

THE CHARLOTTE TREE PROGRAM¹

by Thomas P. McDermott

Charlotte is a growing hub of 325,000 people in the Piedmont region of North Carolina. Charlotte is also blessed with an abundance of trees; both hardwood and pine forests dominate the landscape. I have been told that we live in a forest. This natural beauty of Charlotte is an asset the Landscaping Division of the Department of Public Works must work diligently to protect.

A few years ago, tree maintenance in Charlotte was given its first serious look. At that time, tree maintenance was the responsibility of the City Engineer, Street Maintenance Division, and an inactive Tree Commission. Concern was being voiced by citizens interested in preserving what we had and in adding new trees along our newly widened and improved roadways.

A new ordinance for the protection of public trees was written by our reactivated Tree Commission and enacted by the City Council in 1973. This ordinance placed the responsibility for public trees with the Landscaping Division and authorized the division to recruit the City's first arborist.

The question of what should our new arborist do was one of the first asked. In his initial position description, a number of tasks were laid out. These tasks and goals also established the goals for our tree program. I would like to outline what we have accomplished to date and where we are heading to fulfill the goals we initially set out.

Development of a tree planting program

Tree planting was being accomplished with the aid of Federal urban beautification monies and some bond funds as our only source of money. This allowed us to plant trees along some of our busier thoroughfares; however, little in the way of a "program" was in effect.

Today, we have a number of ways in which funds for trees are secured. The funds set aside for the construction of new or widened roads automatically include funds for tree planting. These trees may be planted along the right-of-

way, in a median or, if space is critical, in a temporary easement on private property. This easement program has proven to be very popular and worthwhile. It allows us to get the appearance of street trees at a nominal cost to the City. It also pleases the property owner.

We are fortunate in being able to work closely with our Community Development Department. They have money for the improvement of neighborhoods; these improvements normally include tree planting. When construction work in an area is completed, we gather input from the neighborhood group on their desires and conduct a survey of our own to determine the number of trees. The final species selection is a joint effort. We then supervise a contractor who plants the trees. This program allowed us to plant over 1300 trees this year.

Our cooperative tree planting effort involves the community directly. Under the plan, a neighborhood group collects funds (presently \$15 per tree), which is turned over to the City who, in turn, plants the bare-root tree on the City's right-of-way. The selection of trees is determined by the group and the City together. We currently have more requests than we can take care of. We attempt to target this planting at about 500 trees annually and easily exceed our target. We have not set a limit on the amount the group can spend for a tree. One neighborhood paid \$75 each for 2-2½" sugar maples.

This year we had requested over \$300,000 to begin a viable tree planting and replacement program. The bulk of this request was denied due to limited funds; however, we did get some money to allow us to replace a portion of the trees throughout the City. We feel that trees can make or break a neighborhood. Therefore, we want to replant trees where removals have had to take place over the years. It is our hope that this will help stabilize the neighborhood and ensure its attractiveness in the future. This program we feel

¹Presented at the annual convention of the International Society of Arboriculture in Toronto, Ontario, Canada in August of 1978.

will be enthusiastically accepted by the community.

compared to finance and equipment management, we were able to get some attention from the MIS

