

Town Centre Tree Inventory Report



Woodridge
PARK DISTRICT

Prepared By:
Leslie Delles, ISA Certified Arborist # IL 9199-A
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(630) 762-2400 www.graftreecare.com



Introduction

On March 21, 2018, Certified Arborists from Graf Tree Care, Inc. began data collection for a tree inventory at the unmanaged area known as Town Centre. The scope of work included a stem-by-stem inventory of all trees 6” DBH and larger at the 40+ acre greenspace. The inventory at Town Centre resulted in a total of 1,960 trees.

Much of the Town Centre site is made up of lower lying mesic/floodplain areas where indigenous, but low-quality trees, have become widely established. The understory of the wooded area has become densely overgrown with invasive and nuisance species. Other less dominant biomes include a small streambed, a small number of previously delineated wetlands, and scattered pockets of higher and drier land that is far less overgrown. The following report discusses the overall characteristics and condition of the woodland at Town Centre, as well other observations and recommendations for ecological restoration with consideration to the planned development at the site.

Collection Parameters

Park Name:	Name of Park (Town Centre)
Species:	Species common name, identified down to the species level
DBH:	Diameter at Breast Height of the inventoried tree, measured to the nearest inch
Height/Spread:	Ocular estimate in feet of tree height and canopy spread
Condition:	1-5 condition ranking: 1-Specimen, 2-Good, 3-Average, 4-Poor, 5-Dead/Very Poor
Wounds:	None, Moderate, or Severe based on ocular inspection from the ground
Deadwood:	None (0-10%), Moderate (10-25%), Severe (greater than 25%)
Maintenance:	Pruning, removal, risk assessment, and other such maintenance advice
Comments:	Any relevant comments about the tree

Town Centre Tree Inventory Statistics and Analysis

Total Number of Town Centre Trees	1,960
Total Number of Species	31
Total Diameter Inches	22,881"
Average Tree Diameter	11.67"
Average Tree Height (ft)	38.91
Average Crown Spread (ft)	16.59
Average Crowding (Height to Spread Ratio)	2.35 (Dense)
Average Tree Condition	3.49 (Poor)



This curve represents the distribution of trees in each of the categories enumerated in the collection parameters table above. Deviations from the expected normal standard distribution can serve as a useful tool in analyzing the overall health of a tree population, and for this reason, we have included a theoretical curve representing a normal distribution so that comparisons can readily be made. The green line with green labels represents what we observed in the field, and the grey line with grey labels is the predicted normal distribution.

The condition curve for the Town Centre inventory indicates a tree population that is in poor condition. As will be discussed, the overall tree conditions of an unmanaged woodland such as the one found at Town Centre cannot be judged by the same standards as would a managed tree population in a traditional park district or municipal setting. While managed municipal and park district trees are likely to receive regular pruning and maintenance, a woodland population is generated and maintained by natural means. Dead branches remain on trees until they naturally fall. Poor condition or dead trees often remain standing as habitats for wildlife or are allowed to fall and decompose into organic matter which, in turn, enriches woodland soils with nutrients.

According to our rating system, a Condition 1 tree is defined as having no observable defects, wounds, diseases, and has textbook perfect form for the species. In addition, since young trees have a tendency to be trouble free, a Condition 1 tree must, by definition, be greater than 16" DBH. Though a number of mature trees at Town Centre meet the DBH threshold for the Condition 1 category, many have been faced with a lifetime of limited growing space due to their proximity to other trees and have therefore developed poor architecture which disqualifies them from being considered as Condition 1. Also, the overwhelming presence of poor condition, lower quality species at the site has magnified the widespread presence of wood decay and other structural defects. There were no Condition 1 trees observed at the Town Centre site.

