

# **MUNICIPAL URBAN FORESTRY WORKSHOP**

## **Lesson Plan**

### **Course Description.**

This course provides an overview of the purpose and importance of a municipal urban forestry program. Topics covered include the economic and environmental benefits of urban forestry, starting an urban forestry program for your community, roles of tree boards and staff, identification of potential community stakeholders, technical assistance providers and best management practices in urban forestry.

### **Course Objectives.**

Upon completion of this course, participants will be able to:

1. List the benefits of an urban forestry program for local communities.
2. Identify and describe the elements required to start and maintain an urban forestry program.
3. Explain the roles of tree boards and employees.
4. Describe best management practices in urban forestry and appropriate technical assistance providers

### **Equipment and Supplies Needed:**

- PowerPoint presentation
- Computer & Projector
- Sign-in rosters/Evaluation Forms
- Flip chart paper, stand, markers
- Course manuals and pre/post tests
- Seedlings as give-a-ways

### **Course Agenda**

Introduction	20 minutes
Module 1: Benefits of an urban forestry program	45 minutes
Module 2: Elements of a forestry program	30 minutes
Break	15 minutes
Module 2: Elements (continued)	25 minutes
Module 3: Roles of tree boards and employees	30 minutes
Break	15 minutes
Module 4: Best Practices and Technical Assistance	45 minutes
Summary	15 minutes
<b>Total Time</b>	<b>4 hours</b>

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## **Introduction:**

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PPT Slide: 1 - X

Time: 20 minutes

Welcome the group. Introduce yourself and be sure to include educational background and work experience and how that relates to the topic you will be teaching.

Remind participants of housekeeping details:

- Bathroom locations
- Emergency exits
- Length of session and (breaks)
- Where smoking is permitted
- Sign-in rosters and evaluation forms

Conduct the opening exercise: Ask the participants to share the answers to the following questions:

1. Who are you?
2. Where are you from?
3. What are your objectives for this class?

Capture the responses to the third question on a flip chart. Reconcile these with the course objectives. If their objectives do not match the course objectives you may want to offer to meet with them during break, after class, or at another scheduled time to talk about their concerns.

Note: If the class is too large, as an alternate way to conduct the above exercise, you could have participants partner with someone in the class that they do not know. Have them share with one another the answers to the 3 questions above. Give them a few minutes to do that and then ask for volunteers to share their learning objectives. List them on a flip chart. Reconcile these against the course objectives.

Conduct a pre-test of the material. Do not have people put their names on the tests. Be sure and let participants know that we are not testing them, but rather testing the training. Collect the tests.

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## Module 1: Benefits of an Urban Forestry Program

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PPT Slide: 1 - X

Time: 35 minutes

***Learning Objective 1:*** List the benefits of an urban forestry program for local communities.

Begin the course by giving a very broad overview/definition of urban forestry programs. See text below for points that need to be made.

*Definition of Urban Forestry:*

Urban Forestry is the management of trees for their contribution to the physiological, sociological, and economic well being of the urban society. Urban Forestry deals with woodlands, groups of trees and individual trees, where people live – (it is multifaceted, for urban tree areas include a great variety of habitats (streets, parks and derelict corners, etc.) where trees bestow a great variety of benefits and problems) (Grey and Deneke, 1986)

Urban forestry is the art, science, and technology of managing trees, forests, and natural systems in and around cities, suburbs, and towns for the health and well-being of all people.

Trees are major capital assets in communities. Just as streets, sidewalks, sewers, public buildings and recreational facilities are a part of a community's infrastructure, so are publicly owned trees. Trees - and collectively, the urban forest, are important assets that require the same care and maintenance as other public property.

**Exercise:** After covering the definition of urban forestry programs, ask participants what benefits they think might come from such programs. Capture the responses on a flip chart. Once all the responses have been pulled from the group, share your list as shown on the PowerPoint slide. Cover the following broad areas: environment, direct and indirect economy, energy, and health, social,(reduced crime).

**Alternate way of doing the exercise:** (If the group is large you might want to break the group up into small groups of 5-6 people each. Give each group flip chart paper and have them record their responses. Give them a few minutes and then have them share one response per group in a "round robin" style. Have each group share one response until they have completely shared everything on their list. Each response should be different from another group.) Just as in the exercise above, make sure that areas on the PowerPoint slide and points listed below are covered.

Use the text below to guide the discussion regarding benefits of urban forestry programs.

Benefits – Environment:

1) **Improve air quality** by trapping and holding dust particles that can damage lungs. Tree leaves absorb carbon dioxide and other poisonous gases and, in turn, replenish the atmosphere with oxygen for us to breathe. One acre of trees provides oxygen for 18 people and will absorb the amount of carbon dioxide each year equivalent to that produced by a car driven 26,000 miles. Trees act as a carbon sink by removing the carbon from CO<sub>2</sub> and storing it as cellulose in the trunk.

2) **Reducing noise pollution** by absorbing unpleasant sounds from the urban environment

3) **Improving water quality** by mitigating the impact of raindrops- resulting in less surface runoff of water from storms and reduced soil erosion. This allows more recharging of the ground water supply, which is significantly reduced by paving. Wooded areas help prevent the transport of sediment and chemicals into streams.

4) **Reduce wind erosion of soil** by providing a shield from heavy winds.

5) **Creating wildlife diversity** by providing a local ecosystem. Trees provide a suitable habitat for animals and birds that would otherwise be absent from urban areas.

Benefits – Economy:

1) **Creates a favorable first impression** of a community to visitors.

2) **Enhances community economic stability** by attracting businesses and tourists.

3) **People spend more** because they tend to linger and shop along tree-lined streets.

4) **Better employees** when businesses lease office space in wooded developments. They find their workers are more productive and absenteeism is reduced.

5) **Higher Occupancy rates** of apartments and offices in wooded areas and tenants stay longer.

6) **Higher property values** because well landscaped properties are more desirable and studies have shown that properties can increase by 15%. Larger specimens equal higher values.

Benefits – Energy:

1) **Saving energy** through cooling in the hotter months and serving as a windbreak during winter. As a result, you burn less fossil fuels for heating and cooling. Trees properly placed around buildings can reduce air conditioning needs by 30 percent. Trees strategically placed for windbreak protection can save 20 to 50 percent in energy used for heating.

2) **Reduce glare on sunny days.**

*Benefits – Health:*

1) **Create feelings of relaxation and well-being** when people live and work within urban forests.

2) **Provide privacy and sense of solitude and security**

3) **Shorten post-operative hospital stays** when patients are placed in rooms with a view of trees and open spaces.

Conclude this section of the course by saying that you have discussed: What an urban forestry program is and what are the benefits. Now you are going to be moving the discussion into the elements that are required to implement and maintain an Urban Forestry Program.

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## Module 2: Components of an Urban Forestry Program

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PPT Slide: 1 - X  
Time: 30 minutes

**Learning Objective 2:** Identify and describe the major elements required to start and maintain an urban forestry program.

Tell the participants that the next half hour or so you will be discussing the major elements that are required to start and maintain an urban forestry program, but before you do that tell the participants that they are going to spend the next several minutes identifying who they think might be potential community stakeholders for an urban forestry program.

**Exercise:** Break the group up into small groups of 5 to 6 people and have them come up with a list of potential community stakeholders on flip chart list. Have each group report out one of their stakeholders in a round robin fashion. Ask each group to add one stakeholder to the list until all uniquely different responses are given from all the groups. It would be great if small tree saplings could be given as prizes for the group with the longest list. (If time does not permit small groups, then ask the class as whole to create a list of community stakeholders. List their responses on a flip chart.)

Ask participants to make an attempt to list the major elements of an urban forestry program. Capture their responses on a flip chart. Compare their responses to the PowerPoint slide listing the major elements below. Were there any that they missed?

Major Elements:

1. Selecting a Program or Standards
2. Establishing a Tree Board
3. Adopting a Model Tree Ordinance/Landscape Ordinance
4. Establishing a Program Budget
5. Staffing a program
6. Developing a management plan/ inventory

### **1. Selecting a Program or Standards:**

The two most popular options of urban forestry programs or standards are: National Arbor Foundation, or National Allocation Method. Briefly talk about the difference in these two programs. Ask participants which one (if any) they are following.

#### ***A. National Arbor Foundation-USA Program standards***

To qualify for Tree City USA, a city must meet four (4) standards established by The National Arbor Day Foundation and the National Association of State Foresters. These

standards were established to ensure that every qualifying community would have a viable tree management plan and program. The standards include the following:

***a.) Tree Board or Department.***

Someone must be legally responsible for the care and management of the community's trees. This may be a professional forester or arborist, an entire forestry department, or a volunteer tree board. Often, both a professional staff and advisory tree board is present, which is a good goal for most communities. A tree board, or commission, is a group of concerned volunteer citizens directed by ordinance with developing and administering a comprehensive tree management program. Balanced, broad-based community involvement is encouraged. Boards function best if not composed entirely of tree-related professionals such as professors, nursery operators, arborists, etc. Fresh ideas and different perspectives are added by citizens with an interest in trees that is entirely vocational. Limited, staggered terms of service will prevent stagnation or burnout, while at the same assuring continuity.

