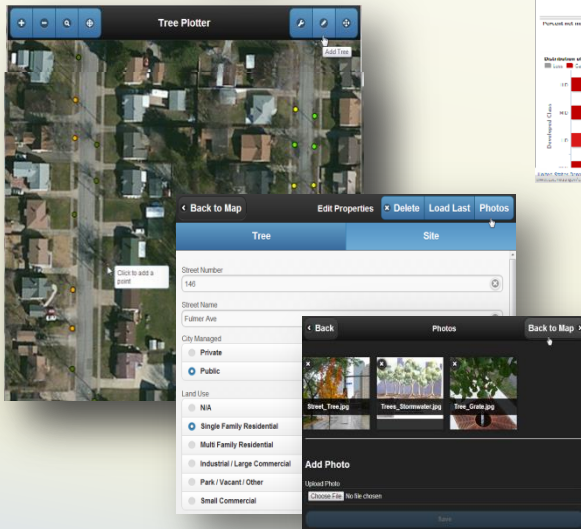
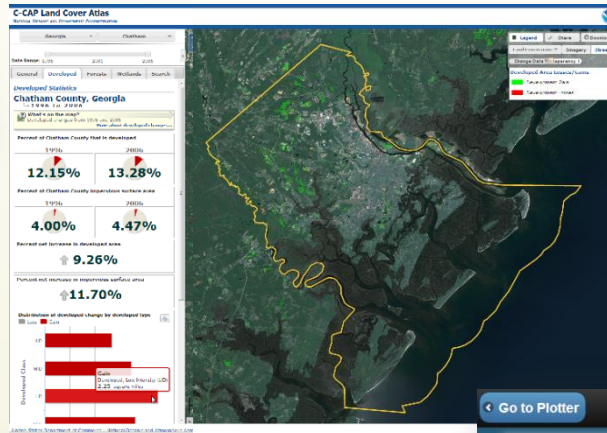
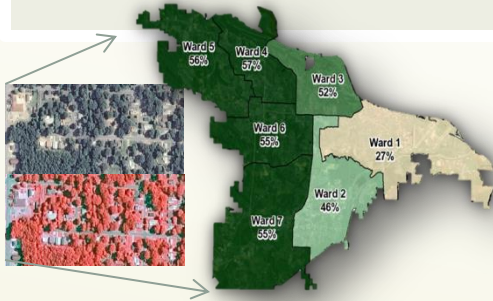


# URBAN FORESTRY IN SMART GROWTH

## TECHNOLOGY APPLICATIONS

FEBRUARY 2014



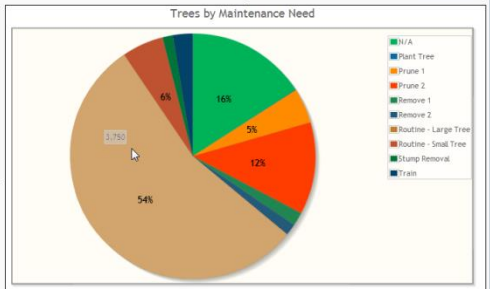
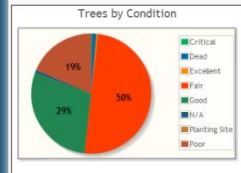
Adrian, MI : Urban Forest Cloud - Tree Plotter Dashboard

Welcome to the City of Adrian, Michigan's Tree Dashboard!

Explore information about the City's trees such as tree species, the size and condition of trees, and more. Data is based on an inventory of trees in the City conducted by professional arborists. The data allows for efficient and safe management of this valuable resource.

**Trees by the Numbers**

- Trees in Inventory: 6,881
- Vacant Planting Sites: 702
- Trees by Condition: 1,375
  - Critical, Dead, Poor: 3
- Trees by Species: 6
  - Fraxinus species: 1
- Trees by Maintenance Need: 216
  - Remove 1, Stump Removal: 2



Presented by:  
Ian Hanou, plan-it GEO LLC



## **My Talk:**

“An interactive demonstration of technological applications that engage planners, managers, NGOs, and the public in sustaining robust urban forests at various scales.”

## **Question to the Audience:**

As a planner, how would it change your ability to enhance urban forest benefits in your community by having tree and forest cover data readily available via tools & technology?

# PRESENTATION COMPONENTS

## ❖ Smart Growth Principles

- ✓ In the context of urban forestry and technology

## ❖ Planning urban forests

- ✓ Trends as well as ways we study, assess, and inform urban forestry

## ❖ Seeing the Forest and the Trees

- ✓ From tree inventory to canopy assessment
- ✓ Tools & technologies for planners/managers
- ✓ Maps, apps, and more

## ❖ Resources and Other Tools



## SMART GROWTH PRINCIPLES

1. Mix land uses
2. Take advantage of compact building design
3. Create a range of housing opportunities and choices
4. Create walkable neighborhoods
5. Foster distinctive, attractive communities with a strong sense of place
6. Preserve open space, farmland, natural beauty, and critical environmental areas
7. Strengthen and direct development towards existing communities
8. Provide a variety of transportation choices
9. Make development decisions predictable, fair, and cost effective
10. Encourage community and stakeholder collaboration in development decisions

# URBAN FOREST MANAGEMENT (50K' VIEW)

Plan-It Geo | [planitgeo.com](http://planitgeo.com)

## Inventory

*("bottom-up")*

### Public trees:

- Street/park
- Sample or 100%
- By staff, contractors, students, or volunteers

### Plot-based:

- Public/private property

### ***Related Software***

- i-Tree (Streets, Eco, etc.)
- Open Tree Map
- Tree Plotter
- TreeKeeper
- ArborPro
- Talking2Trees
- Many others ...

## Assessment

*("top-down")*

### Urban Tree Canopy Ass't

- GIS/Remote Sensing  
✓ >200 completed
- i-Tree Canopy
- 30m NLCD or C-CAP

### Other:

- Forest Health
- LU/LC Change Analysis
- Stewardship Mapping

### ***Related Software***

- i-Tree (Canopy, Vue)
- NOAA Digital Coast
- StewMap
- Canopy Planner  
(Urban Forest Cloud<sup>©</sup>)

## Planning

### Mgmt./Master Plans:

- Street trees
- Park trees
- Open Space
- Strategic UFMPs

### Related Plans:

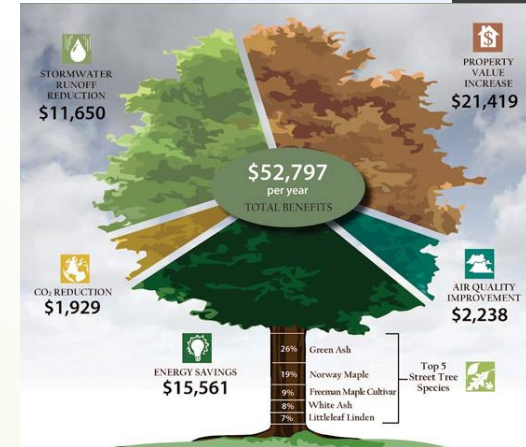
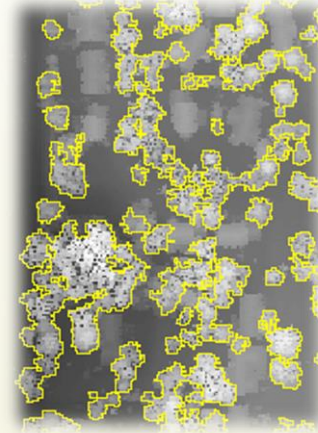
- Green Infrastructure
- Climate Action Plan
- Comprehensive Plan

### Regulations/Ordinances:

- Tree preservation
- Landscaping req'ts
- Fee in-lieu of programs
- Street and park trees
- Conservation  
Subdivision Ordinance

# TECHNICAL TRENDS IN URBAN FORESTRY

- Ecosystem services (regulatory compliance)
- Urban Tree Canopy (UTC) assessments
- Crowdsourcing
  - Online, web-based tree inventory
- Canopy cover goals
- 1M tree planting initiatives



## 1 MILLION TREES BY 2025

**175,792 AND COUNTING!**

SINCE OUR INITIATIVE BEGAN, OVER 176 TRILLION POUNDS OF CO<sub>2</sub> HAS BEEN REDUCED IN OUR ATMOSPHERE. [LEARN MORE »](#)

[DRAG ME](#)

phillytree map

Filter by Location:

Filter by Species:

**Yearly Eco Impact** **56,865 trees,** (reset search)  
 Selected trees in the region **184,287 total planting sites located**

Total Benefits	\$9,523,477 saved
Greenhouse Gas Benefits	26,689,599 lbs CO <sub>2</sub> reduced \$89,143 saved
Water Benefits	123,685,042 gallons conserved \$1,224,481 saved
Energy Benefits	62,048,794

## *Goals/objectives through tools and technologies*



Collect, edit, update data in real-time

View, query/filter, summarize, share

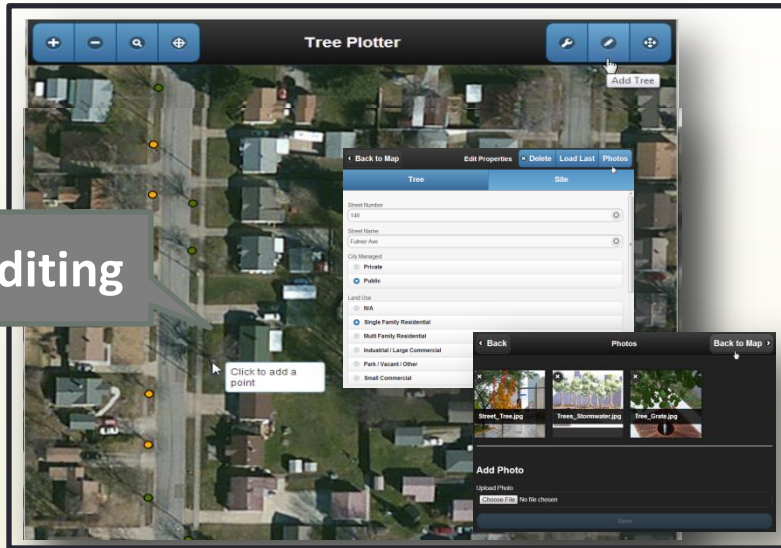
Prioritize, simulate, and track progress

