

When a Tree Falls... It Makes a Lot of Noise

Jim Zwack

ICMA Conference Presenter



Personal Introduction

- B.S. in Urban Forestry
- M.S. in Tree Physiology
- Director of Technical Services for the Davey Tree Expert Company
 - We help people protect their trees and prevent problems associated with them
- My goal is to expand how you think about trees during the next 25 minutes

Three Distinct Topics

- Trees as Liabilities
- Trees as Assets
 - *“Trees add value to a community, but they also come with their own issues.”*
- Taking Control
 - *“This session will focus how to use trees to enhance your community's value and how managers can be proactive in addressing potential legal and economic issues.”*



Trees as Liabilities

- Why not start with Assets?
- If I ask you to think about the trees in your community, what comes to mind?

What Comes to Mind?

- Annual costs associated with:
 - Pruning – visibility, line clearance, etc.
 - Removals – personal and property damage
 - Roots that break sidewalks, curbs, and sewers
- Direct liability from all 3



What Comes to Mind?

- Storms that are difficult budget for
- Questions from the public – Who answers them?
- Species complexity!



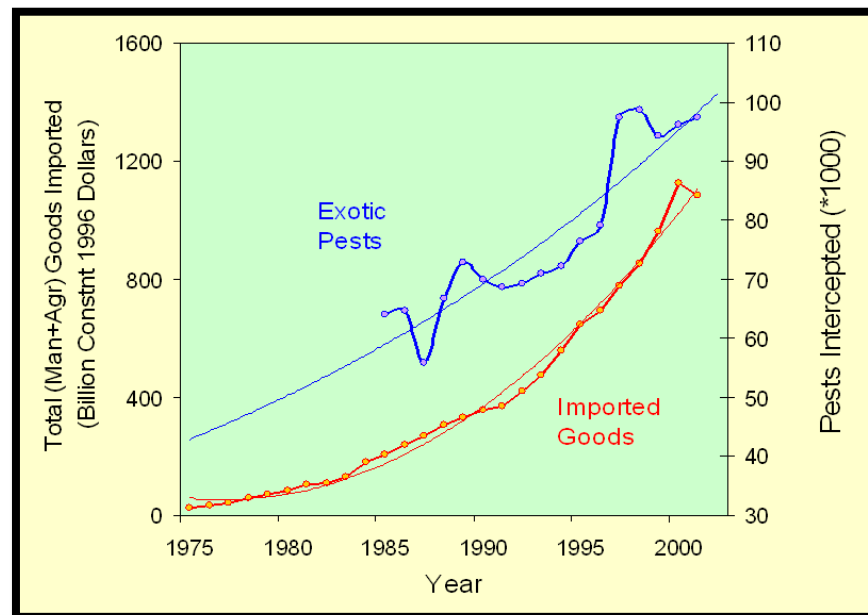
What Comes to Mind?

- Exotic/Invasive pests
 - Tree killers, not routine issues
 - More frequent and more serious (EAB, PSHB, TCD, ALB etc.)



What Comes to Mind?

- University of California Riverside
 - California gets 6 new per year
 - Florida and Hawaii get about 15 per year



Trees as Liabilities

- If I ask you to think about the trees in your community, what comes to mind?
- Nice “decorations” to have, but...



Three Distinct Topics

- Trees as Liabilities
- Trees as Assets
 - *“Trees add value to a community, but they also come with their own issues.”*
- Taking Control
 - *“This session will focus how to use trees to enhance your community’s value and how managers can be proactive in addressing potential legal and economic issues.”*



Trees as Assets

- What assets in your community appreciate in value as they get older?
 - Real estate?
 - Pipes, cars, computers, etc. all go down in value
 - Trees increase in value and benefits delivered as they age
 - What does this mean?

Quantifying Tree Benefits: i-Tree

“Putting USFS Urban Forest science into the hands of users”

- Credible, USDA FS peer-reviewed tools
- Free public domain software
- Continuously improved
- Technical support



