Street Tree Profile:
Greenville, SC

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Successful street tree plantings are the result of high level technical expertise that involves horticulture and arboriculture, engineering of utilities and infrastructure, and people management and communication skills. In Greenville, SC the teams who conspire to create green infrastructure on Main Street and downtown make this look easy. First there's the Parks and Recreation Department who manage the green aspect to the infrastructure. They work in tandem with the Economic Development Department, Public Works, Engineering, Special Events, and the Downtown Construction Inspection Department. Jimmy Walters, Interim Program Coordinator in Urban and Community Forestry for SC Forestry Commission has worked with the City of Greenville over the years and he acknowledges Greenville's success with the extremely complex coordination inherent to urban and community forestry work. "The City of Greenville understands that trees are green infrastructure, and like other infrastructure, planning, installation, maintenance and replacement require lots of cooperation between the various departments and agencies" reports Walters.

Dale Westermeier, a Clemson University horticulture major (1982) began his tenure with the City of Greenville as a member of the downtown beautification crew and progressed to Parks and Grounds Administrator. He can still remember when Greenville resembled a ghost town and most of the downtown shops were vacant. He and his crews were involved in the installation and maintenance of

the original 1978 streetscape master plan that laid the groundwork for the current award winning urban haven. The dominant trees planted at that time on Main Street were willow oaks *(Quercus phellos)* and red maples *(Acer rubrum)*.

Westermeier explains that the city is currently in its 5th year of a 10 year downtown restoration plan. In 2005, they contracted with consultant James Urban, of Urban Trees + Soils to assess the health of the downtown trees as some of the red maples that were planted in the late 1970s and early 80s were beginning to show signs of decline. Urban, an award winning landscape architect and author is an expert on growing trees in difficult urban spaces. Urban worked with Westermeier and the City of Greenville to design and implement a plan of systematic tree restoration and replacement.

Downtown Greenville includes 30 square blocks and is expanding to include another 12 square blocks in the historic West End. There are currently 192 trees on Main Street. Willow oaks, claims Westermeier, are most impressive in this urban setting; and crapemyrtles *(Lagerstroemia)* prosper in areas with restricted vertical space, such as under power lines. He is watching Chinese pistache *(Pista-*

cia chinensis), black gum *(Nyssa sylvatica)*, nuttall oaks *(Quercus nuttallii)*, and shumard oaks *(Quercus shumardii)* on the side streets adjoining Main Street and sees their potential to perform well in the urban environment. The downtown tree plantings are maintained by the same crew that cares for Falls Park (see "Falls Park on the Reedy" in *South Carolina Nurseryman* magazine, 2008, Jan/Feb, pp.35-39). Parks and Grounds staff includes individuals with horticulture, forestry, and engineering degrees

as well as a certified arborist.

The restoration plan for the downtown tree plantings involves an annual inspection of each tree. The trees are measured, visually assessed, and graded. The planting site is also assessed for sidewalk condition, water, electricity, and economic development. The price for restoration or replacement is then determined and the schedule/plan is adjusted to accommodate the yearly budget. In 2010, 10 renovations/replacements were scheduled for Main Street.

Restoration treatment for trees, many of them willow oaks *(Quercus phellos)* whose roots are bulging from their original planting area includes vertical mulching, air spading, and sometimes bed enlargement by removing portions of the nearby sidewalk. Vertical mulching allows columns of organic matter to be injected into the soil while the air spade blasts air into the soil to reduce the effects of compaction. Girdling roots are cut whenever possible. A light layer (1-2 inches) of hardwood mulch is added to the top of the soil, but does not touch the bark of the tree. Westermeier prefers the double ground hardwood mulch because its stays put and is less of a fire hazard than some other vegetative mulch. Mature trees do not receive supplemental watering.

The trees in decline are slated for removal and are being replaced with 2-3" caliper Allee elm *(Ulmus parviflora Allee®)*. This Chinese elm, also known as lacebark elm, is fast growing and highly resistant to Dutch elm disease and elm leaf beetle. All replacement trees are receiving brand new planting beds designed according to the new Silva Cell system.

