



Sustainability in Fairfax City's Urban Forest

Jim McGlone

Urban Forest Conservationist





Past Sustainability Efforts

- Early 70s – Sewage
 - Solution: hook into regional system
- 90s and 00s – Storm water
 - Solution: Stream Restoration





URBAN FORESTS



Urban Forest

- Urban – man made; forest – nature
- Urban – adjective modifying the noun forest
- Forest a system consisting of:
 - Living –plants, animals, bacteria, fungi
 - Non-living – minerals, water, air, light
 - Interactions between and among
- An urban forest is a forest dominated by people and their constructs

The Urban Forest





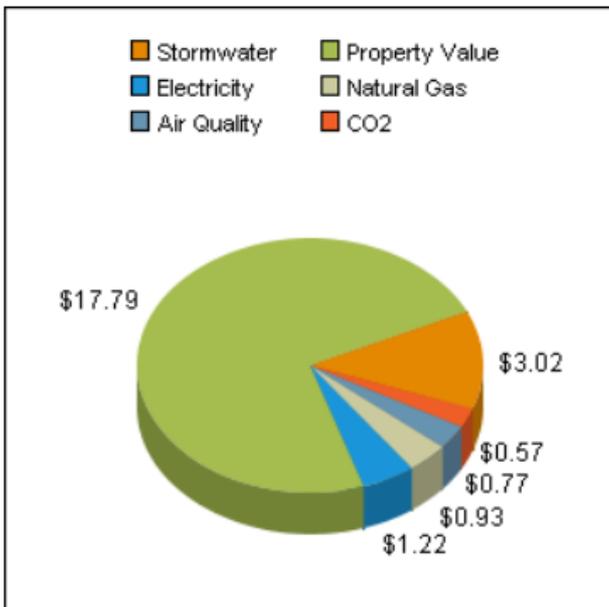
Ecosystem Sustainability Benefits

- Improve Air Quality
- Manage stormwater
- Store Carbon
- Provide habitat for animals
- Recycle oxygen

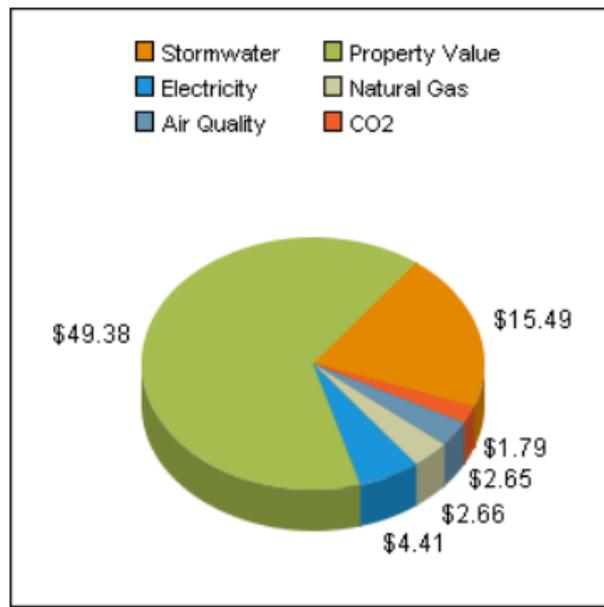


Sustainability Benefits Cont.

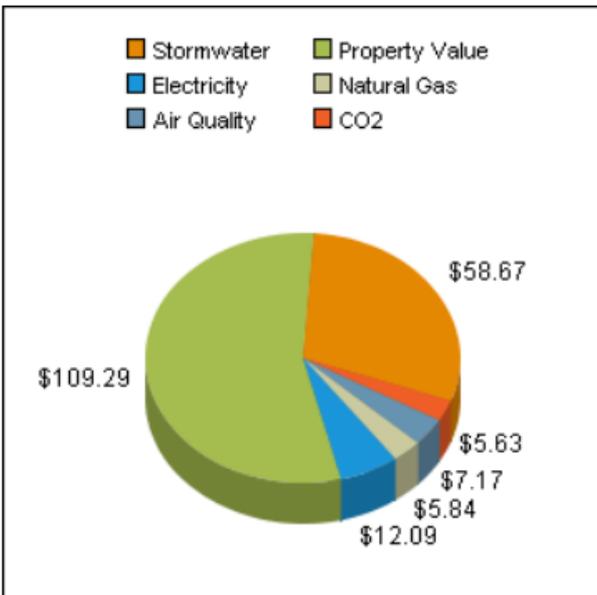
- Provide habitat for people
 - Lower energy costs through shading and ambient cooling
 - Higher property values, lower vacancy rates, better employee retention, lower crime rates
 - Stress reduction, better health, reduced ADHD, improved immune system functioning, reduces the incidence and severity of anxiety and depression
 - Less direct input – fertilizer, fuel, water, time
 - Support IPM