Accessibility, transparency, ease-of-use

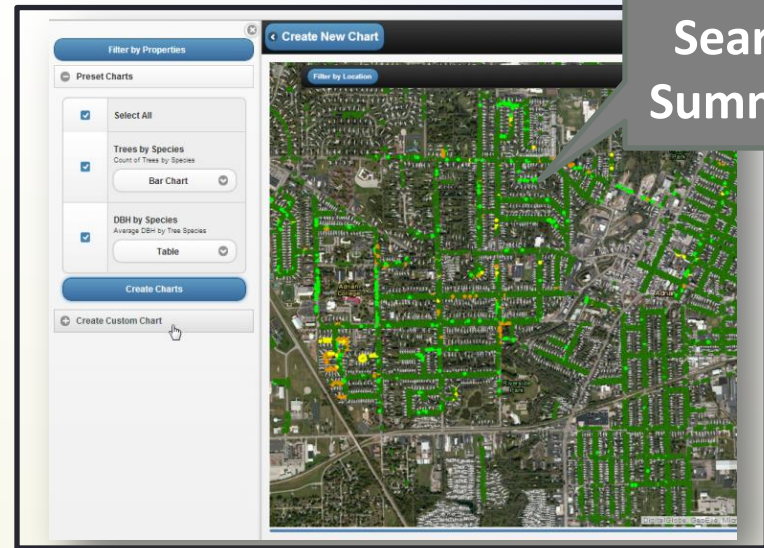
Inform, collaborate, efficacy

*Smart “Urban Forest Technology” Principles???*

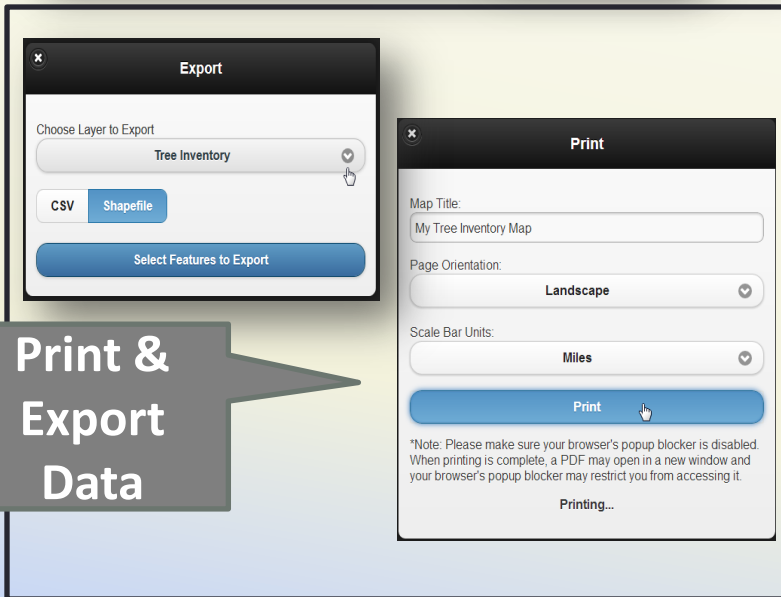
# WEB-BASED TREE INVENTORY MANAGEMENT



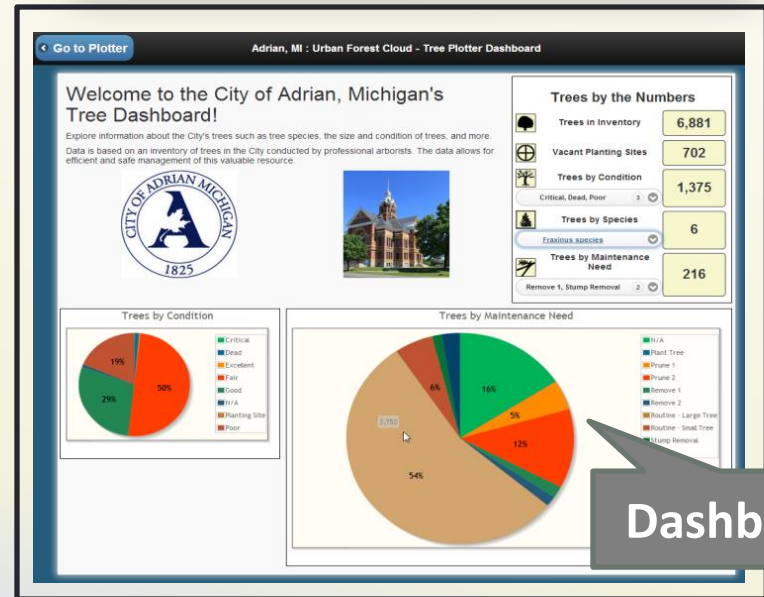
Editing



Search & Summarize



Print & Export Data



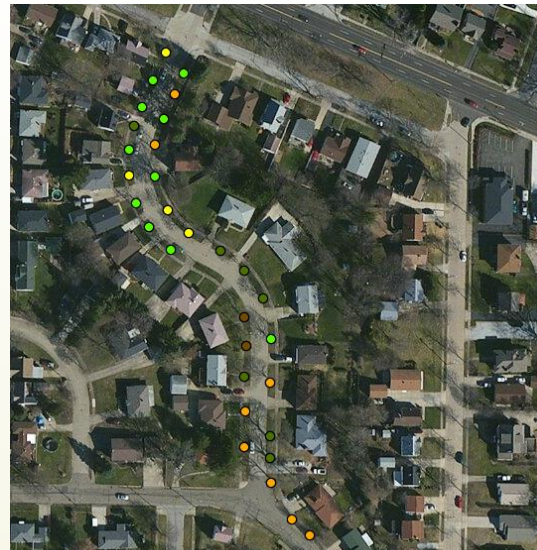
Dashboard



# TREE PLOTTER "LITE": FREE INVENTORY APP

The screenshot displays the TreePlotter Lite web application interface. The main window shows a map of the United States with several colored dots representing tree inventory locations. The interface includes a navigation menu on the left with options: Legend, Change Basemap, Measure, Draw Graphics, Print Map, and Export Features. Below this is a drawing toolbar with various tools: Draw Text, Draw Point, Draw Polyline, Draw Freehand Polyline, Draw Polygon, Draw Freehand Polygon, Draw Rectangle, Draw Circle, and Delete Graphics. A 'Start Drawing' button is at the bottom of the toolbar. The top of the application window displays the title 'UF Cloud - Plotter LITE : Free Tree Inventory' and navigation controls (zoom in, zoom out, search, pan, and home). A smaller inset window shows a detailed view of a golf course with numerous yellow dots representing tree inventory. This inset window also has a legend for 'Free Tree Inventory' with categories: Street Tree (yellow dot), Park Tree (green dot), Memorial Tree (red dot), Other Public Property Tree (blue dot), Private Property Tree (orange dot), and Proposed Tree Planting (green dot with cross). The inset window includes an 'Add Tree' button and a 'Start Drawing' button.

# TOOLS TO PUT YOUR TREE DATA TO USE



Summarize data based on location or attributes, then summarize data in charts, maps, and tables.

## Hypothetical Example:

Do we have good tree species diversity in ABC park?

How about on Elm Street in the Sunnyside neighborhood?

Are the trees in good health (condition)?

← Create New Chart Charts Back to Map →

Filter Features Remove Filter

Aerial Sample Tree Inventory - Filtered

### Recommended Maintenance

Category	Count	%
Large tree (routine)	90	90%
N/A	8	8%
Small tree (routine)	2	2%

### Sidewalk Damage

Category	Count	%
3/4 - 1.5"	288	88%
< 1/4"	10	3%
> 1.5"	10	3%
N/A	10	3%
No Sidewalk Present	10	3%

### Overhead Wire Conflict

Category	Count	%
No Wires Present	55	55%
Wires Present and Conflicting	29	29%
Wires Present but Not Conflicting	16	16%

### Condition

Category	Count	%
Excellent	85	85%
Fair	11	11%
Good	4	4%
N/A	0	0%
Poor	0	0%

### Predominant Species Table

Species	Count	%
Ash, Autumn Purple	34	2.9%
Lilac, Ivory Silk Japanese Tree	129	11.1%
Maple, Cleveland Norway	35	3%
Maple, Crimson King	147	12.7%
Maple, Hedge	80	6.9%
Maple, October Glory Red	36	3.1%
Maple, Red Sunset Red	132	11.4%
Maple, Rocky Mountain Glow	39	3.4%
Maple, Royal Red Norway	56	4.8%
Maple, Schlessinger Red	62	5.3%
Other	410	35.3%

### Predominant Species Table (Filtered)

Species	Count	%
Crabapple, Red Baron	1	1.1%
Honeylocust	1	1.1%
Maackia, Amur	1	1.1%
Maple, Crimson King	48	50.5%
Maple, Norway	4	4.2%
Maple, Red Sunset Red	9	9.5%
Maple, Royal Red Norway	31	32.6%

# REGIONAL TREE TRACKING TOOL

Go to Plotter

Texas Tree Plotter - Dashboard

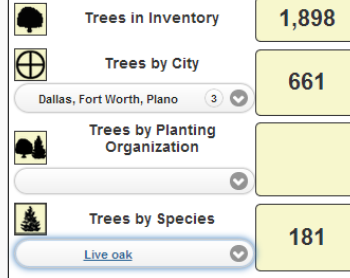
## Welcome to the Texas Tree Plotter Dashboard!

This dashboard provides you with information, based on an inventory of trees by citizens, that will guide your public tree management for the safety and well being of the community and the trees.

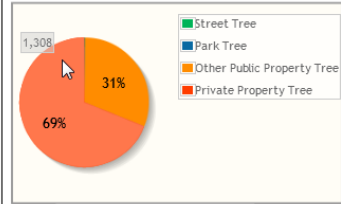
Trees, a capital asset, can be a liability if not managed properly. Budgeting, prioritizing planting sites, determining species, and long term maintenance will be better guided through the information provided.



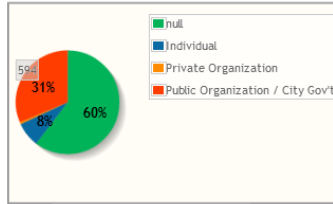
### Trees by the Numbers



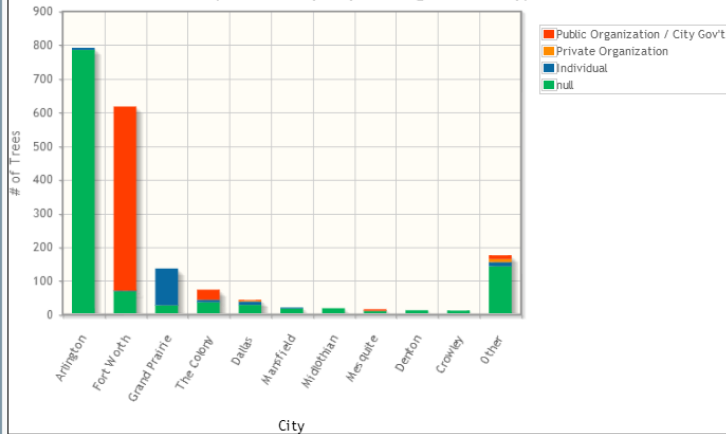
Trees by Type



Trees by Organization Type



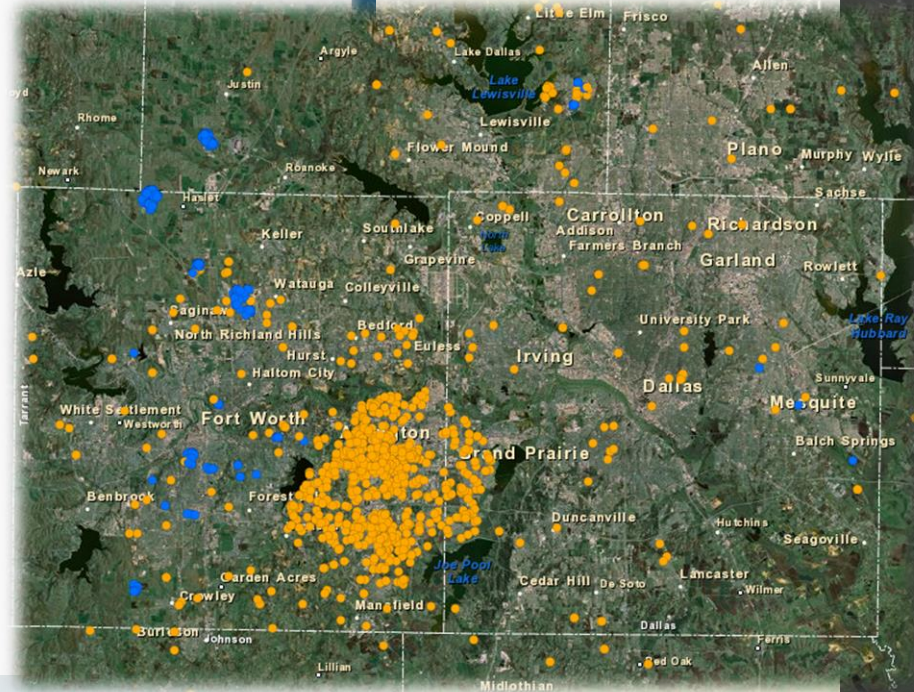
Top Planters by City and Organization Type



Where are the most engaged citizens and businesses?

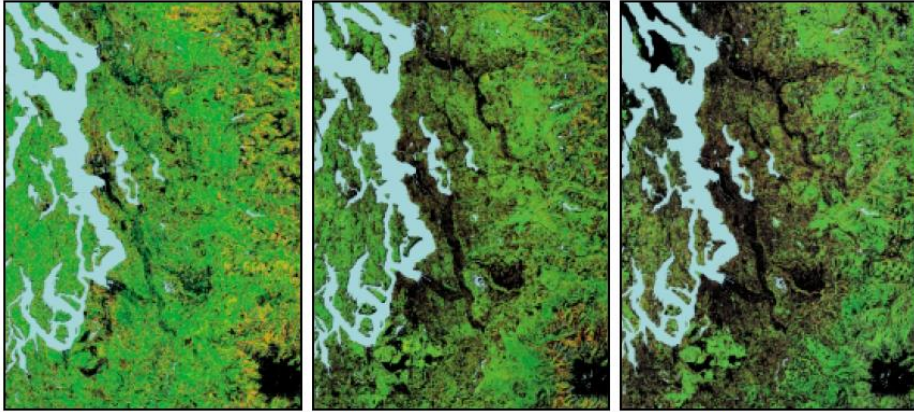
What city's leading the way in planting?

Are we on track with tree planting goals?



