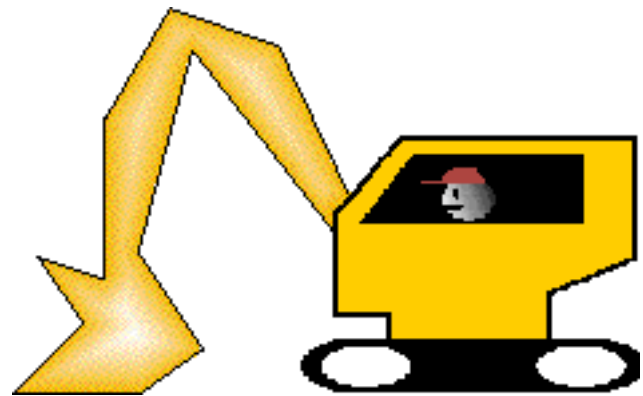


# Trees

## At Construction Sites



## A Few General Rules

by

Edward P. Milhous, Registered Consulting Arborist

© 2001  
Edward P. Milhous

This pamphlet provides general guidelines.

Application of these guidelines may differ with the situation and circumstances, or with the site or the region. Exceptions to rules do commonly occur. It's best to see it on site.

Exceptions notwithstanding, use of these rules to make decisions can keep many tree/construction problems from occurring or getting worse.

Horticulture is a highly technical, multifaceted science. What you don't know can hurt you.

When you aren't sure what to do...get help!

Guessing and misinformation cost you money! With reliable, unbiased information you can make better decisions, and that will save you money.

© Copyright 2001  
Edward P. Milhous ♦ TreesPlease®

4<sup>th</sup> Edition

\$8.00

According To The  
National Association Of Homebuilders (NAHB):



56% of real estate professionals think the presence of healthy shade trees strongly influences a home's "salability".



Builders say 32% of buyers will pay a \$1,000-\$3,000 premium for a wooded lot; 30% of buyers will pay a \$3,000-\$5,000 premium.



77.7% of home buyers think plenty of natural, open space is very important.



85% of home buyers want a lot with trees; for nearly 40%, trees are essential.



Houses with excellent landscaping can expect to sell for 15% more than houses with poor landscaping.

So, why don't builders/developers save more trees?

According to NAHB:



Some have not thought about it much; some do not know how; and some are interested but believe they do not get credit for a job well done.



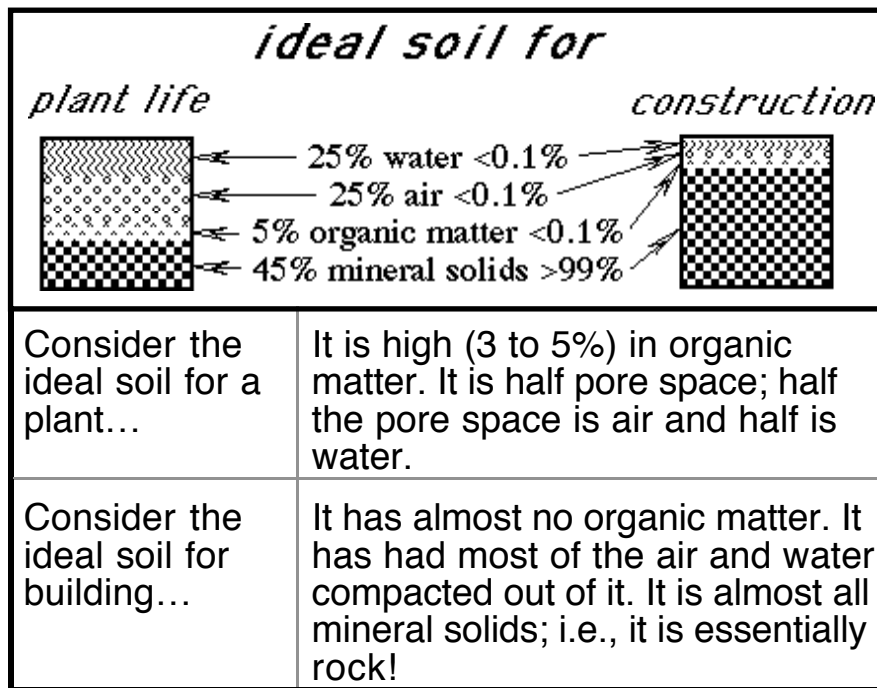
They get very frustrated by the numbers of trees they must take out because of local development standards and regulations that compete with each other.

