

Alan Snow
Division Director of
Trees and Grounds

Town of Amherst Department
of Public Works



Tree Warden's Role in a Community



1890, Massachusetts Passed M.G.L Chapter 87

Powers of the Tree Warden

- Removal Risk Trees
- Hold a Public
Shade Tree Hearing
- Request Funds
- Plant new trees
- Insect and Disease





Urban Forestry

Sea-Change in The Roll Urban Trees Play in Municipalities



Green
infrastructure

Ecosystem services

Public health
(physical &
mental)

Economic
development

Climate Change

Tree Wardens Role

- Communities with Populations over 500,000
- Populations between 10,000 and 500,000
- Populations under 10,000



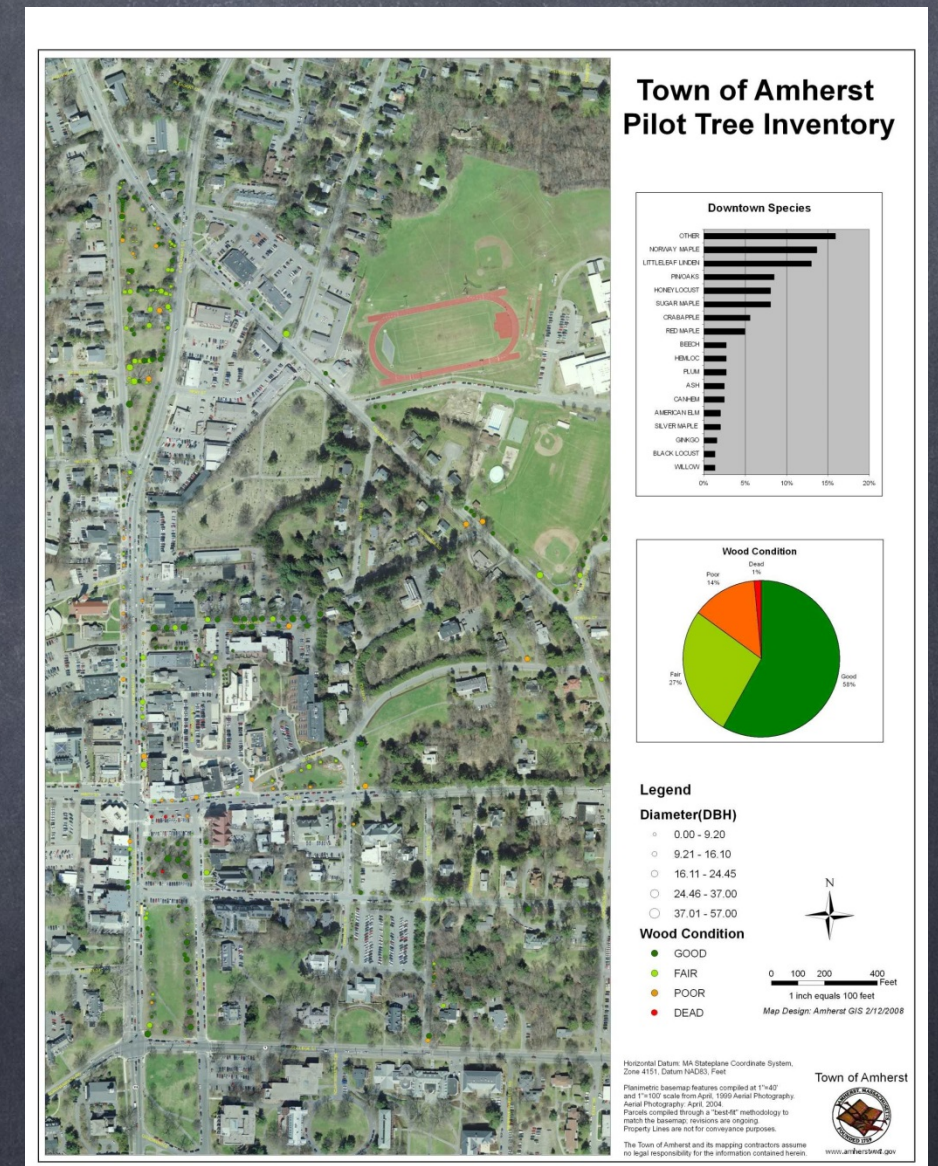
Types of Tree Wardens

- Appointed or Elected
- Volunteer
- Part time paid
- Full time w/other responsibilities
- Full time Urban Forester



Urban Forester Tool Box

- Tree inventory
- Management plan
- Tree ordinance policies
- Advocacy advisory group
- Inter departmental organization
- Professional staffing



