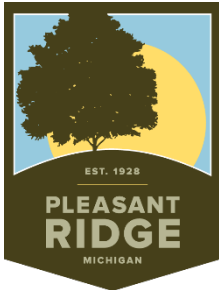




City of Pleasant Ridge Street Tree Manual



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Adopted by the City Commission December 8, 2015

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1. Introduction

1.1 Version History

This is an updated version of the City's tree planting guide. The guide was originally developed by an Enhancement Master Plan Committee beginning in 2001 and was adopted by the Planning Commission and City Commission in 2003. This version is an update and expansion on the original tree guide to account for changes over time in urban forestry practice and to reflect changed circumstances due to environmental changes such as the appearance of the Emerald Ash Borer after the adoption of the original tree planting guide.

This updated version does not change or alter the essential recommendations of the original guide.

1.2 Introduction

A desirable urban environment includes an abundance of trees. The City of Pleasant Ridge enjoys a wealth of beautiful shade trees, many of them several hundred years old. Even street names in Pleasant Ridge illustrate the tremendous importance of trees in setting the ambiance of the City – Maplefield, Oakdale, Poplar Park, Elm Park, Oakland Park, and Sylvan.

In 2001 the City Commission established an Enhancement Master Plan Committee at the administration's recommendation. The Committee included one member from the Planning, Recreation, Historical Commissions, the Garden Club, the Pleasant Ridge Foundation and City Manager. The purpose of the Committee was to consider certain improvements and enhancements to the City's green space. In 2001 the Enhancement Master Plan Committee submitted a grant application to the State of Michigan for improvements to the parkland on the west side of Woodward Avenue from Ten Mile Road south to Memorial Park. In December 2001, the Administration recommended the Committee focus on guidelines for a long-term citywide tree planting program. Once completed, the Street Tree Planting Guide served as the basis for street tree plantings.

In 2008, and again in 2015, comprehensive street tree inventories were completed for the City. These inventories have served as a basis for updating the recommendations for tree plantings contained in this guide.

1.3 Basis for Recommendations

Important considerations when formulating tree planting recommendations is the amount of space available for planting trees in the berme, soil type, and presence of overhead utilities. It is important to choose the right tree for the location after taking into consideration the conditions present along the various streets in Pleasant Ridge.

Once the baseline conditions are established along each street, the next step is to consider the diversity of plantings throughout the community. Research indicates that a thriving tree population that is resilient to pests and disease should adhere to the 10-20-30 rule for diversity: no more than 10% of the urban forest should be of the same species, no more than 20% should be of the same genera, and no more than 30% should be of the same family.

Finally, once the baseline conditions are determined this guide proceeds to aesthetic considerations for where trees should be planted throughout the City.

2. Tree Inventory

City-wide tree inventories were completed in 2008 and 2015. The following table lists the inventory of trees by street in 2015, along with the total number of trees present in 2015 and 2008 for comparison purposes over time.

Table 1. Tree Inventory by Street, 2015

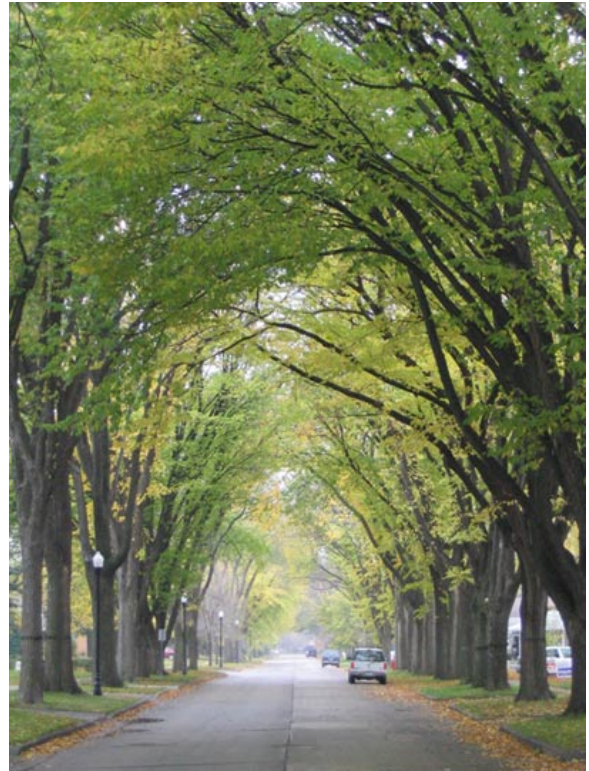
	Ash	Elm	Linden	Locust	Maple	Silver Maple	Oak	Plane Tree	Other	Total (2016)	Total (2008)	Avg. Spacing
Amherst	5	2	17	1	54	3	2	0	1	85	83	48
Bermuda	0	0	0	0	0	1	0	0	15	16	14	73
Cambridge E	1	1	10	6	18	1	31	0	3	71	67	62
Cambridge W	4	23	27	0	20	0	0	0	2	76	44	46
Devonshire	5	7	9	2	47	0	7	0	4	81	82	51
Elm Park Avenue	1	5	2	3	24	0	5	0	10	50	49	53
Elm Park Blvd.	10	11	3	4	41	2	9	1	7	88	98	55
Fairwood	5	7	7	9	37	1	11	0	3	80	83	49
Hanover	12	0	10	2	22	0	0	0	0	46	46	58
Indiana	0	0	0	1	2	0	1	0	60	64	61	63
Kenberton	0	6	0	0	17	0	10	0	19	52	57	51
Kensington	4	3	27	1	35	1	6	0	2	79	82	54
Maplefield	2	5	11	4	54	20	4	4	3	107	108	44
Maywood	5	3	5	3	50	1	3	2	3	75	76	55
Millington	0	8	4	1	16	0	2	1	1	33	32	55
Norwich	2	3	12	3	9	3	3	0	3	38	37	70
Oakdale	1	10	1	1	75	10	14	0	21	133	134	43
Oakland Park	2	9	4	1	69	0	17	2	2	106	97	56
Oxford	4	1	5	1	65	0	9	1	0	86	77	41
Poplar Park	4	4	15	3	31	2	10	4	0	73	86	54
Ridge	0	0	0	0	6	0	2	0	1	9	11	263
Sylvan	3	4	13	4	46	0	6	0	5	81	59	52
Wellesley	3	5	10	7	42	0	9	2	4	82	80	51
Woodside Park	4	11	8	2	15	3	15	1	6	65	69	48
Woodward	0	3	0	36	0	0	3	0	7	49	33	70
Woodward Hts.	4	1	14	2	34	7	0	3	1	66	76	53
Total	83	110	191	97	814	55	171	20	177	1,718	1,741	