# URBAN TREE CANOPY ASSESSMENTS

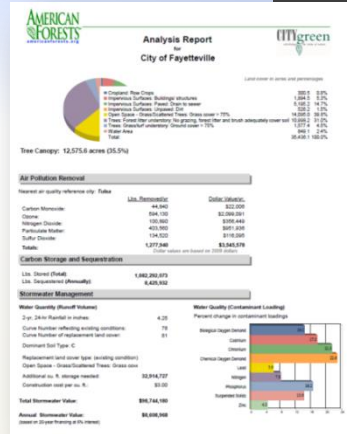
1 American Forests, 30-m resolution Urban Ecosystem Analysis (1990's)



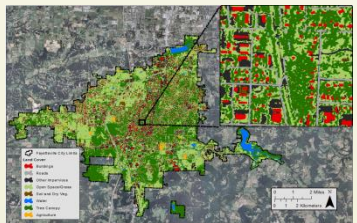
Landsat MSS 1972 80 Meter Pixel Resolution    Landsat TM 1986 30 Meter Pixel Resolution    Landsat TM 1996 30 Meter Pixel Resolution

2

High-resolution land cover and CITYgreen study ('90's/early 2000)

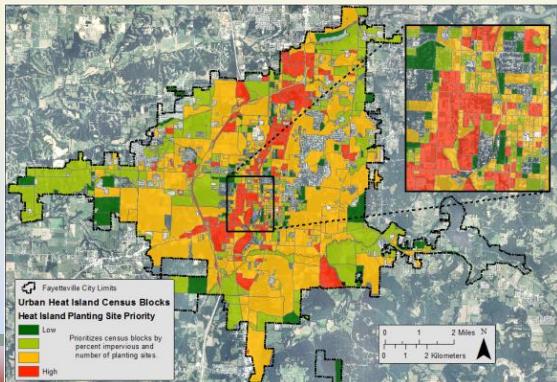
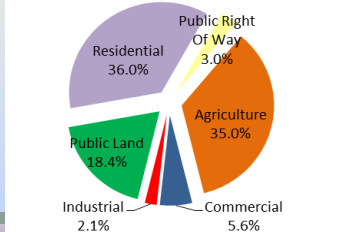


3 UTC Assessments (starting early 2000's)



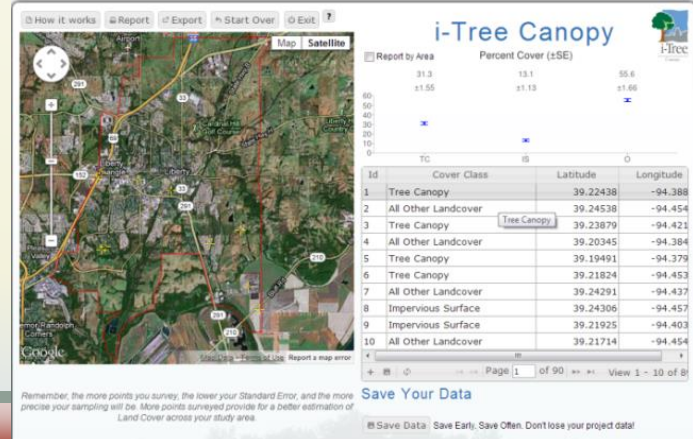
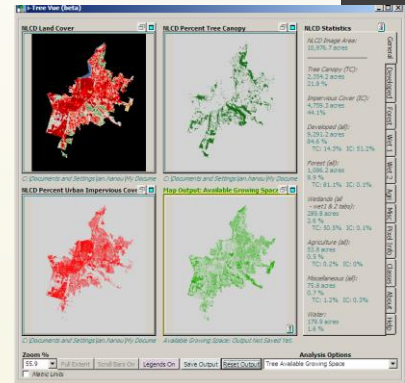
Land Use Category	Total Acres	Land Area (acres)	% of Total City Area	UTC (acres)	Existing UTC %
Agriculture	9,880	9,757	27.9%	4,353	44.6%
Commercial	3,985	3,943	11.2%	702	17.8%
Industrial	957	949	2.7%	258	27.2%
Public Land	6,731	6,106	19.0%	2,285	37.4%
Residential	11,017	10,968	31.1%	4,475	40.8%
Public Right Of Way	2,867	2,863	8.1%	368	12.9%
<b>TOTALS</b>	<b>35,437</b>	<b>34,586</b>	<b>100.0%</b>	<b>12,441</b>	<b>36.0%</b>

Distribution of Existing UTC by Land Use



4

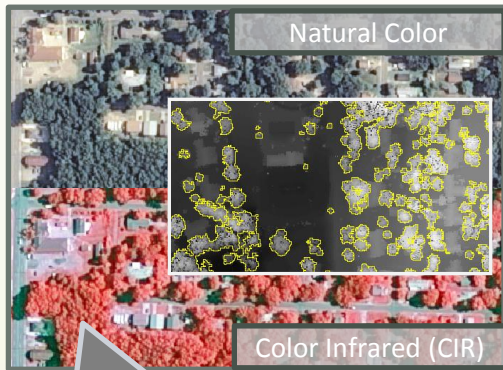
i-Tree Vue (30-m) and i-Tree Canopy (statistical tool)



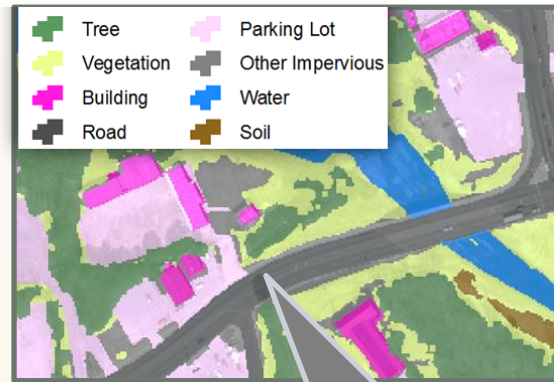
Remember, the more points you survey, the lower your Standard Error, and the more precise your sampling will be. More points surveyed provide for a better estimation of Land Cover across your study area.

Save Your Data: Save Early, Save Often. Don't lose your project data!

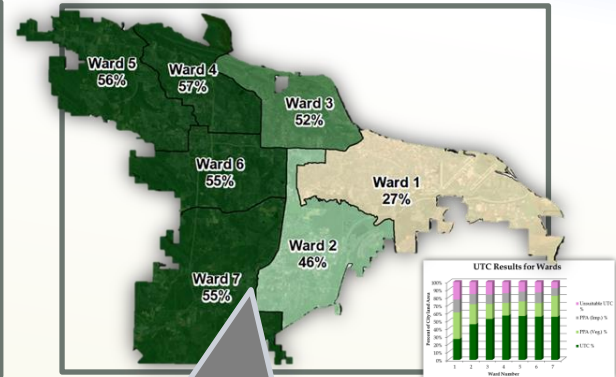
# COMPONENTS OF URBAN TREE CANOPY STUDIES



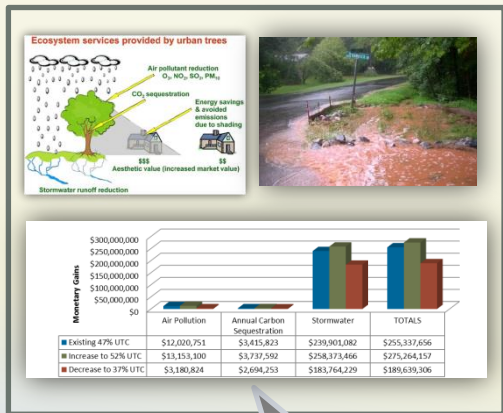
Multispectral Imagery & LiDAR



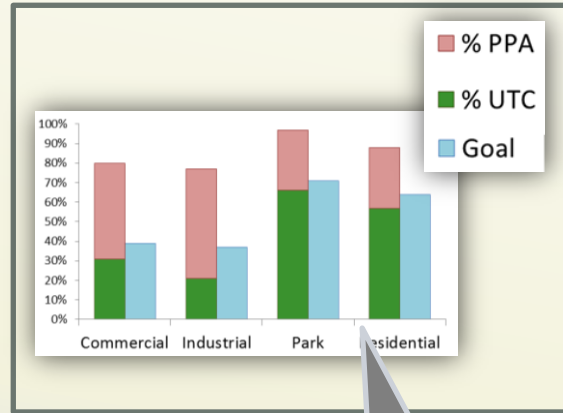
Land Cover Classification



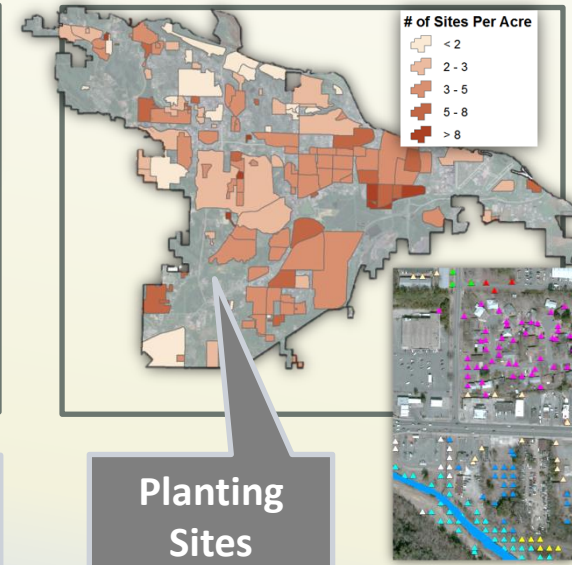
Assessment Maps



Ecosystems Services

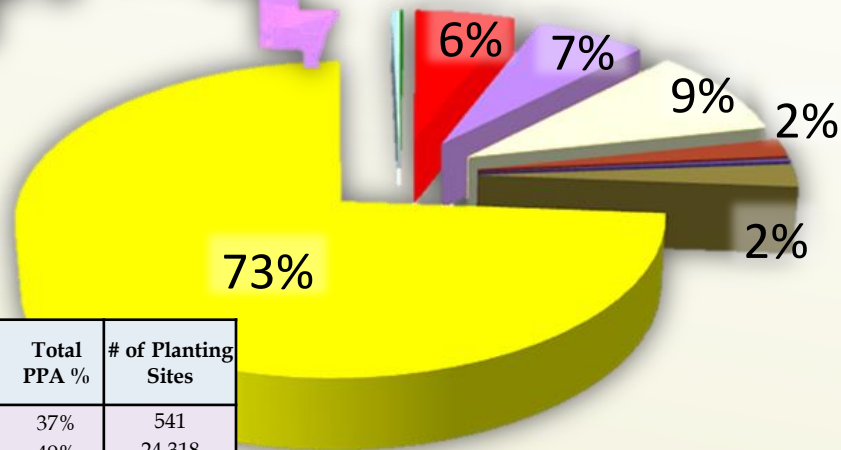
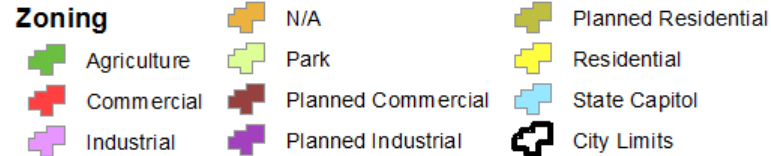
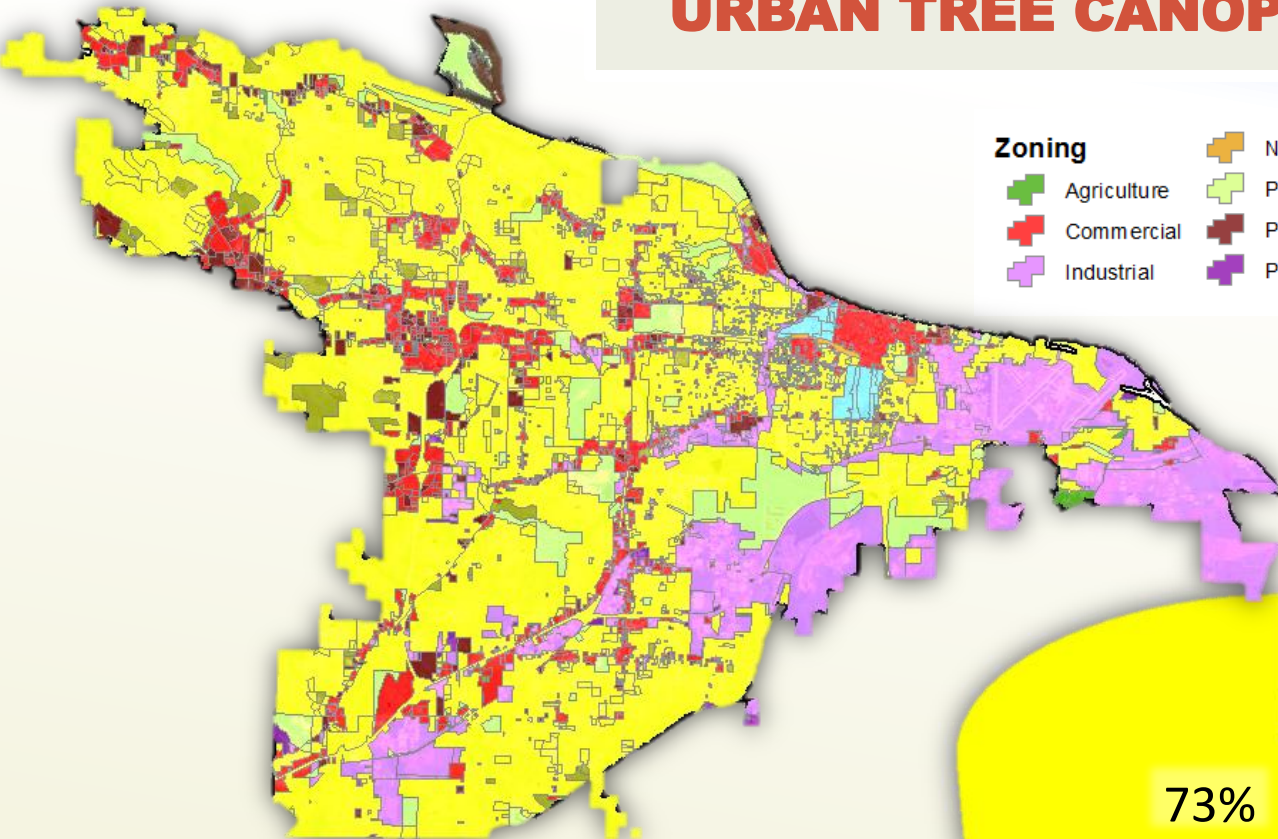