AMHERST MASSACHUSETTS

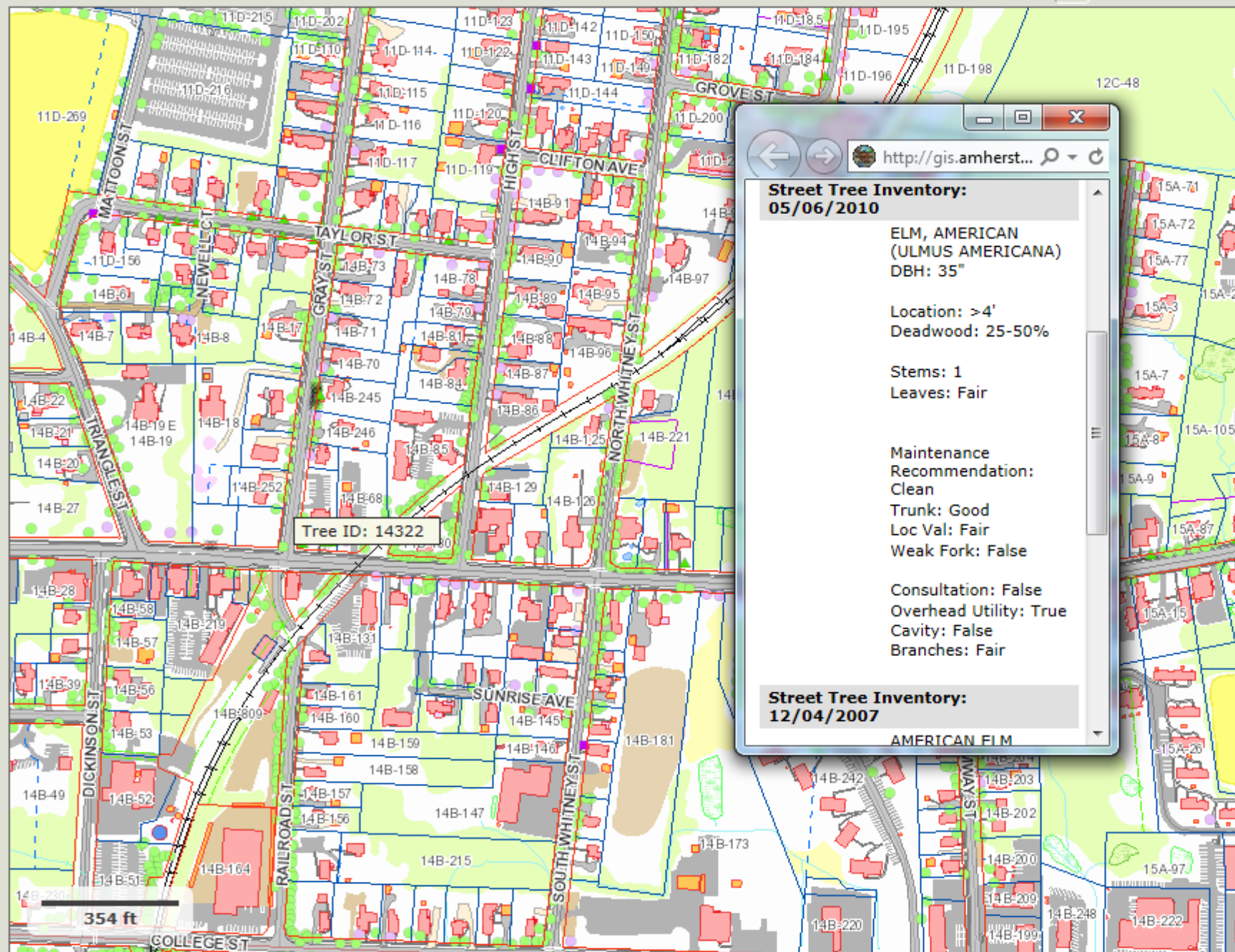
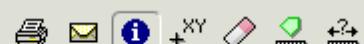
AMHERST MAPS

Back To: [Search](#)

Property Map Imagery Topography Utilities Zoning Conservation Precincts

Help Mobile

Scale 1" = 354 ft



Street Tree Inventory:
05/06/2010

ELM, AMERICAN
(ULMUS AMERICANA)
DBH: 35"