3. Aesthetic Considerations

3.1 Landscape Design

Oftentimes the difference between a good and a great street is the care and consideration given to the selection of street trees. Great, memorable streets most often feature one type of tree that grows to a majestic height planted in parallel rows, forming a canopy over the street. Some of the most famous streets in the great cities of the world – the Champs Elysees in Paris, Unter den Linden in Berlin, and Central Park in New York – are planted in this manner. But it was not only the great cities that were planted in this way – in the 19th and early 20th century most towns and cities across the United States featured formal plantings of one species.

The reason for this type of regimented planting along streets is based on the fact that trees provide architectural form and organization to space. Their spreading branches create a canopy that forms a ceiling for an outdoor room and the vertical trunks form conceptual walls to frame an outdoor space. Street trees should be carefully selected for their ability to arch across the street and meet the canopy of trees planted on the other side to create the cathedral of trees effect. Tree species that do not spread out sufficiently to create a ceiling should not be used for street tree plantings.



Example of uniform, single-species tree plantings in a formal arrangement lining a street edge.

3.2 Diversity

One of the most commonly used street trees in the 19th and early 20th century was the American elm. After the Dutch elm disease ravaged the streetscape of many American towns and cities, practice moved away from formalized, single species plantings and towards using a diversity of species. However, while a mixed collection of species provides some insurance against disease and infestation, it does not create the same level of beauty that formalized, single-species plantings creates. Mixtures of trees do not create the connected canopy that is so beloved on great streets. In Pleasant Ridge, one has only to walk down East Cambridge to experience a mature canopy that envelops the street.

While single-species tree plantings along a single street does create a risk that a blight could wipe out the entire tree canopy, such blights are rare. It is also true that in the long run, all trees age and have to be replaced eventually, and in that process there is more than one way to introduce variety. Experienced gardeners will tell you that working with Mother Nature always involves dealing with problems and change. In the end, having a stand of trees that creates a great street for decades but has to eventually be replaced is better than never having a great street at all.

Instead of planting a variety of trees along every street, it is the recommendation of this guide to use trees of the same species within each block in the City, and to introduce variety by using different tree species on different blocks. This provides harmony and coherent unity to create elegant, canopied streets, while still providing a variety of species within the City as a whole. In this manner, if a future blight does strike the City, certain blocks will suffer but the remaining blocks will retain their beautiful canopy.

4. Tree Diversity Analysis

Diseases such as the Dutch elm disease and pests such as the Asian Long Horned Beetle and Emerald Ash Borer have each decimated the urban forest over the past century when they have been present. These threats illustrate the need to promote a diversity of species so that a City’s urban forest is not exposed to undue risk of loss due to one particular disease or pest.

