An Overview of Mission Hill's Public Tree Resource

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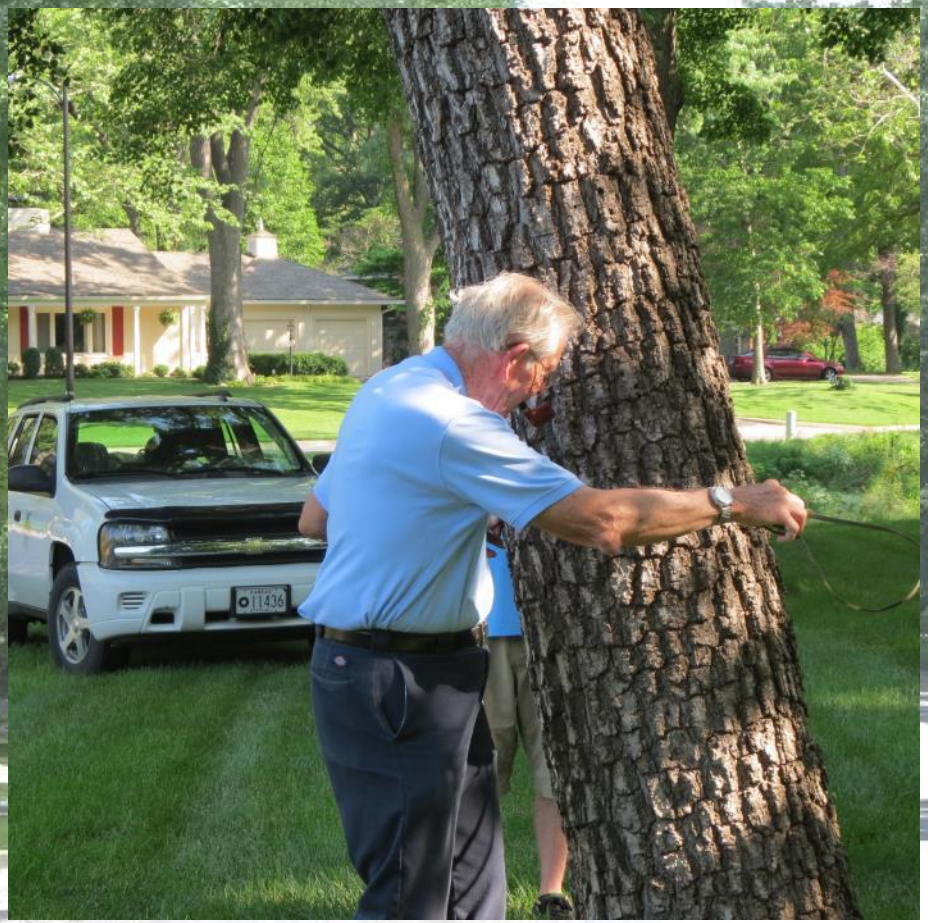
KANSAS COMMUNITY FORESTRY

KANSAS FOREST SERVICE
KANSAS STATE UNIVERSITY

Introduction

- Data collected during the Summer of 2013.
- Included trees along streets, all city parks, islands and green spaces.
- Purpose to provide information to the City and Park Board to aid in the development of planting and management plans.

Data Recorded



- Species
- Size by DBH (Diameter at Breast Height)
- Condition
- Location

2013 Results

- 3,932 total public trees within city limits
- 86 different species of trees
- Top species by population:
  - 10% Sugar maple
  - 9% Pin oak
  - 9% Red maple
  - 8% Littleleaf linden
  - 8% White ash

Species Diversity

- No one species should comprise more than 10% of the total population.
- Over-population by a single species can make a community vulnerable to losing a high number of trees to an insect, disease, storm event, or to environmental stressors.
- Sugar maple and red maple comprise 19% of the total. All maples (Genus *Acer*) 23%.
- 19% oaks (Genus *Quercus*).
- Genus composition should not exceed 20%, Family composition not exceed 30%.

Condition

- Used to gauge current and upcoming management needs.
- Classifications:

  Good: Healthy vigorous tree with no apparent signs of disease or mechanical injury. The tree is representative of its species and requires little or no corrective work.