## Trees and Construction Projects

- ◇ The **species** and **condition** of a particular tree should be of primary importance when deciding whether to save it.
- ◇ Young trees are more likely than older trees to withstand injuries, or even minor changes around them. Be *very* careful with older trees; realize that size may not be indicative of age.
- ◇ Sometimes pruning and/or fertilization before and/or after construction *may* help a tree withstand the trauma and disturbance. The evidence is contradictory, so arborists decide how to treat each tree on a case-by-case basis.
- ◇ We do know that improper tree care techniques (e.g., topping, leaving stubs, flush cutting, climbing with spikes, indiscriminate injections, over fertilization, over pruning) *do* cause great injury to a tree. It's always better to do nothing at all than to do something improperly or poorly.
- ◇ Good knowledge of construction practices is not the same as knowledge about trees and construction. Don't hire an arborist to build your house... but don't expect an architect, builder, engineer, or landscape architect to know how to save your trees,

# Soils...

## What's Good For The Trees May Not Work For The House



If the soil is so compacted and hard that you have a difficult time digging a hole in it, it's probably going to be difficult for a tree to grow roots there, too.

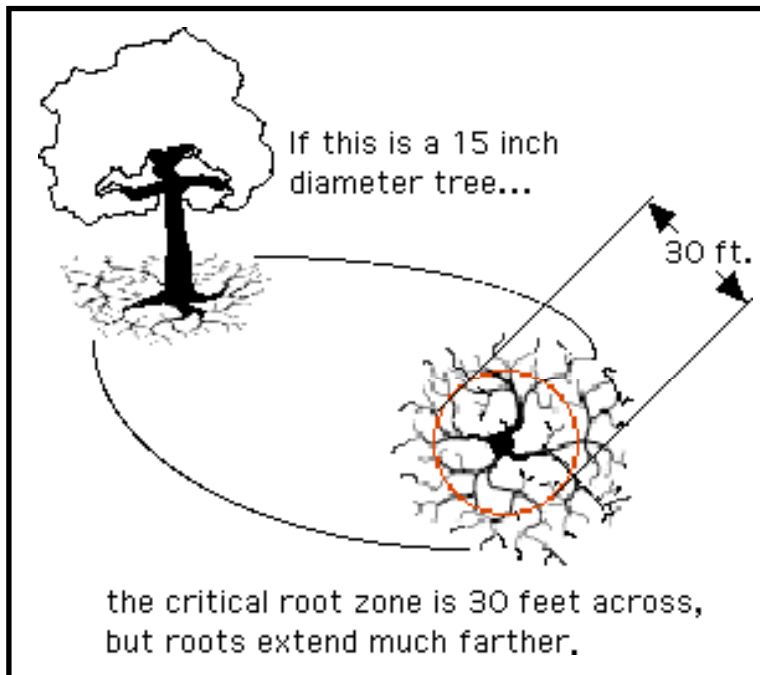
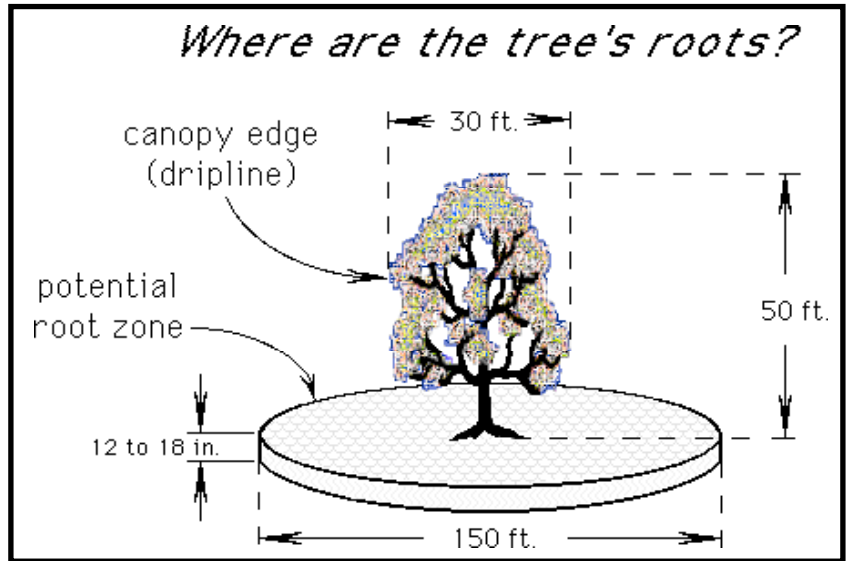
On the other hand, if the soil is loose and loamy and full of tree roots, the house foundation is probably going to settle and crack.