Location: >4'
Deadwood: 25-50%

Stems: 1
Leaves: Fair

Maintenance
Recommendation:
Clean
Trunk: Good
Loc Val: Fair
Weak Fork: False

Consultation: False
Overhead Utility: True
Cavity: False
Branches: Fair

Street Tree Inventory:
12/04/2007

AMERICAN ELM

Selection Legend Location Markup

Refresh Map

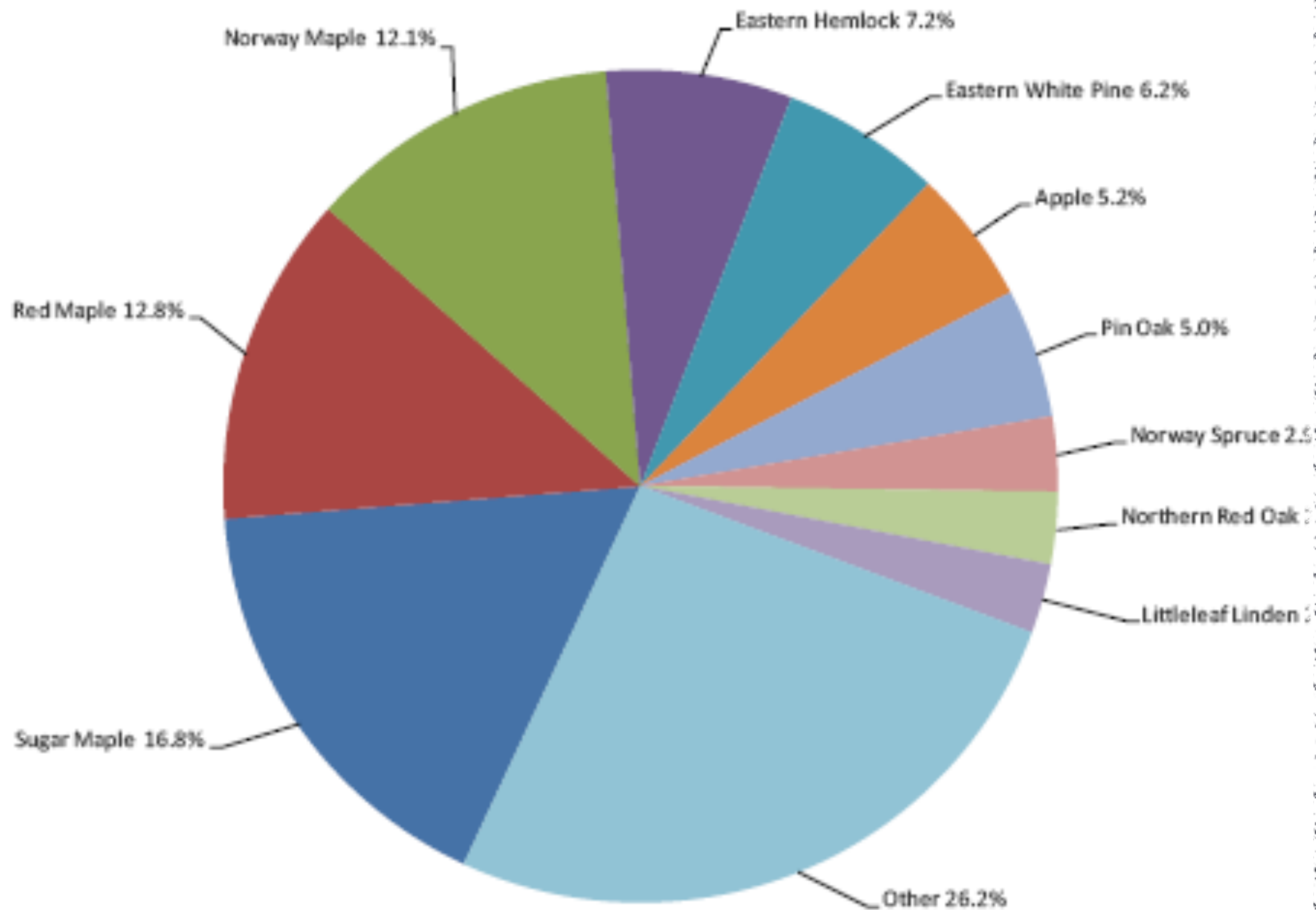
- ☐ Subdivision Lot Line
- ☒ Easements
- ☒ Surrounding Community Parcels
- ☐ Surrounding Community Tax Map Text
- ☐ Surrounding Community Dimensions
- ☐ Surrounding Community Frontage
- ☐ Surrounding Community Former Dimensions
- ☐ Surrounding Community Easement
- ☐ Surrounding Community Easements
- ☐ School Drug Enforcement Zones
- ☐ 500 Feet
- ☐ 1000 Feet
- ☒ Town Boundaries
- ☐ Topography
- ☐ Elevations
- ☐ Elevation Contour Text
- ☐ Contour Labels
- ☐ Elevation Contours
- ☐ Intermediate
- ☐ Index
- ☐ Census Blockgroups
- ☒ Basemap 2009
- ☒ Street Trees
- ☒ Existing
- ☒ PTL (Planned Tree Location)
- ☒ ATL (Approved Tree Location)
- ☒ NPT (Newly Planted Tree)
- ☒ Removed
- ☒ Pavement Markings
- ☒ Trails