The Condition 5, or dead trees, came in much higher than the expected norm, but this is what would be expected in an unmanaged woodland tree population since dead trees are often be left to serve as wildlife habitat as they decay and subsequently contribute to the nutrient cycle. If the planned development of the site includes salvaging parts of the woodland, it is recommended that any Condition 5 tree near managed areas or along trail systems be removed.

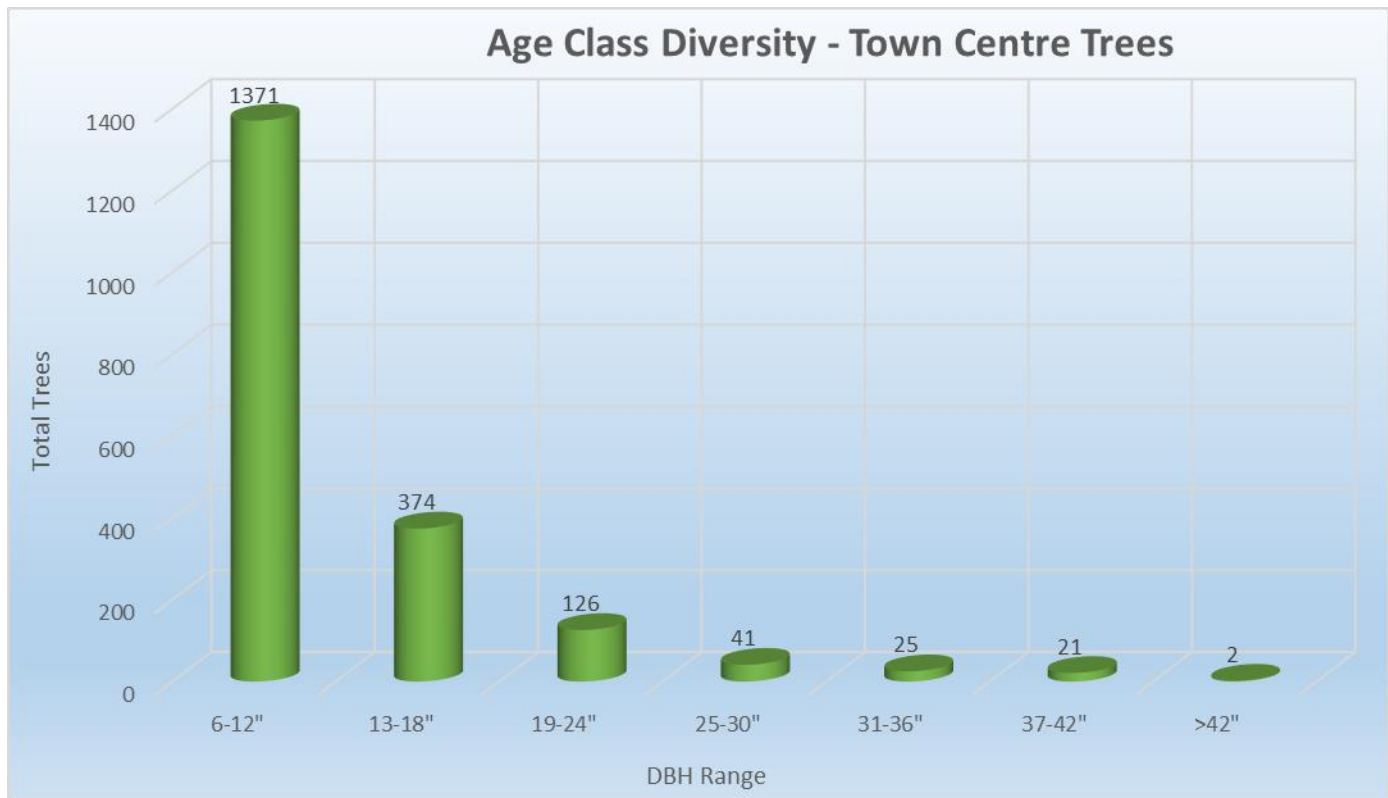
The condition 2, or above average trees, are far lower than statistical analysis would predict. According to our rating system a Condition 2 tree should have a DBH of 8" or larger, may have a limited number of minor defects, and have an

overall good form that is consistent for the species in question. Since woodland trees are often growing closely to one another, they are likely to be faced with limited growing space which leads to the development of poor canopy form. As mentioned above, the overwhelming presence of low quality species with structural defects is the primary reason for the extremely low number of above average trees

