days	10
Priority 2 Pruning < 6 Months	106
Priority 3 Routine Pruning	638
Priority 1 Removal (Higher)	36
Priority 2 Removal (Lower)	285
<b>Total</b>	<b>8587</b>





Urban Trees (Streets, Parks, and Municipal Properties)	
Primary Maintenance Recommendation	Count
No Action	<b>6232</b>
Elevation Pruning	<b>255</b>
Priority 1 Pruning < 30 Days	<b>6</b>
Priority 2 Pruning < 6 Months	<b>88</b>
Priority 3 Routine Pruning	<b>591</b>
Priority 1 Removal (Higher)	<b>33</b>
Priority 2 Removal (Lower)	<b>218</b>
Total	<b>7423</b>

Rural Road Trees	
Primary Maintenance Recommendation	Count
No Action	<b>989</b>
Elevation Pruning	<b>36</b>
Priority 1 Pruning < 30 Days	<b>4</b>
Priority 2 Pruning < 6 Months	<b>18</b>
Priority 3 Routine Pruning	<b>47</b>
Priority 1 Removal (Higher)	<b>3</b>
Priority 2 Removal (Lower)	<b>67</b>
Total	<b>1164</b>



Site	Potential Heritage Trees	DBH
2755	Red Oak	165
2794	English Oak	165
3959	Cottonwood Poplar	140
2612	Cottonwood Poplar	137
278	Silver Maple	134
7981	White Elm	123
3716	Freeman Maple	122
2810	English Oak	117
5266	Black Walnut	116
5255	Black Walnut	115
3302	Black Walnut	110
3003	Norway Spruce	107
4108	Scotch Pine	102
1215	Shagbark Hickory	97
2979	White Oak	95
1572	Black Oak	92
4355	Black Walnut	90
4884	Black Walnut	90
5285	Native Hackberry	87
7982	London Plane	87

Heritage tree designation is based on the criteria outlined in the Middlesex Tree Policy (2023) and Forests Ontario Heritage tree guidelines. This list is intended to identify potential candidates and is non-exhaustive. Follow-up in field investigation is required to determine suitable characteristics.