2018

PARK HILLS STREET TREE REPORT

Prepared by the UK Urban Forest Initiative

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2018

INVENTORY TEAM

Urban Forest Initiative inventory team with Mayor Matt Mattone. (Pictured bottom from left: Gabrielle Petersen, Brianna Damron, Bryan Kist. Top from left: Nic Williamson, Lynne Rieske-Kinney, Mary Arthur, Matt Mattone)

THE URBAN FOREST INITIATIVE

The aim of the Urban Forest Initiative at the University of Kentucky is to raise the awareness of, and opportunities for engagement with, urban and community forestry in our region. We are professionals and educators committed to enhancing the urban tree canopy through public lectures, informational workshops, and projects with student trainees.

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TABLE OF CONTENTS

EXECUTIVE SUMMARY

This report is the synthesis of a street tree inventory of the city of Park Hills, KY completed in June 2018 by the University of Kentucky Urban Forest Initiative (UFI). It includes notable findings based on the information we collected about each street tree (species, diameter, health condition, location etc.). Our goal is to provide a useful tool in managing Park Hills' street tree resources. In addition to this report UFI will also work with the City and the County-wide GIS support team, Planning and Development Services of Kenton County, to incorporate the Park Hills geospatial street tree data into existing datasets currently used for city planning and design purposes.

FAST FACTS ABOUT PARK HILLS' STREET TREES

Park Hills street trees benefit the city by:

- Intercepting 212,401 gallons of stormwater/year
- Removing 1,000 pounds of air pollution/year
- Sequestering more than 30,000 lbs. of carbon/year
- Having a structural value = $4.6 million

Tree diversity

- ~90 different species
- Most abundant species are (from greatest): hackberry (*Celtis occidentalis*), red maple (*Acer rubrum*), ornamental pear (*Pyrus calleryana*), pin oak (*Quercus palustris*), flowering dogwood (*Cornus florida*)
- Most abundant genera are (from greatest): maples (*Acer* spp.), oaks (*Querus* spp.), dogwoods (*Cornus* spp.)

Tree size

- The largest tree is a silver maple (*Acer saccharinum*) with a 53 inch diameter; but generally pin oaks (*Quercus palustris*) are the largest street trees in Park Hills

Tree health

- 93% of street trees were in "good" health
- Ash (*Fraxinus* spp.) tree health is more likely to be in "fair," "poor" or "dead/dying" than any other genus

Historic changes

- In 1995, 1 out of every 4 street trees in Park Hills was ash (*Fraxinus* spp.); in 2018 ash has largely disappeared (< 3% total trees) from the city streets
- Ornamental pear (*Pyrus calleryana*) has replaced ash as a dominant member of Park Hills street trees

BACKGROUND

Trees provide numerous benefits, and their existence and vitality create more livable communities. Apart from softening the look and feel of built-up urban spaces, trees provide environmental benefits which improve human health and happiness by providing shade (reducing the urban heat island effect), reducing many of the air pollutants common in cities, slowing stormwater through canopy interception and improving and maintaining healthy soil structure. These are but a few of the many benefits that research is starting to uncover about the importance of having trees around us in the places we live and spend most of our time.

Street trees of Park Hills, KY (and any community) positively contribute to the community in all of the aforementioned ways, and are the most outward and obvious landscape component seen by residents and visitors. Park Hills' streets would look, and indeed have looked (more on this later), different as the tree canopy has evolved into what it is today. The time in mid-June 2018 spent by the University of Kentucky Urban Forest Initiative team walking Park Hills' streets allowed us to wrap our arms around the trees that line your city streets, and remind us once again of the great diversity of urban trees in our region. The products of our work are the report you are reading now and the GIS data we've shared with Planning and Development Services (PDS) of Kenton County. Our goal is to provide information and metrics for the city of Park Hills, KY that will prove useful in managing your street trees, now and into the future.

APPROACH

This street tree inventory took place on June 11 -13, 2018.

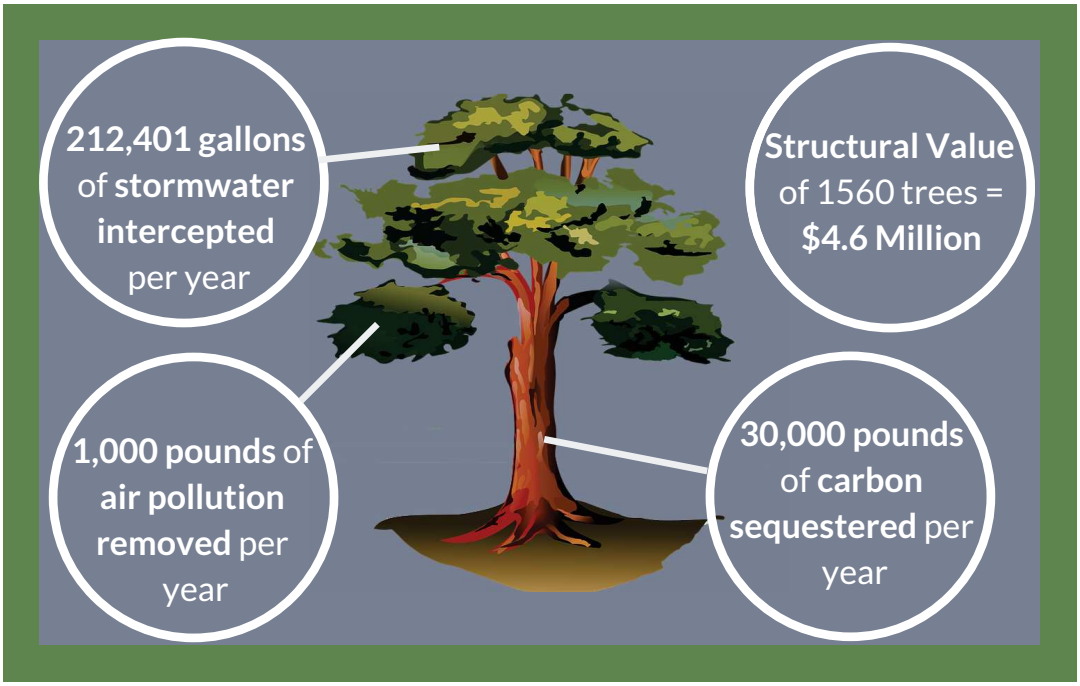
Trees included in our inventory were those within a 40-foot buffer on either side of the street center (i.e. 80 foot total street buffer with street centerline in the middle), and initially numbered 1,992 street trees. However, many of Park Hills' streets include sections of clumped trees ("thickets") which weren't obviously associated with human occupancy. We inventoried many but not all of these thickets, which are omitted from this report. Here we include only trees obviously associated with residential or commercial properties, which numbered 1,560 trees. (Full geospatial dataset including thickets will be provided along with GIS deliverables). Any streets associated with Covington Catholic and Notre Dame Academy were excluded from the inventory process.

Working in 3 teams of 2, UFI teams used diameter-at-breast-height forestry measurement tapes to determine tree diameter at 4.5 feet above ground level (diameter at breast height, or DBH), and made a visual assessment of other relevant parameters. Data collected on each tree included: GPS coordinates, tree genus and species, location type, diameter at breast height, condition of wood, condition of leaves, percent deadwood, recommended maintenance, recommended follow-up consult by trained professional, sidewalk damage, wire (utility) conflict, multiple stems and other notes. Full descriptions of each parameter are in the Appendix.

