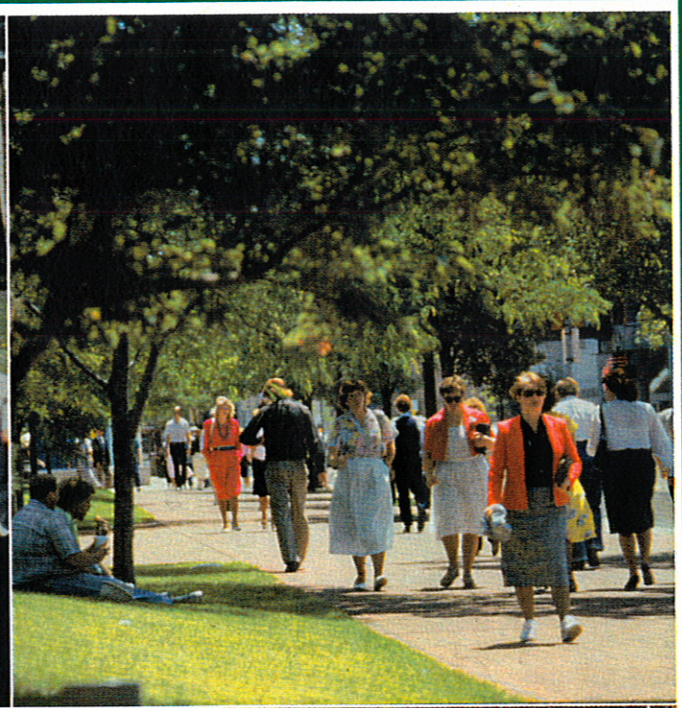
A Handbook for Tree Board Members



The National Arbor Day Foundation

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A Handbook for Tree Board Members

By
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The National Arbor Day Foundation™
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Please Note:

An excellent complement to this handbook is The National Arbor Day Foundation's series of ***Tree City USA Bulletins***. The ***Bulletins*** cover the following topics, providing more detail to many of the areas discussed in this Handbook:

- No. 1 How to Prune Young Shade Trees
- No. 2 When a Storm Strikes
- No. 3 Resolving Tree-Sidewalk Conflicts
- No. 4 The Right Tree for the Right Place
- No. 5 Living With Urban Soils
- No. 6 How to Hire an Arborist
- No. 7 How to Save Trees During Construction
- No. 8 Don't Top Trees!
- No. 9 How to Write a Municipal Tree Ordinance
- No. 10 Plant Trees for America!
- No. 11 How to Prevent Tree/Sign Conflicts
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- No. 13 Trees for Wildlife
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- No. 16 How to Recycle Shade Tree Materials
- No. 17 How to Landscape to Save Water
- No. 18 Tree City USA Growth Award
- No. 19 How to Select and Plant a Tree
- No. 20 A Systematic Approach to Building With Trees
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- No. 22 Tree City USA: Foundation for Better Tree Management
- No. 23 How to Conduct a Street Tree Inventory
- No. 24 Trees and Parking Lots
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- No. 26 Understanding Landscape Cultivars
- No. 27 How to Manage Community Natural Areas
- No. 28 Placing a Value on Trees
- No. 29 How to Plan for Management
- No. 30 Ten Tree Myths to Think About
- No. 31 Tree Protection Ordinances
- No. 32 Let's Stop Salt Damage

It is recommended that your tree board maintain a complete set.

For $25 you can receive all of the ***Tree City USA Bulletins*** published to date in two 3-ring binders, plus a year's membership in the Friends of Tree City USA; the Friends membership will include the next six ***Bulletins***. Send your check to The National Arbor Day Foundation, 211 North 12th Street, Lincoln, NE 68508. Indicate that it is for ***Tree City USA Bulletins.***

Preface

This handbook is for you as a tree board member. It is intended as a guide and reference to the many things you will encounter in caring for your urban forest. The topics were chosen by a national committee of tree board members and urban forestry specialists. The handbook's purpose is to help you better effect management of the urban forest. Hence, the book is not a technical manual, but, rather, an administrative and management guide giving, for example, information on how to plan and implement a tree planting program, rather than how to plant individual trees.

Please understand that the term "tree board" is generic, referring to a group of people charged, generally by ordinance, with overseeing the needs of the urban forest. Such a group may also be called a tree commission, a tree council, or by other title, and may have other responsibilities, such as parks or other public programs. The term "urban forest" is also used in a generic sense, meaning trees and related organisms in urban settings, whether small towns, villages, communities, or large cities. Similarly, the word "city" as used means any of the foregoing, or any other unit of local government wherein a tree board may have jurisdiction.

The handbook is sequential, providing a guide to development of a successful urban forestry program. The National Arbor Day Foundation encourages your critique and help in identifying additional topics that should be included in future editions.

Acknowledgement

The National Arbor Day Foundation and the author express their thanks to the following people who diligently reviewed and made recommendations for the *Handbook*: Paul Cole, James Geiger, Philip Hoefer, Edward Macie, David Mooter, James Nighswonger, Shannon Ramsay, Mary Reynolds, and Anne Wright.

Chapter One

You as a Tree Board Member

Thank you for being a tree board member. By accepting this responsibility you are demonstrating a deep concern for the quality of life in your city. Moreover, you are transforming your concern into action, as there is perhaps no greater opportunity to positively influence your city's overall environment than by serving on the tree board. How strong your influence is will depend on your individual effectiveness and that of the board as a whole. What follows in this handbook is aimed at just that — helping make you and your tree board more effective in dealing with the complexities of the urban forest.

Your Charge

What is your mission? What is your tree board supposed to do? Your mission is probably spelled out in your "charter." Your charter may be a specific paragraph in an overall city tree ordinance; it may be contained in an "executive order" of your mayor or city commission; or it may be implied from city policy or even tradition. The point is that you and each of your other board members must have a clear understanding of what you are all about. Dig out your charter. Look it over.

Examine your charter to see if you are legally constituted and if your charge is clear, and relevant, given a changing urban environment. Check such things as number of board members, how chosen, and their qualifications. As chartered, what is your role? Is your board advisory to the mayor and commission or the city forester or arborist? Are you charged with making policy for an overall program? Are you to develop and physically implement a city tree program? Some small town tree boards do. How much latitude do you have for making adjustments to meet current and future needs? The objective of all this is to help ensure that you have the best possible basis for your activities.

The Role of Your Tree Board

As suggested above, the role of your tree board may be well defined by your charter. Chances are it will not be, however, and you may wish to consider it from a broader perspective. Your role may include any or all of the following:

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

The first four items are most likely to be spelled out in your charter. The last two, representation and advocacy, probably will not be. They are, however, extremely important components of a successful urban forestry program. Serving as a citizens' representative for trees to the city government should be a part of your role. Almost certainly, you are an advocate for trees or you would not be a tree board member. How you apply your advocacy can be critical to the success of

You and each of your other board members must have a clear understanding of your mission. This is probably spelled out in your Tree Board charter, city tree ordinance or an executive order from your mayor or city commission.

your urban forestry program. Simply stated, you must have public support for your program, and you must work to secure such support. Call it public relations, advocacy, or whatever, it must be done and it must be a part of your role. Please consider this: A tree board is not only an expression of a commitment to a continuing urban forestry program, but a working instrument to continue the commitment.

Play to the strengths of your board. Be sure that the group knows each member's skills and what they enjoy doing within the tree board's mission and goals.

Your Role as a Tree Board Member

How should your tree board be organized? Who should do what? To answer these questions you need to look closely at the mission and role of the total board and at your planned activities. If, for example, your plan is for a vigorous educational program to encourage better tree care by private landholders, your board's organization should reflect the tasks necessary to carry out the program. The number one rule of organizational management is to play to the strengths of your personnel. In the case of an educational program, you would want to match the communications skills of your members with the necessary tasks. A starting point is to simply have each member list their skills and what they enjoy doing in context with the tree board's mission and goal.

What About Job Descriptions?

Should you, as a tree board member, have a job description? Yes, for a couple of reasons. A written job description helps you (and your successor) see your responsibilities more clearly; and helps clarify the role of the tree board relative to the mayor and commission, the city forester, and perhaps other units of government. With your tree board charter as a basis,

Action Items:

- ❑ **Review your charter.**
- ❑ **Develop a mission statement for your tree board.**
- ❑ **With other members, discuss your role, particularly as a representative and advocate.**
- ❑ **Have each member list their skills and what they enjoy doing in context with the mission of the board.**
- ❑ **Develop, or review and revise as necessary, your job descriptions. An example job description is shown on the following page.**

JOB DESCRIPTION (EXAMPLE)

TITLE:
Member,City Tree Board

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 long-range plan for the urban forest of the City.
- 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.
- In cooperation with the City Forester, inform residents on matters concerning the betterment of trees and related resources.
- Coordinate or conduct special projects for the betterment of the urban forest. Such projects to be included in annual plans.

DATE:

A written job description will help you (and your successor) see your responsibilities more clearly. It will also help clarify the role of the tree board relative to the mayor and commission, the city forester, and other units of government.

your job description should include the following:

- Title
- Responsibilities
- Qualifications
- Activities

Keep your descriptions current. It is a good idea to review them once a year to see if changes are needed. The environment in which your program operates is constantly changing and you may need to change too. Consider, too, that different members may have different descriptions, depending on the needs of your program.

Chapter Two

Legal Authority

There must be a legal basis within local government that gives your tree board authority, responsibility, and continuity.

Legal authority for tree boards is by charter, generally ordinance or statute, but occasionally by executive order or other administrative action. However chartered, tree boards must have responsibility and authority. They must also have continuity. A legal basis within local government gives your tree board "permanent" and official status.

While whatever works in your situation must be a guiding principle, there are strong advantages to being chartered by ordinance. Perhaps the most important is that your operations are based on law, giving you both responsibility and authority. An ordinance providing for a tree board, however, is but one part of a total legal "package" necessary for an effective urban forestry program. Such a package may include provisions for a tree board, care of trees on city property, preservation of heritage or historic trees, consideration of trees and related vegetation during development and construction, and establishment of landscape standards. An additional part of the package might include codes, permits, and other regulations.

A Tree Board Ordinance

Tree board duties, responsibilities and scope of authority should be clearly stated in the tree board ordinance.

While provisions for tree boards are sometimes by separate "stand alone" ordinances, they are most often a part of a broader ordinance providing for care of urban trees. However constituted, the following should be included:

- Statement of creation and establishment
- Number of members
- Qualifications of members (generally citizens and residents, but may include additional qualifications)
- Term of office, succession, and provision for staggered terms
- Provision for vacancies
- Compensation (generally a statement that members will serve without compensation)
- Duties and responsibilities (the charge)
- Scope of responsibility (whether limited to city owned property, or also including advising and informing private property owners)
- Operational provisions (such as choosing officers, making rules, keeping records, and constitution of a quorum)
- Date of passage

Of the above, it is essential that duties and responsibilities and scope of responsibility be clearly stated, for it is here where your role is defined. The statements can not be generic. They must fit your situation, addressing, as appropriate, such areas as planning, budgeting, advising, administration, management, and public education.

City Tree Ordinances

Ordinances providing for the overall care of the urban forest vary greatly. From your standpoint as a tree board member, the critical question is whether the ordinance(s) in your city provides for and

facilitates adequate management of your urban forest. To do so, your ordinance(s) must do three things:

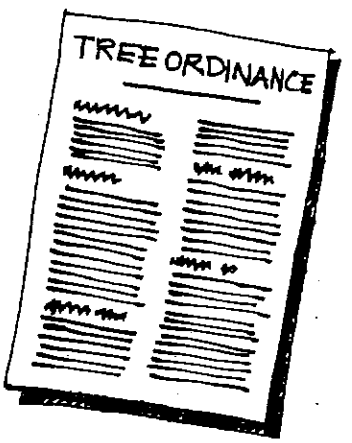
1. Provide authority to conduct forestry programs.
2. Define responsibility — who is responsible for certain parts of the urban forest — particularly important in cases of streetside or other easement areas.
3. Set forth minimum standards for management — to provide for public safety, health, convenience, and general welfare.

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

1. Purpose and intent.
2. Definitions (street trees, park trees, etc.).
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 city property or easements (permits, official species, spacing, location).
7. Maintenance (minimum specifications, and clarification of responsibility of adjacent property owners in cases of streetsides 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).

City tree ordinances set standards for planting and caring for the urban forest, as well as clarifying who owns and has responsibility for trees on city property.

Detailed performance standards and specifications are best placed in a separate document. This way, they can be easily changed as new research might direct, avoiding the cumbersome process of amending the ordinance.



11. Preservation or protection of heritage and historic trees and other vegetation.
12. Prohibition of interference with forestry officials.
13. Violations, penalties, and appeals.

As previously suggested, all of the above are often not in a single document. In particular, items 5 through 7 are often treated as "standards" and referred to in the ordinance. Such standards, although not officially a part of the ordinance, become, in effect, policies for direct management. The standards can also be easily changed as new research might direct, avoiding the cumbersome process of amending the ordinance. Thus, management is not prescribed, but facilitated by ordinance.

Liability

Trees can present hazards to people and property. Your actions, or lack of action, as a tree board member concerning trees can involve litigation. Also, your "professional" recommendations, if incorrect and resulting in damage, may make you personally liable. Most city governments have liability insurance for employees and others acting in the name of city government. Check with your city attorney or other official about your coverage.

Accepting Monies

Can your tree board legally accept and spend donated monies, or must donations go into the city's general fund to be later allocated through the budgeting process? This is an extremely important question because donated funds for tree planting and other uses in the urban forest can be a major factor in your program. Consult your attorney. Some tree boards have set up not-for-profit organizations, or have had themselves restructured for this purpose. Also, be aware of the potential in-house political ramifications of such action. Some city administrators may look unkindly at your "financial independence" and your city forestry department's budget may be reduced accordingly.

Action Items

- ❑ **Study your ordinance. Is it adequate to provide for proper care of the urban forest? Does it facilitate, rather than prescribe, management? Please see *Tree City USA Bulletins No. 9 and 31* for a further discussion of ordinances.**
- ❑ **Consult your city attorney about unclear or missing provisions of your ordinance.**
- ❑ **Be aware of other legal instruments (codes, permits, subdivision regulations, other) that influence the urban forest.**
- ❑ **Check on your liability coverage. This is extremely important.**
- ❑ **Find out if you can legally accept and spend donated funds. If you can not, consider establishing a not-for-profit organization to do so.**

Chapter Three

Knowing Your Urban Forest

Who is Responsible?

However chartered, your tree board's basic responsibility is to influence positively the urban forest of your city. For your board to be most effective, each member must have an understanding of the urban forest and the overall environment in which an urban forestry program must operate. Your city's urban forest is a complex system of ownerships and vegetation situations. Two things are fundamental to effecting better management of the urban forest:

1. Knowing who is responsible for management; and
2. Knowing what the forest needs.

While both are critical for you to understand, it is absolutely essential that you know who is responsible for managing the various segments of the forest. For if you are to cause better management, you must know who to target in your efforts.