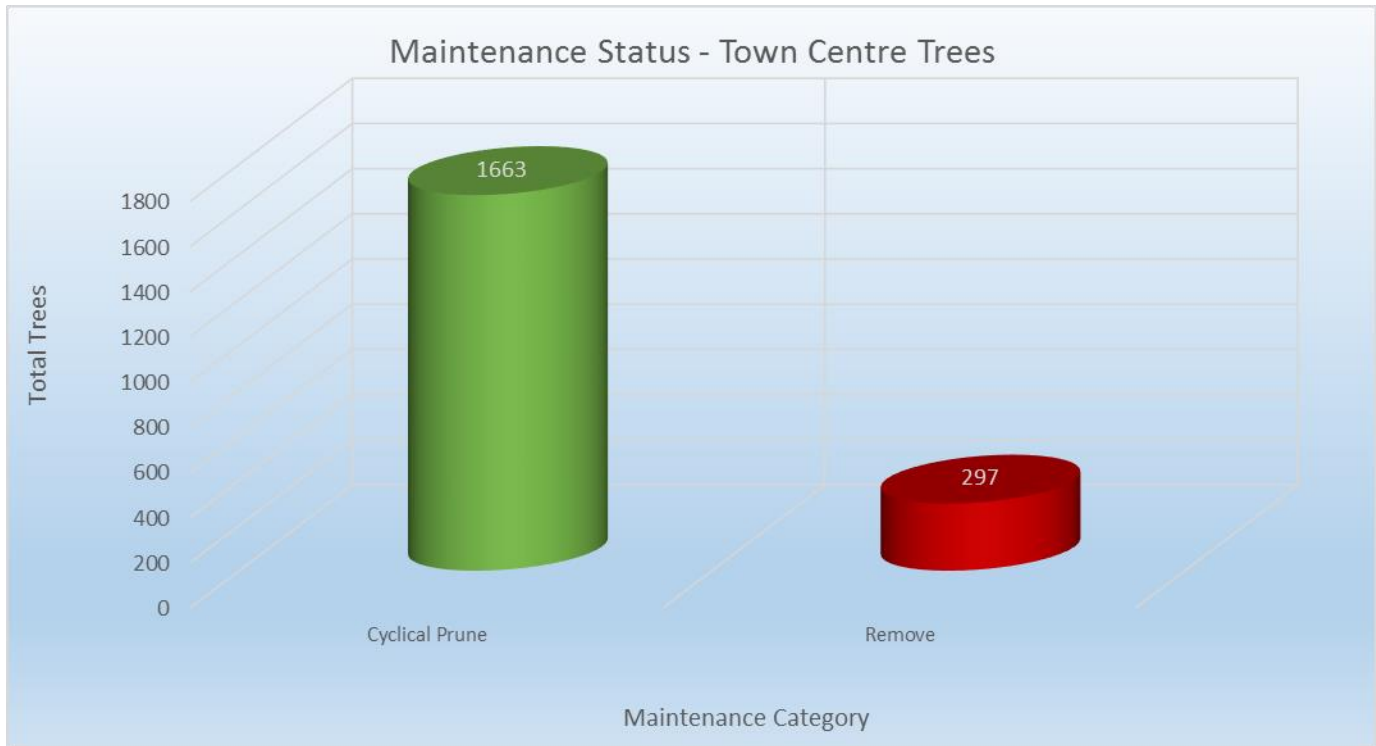
The Condition 4 trees came in much higher than what would be statistically expected which is an indicator of a tree population which is in overall poor condition. These trees are primarily trees with excessive deadwood and/or decay, large wounds, or extremely poor architecture

The trees in the condition 3, or average, category came in reasonably close to, but lower than, the expected norm. The reason for this is simply because trees that would normally be in the condition 1, 2, or 3 categories are instead in the Condition 4 and 5 categories.