Goal Setting



Planting Sites

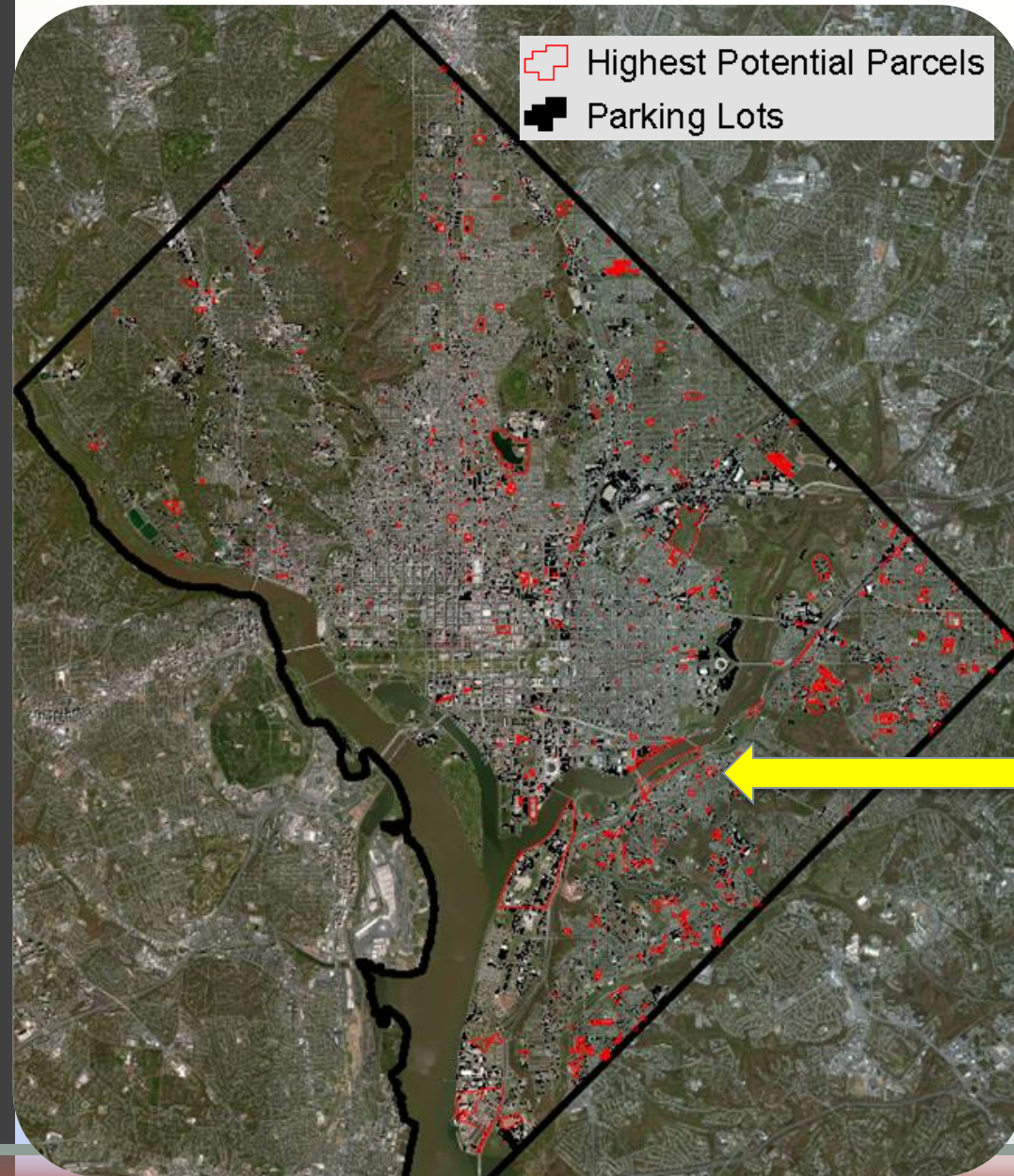
# URBAN TREE CANOPY BY ZONING



Zoning	Land Acres	% of Total Land Area	UTC Acres	UTC %	% of Total UTC	Total PPA Acres	Total PPA %	# of Planting Sites
Agricultural	135	0%	66	48%	0.2%	50	37%	541
Commercial	6,848	9%	2,096	31%	5.7%	3,341	49%	24,318
Industrial	11,472	15%	2,365	21%	6.5%	6,385	56%	55,678
Park	5,102	7%	3,391	66%	9.3%	1,558	31%	15,216
Planned Commercial	2,239	3%	689	31%	1.9%	1,135	51%	9,656
Planned Industrial	292	0%	104	36%	0.3%	145	50%	1,140
Planned Residential	1,623	2%	873	54%	2.4%	502	31%	5,850
Residential	47,350	63%	26,805	57%	73.4%	14,706	31%	171,511
State Capitol	532	1%	144	27%	0.4%	230	43%	2,426
N/A	90	0%	4	4%	0.0%	53	58%	756
<b>TOTALS</b>	<b>75,683</b>	<b>100%</b>	<b>36,535</b>	<b>48%</b>		<b>28,103</b>	<b>37%</b>	<b>287,092</b>

*Distribution of UTC by Zoning Categories  
Little Rock, AR*

# MEETING MULTIPLE GOALS: PRIORITY TREE PLANTING



- ✓ *Room for Large Trees*
- ✓ *Urban Heat Island (extensive impervious areas)*
- ✓ *Social Benefits (recreation)*
- ✓ *Water Quality (Anacostia River)*
- ✓ *Air Quality (major highway)*



# LOW-TECH INTERACTIVE COMMUNITY TREE PLANTING MAP

MWCOG\_ANCs\_HiRes\_6B.pdf - Adobe Acrobat Pro

File Edit View Window Help

Create [Icons]

1 / 1 [Navigation Icons] 92.2%

Tools Comment Share

## Existing Urban Tree Canopy & Potential Planting Areas - 2011 - ANC 6B

Date Created 9.27.2012

**Layers**

- Other 6
- ANC Inset Map
- Title
- Layers
- Frame
- ANC Boundary
- Reference Locations
- Parking Lots
- Recreation Field
- Public & Private Schools
- Private Schools
- Tree Inventory DDOT UFA
- Vacant Planting Sites
- Existing Trees
- Parcel Properties
- Lowest Planting Potential
- Average Planting Potential
- Highest Planting Potential**
- Existing UTC %
- Total PPA %
- Census Blocks Existing UTC %
- 2010 DC GIS Aerial Imagery
- Background

**Parcels & Census Blocks**

Existing UTC %

- 0% - 10%
- 11% - 25%
- 26% - 50%
- 51% - 100%

**Tree Inventory DDOT UFA**

- Vacant Planting Sites
- Existing Trees

**Map Legend**

Reference map for planting opportunities.  
Funding was provided by:

**Key Terms**

- PPA - Possible Planting Areas
- UTC - Urban Tree Canopy
- ANC - Advisory Neighborhood Commissions

**Reference Locations**

- ANC Boundary
- Parking Lots
- Recreation Field
- Public & Private Schools
- Hospitals

plan-it GEO

North Arrow

Feet: 0, 600, 1,200, 1,800

**Tree Planting Potential**

Total PPA %

- 0% - 25%
- 26% - 50%
- 51% - 75%
- 76% - 100%
- Highest
- Average
- Lowest

↑  
**Layers**  
  
Legend →



# SETTING AN URBAN TREE CANOPY GOAL

## Residential Medium Density

### 2010 UTC % and Percentile Class

- 0 – 10% (0 – 25% Percentile)
- 10 – 20% (25 – 50% Percentile)
- 20 – 33% (50 – 75% Percentile)
- 33 – 100% (75 – 100% Percentile)



Are we content where we are



Will investing in *greater* canopy have a net positive gain



What is our *Potential* Urban Tree Canopy



UTC goals by land use, zoning, or ownership



Do we have political/regulatory support or social capital



Duration / planning horizon

# URBAN TREE CANOPY CALCULATOR TOOL

## Parameters



Enter UTC Scenario

UTC Goals | Additional Influences

Tree Canopy Size & Distribution

	Crown Radius (ft):	% of Total Tree Count:
Small	<input type="text" value="12.5"/>	<input type="text" value="10%"/>
Medium	<input type="text" value="15.0"/>	<input type="text" value="40%"/>
Large	<input type="text" value="20.0"/>	<input type="text" value="50%"/>
Average Crown Radius (ft):		<input type="text"/>

Tree Growth and Mortality

Number of Years:	<input type="text" value="30"/>
New Tree Mortality (%):	<input type="text" value="3.0%"/>
Annual Canopy Loss to Mortality (%):	<input type="text" value="7.0%"/>
Annual Canopy Loss to Development (ac):	<input type="text" value="10"/>
Natural Regeneration (%):	<input type="text" value="3.0%"/>
Annual Canopy Growth (%):	<input type="text" value="6.0%"/>

OK

Welcome to the Plan-It Geo UTC Calculator!