The urban forest of even a small town might have several hundred owners. In large cities, there may be tens or even hundreds of thousands of owners. Ownership is not absolute, however, as each landholder must give certain rights for the benefit of society. In the case of urban forests, this "giving of rights" is most often in the form of easements for utilities or treelawns. Complete or partial responsibility for management of trees on such easements may also be "given" to a public entity (city government or public utilities). Thus, there are three managers of the urban forest: (1) city government; (2) public utilities; and (3) individual property owners. Let's look briefly at each. As we do, please consider that city government influences more trees than any other single entity in the urban forest, with public utilities second, and each individual property owner influencing but a comparative few.

City Government

City governments generally have responsibility for direct management of the urban forest in parks, other city-owned lands, and along streets and boulevards. The word "generally" is used because in some cities streetside trees are the responsibility of adjacent property owners. This may also vary within cities. There may also be shared responsibilities, where, for example, the city plants streetside trees and adjacent property owners maintain them. There are many variations. How does it work in your city? Check with your city forester or other public works official.

Public Utilities

Public utilities, both above and below ground, literally cover most cities. Unfortunately, trees often want to occupy the same space as utility wires, cables, or pipes, and they are sometimes incompatible. Hence, literally tens of millions of dollars are spent each year across the nation on pruning and otherwise controlling vegetative growth near utility "lines." While some utility mains are beneath streets, many, particularly in older areas of the city, are on easements on private

For your board to be most effective, each member should develop an understanding of the urban forest and the overall environment in which an urban forestry program must operate.

property. In most cases, the utility company or other public authority has the right to enter such easements to control interfering vegetation. Since the primary objective is to "clear the lines" what is done is often to trees, rather than for trees. Fortunately, there is increasing environmental concern on the part of utility companies and many have excellent programs for care of trees on easements.

Individual Owners

As stated, there may be thousands of individual owners, and each has his or her own purpose of ownership. Also, each has his or her own values, beliefs, and knowledge concerning trees. In getting to know their parts of the urban forest a little better, think in terms of public and private owners and of types of ownership — residential, commercial, and industrial.

Situations

In context with ownership and management responsibility, think also in terms of urban forest situations. There are the following situations in nearly every city.

- Parks (both active and passive)
- Other public grounds (courthouses, schools, public squares, other)
- Streets, boulevards, and highways
- Backyards
- Commercial and industrial areas
- Railways (in use or abandoned)
- Cemeteries (often excellent arboretums)
- Natural forests (estates or other lands within the city)
- Riparian areas — along rivers, creeks and lakes
- Extraterritorial lands (at the edges of the city where urban trees coalesce with native forests)

Some Thoughts

Viewing the urban forest as above allows you to identify some obvious opportunities to positively influence management. Two entities, city government and public utilities, are responsible for a major portion of the urban forest. Thus, by working with relatively few people, to help make them more knowledgeable and better skilled, you can have a strong influence on a big part of the urban forest. Also, by identifying the various categories of individual owners, you can begin to design educational programs to meet their needs.

What the Urban Forest Needs

The urban forest has three basic physical needs:

1. Planting
2. Maintenance (including protection)
3. Removal.

Action Items

- ❑ **Study a map or aerial photograph of your city, identifying parks, public grounds, and streetsides where city government has responsibility.**
- ❑ **Identify utility easements, particularly those where overhead lines are present.**
- ❑ **Identify the utility companies responsible for "maintaining" trees on easements.**
- ❑ **Identify areas of individual ownership, such as neighborhoods, subdivisions, business and industry.**
- ❑ **Think about what the urban forest needs.**

Fundamental to an overall urban forestry program is determining how much and where each should be applied. How can you, as a tree board member, determine such things? Obviously, you can visit various areas of the city, getting "a feel" for the condition of the urban forest, learning such things as general size and quality of trees, predominant species, and perhaps major insect or disease situations. While visiting the forest is a good idea, and something you should do frequently, you must, however, have quantifiable information — and that means some type of an inventory.

Urban Forest Inventories

What should be inventoried? Obviously, it is impractical to inventory every tree in the urban forest. Hence, formal inventories should be confined to those areas on which direct management can be applied. Generally, these are areas where the city government has direct responsibility, such as parks and streetsides. Other areas of the forest, such as those in private ownership, can be assessed as above, or by using aerial photographs or other aids.

What information should be obtained? To best answer this question, start with the fact that collecting detailed information about urban trees is expensive, and it is very expensive to collect more (or less) information than is needed. Start, also, with the basic question: What do I want an inventory to enable us (your tree board, city forestry department, or other) to do? If your answer is "help develop a long-range program plan and sell it to the city commissioners," then you probably don't need an elaborate, site specific inventory. If, however, your need is to enable the city forestry department to more efficiently and effectively manage streetside and park trees, you will need an inventory that tells a lot about individual trees and allows them to be easily located. Since these are the two most common purposes of inventories, let's look closer at each. The first are commonly called "planning inventories" (or surveys) and the second are called "management inventories." As we consider them, please understand that each, especially management inventories, might also serve both purposes.

Planning Inventories

Planning inventories, or surveys, are most applicable in situations where cities are either beginning or revitalizing their urban forestry programs. The basic need is to identify what needs to be done to put the urban forest in order — information on which to base recommendations for a future program. For planning purposes, the following information is needed.

- Number of trees
- Species distribution
- Size distribution
- Maintenance needs
- Planting needs

Species distribution, correlated with size, shows the diversity of the tree population, identifying overabundant species and giving size ranges for individual species. Maintenance needs, such as major or minor pruning, removal, or other practices are identified by species and tree size. Planting needs can be determined from "empty" planting spots and anticipated mortality based on size and condition. Species adaptability, based on condition, size, and frequency, can also be ascertained. Inventory information can also be helpful in estimating total value of the urban forest—useful when "selling" program needs to your city council.

For planning purposes, a complete inventory is usually unnecessary. Depending on the size of the city and other factors, every second, third, or fourth street might be sampled. Since there tends to be homogeny of tree populations within neighborhoods or tracts, plan your inventory by identifying such areas from aerial photographs. Data can then be collected for each area by slowly driving the streets and estimating species, diameter and condition class and identifying vacant planting spots. Three people are needed: a driver; a caller; and a tallier. The caller identifies trees by species, trunk diameter, and condition. In many cities, tree board members are actively involved in such inventories, by driving, tallying, or even calling. Such involvement offers an excellent way to learn more about your urban forest. Your data can be processed and managed either manually or by computer. Most common computer spread sheets can readily accommodate such data with multiple cross tabulations.

Management Inventories

Management inventories differ from planning inventories, in that they gener-

While visiting the forest helps you understand its condition and needs, and is something you should do frequently, you still must have quantifiable information — and that means some type of an inventory.

These samples from an inventory show the kind of information that is useful in an urban forestry program.

2621X LINWOOD AVE

#1	Red oak	13-18" DBH	Cond.: Good	Value: $1,921
#2	Litl linden	7-12" DBH	Cond.: Good	Value: $1,225
#R1		(Planting site)		

• All trees at a single address

American elm	Ulmus americana	1,560	40.3%
Green ash	Frax penn lanceolata	329	8.5%
Silver maple	Acer saccharinum	246	6.4%

• Species frequency for an entire community

On LINWOOD AVE from NORWOOD ST to EAST ST

Tree	#	Species	Diameter	Condition	Maintenance
2619	1	American elm	25-30"	Fair	Priority prune
2619	2	Silver maple	13-18"	Poor	Remove
2621X	1	Red oak	13-18"	Good	
2621X	2	Lit.ll.linden	7-12"	Good	Routine prune
2623	1	Dead	7-12"	Dead	Remove
2623	2	Fl crab apple	<6"	Excel.	Remove stake

• All trees on a block or street

	Excellent	Good	Fair	Poor	Dead	Totals
Ash Species		234	678	29		941
Buckeye	23					23
American Elm	10	1		5		16
Malus Species	2		3			5
Norway Maple			3	2		5
Norway Maple Crimson King		2		2		4
Silver Maple				3		3
Dead					5	5
Report Totals:	35	237	684	41	5	1,002

• Species cross-tabulated with any feature (Example: Condition)

ALL TREES IN NEED OF PRIORITY PRUNE

On LINWOOD AVE			
2619	1	American elm	25-30"
2690	3	Green ash	13-18"
On MARCY LN			
32	1	Sugar maple	7-12"

• All trees needing specific maintenance

These examples were generated from data collected and organized with TreeKeeper jr., *a software program for conducting tree inventories for small to medium-sized communities. For more information on* TreeKeeper jr., *see Appendix I.*

ally provide more detailed information about individual trees, including precise locations. Their purpose, in simplest terms, is to enable someone to determine what a particular tree needs, locate it, and fix it. Ideally, the "fix", or treatment, together with other information from the visit, is then reported back to the system, and a continuous inventory is maintained. Also, time and cost records can be kept, providing solid information for future planning and budgeting.

In general, the same information as for planning inventories is collected, plus more detail as to condition, the environment in which individual trees are growing, and their locations. Locating trees for future reference can pose some difficulties. Sequential numbering (on an entire street, or within individual blocks) can be done, but with the obvious problem of people either planting new trees or removing old ones. Lot numbers can also be used, but determining lot boundaries can be difficult. Perhaps the surest way is to measure from permanent reference points, such as street intersections. In park settings, grids or triangulation systems may be used.

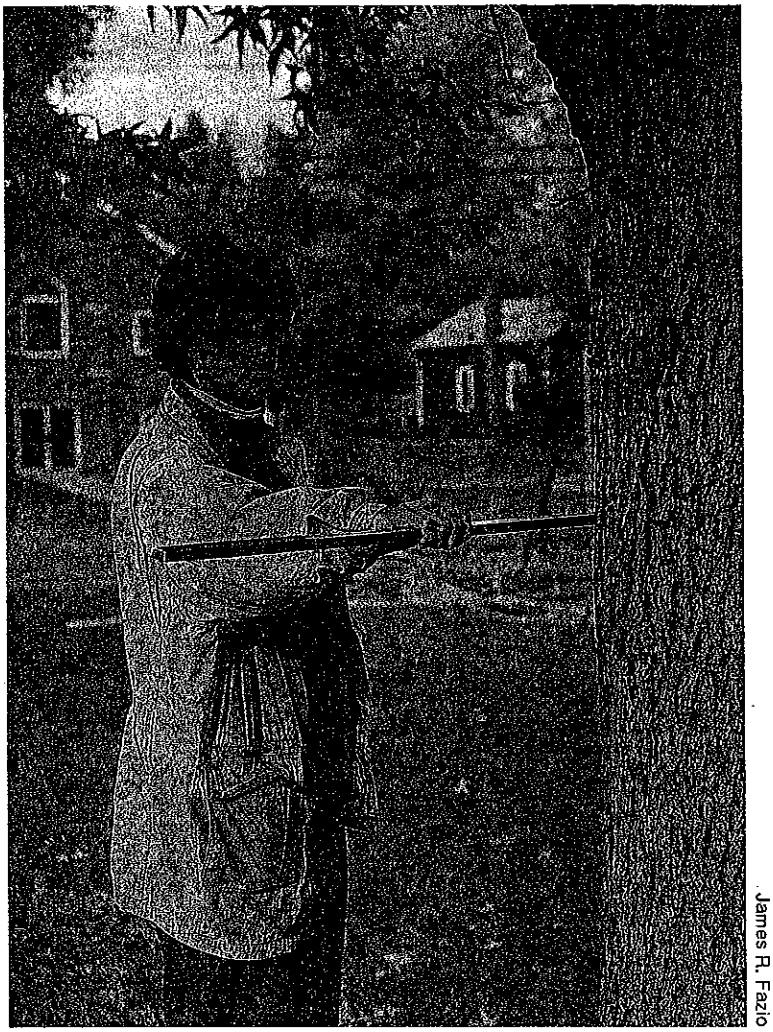
Computer programs are a near must for managing the information obtained. The following examples may be helpful in understanding the application of detailed management inventory information. The computer could be asked to produce a list by species and location of all trees interfering with line of sight of stop signs or other traffic signals. A list of all hazardous trees in need of complete or partial removal could be obtained. Specific planting spots, by future tree sizes, can be readily identified. Trees with predictable annual insect or disease problems can be located. The list could go on, with multiple combinations available.

There are a number of urban tree computer programs on the market today.

Appendix I provides information on one such program, *TreeKeeper jr.* Also, there are a several urban forestry consulting firms in the nation who specialize in management inventories. For a list (unendorsed) of such firms, please contact the urban forestry coordinator of your State Forester's office.

Some Thoughts

Accurate information about your urban forest is essential to planning and conducting an urban forestry program. The information must, however, be what you need. Look carefully at the stage of your program. Tailor your inventory to your needs. The bottom line is that the information must enable you to ultimately improve your urban forest.



James R. Fazio

An accurate inventory of the trees in your urban forest can be a valuable tool in managing the trees and assuring a healthy forest in the future.

Action Items

- ❑ **Review the information you have about your urban forest. Do you have an inventory? Is it current? How is it being used? How might it be better used?**
- ❑ **If you do not have an inventory, or if yours is hopelessly outdated or otherwise of little use, discuss and think through what you want a new inventory to enable you to do. Ask an urban forester specializing in inventories to discuss it with you.**
- ❑ **Refer to *Tree City USA Bulletin No. 23, "How to Conduct a Street Tree Inventory."***
- ❑ **Review the current urban forestry program in your city. How are things done now? What is not being done that should be done?**

Chapter Four

Planning for Urban Forestry

Planning for urban forestry need not be difficult. Planning begins with the understanding that there must be a long-range plan for the urban forest; and that operational plans for the city forestry department, budgets, and plans of work for both the city forestry department and the tree board must follow. It helps, too, to understand how it all fits together (the planning flow). The urban forestry planning flow is as follows:

Long-range plan
States the mission and defines objectives. Identifies strategies, or means, to achieve objectives (what is to be done). Usually a function of the tree board.

▼

Operational plans
Incremental (usually annual). Based on long range-plan. Outlines approaches (how it is to be done). Usually a function of the city forestry department.

▼

Budgets
Based on items in operational plans.

▼

Plans of work
Internal documents for tree board and city forestry department, giving tasks and timetables.

Development of each of these is a separate but interrelated process. Let's look at the planning processes involved with each and how your tree board might go about planning.

Long Range Planning

The product of long-range planning is a plan for the total urban forest. There is also another objective — for the plan to be widely accepted. The urban forest planning process involves four steps:

1. Planning to plan
2. Planning
3. Review
4. Presentation.

Planning to Plan

Consider first who should be involved in the planning process. The citizens are the ultimate stakeholders in an urban forestry plan. Presumably, their interests are represented by you as a tree board member. To ensure that their interests are represented, you may wish to seek citizen input at public meetings during the early draft stage of the plan. Those who should be directly involved in the process are those who will be involved in implementing the plan and those who will be most influenced by it. You may wish to have a planning team and an advisory committee. Your planning team should be the entire tree board, the city forester, and perhaps one or two others. The planning advisory

committee should be made up of other key stakeholders such as volunteer group leaders, developers, and nursery or tree care representatives. In considering who should be on the advisory committee, think of who will benefit, and who will be threatened by the plan.

