

COMPUTERIZED TREE TRIMMING PROGRAM¹

by J.L. Oatman

Abstract. A computerized tree trimming program has been developed and implemented at Florida Power Corporation to give needed budget, productivity and work forecasting information. The program allows individual users at various work locations to request reports directly from the computer through the use of CRT terminals. The users can decide the variables to be printed in the report and what limits will be placed on the variables. For example, date trimmed, map number, estimated and/or actual manhours, etc. The system also determines contractor efficiency, utilization and productivity.

Florida Power Corporation has a 20,600 square mile service area ranging from Lake Placid in south central Florida to Port St. Joe and Mexico Beach in northwest Florida (Fig. 1). We serve approximately 750,000 customers in five divisions located in rural and urban areas.

Several years ago, we realized that we were not getting ahead with our distribution tree trimming program. We were putting out "fires" but were not making any long term plans or commitments, and had no long range maintenance plan. At best, planning a budget was an educated guess, and we did not know if we were getting our money's worth from our contractors. All of our tree trimming is contracted and, therefore, it was important to us to develop some means of measuring contractor productivity. In 1976, we decided to try to set up a program to accomplish this.

The first step was to decide what information would be needed, and how to record and maintain all of these data. Putting it on the computer was the most logical choice. The information that we decided we would need was: work location (by X and Y coordinates, Fig. 2), patrol date, map number, operating center, line code, estimator ID, review date (when trimming is going to be needed), type of crew required, and estimated trim and/or removal manhours.

Tree trimming projects were established according to the date trimming would next be necessary and logical project boundaries such as stands of trees, changes in line construction, major highways, etc.

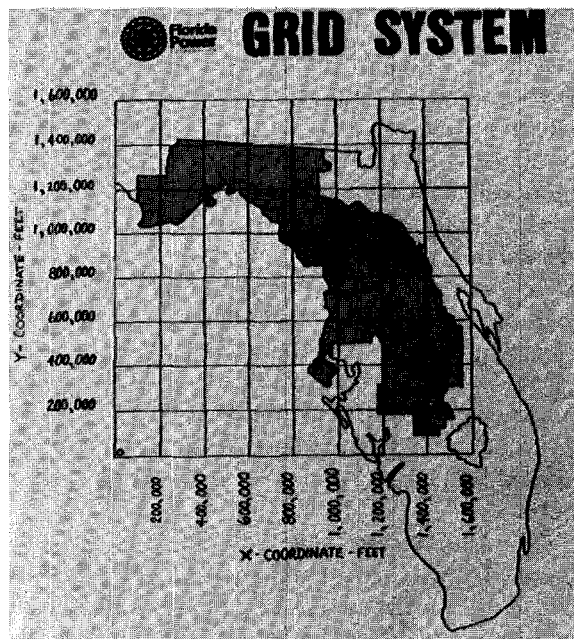


Fig. 1.

Contractor personnel with many years of tree trimming experience were used as estimators. We had to use contractor personnel because, at that time, we had no Company personnel with enough experience to do this. A training program was held to educate the estimators about the new program and to teach them the criteria for creating and estimating projects.

We felt that we should be able to estimate trim manhours on projects for up to three years in the future. Projects that did not need trimming within the next three years would be created and have a project review date but would have no estimate until later, ideally a year to eighteen months prior to when trimming would be needed.

In order to include all of our distribution lines, the estimators were given sets of distribution maps which they utilized in a walking inventory of each line. Projects vary in size from as little as two manhours up to over two hundred manhours, with

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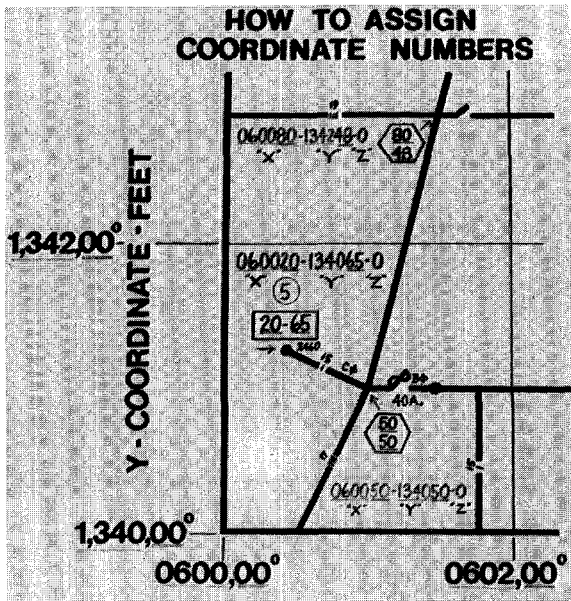


Fig. 2.

the average project being about thirty manhours in size.