  Fair: Tree of average condition and vigor for the area, with minor insect injury, disease of physiological problems. May lack desirable form characteristics of the species, and may require some corrective pruning or repair.

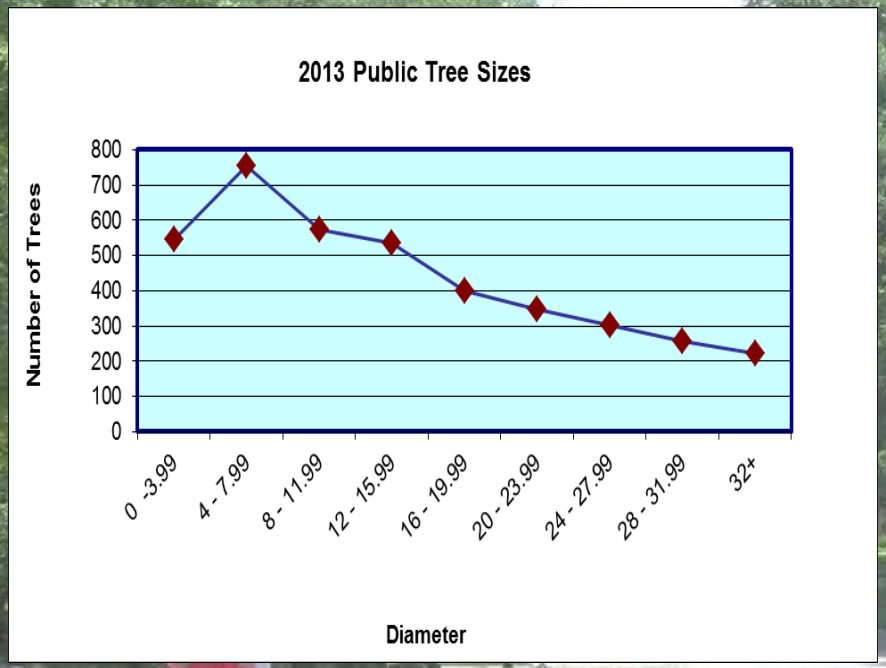
  Poor: Tree is in general state of decline, and may show severe mechanical, insect or disease damage, but death is not imminent. May require major repair, renovation, or replacement.

  Dead and Dying: Dead or death imminent.

Breakdown by Condition

- 56% Good Condition (2217)
  - No specific management needs
- 31% Fair Condition (1196)
  - Requires minor pruning, maintenance, insect or disease controls
- 12% Poor Condition (474)
  - Requires more intensive management intervention
- 1% Dead and Dying (45)
  - Needs prompt attention

Size



- It is important for the community forest to be uneven in age.
- Young trees tend to be more resilient and vigorous in growth. Older trees slow in growth and can be more affected by storm damage and other stressors.
- Very encouraging that a high number of younger trees have been planted and established to replace the older trees that have shorter lifespans in the landscape.

Values of the Infrastructure

Two different valuation approaches shown in Management Recommendation

- Trunk Formula
  - Equation developed by International Shade Tree Conference. Intrinsic values of shade and beauty.
- Ecosystem Contributions (i-Tree)
  - Energy conservation, air quality benefits, carbon sequestration and storage, avoided emissions, rainfall interception (stormwater) and aesthetic values

Trunk Formula

$10, 001,252 for the public tree infrastructure

D(x2) x .7854 = cross sectional area (sq.in.)

