MUNICIPAL TREE SURVEY AND URBAN TREE INVENTORY[1]

by Hans J. Johannsen

In order to manage something properly, it is of the utmost importance to know what you have to manage, especially how many, what kind, and what size. The specific questions that arise when we ask for our budget funding are the following:

How many trees do we have?
How many empty tree spaces do we have?
How many trees do we plant every year?
How many trees do we trim every year?
How many trees do we spray every year?
How many trees are removed?
How many die from Dutch elm disease?
How many die from vehicular accidents?
How many die from vandalism?
How many die from gas leaks?
How many trees fall in a storm, how many limbs?
How much work was done in a specific section of town?
How much work was done by a specific crew or man?

Obviously these are just a few questions. Can all the above questions be simply and easily answered by going to the file cabinet and digging through the files? I do not believe they can. Most files are not specifically set up for giving such answers. To find the answers we must go through all the files and search and accumulate and compile. We report all our work and record it, but not in these categories.

And the above were the simple questions. The matter gets more complicated when you get into a court case where the city is sued because of damages that occur from trees on public property to persons or private property. In order to collect from the city, you have to prove negligence in performance of duty. When a claim is filed, our corporation counsel (city lawyer) asks us the following standard questions.

1. What is the size and the condition of the subject tree?
2. What work or inspections were performed on this tree during the three years preceeding the alleged incident?
3. Are there any complaints or reports on file in your office pertaining to this tree during these three years?

You go to the files to find the answers to this inquiry. The first question, size and condition of the subject tree, brings us to the biggest stumbling block in this whole problem. What tree? The one in front of 1225 28th Street, N.W. Are you certain? No, I better go and see. So you get in the car and find that the tree in front of 1225 28th Street, N.W. is a 4-inch tree that was planted 2 years before the incident and could not possibly have a 12-inch limb that fell on the car parked at the curb in front of 1225 28th Street, N.W. The limb was from the 30-inch silver maple tree growing in front of 1227 28th Street, N.W. Now you know the subject tree. The tree is still there. It has green leaves all over, no dieback, no visible cavity, and the roots seem to be good. It is still in good condition.

To determine if there was any work performed during the three years prior to the incident, you go to the trimming file and find that 12 trees were trimmed on September 10, 1972, in the 1200-block of 28th Street, N.W. which was within the time limit. The file also shows that the 1300-block of 28th Street, N.W. was trimmed the next week. It appears that all the trees were trimmed under routine trimming. But are you certain? You could go to court with this information and the claimant may prove that there are 14 large trees in that block and not 12. He may say and prove that there was a car parked under the tree in question in front of 1227 and the crew did not trim this tree during this period because the neighbor whose car was parked there was in Europe for four weeks. So our crew forgot to trim that tree. If our trimming record is not fully accurate, we may lose this

[1]Presented at the 50th International Shade Tree Conference in Atlanta, Georgia in August, 1974.

case. This example shows how important it is that we know exactly which tree we are talking about, and that we record exactly which tree we are talking about, and that we record exactly all events correctly.

Any complaints on the tree? We look in the street file (28th Street, N.W.) to find if any complaints have been made concerning the tree. All telephone complaints are recorded and given to the area manager for inspection. He in turn records his findings and recommendations and follows up with work orders that are typed. They are given to the crew foreman and completed in order to have adequate records. This completed work must show when and by whom the work was completed. Also, the reason for work must be given and any other remarks that may be necessary.

Let me give you another example of how a court case can go. A man's car was damaged by a fallen limb in front of his house in a thunderstorm during the summer. He sued us for replacement of the car. He alleged that he had been calling the tree and landscaping division for two years about the tree. He claimed he was right, that there was something wrong with the tree. See what happened! Pay up!