In summary, the condition curve for the Town Centre site's unmanaged tree population reflects a tree population which is in overall poor condition.



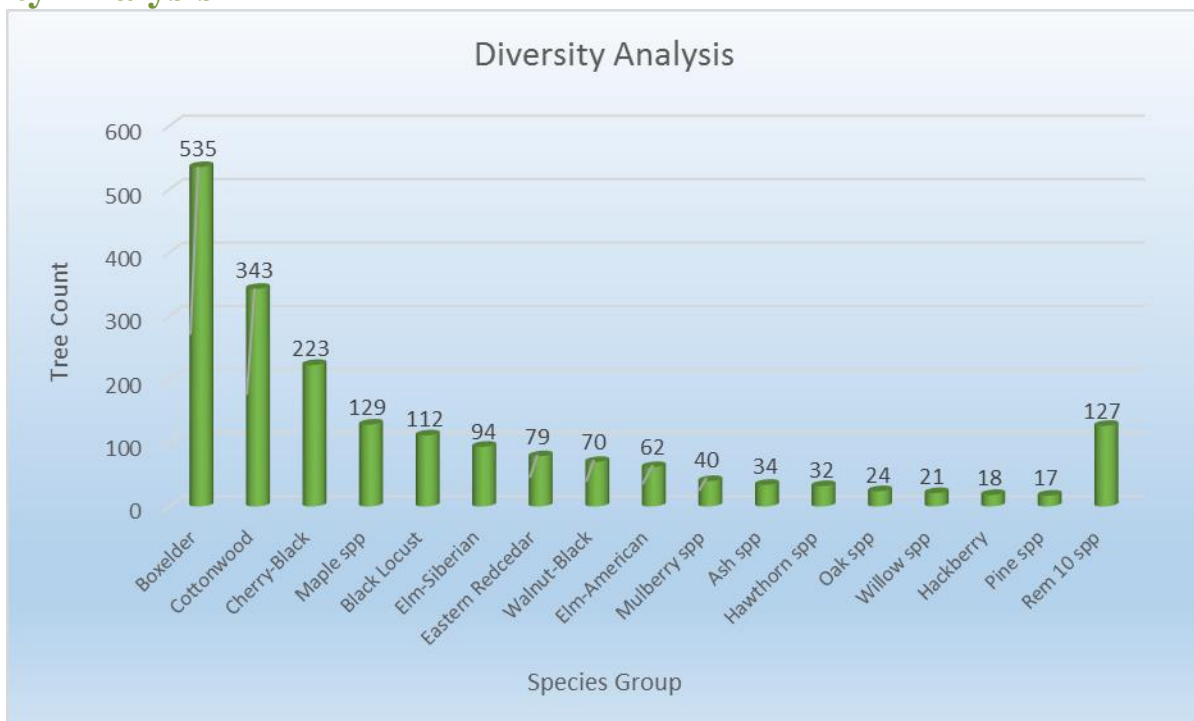
This graph illustrates a trend that is typical of an unmanaged woodland such as the Town Centre site where there is a sizable number of younger (6-12" DBH), fewer middle-aged (13-18" DBH) trees, and successively lower numbers in the higher age class categories. This distribution is indicative of a relatively younger, unmanaged woodland and historical satellite imagery of the site chronicles the development of the now dense canopy. A sizable number of the younger trees at Town Centre were lower quality species such as Boxelder, Cottonwood, Black Cherry, Black Locust, and Siberian Elm which have become quite dominant throughout the property. As will be discussed later, future development and possible restoration efforts might target the reduction of density and number of the lower quality species at the Town Centre site.