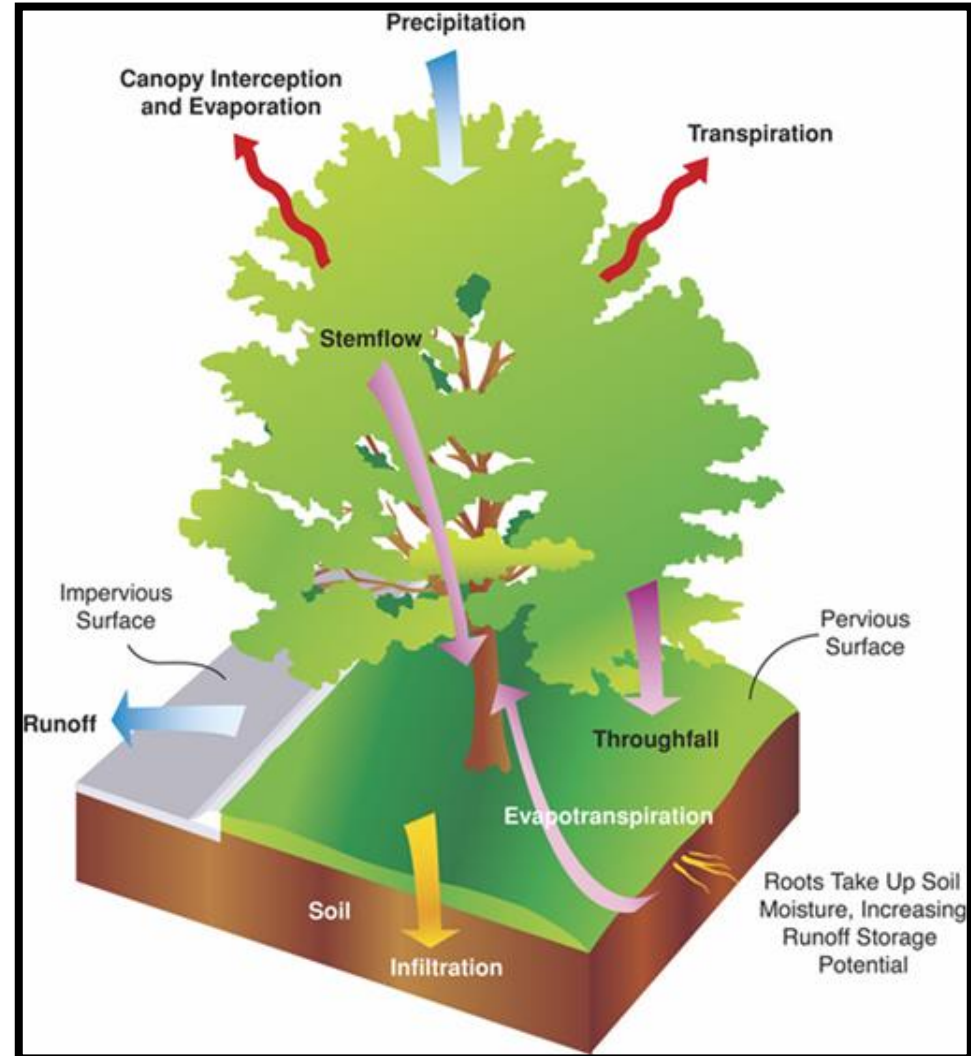
The screenshot shows the i-Tree website homepage. At the top, there is a navigation bar with the i-Tree logo, the tagline "Tools for Assessing and Managing Community Forests", a "Get the Tools" button with a CD icon, a Google Custom Search box, and the USDA logo. Below the navigation bar is a large banner image of a city skyline at night with a river and a bridge. Underneath the banner is a horizontal menu with buttons for Home, About, Applications, Utilities, Resources, Support, and News. The main content area is divided into three columns. The left column features a "Community Trees: A Living Investment" section with a video thumbnail and a "Featured i-Tree Project: Fox Valley, WI Metro Area" section with a tree diagram showing values like \$186,000, \$11.40, and \$218,334. The middle column has a "What is i-Tree?" section with a detailed description of the software suite and its benefits, followed by a "Follow i-Tree on Twitter" link. The right column contains a "What's New?" section with several news items, including "PA Joint Legislative Air and Water Pollution Control and Conservation Committee Environ. Synopsis Dec 2012", "Wisconsin DNR study shows Fox Valley area trees provide \$5m per year in benefits", "i-Tree and Air Pollution in Desoto County, Mississippi Urban Forestry South - Leaves of Change", "A Guide to Assessing Urban Forests", "Virginia Street Tree Assessment Project: An application of i-Tree Streets", and "Green Benefits in Victoria (UK) Business Improvement".

