DAVEY RESOURCE GROUP

A Division of The Davey Tree Expert Company

Oakbank Street Tree Inventory

Regional Municipality of Springfield, Manitoba

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Prepared for:

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Summary

The Davey Resource Group (DRG) was contracted by Nomar Yorobe, on behalf of the regional municipality of Springfield, to perform an initial collection of their street tree inventory, in order to provide an accurate assessment of the health and structural condition of municipally-owned trees, and to recommend maintenance actions to correct for defects, prune young trees for proper form, and remove trees that are in decline. The purpose of this report is to outline the metrics of the street and park tree data that was collected. This data is represented through the inventory data and comprises only municipally controlled assets within their properties and rights-of-way. Additional canopy cover and environmental benefits afforded by trees were not captured in this assessment, but such information could be obtained in the future through an aerial imagery analysis and land cover calculation to determine overall tree canopy coverage and ecosystem services. We hope this report will serve as a valuable reference for planning and measuring growth of Springfield's urban forest.

Background

The town of Oakbank is situated roughly 15km east of Winnipeg and is a medium-sized bedroom community surrounded by farmland on all sides. Owing to its location conveniently close to a big city, Oakbank boasts a growing population of 5,041 people which is increasing at a rate of around 2% per year. This rapid growth is likely to place stresses on the natural environment, by increasing the overall presence of impermeable surfaces, buildings, and other forms of urban landscape within Oakbank. This will result in impacts to the existing tree population, from upgrades to infrastructure causing direct injury and removal, to an increasing urban heat island effect causing greater water loss from plants through increased evapotranspiration. These impacts can be mitigated through proactive maintenance, growth, and preservation of the urban forest.

Oakbank's urban forest is found within the Lake Winnipeg Plains Ecoregion of the Prairie Ecozone. Its surrounding native forest ecosystem is dominated by a mixture of deciduous and coniferous tree species, though the presence of such forests is far sparser compared to cooler and wetter regions to the north. Located in a hardiness zone 3, the town experiences a humid continental climate, albeit with extremely cold winters owing to its inland location and flat geography allowing arctic airmasses to dominate winter weather. The average temperature of around 3°C contrasts between summer means of 19°C and winter averages around -17°C. Annual precipitation of 510mm places Oakbank just above the range of a semi-arid climate. This unique climate leads to ecosystems dominated by prairie grasses and herbaceous plants with scattered mixed woodlands and its cooler temperatures limit the growing season to only a few months per year. Nonetheless, fertile agricultural land and gentle topography contributed greatly to the area's early settlement and growth and continues to support a robust rural economy.

With very cold winters, and relatively mild summers, along with limited rainfall, the number of species of trees which naturally grow within and around Oakbank is rather limited. Hardwood species with deep root systems and fast growth habits such as Manitoba Maple, Willow, American

Elm, and Ash are found growing in bottomlands near rivers while uplands and prairies are dotted with woodlands consisting of Birch and various Poplar species as well as White Spruce, Tamarack, and Balsam Fir. These species are well adapted to withstanding dry summer conditions and cold wet winters, though the short growing season and limited rainfall means most forest canopies top out at around 12-15 meters in height. Other understory or smaller growing species native to the area include various Plum and Chokecherry species in the Prunus genus, as well as shorter willows such as Bebb's Willow, along with Serviceberry, and Viburnum.

It is of interest of the municipality and its residents to maintain and increase the existing canopy coverage within the urban boundaries of Oakbank. A healthy urban forest provides countless benefits to the city including improved air quality, storm water retention, erosion control, reduced energy costs, and animal habitats. It is important to establish a baseline understanding of the current extent and maintenance requirements of the town's trees as well, to provide for proper budget allocation, contract cost estimates, and prompt response to resident complaints. This information is also useful for tracking the changes in urban canopy cover, so that targeted planting programs can be undertaken to fill in gaps and ensure growth in the overall urban forest. Environment Canada has established a guideline of 30 percent minimum forest coverage in the urban area to achieve a healthy ecological state and obtain net positive environmental effects from the urban forest. This target also aims to gain sustainable savings from stormwater retention, carbon sequestration, and heating/cooling abatements from the moderating effects of tree cover to offset the costs in planting and maintaining the urban forest. Future studies would be required to gain an understanding of Oakbank's current canopy cover, but collecting an accurate assessment of municipal trees is the first step towards growing its urban forest.