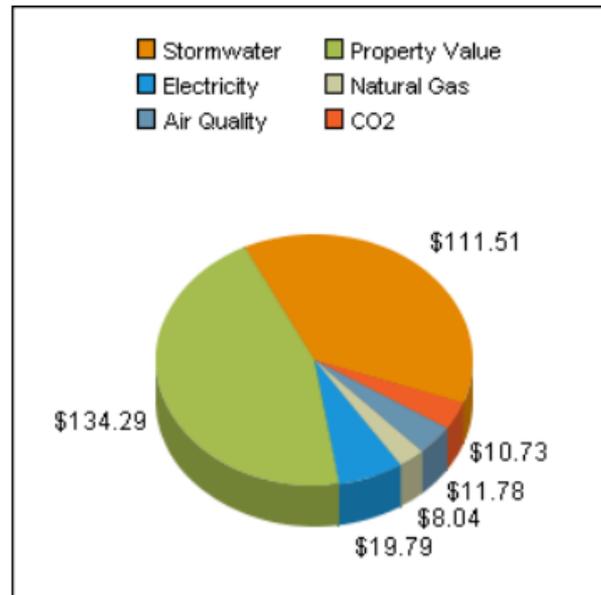
5 inch \$24/year



10 inch \$76/year



20 inch \$199/year



30 inch \$296/year

Red Maple in a single family home setting.
Using National Tree Benefit Calculator
<http://www.treebenefits.com/calculator/>





Urban Forest Issues

Street Trees

- Restricted rooting space & compacted soil
- Equipment damage
- Drought
- Road salt
- Poor architecture
- Insects/disease

Park Trees

- Deer
- Non-Native invasive plants
- Insects/disease
- Poor soils
- Equipment damage



STREET TREES



Right Tree in Right Place

Site considerations

- Function
- Growing conditions
 - Soil
 - Volume
 - Nutrients
 - Compaction
 - Water availability
 - Heat
- Surrounding area
 - Hardscape near roots
 - Crown space

Tree considerations

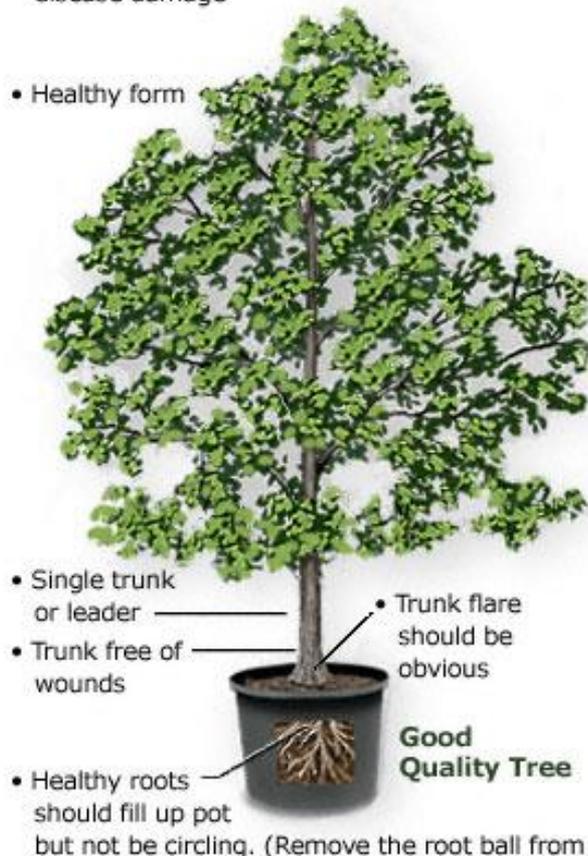
- Ultimate size
- Rooting habits
- Crown shape
- Debris
 - Fruit
 - Flowers
- Adaptations
 - Salt tolerance
 - Low oxygen

Select a Good Quality Tree at the Nursery

A High Quality Tree Has:

- Enough sound roots to support healthy growth.
- A single, central trunk or leader
- A trunk free of mechanical wounds and wounds from incorrect pruning.
- A strong form with well-spaced, firmly attached branches.
- Leaves with good color and no obvious insect or disease damage

- Healthy form



A Low Quality Tree Has:

- Crushed or circling roots in a small root ball or small container.
- A trunk with wounds from mechanical impacts or incorrect pruning.
- A weak form in which multiple stems squeeze against each other or branches squeeze against the trunk.