Tree data were collected using Arc Collector, a mobile field data collection application developed by Environmental Systems Research Institute (ESRI). The Arc Collector tree inventory application was developed by Nic Williamson (UFI Coordinator), and additional layers and datasets (enhanced aerial imagery, street centerlines, city boundary) provided by Planning and Development Services of Kenton County.

Statistics on tree diversity, size and health were analyzed and graphs were created using Microsoft Excel. Information on tree ecosystem benefits were calculated using i-Tree Eco©, a peer-reviewed and freely available software program.

STREET TREE BENEFITS



Park Hills' street tree benefits evaluated in i-Tree Eco v.6, tools to estimate urban forest ecosystem services. (https://www.itreetools.org/)

How do trees...

Intercept stormwater?

Much of the precipitation from a rain event is “captured” by leaves and evaporates before it reaches the ground; rain that makes it through the tree canopy is slowed significantly, buffering stormwater contribution to grey infrastructure like sewers.

Remove air pollution?

Tree canopies act as large nets to several air-borne pollutants common in cities, and are especially shown to decrease ambient levels of particulate matter and ozone.

Sequester Carbon?

Trees sequester (or “take in”) atmospheric carbon to live and grow. While humans in cities are net producers of carbon, carbon is the primary ingredient to build all tree parts (roots, trunks, branches, leaves, etc.) through photosynthesis. This function is critical to reducing the effects of our rapidly changing climate.

Provide structural value?

Trees have an appraisal value just like your home. Well-cared-for and mature trees increase property values.

STREET TREE DIVERSITY

We inventoried over 90 different tree species along Park Hills' streets. Evaluating street tree diversity provides a glimpse of what kinds of trees have been and are being planted in the city. A diversified urban tree canopy lends to a more resilient collection of trees; historic (Dutch elm disease) and current (emerald ash borer) epidemics show that too much uniformity in city tree populations can lead to rapid and extensive mortality of one species or genus.

Table 1. Top 10 species of Park Hills' street trees:

Species			
Common	**Botanical**	**# Trees**	**% Total**
Northern hackberry	*Celtis occidentalis*	95	6.2
Red maple	*Acer rubrum*	88	5.8
Ornamental pear	*Pyrus calleryana*	82	5.4
Pin oak	*Quercus palustris*	76	5
Flowering dogwood	*Cornus florida*	74	4.8
Sugar maple	*Acer saccharum*	73	4.8
Silver maple	*Acer saccharinum*	67	4.4
Cherry species	*Prunus* spp.	64	4.2
Eastern redbud	*Cercis canadensis*	62	4.1
Colorado spruce	*Picea pungens*	48	3.1
	All others	831	53.3

Table 2. Top 12 genera of Park Hills' street trees:

Genus			
Common	**Botanical**	**# Trees**	**% Total**
Maple	*Acer*	320	19.9
Oak	*Quercus*	111	7.2
Dogwood	*Cornus*	103	6.6
Hackberry	*Celtis*	95	6.1
Pear	*Pyrus*	91	5.9
Spruce	*Picea*	78	5
Cherry	*Prunus*	76	4.9
Redbuds	*Cercis*	62	3.9
Magnolia	*Magnolia*	59	3.8
Apple	*Malus*	56	3.6
Elm	*Ulmus*	43	2.8
Ash	*Fraxinus*	41	2.5
	All others	425	27.7

STREET TREE DIVERSITY

A rule-of-thumb when thinking about diversity is the "10-20-30 Rule," meaning that there should be no more than 10% of any one species, 20% of any one genus, and 30% of any one family in a given municipal area (Santamour 1990). Tables 1 and 2 show that Park Hills' street trees are well diversified and for the most part fit within the 10-20-30 diversity recommendation. However, maples (*Acer* spp.) have reached the 20% threshold, suggesting that the genus is somewhat overly represented on Park Hills' streets.

Maples (*Acer* spp.) account for 20% of the street trees in Park Hills (Figure 1), and the most common maples are red (*A. rubrum*), sugar (*A. saccharum*) and silver (*A. saccharinum*). None of the maple species approach the 10% species diversity threshold. (Note: the totals in the right-hand pie chart are showing a percent of a percent, in other words red maple accounted for 29% of maples inventoried but less than 6% of all street trees). Comparing the genus/species diversity of maples (above) to hackberry (*Celtis* spp.) (Figure 2) we can see that the latter genus was made up of only one species - northern hackberry (*Celtis occidentalis*).

The takeaway is that a comprehensive tree diversity analysis looking at both genus and species via the spreadsheet and GIS data will be most useful in making management decisions in regard to street tree diversity.

Figure 1. Percentage of maple (*Acer*) genus from total (left pie graph) and % of top maple species within genus (right pie graph)

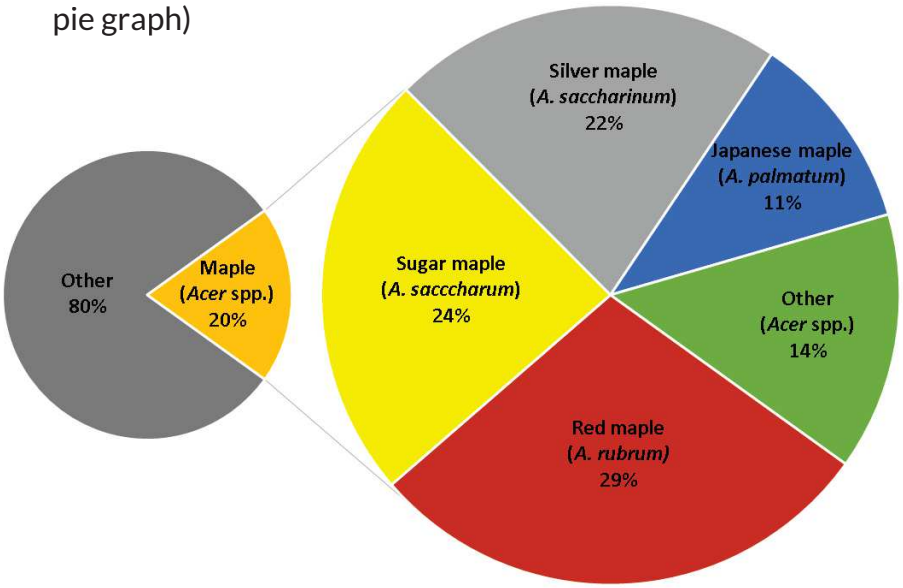
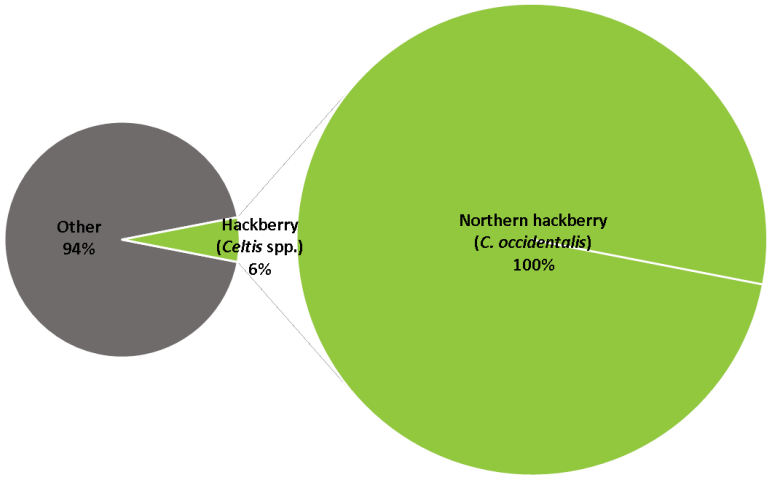