## ...and Roots

On wooded sites, tree roots are everywhere... what roots grow from which tree, and which roots can be cut off without killing the trees you want to save?

A tree's roots may grow two to five times its canopy spread in any direction; this tree's roots could occupy a space 150 feet across and eighteen inches deep.

Where a tree's roots actually grow cannot be determined without careful exploration. However, we know its roots are not deep; they are shallow and spreading, sort of like a pancake. A barricade fifteen feet wide around the tree protects 1% of its potential root system. A barricade at the dripline protects 4% of its potential root system.



A tree's "critical root zone" is determined by its trunk diameter at 4.5 feet above the soil line. For a young, vigorous tree of a species that tolerates change, the critical root zone is equal to a radius of six inches per inch of trunk diameter. For an older tree, or one that is not vigorous, or an species intolerant of change, the critical root zone is equal to eighteen inches per inch of trunk diameter.

# Planning

## **It's the most important step in tree preservation!**

While there are numerous treatments you might apply to an injured tree, a severely injured tree is not likely to survive, regardless of remedial actions. A construction-damaged tree will cost money to treat and often is not very attractive even if it does survive. Removal *after* construction can be *very* costly. And emotionally draining.

So, *plan* to avoid injury to the valuable trees on site. Make plans with an arborist. Tree preservation plans made by professions traditionally involved in the building industry may seem to save money, but often do not preserve the trees... or may preserve the *wrong* trees.

Recognize that there is a difference between leaving a bunch of trees standing... and *preserving* the right trees. Get your project arborist involved early; the arborist should be one of the first people on the site. You may be able to put the house in any number of spots on the lot, but the trees are where they are.

# Commitment

Be sure *all* contractors and sub-contractors who come on site are committed to following the plan. Do not permit deviations from the plan, unless you consult your project arborist first. It's probably not a good idea to let the guy on the bulldozer decide how to work around an unforeseen obstacle, or a tree!

Be especially careful when planning utility routes. Where are the sources? Where are the easements/rights-of-way... *through the trees*? You may be able to bore under the trees, but it will be costly. You may be able to move the ROW, but that will involve attorneys and engineers, which will cost money, too.

On the other hand, digging through the trees may cost you the trees. Plan early to avoid this potential conflict. Stay on top of this issue!

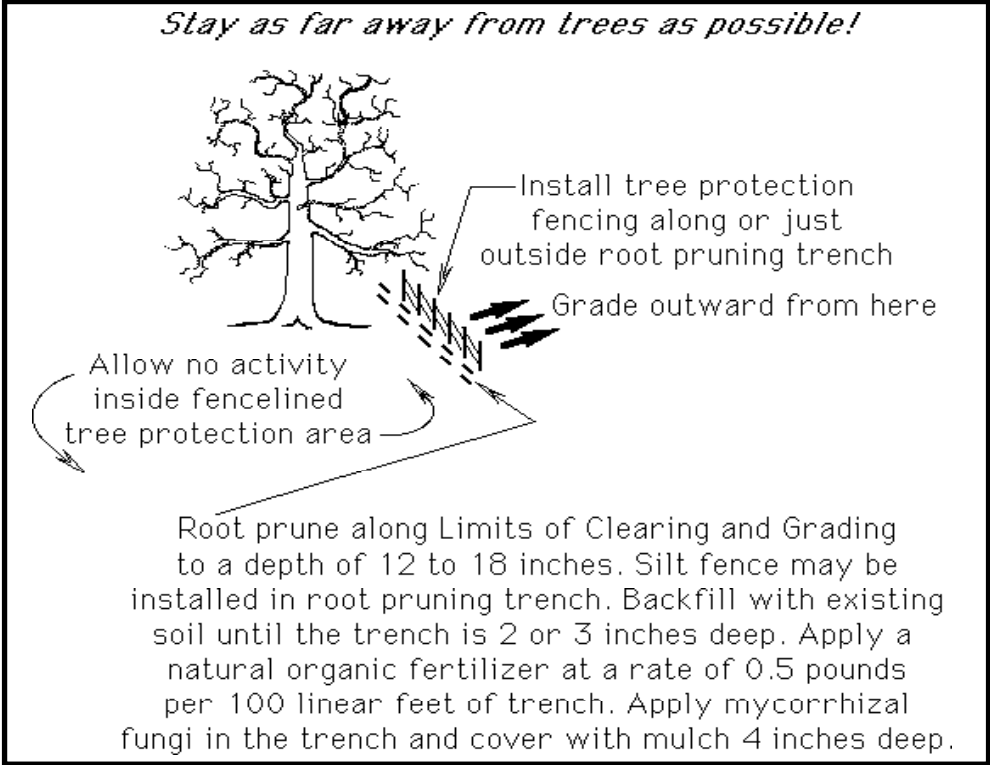
## **Plans are made... you are committed to saving this tree. Now what?**

