



Worcester Tree Initiative

From the Ground Up!

June 2011

August, 2008 – ALB Discovered



ALB Host Species – Maple Trees

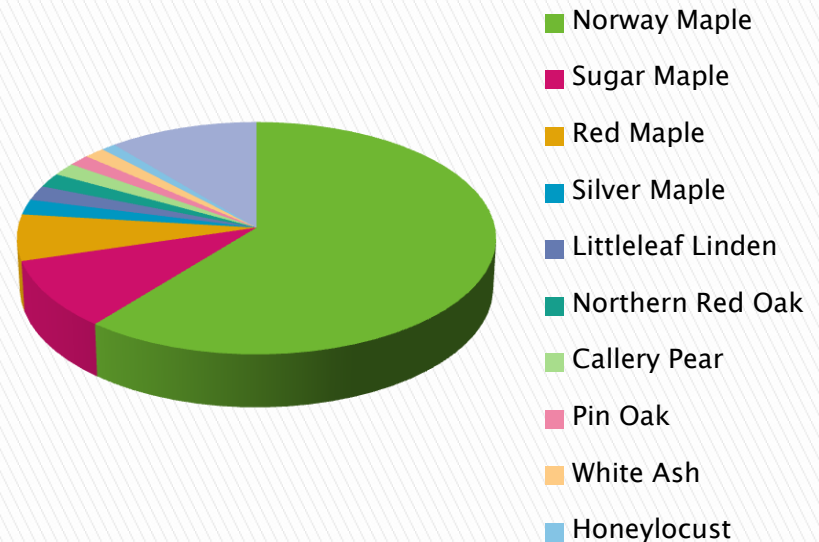
- ▶ Maple – Norway, sugar, silver, red
- ▶ Birch
- ▶ Horse Chestnut
- ▶ Poplar
- ▶ Willow
- ▶ Elm
- ▶ Ash
- ▶ Mimosa (silk tree)
- ▶ Hackberry
- ▶ Sycamore
- ▶ Mountain Ash
- ▶ London Plane



Importance of Species Diversity

- 80 % Maple Trees
- 30,000 trees removed due to ALB since 2008

10 Most Abundant Species
in Worcester 2008



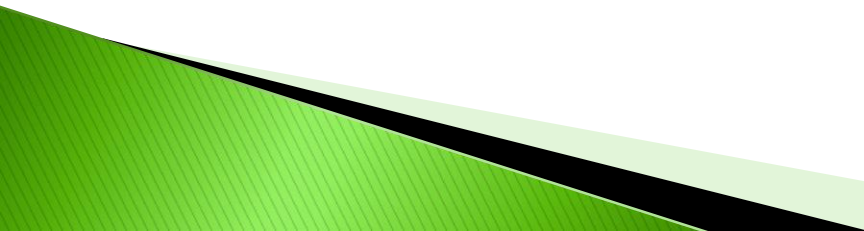
Report on the status of Street
Trees in Worcester, UMASS 2008

March 29, 2009

Congressman Jim McGovern
Lt. Governor Tim Murray
Announce



Tree Initiative Goals

- ▶ Re-establish the urban forest in Worcester and ALB impacted towns.
 - ▶ Plant 30,000 trees – 5 years
 - Species Diversity
 - ▶ DO IT RIGHT!!
 - Professional expertise, species diversity, include maintenance, aesthetics, location, vandalism
 - ▶ Involve, educate, and inspire “tree stewards” throughout the community
 - ▶ Build public awareness of benefits of trees
- 