New Tree Maintenance

- Supplemental watering for 1 year per inch caliper
- Structural pruning
- Mulching
- Nutrient/pest management as needed



Older Tree Maintenance



- Pruning
- Mulching
- Nutrient/pest management as needed
- Risk assessment
- Mitigation as needed

Mulching





PARK TREES

Deer & Invasive Plants



Native Trees

- Primary benefit is to wildlife
- May affect human habitat benefits
- Air and water benefits don't depend on origin
- Use native trees in parks and non-invasive trees in streets





URBAN FOREST MANAGEMENT



Strategic Plan Elements

- A. Vision/Goals/Mission – Where You Want To Be
- B. Initial Assessment – Where You Are
 - A. Street trees/parks
 - B. Ordinances
 - C. Tree resources
 - A. Personnel
 - B. Equipment
- C. Actions – How to get from B to A

Tactical Plan

- Define and prioritize work
- Budget
- Training
- Data maintenance
- Evaluation of progress



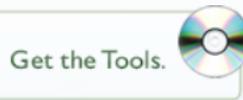
Emergency Management Plan





i-Tree

Tools for Assessing and Managing
Community Forests



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Applications

[i-Tree Eco](#)

[i-Tree Streets](#)

[i-Tree Hydro \(beta\)](#)

[i-Tree Vue](#)

[i-Tree Design](#)

[i-Tree Canopy](#)

System Requirements



i-Tree Urban Forest Assessment Applications

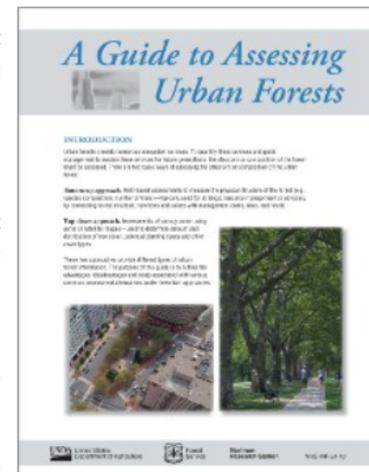
The 2014 version of i-Tree offers several urban forest assessment applications including i-Tree Eco, i-Tree Streets and i-Tree Vue. i-Tree Design and i-Tree Canopy are accessible online assessment tools.

Based on years of US Forest Service research and development, these innovative applications provide urban forest managers and advocates with tools to quantify ecosystem services and benefit values of community trees at multiple scales. The ability to articulate the significance of community trees in terms of pollution mitigation, storm water run-off reduction, carbon sequestration and storage and more has allowed i-Tree users to improve tree management, plan strategically, increase community awareness, engage decision makers and build new partnerships.

Click on the "Learn more" links to further explore the i-Tree Applications or see the new [Guide to Assessing Urban Forests](#).

i-Tree Eco

[i-Tree Eco](#) provides a broad picture of the entire urban forest. It is designed to use field data from complete inventories or randomly located plots throughout a community along with local hourly air pollution and meteorological data to quantify urban forest structure, environmental effects, and values to communities.



Dr. Dendro will enter any of your tree-related questions.



Dr. Dendro (on right) with former graduate student Butnor (left, now with USDA Forest Service) and Gough (center, now a Professor at Virginia Commonwealth University).

[Ask Dr. Dendro](#) a question.

For tree identification questions please feel free to attach digital photos. Be sure and indicate what region of the country the plant is from, whether it is wild or in a yard, and any other information you noticed about the plant.

-  ID Keys
-  vTree App
-  WPINA DVD
-  Street Tree Selector
-  Campus Trees
-  Links
-  Quiz
-  Doctor Dendro

Flowers in
ern Idaho





For whatever reason, repeated studies have shown that urban trees improve the quality of life in a built environment.

Improved quality of life means more tax revenue, fewer services and happier people, all of which leads to re-election.



Trees can be a great benefit to a municipality, but there is a cost to maintaining the urban forest. If the forest is not maintained it will become a bane rather than a boon.