***b.) Tree Care Ordinance.***

The tree ordinance must designate the establishment of tree board or urban forestry department and give this body the responsibility for writing and implementing an annual community forestry work plan along with authority over all publicly owned lands. Beyond that, the ordinance shall be flexible enough to fit the needs and circumstances of the particular community. A tree ordinance provides an opportunity to set good policy and back it with the force of law when necessary. Ideally, it will provide clear guidance for planting, maintaining and removing trees from streets, parks and other public places.

***c.) Community Forestry Program with an Annual Budget of At Least \$2 per capita.***

Evidence is required that the community has established a community forestry program that is supported by an annual budget of at least \$2 per capita. At first, this may seem like an impossible barrier to some communities. However, a little investigation usually reveals that more than this amount is already spent by the municipality on its trees. If not, this may signal serious neglect that will cost far more in the long run. In such a case, working toward Tree City USA recognition can be used to re-examine the community's budget priorities and re-direct funds to properly care for its tree resource before it is too late. Ideally, this standard will be met by focusing funding on an annual work plan developed after an inventory is completed and a report is approved by the city council. Such a plan will address species diversity, planting needs, hazardous trees, insect and disease problems and a pattern of regular care such as pruning and watering.

***d.) An Arbor Day Observance and Proclamation.***

This is the least challenging and probably the most enjoyable standard to accomplish. An Arbor Day celebration can be simple and brief or an all day or all-week observation. It can be a simple tree planting event or an award

ceremony that honors leading tree planters. For children, Arbor Day may be their only exposure to the green world or a springboard to discussions about the complex issue of environmental quality. The benefits of Arbor Day go far beyond the shade and beauty of new trees for the next generation. Arbor Day is a golden opportunity for publicity and to educate homeowners about proper tree care. Utility companies can join in to promote planting small trees beneath power lines or being careful when digging. Smokey Bear's fire prevention messages can be worked into the event as can conservation education about soil erosion or the need to protect wildlife habitat. Still another way to develop Arbor Day is to link it with a tree-related festival. Some that are currently celebrated include dogwood festivals, locust bloom festivals and Macon, Georgia's Cherry Blossom Festival that annually brings more than \$ 4.25 million into the local economy. In meeting the four standards, help is available. The urban and community forestry coordinator in your state forester's office will work with communities in taking these first steps toward better community forestry.

***B. National Allocation Method:***

This model governed by the Department of Agriculture, Division of forestry stresses the need for a community to meet the following four urban forestry elements: 1) Tree Board, 2) Tree Ordinance, 3) Staffing, and 4) Inventory/Management Plan.

**2) Establishing a Tree Board**

Usually, the first step after initial educational efforts is to establish a legally constituted board, commission or committee to act as an advisory group to city government. This can be accomplished through an ordinance or charter procedure. Tree boards in larger cities may perform in broad planning, policy making, advisory and coordinating roles. In smaller towns, a tree board will be more involved in developing budgets, specific forestry plans and annual work plans, and may even help carry out program operations.

Tree board members may be elected or appointed and may or may not be given policy-making powers. The board may be financially independent, incorporated entity or a budgeted agency of city government.

Note: A broad representation on the board from various agencies and interest groups will increase the board's credibility to balance the needs of different segments of the community.

A tree board ordinance is sometimes a stand alone ordinance or part of a broader overall tree ordinance providing for care of urban trees. However constituted, the following elements should be included:

- 1) Statement of creation and establishment;
- 2) Number of members;
- 3) Qualifications of members;
- 4) Term of office, succession, and provision for staggered terms;



- 5) Provision for vacancies;
- 6) Compensation, if any;
- 7) Board duties and responsibilities;
- 8) Scope of responsibility;
- 9) Operational provisions- rules, recordkeeping, etc.

There are several excellent tree boards in Tennessee. Farragut, Knoxville, Chattanooga and Nashville have well defined tree boards.

### **3. Adopting a Tree Ordinance/Landscape Ordinance**

The next step is to develop a tree ordinance. The purpose of most ordinances is to protect and maintain existing trees while providing for new ones. Ordinances providing for the overall care of the urban forest vary greatly. The ordinance should provide for and facilitate adequate management of your urban forest. To do so, your ordinance should do three things: 1) Provide authority to conduct forestry programs; 2) Define responsibility - who is responsible for certain parts of the urban forest - particularly important in cases of street side or other easement areas; and 3) Set forth minimum standards for management- to provide for public safety, health, convenience, and general welfare.

To ensure the above, city tree ordinances generally include the following elements:

- 1) Purpose and intent;
- 2) Definitions;
- 3) Establishment of a tree board (may be a separate ordinance);
- 4) Clarification of title to and responsibility for trees on city property;
- 5) Designation of city forester or other official with responsibility and authority;
- 6) Planting requirements for trees on municipal property or easements;
- 7) Maintenance responsibilities and clarification of responsibility of adjacent property owners in cases of street sides or other easements;
- 8) Removal requirements and specifications;
- 9) Condemnation of trees on private property;
- 10) Requirements of private arborists and landscape contractors (licensing, bonding, insurance);
- 11) Preservation or protection of heritage and historic trees and other vegetation;
- 12) Prohibition of interference with forestry officials; and
- 13) Violations, penalties and appeals.

A comprehensive tree ordinance addresses the following three (3) key components: 1) Tree Protection; 2) Landscape Architecture Standards; and 3) Street tree requirements.

Following the lecture have participants revisit the list of stakeholders. Are there additional ones that they can now identify?

Be sure everything on the following list is included:

1. Tree Board
2. Utility Board

3. Chamber of Commerce
4. Industrial Development Board
5. Joint Economic Development Committee
6. Parks and Recreation Advisory Board
7. Developers
8. City Departments
9. State Agencies

Transition to topics that will be covered after the break.

#### **4. Developing a Program Budget**

Discuss the fact that to qualify for Tree City USA a city must establish an annual budget of at least \$2 per capita. If you discussed this requirement earlier in the section of describing the two program just review it here.

#### **Break - 10 minutes**

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### **Module 2: (Continued – Components of an Urban Forestry Program**

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PPT Slide: 1 - X

Time: 45 minutes

**Learning Objective 2:** Identify and describe the major elements required to start and maintain an urban forestry program.

Lecture and guided discussion needs to cover the following points on the remaining elements of an urban forestry program:

- Staffing a program
- Developing a management plan/ inventory
- Software

#### **5. Staffing a program**

A good way to ensure adequate staffing is to cross train your employees in public works to take care of trees. City Arborists should be certified. The work plans should indicate how the jobs will be accomplished. There are several possibilities depending on each municipality's situation and preference for getting work done. A few options include the use of in-house (city or county) crews, outside contracts, volunteer or contractual labor, or any combination of these.

The decision on whether to use municipal workers and equipment or contractors, or both, to perform community forestry activities depends on many variables. The following are some of the more common variables:

- 1) The size of the municipality and its urban forest dictate, to a degree, each community's degree of flexibility in the mix of resources used. Larger municipalities have a portion of their work done by in-house crews because it assures that crews are available for emergencies and provides for more flexibility,
- 2) Local policies and regulations relating to municipal work forces and purchasing and contracting for services may determine use of in-house resources instead of contracting.
- 3) Cost-effectiveness of in-house services is certainly a consideration. Some activities may be done more effectively by contractors. While this may not be the overriding factor, it should be a part of the overall consideration.
- 4) Periodic or seasonal characteristics of some jobs may lend themselves towards contracted services and this may appeal to some decision- makers. Because there is no long-term commitment in financing contract operations, as opposed to establishing a municipal work force and purchasing equipment, funds for use of contractor services may be easier to secure for certain activities.

Employees involved in urban forestry should have accompanying job descriptions and employers should provide ample training and development opportunities.

#### Tips for selecting an Arborist

##### A. Who should you look for?

Hiring a tree care provider deserves careful consideration and caution. A mistake can be expensive and long lasting, while the right choice can assure health, beauty and longer life for your trees and landscape. The following suggestions will help a board select an arborist:

- 1) Look for professional membership affiliations;
- 2) Request that the arborist or tree worker be certified through a program Of the International Society of Arboriculture (ISA). This program is the standard of performance for appropriate training, experience and knowledge about tree care. Additionally, it is best to use an arborist who is familiar with native trees.
- 3) Require certificate insurance;
- 4) Ask for local references;
- 5) A good arborist will offer a wide range of services including removal, Pruning, fertilizing, pest control, etc.;
- 6) A good arborist will not recommend topping;
- 7) A knowledgeable arborist will not use climbing spikes if the tree is to remain in the landscape

#### Working with Volunteers

Sustainable urban forestry requires far more than a single department or organization responsible for a community's trees. It requires a partnership of all interested people, young and old, professional and unprofessional. Volunteers fill this need. Some of the benefits when using volunteers include:

- 1) Skills that may not be on staff. Volunteers typically include a cross section of the community-lawyers, landscapers, writers, artists, business people, teachers and many others. Their talents and contacts can add depth and power to any forestry program.
- 2) New ideas. An array of vocational and cultural backgrounds is sure to bring ideas. Some may not be workable, but others can lead to great new projects or the success of old ones.
- 3) Public Support. Volunteers can serve as a conduit between urban foresters and their constituents. They can speak up for funding, defend management decisions, challenge politicians or special interests and serve as a link with broad segments of the community.
- 4) Extra hands, more work. Whether it is pruning young trees, planting, or staffing exhibits and educational programs, volunteers expand the urban forestry work force. More can be accomplished, benefiting the tree resource, citizens of the community, and the volunteers themselves.