This tool allows you to predict changes to Urban Tree Canopy by altering the following parameters:

Canopy Cover and Tree Planting Goals, Average Tree Size, Rate of Growth and Mortality, and Development

[Click Here to Edit UTC Goals](#)

Boise, Idaho

Land Use Classes	Current	Total Land (Acres)		Existing UTC (Acres) (%)		Total Possible Planting Area (Acres) (%)		Urban Tree Canopy (%) (No. Trees)		Predictions	Natural Regeneration (Acres) (%)		Canopy Growth & Mortality (Acres) (%)		Loss to Development (Acres) (%)		Tree Planting Required (Acres) (No. Trees)		Net UTC Increase (Acres) (%)		UTC in 2043 (Acres) (%)			
		(+)	(+/-)	(-)	(+)	(=)																		
Agriculture	1,404	56	4.0%	24	2%	3%	-	1	1%	(15)	-26%	(25)	-45%	26	1,199	(14)	-25%	42	3%					
Commercial	6,009	482	8.0%	3,112	52%	10%	-	93	19%	(125)	-26%	(25)	-5%	181	8,447	119	25%	601	10%					
Industrial	862	47	5.5%	553	64%	5%	-	17	35%	(12)	-26%	(25)	-53%	17	804	(4)	-8%	43	5%					
Open Space	1,446	164	11.3%	1,079	75%	15%	-	32	20%	(43)	-26%	(25)	-15%	91	4,234	53	32%	217	15%					
Other	1,377	21	1.5%	1,074	78%	10%	-	32	153%	(5)	-26%	(25)	-119%	118	5,517	117	556%	138	10%					
Parks	1,129	287	25.4%	638	57%	20%	-	19	7%	(75)	-26%	(25)	-9%	20	929	(61)	-21%	226	20%					
Public	6,802	400	5.9%	4,154	61%	10%	-	125	31%	(104)	-26%	(25)	-6%	293	13,664	280	70%	680	10%					
Residential High	1,932	417	21.6%	389	20%	20%	-	12	3%	(109)	-26%	(25)	-6%	94	4,381	(31)	-7%	386	20%					
Residential Low	4,226	931	22.0%	2,515	60%	15%	-	75	8%	(242)	-26%	(25)	-3%	-	-	(297)	-32%	634	15%					
Residential Medium	11,664	3,360	28.8%	3,481	30%	25%	-	104	3%	(875)	-26%	(25)	-1%	362	16,855	(444)	-13%	2,916	25%					
Rights-of-Way	7,565	923	12.2%	953	13%	10%	-	29	3%	(240)	-26%	(25)	-3%	72	3,368	(167)	-18%	757	10%					
Schools	810	60	7.4%	447	55%	10%	-	13	22%	(16)	-26%	(25)	-42%	50	2,314	21	35%	81	10%					
<b>Citywide Total</b>	<b>45,226</b>	<b>7,149</b>	<b>16%</b>	<b>18,418</b>	<b>41%</b>	<b>15%</b>	<b>61,711</b>	<b>553</b>	<b>8%</b>	<b>(1,861)</b>	<b>-26%</b>	<b>(300)</b>	<b>-4%</b>	<b>1,324</b>	<b>61,711</b>	<b>(427)</b>	<b>-6%</b>	<b>6,721</b>	<b>15%</b>					

\*Change Calculated after 30 Years

\*Regeneration, Growth, Mortality, and Loss may result in negative Planting numbers



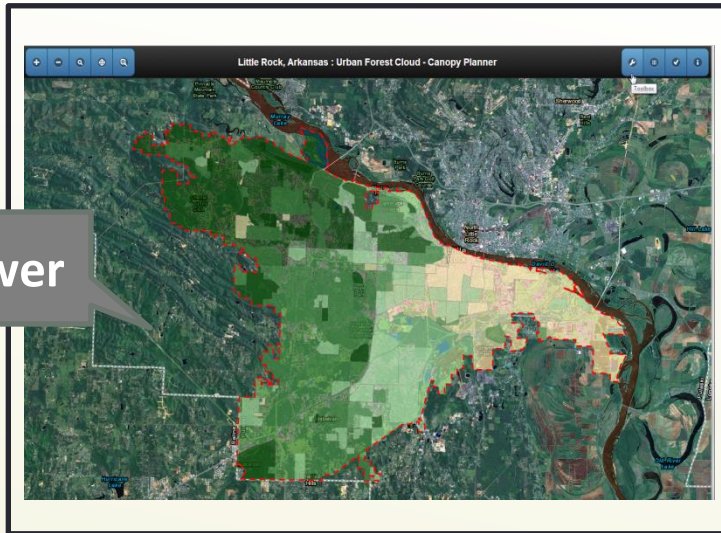
Assessment Results  
(Inputs)



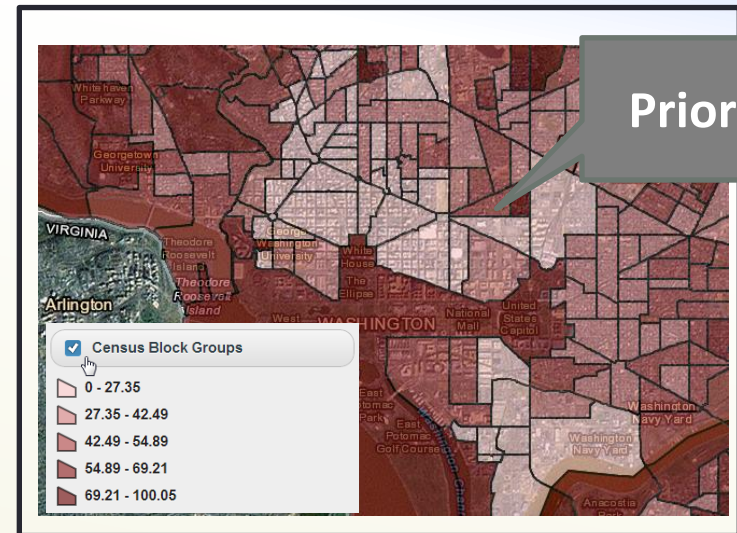
Scenario Results  
(Outputs)

# WEB-BASED TOOLS FOR URBAN FOREST PLANNING

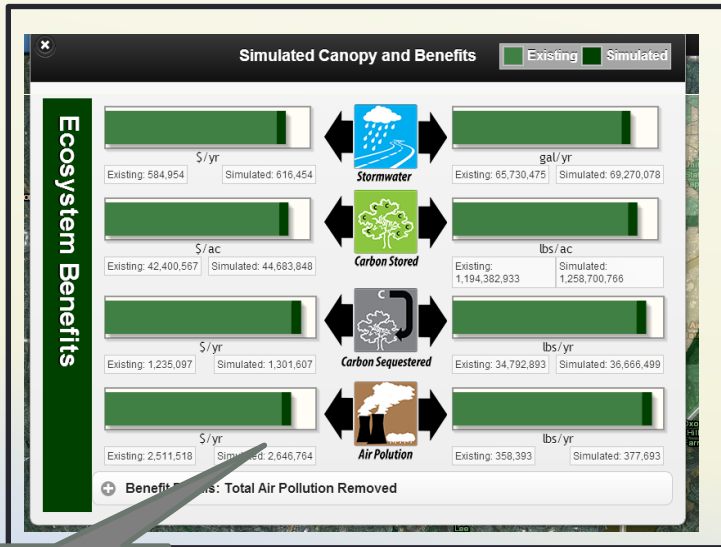
Viewer



Prioritize

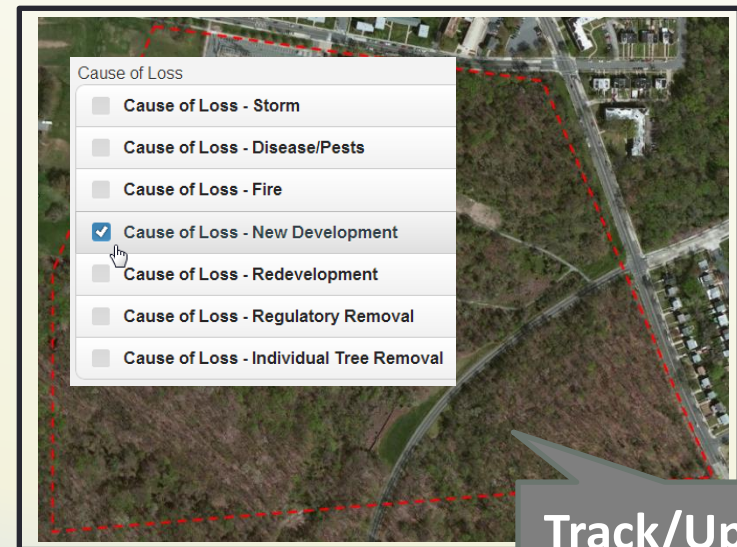


Ecosystem Benefits



Simulate

Cause of Loss



Track/Update

# LAND COVER AND TREE CANOPY VIEWER

pgonline.planitgeo.com/pgonline/LittleRock/JS\_App/Sites/Planner/index.aspx

Little Rock, Arkansas : Urban Forest Cloud - ...

Addition Areas

Loss Areas

Protection Areas

Neighborhoods

< 30%

30% - 47%

47% - 60%

> 60%

Wards

< 30%

30% - 53%

53% - 56%

> 56%

Landcover

DigitalGlobe, GeoEye, Microsoft | Copyright © 2014 Esri, DeLorme, HERE, TomTom

# PRIORITIZE TOOL - PLANTING AND PRESERVATION

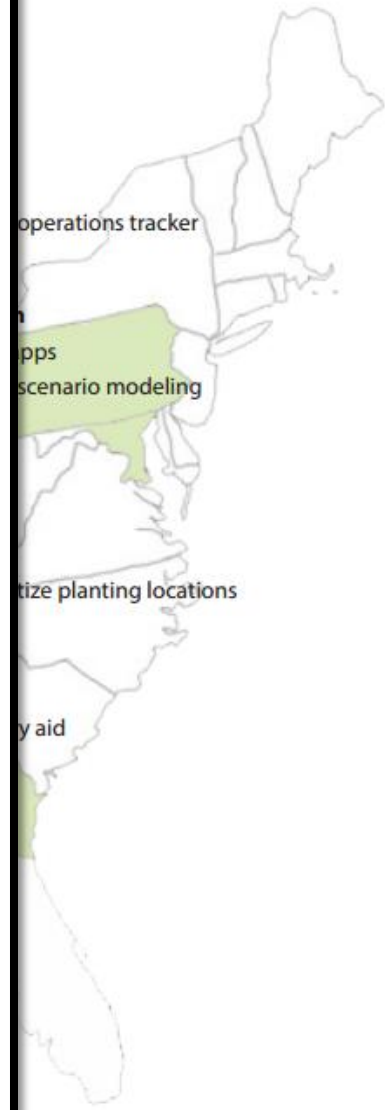
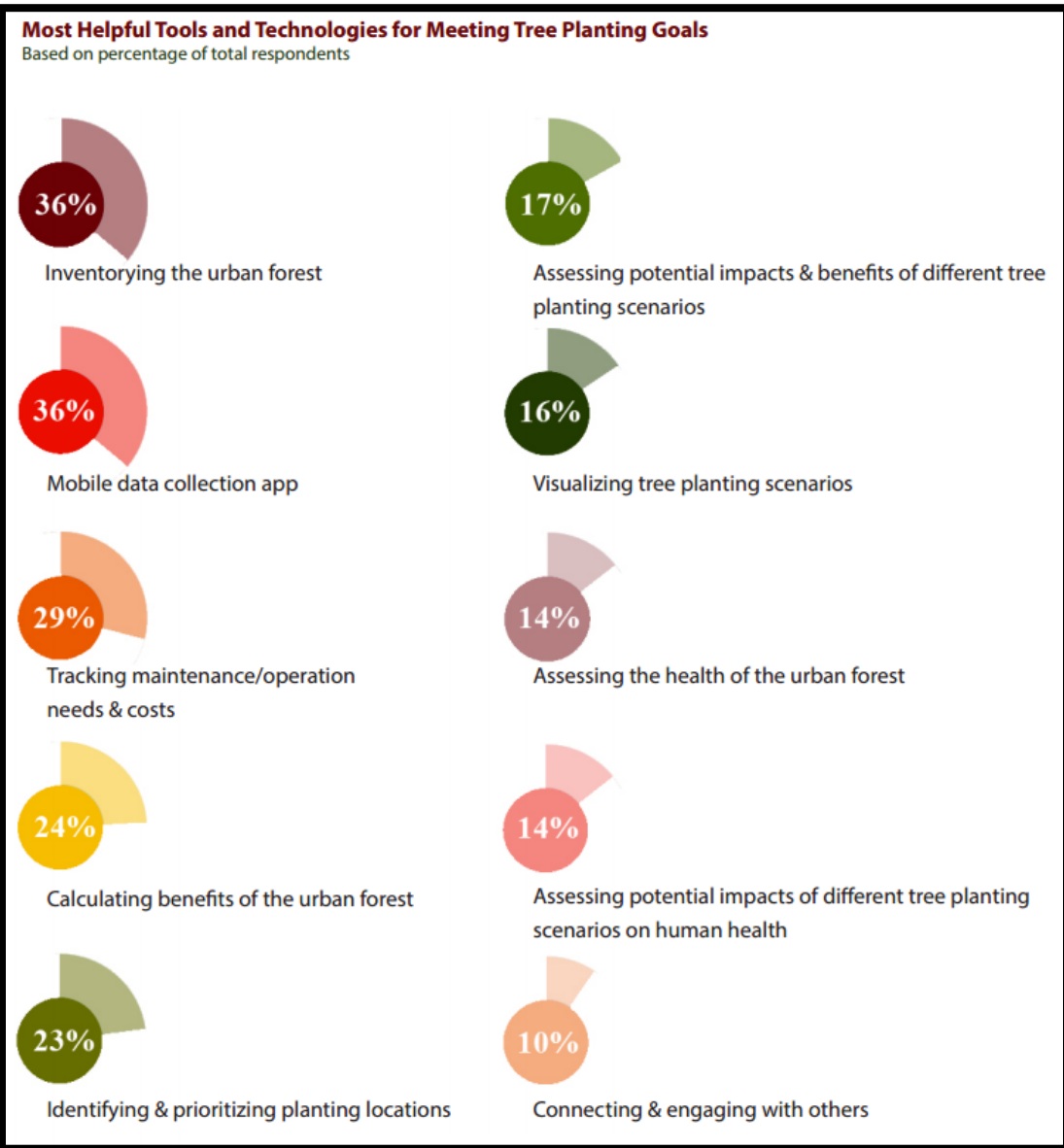
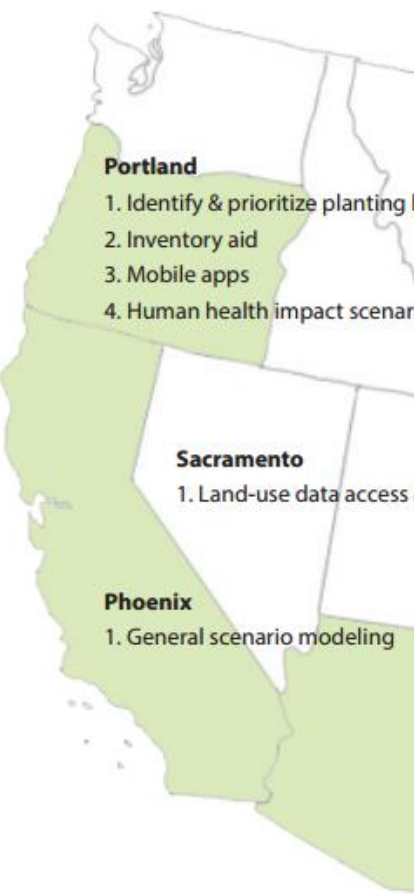
1. Choose your scale (parcel => citywide)
2. Choose planting or protection
3. Set weights to each criteria (factor)
4. Run model, view color-coded priority map