Dollar value per square inch x

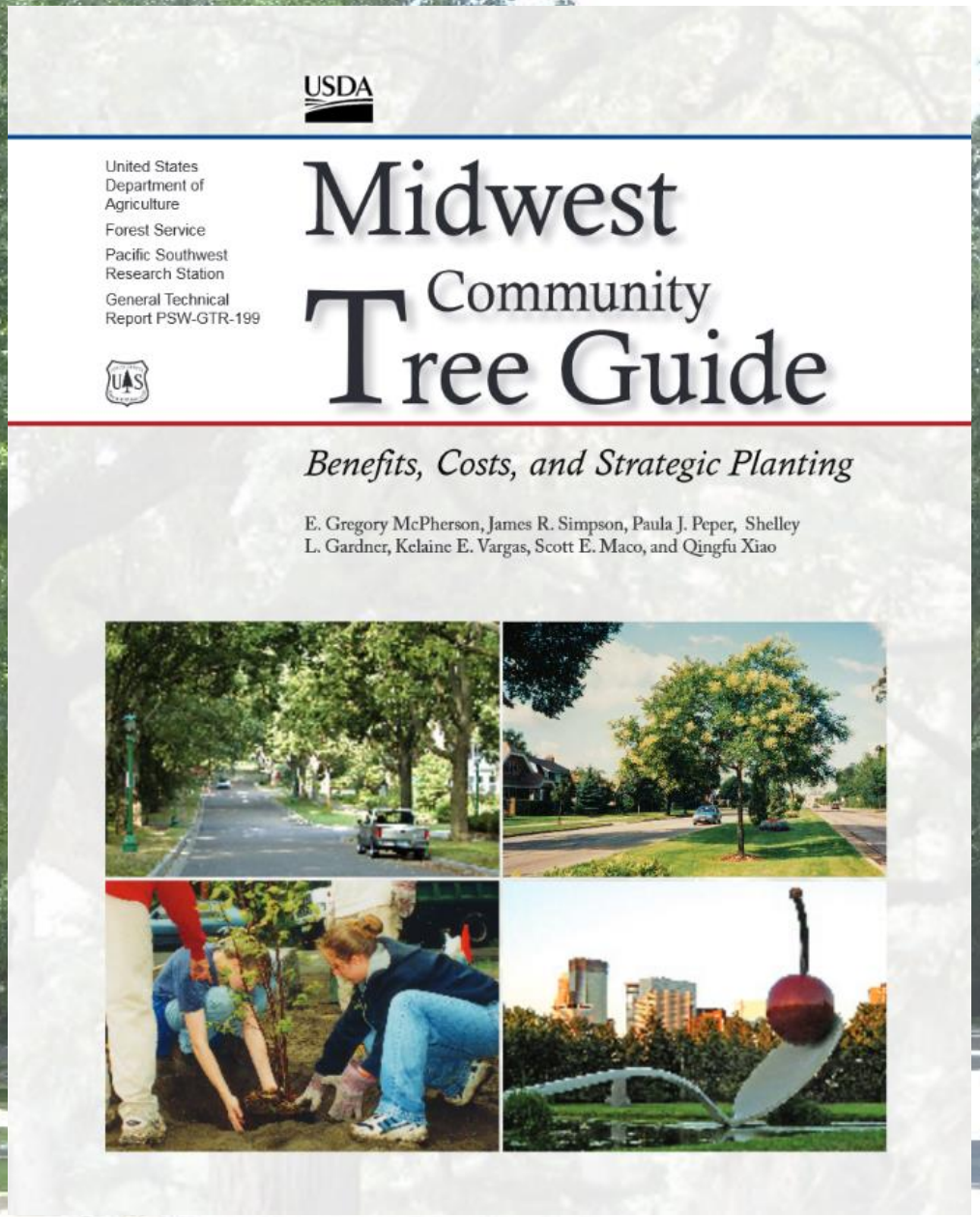
Species class % x

Condition class % x

Location class %

Ecosystem Services

Ecosystem Service	Resource Unit	Value of Service
Energy Conservation	704 mWh, 94,997 Therms	$146,543
Carbon dioxide sequestered and avoided	2,549,597 pounds	$19,122
Air quality: pollutants absorbed, avoided	8,614 pounds	$24,028
Stormwater: rainfall intercepted	6,693,152 gallons	$181,384
Aesthetic/Other (based on local average home resale value)	N/A	$859,164
Total Yearly Benefits		$1,230,242
Carbon Stored – One Time Benefit	25,714,069 pounds	$192,856



- To learn more about how trees improve your health and well-being, visit http://www.fs.fed.us/psw/publications/documents/psw_gtr199/psw_gtr199.pdf

Commendations

- Commitment to a progressive community forestry program.
- Systematic pruning cycle
- Preservation practices
- Ash management plan enacted
- Species diversity increased since the inventory
- ~ 250 new trees planted with correlating watering schedule
- Maintenance of inventory data