Planning

Planning for your urban forest should start with a vision — a statement of what you want the urban forest to be at some point in the future. A suggested way to begin is to list the things you want the urban forest to be (your objectives). Chances are your list will include things such as safe, healthy, diverse, functional, and the like. Then put your list into a declarative sentence or paragraph such as the following.

"As representatives of the citizens of our city, we the members of the Tree Board commit to achieving by the year 2010 an urban forest that is safe, healthy, diverse, pleasing to the senses, and functional — an urban forest attractive to birds and other wildlife and a place in which our children may delight and learn."

In addition to producing a vision statement, which includes your objectives, this exercise has the advantage of getting your group focused on long-term objectives. A word of caution. Consider your date for achieving your objectives as tentative at this point. You may have to change the date after looking closely at your resources relative to the needs of the forest.

Your next step is to list various strategies, or means, to achieve each objective you have identified in your vision statement. This must be done by using available information (particularly from your inventory) about the urban forest and your knowledge of the various resources available to you. For example, you must know at this point how many streetside and park trees will have to be removed, what the pruning needs are, and how many trees should be planted. Please see Appendix II for a summary of a sample plan including various stategies.

At this point, you must also begin to think in terms of what will require city dollars to accomplish and what might be done by volunteers, for you will have to

Planning for your urban forest should start with a vision— a statement of what you want the urban forest to be at some point in the future.

Planning. . .

- Assures that all needs of the community forest are recognized.
- Reduces the risk to property and human safety.
- Makes sure that all work is prioritized.
- Provides a defensible basis for budget and grant requests.
- Leads to a continuous program from year to year, regardless of personnel changes.

make a cost estimate for the long-range program. Your cost estimate should not be confused with annual budgets that flow from operational plans. They come later. Your need now is to assign a reasonable cost to your planned program, as you may be certain that one of the first questions from your reviewers will be "How much is all this going to cost?"

Review

The purposes of review are twofold: to get further input; and to gain support. Your main reviewers should be your advisory committee, although you may also wish to "air" the proposed plan at public meetings or through the media. Your review document should include:

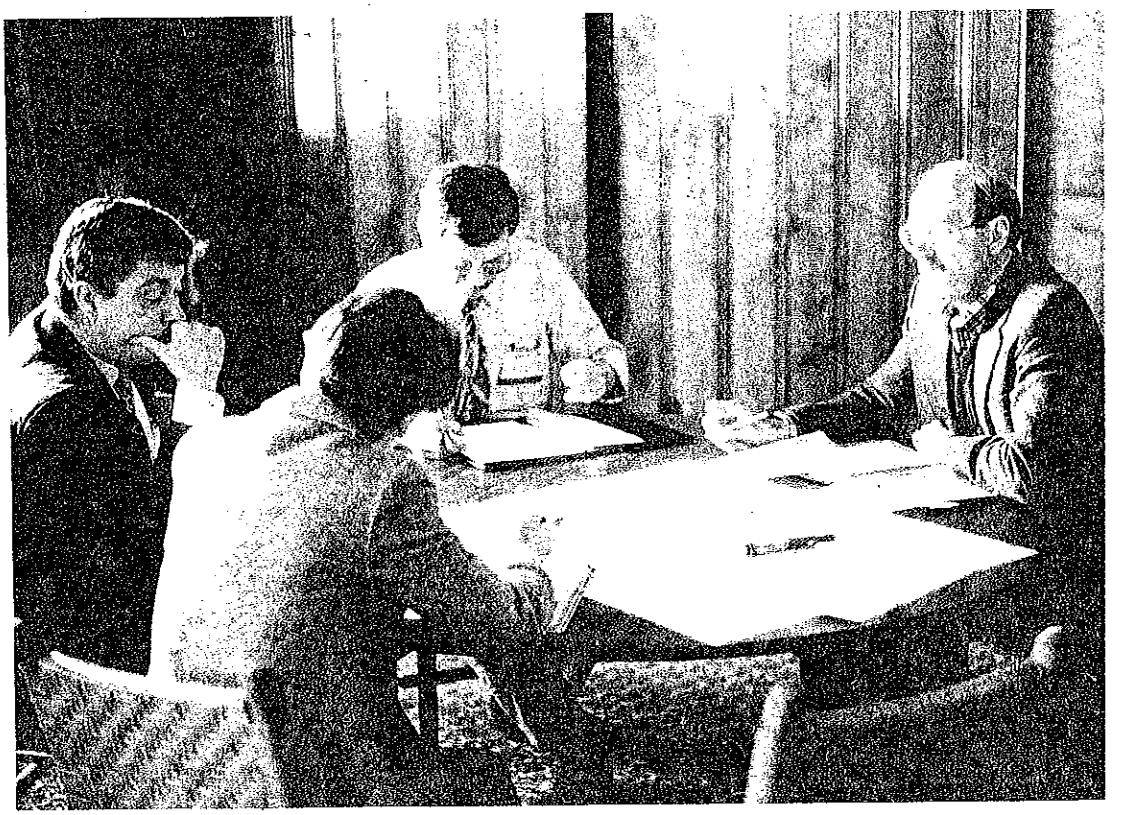
The purposes of review are twofold: to get further input and to gain support.

- A current situation statement, supported by information from your inventory and other sources;
- A draft of your plan, including objectives and strategies;
- Cost estimates;
- A list, including addresses and telephone numbers, of members of the planning team.

The document should be furnished to each reviewer in advance of a meeting. In a cover letter, ask each reviewer to consider specific things, such as other strategies that might be employed, other neighborhood resources available, and other problems in the urban forest that may not be addressed in the plan. Reviewers are thus given the opportunity for positive input, rather than serving only as critics, hopefully increasing their feeling of ownership and the likelihood of their support.

Presentation

Ultimately, your plan will have to be approved by the mayor and council. The likelihood of their approval will depend on the quality of your plan, its reasonableness, and its support by the citizens of your city. Within the reasonableness factor are cost/benefit considerations. A convincing case should be made for the program's ability to save public money in the future, by proper selection and location of trees, by scheduled pruning, and prompt removal of hazard trees. This can be documented, particularly in the case of hazardous trees and in view of the city's liability responsibilities.



Operational Plans

Operational plans carry the action. They include the details of how you are going to do what you said you are going to do in the long-range plan. In view of the long-range plan, two questions must be asked at the outset of operational planning: "What are the priorities?" and "How big a chunk of the total job can be handled at this time. Chances are at the beginning of your program your highest priority will be on hazard control. While safety must always be your highest priority, the proportion of your total effort applied to hazard control should decrease with time.

Based on the priorities, your operational plan will be a statement of how each item will be accomplished and the cost of accomplishment. It will include such things as use of volunteers, contracted services, and application of city resources. The plan should also clearly identify your action role (if appropriate from your charter) as a tree board. For example, your board may assume a strong role in a public education program.

As stated previously, operational planning is usually annual and is normally the responsibility of the city forestry department. In small towns lacking a city forestry department, tree boards do the planning. Whatever your case, your tree board must be involved, whether to plan, to review, or to recommend.

Budgets

Budgets which flow from your operational plans are documented statements of program costs. Budgets must be based on solid planning information and the best judgement of qualified individuals. As such, they should be "zero based," reflecting needs as determined by planning, rather than inflation adjusted figures from the past year. Approval of budgets, through the city's financial office and ultimately by the mayor and council, is much more certain if items are well justified and if your program has strong public support. Thus, budget approval is not just an annual event, but a result of your total planning process, plus your success in gaining citizen support.

Plans of Work

Plans of work are internal documents listing tasks necessary to carrying out operational plans. Basically, they are timetables outlining what and when things are to be done. Every tree board should have a written annual plan of work, as should individual board members.

Emergency Planning

No matter how well you have planned as above, there is the likelihood that all will suddenly change because of a natural

Both the process of planning and the document that results will depend on the size, resources, and needs of the communinty.

disaster — a hurricane, tornado, severe ice storm, fire, flood, or even an earthquake. In such an event, your long range and operational plans may have to be severely reordered or replaced entirely. A hurricane or ice storm, for example, can render all of your baseline information about tree condition and needs invalid. Of immediate concern, though, will be your need to respond to the priorities thrust upon you by the disaster. Your priorities in the urban forest will be for safety, salvage, and repair.

With these priorities in mind, an emergency plan should be developed for your city forestry department, including your role as a tree board. Your plan must be in cooperation with other departments of local government and other public and private organizations and should consider the following.

- Communication capability with police, fire, and public utility officials.
- Coordination of city, utility company, and private arborists.
- Contact with local radio, television, and other media for announcements about safety and tree salvage.
- Disposal of debris.
- Situation assessments
- Continuing education of property owners about tree repair and replacement planting.

For a further discussion of emergencies in the urban forest, please see ***Tree City USA Bulletin No. 2, "When A Storm Strikes."***

Some Thoughts

Planning, as outlined above, is a systematic means of sorting out what the urban forest needs and how to go about meeting the needs. It is also a means of educating and involving citizens and gaining their support. Planning must also be a continuing process, because as the urban forest changes so must your priorities. Plans must be monitored and results measured. Follow up is a must.

Action Items

- ❑ **If your city has a long range plan, review it. Is it relevant to the needs of your urban forest? Are your operational plans consistent with its provisions?**
- ❑ **If you do not have a long-range plan, develop one.**
- ❑ **Clarify your tree board's role in planning relative to your city forestry department.**
- ❑ **If you do not have an annual plan of work for your tree board, do one.**
- ❑ **Refer to the Tree City USA Growth Awards (Appendix V) for a host of ideas that might be included in your annual plans.**
- ❑ **See *Tree City USA Bulletin No. 29*, "How to Plan for Management."**

Chapter Five

Managing the Urban Forest

Your ultimate goal as a tree board is to improve the quality of the urban forest. Hence, it is very important that you understand the practices necessary for managing the forest and how to cause them to be implemented. You do not have to possess the technical skills of urban forest management, but you must have an appreciation of such skills. For example, it is less important for you to be able to prune a tree than for you to know the difference between a poorly pruned and a correctly pruned tree. Similarly, it is more important that you understand the elements of a tree pruning contract than the techniques of pruning an individual tree. Such statements are not intended to discourage you from learning techniques and developing skills — quite the opposite. They are simply in context with your role as a tree board member. Remember, your job is to manage the total urban forest.

The urban forest has three basic needs:

1. **Planting**
2. **Maintenance (including protection)**
3. **Removal.**

Management involves the methods by which these needs are met. We will approach management from the perspective of your tree board — how you might effect management of the urban forest.

Planting

Planting is an ongoing need in the urban forest, to replace mortality, to supplement existing trees, and to landscape new areas. Planting is often easier to accomplish than other management practices. People simply relate to planting trees, perhaps because the act of planting a tree fosters a satisfying sense of achievement. Unfortunately, planting efforts are sometimes misdirected. From your van-

tage point as a tree board member, with a sense of responsibility for the total urban forest, please consider the following.

- Tree planting must be in accordance with the needs (numbers and locations) as identified in your long range plan.
- Tree planting must maintain or enhance diversity of the urban forest.
- Trees selected for planting must be consistent with the limiting factors of planting sites (soil, space, climate, other).
- Trees selected for planting must meet the remaining criteria as identified by the objectives in your long-range plan (safe, healthy, pleasing, functional, other).
- Your operational plan should identify specific planting "projects" by locations and numbers of trees.

Given the above, how do you accomplish planting? Planting may be done by:

1. The city forestry department (in house or by contract)
2. Volunteer organizations
3. Individual landholders.

Planting by the city forestry department and by volunteer groups is usually on city-owned or other public property. Hence, the above criteria can be directly met on such lands. On other lands, however, planting can only be influenced indirectly, through education and by other means. Let's look first at how trees come from the nursery and how to select them for planting. Then we will discuss what to do before, during, and after planting.

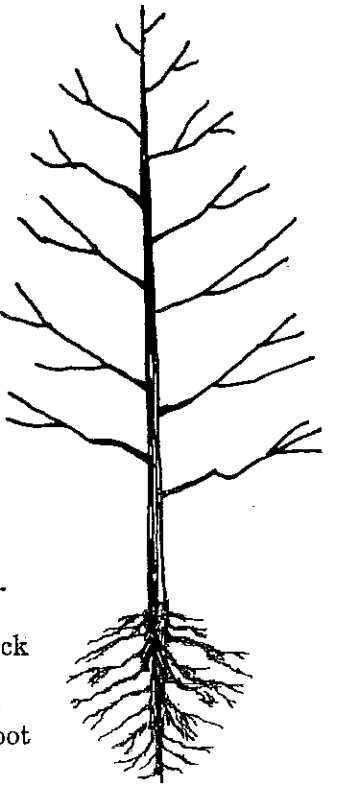
Condition of Planting Stock

Trees and shrubs for planting are available from nursery suppliers in three general conditions:

- **Bare Root**
- **Balled and Burlapped (B&B)**
- **Container Grown.**

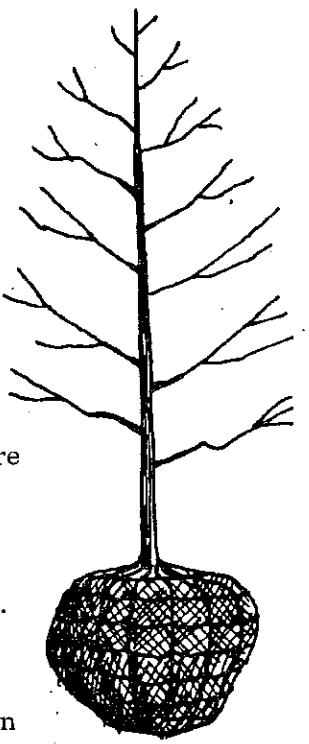
Here's a closer look at each type of planting stock, along with specific tips on what to watch for when selecting or inspecting new planting stock:

Bare-Root Stock



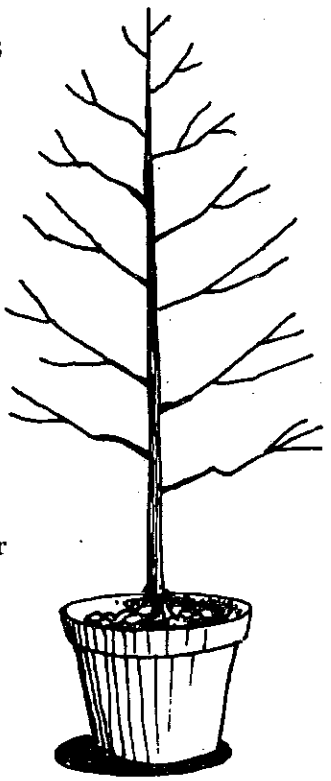
Bare Root plants are taken from the nursery without the protection of soil around the roots. Such stock is generally less expensive, but has the potential for root drying and poorer survival following planting. Consult your local nursery supplier about which trees may be planted as bare root in your area.

Balled & Burlapped



Balled and Burlapped trees are dug from the field with the root ball intact and wrapped with burlap, thus protecting the roots. Because of digging and transportation costs, such stock is more expensive than bare root, but survival rates are higher.