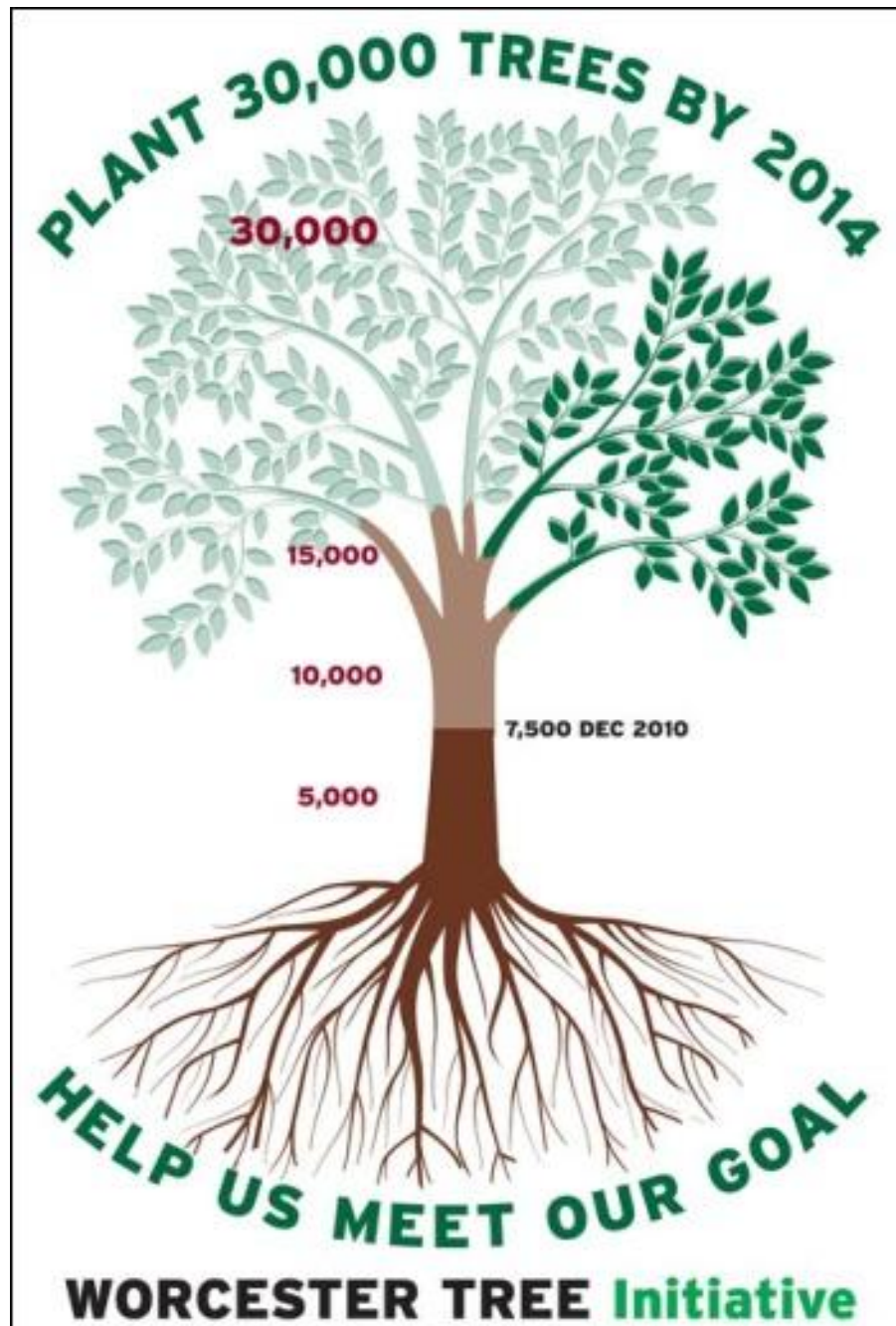
Who is Planting Trees?

WTI
Private
Property,
Schools,
Community
Groups

ALB Tree
Replacement
DCR

City of
Worcester
Street
Trees

- ▶ 7,500 total by December 2010
- ▶ 11,500 total by June 2011



Tree Giveaways



- ▶ Original Goal: 200 trees per season
- ▶ Training demonstration mandatory
- ▶ Registration required – trees “tracked” in database
- ▶ Partner with Bigelow Nursery
- ▶ Through Spring 2011 – 2200



Ginkgo



Dawn Redwood



Sweetgum



Littleleaf Linden



White Oak



Swamp White Oak



Red Oak



Pin Oak



Scarlet Oak

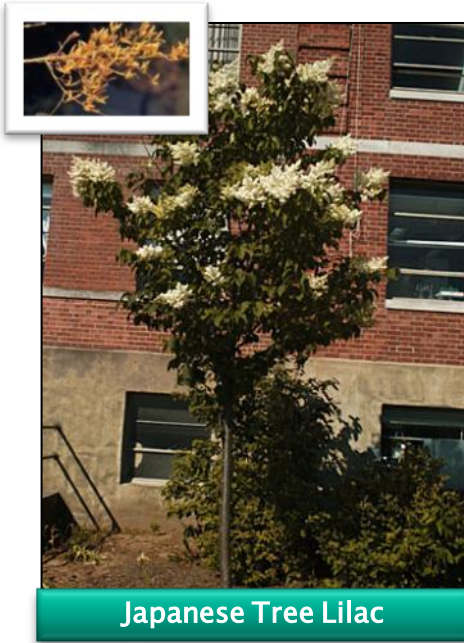


Blackgum



Honeylocust

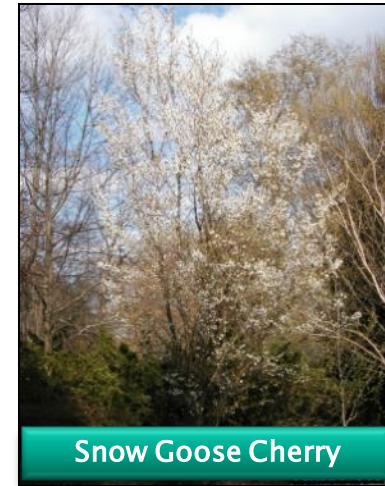
Large Shade Trees



Japanese Tree Lilac



Kousa Dogwood



Snow Goose Cherry



Crabapple

(Flower color may vary)