Figure 2. Percentage of hackberry (*Celtis*) genus from total (left pie graph) and % of only hackberry species (*C. occidentalis*) within genus (right pie graph) holder



STREET TREE SIZE

Tree size can be as important as species/genus diversity when considering urban forest benefits, resiliency and health. A large tree provides quite a bit more ecosystem benefits than a small tree, and thus should be a goal for a thriving city forest. Even so, all big trees start out small. Whole tree care, from the roots to the crown, is the pathway from an acorn to a towering, mature oak.

Richards (1983) put forth an ideal size distribution for urban forest stability based on the diameter of tree at breast height (DBH). His suggestions include having numerous small trees to account for typical losses among young trees; and less numerous large trees (perhaps based on a typical scenario in cities).

Figure 3. Richards' (1983) ideal size composition compared to that of Park Hills' street trees

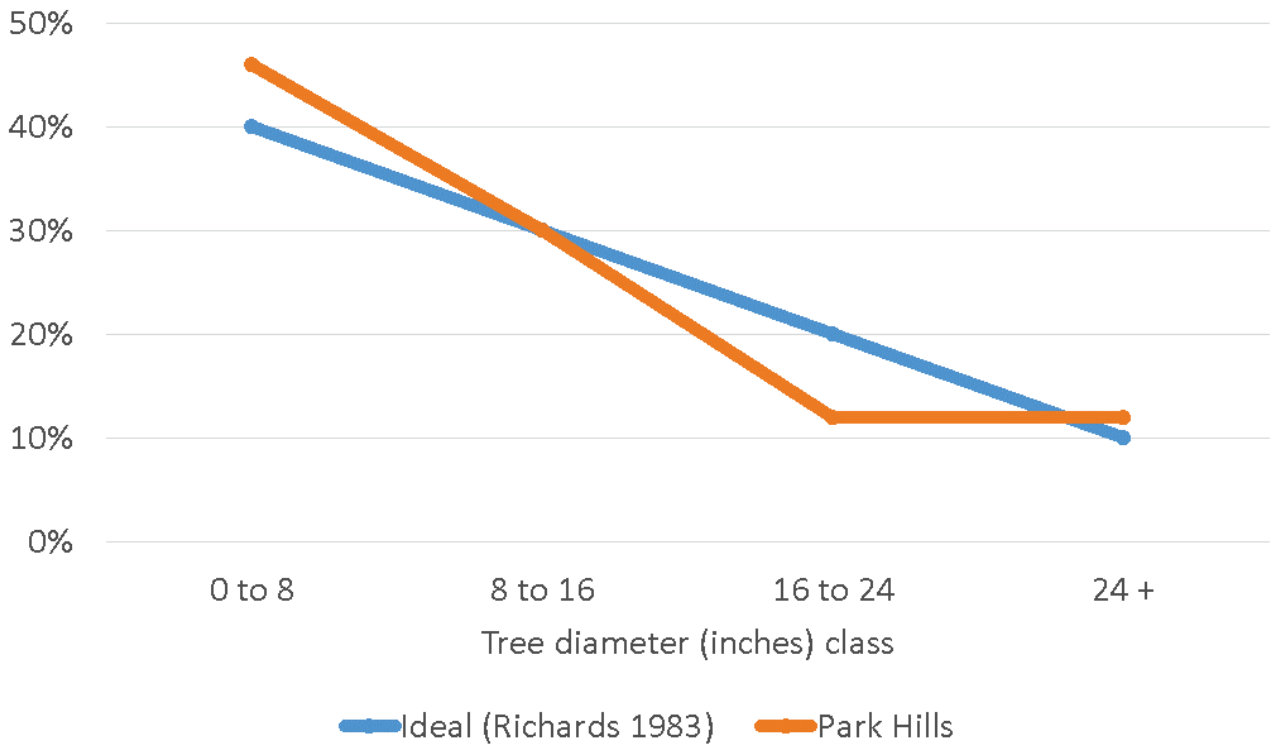
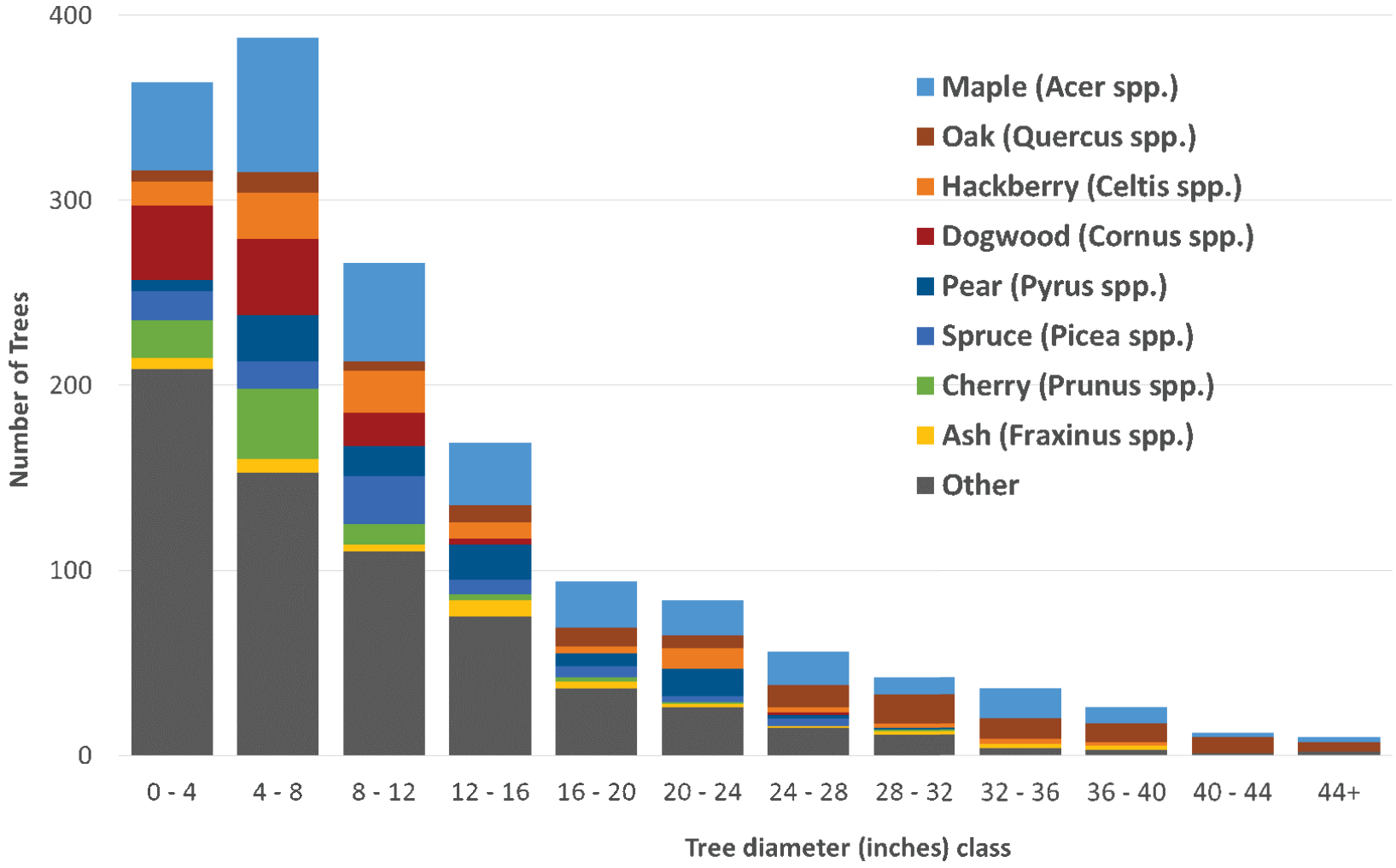


