

Inventory *continued from page 1*

Below are explanations of what each inventory method is or involves, and some of their strengths and limitations.

Canopy Analysis—Using aerial photos or satellite data, this method analyzes the canopy coverage of a community and surrounding land. It can be either relatively easy, such as land-use dot grid counting, windshield survey, etc., or extremely complicated such as GIS, involving photo rectification, ground truthing, etc. An analysis of the photos over time allows you to see changes in land use or canopy that can be compared to national land-use standards; e.g., percent commercial, residential, industrial. It can also provide coarse estimates for environmental values, such as storm water retention, air quality, etc. If remote-sensing data are used, some ground truthing will be necessary. Canopy analysis may be most useful for rapidly growing communities. For example, data may be linked with other data to produce an analysis of land parcels to be targeted for conservation or development. Canopy analysis can be used to create a visual presentation to influence policy decisions or public opinion. While not necessary, the use of geographic information system (GIS) software can make analysis of the information much faster and more efficient. *CITYgreen* software from American Forests, Inc. is an example of a GIS-based program that analyzes canopy cover for use in community or regional planning.

Sample Survey—This is a structured survey of a representative sample of about 2500 trees of the community's tree population. The results of the survey are extrapolated across the community. It is a fairly sophisticated method for taking a baseline assessment of the tree population that can be used for strategic planning. Like canopy analysis, it does not link data to street location for daily management decisions. Rather, sample sites are structured to represent the overall composition of the tree population. A sample survey is most effective for medium to large communities when a complete tree inventory is unnecessary or cost prohibitive. For further information regarding the use of sample surveys, refer to Jaensen¹.

Tree Tally—The tree tally counts every tree managed by the community, but that information is not keyed to street address. For example, a matrix can be developed showing tree species by size down the side, and maintenance needed across the top (Figure 1). Each tree is logged into the corresponding square with a dot or tick mark. This provides enough information for strategic planning but not for daily management such as dispatching maintenance crews for specific tasks. This is a very

simple system that may be most useful in the smallest communities and the largest cities which are divided into smaller work units. Minimal data collection makes it a very fast system to implement. There are no data to maintain, though after several years the community should be re-inventoried. The tree tally is also a good system for a first-time inventory, although many communities have used it effectively for years. Personnel who are collecting tally data should be trained to identify potential hazard trees—they can either perform a hazard tree assessment at that time or flag the location for a thorough follow-up exam.



Figure 1: Example of a Street Tree Tally Sheet

| Species | Tree Dia. | Tree Condition & Maintenance Needs | | | | | | | |
|--------------|-----------|------------------------------------|-------|-------|-------|-------|-------|--------|--------|
| | | Good | | Fair | | Poor | | | Dead |
| | | Leave | Prune | Leave | Prune | Leave | Prune | Remove | Remove |
| American Elm | 0-6" | . | | | | | | | |
| | 6-12" | . | ••••• | • | ••••• | | | | |
| | 12-18" | •• | ••••• | | ••••• | | •• | | |
| | 18-24" | | | • | ••••• | | | | |
| | 24"+ | | | | | | | | • |
| Norway Maple | 0-6" | •• | | | • | | • | | |
| | 6-12" | | | | ••••• | | | • | |
| | 12-18" | | | | | | | •• | |
| | 18-24" | | | | | | | | •• |
| | 24"+ | | | | | • | | | • |
| Honey-locust | 0-6" | | •• | | | | | | |
| | 6-12" | •• | | | | | | | |
| | 12-18" | | | | | | | | |
| | 18-24" | | | | | •• | • | | |
| | 24"+ | | | | | | | | • |
| Etc. | | | | | | | | | |

Index Card File—This method is used to record detailed information on individual trees. The records are kept on paper, such as index cards, and are usually keyed and filed by street address. The amount of data collected can be as simple or as complex as the community wants. Because the information is on paper, the ability to retrieve, sort, tally or analyze the information without the use of a computer is inefficient and time consuming at best. Therefore, it provides good information on individual trees, but not on the resource as a whole. Like other systems that record information on individual trees, a significant investment of time must be made to maintain and update it. This method is best for communities with small tree populations.

Spreadsheet/Database—Similar to the index card file system, this is a complete tree inventory with varying levels of data collection keyed to street location. It utilizes standard spreadsheet or database software and can be customized to meet the needs of the community. Because it is on computer, the information can be efficiently retrieved, sorted and analyzed in a variety of ways, increasing the utility of the information collected. This is a good, low-cost alternative for small- to medium-sized communities that do not need all the