Container Grown Trees



Container Grown trees, in peat pots or other vessels, offer the advantage of minimum disturbance during planting. There can be disadvantages, however, such as circling roots in the container leading to constriction after planting. In such cases, the roots can be spread apart and planted, essentially as bare root.

What to Watch For

Branches and Trunk:

- Is the crown symmetrical, without evidence of branch ends being pruned off?
- Have the lower branches been excessively pruned off? (Two thirds of the total height should be in live crown.)
- Is there a single, well developed leader, unless it is supposed to be a multi-stemmed tree?
- Are branches well distributed around the trunk and considerably smaller than the trunk?
- Is the tree free of broken branches?
- Is the tree free of crossing and rubbing branches?
- Is the trunk free of wounds?
- Is the trunk well-tapered?
- Is the tree free of insect, disease, or other damage?
- Did the tree grow vigorously during the preceding season?

Roots:

If bare-root—

- Is the mass of the roots proportionate to the trunk and crown?
- Are the roots symmetrical?
- Are the roots moist and fibrous?

If balled and burlapped—

- Is the root ball adequate to the tree's size?
- Is the root ball solid and intact?
- Is the root ball moist?
- Is the material around the ball really burlap, or is it a synthetic fiber? (If a synthetic fiber, it should be removed completely when the tree is planted.)

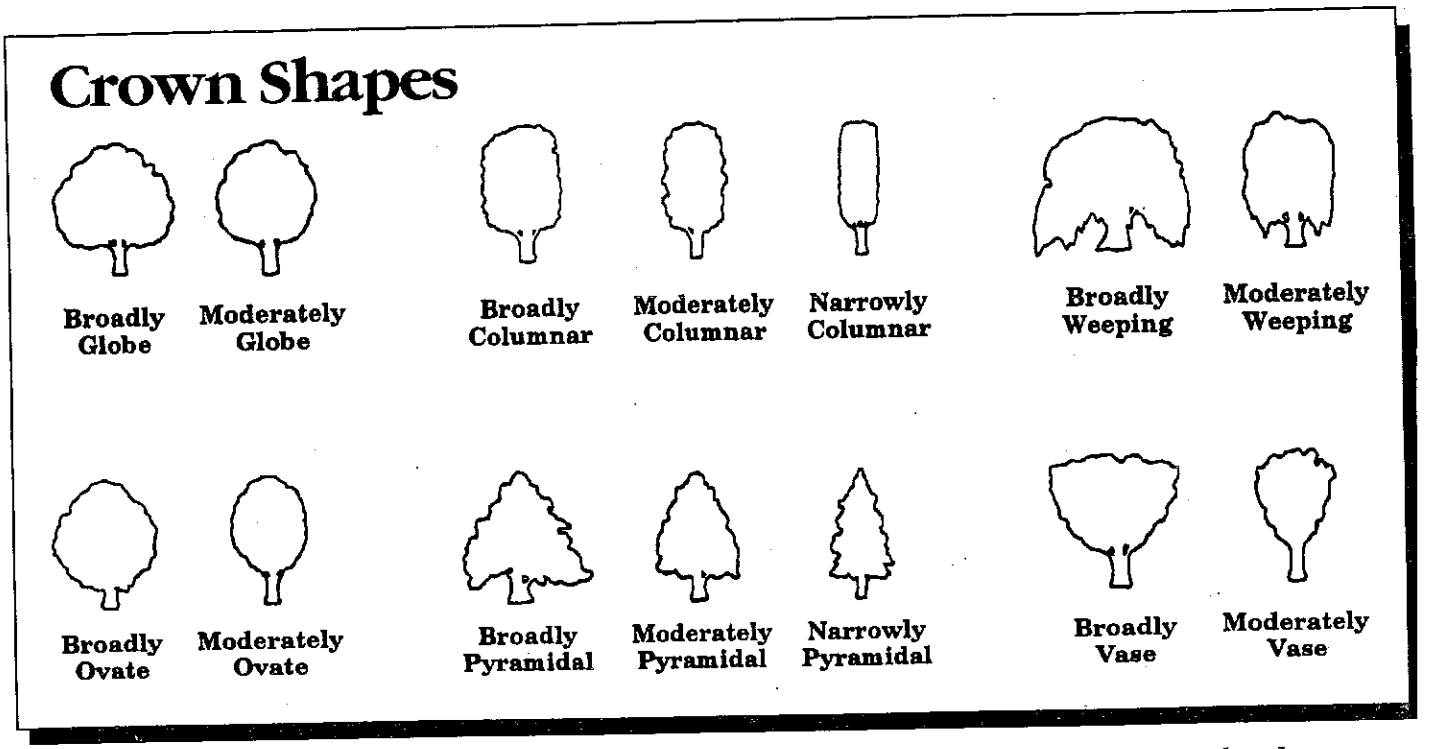
If container grown—

- Is the container adequate for the tree's size?
- Are the roots moist?
- Are there circling or girdling roots? (To determine this, you may wish to require a destructive sample.)

An extremely useful publication is ***American Standards for Nursery Stock***, as adopted by the American Association of Nurserymen, 1250 I Street NW, Suite 500, Washington, D.C 20005. **Your tree board or city forestry department should obtain a copy.** This publication is of great value in helping you identify good quality planting stock. Also, see ***Tree City USA Bulletin No. 19*, "How to Select and Plant a Tree."**

Tree Selection

No single thing is more important in tree planting than matching a tree with its planting site. Placing the right tree in the right spot is the major key to future health, vigor and function of the urban forest. Simply put, there is no better way to prevent future problems — and save money. All planting sites impose restrictions. These restrictions may be climatic, soil related, physiological, or spatial. These, plus some other considerations, are summarized on the next page.



- **Climate adaptability** — Can a particular species or variety withstand the rigors of the local climate over its lifespan? Refer to a plant hardiness zone map.
- **Shade tolerance** — Can a particular species thrive in complete or partial shade?
- **Exposure tolerance** — Can a newly planted tree make it if planted where exposed to hot sun and drying winds?
- **Soil tolerance** — Some trees can thrive in wet or dry, or acidic or alkalinic soils. Others can not.
- **Pollution tolerance** — What about salt or other chemicals, either airborne or in the soil?
- **Insect and disease resistance** — Most insects and diseases are specific to individual tree species.
- **Mature size** — How big will your tree eventually get? Fortunately, there are species that when mature will be either small, medium, or large.
- **Crown shape or form** — Fortunately, nature has given different forms to different trees — globe, columnar, weeping, ovate, pyramidal, vase (see illustration above).
- **The structures of society** — Will your tree interfere with buildings, streets, sidewalks, driveways, swimming pools, underground and aboveground wires and pipes, signs, lights, or perhaps a dozen or more things?
- **Landscaping considerations** — What do you want your tree to do in the landscape, given the above constraints? Do you want shade, wind protection, screening, enframement, accent or contrast, wildlife, or other benefits?

For a further discussion of these considerations, please see ***Tree City USA Bulletin No. 4*, "The Right Tree for the Right Place."**

Getting Ready to Plant

With the above in mind, following are some specific steps in getting ready for a planting project, whether it is to be done by city crews or a volunteer group.

1. **Investigate nursery sources.** Go look at their stock. Does the material you wish to plant generally conform to standards as adopted by the AAN?
2. **Invite bids.** Bid invitations must be specific as to species, number, size, condition, available date, and other factors. Please see Appendix III for elements to be considered.
3. **Enter contract.** A written contract is essential. Please refer again to Appendix III.

4. **Order other materials** — mulch, stakes, ties, other.
5. **Prepare holding area.** You will need a convenient, secure holding area for the trees after they are delivered and before they are planted. The area should be protected from the wind and hot sun and must have water available.
6. **Confirm planting crews.** Whether the planting is to be done by city crews or volunteers, personnel must be available. You may also need to consider such things as food, water, and sanitary facilities at the planting sites.
7. **Attend to public relations.** If planting along streets, inform adjacent residents that planting will taking place on certain dates. If residents are to share in maintenance of the trees, prepare a door hanger flyer telling them about "their" tree and suggesting ways that they might care for it. Contact the media. Tree planting, especially if done by volunteer groups, is cheerful news.
8. **Designate individual planting spots.** After checking with the city engineer's office concerning underground utilities, precise planting spots can be staked or marked directly on the ground with spray paint. A simple species coding system, such as RO for red oak, can be used.
9. **Assemble needed equipment and supplies** — shovels, tools, mulch, other.

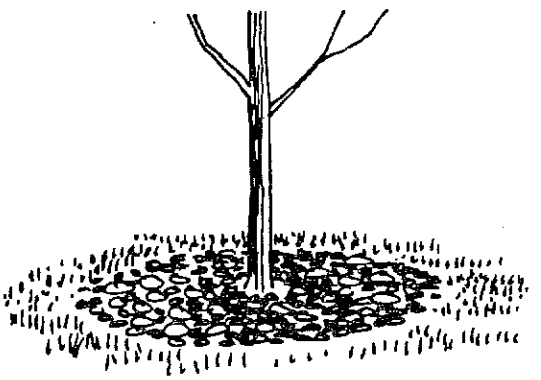
On Planting Day

As a tree board member, you may be directly involved in managing things on tree planting day. If not, you should be aware that someone will have to attend to the following, particularly if volunteers are doing the actual planting.

- **Delivery of trees and materials.** Just imagine what would happen if your crews showed up and there was nothing to work with.
- **Starting time.** Begin as soon as your crews arrive. People, particularly volunteers, do not like to wait around.
- **Instruction.** Discuss with the total group how what they will do today fits into the total urban forestry program. Give specific technical instructions — hole digging, handling the trees, depth of planting, backfilling, other. Individual crew leaders should continue "hands on" instruction as work progresses.
- **Media.** If the press or television is there, make sure the reporters understand that it is a tree board sponsored project, but let them talk with and film the volunteers. They are, after all, planting their trees.
- **Quitting time.** Four hours working time is about right for most volunteers. At the end, it is a good idea to have lunch or other refreshments. While all are gathered they should be thanked for a job well done.

After Planting

After the trees are in the ground, a knowledgeable person should look at each tree, checking such things as correct planting depth, depth of mulch, and whether additional watering is needed. At such time, corrective pruning may also be done, removing broken and rubbing branches, double leaders, and other abnormal growth. Little pruning should be necessary, however, assuming you have carefully selected your planting stock, as discussed in the preceding section. Also, provisions should be made for continued watering, grass and weed control, and other things necessary for establishment of the trees.



Mulch is a young tree's best friend. It holds down competing weeds or grass, retains soil moisture, prevents soil cracking that can damage new roots, protects the trunk from lawnmower damage, and helps prevent soil compaction. Organic mulches such as wood chips contribute to better soil structure as they decompose.

Maintenance

Maintenance involves those practices necessary to ensure the health, safety, vigor, and function of the urban forest. Included are hazard management, pruning, tree health management, fire protection, and other practices. The relative

Action Items

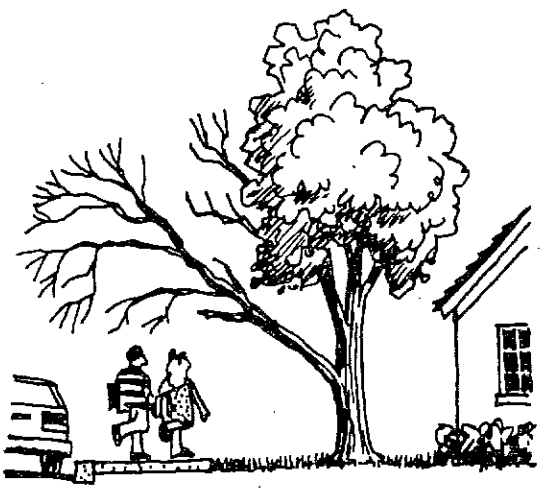
- ❑ **In your operational plan, list your planting needs by specific projects, such as certain parks or boulevards.**
- ❑ **Offer these projects to volunteer groups. Various organizations are willing to fund and plant such projects. More on volunteers in Chapter VI.**
- ❑ **Have qualified professionals make decisions as to species selection and tree location.**

importance of each varies by time and location, but each must be applied to some degree in every city. As with planting, we will consider maintenance from the management perspective of your tree board.

Hazard Management

Of all maintenance practices, hazard management should receive the highest priority. Unfortunately, in many urban forests it does not, and often with tragic results. There are cases in nearly every city of falling trees or branches causing property damage and injury or death to people. In addition, there are countless cases where injury or damage has resulted from obstructing branches or roots, or from slippery leaves or fruit discarded from trees. Of major

Of all maintenance practices in your urban forestry program, hazard management should receive the highest priority.



concern, though, are trees with potential to fall on people or property — those trees with a risk and a target — the definition of hazard trees. It follows, then, that hazard management must involve:

1. Identification
2. Risk reduction or removal
3. Target removal.

Identification

For a tree hazard to exist, there must be a risk (generally dead trees, or trees with dead or weakened branches or roots) and a target (people or property). Many hazards are obvious, such as dead branches overhanging a playground, or dead trees near busy sidewalks. Unfortunately, many tree risks are not readily apparent, because of internal decay or structural damage. Hence, hazard identification should be done by trained personnel familiar with tree physiology and able to interpret external signs of tree weakness.

Hazard identification must be systematic and on going. A good starting place is your streetside and park tree inventory. Apparent and "suspicious" trees can be recorded. Follow up inspections can then be made by your city forester or other qualified person. Also, hazards can be noted during routine work by city crews, or by you as a tree board member as you travel about the city.

Treatment

Hazardous trees can be removed entirely, or risk can be reduced by removing dead and broken branches, by mechanically supporting weak branches from below, or by cabling and bracing. In some cases, the targets may be "removed" by moving picnic tables or other features, by fencing to prevent access to risk trees, or by rerouting pedestrian or vehicular traffic. Serious attention must also be given to hazard prevention, by planting species with less potential for internal

decay and breakage, and by pruning to develop strong scaffold branches.

To learn more about hazard tree management, it is recommended that you obtain a copy of the video "Tree Hazards," produced by the USDA Forest Service, and available from the International Society of Arboriculture, P.O. Box GG, Savoy, IL 61874. Also please refer to ***Tree City USA Bulletin No. 15*, "How to Recognize - and Prevent - Hazard Trees."**

Pruning

Pruning is an on-going necessity in the urban forest, to reduce risks as discussed above; to prevent interference with utilities, traffic lights and signs; for pedestrian and vehicular clearance; and for health and strength of individual trees. In most cities pruning is the largest single cost factor in the urban forest. Unfortunately, in some cities pruning is done only in response to obvious problems, rather than as a means of reducing future problems. In many cases, the short term outlay of money and personnel to "get ahead" of total pruning needs is not invested, and pruning is done in response to citizen complaints or after damage has occurred.

Whatever the situation in your city, pruning must be done by priority. To approach the pruning needs of the total urban forest, the following priorities are generally necessary.