Figure 3 suggests that the size distribution of Park Hills' street trees meets or exceeds an ideal distribution in all size classes except in the 16 – 24 inch DBH category. We encourage Park Hills to keep up the good work planting new trees and taking care of larger ones. The deficit of 16 to 24 inch diameter trees could be based on the recent loss of ash (*Fraxinus* spp.) trees (see "Historical Comparison"), but more intimate knowledge of the city trees may find additional explanations.

Figure 4. Size distribution (by DBH class) of all trees in the top 8 genera



STREET TREE SIZE

An interpretation of Figure 4 is that maples (*Acer* spp.) are very common along Park Hills' streets but taper off in the larger size classes, whereas oaks (*Quercus* spp.) seem to be evenly distributed across all classes and therefore make up a greater portion of larger diameter trees. Hackberry (*Celtis* spp. – but really only *Celtis occidentalis*) trend the same as maples but make up less of the overall canopy. Genera that have a smaller expected maximum height like dogwood (*Cornus* spp.) and cherry (*Prunus* spp.) predictably show up in the smaller size classes. Also worth noting is how diversity tapers off (seen via the shrinking "Other" genera category) in the larger tree size classes which are dominated by maple and oak. A likely result of past planting choices, narrow street tree genera selection is concerning particularly when thinking about the preferences of pests or pathogens often being genera-specific. One final note is that pear (*Pyrus* spp. – but really only *Pyrus calleryana*) is a common genus up to 24 inches, telling us that there are many small (i.e. young) but also fairly large (i.e. "middle" aged) individuals of this invasive but all-to-commonly planted tree species. If the potential invasion into natural ecosystems including those directly within Park Hills' city limits isn't reason enough to avoid its continued planting, *Pyrus calleryana* is susceptible to bacterial fire blight and often short-lived due to its poor branching structure.

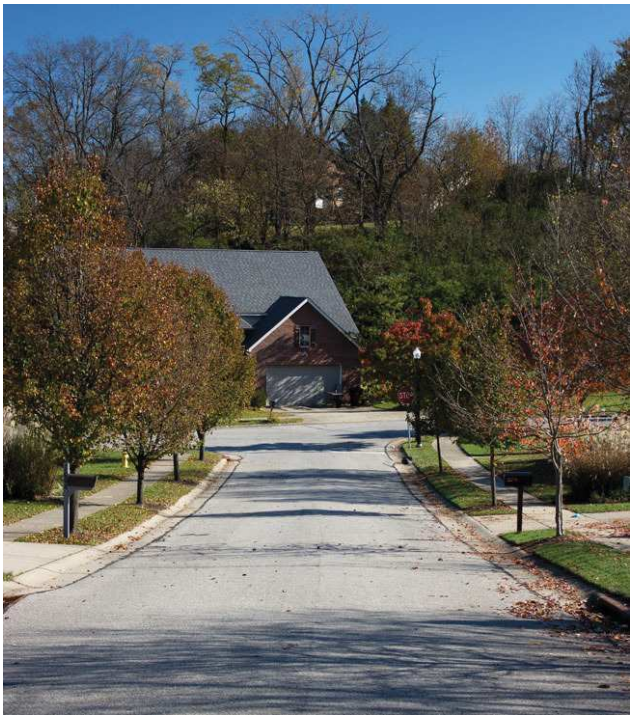


Image 1. Young maple (*Acer* spp. - right side of street) and ornamental pear (*Pyrus calleryana* - left side of street) are too common.

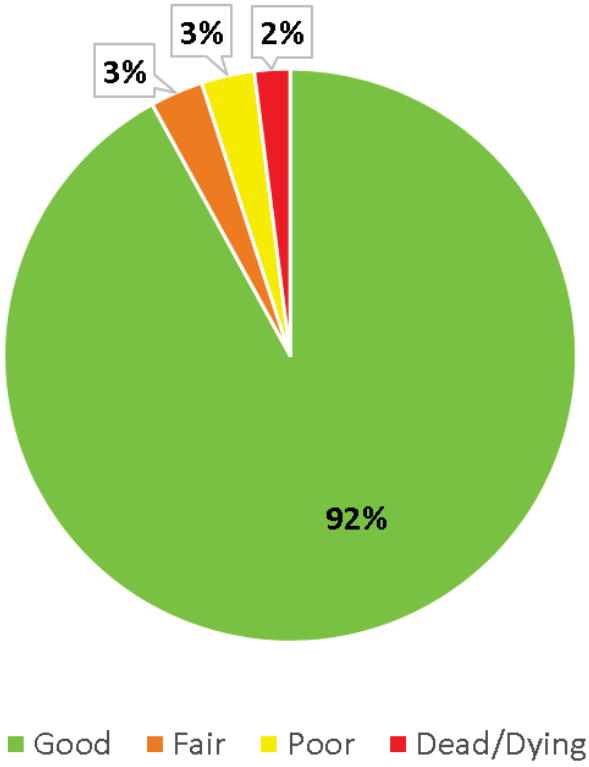
Image 2. Pin oaks (*Quercus palustris* - closest large tree on right) as a species are the largest trees in town.

STREET TREE HEALTH

Due to the nature of this project and the large number of trees inventoried, our assessments of tree health were done quite rapidly (usually ≤ 1 minute per tree). A "fly-by" tree health assessment such as this is likely to identify obvious and outstanding visual tree issues (i.e. branch and/or canopy dieback, cavities or decay, dead trees), but is by no means comprehensive.

Health of each tree, including (1) condition of wood, and (2) condition of leaves was collected during our inventory, but for reporting purposes these two health metrics were combined and the overall condition based on the lower of the two health metrics. (For instance, if a tree's wood condition was "Good" and the leaf condition was "Fair," the combined health rating would be "Fair.")

Figure 5. Health of Park Hills' street trees



As seen in Figure 5, the majority of trees (92%) inventoried were in "Good" overall health.