#### **Volunteers are suited for...**

Planting trees  
Watering trees  
Mulching  
Stake Removal  
Distributing door hangers  
Sponsoring beautification contests  
Staffing fair booths  
Monitoring and preventing vandalism  
Advocating planning and zoning reform  
Cleaning tree wells

#### **Professionals are best at...**

Selecting and ordering trees  
Fertilizing  
Aerating  
Staking recommendations  
Preparing educational content  
Workshops and training  
Developing budgets  
Controlling insects/diseases  
Advising on planning/zoning  
Removing tree grates

#### **Five Steps to Successful Volunteer Management**

According to the National Arbor Day Foundation, there are five important steps to working well with volunteers

1. Work with existing volunteer groups when possible instead of creating yet another organization. Or, if you are involved in the leadership of a group, aggressively recruit members. Of course, be open to all who are interested, but also personally ask people to join who you know would add strength, balance, diversity and the kind of talent needed to accomplish your goals.

2. Provide direction. Most volunteers want guidance and do not want their time wasted. Use an agenda at meetings, assign specific, do-able tasks complete with deadlines and a clear idea about the expected outcome or product. For specific positions (secretary, treasurer, etc.) develop job descriptions just like those for paid positions.

3. Provide orientation and training. Orientation can be a presentation or at least a manual. The manual should include : the history, mission and goals of your organization; policies; a directory of who's who; and basic information about tree care and urban forestry.

4. Supervise. An important part of successful volunteer management is trust and delegation of duties. Train and explain, then step back and let the volunteers do their jobs. However, provide helpful feedback as needed, and plenty of positive reinforcement.

5. Thank! Virtually everyone likes to be recognized for the good works they perform, especially volunteers. Often, this is the only "pay" they receive. Express appreciation often and sincerely, including written notes, formal letters, plaques or other tokens of appreciation.

#### **6. Developing a management plan**

In order to prepare an up-to-date comprehensive management plan, it is essential to follow this three (3) tier model: 1) Tree Inventory; 2) Assessment; and 3) urban forestry management plan

The following text was prepared by State Forester Bruce Webster

#### Tree Inventory

The simplest form of inventory is a tree count. It is the quickest, easiest, cheapest inventory, and can be done by anyone who can count. The results might be useful to someone who might want to know the number of trees on a given property or within a certain area, but a simple tree count has major limitations. Almost immediately questions such as, "What kinds of trees are there?" or "How big are they?" are asked.

These types of questions are of utmost importance to ask before an inventory is conducted. A manager or owner must decide what information he/she needs and how that information will be used. Is knowing the tree species important? How much detail about tree location is required? Gathering information about trees is expensive and time consuming. Collecting more information than needed is wasteful, but gathering too little information would necessitate redoing the inventory.

Why is an inventory of trees so important? There are several reasons. One, trees are a resource for a community. They produce shade, absorb air pollutants, and mitigate storm water runoff. These have a direct, measurable positive economic benefit to a community. Two, trees provide psychological and aesthetic benefits. Three, trees are long lived, and as such need to be considered part of the capital assets of the community. Four, trees need periodic maintenance. Because they are long lived, they cannot be ignored without adverse consequences to the

community. Five, they are large organisms and can create conflicts with and cause damage to homes, cars, and other community assets.

### Inventory Techniques

The task of developing an inventory of a forest can be daunting. For instance, how does one go about getting information about a plot of forestland that is 200 to 300 acres in size? It would be impossible to measure and record every tree.

Foresters collect data from sample plots from the forest. The plot may be a quarter acre in size, and they might take data from 25 to 30 plots. Within each plot the species, size of trees, usually diameter and log length, condition, especially the condition of the trunk, and location data. This location includes the plot location within the forest, and many times the location of individual trees within the plot.

The data from all the plots is then summarized, and a process called developing an assessment of the woods is completed. This leads to the development of a plan for the forest.

When inventorying urban and landscape trees, the system may employ a plot sampling or a complete inventory. For public trees, a complete inventory is typically undertaken. The argument for this is since it is not a natural forest, sampling would not give statistically valid data, and the information gathered may be applied directly to management needs for an individual tree. Again, the data from all the trees is summarized in an assessment and then utilized to develop a management plan. If other aspects of the urban forest need to be inventoried, such as private property or wooded areas, then a sampling technique may be employed.

What technique should be used in a greenway where there is a mix of landscape trees and forestland? It may require both techniques and two inventories. The landscape tree inventory may be needed for landscape trees in mowed areas, while a sampling may be used in wooded areas.

Because greenways may be long narrow strips of land, a special plot system may be employed that takes a cross section of the greenway at periodic intervals.

An aerial imagery inventory has its own unique set of uses and has a completely different approach with its unique data set of information collected.

### Data Collection

Generally there are 4 pieces of information collected on each tree during an inventory. These are species, size, condition and location. Many inventories include work needed as a fifth piece of information, but here it will be considered a subset of the condition determination. The reasoning is that a poor condition rating often can be attributed to a lack of maintenance, and completing tree maintenance often improves the condition rating. Tennessee's inventory system also includes a target classification, which is a component of evaluating whether a tree is hazardous.

### A Note about Planting

In addition to recording information about trees, an inventory often samples tree spaces so the managers can get an indication of planting needs. Obviously, species, size and condition data cannot be collected on a tree that isn't there, but the location for a potential tree is important in developing the long term management plan.

### Species

Knowing what trees are growing in the park, greenway, or other forested area is vital. The types and frequencies of trees can provide a significant amount of information. For instance, an area dominated by one species can indicate the potential for insect and disease problems. (Dutch elm disease taught us that a monoculture of American elms along city streets is an invitation to disaster.) Also, knowing the species mix present can be a guide to developing diversity by planting less common species of trees.

Information on species is typically recorded by species name. Common or scientific name can be used. Some inventory systems use a species code. This is useful to speed data recording, but requires familiarity with the codes. Unless an individual is doing an extensive inventory, memorizing codes is not practical.

Occasionally inventories will record variety or cultivar, if known. Because cultivars and varieties are so similar to the species, collecting this information is typically not recommended, unless there is a specific use for this data. An inventory will sometimes record only genus information, such as oak, elm or hickory, but species specific information is preferred.

### Size

There are 3 components that make up tree size. These are diameter or circumference of the trunk, height or crown height, and crown spread (canopy cover).

Measurements of forest trees include diameter or circumference and a trunk height. These dimensions give the volume of wood in a tree that can then be converted to lumber.

Urban and Landscape trees may be measured in any number of ways. The most common is to measure diameter because of the speed and convenience of collecting data while giving an indication of size. This data can be used to make general conclusions about age of a population. (Species frequency may skew any age conclusions if the tree population includes a significant number of small maturing trees. Also, any direct correlation between size and age for an individual tree cannot be determined.)

Other size measurements may be taken if specialized data is needed. This relates back to the real purpose of doing an inventory. For instance, crown spread and crown height may be measured to give data on total canopy cover and crown volume over the landscape, which can be plugged into formulas that calculate the amount of solar or rainfall interception (heat island effect, storm water impact). Another size measurement combination could be trunk diameter and trunk height that would give information about urban tree biomass (biomass energy potential).

Some tree inventory systems record the actual tree size, while others use a size class. The advantage to record the actual trunk diameter in 2" diameter classes is the detailed information is gathered, but can be lumped into size classes. Commonly used size classes are 0-6", 7-12", 13-18", 19-24", 25-30", and 31" & up categories.

### Condition

The purpose of condition is to get a general idea of the health and potential hazard of the tree. Condition looks at insect and disease problems, tree structure of the tree's limbs, crown balance, foliage color (if available), trunk decay and missing bark, trunk flare wounds, estimate of life expectancy, growth (twig), dieback, and other potential problems.

Assessment: Condition is usually converted to a numeric code relating to the factors mentioned. A common condition class system uses a 1 through 5 condition rating, with 1 being the excellent condition. Other systems may use 1 through 10 or other a percent of best condition.