www.itreetools.org



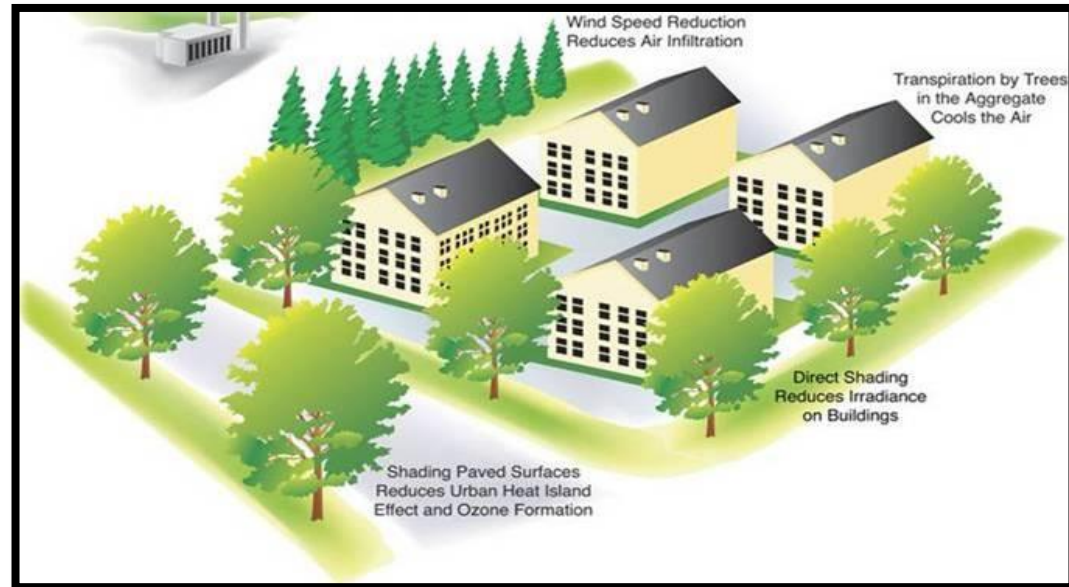
Benefit 1: Stormwater

- Trees intercept and hold rain on leaves, branches, and other surfaces
- Increases storage in soil
- Reduces erosion
- **Reduces stormwater runoff**



Benefit 2: Energy Use

- Trees shade buildings
 - Reduces demand for air conditioning
 - Reduces electricity consumption
- Trees are windbreaks that reduce heat loss in winter