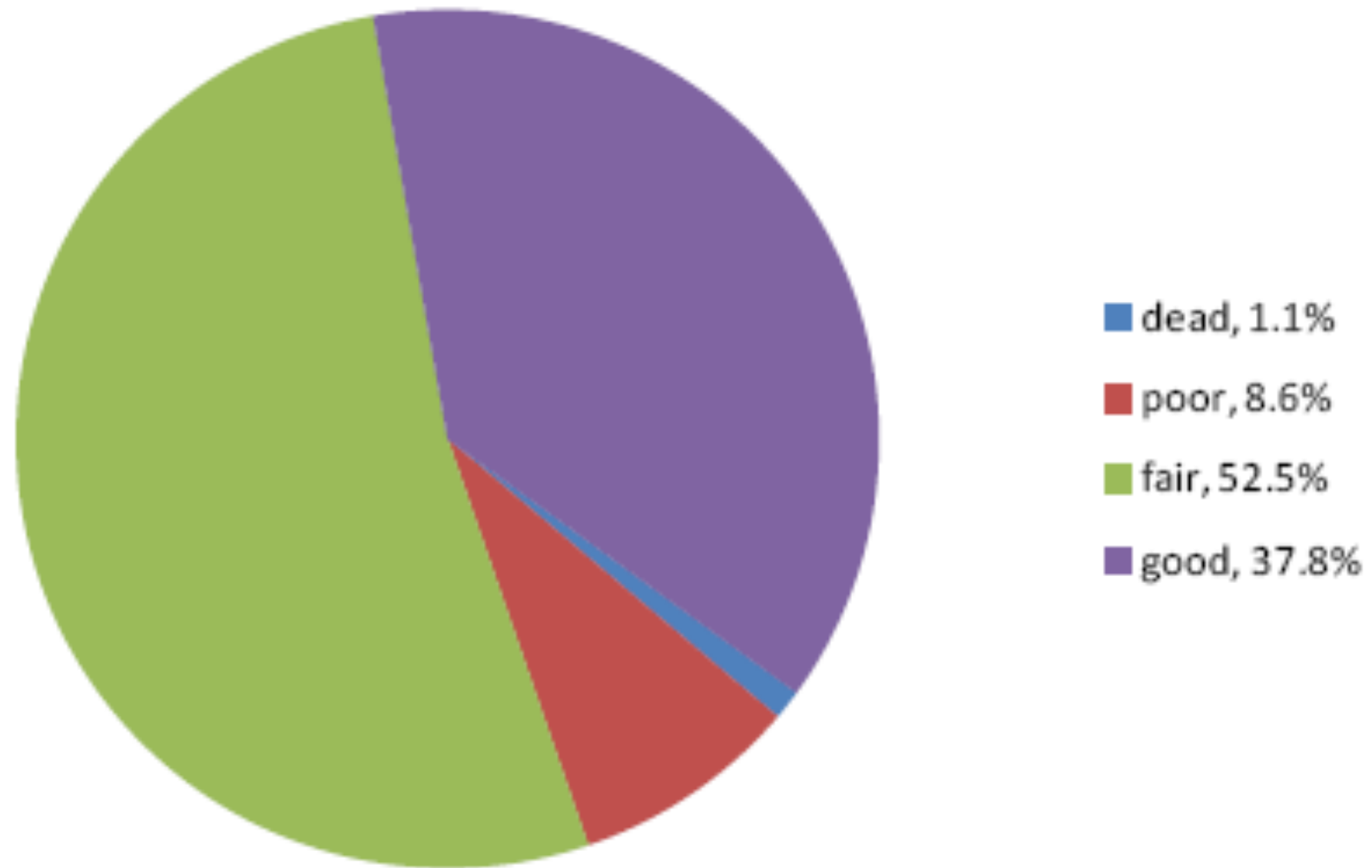
More Maps Here -->

Go

4.0.7 (production) AppGeo

Save Map as Image





Tree Condition

Reforestation Program Funding

- Amherst Public Shade Tree Committee
- The sales pitch for funding (You don't just go and ask for \$612,000)
- Town Manager, DPW Director,, JCPC, Town Meeting



Trees Add Up as Green Infrastructure

- Tree increase in value & services w/age
- Benefit to cost ratio 3 to 1
- 100 trees can remove 53 tons of carbon dioxide & 430 lbs of other air pollutants
- Well landscaped business districts shoppers linger longer & spend 12% more and are willing to pay more for parking
- Mature trees increase home values
- Main Street and the Town Common

2,000 new trees ~~tree~~ Plan
3 year (B&B,
container, bare root)

hire two Stockbridge
School of Agriculture
interns each planting
season

equipment and
supplies

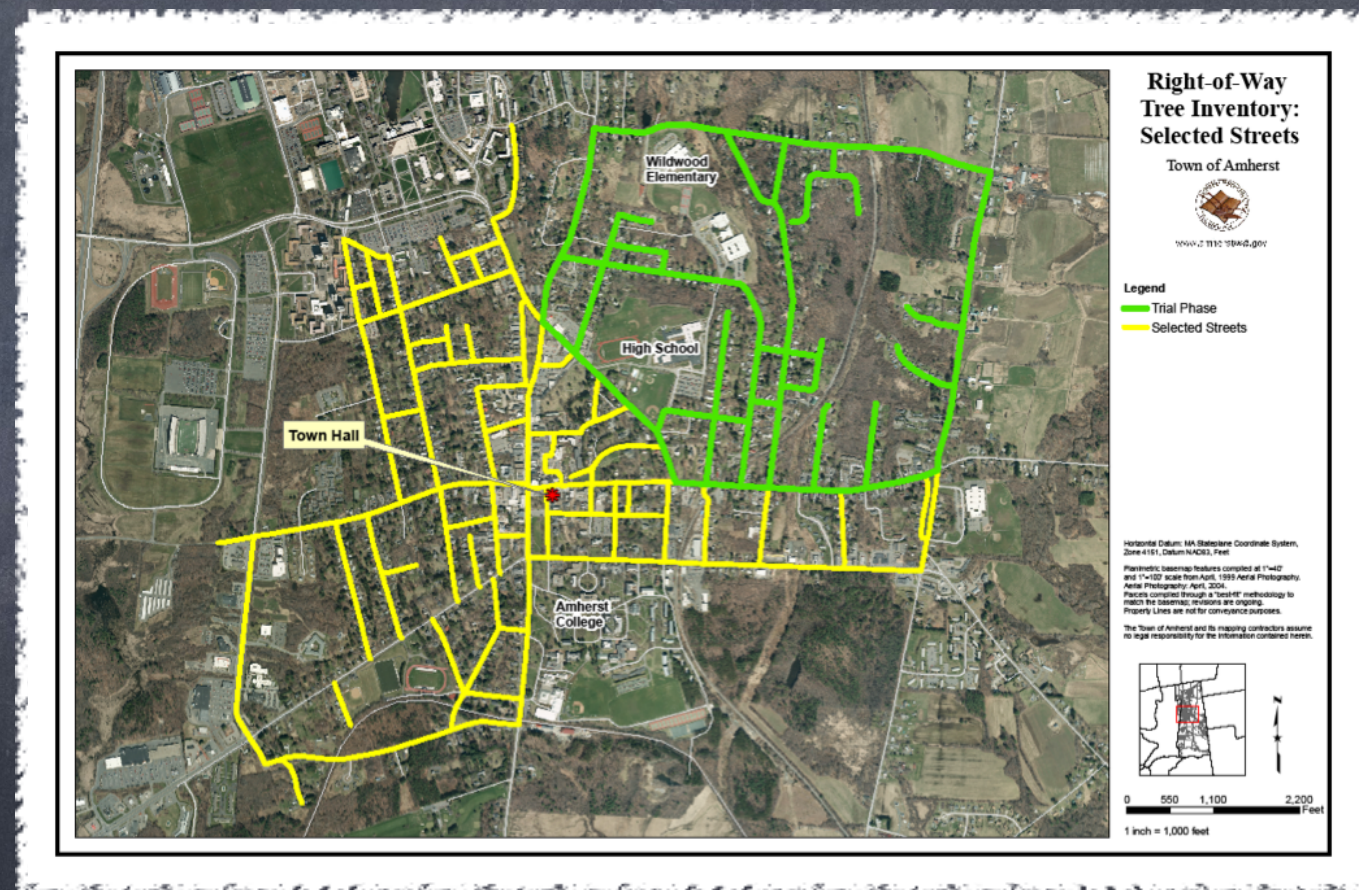
majority of planting
in April through June

July through August
maintenance,



• Tree inventory Tool Box

- Management plan
- Tree ordinance policies
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- Inter departmental organization
- Professional



Town Partners

Town Engineering
Div.