The interface features a top navigation bar with 'Filter by Properties' and 'Filter by Location' buttons. Below this, a 'Layer to Prioritize' dropdown menu is set to 'Neighborhoods', with 'Neighborhoods' and 'Wards' as options. A secondary bar allows switching between 'Planting' and 'Protection' modes. A list of criteria includes Land Cover, Zoning, Public Health, Institutional, Natural Asset, and Other. A detailed 'Institutional' filter panel is open, showing sliders for 'Habitat Connectivity' (High), 'Floodplains' (Low), and 'Riparian Areas' (Highest). A 'Prioritize' button is at the bottom.

The map displays a color-coded priority map overlaid on a satellite view. A 'Change Symbols' dialog box is open, showing 'Census Block Groups' as the layer and 'Protection Priority Score' as the field. The 'Number of Symbol Classes' is set to 5, and the color is 'Red'. A 'Reset' button is visible. A legend in the bottom right corner shows the color scale for 'Census Block Groups':

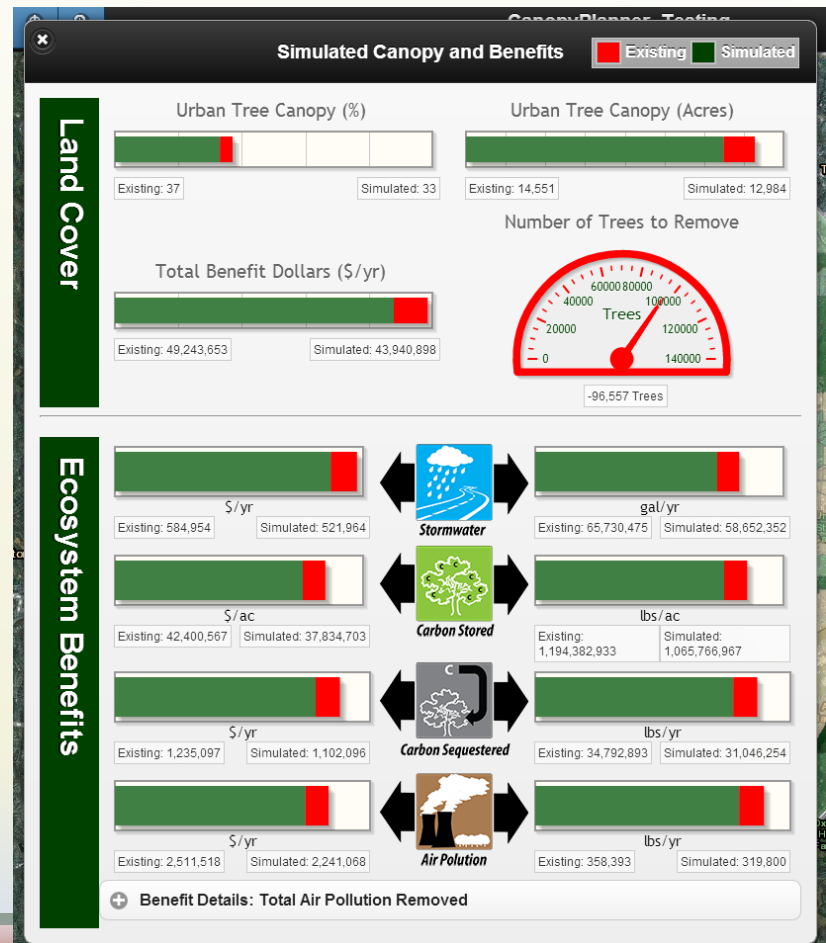
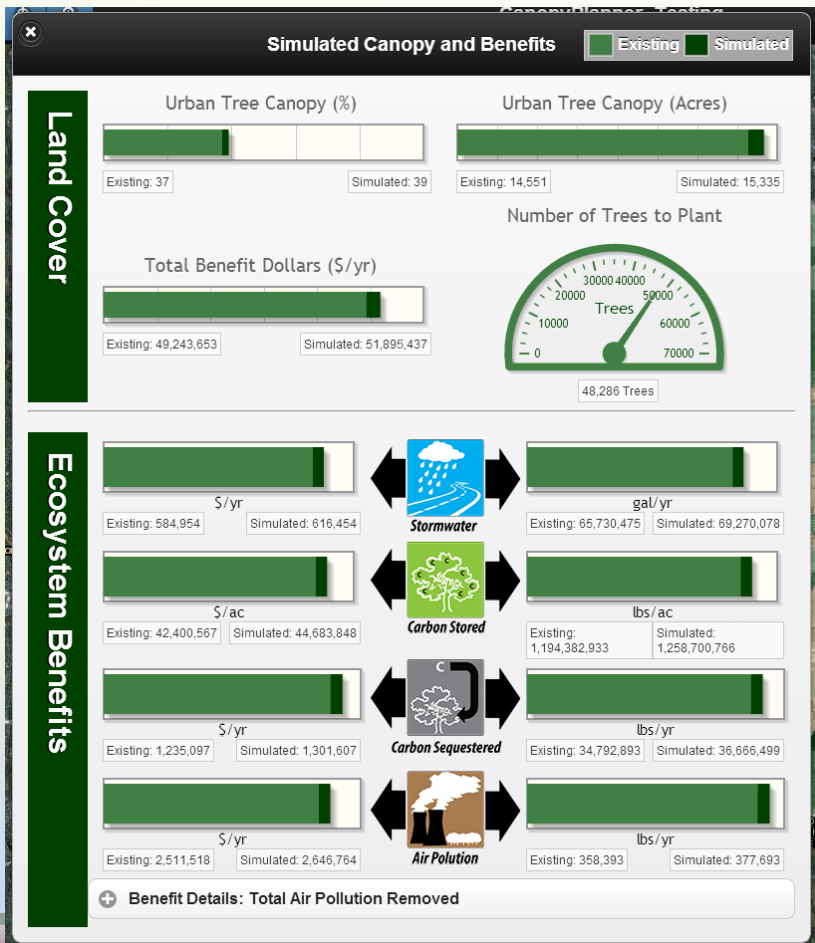
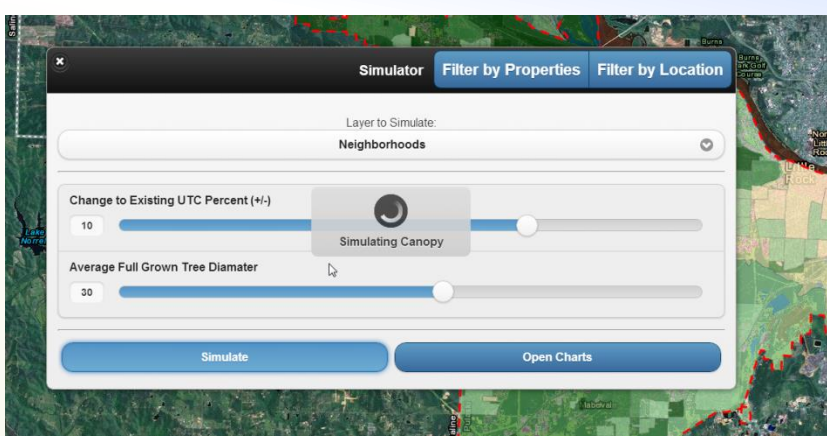
- Census Block Groups
- 0 - 27.35
- 27.35 - 42.49
- 42.49 - 54.89
- 54.89 - 69.21
- 69.21 - 100.05

# Most Helpful Tools and Technologies for Meeting Tree Planting as Identified per City



# Simulate (Forecast) Canopy & Benefits

1. Choose your scale (parcel => citywide)
2. Choose a gain or loss in canopy
3. Set average tree size
4. Run model, view scenario impacts



GAIN EX.

LOSS EX.

## RESOURCES / EXAMPLES

### General Applications:

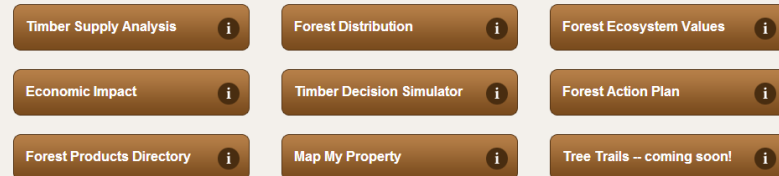
- UF Management Plan Toolkit
- i-Tree ([itreetools.org](http://itreetools.org))
- [ConservationAlmanac.org](http://ConservationAlmanac.org)
- [Landvote.org](http://Landvote.org)
- Statewide Tree Ordinance Databases (VA, PA, etc.)
- National Conservation Easement Database (NCED)
- UTC websites
  - [www.nrs.fs.fed.us/urban/utc/](http://www.nrs.fs.fed.us/urban/utc/)
  - [www.forestsforwatersheds.org/urban-tree-canopy](http://www.forestsforwatersheds.org/urban-tree-canopy)



### Webmap Applications:

- [Onemilliontrees.ca/](http://Onemilliontrees.ca/)
- Tree Plotter LITE (free)
- Open Tree Map
- StewMap
- NOAA Digital Coast
- MA U&CF Information
- PennTreeMap
- [TexasForestInfo.com](http://TexasForestInfo.com)

#### Applications





# NOAA DIGITAL COAST TOOL



## C-CAP Land Cover Atlas

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Georgia Chatham

Date Range: 1996 2001 2006

General **Developed** Forests Wetlands Search

### Developed Statistics

#### Chatham County, Georgia 1996 to 2006

What's on the map?  
Developed changes from 1996 and 2006  
[More about developed changes...](#)