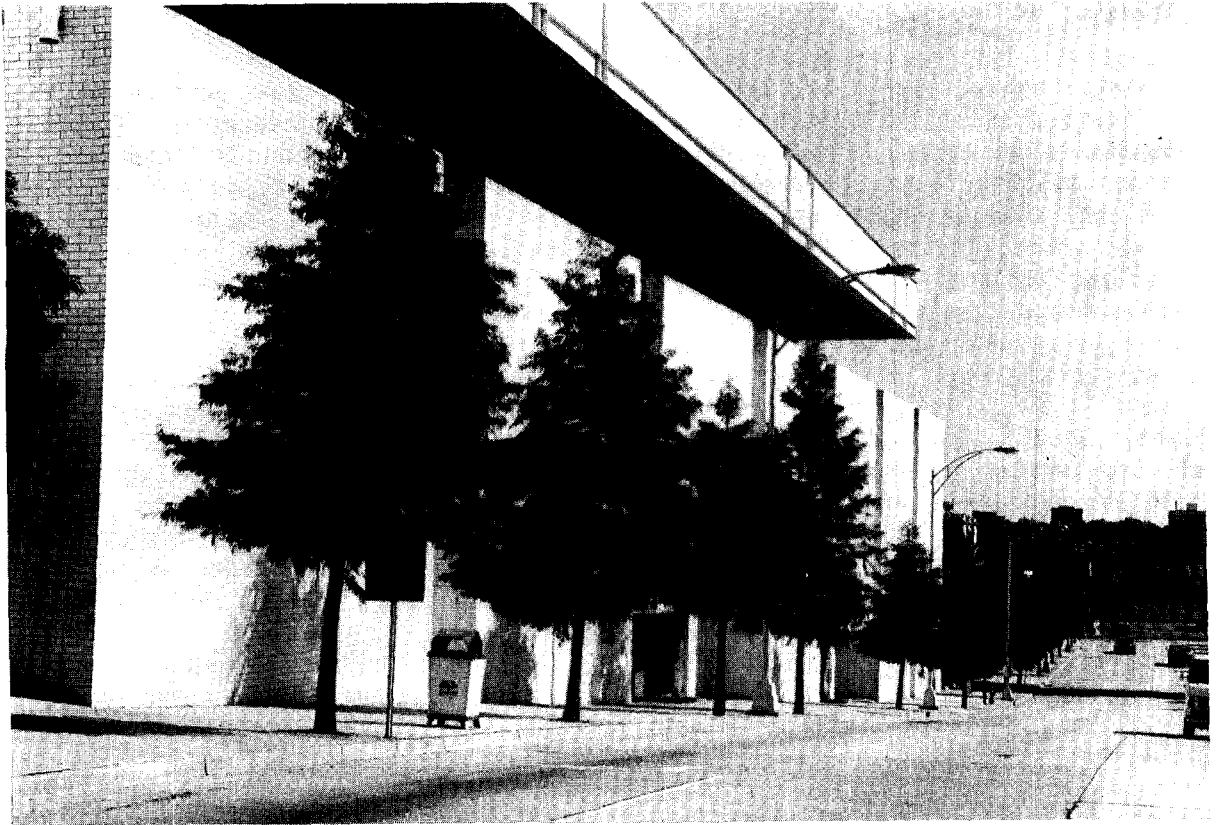


Fig. 1. Bald cypress street tree planting along Civic Center in Charlotte, North Carolina.

Management and maintenance.

The second major task we established was the development of a professional management and maintenance program. The key to management problems is knowing the extent and variety of your problems. Without this knowledge you don't manage, you simply respond to crisis.

To develop our management program, over two years of data collection and computerization work has been undertaken; by measuring the actual location of each tree and planting locations we know all the pertinent data on each tree in the City.

At the time we were collecting data, we were working with our MIS Department (Municipal Information System) in developing a system to utilize the inventory once it was accomplished. Although a tree inventory is a relatively low priority system

personnel. We are developing a system based upon ESIS (Engineering Street Index System) which in turn is keyed on the Geographic Base File/Dual Independent Map Encoding System, which is a by-product of the 1970 census. Thus, we are building on existing available systems and not starting anew. The landscaping system will give us a superb management tool. For instance, we may wish to determine which trees are in most need of pruning, removal, etc. We can easily secure a listing showing the location of these trees, within a specific geographic area. Then a maintenance system based upon actual need can be built. The ability to secure the location throughout the City of any individual species would allow us to develop an effective program for that one species if needed such as an elm disease control program.

We are planning a minor survey of other municipalities to determine the relevancy of our costs. In addition, we are developing a cost analysis of our various tree planting and maintenance operations based upon statistical regression techniques. By merging these data with our inventory data, we hope to project costs for various levels of service. Recommendations as to personnel needs, crew sizes, and the possibility of utilizing contract maintenance crews can be based upon projected costs and efficiencies. The final decision can then be made by our elected officials. Another aspect we hope to research with the use of our computerized inventory is to attempt to determine tree failure rates under urban conditions. This type of information could be of tremendous help in future planning.