Highway Div.

Water Div.

Waste Water Div.

Planning Department

Town Committees

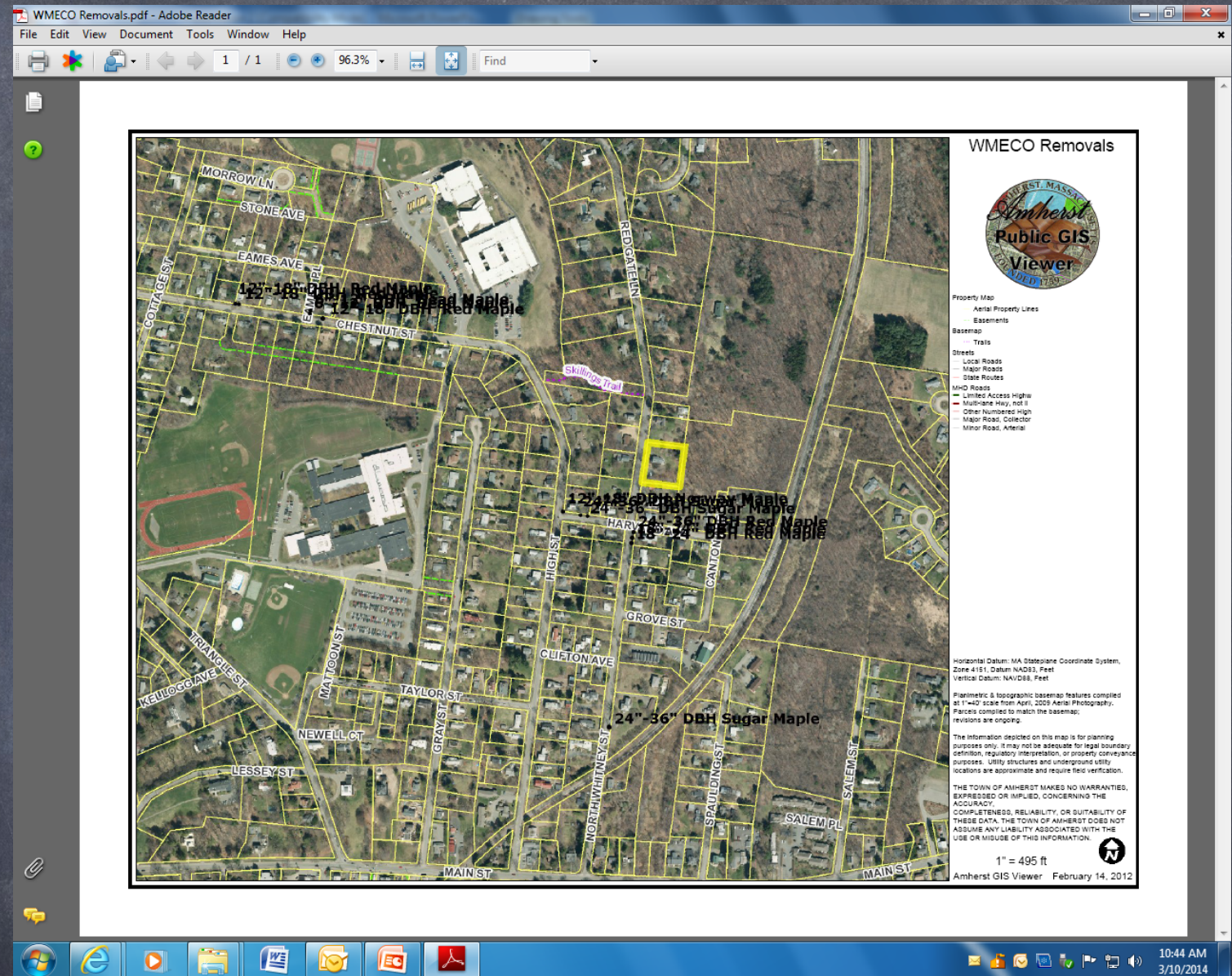
Private Partners

Utilities

Developers

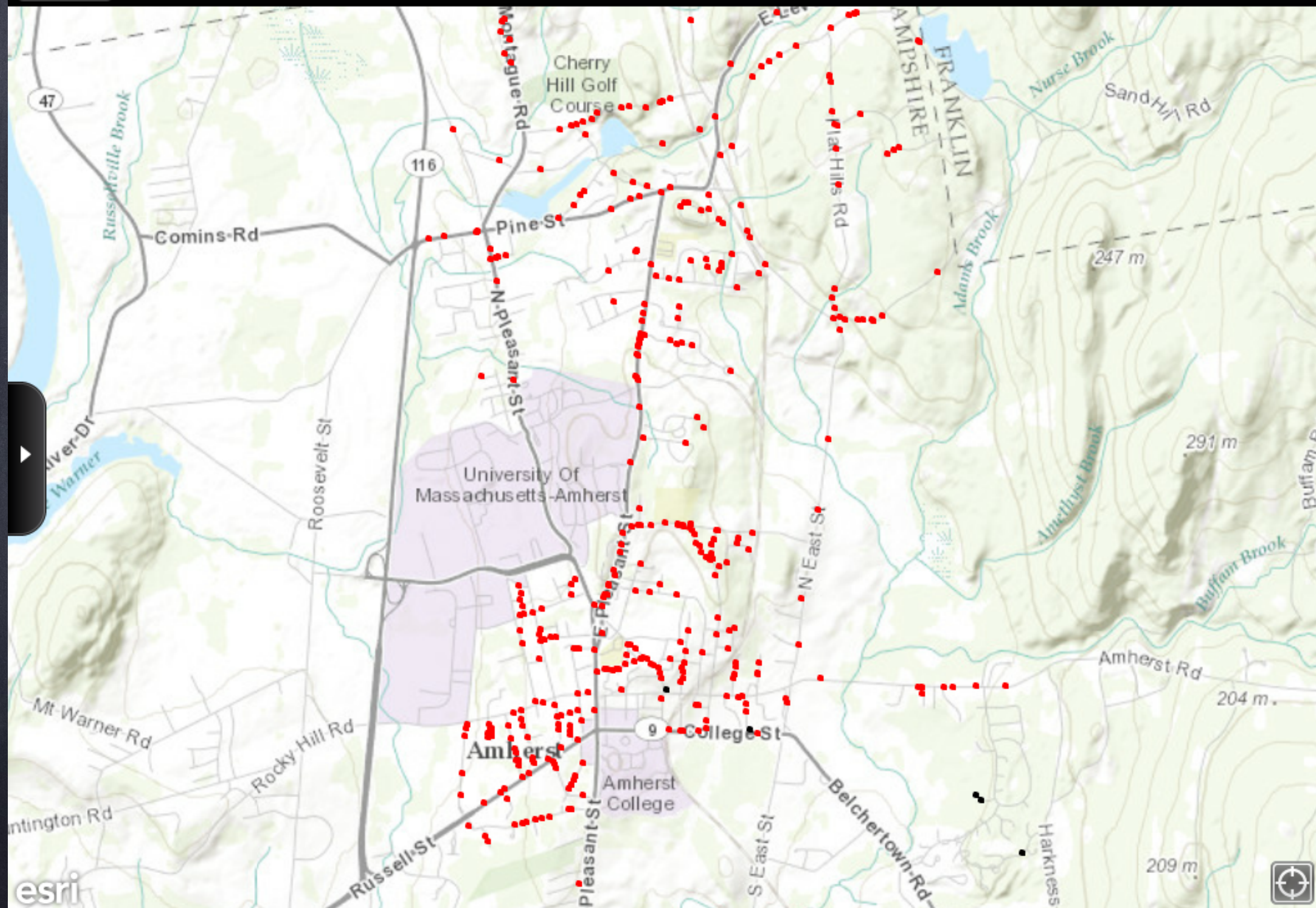
Tree Companies

Property Owners



WMECO spent over \$500,000 to prune and remove risk trees over a three year period

Maps



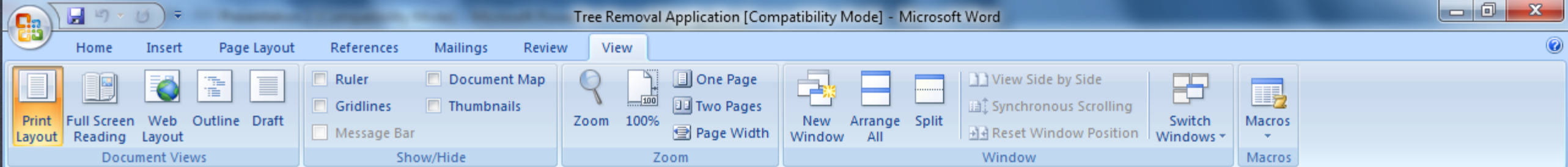
"Progress" Has = Tree Mortality



• Tree inventory Tool Box

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- Inter departmental organization
- Professional





Town Of



AMHERST *Massachusetts*

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Tree Warden

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Public Shade Tree Removal Application

Property Owner: _____

Property Address: _____

Property Parcel #: _____ Map: _____ Lot: _____ Tree ID #: _____

Tree Species: _____ **Tree Diameter (measured at 4.5' / DBH)** _____

Reason for removal request / project description: (attach additional plans or description if needed)

1. I am/We are the record owner(s) of the lot referenced above. Yes / No
2. I am/We are requesting that the Tree Warden grant permission to remove a Public Shade Tree owned by Town of Amherst located adjacent to my/our property.
3. I/We have prior approval and necessary permits from all other City agencies (see attached list) Yes / No
4. I/We understand that per Massachusetts General Law Chapter 87 the Tree Warden is required to conduct a public hearing. If at or before said hearing written objection is received by the Tree Warden the removal of the tree shall be denied. I/We understand all costs of the hearing shall be borne by the applicant.
5. I/We understand that if approval is granted I am/We are responsible for the removal of the tree including stump and any associated with said removal.
6. I/We understand that if approval is granted I/We will compensate the Town of Amherst for the loss of said tree(s) based on \$90.00 per inch of DBH

Property Owner Signature: _____ **Date** _____

The request to remove public tree(s) indicated above has been:

☐ Approved-The following conditions apply (see attached) ☐ Denied

Tree Warden's Signature: _____ **Date of Action:** _____

The Tree Warden reserves the right to change this decision at any time and will provide verbal and/or written notification to the applicant of this change.