#### Percent of Chatham County that is developed



#### Percent of Chatham County impervious surface area



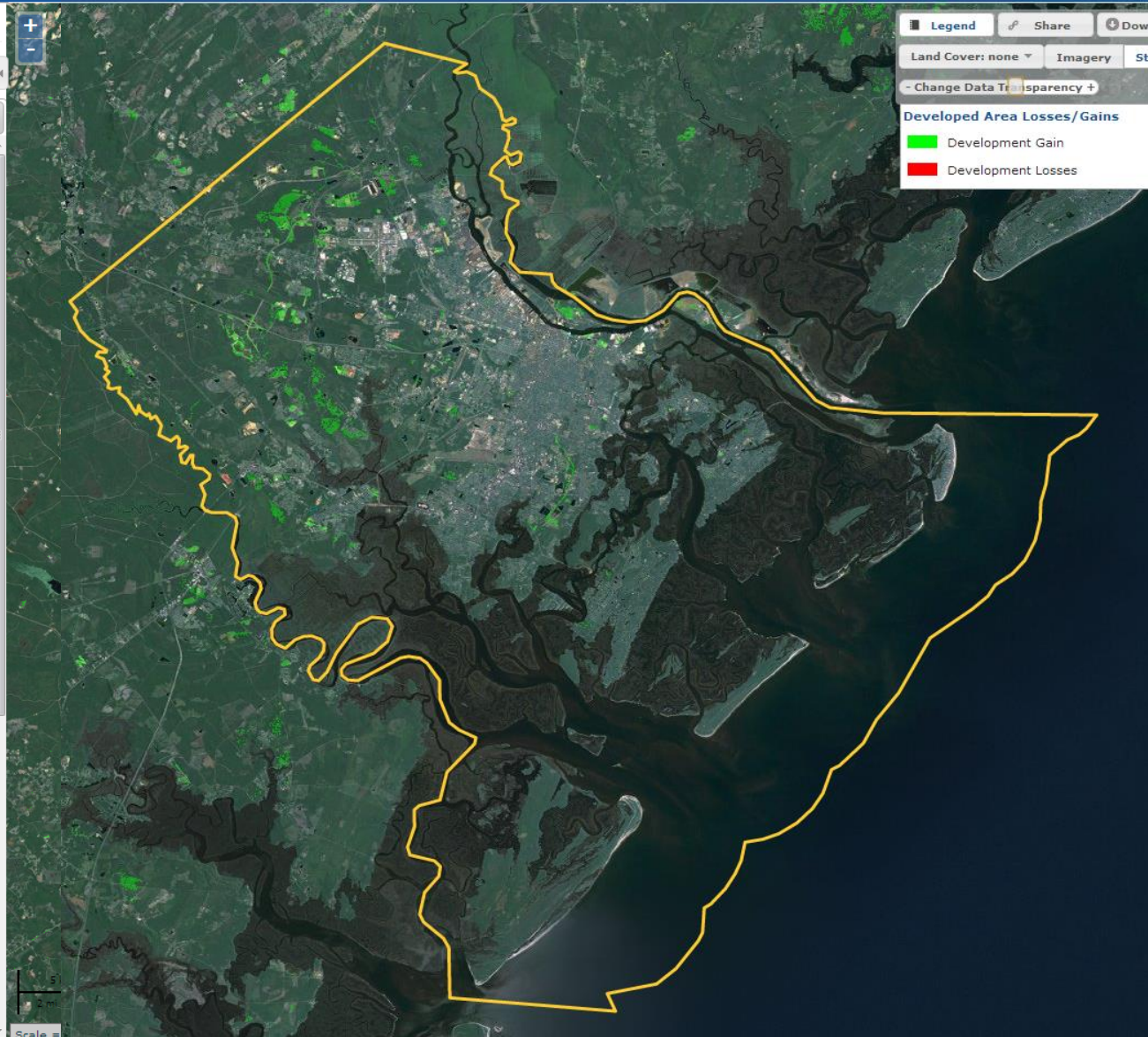
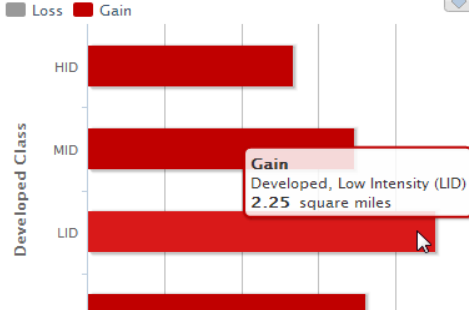
#### Percent net increase in developed area

↑ **9.26%**

#### Percent net increase in impervious surface area

↑ **11.70%**

#### Distribution of developed change by developed type



Legend Share Download

Land Cover: none Imagery Streets

- Change Data Transparency +

Developed Area Losses/Gains

- Development Gain
- Development Losses

# NOAA DIGITAL COAST TOOL



## C-CAP Land Cover Atlas

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Georgia

Chatham

Legend Share Download

Land Cover: none Imagery Streets

- Change Data Transparency +

### Forest Fragmentation

- Patch Forest
- Perforated Forest
- Edge Forest
- Core Forest
- Forest Losses

Date Range: 1996 2001 2006

General Developed Forests Wetlands Search

### Forests Statistics

## Chatham County, Georgia

1996 to 2006

What's on the map? 1996 to 2006 forest fragmentation [More about forest fragmentation...](#)

### Percent of Chatham County that is forested

1996

24.39%

2006

21.21%

### Percent net decrease in forested area

↓ 13.07%

### Percent net decrease in core forested area

↓ 20.22%

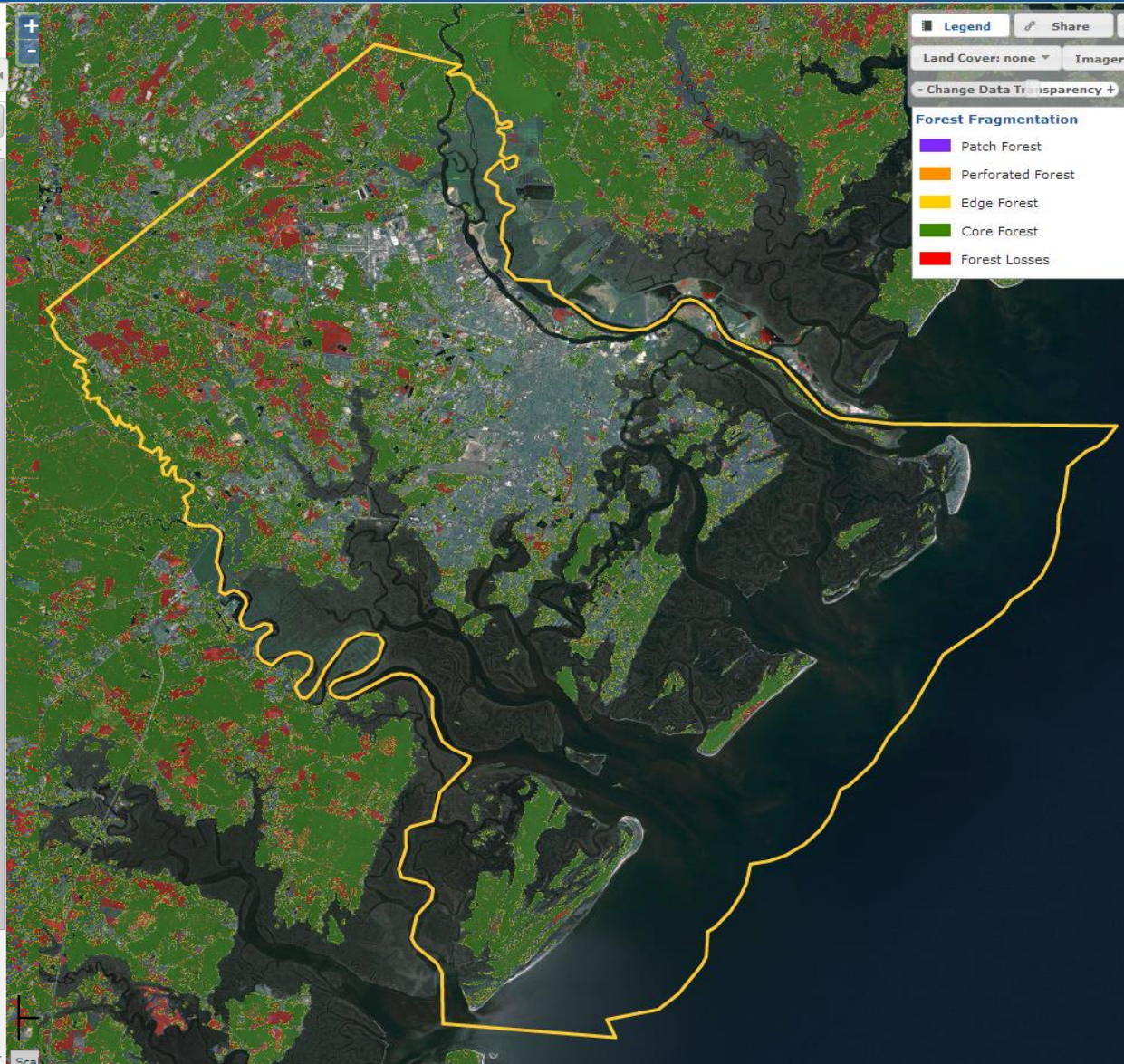
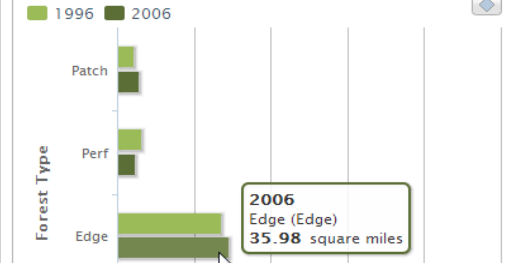
### Percent net increase in non core forested area

↑ 3.53%

### Percent net increase is new forested area gained

↑ 1.05%

### Distribution of forest fragmentation by type



# TREE TRACKING AND COMMUNITY OUTREACH TOOL

onemilliontreesmississauga

ABOUT COUNT MY TREES PLANTING PROGRAMS PLANTING TIPS EVENTS CONTACT US

## top5planters

### LARGE ORGANIZATION

City of Mississauga	31647
Credit Valley Conservation	10858
Toronto and Region Conservation Authority	8994
Evergreen	2169
Scouts Canada	800

### SMALL ORGANIZATION

Credit River Anglers Association	10324
Art of Living	1480
Sierra Club	920
Ecosource	690
The Riverwood Conservancy	389

### SCHOOL

St. Marcellinus Catholic Secondary School	930
Mississauga Secondary School	500
Port Credit Secondary School	364
Turner Fenton Secondary School	300
Erin Mills Middle School	262