A search of our record file showed he did call two years ago. He complained about a dead limb extending over his house. The record shows that the area manager inspected the tree, five days later. He issued an order to trim the tree and to remove the dead limb. Ten days later the limb was removed by our crew. The file further showed that the same man called a year later and stated that he had installed a new TV antenna and a limb interfered with it. Again the complaint slip showed that we made an inspection and subsequently removed this limb. During the third summer a live limb broke off in a storm on the street side and fell on his car. After hearing all this evidence the judge asked the man if he had any other proof of the city being negligent in doing their duty because all his complaints had been followed with reasonable response and action by the city. He had not proven us to be negligent and the case against the city was dismissed.

In this instance it was only a small claim that was covered by his automobile insurance, but what about the case where a man is killed and the suit amounts to 2½ million dollars? If you have adequate records you may not have to pay.

What does all this have to do with municipal tree survey and urban tree inventory? It points out very clearly that records are necessary and that only accurate records are good records. In order to have these records, we must have a system that includes all this information. The records must be up-dated daily as we report our daily work. We are fortunate that the assistant director of our highway department recognized the complexity of our problem and gave us a priority rating to work with the automatic data processing division to establish a tree data system. In meeting with the ADP people and the street inventory section, we developed our *MISTRE* system. MISTRE stands for 'Management Information System For Trees in the District of Columbia'.

The first problem was to identify the tree. By house number was no good because some houses have two trees and some trees are on the line between two houses. Some trees do not grow in front of a house, but in front of an empty lot, a park, school, or other object that cannot be identified by number. We have to designate a space for it. Should it be designated as the first tree or the first tree space? If this tree would be removed then all the other tree designations would be changed. What happens if a tree space should be paved? The whole numbering system would be changed.

We concluded that each space or tree should be listed by a foot measurement starting at the corner of the street. In fact, it should be measured as distance from the point of the intersecting curbs. It is simple enough for anyone to understand and for anyone to find this point of intersection (PI). The system is based on the street inventory that was already in the computer. Even though we are not giving the house numbers, the system is based on the hundred blocks of the street with the intersecting street being a starting point. We always start on the

lowest street number and go upward, never in a decreasing direction.

By following this pattern let us see how far we have gotten with the location designation for each tree.

1. A code number for the section of town: 1=N.W.; 2=N.E.; 3=S.E.; 4=S.W.; and 5=odd things like the dividing capitol streets, interstate highways, etc.
2. A number for the street name: obviously 1st, 2nd, 3rd, 4th streets, etc. for numbered streets, and number codes for named streets and avenues.
3. A designated number for the intersecting streets: this is closely related to the hundred block of the street.
4. A designation for the side of the street: 1 for the even and 5 for the odd side.
5. The distance in feet measured from the point of intersecting curbs.
6. The last number is an off-street measurement taken for trees that are not curb trees but trees located behind the sidewalk but still on city property. This measurement is taken from the face of the curb to the center of the tree. Whether a curb tree is 4, 6, or 8 feet from the curb makes no difference. It will always appear on the list as 000.

A typical location number would be 10280-1201-0143-000. This designates the tree to be a curb tree in the northwest section of the city on 28th Street, 143 feet from the PI of M Street on the even side. This location number is unique for this tree. For the first time we know exactly which tree we are talking about.

A local newspaper, after learning of this system, lamented in an editorial that now, not only has the government succeeding in reducing humans to a number, our social security number, it also has succeeded in assigning each tree an ID number. My response was that with this number system we hope to manage our trees better. We will be able to use all the information collected for this tree number to advantage in the search for more information about our city trees.

Now with this system when we request *MISTRE* programs, our terminal uses the tree ID number to instantly print the history of that tree. It will give the complete print-out of all transactions on the tree, such as dates of inspection, work performed, updating on conditions, etc. In addition it will give you information on previous trees at the same location.

We were fortunate to employ ten summer aids for 90 days during 1973. Under the supervision of two horticulturists, these people were able to collect census data for 50,000 entries into our system. People of all tree expert levels could collect this data. The system will accept the tree as *Ulmus americana*, or American elm, or 8501, the designated number of the tree. It can be up-dated anytime by more exact information. The important thing is to give the right information or give nothing.