If the purpose of the inventory is to implement tree maintenance on the tree population, then the recording of the work needed is required. Work needed may include removal, light or extensive pruning, insect or disease treatment, or other needs. If the purpose of the inventory is to evaluate tree hazard, then potential failure and potential target are subsets of the condition class that need to be recorded.

### Location

Location data is primarily driven by the amount of detail needed. If the purpose of the inventory is to have a general idea about the tree population within a park or certain area of a community, identifying that tree within the park or community may be sufficient. Usually the location component is identified sufficiently so that an individual tree may be found by another person. This detail may be provided by GPS coordinates or through construction of a map when the inventory is completed, or other detailed location methods. A detailed location must be given if follow-up evaluation or maintenance of an individual tree is one of the purposes of conducting the inventory.

### Repeating the Inventory

Because trees are biological organisms, they create a dynamic environment. The forest or landscape is not static; it is constantly changing. Therefore, while the data from the first inventory is used to guide the development of the tree management, maintenance, or planting plan, the trees are changing, creating the need to redo the inventory after a period of years.

The second inventory can be more valuable than the first, because an inventory is a "picture" of the trees when data is taken. The second "picture" not only provides the basis for the revised management plan, it can be compared with the first and reveal the changes and trends that are



happening. To accurately capture these trends and changes, the same area must be inventoried the second time, whether it is the same plots or landscaped areas.

Urban forestry planning occurs on several levels. At the broadest level, strategic plans establish the overall goals and objectives of the organization's urban forestry efforts. Ideally, strategic planning is one of the first tasks undertaken in the establishment of a community forestry program. Also called long-range, comprehensive or master plans, strategic plans create a blueprint for administration and management of a community tree program. Strategic plans include input from local citizens, organizations, businesses, municipal staff and elected officials. They are integrated with other comprehensive community plans.

### **WHAT ARE URBAN FORESTRY PLANS?**

Urban forestry planning occurs on several levels. At the broadest level, *strategic* plans establish the overall goals and objectives of the organization's urban forestry efforts. Ideally, strategic planning 10-36-5 is one of the first tasks undertaken in the establishment of a community forestry program. Also called long-range, comprehensive or master plans, strategic plans create a blueprint for administration and management of a community tree program. Strategic plans include input from local citizens, organizations, businesses, municipal staff and elected officials. They are integrated with other comprehensive community plans.

Urban forest *management* plans are specific to the field operations of the community tree program. Typically based on a detailed tree inventory, management plans identify and prioritize site-specific tree planting, maintenance and removal activities within a multi-year time frame.

Urban forestry planning also takes on a variety of other forms. Land use plans, greenway plans, site development plans, public landscape design and maintenance plans and similar planning efforts require input from those involved with public tree care.

#### *Inventory Summary and Analysis*

A recent inventory of tree and site information forms the basis for the management plan. A thorough summary and analysis of the inventory data will enable you to identify existing resource needs and anticipate future ones. Does any one species comprise a high percentage of the total public tree resource? ... a high percentage of trees of a certain age or size class? At what age or size are trees regularly developing structural problems? Does this vary by species? ... by location? Is width of tree lawn correlated with tree condition? Does this vary by species? Does tree condition vary by land use or location? Are there areas where trees are needed? Such questions are just a few examples of those you might consider in an inventory analysis.

## **Sample Outlines**

### Strategic and Management Plans

#### **Strategic Plan**

#### **Management Plan**

- I. Executive Summary
- II. Introduction
  - A. Statement of Purpose and Scope
  - B. Historical Background
  - C. Current Situation
    - 1. People
    - 2. Policies
    - 3. Funding
    - 4. Trees
- III. Goals
  - A. Administrative/Management
  - B. Public Awareness
  - C. Tree Resource
- IV. Strategies
  - A. Actions
    - 1. Regulation/Policy
    - 2. Public Awareness/ Education
    - 3. Program Management
    - 4. Funding
  - B. Implementation Schedule with Budget
  - C. Budget Justification
- V. Evaluation Mechanism
- VI. Appendices
  - A. Community Map
  - B. Survey Summaries
  - C. Potential Funding Source(s)
  - D. Technical Resources
  - E. Tree City USA and/or VT Tree Town Information
  - F. Relevant Ordinances

- I. Executive Summary
- II. Introduction
  - A. Statement of Purpose and Scope
  - B. Historical Background
  - C. Current Situation
    - 1. Tree Planting & Care
      - a. Key Players & Roles
      - b. Contracted vs. In-house
      - c. Equipment Inventory
      - d. Funding
    - 2. Tree Inventory Summary & Analysis
- III. Goals: Forest
- IV. Strategies
  - A. Actions
    - 1. Tree and Stump Removal
    - 2. Maintenance
    - 3. Planting
    - 4. Administrative Support
  - B. Implementation Schedule with Budget
  - C. Budget Justification
- V. Evaluation Mechanism
- VI. Appendices
  - A. Map of Management Districts
  - B. Map of Utilities
  - C. Technical & Safety Standards
  - D. Species List
  - E. Equipment & Vehicle Rates
  - F. Inventory Documentation (data summary)
  - G. List of Vendors
  - H. Storm Management Plan

were

considered and why were they rejected? It might be helpful to make a side-by-side comparison between existing and proposed program costs and benefits. Administrators and budget decision-makers are unlikely to endorse your plan or supply budget requests without a clear, convincing argument for doing so.

### Choosing Software Options:

As part of the management plan there should be careful consideration of software solutions. A demonstration of i-Tree will be done to illustrate what software tools might be used to enhance the management plan. Ask participants what methods they are using for capturing their data and managing their inventory.

**What is i-Tree?:** i-Tree is a suite of software tools developed to help users—whether municipal foresters or commercial arborists—identify and manage the structure, function, and value of urban tree populations. Created by the USDA Forest Service and its cooperators, Davey Resource Group, the National Arbor Day Foundation and the Society of Municipal Arborists, the i-Tree suite brings together inventory and assessment tools in a single, free and supported environment. Users are provided with step-by-step processes for conducting an ecosystem analysis with UFORE (Urban Forest Effects Model) or a street tree analysis with STRATUM (Street Tree Resource Assessment Tool for Urban forest Managers). Compatible software utilities are included as well: MCTI (Mobile Community Tree Inventory), Storm Damage Assessment Protocol, Tree Inventory PDA Utility, and Sample Inventory Generators. This August (2006) marked the initial public release of i-Tree.



Tools for assessing and managing  
**Community Forests**  
About i-Tree >>



**i-Tree**

Get the i-Tree Tools Installation CD-ROM >>

<a href="#">Resource/Learning Center</a>	<a href="#">Support</a>	<a href="#">Quick Links</a>	<a href="#">User Forum</a>
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 <h3>Assessing Urban Ecosystems</h3> <p>Find out how to assess your community's <i>entire urban forest</i>.</p> <p><a href="#">click here to begin</a></p>	 <h3>Assessing Street Tree Populations</h3> <p>Learn how to assess <i>the street tree component</i> of your community's urban forest.</p> <p><a href="#">click here to begin</a></p>	 <h3>Applications and Utilities</h3> <p>Access tools to help you strengthen your community's <i>tree management efforts</i>.</p> <p><a href="#">click here to begin</a></p>	<h3>What's New?</h3> <p>Registration for the 2007 <a href="#">i-Tree Academy</a> being held April 30 to May 3 has closed. Stay tuned for more training announcements!</p> <p>Thank you to all participants and collaborators of our last workshop in 2006! Workshop materials are available for viewing and download by visiting the following link: <a href="#">Midwest i-Tree Workshop</a>.</p> <p><a href="#">Find out more &gt;&gt;</a></p>
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## Module 3: Roles of Tree Board and Staff

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PPT Slide: 1 - X

Time: 30 minutes

**Learning Objective 3.** Explain the roles of tree boards and employees.

Lecture and discuss the following points about the roles and responsibilities of tree board members and municipal employees.

### Roles of Tree Boards and Staff

The role of a tree board may well be defined by the city's charter or by ordinance. Your role may include any or all of the following:

- Policy formulation
- Advising
- Administration
- Management
- Representation
- Advocacy

Review the appropriate legislation containing the requirements of the board. Here is a sample job description for a tree board member:

#### JOB DESCRIPTION of TREE BOARD MEMBER

##### RESPONSIBILITIES:

Develop, keep current, and help facilitate a plan for the development, conservation, and care of the urban forest resources of the City

##### QUALIFICATIONS:

Citizen and resident of the City, with an interest in and knowledge of trees and related resources and their relationship to the human and physical environment of the City.