Since we don't know exactly where the root system of a particular tree is growing, we try to preserve as much of the critical root zone as possible. To preserve the critical root zone, the general rule is to stay one foot away from the tree for each inch of diameter at breast height (DBH). So, if a vigorous, tolerant tree is 36 inches DBH, you would root prune 36 feet from its base.

This is not a hard-and-fast rule. However, the more you violate the guidelines, the less likely your tree will survive. Once you have pruned the roots, you are committed to that line as your limits of clearing and grading (LOC). Save too little for the tree, and it will die back. Find out later on that you cannot honor the LOC — that more room is necessary for workers to operate — and you damage the roots you preserved... and the tree diesback.

Root pruning cleanly cuts roots, giving them a good opportunity to heal over the injuries, sprout new roots, and continue growing. Crushed, mangled roots often rot.

Put up clearly marked fencing so everybody who comes to the site knows exactly where



activity is not allowed. *Hold them to it!* Equipment passing by, even a single time, *does* destroy roots. Paint and other chemicals, fill dirt, building materials, and the activity related to them also kill tree roots.

Monitor the site regularly to be sure plans are followed. If plans must be changed, consult the project arborist *first*... fixing a wrong guess later may not be possible.

# SUCCESS!!

## Your trees survived construction. Now what?

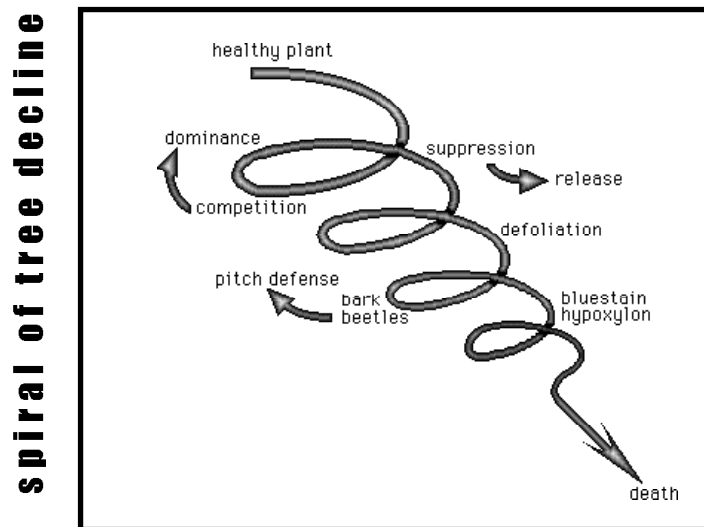
The price of healthy trees is eternal vigilance. Always remember: trees are *not* deep-rooted; 80% to 90% of a tree's root system is found in the top ten to eighteen inches of soil, and the important absorbing roots are in the top few inches. Tree roots grow in topsoil... not in

subsoil, not in soil buried under fill, and not in compacted soil. Alteration of the critical root zone in any way may have significant consequences for your trees. For example:

- ◇ Grade changes, trenches, pavement, lawn chemicals, and water table changes adversely affect tree roots; compaction alone can weaken a tree.
- ◇ The installation (even the *presence*) of a lawn is quite detrimental to tree root growth.
- ◇ Intense and/or repeated landscaping and cultivation under a tree *is* harmful to its roots.
- ◇ Irrigation around a tree that grew 50 years without supplemental watering can be harmful.

Before you act, get competent help! What appears to be of no consequence to an untrained person may be of great significance as far as the health and survival of a tree is concerned. An event that does not kill the tree outright may weaken it. Weakened trees often decline, which is a painful experience for the owner to endure.

A weakened or declining tree is usually plagued by insects and diseases; in fact, certain insect and disease problems are symptomatic of tree decline. Fighting off the pests — fighting to reverse a tree's decline — is expensive and success is not very common.