Tree Inventory

To better understand the current state of the Urban Forest as it is currently maintained by Oakbank staff, the regional municipality engaged DRG to collect and provide a limited inventory, focusing on collecting up to a specific amount of trees, 2,000 in total, in high priority areas owing to considerations for budget constraints. An up-to-date inventory of municipally owned trees provides valuable insight for managing an urban forest within a selected area. The primary function of a tree inventory is to provide maintenance recommendations to assist the municipality in scheduling pruning, removal, planting, risk mitigation, and pest management. Performing regular inventories over cyclical periods benefits the municipality by providing a more comprehensive view of the urban forest which enables the city to better map and monitor canopy cover change. Tracking these changes and identifying trends in the urban forest assists in better understanding district-specific metrics, concentrations of pests and pathogens, age class distributions, and areas that lack tree coverage.

The inventory dataset for the town of Oakbank provides descriptive information such as tree location, diameter, health, condition, and recommendations for future maintenance based on observed defects and risk posed to the public. Trees found within Oakbank's urban boundaries that

are growing on city managed property have been assessed and assigned maintenance recommendations on a tree-by-tree basis. These recommendations allow the city to make informed decisions in the planning of tree planting, pruning, tree health care, emergency response, and risk management.

Ultimately, a complete and detailed inventory should provide the necessary information to better organize the maintenance and management of trees. The information collected can allow for rapid response to new pests or stressors such as Emerald Ash Borer, as well as track and map the spread of such issues and forecast patterns of decline. Additionally, this data assists in planning for and budgeting maintenance schedules and removals. Inventories become especially useful in facilitating communication with property owners and can serve as a community outreach and collaboration tool. With the knowledge to implement strategies, monitor metrics, and adjust policy, municipalities may find more success in serving their urban forestry management goals.

Scope of Assignment and Methodology

The Regional Municipality of Springfield partnered with Davey Resource Group in 2025 to assess its inventory of street and park trees within the town of Oakbank. A budget of 2,000 sites was set, wherein all existing tree points in target areas would be assessed. Every tree and stump located on parks, municipal properties, and rights-of-way was inspected and mapped in a GIS dataset. This includes all trees growing in areas actively maintained by the municipality, but excludes most wild, natural area trees, as well as outlying roads, rural roads, and some streets that have very few or no trees within their boulevards. Only natural area trees growing along trails or those that posed a potential hazard were included in the inventory. Below is an outline of our inventory methodology:

- The inventory was collected during August of 2025 by ISA Certified Arborist Jaclyn Cullen (ISA #ON-2867A)
- The inventory's coverage includes the entire urban boundary limits of Oakbank. All parks and municipal properties were included in the inventory, as per the client's requests. Back lanes, city woodlots, and stormwater management areas were not included in the scope of the inventory. Some streets on the outskirts of the town, as well as those with few to no trees in their boulevards, were not collected so as to make the best use of the 2,000 site limit.
- Arborists utilized ESRI Field Maps running ArcGIS software to perform data collection. Data was compiled and uploaded in ESRI shapefile format for final delivery.
- "Street Trees" were collected within the city-owned rights-of-way, as well as some selected parks and municipal properties, as chosen by the client. Trees on property boundaries were only collected if it appeared that the majority of their trunk was within the municipal right-of-way. Otherwise, trees were ignored if they would potentially be surveyed as privately-owned.
- The size of each tree was collected by measuring the Diameter at Breast Height (DBH) in centimeters, along with the radius of the tree's crown branches in meters. Multi-stemmed trees were recorded with the largest stem size recorded and additional stems included in notes provided for each tree in the dataset.
- Health and Structure condition of each tree was assessed on a scale of Excellent-Good-Fair-Poor-Dead. Dead standing trunks that were above 1 foot in height and thus not a stump were

collected as a "Peg". For the purpose of analyzing this data in the metrics provided in this report, these condition scores have been calculated as such:

Excellent: 80-100%	Good: 60-80%	Fair: 40-60%	Poor: 20-40%	Dead/Dying: 0-20%

- Maintenance recommendations were provided to each tree arboricultural services required based on the assessment. Priority ratings were given to tree removals based on the size and risk posed by the tree requiring removal.
- After completion of inventory data collection, quality control checks were undertaken by re-assessing at least 2% 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 Inventory Data

A total of 2,000 total points were collected, reaching the limit set by the municipality through its agreement with DRG.