American Arborvitae



White Fir



Sargent Cherry

Ornamental Trees and Evergreens

School Plantings



- ▶ Planted 350 trees at 30 schools
- ▶ Students participate in demonstration and help plant trees
- ▶ Maintenance contract required
- ▶ Worcester Forestry Division Partner

Community Groups

- ▶ Private Property and Public Parks
- ▶ 5 community group plantings
- ▶ Work with each group to design project



Worcester Youth Center

Developing Volunteer Tree Stewards: Trainer Certification



Young Adult Foresters Maintain Trees

- Worcester Tree Initiative
- Worcester Youth Center
- City of Worcester Forestry




- Water, Mulch, Stake
- Community outreach
- Developing youth tree advocates


Supporting Partners

- ▶ Local, State, Federal Agencies
 - Forestry Division, DCR, USDA/Forest Service/ APHIS
- ▶ Private Agencies
 - Worcester County Horticultural Society, Worcester Youth Center, Greater Worcester Land Trust, Mass Audubon, Regional Environmental Council, Worcester Garden Club
- ▶ State and Federal Elected officials
 - City Council, Mayor, School Committee, Lt. Governor, Congressman
- ▶ Universities
 - Worcester State, QCC, Clark, WPI, Mass College of Pharmacy
- ▶ Businesses & Corporations
 - Walmart, CSX, Scotties Releaf, Commerce Bank


Public Awareness of Tree Benefits

- ▶ Shade, reduces heat
 - ▶ Visual Aesthetics
 - ▶ Cooling in summer; wind barriers
 - ▶ Wildlife Habitat
 - ▶ Air Purifiers
 - ▶ Absorb CO₂ (“Reduce Global Warming”)
 - ▶ Stormwater retention
 - ▶ Health, violence prevention
- 

Benefits of Trees – Comments of Burncoat Residents

- ▶ Hotter than ever before
 - ▶ Can't sit in the yard; sun is too strong
 - ▶ Never knew how close the neighbors were!
 - ▶ Lack of privacy
 - ▶ Can see the smokestacks from industrial buildings
 - ▶ Wind nearly knocked me over
 - ▶ Flooding in the streets and my basement
- 

Trees reduce runoff & pollutants to waterways

- **Intercepting** and holding rain on leaves, branches and bark
 - Increasing **infiltration** and storage of rainwater through the tree's root system
 - **Reducing soil erosion** by slowing rainfall before it strikes the soil
- 

Worcester Street Tree Benefits – Fall, 2008

- ▶ Energy Saved (MWh, Therms) \$989,813
- ▶ CO2 reduction 11,314,048 lbs \$37,788
- ▶ Air Quality (pollutants) 4,5336 lbs \$226,365
- ▶ Stormwater intercepted 37,476,204 gal \$236,116
(= \$6.30/1,000 gallons)

Source: Report on Status of Trees
Worcester MA Oct 2008
using STRATUM

National Tree Benefit Calculator

Beta

Overall Benefits

Stormwater

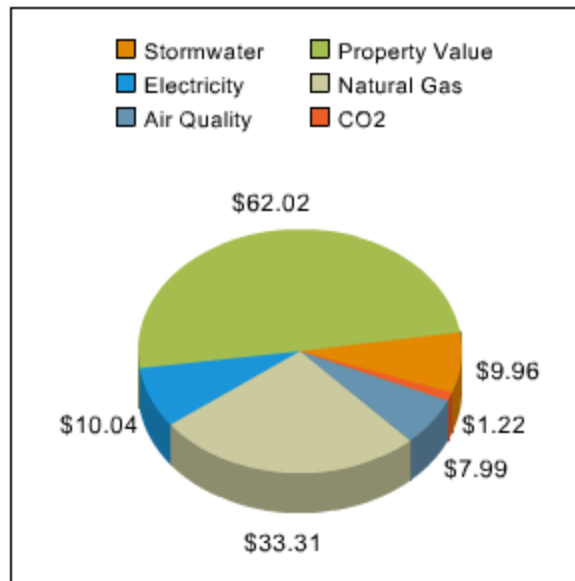
Property Value

Energy

Air Quality

CO2

About the model



Breakdown of your tree's benefits

Click on one of the tabs above for more detail

This 12 inch Scarlet oak provides overall benefits of: **\$125** every year.