Tree first aid is expensive  
and only occasionally useful.

Avoid the need for tree first aid by good planning with  
someone who understands trees... an *arborist*!

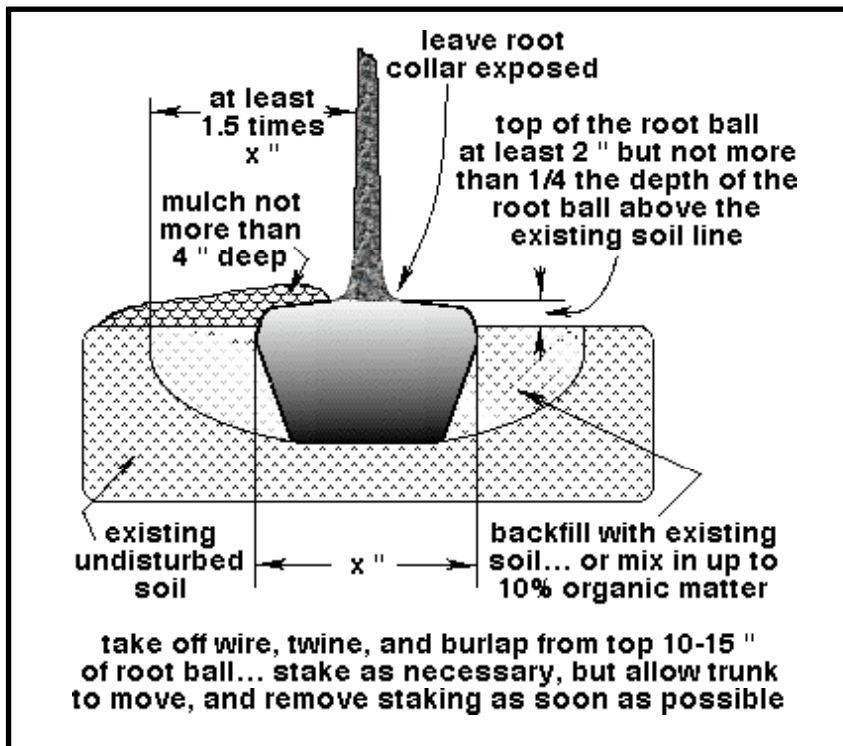
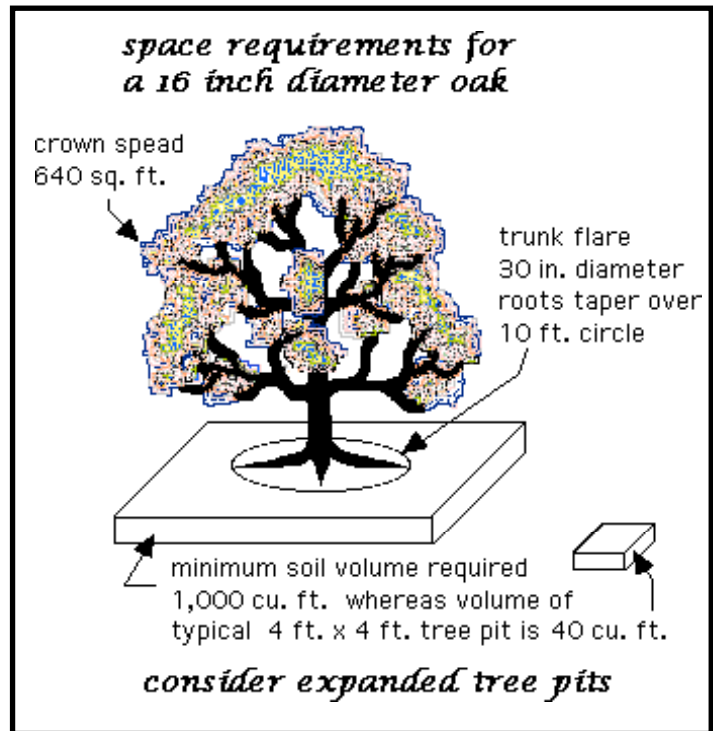


## It's important to plant new trees, too!

◇ Choose species that tolerate the site conditions.

◇ Give new trees room to grow... overhead, underground, and to the sides... plan for wires, walks, and walls.

◇ Plant it right!