##### ACTIVITIES:

- Develop and/or review annually and update as necessary a comprehensive community forestry plan.
- Assess the community urban forest situation, using some type of inventory to determine short-and long-range program goals and objectives.
- Review, in cooperation with the City Forester, annual plans for the City's urban forestry program.
- Advise the mayor, city council, and various departments on matters concerning trees and

related resources

- Inform residents on matters concerning the betterment of trees and related resources in cooperation with the City Forester
- Coordinate or conduct special projects for the betterment of the urban forest. Such projects to be included in annual plans.
- Keep abreast of current trends and issues in urban forestry through appropriate training and development

Examples of roles/responsibilities for a tree board member:

- Strategic Planning : SWOT Analysis: What are the Strengths, Weaknesses, Opportunities and Threats to the City's Urban Forestry Programs. This external scan will provide a snapshot of the city's current urban forestry condition and be used as a catalyst to provide a long range plan.
- Adoption of urban forestry management plan
- Requesting appropriations from city council to fund urban forestry projects
- Hiring an arborist

#### JOB DESCRIPTION ARBORIST (STAFF)

##### RESPONSIBILITIES:

Manages and supervises the urban forestry program including the planting, maintenance, and removal activities. This position is responsible for maintaining trees and woody plants to ensure their healthy, safe, and attractive condition including chemical applications, repairing, cabling, fertilizing ,watering. pruning, and removal of any dead, diseased or declining trees, or other woody plants.

##### SUPERVISION RECEIVED AND EXCERCISED

Receives general direction from the Public Works Director

ESSENTIAL FUNCTIONS: Essential duties may include, but are not limited to, the following:

1. Supervises the activities of crews involved in the planting, maintenance and removal of City trees; hires, trains, evaluates and manages subordinate personnel.
2. Reviews and evaluates tree maintenance needs by reviewing complaints and observing problems or upon direction from supervisor; and determines work priorities and assigns work to subordinates.
3. Receives and responds to a variety of complaints concerning status of City trees; provides procedural and policy information regarding tree trimming and removal. Schedules emergency action based on complaints; provides advice on proper care of trees and possible remedies for disease or pest problems; prepares tree damage and claim reports.
4. Prepares, maintains, updates and reviews street tree master plan; prepares written and oral reports regarding tree planting or tree removal to City commissions and committees;
5. Manages annual budget for Forestry Section, prepares specifications for and monitors contractual tree maintenance operations; completes necessary requisitions and reports to maintain the operations of the Forestry Section.
6. Keeps accurate records of the Tree Board's actions and maintains the computerized

“TreeKeeper” program of all maintenance activity and tree inventory changes.

#### QUALIFICATIONS:

Knowledge of local tree and plant species, arboricultural practices in streets and parks;  
Knowledge of insects and diseases that infect tree and plants in the southern region and the actions necessary to correct problems;  
Knowledge of tree maintenance methods and equipment;  
Knowledge of safety practices related to tree maintenance;  
Knowledge of principles of supervision and people management skills; and  
Knowledge of computer software applications to manage the urban forest.  
Ability to communicate effectively and concisely, both orally and in writing;  
Ability to establish and maintain effective working relationships with City staff, contractors, citizen groups, and the public;  
Ability to detect insect and plant diseases and prescribe corrective action to eradicate problems;  
Skill in operating a PC system and utilizing computer applications; and  
Skill in directing, supervising, training and evaluating staff.

#### TRAINING AND EXPERIENCE:

Any combination of experience and training that would likely provide the required knowledge and abilities to perform the essential functions of the position

#### Discussion Questions:

Ask participants how many cities have tree boards?

Do their roles and responsibilities differ from what has been represented in this class?

How many cities have arborists?

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## **Module 4: Best Management Practices in Urban Forestry/Technical Assistance Providers**

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PPT Slide: 1 - X

Time: 45 minutes

***Learning Objective 4:*** Describe best management practices in urban forestry and appropriate technical assistance providers.

The first part of this learning modules will be lecture and sharing about the five best-practice programs listed here: 1) Chattanooga, TN Tree Maintenance, 2) Walla Walla, Washington Urban Forestry, 3) Palo Alto California Tree Technical Manual, 4) Athens-Clarke County, Georgia Community Tree Program, and 5) Seattle, Washington– Street Master Plan

#### A. Chattanooga Tree Maintenance

The City of Chattanooga spent 7,367 hours pruning and maintaining nearly 4,500 trees in 2002. The City has been on a mission to add technology to Chattanooga’s tree maintenance process as

part of an effort to document maintenance costs for the city's urban forest. The division is using GPS and GIS to map tree locations, and track the type and size of every tree along city streets and downtown parks.

It took four months to inventory the trees in Chattanooga's expanded central business district, an area that covers about 200 square blocks. Members of the city forester's team hiked through downtown carrying backpack GPS units, entering data on each tree's location, species and size of the planting pit. They also noted the type of covering in each planting pit (monkey grass, turf, concrete, etc.) and whether or not the tree was irrigated.

Once the data was collected, the Chattanooga Urban Forestry Division created five categories based on diameter (0-6 inches, 7-12 inches, 13-24 inches, 25-36 inches and more than 36 inches) and assigned each tree to its appropriate category. Classifying the trees helps determine the number of pruning hours required to maintain them.

In addition to maintenance projections, the GIS tree inventory map helps the city in other ways. Because the map has the power of a database behind it, Urban Forestry personnel can query by tree height, condition, pests, maintenance needs –whatever information is in the database. For example, overloading on one tree species could be disastrous should a pathogen, insect or disease attack that species, so experts suggest cities have no more than 5 percent of one species in their overall mix. By conducting a query on existing tree species, Chattanooga can assure they are staying within that guideline. (source-J.Brown, Saving the Urban Forest, Government Technology, 9/3/2003)

#### B. Walla Wall Urban Forestry Management Plan

In 1982 a citizen group, calling themselves ReLeaf Walla Walla, formed in order to address Walla Walla's street trees and to determine what could be done to prevent the loss of so many old trees and reduce the priceless canopy. This group began to inventory all the trees in an effort to record them and to introduce ordinances protecting street trees. The Ad Hoc Tree Committee drafted a Street Tree Ordinance, which was adopted by the City Council in July 2000. The ordinance provided for the creation of an Urban Forestry Advisory Commission (UFAC) with membership comprised of volunteer citizens. In addition, the UFAC wrote an ordinance pertaining to Heritage Trees on both public and private property. This has been an effective means for private homeowners to protect their special trees from topping, or otherwise detrimental practices. The UFAC was also given the task of producing an Urban Forest Management Plan (UFMP), to govern the urban forest under the jurisdiction of the City of Walla. The UFMP presented the following program goals:

- 1) Maintain, Preserve, Conserve, and Improve Existing Urban Canopy in Walla Walla;
- 2) Remain a "Tree City USA";
- 3) Preserve and Protect Native, Significant, and Historical Treescapes; and
- 4) Coordinate all construction activities related to trees with urban forestry program.

The UFMP also contained management and maintenance recommendations that addressed the urban forestry funding program; reduction of high risk trees and community outreach/education.

### C. Palo Alto, California Tree Technical Manual

The Tree Technical Manual is a separately published document issued by the City Manager, through the Departments of Planning and Community Environment and Public Works to establish specific technical regulations, standards and specifications necessary to implement the Tree Protection Ordinance, and to achieve the City's tree preservation goals. These goals are intended to provide consistent care and serve as benchmark indicators to measure achievement in the following areas:

- 1) Insure and promote preservation of the existing tree canopy cover within the city limits;
- 2) Provide standards of maintenance required for protected and city-owned trees;
- 3) Provide a standardized content for tree reports required by the City;
- 4) Establish criteria for determining when a tree is unsafe and a possible threat to the public health, safety and welfare;
- 5) Provide standards for the replacement of trees that are permitted to be removed; and
- 6) Increase the survivability of trees during and after construction events  
By providing protection standards and best management practices.

### D. Athens-Clarke County, Georgia Community Tree Program

The Landscape Management Division (LMD) of the Athens-Clarke County Central Services Department administers the Community Tree Program. The Community Forester(CF), a tree care professional working within the LMD, is responsible for the coordination of the Community Tree Program, including public tree maintenance. There are many other departments and individual who are involved in community tree management and are considered fundamental to the success of the Community Tree Program. The Community Tree Council and the Planning Department are two such partners who have a primary role in tree conservation and management.

The Community Tree Council is an active group of citizen volunteers that meets on a regular basis. The Landscape Management Division provides support services to the Community Tree Council and the Community Forester fills the role of the Council secretary. Each year the LMD develops a Community Tree Program Annual Work Plan and budget based upon that plan. The LMD also maintains a current inventory of public street trees which is used in the planning and budget processes. Trees are re-inventoried every years.

The Community Tree Program also produced a "best management practices guide for tree selection and placement, tree care and tree species selection.

### E. Seattle Master Street Tree Plan



The City of Seattle Street Tree Master Plan is a comprehensive three-phase study that recommends priorities for tree plantings on Seattle's arterial streets, provides a list of trees for appropriate planting on arterial streets and explores new concepts for street tree plantings to connect existing open spaces and green areas in the City of Seattle. The Street Tree Master Plan serves as a mechanism to prioritize areas for tree plantings and identifies tree species for planting and removal.