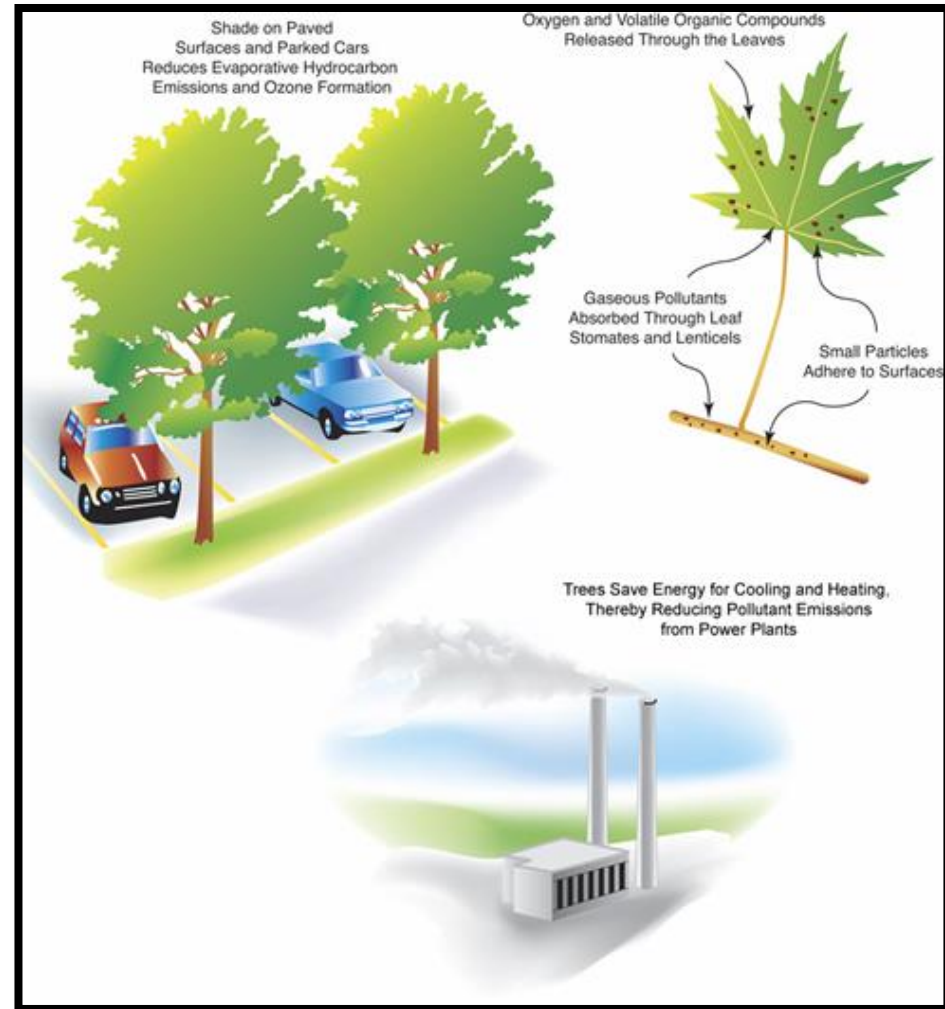


🌳 Transpiration cools the air

🌳 Trees reduce urban heat island effects

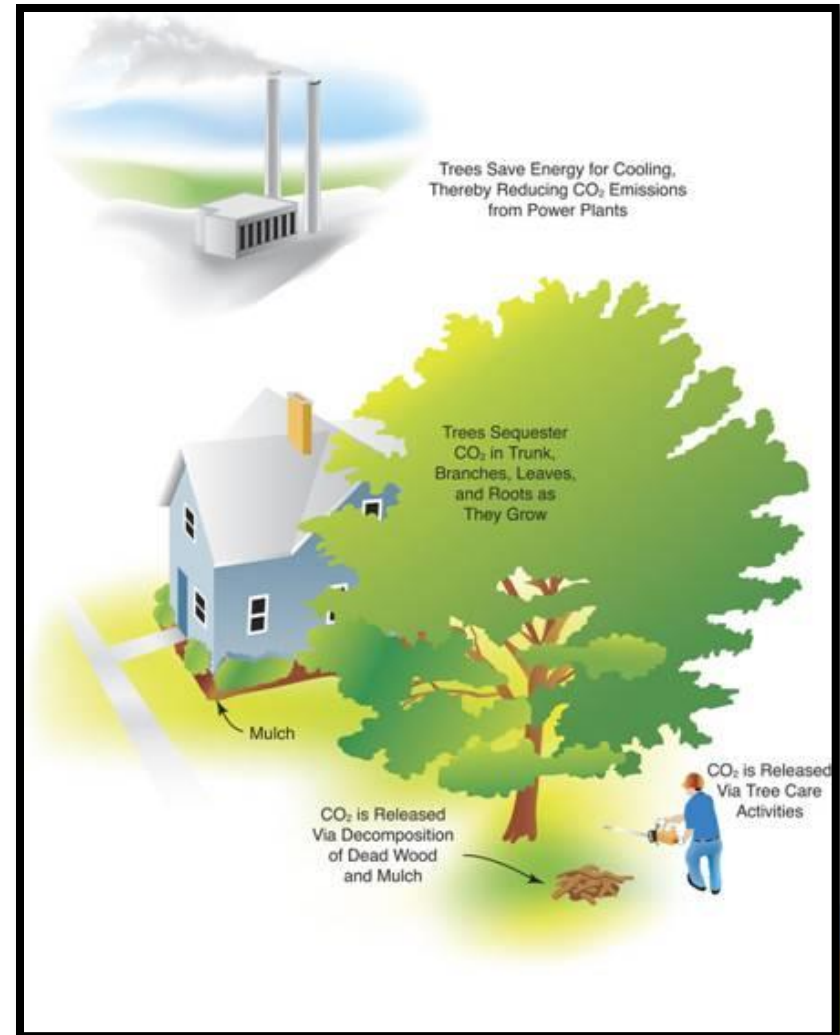
Benefit 3: Improve Air Quality

- Absorb pollutants through leaf surfaces
 - O_3 (ozone)
 - NO_2 (nitrogen dioxide)
 - SO_2 (sulfur dioxide)
- Intercept dust and/or particulate matter (PM10 and PM2.5)
- Release oxygen
- Trees reduce the demand for energy consumption, which reduces the creation of many pollutants



Benefit 4: CO₂ Reduction

- Trees are largely made of carbon so they take carbon out of the air and turn it into tissue (bark, leaves, wood, etc.)
- Trees reduce energy needs which helps avoid carbon release in the first place



Some Benefits are Hard to Quantify...

- Tree-filled neighborhoods:
 - Lower levels of domestic violence
 - Are safer and more sociable
- Tree-filled landscapes reduce stress
- Trees decrease need for medication and speed recovery times
- People spend more money shopping along tree-lined streets



The image is a screenshot of a web page from Atlanta magazine. The page features a dark header with the word "Atlanta" in large white letters and "ATLANTAMAGAZINE.COM" below it. To the right, it says "SUE Current Ta". Below the header is a blue banner with the word "RESEARCH" in white and "Beyond Expectation" in white. A navigation bar below the banner contains links for "HOME", "MAGAZINE", "BLOGS & COLUMNS", "FOOD & DINING", "LIFE & STYLE", "A & E", and "COVER". The main content area has a breadcrumb trail "Health & Wellness > Trees save lives". The article title is "Trees save lives" in a large, bold, black font. Below the title is the subtitle "Atlanta's tree canopy helps with pollution more than other cities" and the byline "Posted on 8/9/2013 7:45:00 AM by Mary Jo DiLonardo". There is a photograph of a dense green forest canopy. Below the photo is the name "Vladimir Istomin". To the right of the photo is a text block that reads: "Everyone knows trees are good for the environment—plus they look really nice in your backyard. But a new study by the U.S. Forest Service and the Davey Institute says trees save lives. The report, which looked at ten urban areas, including Atlanta, found that urban trees and forests save an average of one life every year in major cities." Below this text is another paragraph: "The trees make life healthier by removing fine particle pollution from the air, consequently improving both air quality and human health. Fine particulate air pollution has been linked to health issues including lung inflammation, accelerated atherosclerosis, and heart problems."