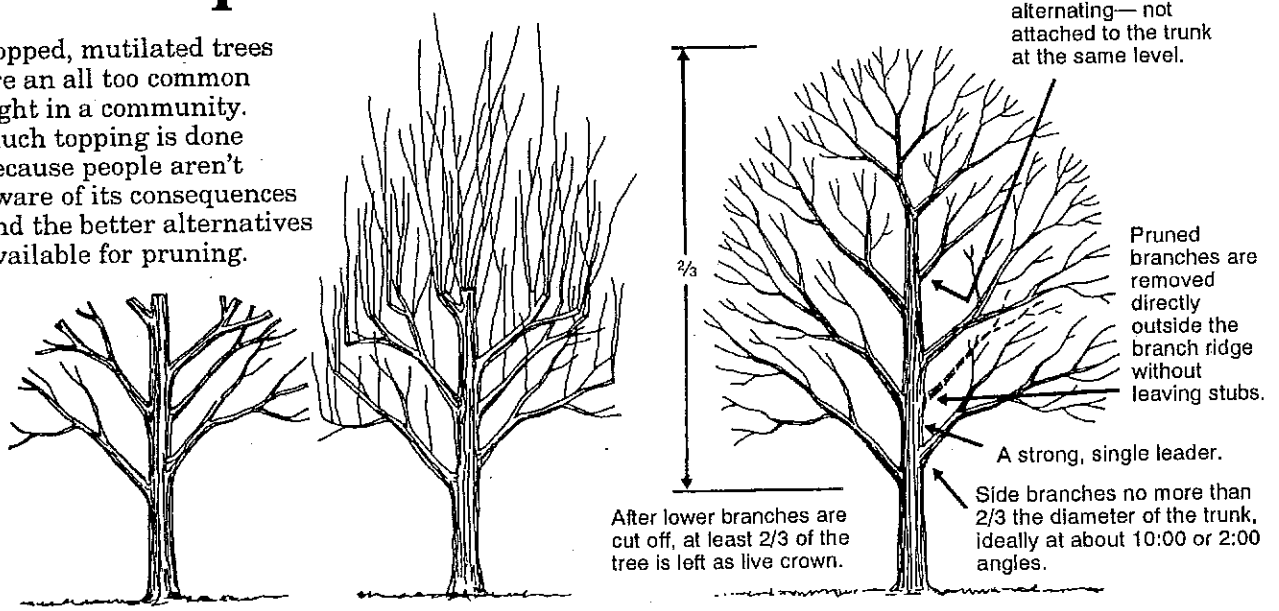
1. **Hazard trees** — as discussed above.
2. **Safety obstructions** — trees with branches obscuring line of sight vision to traffic signals and signs; and trees with branches obstructing vehicular and pedestrian passage.
3. **Utility line clearance.**
4. **Other obstructions** — buildings and other structures.
5. **Health and vigor of individual trees.**
6. **Developmental pruning for strength and form.**

As discussed previously, your urban forest inventory is the key to setting priorities and determining the relative need for each. You simply must know which trees are in need of what kind of work.

Pruning in the total urban forest is accomplished by city crews, by public contracts, by individual property owners, and by private contracts with commercial

Don't Top Trees!

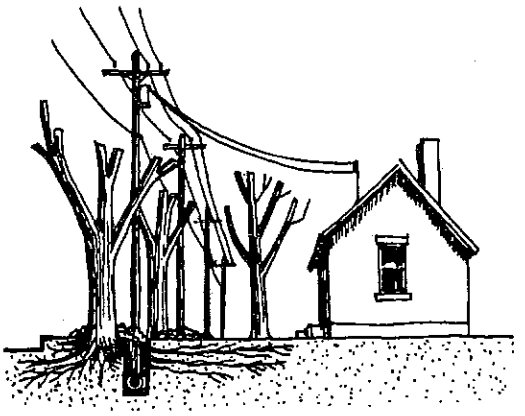
Topped, mutilated trees are an all too common sight in a community. Much topping is done because people aren't aware of its consequences and the better alternatives available for pruning.



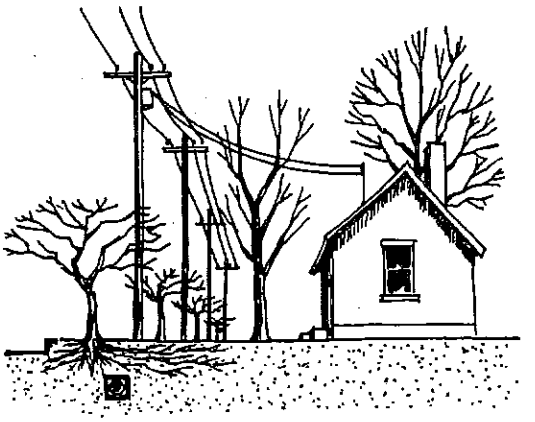
Wrong: A topped tree is an ugly remnant of a once-lovely tree. Weakly attached, unsafe sprouts quickly grow from the mutilated stubs. In a few years, the topped tree can be taller—and far more dangerous— than it was to begin with.

Right: This is how a typical shade tree should look when properly pruned.

Trees need not be brutalized or destroyed to allow the safe and dependable delivery of utility services. Tree Line USA is a new program of The National Arbor Day Foundation to encourage proper utility practices that safeguard trees.



Wrong: *Too often, the approach to resolving conflicts between trees and utility lines results in mutilated trees.*



A Better Way: *Trees and utility lines can co-exist through careful pruning, tunneling instead of trenching, and matching the size of trees at maturity to their planting locations.*

arborists. How can your tree board help effect better pruning of the total urban forest?

- By developing, in consideration of the above priorities, a systematic cycle for pruning public trees.
- By improving the skills of those who actually prune trees. No one has a greater influence (positive or negative) on the urban forest than the person with a saw in his or her hand. Hence, anything you can do to make that person better qualified can pay great dividends. Your role should be to provide or facilitate training for local arborists. Please see Chapter Six for a further discussion of such training.
- By educating property owners about proper pruning and how to choose qualified arborists. More on this also in Chapter VI.
- By ensuring proper contract specifications for pruning on city property. Standards for tree pruning and other arboricultural work have been established by the National Arborists Association. P.O. Box 294, Amherst, NH 03031. Your pruning contracts should specify that these standards be met. Contact the NAA for a copy. A list of tree pruning contract elements is given in Appendix IV.
- By working with public utility representatives to learn of their requirements for line clearance and how to incorporate better tree care into their work — work that is done for trees, rather than to trees. Please see Chapter VI, "Working With Public Utilities." Also, refer to ***Tree City USA Bulletin No. 25, Tree Line USA."***
- By proposing ordinances on city lands and easements prohibiting such destructive practices as topping, or severe cutting back.
- By proposing or enacting other legal or policy measures, such as a permit system requiring minimum standards and qualifications for individuals and firms doing tree work within the city.

As you look at the above list, consider where the greatest needs and opportunities are — on lands for which the city has responsibility, on utility easements, or on individual properties. Tailor your approaches to each situation. There is a tremendous opportunity, through proper pruning, to improve the quality of your urban forest. Pruning will always have to be done. It is your challenge to see that it is done properly.

Tree Health Management

The premise of tree health management is an understanding of urban forest ecology — the interrelationships of soils, site, and other environmental factors — and an understanding of the life cycles of particular insects or disease pathogens. From a management standpoint, this means simply that no single control measure should be applied without consid eration of the above natural factors. It als involves a tolerance factor, since tree "problems," particularly those caused by insects or diseases, may be of little harm

to trees, but have an impact on people who do not wish to tolerate the symptoms. This statement, though, does not make light of the fact that severe problems, such as Dutch elm disease, oak wilt disease, and gypsy moth must be treated.

Let's look at your role in tree health management in your city. It should begin with an understanding that there will always be something chewing leaves, sucking juices, and boring into trees. There will also always be fungi, bacteria, and viruses in trees. The critical issues are at what point they will impair the health and vigor of trees and/or be intolerable to citizens, and what control measures should be applied. You should also understand that tree stress caused by soil, site, or other environmental problems can cause vulnerability to insects and diseases. Thus, insects and diseases may be symptoms, rather than causes of tree health problems.

As a tree board member, you must be aware of the major tree health situations in your city — environmental problems, insects, diseases, or human-caused problems — and what treatments are effective, necessary, and practical for each. Your role may then be to advise the city government, cause treatments to be applied, and/or educate citizens about a particular situation. The latter is particularly important in cases of epidemics, such as gypsy moths, where it is essential that property owners know what they can do for their trees, and that citizens understand, and accept, control measures that must be applied at large.

Fire Protection

PLEASE BE CAREFUL WITH FIRE

While large scale forest fires are not common in the urban forest, they can occur, and with disastrous results, particularly in the arid west. The potential for fires is most acute in the urban-rural interface, where cities have expanded into natural forests. In such situations, the focus is more on protecting structures than on protecting the forest. This, however, puts a higher priority on overall fire protection, from which the urban forest benefits. Urban forests, especially in the urban-rural interface, are looked upon as "carriers" of fire to buildings and other structures. Thus, major emphasis is placed on fuel reduction within natural forests, removal of fuels near structures, and reduction of hazard by careful selection and location of trees and other plants around buildings.

It is with the latter that your tree board may play a part. Depending on your urban forest situation, you may help educate homeowners about fire safe practices, or perhaps even be involved in fire protection planning, regulations, or policies. Also, fire protection should be a part of your urban forest's emergency plan, as discussed in Chapter IV.

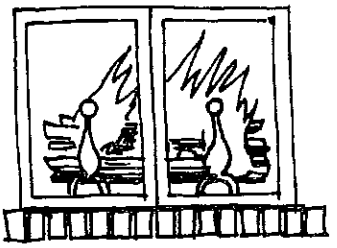
Other Maintenance Practices

Two other maintenance practices are common: watering and fertilizing. **Water management** concerning trees involves controlling what is used and conserving what is already in the ground. Controlling use is largely a matter of monitoring relative to weather and soil factors. Conservation involves mulching, mechanical cultivation, and chemical weed and grass control. As a tree board, your role may be in public information and education, especially during periods of drought, or you may have specific planting projects for which you are physically responsible.

Tree fertilization can be beneficial to trees in enhancing growth and vigor. To be of value, fertilizer must be applied in situations where adequate soil nutrients are not available and where other chemical or physical factors do not prevent their assimilation. In reality, however, such situations are relatively rare, as the majority of urban landscape trees are growing on sites where turfgrass is frequently fertilized. The main feeder roots of most trees are in the upper part of the soil and thus utilize the lawn fertilizer, making it generally unnecessary to apply more, by ground injection or other methods, specifically for the trees. There are

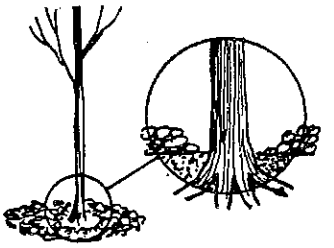
Recycling Tree Branches

Branches removed as part of urban forest maintenance need not end up in the landfill. Here are three options:



Fuelwood: sold or made available to residents.

Compost: chipped limbs can be added to a compost pile.



Mulch: chipped wood makes an excellent mulch.

cases, though, where fertilization can be of great value. As with other tree health care, all soil, site, and environmental factors should be considered before prescriptions are made.

Is tree fertilization needed in your city's urban forest? In some cases. Before starting, or recommending, a fertilization program, consult with an independent urban forestry or horticulture specialist, looking at specific cases on the ground.

Wildlife Considerations

People value highly birds and other wildlife in the urban forest. Americans spend about 1.2 billion dollars for bird seed each year! Add to this figure the amount spent for feeders, perches, binoculars, bird books, and such, and the total would be astonishing. Wildlife populations are surprisingly large in urban areas, often greater for certain species than in natural habitats. Wildlife should be given special consideration in developing and managing the urban forest. Following are some basic things that might be done, and in which your tree board might play a role.

- Create or provide for travel lanes for wildlife between natural forest areas within the urban forest. Features such as abandoned railways or streamsides might be utilized. Also, passageways for wildlife should be provided beneath bridges where streets and highways cross streams.
- Provide for wildlife in new developments, by preserving woodland and meadow habitats and by protecting wetlands. Work with individual developers in protecting such habitat.
- Leave dead trees and broken branches for nesting sites and insect food sources for birds in areas where such trees are not a threat to life and property.
- Encourage planting of "wildlife friendly" trees and shrubs.
- Erect artificial nesting structures.
- Involve local urban wildlife specialists in your planning efforts.
- Urban wildlife provide a valuable linkage to the natural world for city residents, and can be especially important in teaching children about nature. Urban wildlife is discussed in more detail in ***Tree City USA Bulletin No. 13,* "Trees for Wildlife."**

Urban Development and Trees

Urban development in naturally wooded areas is becoming increasingly complex. Not only is protection of individual trees important, but consideration must also be given to such things as watershed values, wetlands, critical wildlife habitat, and protection of threatened or endangered plant and animal species. As a tree board member, you should be aware of these issues and the legal and technical measures involved.

In considering this topic as it relates to your city and environs, it may be helpful to think first about the "big picture" — the

projections for future development — and second about the needs for tree protection on individual sites.

The Big Picture

This may perhaps be best addressed with the following questions:

- How may the values of the natural woodland into which the city will grow be best protected and enhanced?
- Are these values recognized and provided for by city planners, developers, and others?
- If not, what measures are necessary to ensure them?

It is strongly recommended that you address these questions by learning about your city's master plan for development and becoming familiar with ordinances, zoning regulations, and other tools necessary to protect outlying woodlands.

Protecting Trees During Construction

People pay more for building lots with trees. All too often, they must pay again to have trees removed that were killed because of construction activities. A third payment is then necessary to plant new trees. Careful site planning, identification of critical root zones, designation of travel lanes and work zones for machinery, and other measures can ensure survival and health of existing trees. There are some things your tree board can do.

- Read ***Tree City USA Bulletin No. 7, "How to Save Trees During Construction."***
- Learn if your city or local government has tree protection requirements for developers and builders.
- Arrange workshops for builders, developers and others on how to plan for and protect trees during construction.
- Publicize the benefits of protecting trees during construction.

Removal and Utilization

Trees, as a natural part of their life process, are always discarding something — leaves, fruit, bark, and dead branches — and must themselves eventually die. Trees in the urban forest also compete for space with the objects of society and thus must be pruned or occasionally removed entirely. Removal of tree materials is necessary in those parts of the urban forest occupied by people, and is often a major (and expensive) factor in urban forestry programs. Fortunately, much of what must be removed can be utilized. Let's look at a list of what must often be removed and then consider how some of the materials might be utilized.

- Hazardous trees
- Oversize or competing trees
- Trees in the way of construction
- Stumps and occasionally roots
- Hazardous portions of trees
- Pruning debris
- Leaves
- Obnoxious fruit
- Seeds and seed carriers
- And even flower petals

Following are some possible ways of utilizing the above materials. For each, careful consideration should be given to costs and returns — economic, environmental, and political. Processing equipment and labor can be excessively expensive, and may have to be subsidized. For example, it may be uneconomical to operate a leaf composting system, but politically desirable because of environmental benefits. ***Tree City USA Bulletin No. 16,* "How to Recycle Shade Tree Materials,"** gives more on this topic.