Included on these census data sheets are the following: date data were collected, collected by (initials), area and section information, side of street, main street, quadrant, cross-street, and direction. All of these will identify the information in the computer and act as "passwords" for the following information that is collected for each tree:

Distance from the PI
Species of tree
Size in caliper dbh
Type of space the tree is growing in
Size of the tree space (length and width)
Condition of the tree space
Location (good location for a new tree or bad)
Tree maintenance condition

The first results that we received from the computer is a Sorted OUtput Listing, SOUL. This is a complete print-out of all the conditions on the block as shown on the tree census data sheet but up-dated to the present time. We keep one copy in the office. If a complaint is called in and the caller wants to inform us of a dead tree, we can answer "Yes, we have this tree listed as dead." If the reply is "Good, just wanted you to know", we do not inspect a dead tree already on the list. If the reply is "The dead limbs have been falling off," then we inspect it and make out an order to remove it. We also can determine the suitable, empty tree spaces for our replanting program.

Our area managers also carry one copy of this SOUL with them. If they see a condition that needs work or up-dating, the SOUL book gives them an accurate ID number for the tree. They can then fill out a special up-date sheet or request work assignment.

We use our block-listing when responding to telephone complaints. The up-date procedure is as follows. You circle the ID number in the

upper right-hand corner to indicate that you found the tree that corresponds to the one in the complaint. You indicate on the block-listing your initials, the date of inspection, and the present condition of the tree. By simply circling a code number you can generate a work assignment through the computer. It is ready for you the next morning. Other trees in the block that need attention are inspected and up-dated at the same time.

Department of Highways and Traffic
Washington, D.C.

ABSTRACTS

Fretz, T. A. and E. M. Smith. 1975. **Why herbicides fail.** Am. Nurseryman 141(1): 12, 116-124.

Most herbicide failures reported are not really herbicide failures. When one considers all the external forces that can ultimately affect herbicidal action, it's a miracle they work at all. Not only are there numerous environmental factors that are involved in herbicidal action, but the chances for human error are present from the initial steps of selection of the herbicide, its application and crop management. This paper calls attention to the fact that herbicides are not perfect. The variety of weather, soil texture, temperature, weed spectrum, soil organic matter, crop and the many other factors alone and in combination influence herbicide performance year after year. There may be seasons when, because of these factors, individual herbicide performance varies. But cultural control also varies year to year, so one bad experience with the use of herbicides should not result in relinquishing an herbicide program.

Lee, C. I., B. C. Moser and C. E. Hess. 1974. **Root regeneration of transplanted pin and scarlet oak.** New Horizons, p. 10-13. Hort. Research Inst., Washington, D. C.

The research described in this report was undertaken in an effort to shed some light on the oak transplant problem. For experimental purposes, it was decided to investigate factors affecting root regenerating potential (RRP) of the difficult to transplant scarlet oak as compared to the easily transplanted pin oak. Because of the large number of plants needed, all experiments were conducted with one- and two-year-old seedlings. In all cases, bare root field grown seedlings were transplanted into one gallon pots and held under greenhouse conditions for six weeks at which time the media was washed from the roots and RRP observed. Root regenerating potential was determined by counting the number of new roots formed. The above experiments lead to the following conclusions concerning the oaks studied: 1) Scarlet oak has a lower RRP than pin oak, which is a major factor in ease of transplanting. 2) There is a seasonal pattern to RRP for both oaks with a maximum in the spring. 3) Auxin treatment to the roots enhances RRP of both oaks but does not alter its seasonal pattern. 4) Pruning of shoots enhances RRP of scarlet oak but has a negative effect on RRP of pin oak. 5) Disbudding experiments suggest that RRP in scarlet oak is limited by its aerial shoots while RRP in pin oak is promoted by its shoots. 6) Antitranspirants applied to dormant shoots enhance RRP in scarlet oak but have no consistent effect on pin oak. 7) Reciprocal grafting experiments support the hypothesis that limitations to RRP in scarlet and pin oaks are imposed on them by factors in the aerial portion of the plant.