Below and on the following page are a series of tables breaking down the metrics of the existing tree inventory collected by DRG:

Condition	Total: 2000
1: Excellent (80-100%)	**770**
2: Good (60-80%)	**956**
3: Fair (40-60%)	**223**
4: Poor (20-40%	**18**
5: Dead/Dying (0-20%)	**20**
6: Peg (Tall Stump)	**2**
7: Stump	**11**

DBH	Total: 6172
1-10cm	**629**
11-20cm	**537**
21-30cm	**463**
31-40cm	**256**
41-50cm	**94**
51-60cm	**12**
61-70cm	**9**
71cm+	**0**

Recommended Maintenance	
No Action	**1856**
Young Tree Pruning	**55**
Removal	**36**
Monitor for Disease/Decline	**21**
Crown Pruning	**19**
Stump Grinding	**11**
High Priority Removal	**2**
High Priority #1: 31cm White Spruce, 1016 Almey Ave (E side of West Baseball Diamond)	
High Priority #2: 66cm Cottonwood, Behind 55 Pecan Bay, along Main St	

Tree Species (20 most common)	Frequency	Average Overall Condition Rating
White Spruce (*Picea glauca*)	474 (23.7%)	69.18%
Littleleaf Linden (*Tilia cordata*)	363 (18.2%)	79.75%
Colorado Spruce (*Picea pungens*)	119 (5.95%)	76.89%
Cottonwood Poplar (*Populus deltoides*)	101 (5.05%)	69.00%
Green Ash (*Fraxinus pennsylvanica*)	94 (4.70%)	72.02%
Trembling Aspen (*Populus tremuloides*)	87 (4.35%)	70.57%
Basswood Linden (*Tilia americana*)	86 (4.30%)	79.17%
Siberian Elm (*Ulmus pumila*)	67 (3.35%)	62.54%
Scots Pine (*Pinus sylvestris*)	64 (3.20%)	63.59%
Amur Maple (*Acer ginnala*)	57 (2.85%)	78.95%
Manitoba Maple (*Acer negundo*)	56 (2.80%)	68.57%
Silver Maple (*Acer saccharinum*)	52 (2.60%)	77.69%
Bur oak (*Quercus macrocarpa*)	49 (2.45%)	74.49%
Apple (various species) (*Malus spp.*)	48 (2.40%)	79.16%
Willow (various species) (*Salix spp.*)	37 (1.85%)	65.14%
Black Ash (*Fraxinus nigra*)	36 (1.80%)	85.00%
Flowering Cherry/Plum (*Prunus spp.*)	32 (1.60%)	74.69%
Sugar Maple (*Acer saccharum*)	29 (1.45%)	79.66%
White/Hybrid Elm	28 (1.40%)	72.38%
Alder (various species) (*Alnus spp.*)	20 (1.00%)	77.50%

* For the purposes of the above chart, the condition factors for both Health and Structure were averaged using mean of all condition ratings (i.e. 90% for Excellent, 70% for Good, etc)
    - The average condition rating was 73.51%
* Native species are highlighted in light green and comprise 65.6% of all inventoried trees.
    - The average overall condition rating on native trees was 73.55%, slightly above average but not statistically significant.
* Ash species make up only a small proportion of the tree inventory data, only 6.5%. This grants Oakbank a significant advantage in the potential event of an Emerald Ash Borer outbreak, considering some towns in Manitoba have over 20% of their urban forests comprised of Ash.
    - It is recommended that future planting plans continue to avoid planting Ash trees, and to increase plantings of more successful species which have been assessed at above-average condition ratings (e.g. Bur Oak, Sugar Maple, Linden).
* Other native species found in smaller numbers with high overall condition ratings are:
    - White Oak (17 trees – 84.12%)
    - Freeman Maple (8 trees – 83.75%)
    - Hackberry (7 trees – 82.86%)

    These three tree species, despite small sample sizes, were found to be highly successful growing in Oakbank and are recommended to be planted in greater numbers while ensuring that no more than 20% of any genus or 10% of any species are planted overall.