## Sources of Information

### **American Society of Consulting Arborists (ASCA)**

15245 Shady Grove Road, Suite 130  
Rockville, MD 20850  
301-947-0483

<http://www.asca-consultants.org/>

non-profit professional society with rigorous standards for admission; offers referral of experts to testify, serve on panels, or provide educational and consultation services

### **American Forests**

1516 P Street NW  
Washington, DC 20005  
202-667-3300

our oldest conservation organization; open to membership;  
publishes *American Forests* magazine;  
maintains “Champion” tree list

### **International Society of Arboriculture (ISA)**

P. O. Box 3129  
Champaign, IL 61826  
217-355-9411

<http://www.isa-arbor.com/>  
<http://www.mac-isa.org/>

non-profit association open to membership;  
mission is research, education, and preservation;  
local branch is Mid-Atlantic Chapter (MAC-ISA covers D.C., Maryland, Virginia, and West Virginia — call 703-753-0499);  
ISA administers the Arborists Certification program

<http://www.goodtreecare.com/>

### **Your Local Cooperative Extension Service**

it’s an educational branch of the land grant university system; programs vary from locality to locality

### **Your State Forestry Department**

programs vary from locality to locality

# **Ed Milhous**

*Qualified – Experienced – Easy To Understand*

- masters degree in horticulture
- worked as an Extension Agent in Northern Virginia
- landscape consultation and environmental planning for 25+ years
- comprehensive training in:
  - turfgrasses and woody plants
  - plant pest diagnostics
  - soil sciences
  - storm water and erosion control
  - economics and finance
- Registered Consulting Arborist, American Society of Consulting Arborists
- certified by the International Society of Arboriculture (# MA-0004)
- Maryland Tree Expert
- develops landscape management plans for:
  - communities ranging in size from 100 to 800 units
  - historic properties
  - golf courses
  - developers
  - municipalities
- performs tree and landscape appraisals for:
  - condemnation proceedings
  - tax and insurance losses
  - liability issues
- conducts detailed hazard tree assessments
- provides diagnostic services for thousands of clients
- contract specifications and monitoring
- dispute resolution and expert witness testimony in diverse cases

***TreesPlease***®

**P. O. Box 1025**

**Haymarket, Virginia 20168**

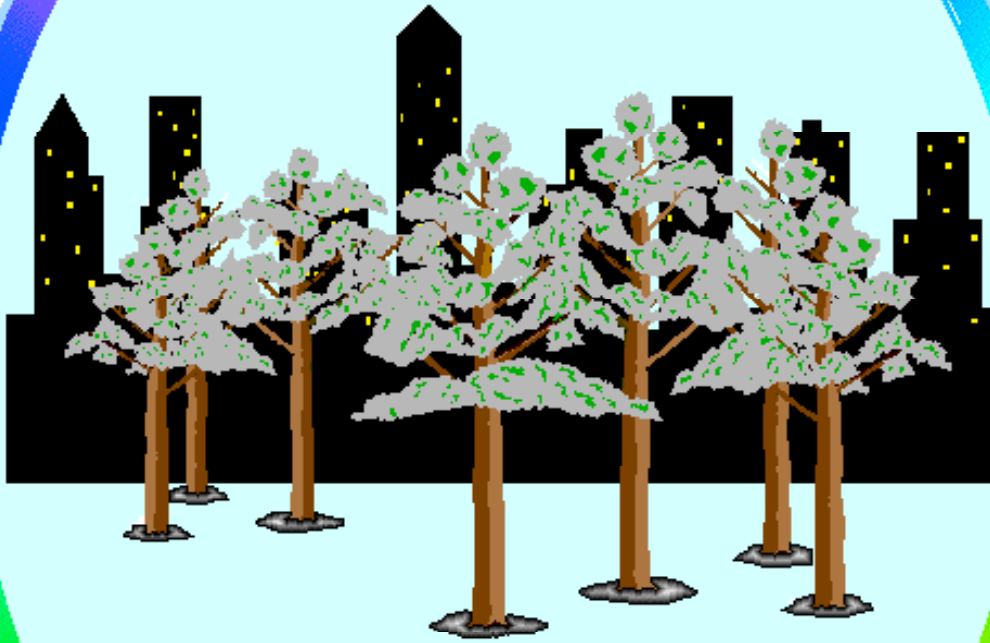
**703-927-2048**

**Ed@TreesPlease.com**

**<http://www.TreesPlease.com>**

*A second opinion is much more useful before the surgery.*

*Will there be trees in your city?*



*You can make a difference!*