### BUSINESS

Suncor	495
Target	415
SHARP Electronics Canada	400
Deloitte	---
RBC	---

### INDIVIDUALS

Barbara Maj	28
Doug House	8
michael dewit	5
Eric Lucic	4
Ian Bennie	3

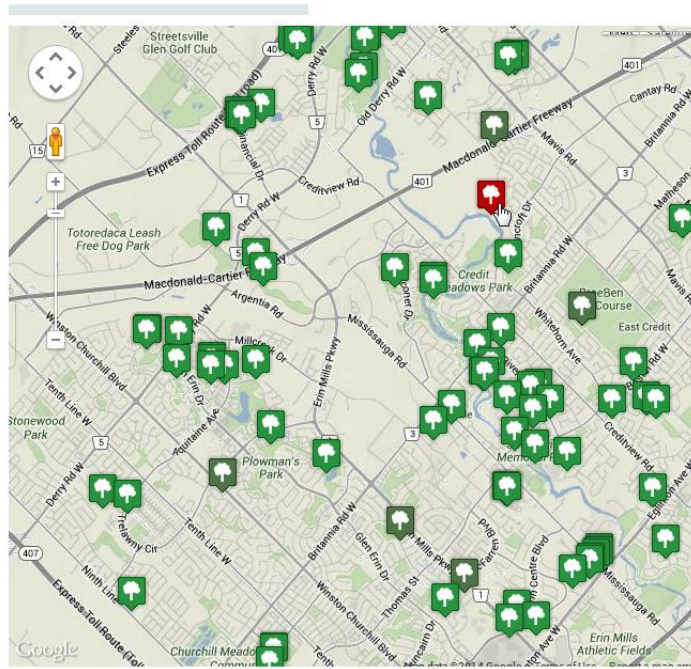


**88,218**  
trees  
planted

Help the City of Mississauga plant one million trees by 2032

**MISSISSAUGA**  
Leading today for tomorrow

## onthemap



### 2800 Trees Planted

planted by Credit River Anglers Association

Trees Planted - 2800

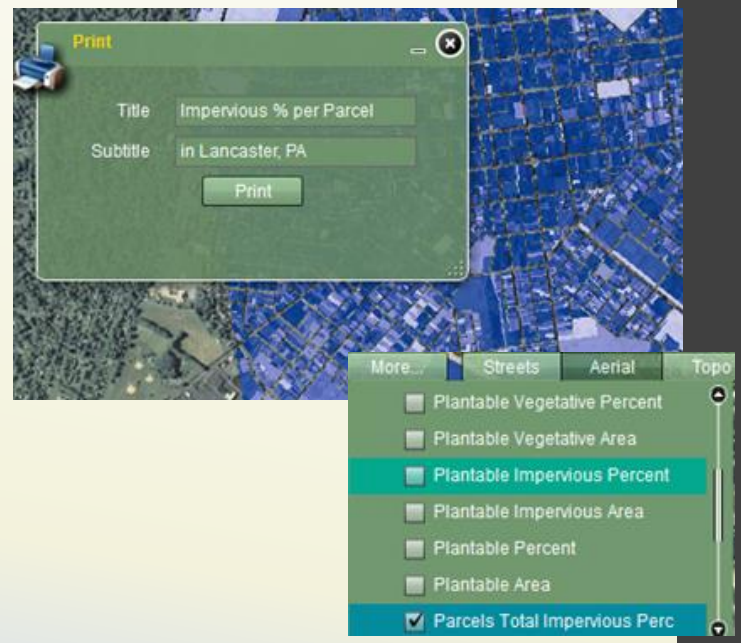
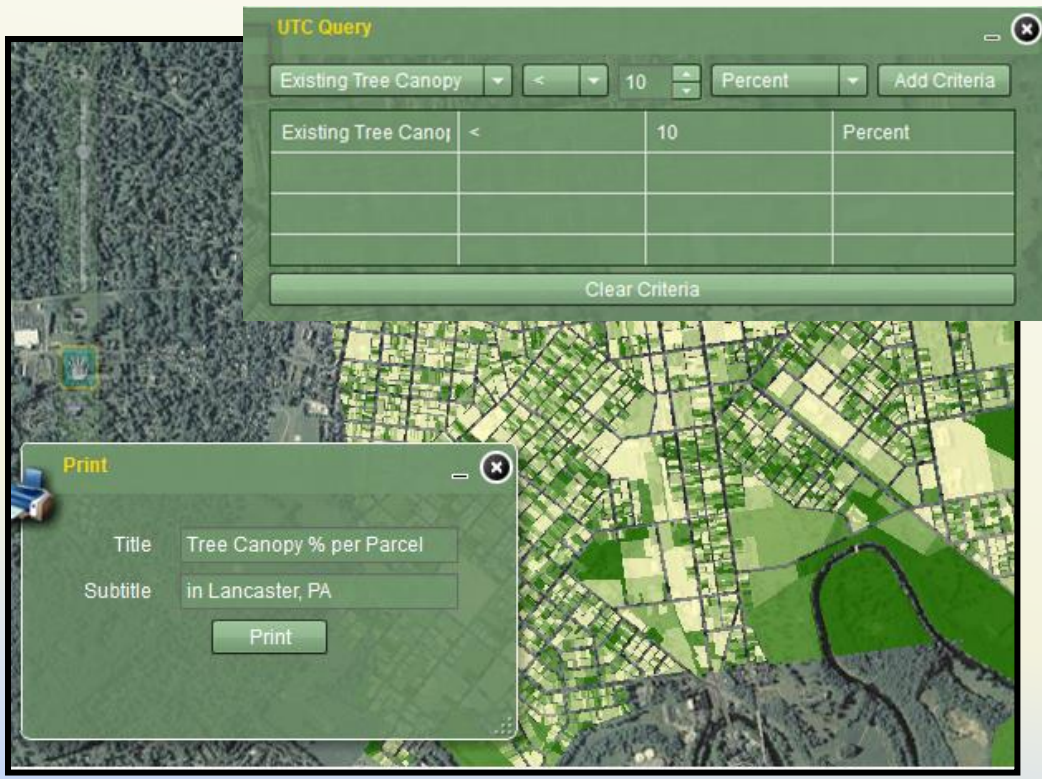
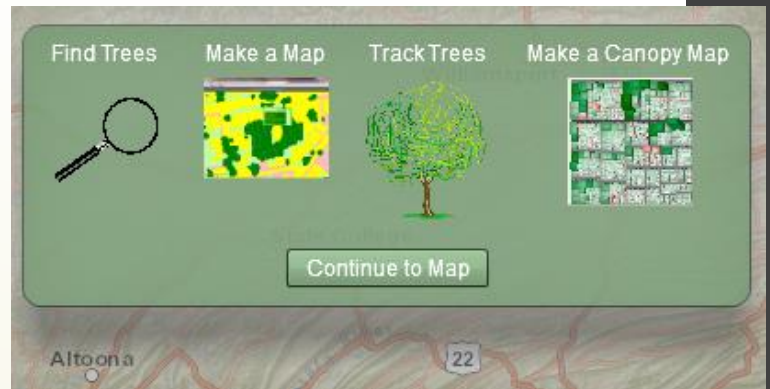
Trees Specie - Mixed Species

Trees Size - Mixed Sizes

Planting Date - Mon Apr 29 2013

# STATEWIDE TREE TRACKING & CANOPY TOOL

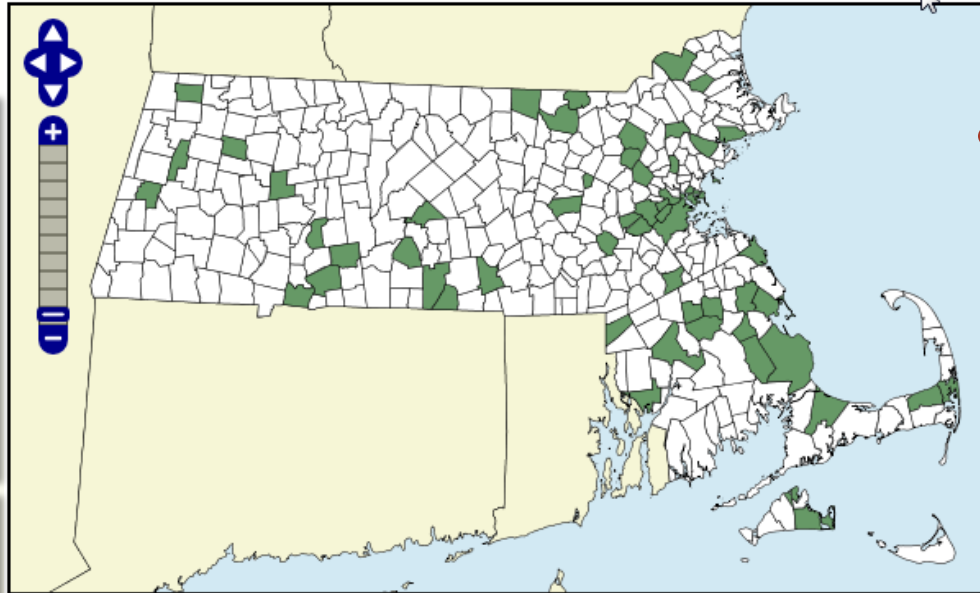
- Create planting plans
- Query canopy cover by parcel and land use
- Estimate ecosystem services
- Print planting maps
- Report on usage



# Massachusetts Urban & Community Forestry Information

Instructions on moving around the map are at the [bottom of the page](#)  
Click on a town to view forestry information, or choose a town from the list:

Choose a town ▼



Scale = 1 : 2M 287159.85303, 956360.00197

Symbolize towns by values:

- MA SUSTCOM score
- USDA U&CF score
- State assistance status
- Management plan status
- Advocacy group status
- Local ordinance status
- Professional staff status
- Tree inventory status
- Tree City USA status
- OpenSpace plan status
- Population density
- % below poverty level
- Forestry budget per capita
- UFORE status
- STRATUM status
- % Canopy density
- % Impervious surface

Symbolize towns by values:

- MA SUSTCOM score
- USDA U&CF score
- State assistance status
- Management plan status
- Advocacy group status
- Local ordinance status
- Professional staff status
- Tree inventory status
- Tree City USA status
- OpenSpace plan status
- Population density
- % below poverty level
- Forestry budget per capita
- UFORE status
- STRATUM status
- % Canopy density
- % Impervious surface

Towns symbolized by Massachusetts Sustainable Community score:

- 6
- 5
- 4
- 3
- 2
- 1
- 0
- Unknown

Official Website: [Urban & Community Forestry Management Scores](#)

MA Sustainable Community Score: out of 6    USDA Forest Service U&CF Score: out of 4

Community Performance

Received State Assistance:	Grants	Population:	/sq. mi.
Documented Management Plan:	Details	Population Density:	%
Advocacy/Advisory Group:	Details	Percent in Poverty, 2000:	\$
Local Ordinance/Regulation:	Details	Per Capita Tree Budget:	
Professional Staffing:	Details		
Tree Inventory/Assessment:	Details		

Urban & Community Forestry Data Analysis

Symbolize towns by values:

- MA SUSTCOM score
- USDA U&CF score
- State assistance status
- Management plan status
- Advocacy group status
- Local ordinance status
- Professional staff status
- Tree inventory status
- Tree City USA status
- OpenSpace plan status
- Population density
- % below poverty level
- Forestry budget per capita
- UFORE status
- STRATUM status
- % Canopy density
- % Impervious surface

Towns symbolized by USDA U&CF Score:

- 4
- 3
- 2
- 1
- 0
- Unknown

Official Website: [Urban & Community Forestry Management Scores](#)

MA Sustainable Community Score: out of 6    USDA Forest Service U&CF Score: out of 4

Community Performance

Received State Assistance:	Grants	Population:	/sq. mi.
Documented Management Plan:	Details	Population Density:	%
Advocacy/Advisory Group:	Details	Percent in Poverty, 2000:	\$
Local Ordinance/Regulation:	Details	Per Capita Tree Budget:	
Professional Staffing:	Details		
Tree Inventory/Assessment:	Details		

Urban & Community Forestry Data Analysis

UFORE:	Details
STRATUM:	Details

Symbolize towns by values:

- MA SUSTCOM score
- USDA U&CF score
- State assistance status
- Management plan status
- Advocacy group status
- Local ordinance status
- Professional staff status
- Tree inventory status
- Tree City USA status
- OpenSpace plan status
- Population density
- % below poverty level
- Forestry budget per capita
- UFORE status
- STRATUM status
- % Canopy density
- % Impervious surface

Canopy Density by %:

- 0 to 25
- 25 to 50
- 50 to 65
- 65 to 80
- 80 to 90
- 90 to 99
- Unknown

Official Website: [Urban & Community Forestry Management Scores](#)

MA Sustainable Community Score: out of 6    USDA Forest Service U&CF Score: out of 4

Community Performance

Received State Assistance:	Grants	Population:	/sq. mi.
Documented Management Plan:	Details	Population Density:	%
Advocacy/Advisory Group:	Details	Percent in Poverty, 2000:	\$
Local Ordinance/Regulation:	Details	Per Capita Tree Budget:	
Professional Staffing:	Details		
Tree Inventory/Assessment:	Details		

Urban & Community Forestry Data Analysis

UFORE:	Details
STRATUM:	Details

Official Website: [Urban & Community Forestry Management Scores](#)

MA Sustainable Community Score: out of 6    USDA Forest Service U&CF Score: out of 4

Community Performance

- [Received State Assistance:](#)
- [Documented Management Plan:](#)
- [Advocacy/Advisory Group:](#)
- [Local Ordinance/Regulation:](#)
- [Professional Staffing:](#)
- [Tree Inventory/Assessment:](#)
- [Tree City USA® Accredited:](#)
- [Updated Open Space Plan:](#)

Demographics

- [Population:](#)
- [Population Density:](#) /sq. mi.
- [Percent in Poverty, 2000:](#) %
- [Per Capita Tree Budget:](#) \$

Urban & Community Forest Data Analysis

- [UFORE:](#) [Details](#)
- [STRATUM:](#) [Details](#)

Physical Characteristics

- [% Canopy Density:](#) %
- [% Impervious Surfaces:](#) %

Tree Warden Contact Information

Phone: \_\_\_\_\_  
Email: \_\_\_\_\_

[Advocacy/Advisory Group](#) websites:  
Other Forestry-related websites for this town:  
Tree Warden Qualifications:  
Other Staff Qualifications:

Click on an attribute name to see the [Glossary](#) description of that attribute.  
Links will open in a new browser window or tab.

Management plan status:

- Has management plan
- Does not have management plan

Web Services and Geographic Data from:



**THANK YOU!**

**Ian Hanou, Owner and Principal**

Plan-It Geo LLC | Arvada, CO

[info@planitgeo.com](mailto:info@planitgeo.com) | [planitgeo.com](http://planitgeo.com)



Plan-It Geo is a geospatial analysis, technology consulting, and planning firm specializing in natural resource management and related fields. We provide a full range of services involving GIS, remote sensing, cost/benefit analysis, urban forestry planning, water resources analysis, decision support systems, and web-based solutions. ***Plan-It Geo team members have conducted more than 60 urban forestry and ecosystem benefits analysis studies across the country.***