Due to poor quality and condition of the species on the site and the planned development in the future, the maintenance status categories are somewhat inconsequential. Though it is understood that the vast majority of the Town Centre tree population will never be “cyclically pruned”, we still assigned this generic maintenance status to all trees that did not receive a maintenance status of “remove”.

The 297 trees in the “remove” set are all of the Condition 5 trees and a small number of very poor Condition 4 trees that stood near managed areas or pathways.

Diversity Analysis



SPECIES	COUNT	% OF TOTAL	AVG DBH	AVG HEIGHT	AVG SPREAD	AVG COND
BOXELDER	535	27.30%	9.87	31.89	14.64	4.01
COTTONWOOD	343	17.50%	16.42	53.94	22.11	3.13
CHERRY-BLACK	223	11.38%	9.69	35.38	12.26	3.77
MAPLE-SILVER	124	6.33%	15.11	46.69	19.76	3.07
BLACK LOCUST	112	5.71%	8.45	46.70	10.58	3.45
APPLE-CRAB SPP	104	5.31%	10.82	20.96	15.82	3.26
ELM-SIBERIAN	94	4.80%	12.01	43.09	17.93	3.37
EASTERN REDCEDAR	79	4.03%	6.96	23.04	10.38	3.00
WALNUT-BLACK	70	3.57%	12.93	42.14	23.86	2.90
ELM-AMERICAN	62	3.16%	12.23	40.81	20.08	3.18
MULBERRY-SPP	40	2.04%	11.68	32.00	17.88	3.23
HAWTHORN-SPP	32	1.63%	9.63	21.09	14.53	3.66
ASH-GREEN	30	1.53%	12.07	37.00	17.83	4.70
WILLOW-SPP	21	1.07%	17.62	41.43	19.52	3.67
HACKBERRY	18	0.92%	9.72	33.89	14.44	2.94
PINE-AUSTRIAN	16	0.82%	12.69	23.13	15.94	2.88
OAK-RED	12	0.61%	11.92	37.50	20.42	2.58
OAK-BURR	10	0.51%	10.50	43.00	15.50	3.00
PEAR-CALLERY	8	0.41%	10.00	24.38	17.50	3.00
LILAC-TREE	5	0.26%	11.00	14.00	15.00	3.00
MAPLE-NORWAY	5	0.26%	7.80	24.00	15.00	3.00
ASH-WHITE	4	0.20%	10.50	42.50	20.00	3.25
BUCKEYE-OHIO	2	0.10%	13.50	40.00	22.50	3.00
HONEYLOCUST	2	0.10%	14.50	40.00	20.00	3.50
OAK-SHINGLE	2	0.10%	11.50	45.00	25.00	2.50
SPRUCE-BLUE	2	0.10%	11.00	35.00	12.50	3.00
AILANTHUS	1	0.05%	10.00	50.00	15.00	3.00
LINDEN-AMERICAN	1	0.05%	13.00	60.00	20.00	3.00
OSAGE ORANGE	1	0.05%	26.00	40.00	30.00	3.00
PINE-SCOTCH	1	0.05%	14.00	20.00	20.00	3.00
SPRUCE-SPP	1	0.05%	8.00	15.00	10.00	4.00

As the above graph and table illustrate, Boxelder trees are by far the most dominant species found at the Town Centre site followed by Cottonwood and Black Cherry. All three of these species are fast growing, but weak wooded trees which often develop decay and other structural defects as they mature. The seeds of these species germinate easily and, as seen at the Town Centre site, these lower quality trees can spread aggressively and quickly overtake an unmanaged landscape. Black Locust, Siberian Elm, and Mulberry trees, which are also noticeably present in the Town Centre population, fall into this category as well.