Phase I of the Tree Master Plan inventories the location, type and condition of trees planted along all improved City streets. From 1990 to its completion in 1992, nearly 84,000 trees were assessed for a wide range of factors, including age, species, health, site features, planting strip width and relationship to power lines.

Phase II of the Street Tree Master Plan (1993-1994) developed criteria for deciding priorities for planting street trees, and designated arterial streets for tree planting. Phase II also quantified the planting and maintenance needs of Seattle's street trees and created a comprehensive list of old and diseased trees for removal.

Phase III (1994-1999) identifies goals for urban forestry growth for the City of Seattle and looks for new ideas to increase the quantity and quality of green spaces within the city limits. Phase III's goals include a 13% increase in Seattle's tree canopy, to a total of 40%. Fresh ideas and new partnerships are now being made among the public, private, commercial and non profit sectors to reach the goals of a green Seattle.

The remainder of this learning module is spent sharing web sites and resources for technical assistance providers such as those listed below:

## **Technical Assistance Providers**

Tennessee Urban Forestry Council: [www.tufc.com](http://www.tufc.com)

### ***Trees Make a Difference...***

The Tennessee Urban Forestry Council, established in 1991, is a nonprofit organization dedicated to public awareness, understanding and improving Tennessee's urban forests. The Council serves as a resource, catalyst and liaison concerning urban forestry issues within the state, region and nation.

### **Annual Board of Directors Retreat and New Board Member Orientation**

Monteagle, TN, January 19-20. For more information please contact Jennifer Smith: [tufc@comcast.net](mailto:tufc@comcast.net).

## **News Release**

[2006 Urban and Community Forestry Awards of Excellence](#)

**Tennessee Urban Forestry Online Discussion Group**

An online urban forestry forum called Tennessee Urban Forestry Discussion Group has been set up in Yahoo Groups and is being moderated by the Tennessee Urban Forestry Council.

[If you already have a Yahoo User ID, click here to join the group.](#)

[If you are new to Yahoo, click here for step-by-step information on how to join.](#)

Tennessee Division of Forestry:

[www.tennessee.gov/agriculture/forestry/urbanforestry/index.htm](http://www.tennessee.gov/agriculture/forestry/urbanforestry/index.htm)



**TENNESSEE.GOV**  
Department of Agriculture  
Ken Givens, Commissioner

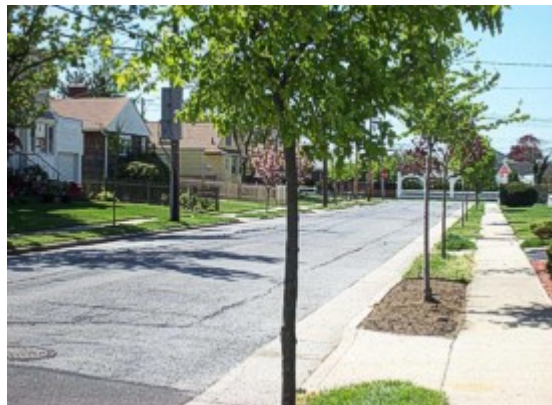
*The Official Web Site of the State of Tennessee*



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**Urban Forestry**

More and more cities are realizing the benefits of making room for trees in the urban environment. Even when land costs are high and space is at a premium, trees soften the hard lines of manmade structures, add color, absorb excess noise, filter the air, provide shade, and may increase property values.

Urban forests of Tennessee are experiencing new demands and pressures as interest grows in greenways, heat islands, and storm water control. Encroachment by development, invasions of gypsy moths and exotic plants like honeysuckle and privet, and problems with soil compaction threaten the health and vitality of urban forests.

The state's Urban & Community Forestry Program goal is to improve urban environments through planting and management of trees. It promotes the establishment of urban forestry programs in cities and towns, assists them in developing self-sustaining urban and community forestry programs, and provides technical assistance. The Urban Forestry Program provides the following services:

- Presentations and exhibits on the value of urban trees
- Assistance organizing tree boards
- Assistance with tree inventories
- Development of tree and landscape ordinances
- [Information](#) on tree selection, tree identification, planting techniques, proper pruning, and tree care and maintenance.
- Coordination of the [Tree City USA](#) and [TreeLine USA](#) programs
- Coordination of the Tennessee Champion Tree program
- Technical training and advice for tree care professionals
- Advice for planning groups and developers concerning tree protection
- Assistance to communities that sustain damage or loss of urban forests from natural disasters
- Sponsorship of the Tennessee Arboretum Certification Program

Much of this work is done through administration of Urban Forestry Grants. Grants are awarded to local governments, community non-profit groups, and educational institutions. For general grant information, [click here](#). This document requires the free Acrobat Reader available by [clicking here](#).

The urban forestry staff also serves as a liaison and provides assistance to the [Tennessee Urban Forestry Council](#). The Council consists of individuals and organizations interested in promoting better tree care and improving urban environments through the use of trees. The Council brings people together from across the State to share ideas and solve problems involving the urban forest.

#### **LINKS TO RELATED SITES**

[National Arbor day Foundation](#)

[Tennessee Urban Forestry Council](#)  
[Chattanooga Urban Forestry Program](#)  
[TreeLink](#)  
[International Society of Arboriculture](#)  
[National Tree Trust](#)  
[Tree City USA](#)  
[TreeLine USA](#)  
[Forestry AgNIC Urban Forestry Links Page](#)

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Department of Agriculture  
Ellington Agricultural Center  
Nashville, TN 37204  
615.837.5103

[www.urban-forestry.com](http://www.urban-forestry.com)