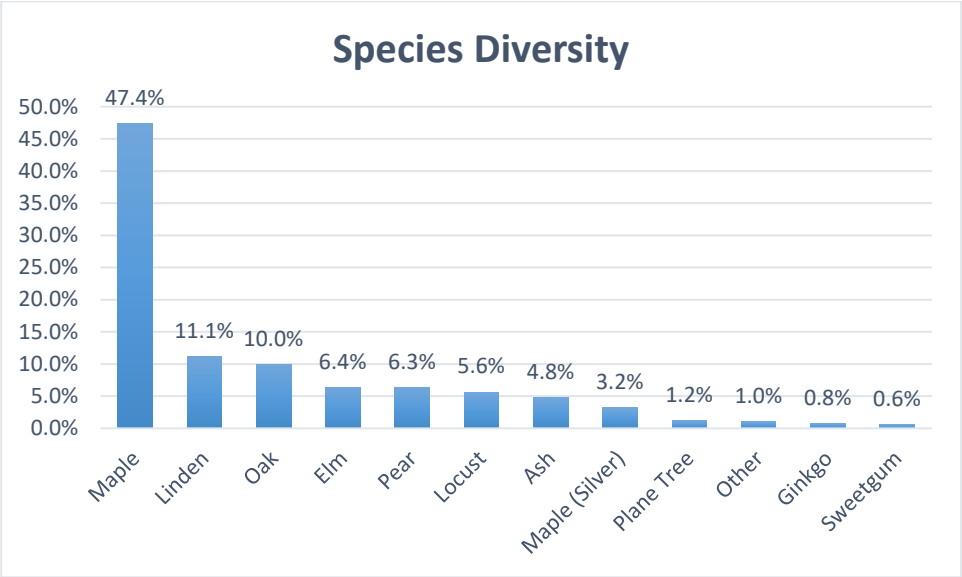
4.1 10-20-30 Rule

Research indicates that a thriving tree population that is resilient to pests and disease should adhere to the 10-20-30 rule for diversity: no more than 10% of the urban forest should be of the same species, no more than 20% should be of the same genera, and no more than 30% should be of the same family. As a practical matter, given the small size of Pleasant Ridge, the focus of the recommendations in this tree guide is ensuring compliance with the 10 and 20 parts of the 10-20-30 rule. This means that no more than 20% of Pleasant Ridge’s tree canopy should be made up of maples, oaks, elms, etc., and no more than 10% of trees should be of a specific species such as Red Maple, Swamp White Oak, etc.

4.2 City-Wide Tree Diversity

The following chart summarizes Pleasant Ridge’s tree species diversity from the 2008 street tree inventory, updated in 2015. The inventory shows that Pleasant Ridge’s street trees are dominated by Maple trees. This means that Pleasant Ridge is exposed to potential Maple tree diseases or non-native insects. The Asian Long Horned Beetle (ALB) primarily damages and kills maple trees, and also elm, horsechestnut, sycamore, and birch trees. If the ALB makes it to Southeast Michigan Pleasant Ridge is at risk of a devastating tree loss due to our over-reliance on maple trees along our streets and in our parks.

Figure 1. City-Wide Tree Species Diversity, 2015



A key recommendation of this guide is that Maple Street and park tree plantings be limited only to recommended areas so that over time the diversity of species is restored to a more optimal condition where maple trees make up not more than 20% of all trees. It is recommended that other species be planted to reduce the prominence of Maple trees in Pleasant Ridge’s tree portfolio.

4.3 Tree Diversity by Street

The following table lists the composition of street trees along each street in the City. While a diversity of species is a city-wide goal, it is desirable for one species to account for 50% or more of trees along any one street so long as that 10-20-30 rule is adhered to for all street trees in the City. As discussed in the prior aesthetic considerations section, there is reason for planting trees of all one type along individual streets within the City for reasons of design and beauty.

The following table can provide guidance for which types of tree are prevalent along streets in the City. If a street already has a high percentage of one kind of (non-Maple) tree, it makes sense to plant more of that kind of tree to supplement the existing aesthetic character of the street.

Table 2. Tree Diversity by Street, 2015

	Ash	Elm	Linden	Locust	Maple	Silver Maple	Oak	Plane Tree	Other
Amherst	5.9%	2.4%	20.0%	1.2%	63.5%	3.5%	2.4%	0.0%	1.2%
Bermuda	0.0%	0.0%	0.0%	0.0%	0.0%	7.1%	0.0%	0.0%	92.9%
Cambridge E	4.2%	1.4%	14.1%	8.5%	25.4%	1.4%	40.8%	0.0%	4.2%
Cambridge W	10.8%	8.1%	21.6%	0.0%	54.1%	0.0%	0.0%	0.0%	5.4%
Devonshire	6.3%	8.9%	8.9%	2.5%	59.5%	0.0%	8.9%	0.0%	5.1%
Elm Park Avenue	2.0%	10.0%	4.0%	6.0%	48.0%	0.0%	10.0%	0.0%	20.0%
Elm Park Blvd.	11.4%	12.5%	3.4%	4.5%	46.6%	2.3%	10.2%	1.1%	8.0%
Fairwood	6.3%	8.8%	8.8%	11.3%	46.3%	1.3%	13.8%	0.0%	3.8%
Hanover	26.1%	0.0%	21.7%	4.3%	47.8%	0.0%	0.0%	0.0%	0.0%
Indiana	0.0%	0.0%	0.0%	1.6%	3.1%	0.0%	1.6%	0.0%	93.8%
Kenberton	0.0%	11.5%	0.0%	0.0%	32.7%	0.0%	19.2%	0.0%	36.5%
Kensington	5.1%	3.8%	33.3%	1.3%	44.9%	1.3%	7.7%	0.0%	2.6%
Maplefield	1.9%	3.8%	10.5%	3.8%	51.4%	19.0%	3.8%	2.9%	2.9%
Maywood	6.7%	4.0%	6.7%	4.0%	66.7%	1.3%	4.0%	2.7%	4.0%
Millington	0.0%	24.2%	12.1%	3.0%	48.5%	0.0%	6.1%	3.0%	3.0%
Norwich	5.4%	8.1%	29.7%	8.1%	24.3%	8.1%	8.1%	0.0%	8.1%
Oakdale	0.8%	6.9%	0.8%	0.8%	57.3%	7.6%	10.7%	0.0%	15.3%
Oakland Park	2.0%	8.8%	3.9%	1.0%	67.6%	0.0%	12.7%	2.0%	2.0%
Oxford	5.6%	1.4%	7.0%	1.4%	70.4%	0.0%	12.7%	1.4%	0.0%
Poplar Park	5.5%	5.5%	20.5%	4.1%	42.5%	2.7%	13.7%	5.5%	0.0%
Ridge	0.0%	0.0%	0.0%	0.0%	66.7%	0.0%	22.2%	0.0%	11.1%
Sylvan	3.7%	4.9%	16.0%	4.9%	56.8%	0.0%	7.4%	0.0%	6.2%
Wellesley	3.8%	6.3%	12.5%	8.8%	52.5%	0.0%	11.3%	2.5%	2.5%
Woodside Park	6.9%	19.0%	13.8%	3.4%	25.9%	5.2%	22.4%	1.7%	1.7%
Woodward	0.0%	6.1%	0.0%	73.5%	0.0%	0.0%	6.1%	0.0%	14.3%
Woodward Hts.	6.2%	1.5%	21.5%	3.1%	52.3%	10.8%	0.0%	4.6%	0.0%
TOTAL:	4.8%	6.4%	11.1%	5.6%	47.4%	3.2%	10.0%	1.2%	10.3%