Large Trees Provide More Benefits

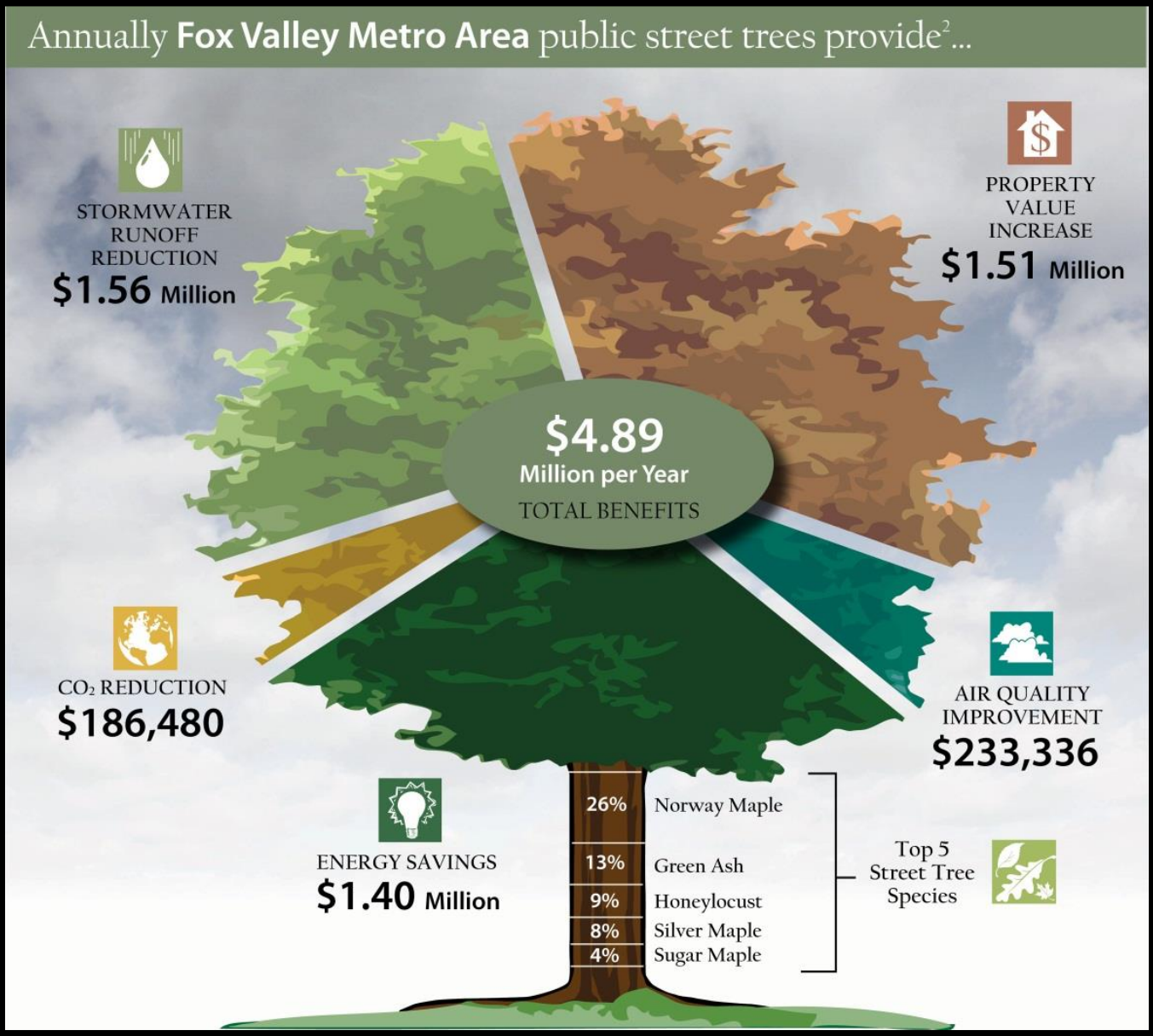


Bur oak - \$119.87/yr
benefits



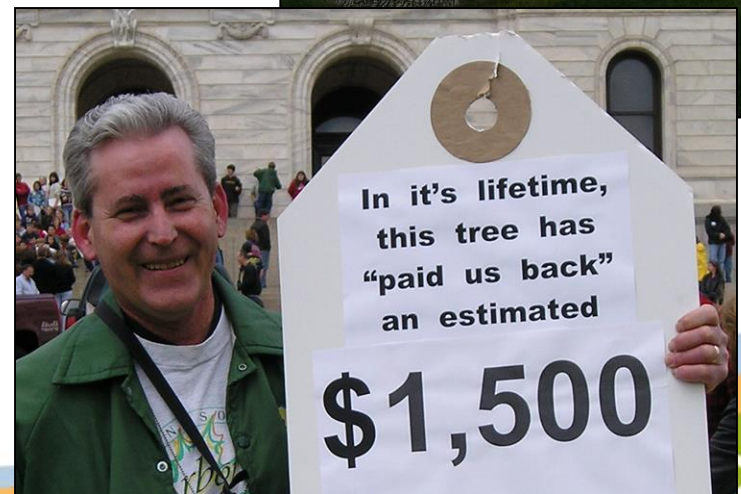
Callery Pear - \$32.7/yr in
benefits

Adding it Up



Minneapolis i-Tree Assessment

- \$6.8 million in energy savings
- \$9.1 million in reduced storm water runoff
- \$1 million improvements to air quality
- \$7.1 million increase in property value