When all lines on a map had been estimated, the map was turned in and the projects were loaded into the computer. As soon as this was done, it was possible to begin scheduling crews to projects that were most in need of trimming.

Initially, priorities were established by placing 1, 2, or 3 in a position on the report form to indicate respectively, needs immediate attention, will need attention later, and handle on a regular schedule. But this was soon eliminated, since entering the month trimming would be needed served the same purpose.

Hazardous conditions, such as tree houses built close to conductors, were reported immediately by the estimator and handled on a same-day basis, whenever possible.

This estimation process, when completed, gave us the most conclusive information possible at the time, and, for the first time, we had a fairly good idea about how much trimming we had to do in our service area. This gave us a tool to assist us in developing a tree trimming budget and planning our maintenance work.

Here is how the program is working now: a tree trimming coordinator requests a printout of all the projects in his area that need trimming within the

next twelve months, by map number and district. The coordinator or contractor general foreman then locates these projects on the respective maps and makes a visual check of them to verify that the project does need trimming when indicated, and that the original estimate appears fairly accurate. If the estimate appears substantially incorrect, or if the project review date is wrong, corrections are entered into the computer and the information updated. This is done to avoid sending a tree crew to a project that does not need trimming at this time. The crew foremen are given a map showing the projects needing trimming, as well as a prioritized list of projects. They are then scheduled to trim these projects to obtain a minimum of three years clearance.

When projects are completed, the crew foreman fills out a tree crew report form (Fig. 3), with information about the crew time spent on the project. This information, as well as a new estimate of when and how much trimming will be needed next time, is then loaded into the computer. Data not changing on a project is automatically carried over by filling in "date completed." A new project is then created by the computer at the same location with the new estimate and project review date.

Fig. 3.

When a project is completed, it is then possible to obtain efficiency, utilization and productivity information on contractor crews, using the following definitions:

$$\text{efficiency} = \frac{\text{estimated trim manhours}}{\text{actual trim manhours}}$$

$$\text{utilization} = \frac{\text{actual trim manhours} + \text{actual removal manhours}}{\text{actual trim M/H} + \text{actual removal M/H} + \text{non-ord. M/H} + \text{travel \& dump M/H}}$$

productivity = efficiency × utilization.

Because estimates were made by different persons in each division and operating center, comparisons of contractors and crews between areas is not possible. We have more than one contractor in each division, however, so we are able to compare contractors within a division of operating center. We are also able to base decisions and actions on the relative productivities of these contractor crews. At some point in the future, we

hope to be able to compare contractor productivity on a system basis.

This is our third year into the program and we are now able to tell at any time how much trimming needs to be done at present and each year for the next three years. We now have accurate data which we are using to determine future budget requirements and measure crew and contractor productivity.

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PUBLIC RELATIONS IN UTILITY RIGHT-OF-WAY MAINTENANCE¹

by L. Brian Morris

There are two major reasons for the necessity of increased emphasis on public relations in the area of utility right-of-way maintenance. Primarily, our society is continuing to grow more extensively in urban areas. When individuals are constantly faced with brick walls, asphalt parking lots, rigid time schedules, traffic jams to and from work, and stressful jobs, they will often come to rely on their home and property as a fortress against the jet-set pace of life. They become very protective of everything that lies within their property lines. For a right-of-way maintenance crew to enter the customer's domain and proceed to trim vegetation that is hindering reliable electric service, is to in-

vite hard feelings against the utility. In many cases it is difficult to identify potential trouble until after the fact.

The second reason for our growing need to concentrate on desirable public relations is the fact that our increasing operating expenses due to fuel costs and inflation have caused customers to question the utility's operating practices. Without extremely courteous customer contact, the chances of offending a concerned customer are high. We must remain on a personable basis with these individuals and defend our practices sometimes by lengthy explanations of our procedures. Since all of Duke Power Company's

¹Presented at the annual meeting Southern Chapter, ISA, in Tampa, Florida in February 1980.