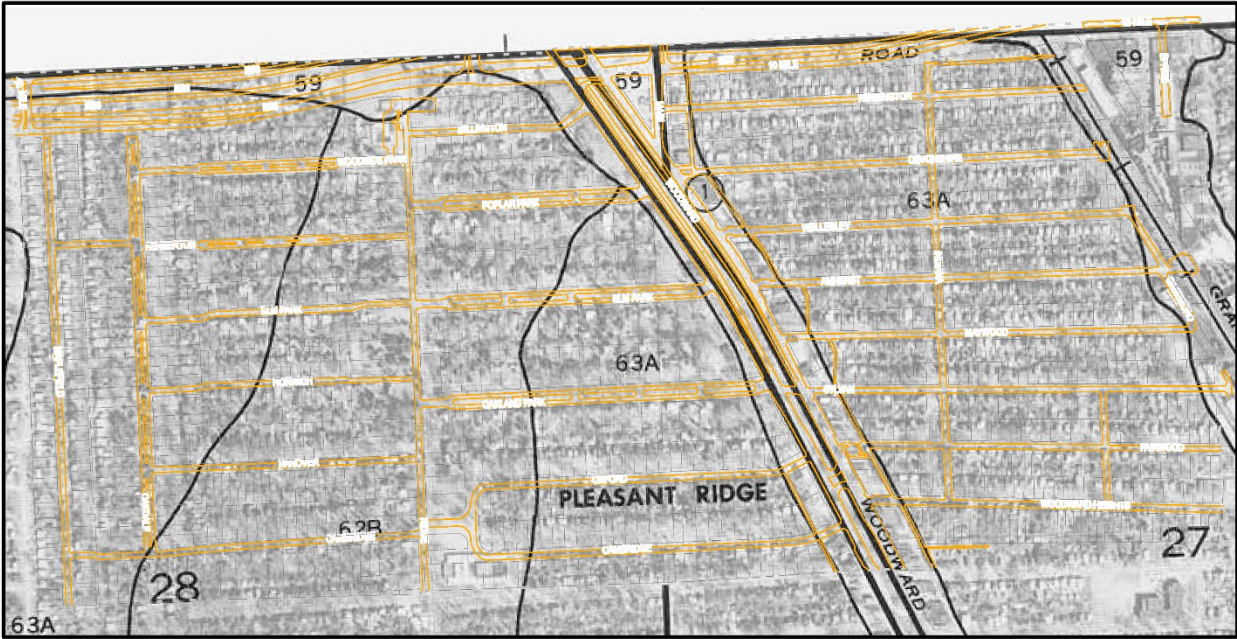
5. Planting Conditions Analysis

The following map and table summarize the planting conditions present in Pleasant Ridge. The information includes soil type, the width of berms and boulevard islands, and presence of overhead utilities.

5.1 Soils

The following is an excerpt from the Soil Survey of Oakland County published by the United States Department of Agriculture (1982). The map shows that the highest land in the City, which runs along the ridge from which Pleasant Ridge takes its name, consists of 62B Spinks complex soils. The west and center/east edges of town sit on 63A – Thetford complex soils. These two soil types are commonly found together.