STREET TREE HEALTH

Figure 6. Health of all trees with a focus on top 12 genera

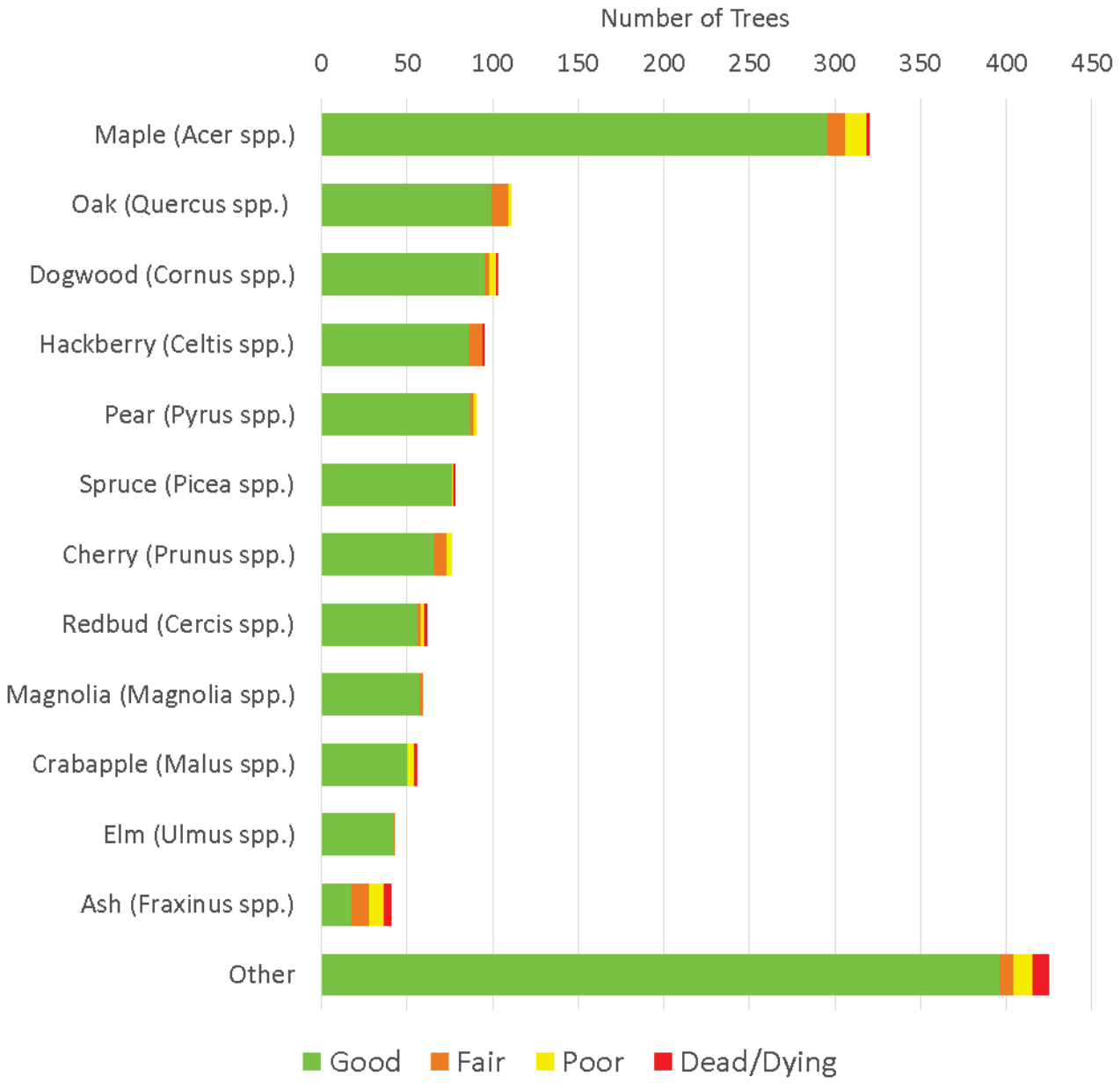
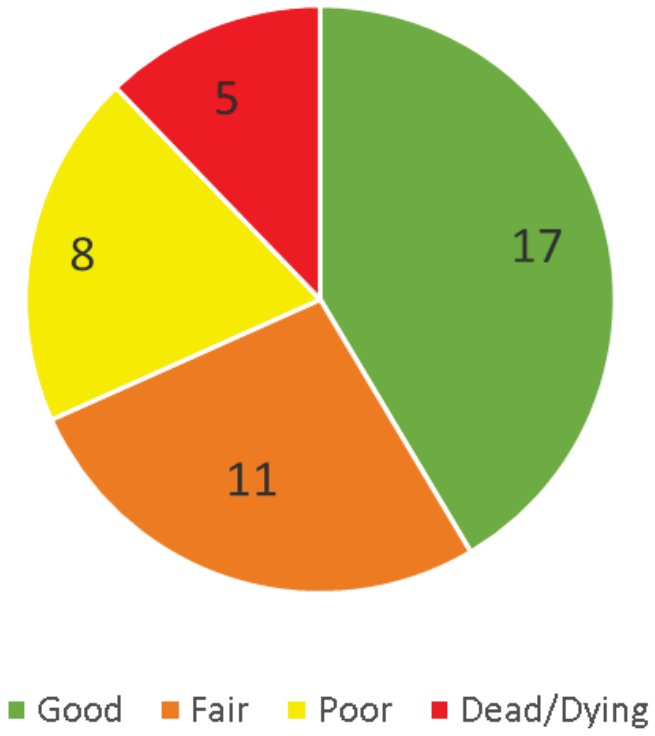


Figure 6 suggests that the only obvious health issues associated with a single genus had do to with ash (*Fraxinus* spp.) trees.

STREET TREE HEALTH

Figure 7. Health of ash (*Fraxinus* spp.) street trees



The emerald ash borer (EAB) is a highly destructive exotic invasive pest for urban and rural ash trees, but has been particularly impactful in the eastern U.S. (More of EAB effects on Park Hills found in the "Historical Comparison" section.) Figure 7 shows that more than half (58%) of all ash trees are in the "Fair," "Poor" or "Dead/Dying" health condition class. Many of these ash trees exhibited canopy dieback and other indicators, including exit holes and galleries, all evidence that EAB had visited these trees. Images 1 & 2 that show EAB in larval and adult stages.

Visit the Emerald Ash Borer Information Network website at http://www.emeraldashborer.info/index.php for more information.

STREET TREE HEALTH

Image 3. Emerald ash borer larvae (*Agrilus planipennis*) feed between the bark, disrupting water and nutrient transportation.