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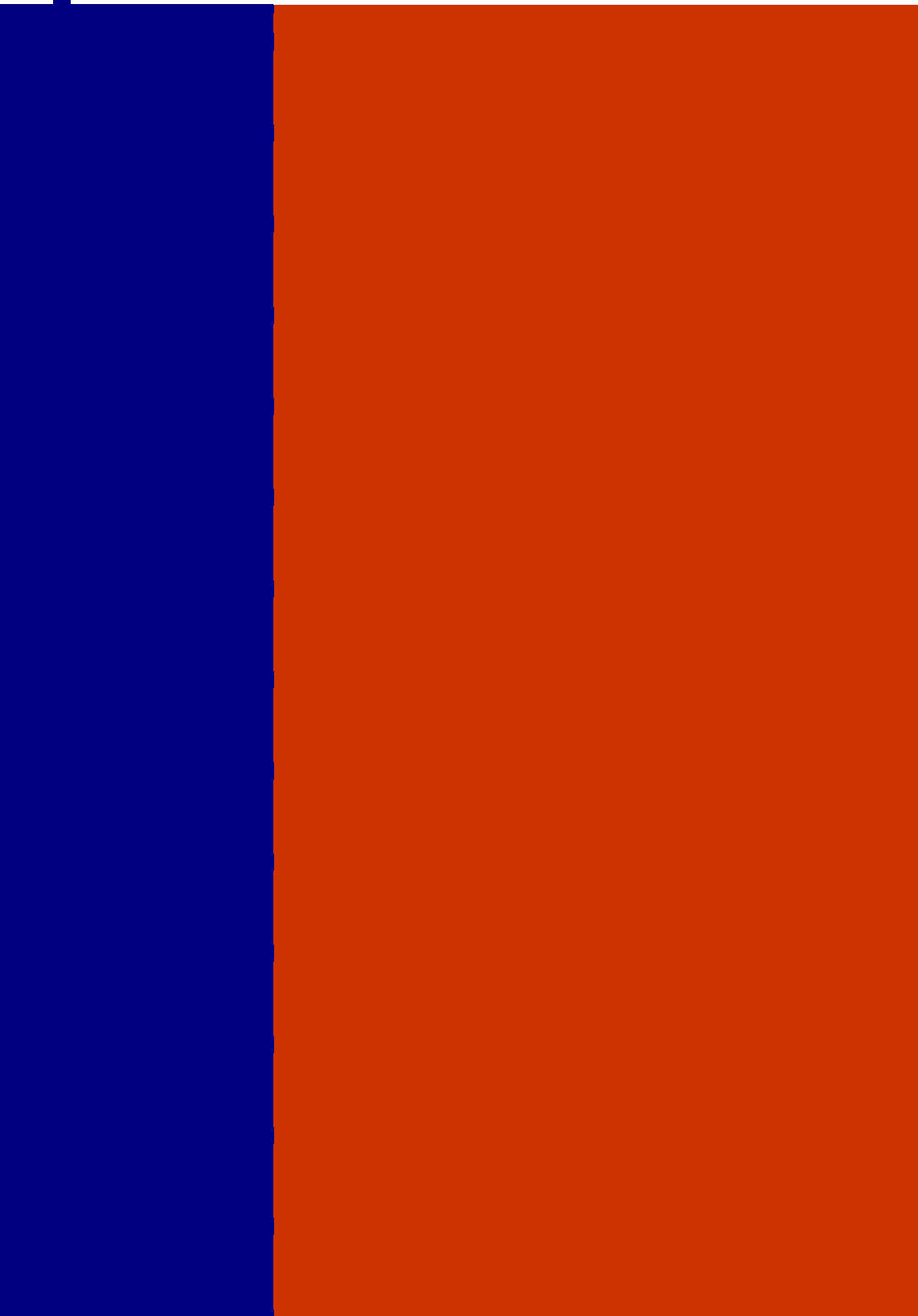
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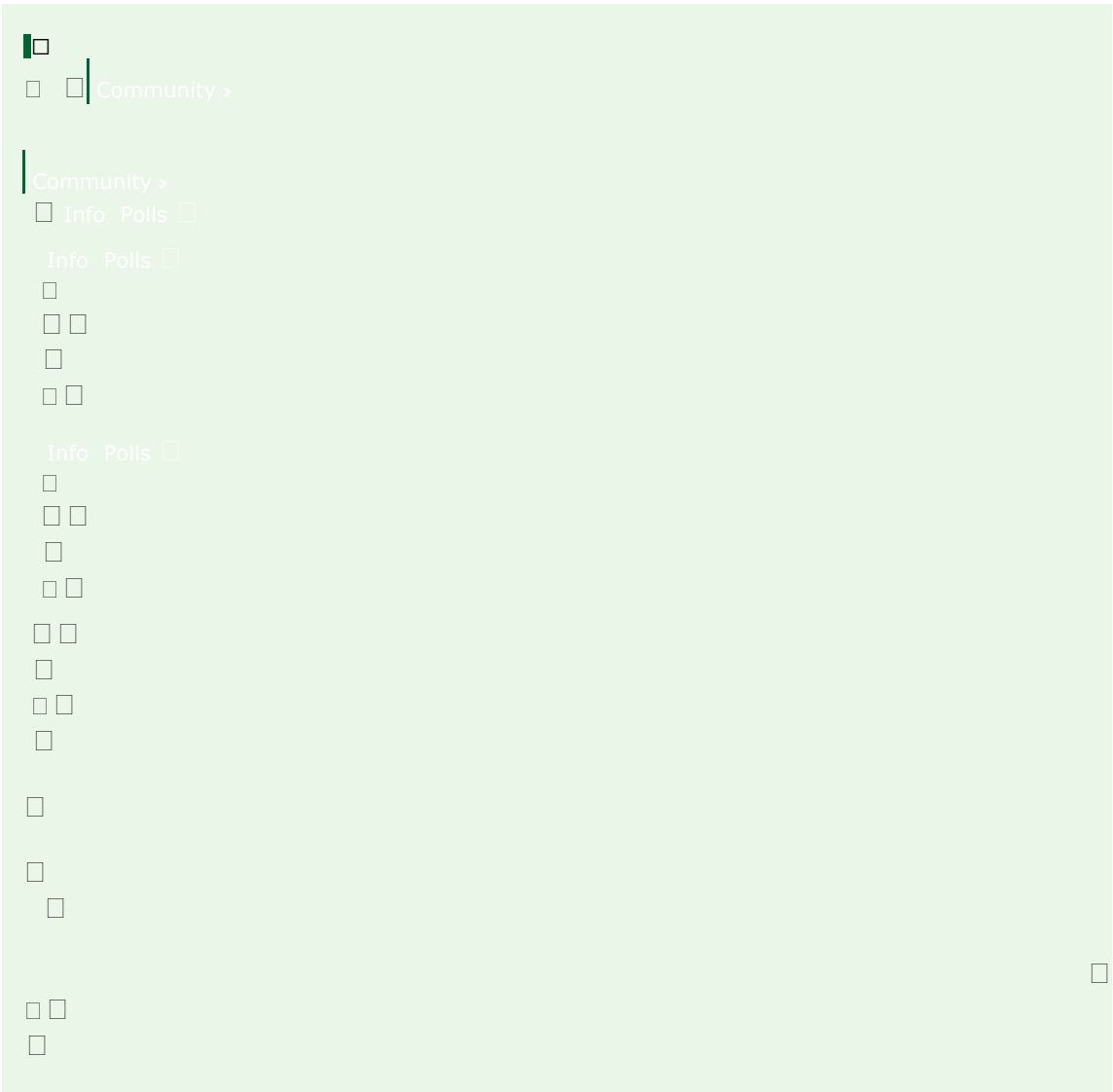
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Academy Participants

**MFI 2007 >**

MFI-Curriculum

**SMA Accreditation**

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**Partners and Links**

[Tree Insect Web Links](#)

[Non-Profit Organizations](#)

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[Arbor Master](#)

Hurricane Response >	ArborMaster Training conducts educational programs throughout North America and abroad, offering a variety of safety and productivity training programs for the tree care industry.
Hurricane Photos	<a href="#">City of Davis California Tree Management Plan</a> <a href="#">Center for Urban Forest Research</a>
What SMA Is About >	<a href="#">Eagle Eye Institute</a> Provides <a href="#">hands-on exploratory learning</a> on environmental topics to urban youth, with programs designed around a unique proven formula
Officers & Board 2006 Membership Map	<a href="#">Forest Service Database</a>
Event Calendar SMA Programs	<a href="#">Forest Service Publication</a> "How to Prune Trees" publication is now available in Spanish! The .pdf can be viewed and downloaded from this web page:
Conferences >	<a href="#">Forest Service Publication</a> A revised .pdf version of the Asian Longhorned Beetle Pest Alert
<b>Hollywood Conference</b>	<a href="#">Urban Forestry South Expo</a> A US Forest Service site for the Southern Region. It is a great resource for anyone in any region.
Book Store	<a href="#">Gilman on Planting</a> <a href="#">Gilman on Pruning</a>
Arborist Exchange >	<a href="#">Invasive Plant List</a> <a href="#">Invasive Species Presentation</a> A new presentation, Alien Invaders: Battling Invasive Species is now available courtesy of The Nature Conservancy's Volunteer Speakers Bureau. This 40-minute slide show describes invasives such as emerald ash borer and explains why they are such a problem. It also includes information about what the Conservancy and others, like you, can do to help. To request a speaker or learn more about this presentation, contact volunteer Nan Wrisley at <a href="mailto:mifospeakers@tnc.org">mifospeakers@tnc.org</a> or (517) 316-0300 x. 301. Although the show is offered free of charge in order to educate as many people as possible, donations are encouraged to cover the cost of handouts.
Program Info Bath, Eng. to Bath, ME Bath,ME to Bath, Eng. Cape Town Exchange Charlotte to Hamilton, ON Chicago Exchange Hamilton ON to Charlotte NZ to Ft. Wayne, IN Santa Monica Exch. Wellington Exchange	
Join or Renew >	<a href="#">Nature Hills Nursery</a> Nature Hills Nursery, Inc. - <a href="http://www.naturehills.com">www.naturehills.com</a> is an online nursery that offers trees, shrubs, perennials, fruit trees, rose bushes, and much more to customers across the United States. We also offer a gardening Q and A library and several other gardening-related resources.
Apply for Membership	<a href="#">City of Cheyenne, WY Urban Forestry Program</a> <a href="#">City of Palo Alto Tree Program</a>
Jobs Publications	From the City of Palo Alto Tree Program Web page one can access the popular <a href="#">Tree Technical Manual</a> , which is available on-line for downloading and use. The manual is not copyrighted and is a public document and can be used without copyright infringement.
Partners and Links >	<a href="#">Pesticide Toxicology</a> <a href="#">Place for Public Space</a>
Insect Links	<a href="#">Plant Photo's</a>
Elist and Forums	<a href="#">Risk Management</a> <a href="#">Roadside Museum</a> <a href="#">Stem Girdling Roots</a> <a href="#">Storm Damage Center</a> <a href="#">Tree Benefits</a>
<b>Members Only &gt;</b>	
Elist and Forums	

[Tree Emergency Manual](#)

[Tree Relative Performance Index](#)

[Tree Species Distribution Map](#)

Forest and Shade **Tree Insects** of Florida. Glossary of Forestry Terms ...

[Code Information for Tree Trimmers](#)

The City of Greeley Forestry Division- Managing the health and safety of your City Trees!

**NON-PROFIT ORGANIZATIONS**

[American Forests](#)

American Forests is the nation's oldest citizen conservation organization. Since 1875, American Forests has worked to ensure a sustainable future for our nation's forests.

[California Arborist Association](#)

[California Big Trees](#)

[Guidelines for Developing and Evaluating Tree Ordinances](#)

The Guidelines for Developing and Evaluating Tree Ordinances Web Page provides a variety of tools and resources for citizens and local governments interested in developing, revising, or evaluating local tree ordinances. The site includes annotated examples of effective tree ordinance provisions used throughout the country.

[International Society of Arboriculture: Arboriculture On-line](#)

The International Society of Arboriculture (ISA) has served the tree care industry for over eighty years as a scientific and educational organization. With over 18,000 members, the ISA is one of the largest and most influential arboricultural organizations in the world.

[ISA Pacific Northwest Chapter](#)

Serving the Pacific Northwest States and Provinces. Landscape Tree Care 101.