Figure 2. Oakland County Soil Survey - Pleasant Ridge Area



	62B – Spinks	63A – Thetford
Soil Character	Loamy sand	Loamy sand
Water Table Depth	>6 feet	1 – 2 feet (February – May)
Permeability	6 – 20 inches per hour	2 – 6 inches per hour
Available Water Capacity	0.08 – 0.10 inches (relatively low)	0.10 – 0.13 inches (relatively low)
pH	5.1-7.8 5.1 – 7.3 at <2 feet depth 5.6 – 7.8 at >2 feet depth	5.6 – 8.4 5.6 – 7.8 at <4 feet depth 7.4 – 8.4 at >4 feet depth
Common Hardwood Trees	Green ash, thornless honeylocust, white oak, and sugar maple	Green ash, littleleaf linden, American basswood, American beech, Carolina poplar, and red maple

The preceding table shows that soils in Pleasant Ridge are characterized as loamy sand. These soils drain quickly and do not retain a large amount of water, meaning that the soils will not hold a large amount of water during dry periods for plant growth. Spinks soils are acidic to neutral, while Thetford soils are acidic to slightly alkaline at depths greater than 4 feet, while they are alkaline at depths greater than 4 feet.¹

¹ Soil pH is a measure of the acidity or alkalinity of a soil. On the pH scale, 7.0 is neutral, below 7.0 is acid, and above 7.0 is basic or alkaline. A pH range of 6.8 to 7.2 is termed near neutral.

Pleasant Ridge's water tables are not necessarily in line with those indicated in the table due to localized effects of 696 and the Woodward underpass. The excavation and drainage systems associated with those projects has anecdotally lowered the water table in parts of Pleasant Ridge below what is typical for Spinks and Thetford loamy sand soils.

5.2 Width of Tree Lawn and Boulevard Islands

The width of the tree lawn (the area between the sidewalk and the street) is one of the most important determining factors in choosing the right tree for the location. Generally, 7-8 feet is cited as the minimum tree lawn width necessary to ensure trees reach their maximum potential, and also to provide ample space between the tree and the surrounding street and sidewalk.

Another consideration for choosing the right kind of tree for the tree lawn is the root characteristics of the tree. Some trees have roots that grow close to the surface and are prone to lifting sidewalks.

However, certain trees will do better in a narrow planting area than others. Given that Pleasant Ridge has many streets that have a tree lawns that are 5 feet wide, careful consideration must be given to the type of tree planted. Trees that are hardy and will tolerate narrow tree planting strips, and that do not have notable surface root patterns are the best suited trees to narrow planting strips.

The table at right shows the width of tree lawns and boulevard islands. The data in the table will serve as a basis for the recommended trees for each street later in this document.

	Tree Lawn Width	Boulevard Island Width
Amherst	10 feet	--
Bermuda	4.5 feet	--
Cambridge E	10 feet	--
Cambridge W	5.5 feet	--
Devonshire	9 feet	--
Elm Park Avenue	5 feet	--
Elm Park Boulevard	10 feet	28 feet
Fairwood	10 feet	--
Hanover	5.5 feet	--
Indiana	5 feet	--
Kenberton	3.5 feet	6.5 feet
Kensington	9 feet	--
Maplefield	11 feet	--
Maywood	10 feet	--
Millington	5 feet	--
Norwich	5.5 feet	--
Oakdale	5.5 feet	14 feet
Oakland Park	10 feet	28 feet
Oxford	10 feet	--
Poplar Park	10 feet	28 feet
Ridge	4 feet	--
Sylvan	9 feet	--
Wellesley	9 feet	--
Woodside Park (Blvd area)	8 feet	13 feet
Woodside Park (E&W ends)	5 feet (w) 10 feet (e)	--
Woodward	--	--
Woodward Heights	11 feet	--

5.3 Overhead Utilities

The presence of overhead utilities (specifically electrical transmission lines) is a limitation for what is and is not appropriate plantings. For the most part, overhead utility lines run along the rear property line of most properties in the City and thus do not impact street tree plantings.

There are a few streets where overhead electrical lines run alongside the street, limiting planting options for that location:

- The west side of Ridge
- The east side of Indiana
- The west side of Bermuda
- The north side of Kenberton to the east of Oakdale

Trees planted underneath overhead electrical lines should be ornamental and selected such that they will not achieve a height of more than 25 feet at maturity.

6. List of Approved Street Trees

6.1 Approved Canopy Street Trees

The following table lists trees that are approved for street tree use in Pleasant Ridge. These trees have been selected based on their strength and wind resistance, suitability for Pleasant Ridge's USDA plant hardiness zone (6a), tolerance for urban conditions (compacted soils, salt spray, etc.), appropriateness for the sandy loam soil types found in Pleasant Ridge, general lack of fruit or other debris, and aesthetic character and form.

In the following table, the family of each tree is listed. The genera of each tree is determined by the first part of its scientific name, and each line is a species. The City will only plant the trees listed in the following table. Residents may plant trees in the tree lawn as long as they are listed in the following table. Trees that are not listed in the below table may not be used for street tree plantings unless reviewed and approved by the City prior to planting.