- **Branches and trunks** (material removed in maintenance pruning, hazard reduction, and whole tree removal)

  Branches — Most often chipped on site, used as mulch. May also be processed for fuelwood.

  Trunks — Limited potential for lumber or other wood products because of danger of imbedded metal. Exception may be high value species and/or trees removed from natural forests prior to construction. Can be used for fuelwood, or may be converted to chips.
- **Stumps** — Used to be grubbed out or burned. Now are ground by machine. "Grindings" are finer textured than chips and may be used for mulch or soil amendment.

- **Leaves (including needles)** — Used to be burned. Now are often collected and composted.
- **Seeds and seed carriers**

  Seeds — Occasionally acorns, walnuts, or other seeds are collected and sold to nurseries.

  Seed carriers — Limited potential for pine cones, sweetgum burrs, and other "pods" to be used in crafts or as ornaments.

Removal and utilization can be costly. Big, expensive machines are often needed. Highly trained personnel are needed. Removal is disruptive and noisy. It is legally sensitive, as liability must be covered and permits obtained. It is also socially sensitive, because, after all, trees must frequently be cut down, and citizens do not like for "their" trees to be cut. All of these things have implications not only for your program budget, but for your public relations to gain understanding and tolerance of your activities.

Action Items

- ❑ **Learn how hazard trees are identified and treated in your city. Is hazard reduction and prevention a major priority in your urban forestry program?**
- ❑ **Determine your pruning priorities, with the goal of being able to devote most of your efforts in the future to preventative pruning.**
- ❑ **Refer to the items on pages 25 and 26, about how your tree board can help effect better pruning of the total urban forest.**
- ❑ **Ask a tree health specialist, perhaps from your State Forester's office or the Cooperative Extension Service, to come to your tree board meeting once a year to give you an update on insects, diseases, and other situations**
- ❑ **Invite others — city forestry department personnel, private arborists, others — to the meeting.**
- ❑ **Refer to the preceding section on urban wildlife.**
- ❑ **Review your city's methods and systems of removal and utilization.**
- ❑ **Analyze the possibilities of landscape waste recycling systems for your city.**

Chapter Six

More Ways of Getting Things Done

Funding

A reality of recent years is that in most cities public funds for forestry programs have decreased as a proportion of total city budgets. Tree care is all too often given lower priority when money is scarce. Although a valid case can be made for false economy, that delaying tree care will cost much more in the future, the alternative budget needs are now — and besides, the tree crises, when it comes, will be "someone else's problem." There are only two solutions: (1) prevent the above from happening; and (2) find alternative sources of money. Let's look at some ways to go about each. The first we will turn into the positive — how to keep trees in the forefront.

Keeping Trees in the Forefront

The idea of keeping trees in the forefront is based on the premise that if trees are to successfully compete with other needs, they must be perceived by budget decision makers as being important, or even vital, to the quality of life in the city. Perceptions of budget decision makers are often proportionate to the voices of citizens. Simply put, if the citizens say they want trees in the city, the chances are much better that money will be made available for an urban forestry program. Your challenge is to get them to say to decision makers that they want trees. As you consider this, remember that people relate to trees, not to your program. If your citizens advocate trees, the needs of your program will likely follow. Following are some things to consider.

- Publicize the good works of your tree board, the city forestry department, and volunteers, emphasizing the benefits of trees and the future cost savings of what you do. More on this in the following section under "Information and Education."
- Use the publicity opportunities of Tree City USA to keep trees in the forefront. Ask the National Arbor Day Foundation for a copy of the folder, ***"Making the Most of Tree City USA — Publicity Ideas."***
- Learn the "power structure" of your city and community — who the leaders are that reflect and influence public opinion. Get them on your side and have them speak for trees. Sure, you are playing politics here, but you may be certain that others are doing it too. Also, be assured that in those cities with highly successful urban forestry programs, this is exactly what is done.
- Identify those in your communities who like trees, and whose voices are respected (garden club members, wildlife enthusiasts, horticulturists, others) and ask them to be advocates.
- Relate good tree care to jobs — for arborists, nursery people, landscape contractors, others — and make a strong case for the urban forest's economic contribution to the total city.

The Tree City USA program provides many opportunities to publicize the good works of your tree board, city forestry department and volunteers, keeping trees in the forefront of the public mind.

- Advocacy is not for everyone, as politics may be distasteful to some. Your personal involvement must be according to your comfort. Someone, however, has to do it.

Alternative Funding

The above discussion suggested ways to influence a proportionate share of the city's general funds. There are other alternatives for city funding and from other public sources. Additionally, there are many private sources and methods.

Alternative Public Funding

- Capital funds — from revenue bonds

  Generally most applicable in cases of critical need, such as following a storm or other disaster. Must be approved by vote of the populace.

- Property assessments

  Generally for streetside trees, and based on street front footage. Does not require public vote, but must be approved annually by the city council.

- Benefit, or assessment, districts

  Applicable to neighborhoods or other areas of recognizable need. Requires vote of those who would benefit.

- New construction assessments

  Owners of new homes or other buildings are assessed for costs of establishing streetside trees.

- Permit system

  Usually applicable to streetside trees. Property owners share cost of tree planting or other management with city. Permits are purchased by property owners allowing planting or other work to be done.

- State and federal funding

  Federal funds, through the USDA Forest Service and the USDC Small Business Administration have been available to cities for tree planting and demonstration projects. Contact your state forestry office for details.

Private Funding

- Self assessment

  Neighborhood property owners agree to assess themselves a certain amount to establish a fund for streetside tree planting.

- Not-for-profit tree trust

  A trust established (trustees could be the tree board) and citizens encouraged to donate the cost of trees in

honor of special occasions such as birthdays, anniversaries, and holidays. Donations also sought from businesses and other sources.

- Memorial tree fund

  Contributions for trees to be planted and maintained in memory of deceased persons.

- Grants from philanthrophic foundations or trusts

  Such organizations, particularly if local, often provide grants for tree planting and other environmental projects. For a listing of such organizations, visit the Foundation Center library in your state capital city.

- Sponsored tree sales

  Trees for streetside planting offered to adjacent property owners at or below cost. Project sponsored by tree board, business, or other organization.

- Local business associations

  Recognizing the benefits of an attractive and pleasant city, local business organizations (perhaps the chamber of commerce) will often donate funds for tree related projects.

- "Adopt A" projects

  Various organizations, such as service clubs, civic clubs, and neighborhood associations, may adopt a park, boulevard, or city block and provide money for tree planting and maintenance.

- Perhaps you can think of other ways

Information and Education

Information and education activities are absolutely essential to a successful urban forestry program:

1. To improve management by individual property owners; and
2. To ensure public acceptance of the program.

Helping Property Owners Do It Better

Except for hazard trees or insect and disease epidemics, as may be provided in your ordinance, your tree board has little direct authority on private property. Thus, your opportunity to improve management can only be through information and education. There are two approaches:

1. Targeting information to property owners.
2. Working with those who provide services to property owners.

The first approach is direct to those with ultimate responsibility for what is done to their portions of the forest. The second is to those who physically do much of the work, or provide materials for the forest — arborists, nurseries, garden centers, and such. Following are some things to consider.

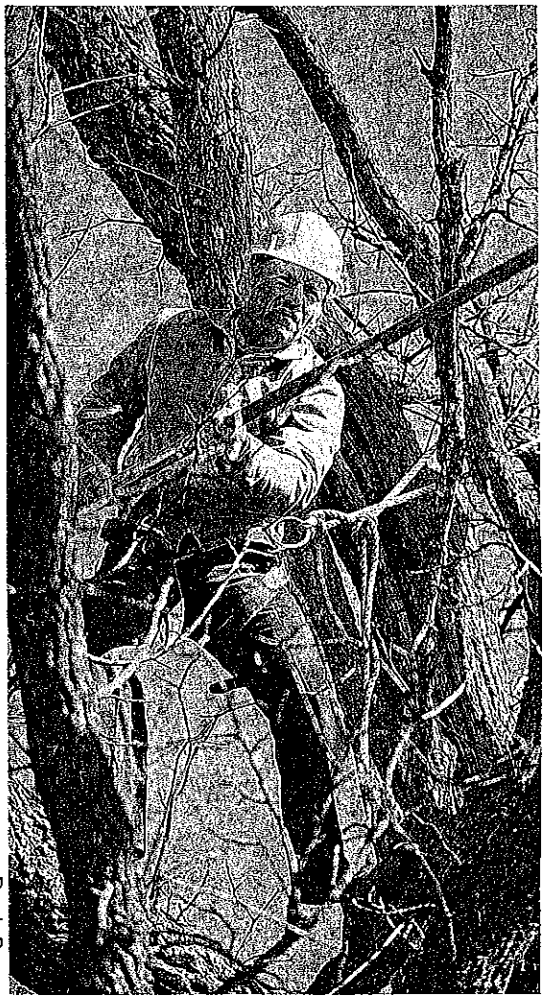
Targeting Information

- Please note the word "targeting." Identify your audiences. While many information needs will be common to all property owners, some will be more applicable to certain neighborhoods, business districts, or vegetation types within the forest.
- Take advantage of the "teachable moment." Most people are receptive only when they need to know. They will perhaps need to know during Arbor Day "season," after a storm, and when other problems become apparent. Anticipate their need to know.
- Use various methods, depending on urgency of need and cost.
  - —Distribute flyers (use volunteers to go door to door)
  - —Inserts in local newspapers
  - —Inserts in utility statements
  - —Newspaper special editions
  - —News articles
  - —Articles by garden editor
  - —Television and radio (if it is news)
  - —Direct mail, including inserts with utility bills
  - —Public meetings
  - —Other

Working With Those who Provide Services

There is perhaps no better opportunity for improving the urban forest than by improving the quality of services available

The quality of the urban forest is determined, to a large degree, by the person with the pruning saw. Efforts of your tree board to upgrade the skills of those who prune can only be positive for the forest.



Randy Barger

to individual owners. Two approaches have been successful in many cities:

1. Providing education and training for arborists.
2. Working with nursery suppliers.

Education and Training for Arborists

No maintenance practice has a more immediate impact on the urban forest than pruning. Thus, the quality of the forest is determined, to a large degree, by the person with a pruning saw. If the saw is improperly applied, the effects can be devastating. It follows then that anything your tree board can do to upgrade the skills of those who prune can only be positive for the forest. Here are some things you might do.

- Get a list, from your telephone directory, or city hall (if business permits are required) of all tree care firms and institutional groundskeepers in the city.
- Arrange for pruning schools, using city forestry department personnel, urban forestry specialists from your state forestry agency or Cooperative Extension Service, or private arborists as instructors.
- Write a newsletter for arborists and others. Send them Tree City USA Bulletins.
- Facilitate organization of a city or regional arborists' association, with meetings and newsletters for exchange of technical information.

Working with Nurseries

Nurseries and others who sell trees and other plant materials have a strong influence on the urban forest, by species they make available and by quality of their stock. Available stock is determined primarily by "what sells" and profit margins of individual species. It is quite likely that these are the overabundant species in your urban forest. Conscientious nursery suppliers care about the urban forest and are often willing to market other species. Following are some suggestions.

- Remembering the importance of species diversity, refer again to your urban forest inventory, noting the species by age or size classes that dominate the total tree population. Note also the species of less abundance that you might wish to encourage.
- Take this information to your nursery operators, noting the problems, and asking for their assistance in making other species available.
- In cooperation with your nurseries, make test plantings of new species. Contract with nursery to grow successful new species. Promote new species.

Ensuring Public Acceptance

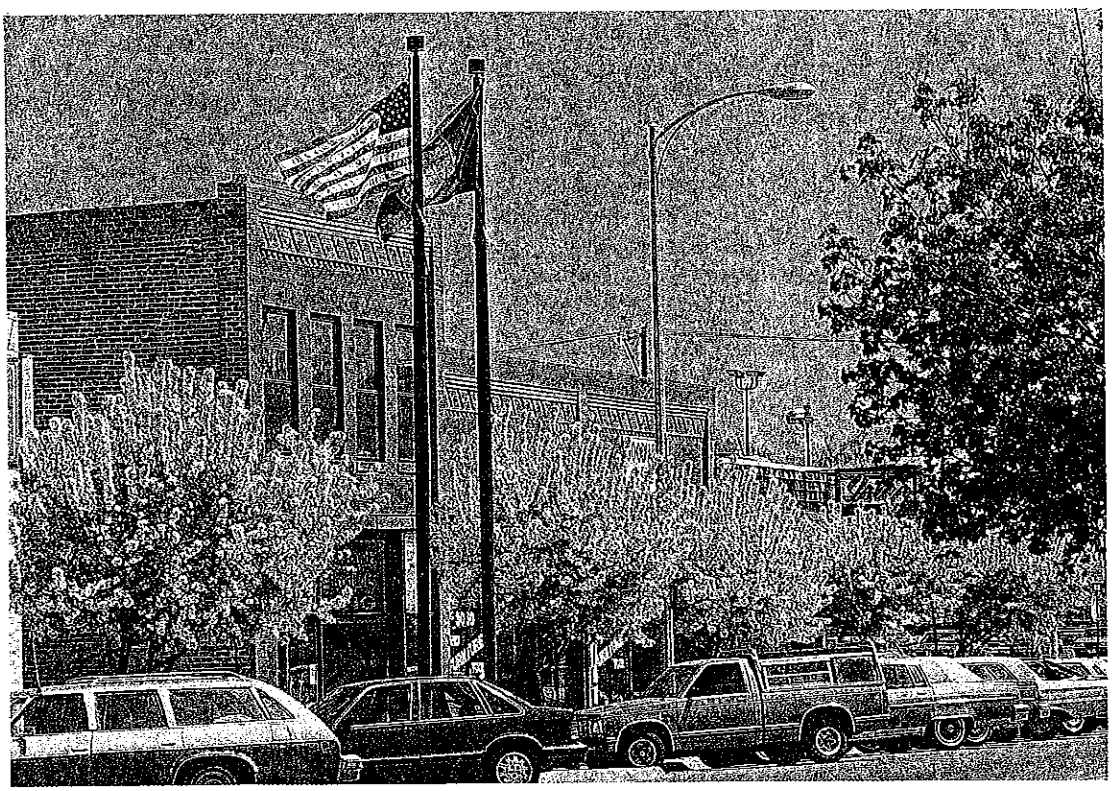
Urban forestry activities must be accepted by the public. Some of what is done involves considerable inconvenience. Tree maintenance often requires that traffic be rerouted, and parked automobiles moved. Maintenance work can also

be noisy and dusty. If citizens are to tolerate such things, they must believe that the work is worthwhile. Public acceptance comes from an understanding of what is done and why it is necessary, plus the perception that it was done well. This should not be left to chance. Public relations must be planned and practiced, and should be a part of your annual plan and budget. Here are some ideas for your tree board and city forestry department.

