



Environmental Design's 14-foot tree spade was used to relocate a pine tree for a reforestation project in South Dakota for Kevin Costner's Deadwood Resort.

# New Technology Improves Options for Large Tree Moving

By Jason Cox

**I**t wasn't too long ago that real estate developers and landscape architects had to rely on small, easily handled trees for their landscaping requirements -- trees that could take years to assume the finished look the designers had in mind at the project's start.

However, today that's not the case. Thanks to existing and rapidly improving equipment and technology, fully mature trees of any size can be relocated on-site or from miles away to complement a project and completely flesh out the designer's vision. But with these new abilities come new concerns. Survivability can vary according to region and the process itself can be expensive, complicated and time-consuming.

While these considerations are a concern, steps can be taken to balance the risks with the advantages. "Instant shade and amenity are benefits of using larger trees and the service is available depending on where you go, especially around metro areas," says Alan Dreesen, extension forestry program leader for the Texas Agricultural Extension Service. But the shock maybe too great depending on the species, time of year and location. Dreesen says transplanting mature trees is most justified when measures are taken to prevent loss and damage to the tree itself. Alteration of the root system incurred during the transplanting process can dramatically effect the tree's survival and Dreesen recommends a long-range plan of before and after care as a hedge against injury.

## What Makes a Successful Transplant?

"Ideally, you should contract far enough ahead (about a year, before root elongation starts) so you can do some root pruning, to get a new root system in the rootball and fertilize the soil for better carbohydrates," Dreesen says.

Claude Thompson, senior urban planner for Garland, Texas, echoed many of Dreesen's pre-transplant concerns, especially for trees undergoing inter-regional transplant.

Garland, a city about 20 miles northeast of the Dallas-Fort Worth Metroplex, sits squarely in a natural prairie; a particularly inhospitable environment for trees that are used to different conditions. Thompson compares regional relocation to a person moving from an urban area to the country, or vice-versa.

"It's going to take some time to adjust. One of our problems is being in a prairie. Trees are attractive and evoke emotions, but we have a difficult time preserving them in urban

areas. Sometimes they're just not able to go there." Like Dreesen, he stressed the need for root pruning and added that because of the specific nature of the prairie soil, aeration and irrigation are critical.

Much like a containerized tree, when the roots grow out of the rootball's prepared or natural soil into the soil at its new location, they're going to encounter some difficulty. Because problems specific to a region's environment are magnified for a species accustomed to a different area, the site and tree must be prepared, Thompson advises. It also helps if the new location is compatible with the tree's natural setting. All of this preparatory work should be explained to the client, he says, because of its effect on the tree's appearance. "The client or developer needs to understand that the tree isn't going to look the same in the new setting as it did in the field."

Another problem, he says, is that many often cited benefits of mature trees are not well documented. "We say that air quality is improved because they remove so many pollutants, and that water quality, erosion and runoff are maintained," he says, there hasn't been substantial studies done on the subject." Thompson adds, "They do have established aesthetic and psychological values and add to property values. But is one big tree actually better than several small ones? It is certainly a justified thing in the right place." These right places seem to be on the increase.

## **On the Move**

With the advent of stringent preservation and landscape ordinances, the need for equipment and technology capable of moving giant trees has risen accordingly. Over the years, Instant Shade, a company located in Houston and developer of the hydraulic tree spade, has worked with existing transplanting technology to produce a 14-foot hydraulic spade -- a machine three times the size of the largest existing mechanical tree spade. This new spade, the world's largest, is capable of transplanting trees weighing up to 45,000 pounds with rootballs measuring up to 14 feet wide. Another Houston-based company, Environmental Design, has been pioneering giant tree moving technology on its own and developed a number of methods of ensuring larger trees' survival. The 1993 acquisition of Instant Shade by Environmental Design marked a new era in tree moving that has resulted in some groundbreaking work.

One of the developers who lined up to take advantage of the company's combined expertise was St. Louis County in Missouri. They were interested in relocating plants to another area of a park. Over a period of three days, 13 mature red oaks and sugar maples were transplanted via the 14-foot spade in order to accommodate a butterfly house and reflection pond. The trees were moved about 300 yards from the entrance of the park to an on-site historic village.

Park Director Jim Foley remarked to the local media that the historic village already looked more settled with the trees in place. It was the first time such a project had been

undertaken in the St. Louis area. Kent Thieling, the project's supervisor, said the trees handled the moving well with many showing four to six inches of new growth. Thieling noted some difficulties were encountered post-transplant, but said he has faith the trees will survive. "We went through a drought period from June through early August," he states. "During this time, the trees were monitored and watered with drip irrigation to provide the equivalent of one inch of rainfall per week. With the cooler weather of fall now on the doorstep, I feel that we made it through the first critical year. I am confident that we will have a 100 percent survival rate."

Dreesen notes that follow-up care is just as vital as any other aspect of the project. "Supplemental watering is necessary for a few years after transplant, possibly two to four depending on the size of the trees. It's a long-term investment. After all, if you have all that money wrapped up in a tree, it makes sense to take care of it."

The St. Louis project illustrates how trees from the same area preserve the ecological integrity and blend well with other features of the landscape. It also shows how trees imported from locations near the project site adapt faster to the micro-environment because of their homogenous soil types. Along with routine watering, other techniques, such as mulching and sanding to prevent evaporative loss from the rootball add to the trees' chances. These services in concert with the specialized equipment can help make larger trees more cost-effective amenities than other commonly used landscape alternatives, including hardscapes and waterscapes.

## **Stretching Your Dollar**

It is becoming less expensive to relocate trees than to destroy what is already in place and replant. Because of Environmental Design's success with the 14-foot spade, the company developed a number of other methods of transplanting that help them to work with even larger trees.

Roundballing, a method in which the tree's rootball is hand dug and wrapped in burlap and wire, helps the company successfully move trees ranging up to 300,000 pounds and measuring 50 inches in caliper. While limited by the capacities of the lifting and moving equipment, this procedure made on-site relocation of giant trees possible. Trees are ultimately set into position by a crane and serviced according to their needs. This was the method employed for the relocation of a 100-year-old pecan tree in Atlanta's Olympic Centennial Park for the 1994 Summer Games.

As the centerpiece of the park, the tree was imported from an area a few miles away. Like the St. Louis project, the tree is showing new growth after a dormant period and park officials said the tree is expected to survive the move without any adverse effects. Environmental Design claims its comprehensive approach results in an overall 95 to 98 percent survival rate in trees with calipers ranging from 16 to 60 inches.

Large tree projects like the relocation of a 100-foot spruce tree in Bethesda, Maryland, for IBM and the preservation of a historic oak tree at the home of assassinated civil rights leader Medgar Evers have become the company's mainstay.

Now Environmental Design has set its sights on the development of an even larger hydraulic spade -- a 16-foot machine with the ability to move a tree weighing up to 100,000 pounds with a rootball up to 16-feet wide. A hydraulic gantry system has also increased the potential for size and survivability. For many, the immediate impact of size and appearance justify this kind of transplanting project for a site. As one St. Louis park official was quoted when asked about the decision to preserve the existing trees, "It beats waiting 25 to 50 years for smaller trees to get big."

*Jason Cox is a freelance writer and consultant in Houston, Texas.*

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