Table 3. Approved Canopy Street Trees

Species	Common Name	Form	Family	Fall Color	Min. Strip Width	Environmental Tolerances	Notes/Suggested Cultivars
<i>Acer x freemani</i> ²	Autumn Blaze Maple	Rounded	Aceraceae	Red	5 ft.		
<i>Acer platanoides</i> ^{2, 3}	Norway Maple	Rounded	Aceraceae	Red	5 ft.		Crimson king Emerald queen
<i>Acer saccharum</i> ²	Sugar Maple	Rounded	Aceraceae	Red	5 ft.		
<i>Ginkgo biloba</i>	Ginkgo	Upright	Ginkgoaceae	Yellow	5 ft.	Salt, drought, high wind, pollution, high pH	'Autumn gold' or 'Presidential gold' Male variety only
<i>Gleditsia triacanthos</i>	Honeylocust	Rounded	Fabaceae	Yellow	8 ft.	Wet, salt, drought, high wind, pollution, high pH	'Skyline' Thornless varieties only
<i>Liquidambar styraciflua</i>	Sweetgum	Upright	Hamamelidaceae	Red	10 ft.	Wet, salt, drought	'Rotundiloba'
<i>Platanus x acerfolia</i>	London Planetree	Rounded	Platanaceae	Yellow	10 ft.	Wet, salt, drought, high wind, pollution and high pH	
<i>Quercus acutissima</i>	Sawtooth Oak	Rounded	Fagaceae	Yellow	8 ft.		
<i>Quercus bicolor</i>	Swamp White Oak	Rounded	Fagaceae	Yellow	8 ft.	Wet, drought	
<i>Quercus imbricaria</i>	Shingle Oak	Rounded	Fagaceae	Yellow	8 ft.		
<i>Quercus shumardii</i>	Shumard Oak	Rounded	Fagaceae	Maroon	8 ft.		
<i>Quercus rubra</i>	Red Oak	Rounded	Fagaceae	Maroon	8 ft.	Salt	
<i>Tilia americana</i>	American Linden	Rounded	Linden	Yellow	5 ft.	Shade and high pH	'Redmond'
<i>Tilia x euclora</i>	Crimean Linden	Rounded	Linden	Yellow	5 ft.	Pollution	
<i>Tilia tomentosa</i>	Silver Linden	Rounded	Linden	Yellow	5 ft.	Salt, shade	'Green Mountain'
<i>Ulmus americana</i>	American Elm	Vase-like	Ulmaceae	Yellow	5 ft.	Wet, salt, drought, shade, high pH	'Accolade' 'Dananda Charm' 'Pioneer'
<i>Ulmus parvifolia</i>	Lacebark Elm	Vase-like	Ulmaceae	Yellow	8 ft.	Pollution, drought	'Allee'
<i>Zelkova serrata</i>	Japanese Zelkova	Vase-like	Ulmaceae	Red/ Bronze	5 ft.	Drought, high wind, pollution, high pH	'Green Vase' 'Halka'

² Due to the large number of maples (*Acer*) that make up the City's tree canopy, new maples should not be planted until enough other types of tree have been planted such that maples make up less than 20% of all street trees.

³ Norway maple is considered by some to be invasive in a forest environment because its vigorous reproduction can out-compete native species, however it is hardy and well adapted for use as a street tree in an urban environment and is already prevalent in Pleasant Ridge and surrounding communities.

6.2 Approved Small Street Trees

The following Table 4 lists approved ornamental trees. These trees may be used under overhead utility or power lines due to their compact nature. These trees may also be used as decorative elements in boulevard islands in the same manner as the crabapple trees were used in the past.

Table 4. Approved Small Street Trees

Scientific Name	Common Name	Form	Growth Rate	Fall Color	Environmental Tolerances	Notes/Suggested Cultivars
Amelanchier sp.	Serviceberry	Rounded	Slow	Red/Yellow	Wet, shade	'Trazam' 'Cumulus' 'Autumn Brilliance' Choose single-stem form
Cercis Canadensis	Eastern redbud	Rounded	Medium	Yellow	Salt, shade, high pH	
Cornus kousa	Kousa dogwood	Rounded	Medium	Red		Choose single-stem form
Cornus mas	Cornelian cherry dogwood	Rounded	Medium	Yellow	Salt	Choose single-stem form
Malus sp.	Crabapple	Rounded	Medium	Yellow		
Syringa reticulata	Japanese tree lilac	Rounded	Medium	Yellow	Salt, drought, high pH	'Ivory Silk'

6.3 Diversity Considerations

The 10-20-30 rule for diversity in an urban forest stipulates that no more than 10% of the tree canopy be made up of one species, no more than 20% be made up of one genera, and no more than 30% be made up of one family. The above table includes trees from 9 families, which provides enough flexibility to meet the 30% family diversity rule. The more challenging diversity rule will be the 10% species and 20% genera. For example, while there are 5 oak species in the above list, if each species were planted to 10% it would result in 50% of street trees comprising of Oaks from the genus *Quercus*. For that reason, all oak trees should account for no more than 20% of street trees in Pleasant Ridge.