Milwaukee i-Tree Assessment

EAB Structural Impacts:

- 17.4% Canopy Loss
- 30,000 public ash trees



EAB Functional Impacts:

- \$243,785 less pollutant removal
- \$138,000 less energy savings (cooling costs)
- \$2.6 million reduction in storm water benefits (1996 study)

Three Distinct Topics

- Trees as Liabilities
- Trees as Assets
 - *“Trees add value to a community, but they also come with their own issues.”*
- Taking Control
 - *“This session will focus how to use trees to enhance your community’s value and how managers can be proactive in addressing potential legal and economic issues.”*

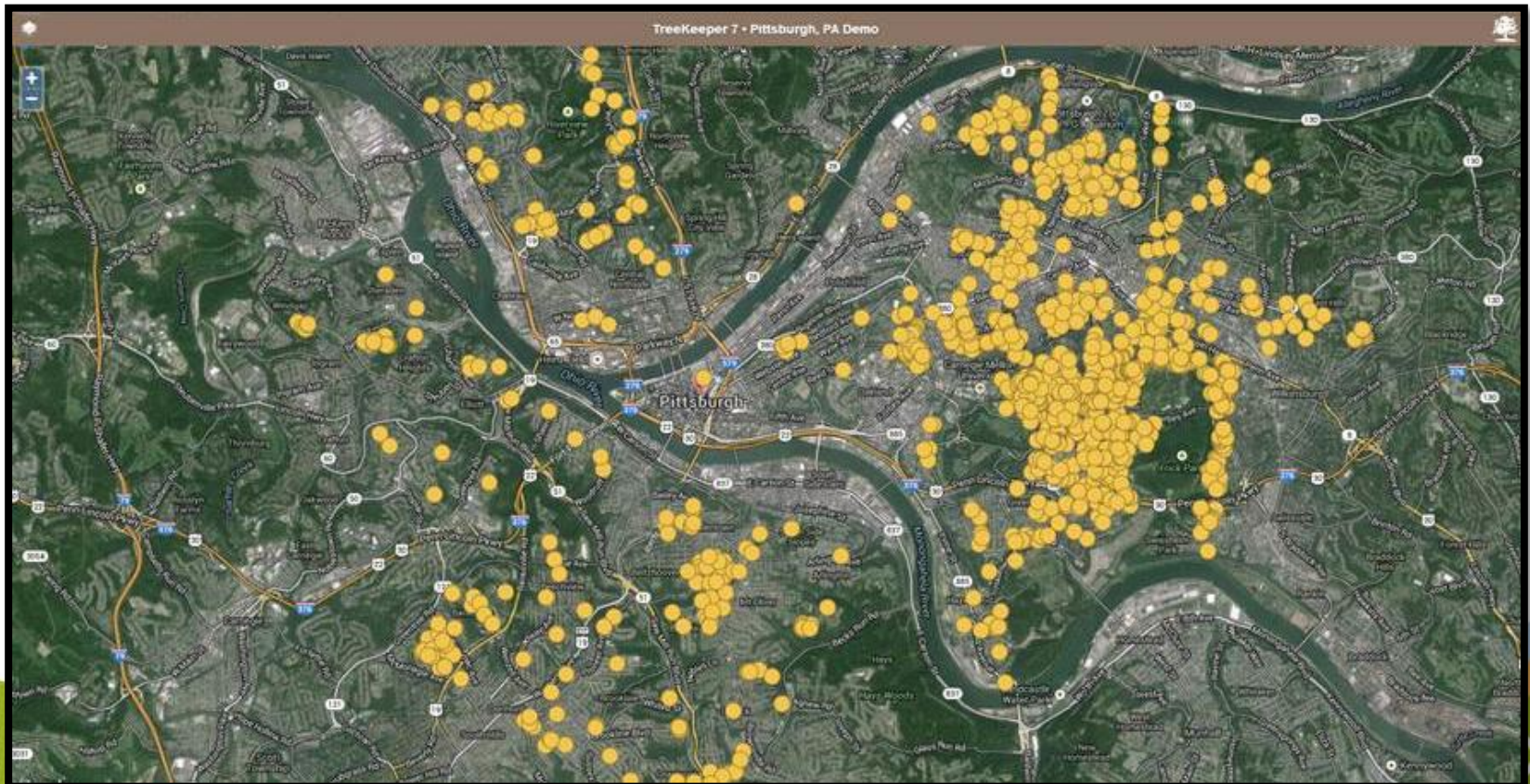


Taking Control

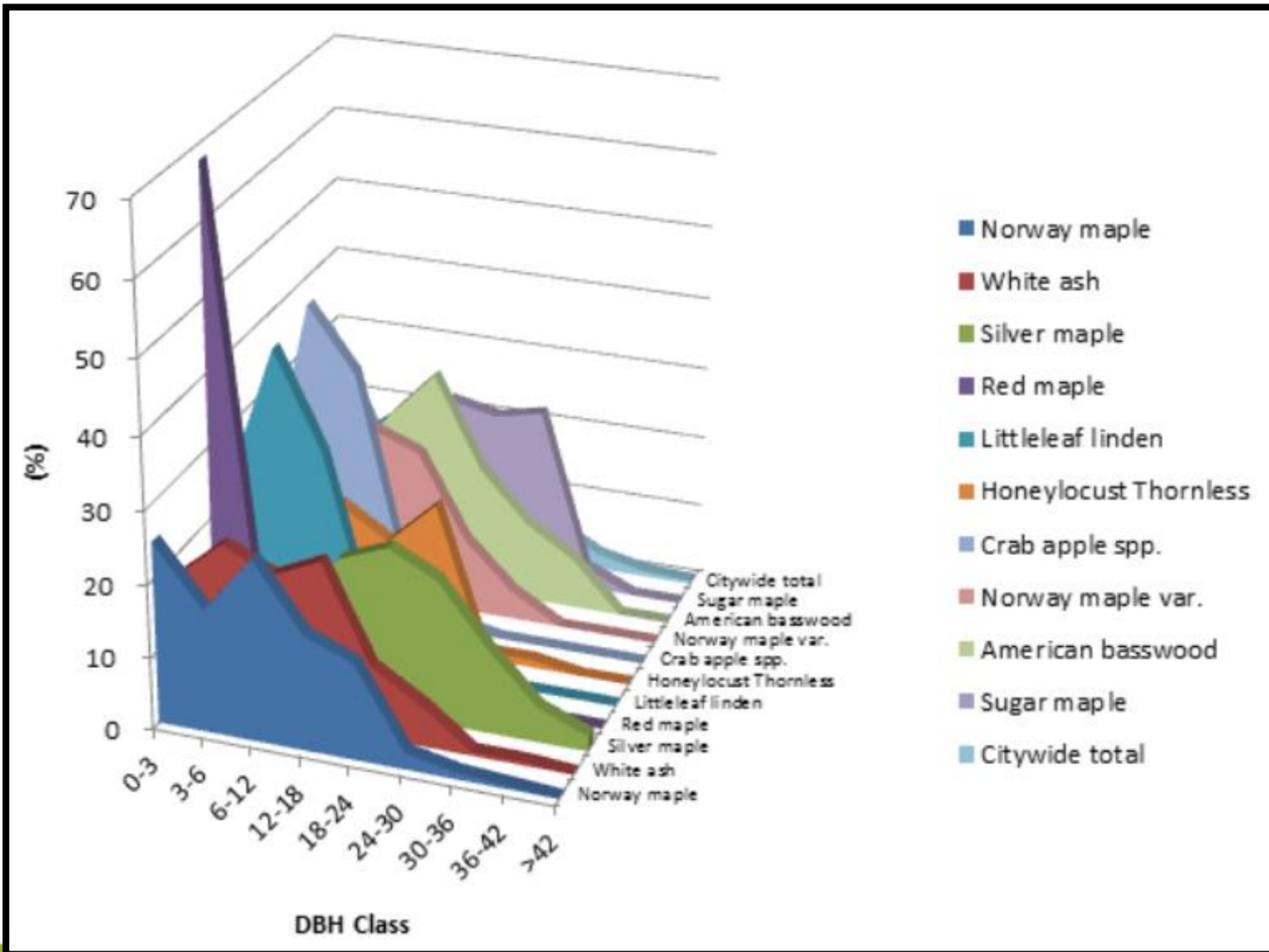
- Trees have both asset and liability qualities
- When you think of the trees in your community, if your forestry budget comes to mind you are probably focused more on the liability than the asset
- Yet the assets of the urban forest:
 - Are quantifiable
 - Provide for community engagement
 - Provide for program defensibility

Inventory/Assessment

- You cannot manage what you do not know
- Create an Inventory
 - How many? What kind? How big? What condition?