Although lower quality species are by far the most prevalent at Town Centre, there are a quite small number of species that are more commonly associated with native hardwood woodlands. These species include Burr Oak, Red Oak, Shingle Oak, and Black Walnut. American Elm and Eastern Redcedar are relatively common at Town Centre. Other species represented in small numbers on the site include Hackberry, American Linden, Ohio Buckeye, and Honeylocust. The table above itemizes all species.

Site Observations and Narrative

As previously mentioned in the introduction, a significant amount of acreage at the Town Centre site is made up of lower lying mesic/floodplain areas as well as some previously delineated wetland. Though lower quality species dominate the site, it is important to point out that this tree population still provides important ecological functions. The primary environmental benefit of the trees at Town Centre are their undoubtedly significant contribution to stormwater management. The tree population can absorb a sizable amount of excess stormwater runoff, much of which would otherwise be diverted to storm sewer infrastructure. Other environmental benefits provided by the tree population include long-term carbon sequestration which helps to reduce ozone levels and foliage absorption of gaseous pollutants and particulates which improves air quality. These ecological functions give a significant degree of value to the lower quality species on the site. In addition to this tree inventory, Woodridge Park District might opt to obtain an iTree Report which details the value that trees provide, quantified in Dollars. The iTree suite of software is a peer-reviewed software package created by the US Forest Service, and it essentially can take a tree inventory such as the one performed at the Town Centre site, and use the species, size, and condition of trees to create an annual dollar value of the services those trees provide, as well as their standing value. Graf Tree Care is experienced in preparing iTree Reports and can offer this service to Woodridge Park District, if desired.

The understory at the Town Centre site has become densely overgrown with invasive species, particularly Buckthorn, Honeysuckle, Oriental Bittersweet, and Multi-flora Rose, as well as rampant native poison ivy. If future development of the site includes salvaging parts of the woodland, it is recommended that a large scale restoration plan be created to focus on widespread removal of invasive and nuisance species.

With possible development of Town Centre on the horizon, Woodridge Park District has a unique opportunity to restore and improve the site for the use and enjoyment of future generations of park patrons. Reducing the number of poor condition, low quality, and invasive species would be a short term goal. The woody plant material generated from selective tree removals can be chipped and used for a trail system. If widespread site clearing is deemed to be part of a development plan, a Reforestation Plan would be a useful tool for Woodridge Park District to pursue in the future. Such a plan would not only improve the quality of species on the site, but would also maximize the lifespan of trees by carefully matching a tree species requirements and tolerances with each individual planting space. Trees that are well adapted to their growing conditions will establish more quickly, require less maintenance, and be healthier overall and more resistant to disease and insect problems. By matching the right tree with the right planting space, Woodridge Park District can help protect its investment in newly planted trees.

Conclusion

As this report and analysis has demonstrated, the collection of inventory data for tree populations can be a valuable tool used for managing tree populations, analyzing current diversity, planning future development, and setting long-term forestry goals. We continue to encourage Woodridge Park District to consider procuring a complete inventory of all its park properties, particularly the managed areas where amenities are located and where patrons are most likely to benefit from proper planning and maintenance. Once a comprehensive inventory of all its parks is completed, WPD can use the tree data to develop a formal Urban Forestry Management Plan, which will create long-term strategies and budgets for tree planting and management in WPD. A full analysis of WPD's existing diversity would go a long way towards developing a Long Term Forestry Management Plan in order to plan and maintain the entire tree population at its highest level. In the wake of mass Ash tree removals due to EAB infestation, many entities that manage tree populations have benefited from developing a Comprehensive Reforestation Plan which would be a valuable resource to improve the species diversity in its parks and to maximize successful establishment of newly planted trees.

Graf Tree Care has been pleased to provide our inventory, ecological analysis, consulting, and GIS mapping services at Hawthorne Hill Woods and we look forward to continuing to partner with Woodridge Park District in the planning or completion of future forestry, natural resource, restoration, or GIS mapping projects.