- Publish a summary of the planned activities of your annual program in the local newspaper — how many trees are to be planted, which trees are to be pruned and why, what tree health measures will be taken, and such.
- Contact property owners and others who will be affected in advance of work, telling what is to be done and why it is important. It is the worst possible public relations to show up unannounced, insist that cars be moved, and start up noisy chainsaws, chippers, and other equipment.
- Post signs, such as: "Tree pruning in progress for the health and safety of your trees. Thank you for your patience."
- Clean up completely, except you may wish to leave fuelwood for local residents.
- When the job is done, thank people for their patience.
- Keep it clean — clean equipment, clean clothes, clean talk and manners.
- The list could go on. Please add to it.

Working With Volunteers

Using volunteers in the urban forest first requires an understanding of what tasks they might reasonably perform. Generally, volunteers can do such things as coordinate tree planting projects, plant trees, care for trees after planting, improve wildlife habitat, distribute information; and, depending on individual skills, answer technical questions, instruct on tree care, and serve as local authorities on urban wildlife and other aspects of the urban forest. It is unreasonable to expect volunteers to do major pruning, tree removal, and insect and disease control, except in special cases where such work might be volunteered by professional arborists.



Using volunteers effectively requires planning and coordination.

City of North Miami, Florida

Using volunteers requires planning and coordination. Volunteer projects should be identified in your annual operational plans and must be consistent with your long range goals. Such projects should be location specific (a park, block, section of a boulevard, or other), and generally should be accomplishable in a single day. With a number of planned projects, you can then look about for both volunteer funding and labor. Following are some guidelines.

- You will probably have to solicit volunteers. Only occasionally will they seek you out.
- When considering who to solicit, think first of who close to a project might benefit or be interested.
- Consider, also, who might be prone to damage or vandalize the project. Ask them to help. Involvement helps develop a sense of ownership.
- Generally, people will volunteer to help plant trees more readily than for other urban forestry projects.
- When asking for volunteers, explain why the project is important and give complete information: where, when (including a rain date) and what to wear and bring.
- When contacting an organization (club, industry, association, other) ask a member to distribute information internally and sign up individual volunteers. This relieves you of details and gives you one person to work with.
- You must take care of all other details. Check and recheck. Leave nothing to chance.
- On the day of the project, be there to welcome each volunteer, give instructions, and put them to work. Training of volunteers is extremely important. Prior to the project you may wish to have a "train the trainers" session for crew leaders, who can then give on-site instructions. (Please see pages 22 and 23 for more on using volunteers in tree planting projects).
- Work with them, but check on everyone and everything.
- Involve the media, but give volunteers the credit.
- Thank everyone and everyone's boss.

Working With Other City Officials

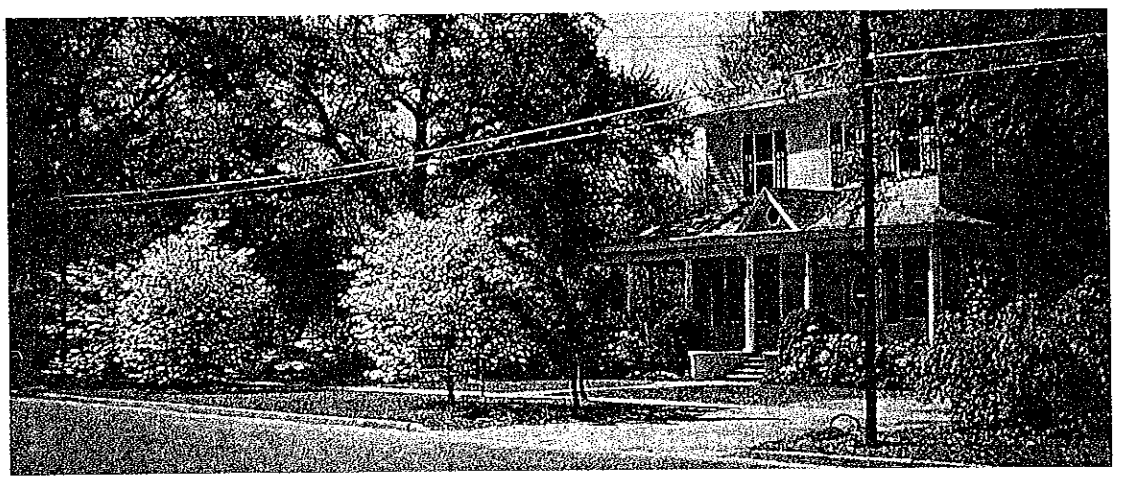
Although the urban forestry program that you represent may be competitive with other functions of city government, it is not independent and must be cooperative with other programs. Also, there must be total cooperation between the tree board and the city forestry department. To approach this topic, it is well to look both at how your tree board relates to other city officials (including your city forester) and how your urban forestry program relates to other city activities.

As suggested in Chapter I, it is extremely important that your role relative to the city forestry department be defined and that your relationship with the city forester be positive. Does your city forester attend your meetings? Is he or she a member (full or ex-officio) of your board? Is he or she aware of all your activities. Clearly, the answer to these questions should be yes, as your role and that of the city forester must be mutually supportive. Also, do you communicate with the mayor, city council, and city administrator? Some easy ways of communicating are to send them summaries of your meeting notes (items considered, actions taken, and your reasons for actions) and invite them to attend your meetings. Your invitations should be relevant to a topic under consideration where their input and views would be most important.

Your overall urban forestry program must interact with other city programs. The most obvious area is with streetside trees, where traffic, utilities, and other engineering considerations are involved. Thus, it is imperative that your tree board and your city forester have good working relationships with the engineering, traffic, and utilities departments. Again, communication is the key, for them to appreciate the values and needs of trees, and for you to understand their priorities. Such is perhaps more the day to day role of your city forester, but the tree board can be involved too. As with the mayor and other administrators, invite department heads to your meetings and send them summaries of your actions. Another area not to be overlooked is your city planning board or commission. Are provisions made for trees, forests, and other natural vegetation in city planning? Is a member of your tree board or your city forester ex-officio to the planning commission? Are you involved in reviewing draft master plans for the city? Again, the answers should be yes.

Working With Public Utilities

As we have noted, public utilities, particularly electric companies, exert a strong influence on the urban forest. Thus, anything that can be done to help them better care for trees can only be positive for the forest. Utility companies sometimes have their own tree crews. More often, though, line clearance work is contracted with private tree service companies. Many companies apply strict practices to protect trees and some engage in educational programs to help owners better select and plant near utility lines. Some also help underwrite planting costs. Unfortunately, however, the work of some utility companies is not in the best interest of trees. How can your tree board influence better utility tree care?



Conflicts between street trees and utility lines can be minimized through better education and practices such as selecting tree species that will not extend into lines when mature.

- By helping make property owners and residents more aware of proper clearance pruning.
- By meeting with utility company representatives to communicate your concerns and seek their help.
- By asking to review their clearance specifications and pruning standards.
- By sponsoring or arranging training sessions.
- By encouraging them to participate in Tree Line USA, a program of The National Arbor Day Foundation to promote the goals of dependable utility service and abundant, healthy trees. Companies meeting the three criteria of the program — quality tree care; annual worker training; and tree planting and public education — are publicly recognized for their contribution to better urban forests. See ***Tree City USA Bulletin No. 25***.

Working With the Media

As discussed previously, trees must be kept in the forefront. To keep them there, the media (newspapers, television, and radio) must be used. The first thing to understand is that everyone else with a cause wants to use the media too — and you must compete with them. Secondly, the media exists for three primary reasons (other than to make a profit): to inform; to entertain; and to provide a public service. Thus, your chances of getting something in the media about trees are relative to whether it is news, of entertainment value, or a needed public service. Of these, a needed public service, such as what property owners should do about trees following a storm, will have the best chance of being run. Following are some ideas to help trees get media exposure.

- Remember the above.
- Get to know media people personally, particularly staff who put the stories together. Especially, get to know the garden editor of your newspaper. A goal should be to have them recognize you as the local authority on trees. They will then seek you out when something newsworthy about trees happens.
- If you have written or visual material, deliver it in person. Everyone else is sending them stuff.
- Remember that your stories should be about trees, and not the urban forest. People relate to trees, their trees. Few recognize that they live in a forest.
- Take advantage of the "teachable moment." Some teachable moments are: after a storm; after a casualty; when it is time to plant, rake leaves, or treat for insects; Arbor Day; Tree City USA Awards; and when trees are especially pretty (in bloom or in fall color).
- Remember that the media loves a controversy. Be there with a reasonable view of trees when there are disputes about urban development into forested areas or over saving specimen trees. Approach this with caution.
- Buy some media time. The surest way to get your story told is to pay for it.
- Try some public service announcements (PSA's). Several are available about urban tree care. Contact The National Arbor Day Foundation for a list and how to order and use them.
- Keep it simple.

Meetings and Reports

How often does your tree board meet? Why does it meet? Obviously, there is a relationship between these questions, as your frequency of meeting should depend on what you have to do. It should also depend on how efficient and effective your meetings are. Here are some suggestions.

- Develop an annual agenda — your tree board's annual plan of work — listing events, meetings, tasks, and dates.
- Prepare a written agenda and distribute it to each member and guest in advance of each meeting.
- At the conclusion of each meeting, develop the next meeting's agenda, including topics and guests. Also, estimate a timetable for the topics.
- Invite guests — people to provide technical information, those who may be influenced by your decisions, and those with whom you must cooperate.
- During your meetings, keep on schedule, but do not let the schedule rule. Each topic must get a full airing.
- Reach closure on each topic. Closure may be consensus, or a decision to delay pending further information.

—Reaching consensus often avoids the necessity of a vote.

—By voting, there are winners and losers. Through consensus, all are winners.

- Take good notes. Keep the minutes of your meetings on file. Furnish a summary of your actions taken to all who should know — city officials, guests, media.

In addition to your meeting summaries, an annual program report should be prepared and distributed. Your annual report should state clearly and simply your accomplishments relative to your goals, and should note your approaches and continuing situations. Also, consider taking your annual report one step further — an annual state of the trees report to the city council. At this time, you can also give a summary of your plans for the coming year.

Ceremonies and Awards

Ceremonies and awards can be beneficial — to advance your urban forestry program, and to give recognition to those whose work has contributed to the betterment of the uban forest. Following are three ideas:

1. Arbor Day observance

Sponsor and coordinate an Arbor Day ceremony. It can be as big as you want to make it — from a simple tree planting ceremony at city hall to a city-wide celebration of trees, involving schools, garden clubs, and other citizen groups. However large, your observance should begin with an Arbor Day proclamation by the mayor, should have a comemorative tree planting, and must involve key people. Please contact The National Arbor Day Foundation for a ***Celebrate Arbor Day*** packet.

2. Tree appreciation banquet

Hold an annual tree appreciation banquet, inviting all, and giving special recognition to those who have done an outstanding job in making the urban forest better. You may wish to present special awards. Also, it would be a wonderful opportunity to present the mayor your city's Tree City USA plaque and flag. You may wish to consider asking utility companies, tree service firms, nurseries, and others to help sponsor the event.

3. Tree City USA

Tree City USA designation is a must for a city that has an on-going urban forestry program. Tree City USA is a program of The National Arbor Day Foundation giving special recognition to cities that have met certain standards concerning their trees. The program also provides Growth Awards for new projects that enhance the urban forest. Please see Appendix V for details of Tree City USA and how to apply.

Ceremonies and awards can be beneficial — to advance your urban forestry program, and to give recognition to those whose work has contributed to the betterment of the urban forest.

Technical Information and Program Support

There are several sources of technical information and support for your program. Your first step should be to assemble an urban forestry library in addition to the Tree City USA Bulletins. Appendix VI is a list of recommended basic volumes. This list was put together by a panel of urban forestry practitioners, including tree board members. Next, you should seek other sources according to the needs of your program.

Following are some sources, including a summary of what each offers.

- **Your state forestry agency**

Education and technical assistance; coordination of state urban forestry council; administration of funding programs for tree planting and other activities.

- **The National Arbor Day Foundation**

  100 Arbor Avenue
  Nebraska City, NE 68410
  (402) 474-5655

Tree City USA program; annual awards; Arbor Day materials; technical bulletins; workshops on various urban forestry topics, including tree board activities.

- **International Society of Arboriculture**

  P.O. Box GG
  Savoy, IL 61874
  (217) 355-9411

Technical conferences; monthly journal; tree valuation formula; arborist certification.

- **National Arborists Association**

  P.O. Box 294
  Amherst, NH 03031
  (603) 673-3311

Pruning standards; training videos and other materials.

- **American Association of Nurserymen**

  1250 I Street NW, Suite 500
  Washington, D.C. 20005
  (202) 789-2900

Standards for planting stock.

- **American Forests**

  P.O. Box 2000
  Washington DC 20013
  (202) 667-3300

Coordination of Global Releaf and Citizen Forestry Support System, sponsorship of National Urban Forestry Conferences, publications.

- **Your state arborists association.**

- **Cooperative Extension Service** of your state's Land Grant University, with local offices in most counties —

Seminars; workshops; educational materials.

- **Local nurseries, tree care firms, material suppliers, and private citizens with special knowledge.**

Appendices

Appendix I:	Urban Forest Inventory Programs
Appendix II:	Summary—Long-Range Urban Forestry Plan
Appendix III:	Elements of Bid Invitations and Contracts for Purchase of Tree Planting Stock
Appendix IV:	Elements of Bid Invitations and Contracts for Tree Pruning
Appendix V:	Tree City USA and Tree City USA Growth Awards
Appendix VI:	Basic Urban Forestry Library

Urban Forestry Inventory Program:

TreeKeeper jr.™

Q: What is TreeKeeper jr?

TreeKeeper jr. is a computer software program designed by Davey Resource Group to help small communities manage street and park tree inventory data. Within a 5,000-tree limit, it allows you to record information for trees keyed to specific house or building addresses (or grids in a park) and to easily report summarized data for planning and reports.

Q: How will TreeKeeper jr. benefit our community forestry program?

A good inventory is the foundation of a systematic community forestry program. It provides the basis for decisions about what work needs to be scheduled, how many trees need to be planted, what species are needed to assure healthy diversity, and similar planning needs. It also provides continuity after personnel changes and provides reports -- quickly and easily -- that help you communicate effectively and convincingly with elected officials and others whose support is necessary for a community forestry program.

Q: What features are included in TreeKeeper jr.?

TreeKeeper jr. is a powerful program with a full range of features important to good inventory management. However, it is specially designed to be easily used by the non-professional and it is priced for the budgets of small communities. For either street trees or park trees, TreeKeeper jr. has the ability to add, edit and delete individual trees; store a wide range of data about each tree or planting site; compute tree values; keep records about maintenance needs and work histories; and print useful listings and summary reports many different ways.

Q: What comes with the package I purchase?

You receive the program disk in either 3.5" or 5.25" size, whichever fits your equipment, and an easy-to-understand manual. The program includes a tutorial section with a data base of 500 trees already in it. This allows you to learn how to use the program before entering your own data. You also receive a registration form that entitles you to free technical assistance for up to 90 days after your first phone call for help. You also receive a copy of Tree City USA Bulletin No. 23, "How to Conduct a Street Tree Inventory," and a 15% discount coupon to attend any Street and Park Tree Inventory Workshop offered by The National Arbor Day Foundation.