Fig. 2. Tree trimming with a bucket truck along a street in Charlotte, North Carolina.

Tree ordinance

Administration of our tree ordinance was another major responsibility of the position. Public trees were under control except for the never ending utility work: private property was another matter. As a result of two years of work by us and our tree advisory commission, we have developed a workable ordinance governing trees on private property. This ordinance calls for the planting of trees along private property where it touches the right-of-way. One tree for every 50 linear feet is required. In addition, tree planting within the project is required whenever the paved area is in excess of one acre.

The landscaping division gets to review each site as building permits are requested. We then work with the property owner granting variances where needed and allowing for compromise to achieve our goal of restoring and enhancing the existing tree cover of the City. We have had little opposition and much cooperation to date.

Master street tree plan

The last major facet of our tree program is the development of a master street tree plan. This is a major use of our street tree inventory. In addition to planting location and the existing mix of species, we hope to design a plan that will truly benefit Charlotte.

A master street tree plan should be more than just a listing of streets and species. We envision a plan that doesn't restrict, but instead allows for freedom of choice, freedom to work within the existing conditions. Hopefully, our plan will consider background vegetative cover; air quality, noise abatement needs, existing soil conditions, energy consumption of surrounding buildings, and thermal comfort.

Tree programs for cities are vital to aid in improving the quality of life. Those in charge of a tree program should have goals and objectives to strive for. A program that only looks at our present sad state of affairs and strives for the status quo and not to our brighter future is a program that has failed before it has begun. Charlotte is a moving, growing dynamic city of the new south. We want our tree program to demonstrate this and we feel

that we are on the road to the achievement of our goals.

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ABSTRACTS

Foster, Ruth S. 1978. **City tree planting contracts. I.** *American Nurseryman* 158(7): 13, 117-120.

Municipal contracts must be publicly advertised. Bids may be of two kinds — whole job or item-basis. Under the whole job price arrangement, the price to complete the entire contract is given. Because there are no itemized costs, if a problem arises and something has to be added or removed, there is no assurance that a fair cost will be paid or deducted. With an item-basis bid, each item has a separate number, a separate specification and a quantity, and a separate per-item price for each is bid. Problems arise if one item must be exchanged for another. Be careful of any contracts that use state and federal guidelines or funding. There will be labor requirements. Payments are the major problem with municipal tree contracts. They are slow and a credit squeeze often results. There should be a provision for partial payment in the specifications. Payments and billing should correspond with progress. The smaller the final bill, the better.

Murphy, L.S. and H. Follett. 1978. **Liming.** *Agrichemical Age* 22(7): 24-26, 28.

It's ironic that the requirement of calcium as a plant nutrient, known to the Romans, practiced by Benjamin Franklin, and the basis of soil fertility investigations during the first half of this century, should be now overlooked. Liming provides three benefits for plants, one being the improved soil pH which affects availability of elements such as phosphorus; the second, the improved supply of the essential element, calcium; and the third, lower solubility of toxic aluminum and manganese. Liming agents may also contain another essential plant nutrient, magnesium, in varying quantities. The effectiveness of a given liming agent is based upon its ability to produce calcium or magnesium ions and hydroxyl ions in the soil solution which can subsequently displace and react with hydrogen ions in the soil. The effective calcium carbonate rating of a limestone is the product of its calcium carbonate equivalent (purity) and the fineness factor. Soil analysis is the only technique to utilize for determining the amount of lime to apply.

Stirling, G.R., M.V. McKenry, and R. Mankau. 1978. **Biological control of root-knot nematode.** *California Agriculture* 32(9): 6-7.

The apparent biological control of root-knot nematodes in several peach orchards on Lovell rootstock is one of the first documented examples of biological control of a plant-parasitic nematode in the field by a naturally occurring antagonist. Further studies of factors affecting the parasitic activity of *Dactylella oviparasitica* are in progress, and we hope that eventually it will be possible to optimize the effectiveness of the fungus in the field by orchard management.