

Campus Tree Management Programs

By Bartlett Inventory Solutions

There are two ways to run a campus tree management program. The simplest and most common way is by **crisis or reactive management**. Deadwood is removed when someone complains, trees are planted when donations are received, and fallen trees are cleaned up after a storm. The alternative is **proactive management**. This entails defining program goals, determining resources, developing a management plan and implementing the plan. **Research has found that crisis management accomplishes work on only one third the number of trees serviced on a proactive management program.**

There are five steps to developing a proactive management strategy:

1. Define program goals and objectives
2. Inventory the resource
3. Develop a management plan
4. Implement the plan
5. Follow up with accurate records

Goals and Objectives

Goals and objectives must be designed in clear, precise and measurable terms. Goals vary among tree managers with most expressing the desire to have an aesthetically pleasing campus landscape that poses no imminent safety hazards to passersby.

Examples of written goals are the following:

- For public safety, trees with potentially hazardous conditions will receive immediate remedial treatments or be removed.
- To ensure an aesthetically pleasing campus landscape, losses will be minimized with a plant health care program and suitable plant replacements selected.

Specific objectives should be defined for all of the generalized goals:

- Trees will be pruned “preventively” on a three-year rotation to minimize deadwood and structural problems.
- Pest populations will be monitored and treated as needed.

Inventorying the Resource

The type of data collected for each tree depends on your program goals. Typical options include:

- Location – street address/ GPS coordinates
- Tree/Site Parameters – Species, size, condition
- Management Needs - Pruning requirements, insect and disease management, sidewalk damage and soil management recommendations

For an inventory to be worth the time and expense of collecting the information, it must be updated and used as a management tool. The **Bartlett Inventory Solutions** team uses **GPSr** (Global Positioning System receiver) hardware and **ArborScope™**, a web-based proprietary software to inventory and manage campus tree populations (Figure 1).

Figure 1: GPSr



Management Plan

A management plan should be developed from the information collected in an inventory and based on the stated goals and objectives. Since many factors will change, the plan will need to be periodically updated and projected for the future.

Proactive plans should project work for three to five years. Priority 1 items may include defective trees with relatively high levels of associated risks. Obvious defects include dead trees, broken and hanging limbs and deadwood. Testing wood strength around areas of the tree showing signs of decay, cavities, or root rot may fall into this category. More subtle hazards include lower limbs blocking signs or interfering with pedestrians/ vehicles, trees rubbing against buildings, and large trees in open areas that may attract lightning.

The BIS team uses the ISA's *BMP for Tree Risk Assessment* and guidelines developed by the Bartlett Tree Research Laboratories to qualify the risk associated with inventoried trees. The risk rating produced is based on a combination of three factors: the *likelihood of failure*, the *likelihood of the failed tree part impacting a target*, and the *consequences of the target being struck*. Because risk ratings are relatively dependent on target exposure and value, maintenance can be delayed on trees in low traffic areas and away from sidewalks or buildings. Trees next to buildings and walkways receive top priority for maintenance.

Tree Campus USA

The National Arbor Day Foundation is now promoting the **Tree Campus USA** program.



A campus must conform to five standards to qualify:

1. Campus Tree Advisory Committee
2. Campus Tree Care Plan
3. Campus Tree Program with Dedicated Annual Expenditures
4. Arbor Day Observance
5. Service Learning Project

The second major consideration is preservation of tree health. This includes routine pruning to maintain health and structure, prescription fertilization based on soil sampling, root collar excavations, monitoring soil bulk density, and maintaining insect/ disease pests below damaging levels. Integrated pest management programs are recommended to prevent losses from pests while minimizing pesticide usage.

The third consideration is aesthetics. Maintaining a desirable natural form of a plant or formal appearance are some aesthetic considerations. Identifying planting sites and recommending species to be planted may also be incorporated into the plan.

Implementing the Plan

What is the best way for campuses to get tree work done? It usually involves a mixture of work done by in-house crews and contract crews.

In-house crews can address small tree pruning, less intricate removals, and possibly pest monitoring. In many instances, contracting out maintenance to tree service companies is most economical. Tree service companies have the necessary equipment and trained personnel to perform work efficiently.

Record Keeping

Using an ArborScope™ project developed for your campus makes it easy to document maintenance performed by linking files and work order to individual trees. It may be necessary to update tree inventories every so often to reflect changes in the tree population and maintenance performed. These activities will form the basis for future tree care on the campus.

By assuming a proactive approach to tree care on campuses, work can be accomplished more effectively to provide healthier, safer trees at reasonable cost.

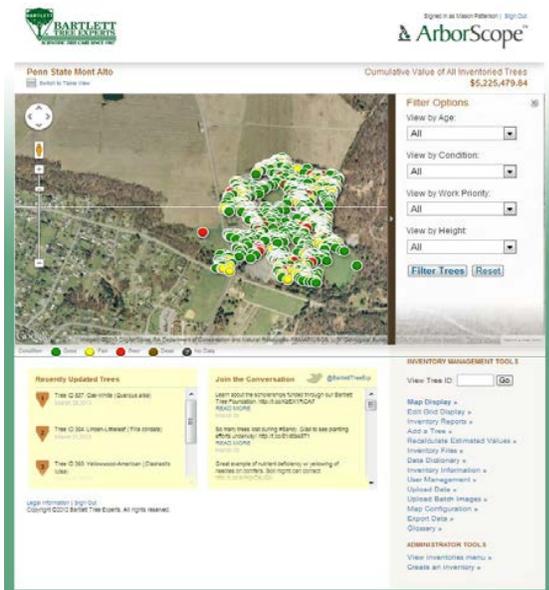
A commitment to trees on your campus can significantly reduce the amount of energy a campus and community needs to generate. Planting and maintaining trees on your campus and in the community reduces carbon dioxide in the atmosphere. Additionally, green spaces give students and faculty settings to relax.

As a Tree Campus USA college, you will create a campus that not only benefits the environment but instills pride in the students, faculty, and community. Tree Campus USA colleges will receive recognition materials that can be showcased throughout the campus as well as press releases to be distributed on campus and in the community.

ArborScope™

ArborScope™ inventory software is state of the art, seamlessly integrating inventory data collection, reporting, updates, and management. Once the data has been collected and uploaded, each tree's spatial location is overlaid onto a Google Map and the attribute data collected for each tree can be displayed in tabular form.

Figure 2: ArborScope™ inventory software screenshot



Updating is relatively easy using ArborScope™. Management plan reports summarizing tree characteristics and recommended tree work can be generated with ease. Subsets of trees requiring management can be identified, filtered, and mapped as a means of increasing field management efficiency.



Founded in 1926, The Bartlett Tree Research Laboratories is the research wing of Bartlett Tree Experts. Scientists here develop guidelines for all of the Company's services. The Lab also houses a state-of-the-art plant diagnostic clinic and provides vital technical support to Bartlett arborists and field staff for the benefit of our clients.