The following Table 5 lists the maximum percentage of trees by genera and species:

Table 5. Genera & Species Diversity Summary

Genera	Species	Common Name	Maximum Percentage	Current Percentage
Acer	platanoides saccharum	Crimson King Maple Sugar Maple	20% maximum for all Maple species together	47%
Celtis	occidentalis	Hackberry	10% maximum	0%
Ginkgo	bilboa	Ginkgo	10% maximum	1%
Gleditsia	triacanthos	Honeylocust	10% maximum	6%
Liquidambar	styraciflua	Sweetgum	10% maximum	1%
Platanus	x acerfolia	London Plane Tree	10% maximum	1%
Quercus	acutissima bicolor imbricaria rubra shumardii	Sawtooth Oak Swamp White Oak Shingle Oak Red Oak Shumard Oak	20% maximum for all Oak species together	10%
Tilia	americana x euclora tomentosa	American Linden Crimean Linden Silver Linden	20% maximum for all Linden species together	11%
Ulmus	americana parvifolia	American Elm Lacebark Elm	20% for all Elm species together	6%
Zelkova	serrata	Japanese Zelkova	10%	0%

7. Tree Planting Plan

7.1 Tree Planting Recommendations by Street

This section presents specific recommendations for which type of tree to plant along each block within the City.

Following is a summary of the recommendations made previously in this guide:

- Strive to have at least one street tree on each side of the street for every 50 feet, with each residential property in the City having at least one street tree. Street trees may be spaced as close as 40 feet in optimal conditions. Note that achieving one street tree for every 50 feet would require a total of about 2,050 street trees, while the City currently has 1,718 street trees, requiring an additional 332 trees to be planted.
- No one tree species (i.e. Sugar Maple) should account for more than 10% of all trees in the City, and no one tree genus (i.e. Maple trees) should account for more than 20% of all trees in the City.
- Maple tree plantings shall be suspended throughout the City until Maples comprise 20% or less of all street trees.
- Use one or two tree species planted at regular intervals along each block within the City. Introduce variety and diversity by blocks, rather than planting a variety of tree species within each block.
- Select tree species that are suited to the planting conditions that exist on each block within the City. These conditions include the width of the berm, the presence or absence of overhead utilities, and soil conditions.

Table 6 on the following page lists the tree species selected for each street based on the above considerations.

Table 6. Tree Recommendations by Street

Street	Street Length	Berme Width	Recommended Species
Amherst	2,080 feet	10 feet	Crimean Linden (west of Indiana) Ginkgo (east of Indiana)
Bermuda	585 feet	4.5 feet	Japanese Tree Lilac
Cambridge E	2,230 feet	10 feet	Swamp White Oak (west of house #28) Red Oak (east of house #28)
Cambridge W	1,750 feet	5.5 feet	American Linden (west of house #128) American Elm (hybrids) (east of house #128)
Devonshire	2,080 feet	9 feet	Crimean Linden (west of Indiana) Sugar Maple (east of Indiana)
Elm Park Avenue	1,325 feet	5 feet	Japanese Zelkova
Elm Park Boulevard	1,450 feet	10 feet	American Elm (hybrids)
Fairwood	1,950 feet	10 feet	Red Oak (west of Bermuda) Honeylocust (east of Bermuda)
Hanover	1,325 feet	5.5 feet	Japanese Zelkova
Indiana	2,000 feet	5 feet	Kousa Dogwood (north of Amherst) Serviceberry (south of Amherst)
Kenberton	1,325 feet	3.5 feet	Ginkgo
Kensington	2,135 feet	9 feet	American Linden (west of Indiana) Autumn Blaze Freeman Maple (east of Indiana)
Maplefield	2,335 feet	11 feet	Lacebark Elm (north of house #80) London Plane Tree (south of house #80)
Maywood	2,080 feet	10 feet	Autumn Blaze Freeman Maple (west of Indiana) Sweetgum (east of Indiana)
Millington	900 feet	5 feet	American Elm (hybrids)
Norwich	1,325 feet	5.5 feet	Crimean Linden
Oakdale	2,075 feet	5.5 feet	Lacebark Elm
Oakland Park	1,720 feet	10 feet	Swamp White Oak (west of house #20) Shumard Oak (east of house #20)
Oxford	1,780 feet	10 feet	Autumn Blaze Freeman Maple
Poplar Park	1,140 feet	10 feet	London Plane Tree
Ridge	2,370 feet	4 feet	Ginkgo
Sylvan	2,125 feet	9 feet	Japanese Zelkova (west of Indiana) London Plane Tree (east of Indiana)
Wellesley	2,080 feet	9 feet	Shumard Oak (west of Indiana) London Plane Tree (east of Indiana)
Woodside Park	1,325 feet	8 feet	Sawtooth Oak
Woodward	2,850 feet	--	Honeylocust (north of Sylvan) Ginkgo (south of Sylvan)
Woodward Heights	1,775 feet	11 feet	Japanese Zelkova (west of Bermuda) Sweetgum (east of Bermuda)

7.2 Existing Street Tree Average Spacing

The following table lists streets in descending order by density of trees, based on the average spacing of street trees on the street. It is the City's goal to have one street tree for at least every 50 feet on each side of every street (which equals at least one street tree per lot).