Public Shade Tree Removal Policy

- Healthy structurally sound tree

- M.G.L. 40 S.15C Scenic Road? (1974, 26 roads designated) Joint Planning Board hearing

- M.G.L. Chapter 87 tree hearing

- APSTC reviews the request-makes a site visit holds a public meeting with TW and applicant



• Tree inventory

Tool Box

- Management plan
- Tree ordinance policies
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- Inter departmental organization
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Town of Amherst Public Shade Tree Committee

March 11, 2014

Photos courtesy of Tom Lynn



Amherst Public Shade Tree

Mission: The ~~Amherst Public Shade Tree~~ Committee preserves, protects and promotes town shade trees.



Public Shade Tree Committee

Established 1961

7 members (volunteers) - 3 year terms

Appointed by Town Select Board

Meet monthly

Plant trees - advocate for trees

Work with Tree Warden

Other projects



Amherst Public Shade Tree Committee activities

Monthly tree plantings (April - October)

Tree removal requests/review

Amherst Neighborhood Tree Stewards

Tree poster contest - tree coloring

Sustainability Festival

Special Tree Plantings

Letters to the Editor, etc.

Collaboration!



Amherst Public Shade

Citizen involvement
Tree Committee

Increased tree
knowledge

benefits

Tree Advocacy and
Awareness

Support for Tree
Warden

Brainstorming
special projects

Presentations to
Town Meeting,

etc.



Arbor Day of Service 2013

UMass Stockbridge Climbing
Lab

Five Local Tree Care
Businesses



• Tree inventory

Box

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Managing Individual Trees

- Tree protection
- Insect and disease
- Storm damage pruning
- Structural pruning



Short Term/Long Term Planning

- Foresters need to manage for the next several generation
- Replacing with RTRP as they succumb to old age or PPD





Community



Community





Not everyone is a
Tree Hugger

Tree Budget Constraints

- Limited budgets (even in good years)
- Generally first to have budget cuts
- Prioritize Risk tree removal
- Replacement \$\$ often lacking for tree planting



Working With a Public Shade Tree Committee

- General public education
- Current issues
- Open public forum on everything trees in town
- Tree Planting





Arbor Day



Arbor Day Poster Contest



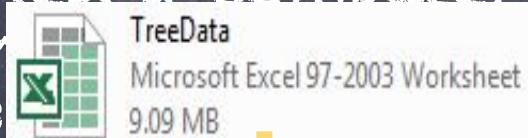
Not just tree work

Independent Study Work

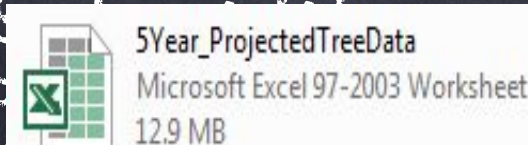
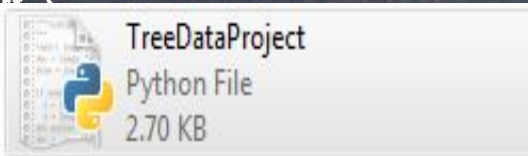
by Gabe Markarian

First Semester

- Designed a computer program to process the growth for trees in an urban setting (Town of Amherst)



- Takes into account growth rate of each individual tree species amount of deadwood and tree



- Returns an identically formatted spreadsheet with new DBH's for each entry

Second Semester

COMMON	BOTANICAL/CULTIVAR	DBH	PLANT_LOC	DEADWOOD
maple, sugar	Acer saccharum	20.70125	Lawn	50-75%
crabapple, flowering	Malus spp.	10.85	Lawn	None

COMMON	BOTANICAL	CULTIVAR	DBH	PLANT_LOC	DEADWOOD
maple, sugar	Acer saccharum		20	Lawn	50-75%
crabapple, flowering	Malus spp.		9	Lawn	None

the town's trees will impact the local economy

Use iTree Streets to see the report for ToA tree inventory



Then use the same

Amherst Center

Annual Energy Benefits of Public Trees

projection of the inventory using first semester's work

► Species Name - Annual Energy Savings for ToA in 2013

1. Sugar Maple - \$74,946

2. Pin Oak - \$22,330

3. Dogwood - \$301

4. Crabapple - \$7,204
Current Tree Analysis
Benefits of a few species



Amherst Center

Annual Energy Benefits of Public Trees

3/2/2014

Species	Total Electricity (MWh)	Electricity (\$)	Total Natural Gas (Therms)	Natural Gas (\$)	Total Standard (\$)	Standard Error	% of Total Trees	% of Total \$	Avg. \$/tree
Sugar maple	111.2	15,573	42,168.0	59,373	74,946	(N/A)	67.7	71.5	68.01
Crabapple Indian summer	8.9	1,247	4,231.0	5,957	7,204	(N/A)	16.0	6.9	27.60
Pin oak	38.2	5,356	12,055.1	16,974	22,330	(N/A)	15.2	21.3	90.04
Flowering dogwood	0.4	50	178.2	251	301	(N/A)	1.0	0.3	18.80
Total	158.6	22,226	58,632.2	82,554	104,781	(N/A)	100.0	100.0	64.40

Total Annual Energy Savings for just four species: \$104,781

Species Name - Approximate Percent Increase after 5 years

1. Sugar Maple - 2.5% Energy Savings Increase

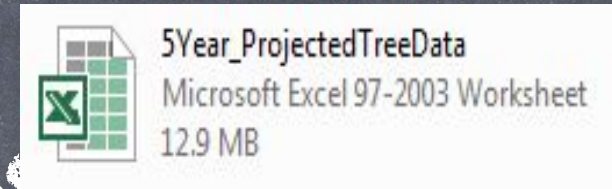
2. Pin Oak - 7.0% Energy Savings Increase