[ISA United Kingdom and Ireland Chapter](#)

[The National Arbor Day Foundation](#)

The National Arbor Day Foundation is involved in much more than just Arbor Day celebrations around the world. Its mission is to help promote tree care and conservation and to educate people on tree issues.

[Northeast Center for Urban Forest Research](#)

[Tree Canada Foundation](#)

The Foundation is a charitable organization which partners with local volunteers to improve quality of life by planting and caring for trees. In neighbourhoods, schoolyards, parks and in the countryside, Tree Canada leaves a living, breathing legacy for generations to come.

[Tree Care Industry Association](#)

[TreeLink](#)

The TreeLink site was created to provide information, research, and networking for people working in urban and community forestry. For the researcher, the arborist, the community group leader, the volunteer--it purpose is to inform, educate, and inspire.

[Urban Forestry Ecosystems Institute](#)

[Trees Are Good](#)<sup>☒</sup>

Provides the general public with quality arboriculture, or treecare, related information. ISA, a non-profit organization supporting treecare research around the world.

[Canopy Organization: Programs](#)<sup>☒</sup>

Canopy is the nonprofit center for street, park, and garden trees in Palo Alto, California.

### [Minneapolis Park & Recreation Board - Tree Care Links](#)

This international organization for treecare professionals provides information on tree care, gypsy moth, links.

### [Canopy Organization Programs](#)

Canopy is the non-profit center for street, park, and garden trees in Palo Alto, California.

### [Tree Care](#)

... Structure and Management. **Organization** Chart. Board of Directors ... Committee A300 that maintains a series of standards for **TreeCare** Operations (ANSI A300 Part 1-2001; Part 2-1998;

### [TreeCare Standards Factsheet](#)

Lawrence County Cooperative Extension. Community Forestry Program. A300 **TREECARE** STANDARDS. What are **treecare** "standards"? Standards are specific principles or criteria, established by authority or convention. ... **Treecare** standards are being developed by American National Standards Institute( ANSI), the primary US **organization** ... landscape, and **treecare** industries, as well ...

### [TreeCare Made Easy](#)

Contact MFPA. 517/337-4999 (voice) 517/337-4993 (fax) Or Mail To: MFPA. 271 Woodland Pass. Suite 200. E. Lansing, Mi 48823. Info USDA. Other EAB Info. MFPA is a 501 (c) (3) organization. More Info. TreeCare Can be Easy. By Michael Graham ... property, the first priority for young treecare should be to protect the trunk from ...

### [Connecticut Tree Protective Association - What is the CTPA?](#)

Connecticut Tree Protective Association is an organization made up of over 400 arborists (members). The membership consist of licensed arborists, educators and state arboriculture scientist. The ... made up largely of treecare professionals from Connecticut and ... ongoing improvement of treecare practices among tree workers. ... to the state's treecare industry.

### [Massachusetts Christmas Tree Association](#)

directory of growers and retailers of real Christmas trees.

### [TreeCare Information Links](#)

TreeCare Information Link Page ... PLANTS Data Base. Forest Pathology Organization.

### [City of Robbinsdale: Parks & Recreation - Forestry Dept. - Links](#)

Community. Development. Parks & Recreation. Forestry. Public Safety. Engineering. Employment. Links For Further **Tree** and **TreeCare** Information ... This **organization** of **treecare** professionals provides information on **tree** health **care** and related consumer advice. ...

### [ARBORIST INSURANCE...percent or more of their business is tree care. Coverages include business ...](#)

This article from Arbor Age is part of the HighBeam Research eLibrary archive. Full membership w/ Credit Card is required to read the full article and have unlimited access to the 30M document ... is designed for **treecare** companies that are members of any professional **organization**.

### [Tree Links](#)

**TreeCare** Information. BARTLETT **TREECARE** COMPANY This national company offers some tips on **treecare**. <http://www.bartlett.com/> COLORADO SPRINGS A nice little site with information on **treecare**, pruning, **tree** ordinances, ... trees and **treecare** here.

### [Treeclimbing.COM / Recreational Tree Climbing](#)

Everything in the world about **tree** climbing. ... certified arborist). Why build such an **organization**? Peter opened a recreational **tree** climbing school in 1983, and ... enjoy it. We **care** about - and take **care** of - the trees

### [ForestryUSA.com: Forestry Associations - forestry, careers, jobs, consultants, forest products, management, wood, paper, ...](#)

a comprehensive website on forestry and the forest products industry in America including career opportunities in forestry, news and more.

### [Green.Gov - Partners](#)

Forests Of Support. Non-Profit Partners.

### [Louisiana-Mississippi Christmas Tree Association](#)

providing production, research, and promotional information for growers and consumers.

### [Arbor Links/On Earth Plant Care Specialists \(845\)526-8186 On Earth Plant Care](#)

Specialists performs all aspects of plant care...[📄](#)

On Earth Plant **Care** Specialists performs all aspects of plant **care** holistically, ecologically and economically. We listen to the heart and act for the Earth. ... served the **treecare** industry for over seventy years as a scientific and educational **organization**.

#### [Nature News](#)[📄](#)

sets professional standards for the treecare industry.

#### [Your Guide to Community Forest Assistance Programs](#)[📄](#)

... **TREE-MENDOUS** Maryland. **Tree** Planting and **TreeCare** Workshops. Wild Acres Program ... Community after meeting basic standards of **organization**, planning, planting, **care**, and citizen action ...

#### [The Trustees of Reservations - Forestry](#)[📄](#)

A professional trade organization that supports the business growth of treecare professionals.

#### [City of Fort Collins: Arboriculture & Urban Forestry Links](#)[📄](#)

Disease Problems, Mature Tree Care, New Tree Planting, Tree Selection, Plant Health Care, Recognizing Tree ... most influential treecare education and research organization

#### [Keep Midland Beautiful - Midland TreeKeepers](#)[📄](#)

Keep Midland Beautiful, Midland, Texas - Home Page. ... a volunteer organization to help our City Parks Department employees take proper care of the growing tree population.

#### [TNY in Newsday](#)[📄](#)

... Going Out on a Limb. Organization trains residents to care for neighborhood trees ... In addition to the treecare courses offered to the general public ...

#### [Bonsai TreeCare, Bonsai Tree Pictures](#)[📄](#)

A very useful guide to buying a healthy plant with a section on Bonsai TreeCare and loads of Bonsai Tree Pictures. ... snow rose serissa, and great section on Bonsai treecare and loads of Bonsai tree pictures ... International, a non-profit educational organization, advances the ancient and living art ...

#### [Creating a greener San Francisco, tree by tree.](#) (PDF) [📄](#)

FUF, San Francisco's citizen urbanforestry **organization**, wasfounded in 1981. We offerfinancial, technical andpractical assistance to indi-viduals and neighborhoodgroups who wish to plantand **care** for trees. ... 100% recycled paper and post-consumer waste.**TreeCare** Chroniclesdiscusses root systems.See pages 4 and ...

#### [Agriculture and the outdoor world - Arboriculture](#)[📄](#)

... related site dedicated to Arborists, Arboriculture and the **TreeCare** Industries in general ... is a nonprofit **organization** dedicated to promoting proper **treecare** in British Columbia ...

#### [Tree-ROUTE-Network - Links](#)[📄](#)

... Arboriculture On-line assists **treecare** professionals in developing and maintaining effective ... Institute is an independent research **organization** under the Ministry of Agriculture and ...

#### [Huntington Beach Tree Society](#)[📄](#)

HB **Tree** Society is the place people go for information about trees and **tree** planting activities in and around Huntington Beach, Orange County California!

#### [EEO - Trees](#)[📄](#)

... is to help promote **treecare** and conservation and to educate ... a professional **organization** dedicated to continuing education for arborists, to **treecare** research, and to serving **tree** ...

#### [Long Island Arboricultural Association, Inc. : Home Page](#)[📄](#)

**organization** dedicated to education for the appreciation and **care** of shade trees and shrubs on Long Island. In addition, we strive to stimulate interest in **tree** ... **treecare** methods ...

#### [Kineret.com - Web Directory](#)[📄](#)

site dedicated to arborists, arboriculture and the **treecare** industries in general ... American Conifer Society - **Organization** striving to encourage the development, conservation, and ...

#### [Tree Musketeers .pdf](#)(PDF) [📄](#)

in our Saturday **treecare** and learn valuable **treecare** skills.

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## Summary:

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PPT Slide: 1 - X  
Time 15 minutes

Briefly review all that has been covered in these 4 hours. High light the key learning points. Ask if there are any questions/comments. Hand out the post tests and have participants complete them. Again emphasize that they are not being tested, but that the training is.

Make sure everyone has signed the class roster and completed an evaluation form.  
Thank everyone for their time and participation.

Instructor's Note: After the class is over, and you have a few minutes, review the post test. Are people getting the answers right? Are you making the points that you wanted to, or do you need to adjust and maybe explain things a different way for the next class?