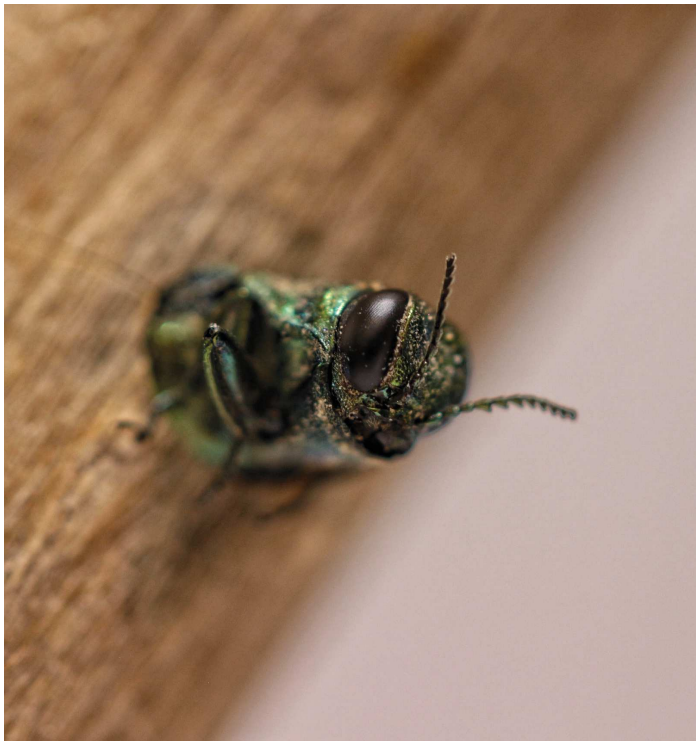


Image 4. Emerald ash borer adults emerge between May and July through D-shaped exit holes.

Both images courtesy of UK Forest Entomology Lab

ABOVE-GROUND UTILITY CONFLICTS

Lack of familiarity with the expected mature tree height at the time of planting is a major cause of tree utility conflicts in cities. The result is that the health and longevity of a tree is often compromised to keep branches away from lines. A proactive management approach can often address these conflicts in stepwise fashion (consecutive years of corrective pruning) and avoid disfigured city trees, which is all-to-commonly seen in trees near utility lines. A more desirable approach to avoid above-ground utility conflicts is a current and forward-looking site analysis before any city tree in planted

Figure 8. Park Hills' street trees with observed utility conflicts

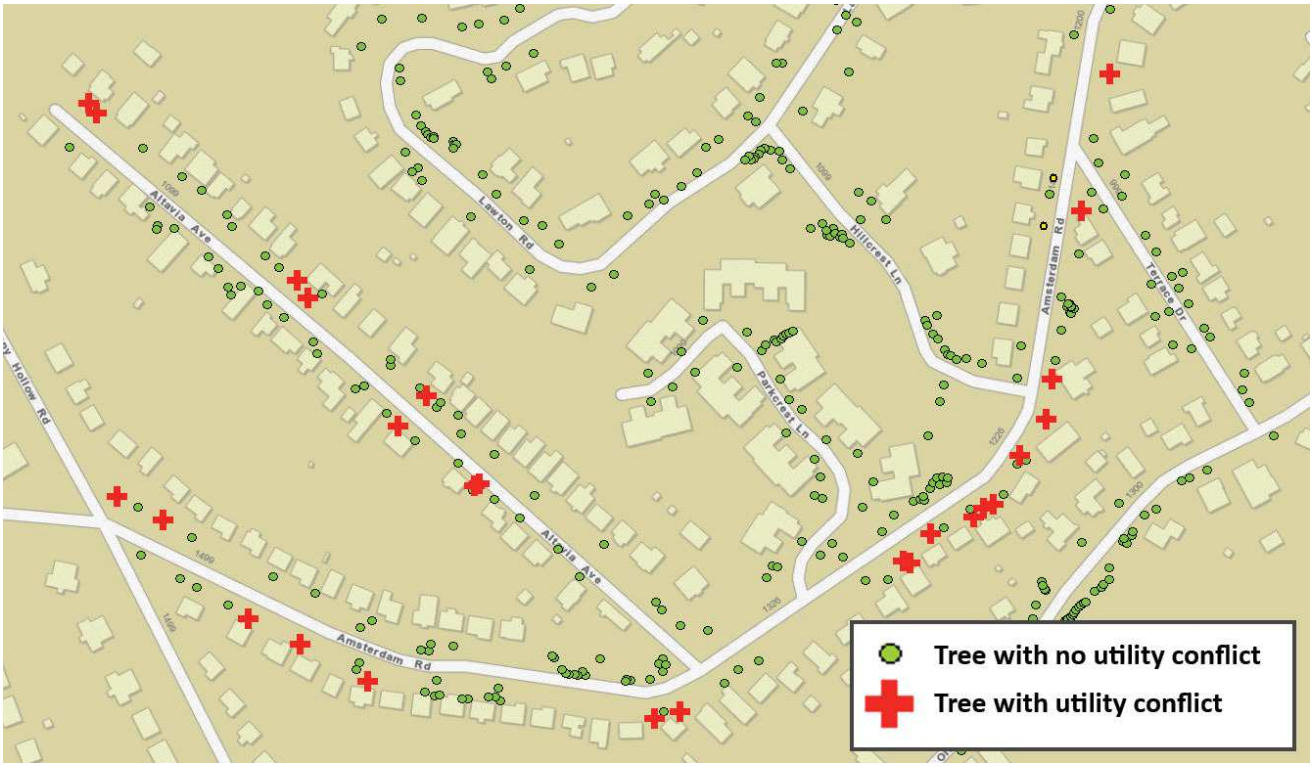


Figure 8 shows that Altavia Ave. and Amsterdam Rd. in Park Hills have a concentration of tree-utility conflicts, where utility lines are running through or touching a part of the tree's canopy.

THEN VERSUS NOW – A HISTORICAL COMPARISON OF PARK HILLS' STREET TREE CANOPY

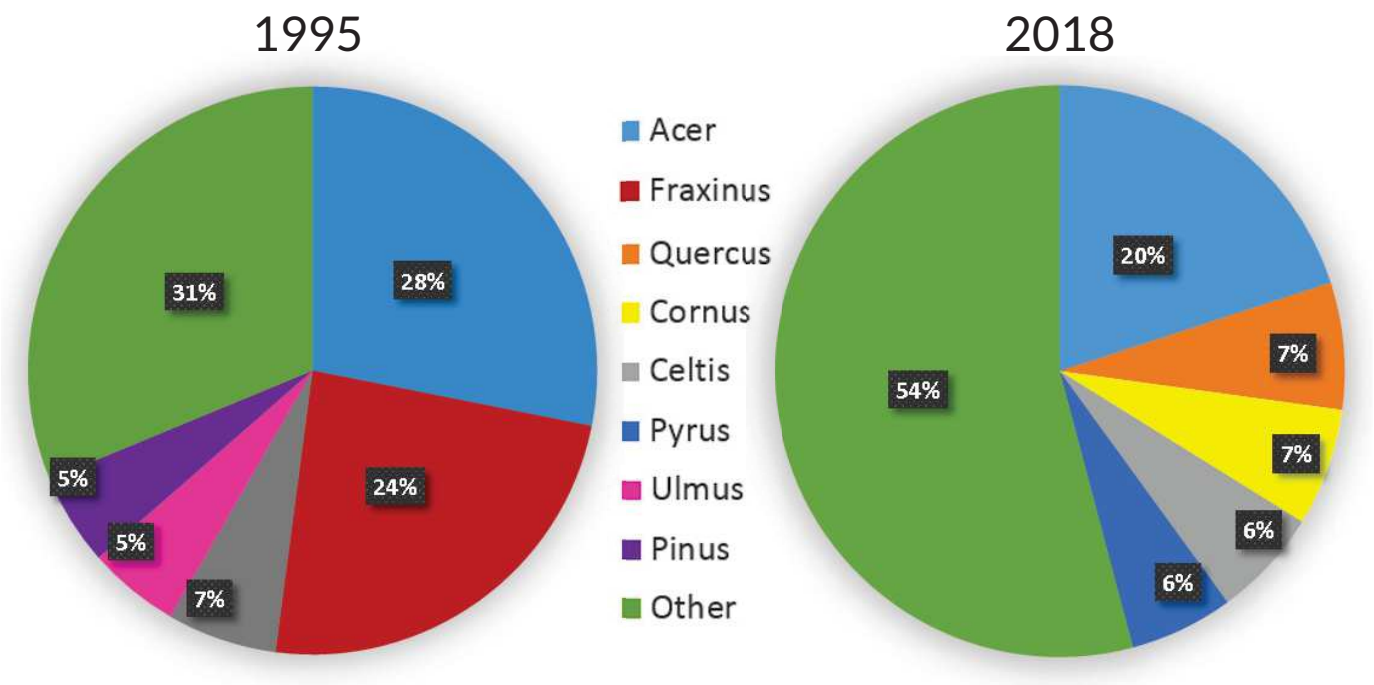
Abbreviations:

TMC 1995 = Thomas More College 1995 Tree Report by Dr. William S. Bryant et al.

UFI 2018 = UK Urban Forest Initiative Tree Inventory in 2018 (current inventory)

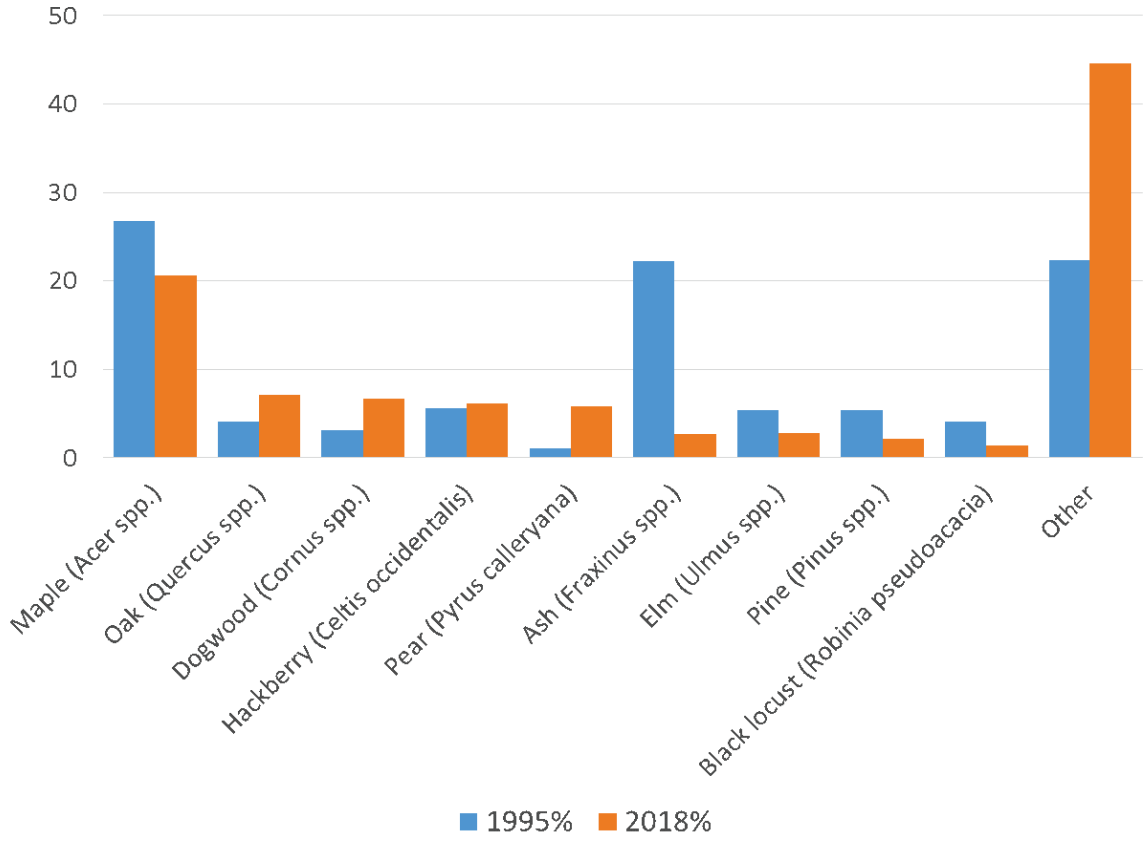
The "Tree Inventory Report for the City of Park Hills" published by William S. Bryant, Ph.D (Thomas More College Biology Department)et al. in 1995 provided a unique opportunity for us to examine changes in the Park Hills street tree canopy over a 23-year period. UFI's 2018 tree inventory included nearly twice the number of trees as the TMC 1995 inventory, in part because UFI 2018 included all trees within 40 feet from street center (80 foot total street buffer), whereas TMC 1995 included trees within 20 feet from street center (40 foot street buffer). These differences resulted in differing total numbers of trees inventoried, with UFI 2018 inventorying 1,560 (technically 1,992 before removal of thickets for this analysis) and TMC 1995 inventorying 837. This major difference is an important preface to this section about the changing Park Hills' street tree canopy over the past 23 years.

Figure 9. Park Hills' most prevalent street tree genera, TMC 1995 to UFI 2018



THEN VERSUS NOW - CONT.

Figure 10. Park Hills' most prevalent street tree genera (and species), TMC 1995 to UFI 2018



Of significant note is the decline of ash (*Fraxinus* spp.), which in 1995 had a dominant presence along Park Hills' streets. Almost 25% of Park Hills' street trees were ash in 1995, compared to 3% in 2018. The decline in the ash component is directly due to the arrival in 2009 of EAB in northern KY. The non-native EAB feeds beneath the bark of highly susceptible North American ash species, destroying the vascular system and resulting in rapid tree death. Ash in Park Hills, and virtually all of northern Kentucky, have been heavily impacted by the EAB invasion. Other declines between TMC 1995 and UFI 2018 include a decline in elm (*Ulmus* spp.), pine (*Pinus* spp.) and black locust (*Robinia pseudoacacia*) since 1995. In contrast, the invasive pear (*Pyrus calleryana*) is now much more prevalent along city streets (TMC 1995 = 1%, UFI 2018 = 5%). An increase in oak (*Quercus* spp.) and dogwood (*Cornus* spp.) is also apparent. Differing inventorying methods could play a role in smaller fluctuations, but also partially explains change in the "Other" category. An increase in total number of genera (TMC 1995 = 33, UFI 2018 = 57) when inventorying trees "deeper" into front yards (further from the street) would make sense; on multiple streets our buffer had us measuring foundation plantings and in highly-landscaped "garden" yards, wherein we often found genera which aren't commonly planted or recommended as "go-to" street trees (more on this in "Suggestions").