Table 7. Current Average Spacing of Trees by Street (Updated Through Spring, 2016)

Street	Street Length	Existing Trees	Current Average Spacing ⁴
<i>Residential Streets</i>			
Norwich	1,325 feet	37	70
Cambridge E	2,230 feet	71	62
Hanover	1,325 feet	46	58
Oakland Park	1,720 feet	102	56
Elm Park Boulevard	1,450 feet	88	55
Millington	900 feet	33	55
Maywood	2,080 feet	75	55
Kensington	2,135 feet	78	54
Poplar Park	1,140 feet	73	54
Woodward Heights	1,775 feet	65	53
Elm Park Avenue	1,325 feet	50	53
Sylvan	2,125 feet	81	52
Devonshire	2,080 feet	79	51
Wellesley	2,080 feet	80	51
Kenberton	1,325 feet	52	51
Fairwood	1,950 feet	80	49
Woodside Park	1,325 feet	63	48
Amherst	2,080 feet	85	48
Cambridge W	1,750 feet	37	46
Maplefield	2,335 feet	105	44
Oakdale	2,075 feet	131	43
Oxford	1,780 feet	71	41
<i>Other Streets</i>			
Ridge	2,370 feet	9	263
Bermuda	585 feet	14	84
Woodward	2,850 feet	49	70
Indiana	2,000 feet	64	63

When determining the priority for street tree plantings, the following will be considered:

- *Density of Existing Trees.* Streets with lower density (or a greater existing average spacing) should be prioritized higher.
- *Coordination with Upcoming Street Projects.* New street tree plantings should occur after the conclusion of street reconstruction projects, which can impact the root system of existing trees. Tree planting projects for Norwich, Hanover, Ridge, Indiana, and Bermuda should occur after those streets are rebuilt.
- *Existing Mature Canopy.* Streets with a mature canopy, such as Cambridge east of Ridge Road, may be lowered down the priority list for two reasons: 1) creating a canopy on streets where one

⁴ The average spacing is calculated by multiplying the length of the street by two, and then dividing by the number of existing trees. The accounts for the fact that street trees are planted on both sides of the street. For boulevard streets, the boulevard islands are also added into the horizontal length of the street to account for the fact that the boulevard islands add space for one (Woodside, Oakdale) or two (Oakland Park, Elm Park, Poplar Park) additional rows of trees on the street. The Kenberton boulevard islands are not large enough to accommodate canopy trees.

does not exist is an important goal, and 2) a mature tree canopy creates an understory environment where new trees have to grow in shade. Many trees do not thrive in this environment when planted as street trees with all of the other attendant stresses. Supplemental tree plantings on streets with mature tree canopies should occur in areas that receive direct sunlight for at least part of the day.

- *Residential Streets.* Residential streets have a different character and need for street trees compared to “other” streets. Woodward has different requirements and considerations when planting street trees, while Indiana and Bermuda have limitations with overhead power lines making them more appropriate locations for ornamental street tree plantings. Ridge has overhead power lines on the west side of the street and a narrow planting area for many segments on the east side of the street.

7.3 Resident Cooperative Street Tree Planting Program

Residents who desire a street tree on streets lower down the priority list may be able to cooperatively purchase a tree for their tree lawn as part of the City’s annual planting work. The resident would pay 1/3 to 1/2 of the cost of the tree, with the City covering the rest of the cost. The City can get better pricing by purchasing and installing trees in volume. It is expected that the cost to each resident would be between \$100 and \$125 to participate in a cooperative tree purchase.

Contact City Hall to inquire about the availability of this program. Please note that residents will not be able to select the type of tree that is planted in front of their house – the type of tree that will be planted will be in accordance with the tree planting recommendations in Table 6 on page 12. If a resident desires a specific type of tree, they may be able to plant that tree at their own expense with prior City approval.

8. Maintenance

8.1 Young tree care

Young trees require special care for the first few years after they are transplanted:

1. Watering. Initially, watering is the key to survival. New trees typically require at least 60 days of watering to establish, although this may vary depending on the time of year they are planted.
2. Mulching. Much can be applied to the growing space around a newly planted tree to ensure that no weeds grow, that the tree is protected from mechanical damage, and the growing space is moist. Mulch should be applied in a thin layer – 1 to 2 inches. Mulch should not touch the tree or be piled up in volcanoes or greater than 2 inches in depth. Mulch that is too deep and touching the tree can harm or kill a tree.
3. Pruning. Young trees can be pruned frequently to improve tree form or structure. Generally, young trees should be pruned every three years to ensure that they develop proper structural form.

8.2 Standard Pruning Cycle

The City should seek to maintain a regular pruning cycle for established trees. Regular pruning will clean the tree, raise the crown, remove deadwood and improve its structure. Over time, regular pruning of trees will improve tree health and prevent small problems from becoming large ones. Generally the recommended routine pruning cycle for trees is five years, but for a City with as many trees as Pleasant Ridge this would be cost prohibitive.

Based on pruning work that has been completed in the past 3 years, Pleasant Ridge is currently on a 12-year pruning cycle to complete a pass through the entire City. It is the City's goal to reduce this to an eight-year pruning cycle, financial resources permitting.

Adhering to an eight-year pruning cycle would require the City to prune about 250 trees per year.

9. Tree Fact Sheets

Information sheets are provided for all of the approved canopy and ornamental trees from section 6 of this manual. The fact sheets are reproduced from Street Tree Factsheets published by the Municipal Tree Restoration Program supported by the USDA Forest Service in 1993. The Michigan DNR was a participating agency in the effort.