3. Dogwood - 6.3% Energy Savings Increase

4. Crabapple - 5.1% Energy Savings Increase

Projected Annual Energy Savings
even 5 years of projected growth:

\$108,617 (+3.7%)



ar Inventory Projection Anal

Amherst Center

Annual Energy Benefits of Public Trees

3/2/2014

Species	Total Electricity (MWh)	Electricity (\$)	Total Natural Gas (Therms)	Natural Gas (\$)	Total Standard (\$ Error)	% of Total Trees	% of Total \$	Avg. \$/tree
Sugar maple	114.3	16,016	43,188.8	60,810	76,826 (N/A)	67.7	70.7	69.72
Crabapple Indian summer	9.5	1,327	4,434.0	6,243	7,570 (N/A)	16.0	7.0	29.00
Pin oak	41.3	5,791	12,862.2	18,110	23,901 (N/A)	15.2	22.0	96.37
Flowering dogwood	0.4	53	189.2	266	320 (N/A)	1.0	0.3	19.98
Total	165.5	23,187	60,674.3	85,429	108,617 (N/A)	100.0	100.0	66.76

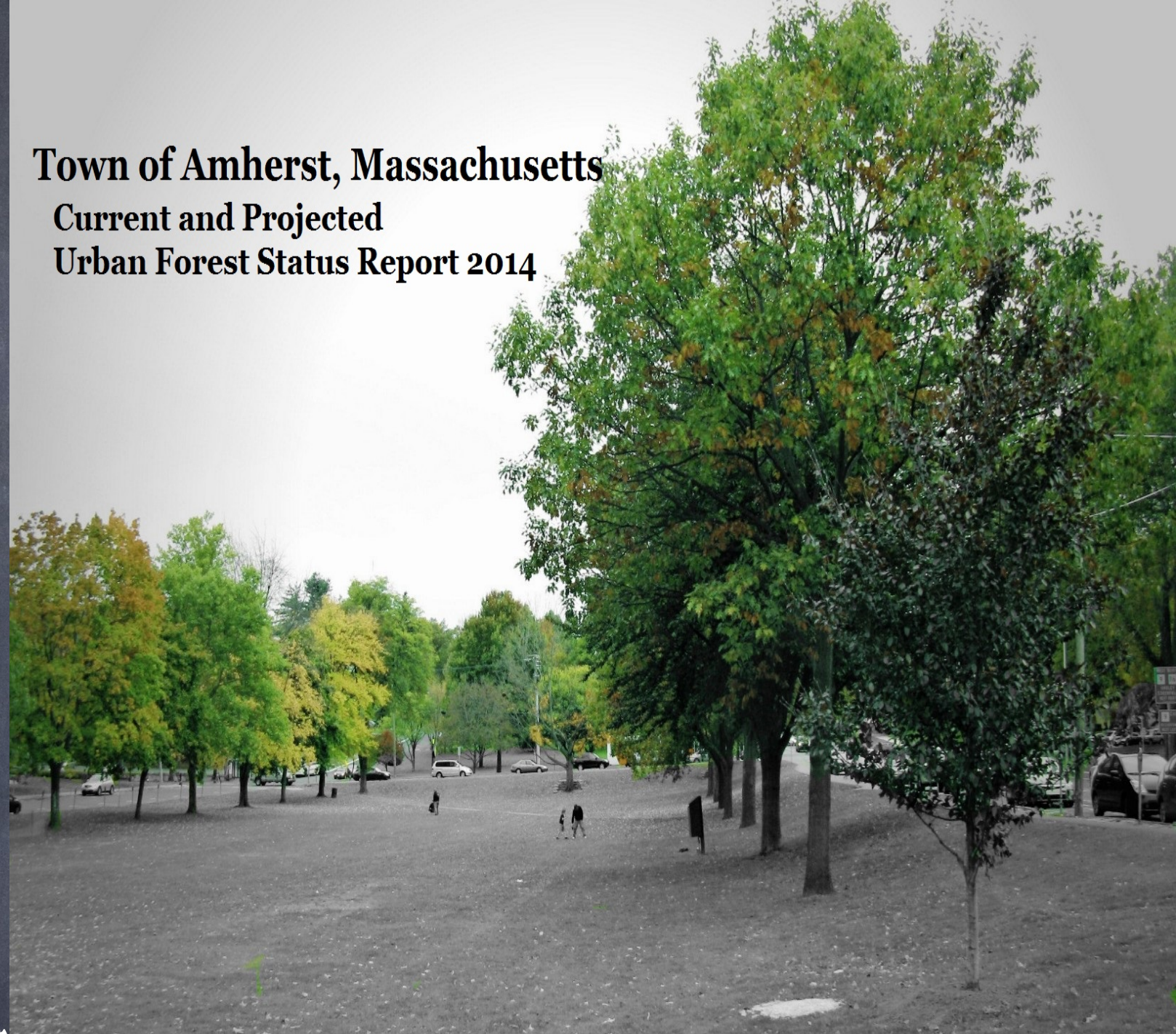
► Report will feature a complete analysis of the full Town of Amherst Street Tree Inventory

► Another analysis on a projection or projections of where we can expect the population to be in 'x' years

► An up to date breakdown of species, size, and condition of the inventories

► Summary of the total overall value trees provide to the community

Town of Amherst, Massachusetts Current and Projected Urban Forest Status Report 2014



Current Project - Town of Amherst Status Report

Thanks!

Questions