SUGGESTIONS

General suggestions to enhance Park Hills' tree canopy

- Mature trees provide the greatest benefits, so pursue all practices aimed at protecting these trees now and into the future. This includes (but is not limited to) a clearly defined and enforced plan for tree, root and soil preservation during construction and development. The Urban Tree Foundation (UTF) provides many useful resources for cities in the form of tree protection, planting and care standards and specifications, all found online at http://www.urbantree.org/.
- All mature trees start small! Properly plant young trees in appropriate locations (always planting for maximum height potential and ensuring adequate rooting space) and provide adequate irrigation (approximately 1 inch/week) for the first 3 years while new root systems establish. Check out the UTF website and the International Society of Arboriculture's (ISA) "Tree Owner Informational Brochures" for helpful tips in planting, found online at http://www .treesaregood.org/treeowner.
- Support local nurseries and demand diversity from all nurseries. Make shopping for the right tree an excuse to take a walk in a nearby park or arboretum and then head to a nursery with a species list you are excited about. Remember, ideally you are making a purchase that will outlast you. The Northern Kentucky Urban Forestry Council's (NKYUFC) Tree Planting Database is a free and useful tool for species selection, found online at http://www.nkyurbanforestry.org/individual-tree-resources.html.
- An often repeated adage in urban tree planting is "right tree, right place." In reference to conflicts with above ground utilities (electricity, cable, internet), the best course of action in planting street trees is a site analysis to determine whether there are current or future plans for utility services in the proposed planting site. Choosing the appropriate tree species to match the site is only possible after such an assessment – plant for maximum expected height! The NKYUCF Tree Planting Database (above) can be used to search for trees with a maximum height of 25 feet, ideal for streets with above-ground utilities.
- Trees at big-box stores may be conveniently accessible and priced, but options are often very limited and in some cases (i.e. invasives) detrimental to ecosystems. For a list of plants considered invasive in Kentucky, visit the Kentucky Invasive Plant Council online at https://www.se-eppc.org/ky/
- Proper mulching is an easy but highly effective means of caring for trees. Coarse, organic (something that breaks down) mulch should be between 3 – 5 inches deep (except near the tree trunk where there should be none) and ideally extend to the drip line (canopy edge) of the tree. Proper tree mulching improves soil structure and moisture retention, critical for growing healthy tree roots. Well-kept mulch rings also can help avoid damage from mowers and string trimmers. Mulch piled high and against the trunk of the tree ('mulch volcanoes') leads to deterioration of the bark and provides opportunity for pathogens and a slow death for the tree. See ISA's brochure on proper mulching (linked at top).

SUGGESTIONS

Beyond the Basics

- The spreadsheets and GIS deliverables (i.e. the raw data) provided with this report have great potential in managing Park Hills' street trees. The spreadsheets, especially in their digital format, can be easily sorted and analyzed for asking and answering specific questions of interest to the Park Hills Tree Board and other city officials. Similarly, the GIS deliverables can provide great insight into spatial patterns and exact location of individual trees. Here are but a few examples of how Park Hills' could use this information:
    - Trees with a "Yes" rating in the "Consult" category should be further evaluated by an arborist or similar person trained in tree health and/or risk analysis
    - Trees with a "Yes" rating in the "Wire Conflict" category should be further evaluated by a utility arborist to develop a management plan
    - Re-evaluate the health of ash (Fraxinus spp.) trees (yearly at a minimum) for their structural integrity following EAB

  Here are some questions which could be addressed through further analysis of the data:

    - Where should Park Hills focus street tree planting efforts? (Areas with fewer street trees could be an obvious choice; but also areas with aging trees that may not be around for much longer)
    - If there are existing recommendations for street tree plantings for our city or region, how do these compare to our current street tree diversity? (A deeper dive into street tree species and genera composition could be quite useful.)
    - What trees will be affected if a proposed development/construction project moves forward? (GPS tree coordinates can identify which trees are near a proposed street or sidewalk expansion, for example.)

- Park Hills' residents usage of less common street trees is a reminder that "proven" street trees (based on a variety of factors but including tolerance to soil and/or air pollutants or drought, nursery availability) are a rule-of-thumb more than a rule. This is especially pertinent in consideration of a changing climate. Monitoring the less common genera and species inventoried here could guide future planting decisions in Park Hills but also the greater Northern Kentucky area.

CONCLUSION

The City of Park Hills is aptly named when it comes to trees. As we walked the winding streets of your city, carefully avoided perennials in front-yard landscaped beds, and wrapped our tape measures around trees large and small, young and old, we became intimately aware of how much the beauty of a small town has to do with the street trees therein. Our knowledge of Park Hills and its trees is limited to a 3-day visit in June 2018 and because of this we expect to have missed or excluded details which may be more pertinent and fitting to the vision of Park Hills' future. Let the results of this work serve then as a sign-post on the continuum of a constantly changing town and its trees. We hope its results may be useful along a path to a healthy and vibrant street tree canopy for years to come.

Image 5. Urban Forest Initiative team celebrates a completed Park Hills stree tree inventory.

APPENDIX

Data parameters/definitions for inventoried street trees

The information UFI collected in the field includes the following parameters/definitions (based on Cornell University's Student Weekend Arborist Team):

GPS coordinates: determined by using GPS to drop a point as close to main trunk as can be determined from aerial imagery.

Genus species: common name: Trees are identified and classified by their respective common and/or botanical names using the drop-down/autocomplete menu.

Location type: Placement of trees and planting sites is assessed by one of six ratings:
Unknown
Street tree (planting strip < 4 ft. wide)
Street tree (planting strip > 4 ft. wide)
Sidewalk tree pit
Private property
Public property

DBH centimeters: Trunk diameter at breast height (approximately 4.5 feet above the ground) is rounded to the nearest inch. DBH is the most commonly used size measurement of trees.

Condition wood: The health of a tree's wood (its structural health) is assessed by one of four ratings:
Dead or Dying - extreme problems
Poor - major problems
Fair - minor problems
Good - no apparent problems

Condition leaves: The health of a tree's leaves (its functional health) is assessed by one of four ratings:
Dead or Dying - extreme problems
Poor - major problems
Fair - minor problems
Good - no apparent problems

APPENDIX

Data parameters/definitions for inventoried street trees

Percent deadwood: "Deadwood" refers to branches that are dead, dying, or diseased. The percentage of deadwood in the tree canopy is assessed by one of five ratings:
< (less than) 10%
10 -- 25%
25 -- 50%
50 -- 75%
> (greater than) 75%

Recommended maintenance: Tree maintenance needs are assessed by one of four ratings:
None - no maintenance necessary
Train - routine maintenance for a young tree
Routine Prune - routine maintenance of a mature tree
High Priority Prune - a tree requiring immediate maintenance.

Consult: Based on the condition of the tree, an assessment is made as to whether a certified arborist should be brought in to examine the tree.

Sidewalk damage: The presence or absence of damage associated with tree roots where the sidewalk was heaved at least ¾ inch is noted.

Wire conflict: The presence or absence of overhead utility wires within the tree canopy is noted.

Multiple stems: The number of multiple stems is categorized. Multiple stems in this instance are defined as the union of the pith between stems to be at or below ground level.

Other notes: Any other specific observations of the tree.

Attachments: Any representative photos of the tree.

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