Q: What equipment and knowledge do I need to use TreeKeeper jr.?

You can use TreeKeeper jr. even if you have no previous experience with computerized inventory programs. The manual explains how to customize the program to your community

by simply entering the names of your streets and the species that grow locally. The program operates on any IBM-PC or compatible equipment with 640 k of RAM and 5 megabytes of hard disk space available.

Q: Is a demo disk available?

No, but we are so sure you will like this program that we offer a prompt refund of the purchase price if you are not satisfied with TreeKeeper jr. and decide not to use it.

Q: O.K.! My community wants to do a better job of planting and caring for trees, and we must do it as inexpensively as possible. Sounds like we need TreeKeeper jr. How do I get a copy?

Simply complete and return the order form below.

ORDER FORM

Name_____
Title_____
Organization_____
Mailing Address_____
_____Zip_____
UPS Delivery Address (if different)_____
_____
Phone(_____)_____ Fax (_____)_____

Which disk size? ____3.5" ____5.25"

Is your community currently a Tree City USA? ___Yes ___No

Cost: $200, ppd. ($99, ppd. for Tree City USA communities)

Method of Payment

☐ Check enclosed (Payable to The National Arbor Day Foundation)

☐ Money Order

☐ Purchase Order (No. _____)

☐ Send Invoice (c/o _____)

☐ Credit Card: ☐ American Express ☐ MasterCard ☐ VISA

Credit Card Number _____ Expires _____

Signature _____

Mail or Fax to: The National Arbor Day Foundation, P. O. Box 81415, Lincoln, NE 68508-1415. Fax (402) 474-0820. You can also order by phone M-F, 8-5 central time by calling (402) 474-5655.

Summary of Long-Range Urban Forestry Plan

OBJECTIVES

As representatives of the citizens of the City of _____, the members of the City Tree Board commit to achieving by the year 2010 an urban forest that is safe, healthy, diverse, pleasing to the senses, and functional — an urban forest attractive to birds and other wildlife and a place in which our children may delight and learn.

MEANS

To achieve the above objectives, the following means will be employed. The details of each will be included in annual operational plans of the City Forestry Department, and will reflect priorities as annually reviewed by the Tree Board and the City Forestry Department.

Safety

As prudent and reasonable, the urban forest will be maintained for the safety of residents and visitors by the following means:

- Identification and removal. where hazards exist, of materials including: dead trees; dead or weakened portions of trees; roots; obstructions caused by roots, such as heaved sidewalks; fruits; and other materials produced by trees.
- Removal of trees or portions of trees interfering with pedestrian or vehicular passage or with line of sight to traffic regulatory signs or signals.
- Removal of trees or portions of trees in contact with high voltage lines or structures.
- Removal of targets in cases of unique trees.
- Structural pruning and other arboricultural practices.
- Planting of potentially safe and vigorous trees.

Health

Health of the urban forest will be ensured by the following means:

- Implementation of a program of plant health management including: monitoring of insect and disease situations, selective treatment; and maintenance of tree vigor.
- Selection and planting of diverse tree species and varieties potentially free from excessive insect, disease, and environmental damage.
- Timely pruning.

Diversity

Diversity of species, ages, and sizes within the urban forest will be accomplished by the following means.

- Removal of hazardous trees.
- Planting of different species of varying size classes.

Pleasing

Landscape design considerations will be incorporated into the urban forest, particularly with regard to new plantings and other developments.

Wildlife

Provisions for birds and other wildlife will be made in the urban forest by the following means.

- Planting of trees and other vegetation favorable to birds and other wildlife.
- Protection of wildlife habitat during development and construction.
- Retention of dead trees and portions of trees for cavity nesting birds where such retention does not present a hazard.
- Erection of artificial nesting structures.

SCOPE

This plan is for the total urban forest of the City, recognizing that the forest is both publicly and privately owned. The above provisions will be put directly in effect on lands for which the City Forestry Department has responsibility. Various city codes will influence implementation on other lands. In addition, a vigorous program to educate property owners and assist them in urban forestry matters will be initiated.

Approved this_____day of_____, 19__

_____, Chair, City Tree Board

Elements for Bid Invitations and Contracts for Purchase of Tree Planting Stock

1. **Names, addresses, telephone** and fax numbers of contracting parties.
2. **Species and varieties.** Use common and scientific names.
3. **Number**. Specify exact number of plants by species. Some nurseries give quantity discounts.
4. **Size**. Nursery stock sizes for trees are expressed by height intervals, stem caliper (diameter 6 inches above root collar) or container size. *
5. **Condition**. Specify bareroot, balled and burlapped, or container grown. If by stem caliper, state that all trees of a single species must be matched by height and form. Specify that all stock must be healthy, vigorous, and well grown; and shall have been grown from seed or propagational materials from the same climatic region as where it will be planted. *
6. **Available date**. Weather conditions and other factors may influence delivery. Therefore, state a time period such as the "first week in April" and then confirm the exact date as the time draws nearer.
7. **Price**. Be specific on quotes (delivered to a certain location, or FOB nursery) and time and method of payment.
8. **Guarantees**. Most nurseries guarantee their stock to be in good growing condition when delivered and will replace only if mortality is their fault. If, however, the contract involves planting, common guarantee periods are through the first growing season of the year. The period should be clearly stated.
9. **Substitutions**. Any allowance for substitutions of species, size, or condition should be specified.
10. **Inspection.**

    Nursery Inspection — Specify that the city has the right to inspect and tag stock purchased under contract before digging. Tags remain on trees until delivery.

    Agency Inspection — As required by law, public agencies inspect all stock before removal from nursery.

    Delivery Inspection — Specify that the city has the right to inspect the trees when delivered to the site.
11. **Receipt of stock**. Specify whether stock is to be picked up or delivered. If delivered, the precise location should be stated.

11. **Dates** of bid submission and/or contract entry.

12. **Signatures**.

* Please note: For size and condition, state that all plant materials must conform to the ***American Standards for Nursery Stock***, as adopted by the American Association of Nurserymen.

Elements of Bid Invitations and Contracts for Tree Pruning

1. **Names, addresses, telephone** and fax numbers of contracting parties.
2. **Number of trees.**
3. **Description of trees** (species, size, other).
4. **Location of trees.**
5. **Statement of title** to, or authority for, trees.
6. **Description of work to be done.** May include requirements for removal of dead, broken, crossing, and redundant branches; drop crotching; elimination of stubs; traffic and view clearance; wound treatment, if any; and debris disposal. Specify that all work must conform to the ***National Arborists Association Standards for Arboricultural Work*** and the ***American Standards Institute Safety Requirements for Tree Care*** (Z-133.1).
7. **Tree damage.** Specify that no climbing irons, spurs, or spikes are to be used. Any damage done to trees is to be repaired immediately at no expense to the owner.
8. **Sanitation.** Provisions for sanitizing pruning tools in cases of infectious diseases.
9. **Property damage.** Damage done by contractor to any person or property, public or private, is the total responsibility of the contractor.
10. **Public relations.** Contractor informs concerned property owners at least 24 hours before work is to be done. Contractor coordinates traffic control with city police.
11. **Clean up.** Completed within two hours after each pruning. Contractor may not leave site until clean up is done.
12. **Contract price.**
13. **Method and time of payment.**
14. **Inspection** of work and conditions for follow-up in case contract specifications are not satisfactorily met.
15. **Legal requirements** for licensing, certification, insurance, bonding, permits, or other provisions.
16. **Ingress and egress.**
17. **Dates** of bid submission, job completion, and contract entry.
18. **Signatures.**

Please Note: Your city may have standard bid invitation and contract forms upon which the above elements may be entered.

Tree City USA

The National Arbor Day Foundation, in cooperation with the USDA Forest Service and the National Association of State Foresters, recognizes towns and cities across America that meet the standards of the TREE CITY USA program.

Nearly half of the trees in a typical city are on public property—along streets, in parks, and around buildings. The TREE CITY USA program is designed to recognize those communities that effectively manage their public tree resources, and to encourage the implementation of community tree management based on four TREE CITY USA standards. These four standards provide structure for a community forestry program, require that program to demonstrate success based on the judgment of the state forester's office, and provide for an awareness and appreciation of trees among the residents of the community.

TREE CITY USA recognition can make a strong contribution to your community's pride, and it will put you and your tree board in touch with other communities and resources which can help you improve your program.

As a Tree City USA, your community will receive:

- **Highway signs for community entrances**
- **A Tree City USA flag**
- **A walnut-mounted plaque**

. . . along with the joy of stewardship and the gratitude of future generations.

The Tree City USA Standards

STANDARD 1: A Tree Board or Department

A tree board is defined as a group of concerned citizens, usually volunteer, charged by ordinance to develop and administer a comprehensive community tree management program for the care of trees on public property. Tree boards usually function with the aid of professional foresters. In communities with a population of more than 10,000, city forestry departments with salaried employees are often feasible. These departments may or may not be supported by advisory boards or administrative commissions

STANDARD 2: A Community Tree Ordinance

The community tree ordinance needs to designate the tree board or department and give them the responsibility for writing and implementing the annual community forestry work plan. The ordinance should determine public tree care policies for planting, maintenance, and removals. Ideally, the city tree ordinance will make provisions for establishing and updating a list of recommended street tree species to be planted with spacing and location requirements. A sample tree ordinance may be obtained from The National Arbor Day Foundation.

STANDARD 3: A Community Forestry Program with an Annual Budget of at Least $2 per capita.

Many communities begin their program by taking an inventory of the trees growing on public property. The species, location, and condition of each tree are noted and the inventory is summarized in a written report for presentation and approval by the city council. The report should be an objective analysis of the present state of the urban forest, with recommendations for future management. The essential, ongoing activity for the care of trees along streets, in parks, and in other public places is the community forestry program. The annual work plan should address planting, watering and fertilizing, dead and hazardous tree removal, safety and fine pruning, and insect and disease control. To be named as a TREE CITY USA, a town or city must annually spend at least $2 per capita for its annual community forestry program. Consider all funds spent for tree care — budget for street tree department or board, park department's tree expenditures, dead tree removal, etc.

STANDARD 4: An Arbor Day Observance and Proclamation

An Arbor Day observance can be simple and brief, or an all-day or all-week observance. A proclamation issued by the mayor must accompany the observance and declare the observance of Arbor Day in your community. You can obtain a free "Celebrate Arbor Day!" packet by writing The National Arbor Day Foundation. Along with ideas for celebrating the holiday, the packet contains a sample proclamation.

Tree City USA Growth Award

The Tree City USA Growth Award is provided by The National Arbor Day Foundation, in cooperation with the National Association of State Foresters and the USDA Forest Service, to recognize environmental improvement and encourage higher levels of tree care throughout America. This award is designed not only to recognize achievement, but also to communicate new ideas and help the leaders of all Tree City USA's plan for improving community tree care.

Your community may be eligible for the Tree City USA Growth Award if it is a Tree City USA for at least the second consecutive year and has spent at least as much on its community forestry program this year as it did last year.

If your community qualifies, you will receive Tree City USA Growth Award signs to place at community entrances, a framed certificate of achievement that enumerates your community's award-winning achievements, and appropriate local and national recognition.

Tree City USA communities may apply for a Growth Award if a required number of points has been earned for activities selected from the following categories:

Category A: Education and Public Relations

Eligible activities include publications, literature distribution, interpretive programs, local awards programs, community-wide tree events, publicity, youth education, continuing education for tree workers, tree worker safety programs, continuing education for forestry managers and tree board members, tree-care workshops, and arborist workshops.

Category B: Partnerships

Eligible activities include initiating new partnership projects, utility partnerships, green industry partnerships, cooperative purchasing/contracting, external funding, tree planting on private property, engineering/forestry coordination, and land-use planning coordination.

Category C: Planning and Management

Eligible activities include tree maintenance budgets, municipal funding, adopting sidewalk/curb policies, making tree inventories and analysis, computerized tree-management systems, developing management plans, licensing programs, improved ordinances, adopting or updating standards and specifications, developing or protecting wildlife habitat, acquiring or planting park or open space land, developing a disaster plan, or hiring a professional tree manager for the first time.

Category D: Tree Planting and Maintenance

Eligible activities include special tree planting projects, public utility tree care, recycling, street tree planting, street tree pruning, hazard tree programs, special programs to eliminate destructive practices, integrated pest management, plans for donations, and growing contracts with nurseries.

For more information . . .

Application forms and additional information about the Tree City USA and Tree City USA Growth Award programs may be obtained by writing:

The National Arbor Day Foundation

100 Arbor Avenue
Nebraska City, Nebraska 68410
Telephone (402) 474-5655

A Basic Urban Forestry Reference Library

ESSENTIAL:

Arboriculture -- Integrated Management of Landscape Trees, Shrubs, and Vines (2nd Edition, 674 pp., 1992)
Richard W. Harris
Prentice Hall, Inc.
Englewood Cliffs, NJ

Diseases of Trees and Shrubs
(575 pp., 1987)
Wayne A. Sinclair
Howard H. Lyon & Warren T. Johnson
Comstock Publishing Associates
Ithaca, NY

Handbook of Landscape Tree Cultivars
(318 pp., 1989)
Willet Wandell
Prairie Publishing Co.
P.O. Box 175
Gladstone, IL 61437

Insects That Feed on Trees and Shrubs
(2nd Edition, 560 pp., 1991)
Warren T. Johnson & Howard H. Lyon
Comstock Publishing Associates
Ithaca, NY

Know It and Grow It
(740 pp., 1983)
Carl E. Whitcomb
Lacebark Publications
Stillwater, OK

Manual of Woody Landscape Plants
(526 pp., 1975)
Michael A. Dirr
Stipes Publishing Co.
Champaign, IL

Modern Arboriculture -- A Systems Approach to the Care of Trees
(424 pp.)
Alex L. Shigo
Shigo and Trees Associates
4 Denbow Road
Durham, NH 03824

Public Relations and Communications for Natural Resource Managers (2nd Edition, 300 pp., 1986)
James R. Fazio & Douglas L. Gilbert
Kendell/Hunt Publishing Co.
Dubuque, IA

Shading Our Cities -- A Resource Guide for Urban and Community Forestry
(333 pp., 1989)
Gary Moll and Sara Ebenreck
Island Press
Covelo, CA 95428

Tree Maintenance
(6th Edition, 514 pp., 1988)
P.P. Pirone
Oxford University Press
New York, NY

Urban Forestry
(2nd Edition, 299 pp., 1986)
Gene W. Grey & Frederick J. Deneke
John Wylie and Sons
New York, NY

Urban Forestry -- Planning and Managing Urban Green Space
(404 pp., 1988)
Robert W. Miller
Prentice Hall
Englewood Cliffs, NJ

OPTIONAL:

Anatomy of a Park
(180 pp., 1971)
Albert Rutledge
McGraw Hill
New York, NY

Street Tree Fact Sheets
(122 pp., 1989)
Henry D. Gerhold, et al
School of Forest Resources
Pennsylvania State University
University Park, PA