While some functional benefits of trees are well documented, others are difficult to quantify (e.g., human social and communal health). Trees' specific geography, climate, and interactions with humans and infrastructure is highly variable and makes precise calculations that much more difficult. Given these complexities, the results presented here should be considered initial approximations—a general accounting of the benefits produced by urban street-side plantings.

Benefits of trees do not account for the costs associated with trees' long-term care and maintenance.

If this tree is cared for and grows to 17 inches, it will provide **\$171** in annual benefits.

Hor



Comparison of Yearly Stormwater Benefits by Species

| SPECIES | Size | Gallons Intercepted | SAVINGS |
|-----------------|-------------|----------------------------|----------------|
| Swamp White Oak | 21 " | 2743 | \$257 |
| Norway Maple | 21" | 2176 | \$200 |
| Kwanzan Cherry | 12" | 579 | \$59 |
| Kwanzan Cherry | 21" | 1074 | \$88 |
| Kousa Dogwood | 12" | 579 | \$59 |
| White Pine | 21" | 2609 | \$127 |
| | | | |

Tree Nutrition Labels

Tree Facts

Serving Size: 14 in DBH (35.6 cm)
Species: Pin Oak, *Quercus palustris*

Amount Per Serving

| | |
|----------------------------|-----------------|
| Carbon sequestered 259 lbs | avoided 257 lbs |
|----------------------------|-----------------|

Total Carbon 537 lbs

| |
|--|
| O3 \$1.96 |
| VOC(Volatile Organic Compounds) \$0.93 |
| NO2(Deposited) \$0.85 |
| NO2(Avoided) \$3.36 |
| SO2(Deposited) \$0.25 |
| SO2(Avoided) \$1.40 |
| PM10(Deposited) \$1.77 |
| PM10(Avoided) \$0.39 |

Conserved Kilowatt/hours 96 Kwh

Reduced oil/natural gas consumption 28 therm(s)

Stormwater intercepted 1,527 gallons

| | |
|----------------------------------|---------------------|
| Property value increase \$103.00 | Natural Gas \$39.93 |
| Stormwater \$12.21 | Electricity \$12.92 |

Values are based on the following assumptions: 1. The tree is a mature, healthy tree. 2. The tree is a Pin Oak, Quercus palustris. 3. The tree is 14 inches in diameter at breast height. 4. The tree is 35.6 cm in diameter at breast height. 5. The tree is 14 inches in diameter at breast height. 6. The tree is 35.6 cm in diameter at breast height. 7. The tree is 14 inches in diameter at breast height. 8. The tree is 35.6 cm in diameter at breast height. 9. The tree is 14 inches in diameter at breast height. 10. The tree is 35.6 cm in diameter at breast height.



Developed by:

- USDA Forest Service Urban Natural Resources Institute (UNRI)
- UMASS (Amherst)
- Department of Conservation and Recreation (DCR)
- Town of Amherst, MA

Amherst Fair – 2010



Tree Facts

Serving Size: 46 in DBH (114.3 cm)
Species: Sugar Maple, Acer saccharum

Amherst Fair Services
Carbon Sequestered 810 lbs
avoided 630 lbs

Total Carbon 1,461 lbs

O₃ \$0.25

VOC(Volatile Organic Compounds) \$2.10

NO₂(Deposited) \$2.75

NO₂(Avoided) \$8.00

SO₂(Deposited) \$0.60

SO₂(Avoided) \$3.10

PM₁₀(Deposited) \$5.70

PM₁₀(Avoided) \$0.90

Conserved Kilowatt/Hours 213 Kwh

Reduced atmospheric gas consumption 72 therms(s)

Stormwater intercepted 7.694 gallons

Property value increase: \$25.20 Natural Gas \$100.75

Stormwater \$61.55 Electricity \$29.70



A Report on the Status of Street Trees in
Worcester, Massachusetts



Trees in Peril: Responding to the Asian
Longhorned Beetle

October 2008

prepared for:

*The City of Worcester, Massachusetts
and the Massachusetts Department of Conservation and Recreation*

prepared by:

Mollie Freilicher
Brian C. Kane
H. Dennis P. Ryan, III
and
David V. Bloniarz, USDA Forest Service, Northern Research Station



2011 Winner of 3rd Grade Scotties ReLeaf Essay Contest

- ▶ My opinion on trees is that they rock. The reason why I think that is because they can do so many things for people. Trees give us clean drinking water, syrup, nuts, fruit, paper, tissues, wood for homes, shade and breezes to keep us cool and my favorite is oxygen. All of those are important to keep us healthy and to give us things that we use. I was sad when bad things happened to our trees. Things like ice storms and getting infested by Asian Long-horned beetles. When those bad things happened, birds and squirrels, owls and even spiders all lost their homes.

I think we can help plant these trees if we really try. Get people in your community to help you plant them back. I hope we get more trees because they're amazing. Let's keep trees rocking in our city and make them last forever.