Information from an Inventory

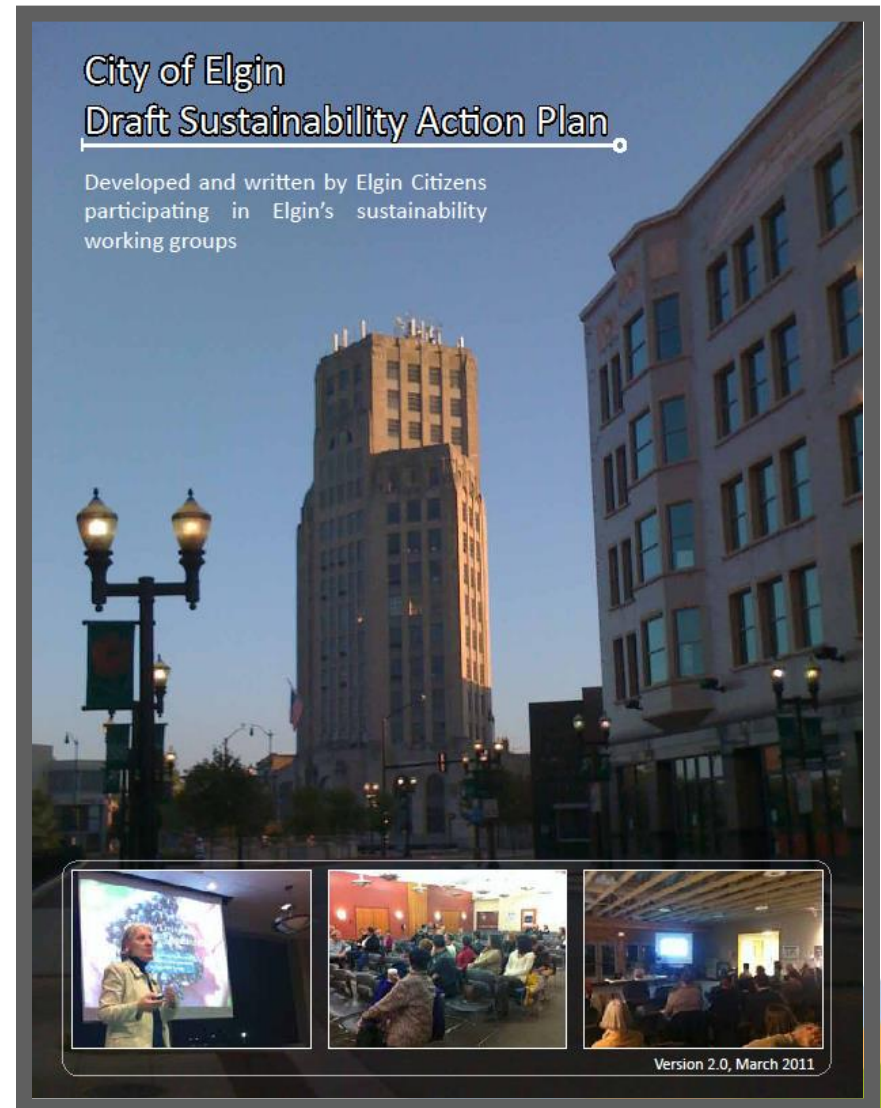


Understand the Asset Value



Why a Benefit Based Approach?

- Helps link trees to community values
- To ensure that future generations can enjoy at least the same natural resources that we did.



Assets Engage the Public



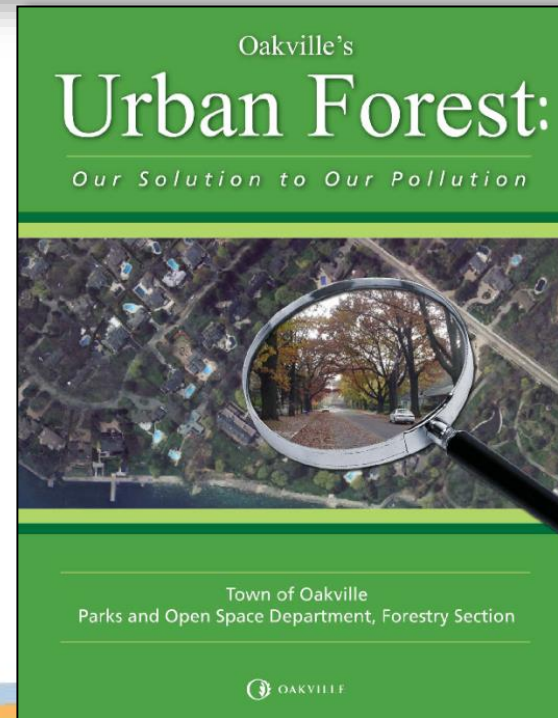
Powering the planning
Running the waters
Exercising the ecosystem
Fortifying the future

The Fit Forest
Elgin goes for the green!

A collaboration to grow a healthy community forest in Elgin today, tomorrow and for generations to come.

We invite you to work out with us to grow a healthy community forest in Elgin.

Assets Influence Decision Making and Policy



Assets Inform Economics

Benefit Summary for Pittsburgh's Street Trees

 Benefits	Total (\$)
 Energy	\$1,205,133
 CO2	\$35,424
 Air Quality	\$252,935
 Stormwater	\$334,601
 Aesthetic/Other	\$572,882
<hr/>	
 Total Benefits	\$2,400,975

\$2.94 in benefits for every \$1 spent

Parting Thought

- “A community should see itself in the same way as its trees. If trees are dying, the town is dying. Planting trees symbolizes a community that is alive, prosperous, and growing.”
 - Arnold Leak, Mayor of Valley, Alabama

Questions/Comments?

james.zwack@davey.com





ICMA
100th

ANNUAL CONFERENCE

Charlotte
Mecklenburg County

SEPTEMBER • 14-17 • 2014