Silva Cell technology allow soils to stay uncompacted under pavement which thereby reduces storm water runoff potential during normal rain events. Silva Cell is a modular system where each poly steel reinforced unit or cell is placed either next to one another or stacked up to three high in the hole. Then the area is lined with a permeable fabric that contains the soil. The system contains root barriers to protect surrounding infrastructure. Silva Cell meets the American Association of State Highway and Transportation H-20 standards for highway loading, so the system can be used under most paved surfaces, from parking lots to plazas and streetscapes (http://www.buildinggreen.com/auth/article.cfm/2009/12/1/BuildingGreen-Announces-2009-Top-10-Green-Products/). BuildingGreen, LLC, publisher of the GreenSpec Directory and Environmental Building News announced Silva Cell as one of the top 10 green products for 2009. Most of the planting beds in downtown Greenville are using 5-6 Silva Cell units per tree and contain soil made of 90% screened topsoil and 10% pine fines (finely ground pine bark).

The downtown restoration requires diligent communication between city workers and merchants. The vibrant business atmosphere is honored by a commitment of workers to minimal impact on commerce. "We couldn't proceed street by street or block by block-as that would involve closing sections to traffic and pedestrians-and that would negatively impact businesses", claims Westermeier. Instead, the work is completed in small sections, with the trees in most stress receiving restoration or replacement first. Merchants are notified of the upcoming work through door hangers, letters, and perhaps a personal visit. "We let people know what's going on and this eliminates 99% of the negative experience", explains Westermeier. Some work is scheduled for the wee hours of the morning so that Main Street parking spaces remain available to merchants and patrons during the day, rather than being blocked by work vehicles. Scheduling is also sensitive to the needs of businesses with outdoor dining facilities.

Coordinated communication within city crews and between city departments also contribute to Greenville's successful streetscape. Public Works, New Construction, Special Events, and Economic Development departments' calendars are all considered when work is being scheduled. Many downtown trees share their planting space with electrical service boxes and outlets to accommodate the special events and the year round Christmas tree lights that draw both visitors and locals downtown. Outdoor kiosks abound in the downtown and the vendors are required to sign contracts that protect tree planting sites.

Greenville's green infrastructure prowess has not gone unnoticed. In 1982 Greenville became a Tree City USA and has been recertified for 28 consecutive years. In order to become a Tree City USA, four criteria must be met. First, there is an active tree board or department; there is a tree care ordinance; there is a community forestry program with an annual budget of at least $2.00 per capita; and there is an annual Arbor Day observance and proclamation. Parks and Grounds, and particularly the downtown tree restoration and replacement project receive strong support from both City Council and the Mayor, according to Westermeier. "Everyone here [Mayor and Council] understands the beneficial impact of healthy trees", he claims. Jimmy Walters travels the state of South Carolina on behalf of the SC Forestry Commission helping communities install or improve their urban treescapes. "I often use Greenville as a good example of what a community can do with trees to revitalize a business district" he reports.

In 2003, Main Street, Greenville was designated The Great American Main Street by the National Trust for Historic Preservation. In 2009, Main Street, Greenville was acknowledged as a Great Street in the Great American Places program by the American Planning Association (APA). Award winners in the Great American Places program are announced annually and the winners "represent the gold standard in terms of having a true sense of place, cultural and historical interest, community involvement, and a vision for tomorrow" (http://www.planning.org/greatplaces/index.htm). "They are places" according to APA, "where people want to be — not only to visit, but to live and work every day. America's truly great streets, neighborhoods and public spaces are defined by many criteria, including architectural features, accessibility, functionality, and community involvement" (Ibid).

It should be no surprise that Main Street, Greenville won this prestigious award. Downtown office space totals over 3 million square feet; there are 95 restaurants, 19 of which opened between 2009 and 2010; 91 retail businesses; and the daytime population (within 1 mile of downtown) is over 21,582 people. In addition, Greenville is home to the Bi-Lo Center, a 15,000 seat indoor arena and the Peace Center for the Performing Arts, which offers over 300 performances and events each year. Over 300 days each year are dedicated to events in the downtown such as a weekly music series, a farmers market, parades, festivals, and shows (City of Greenville Downtown Facts & Figures, Economic Development Department).

Greenville's downtown street trees serve many purposes according to Westermeier. They provide shade for outdoor dining, are aesthetically pleasing, and serve to provide a quality of life that fuels economic development. Mayor White sums this up in a press release video, when he claims that the Great Streets award is useful for attracting out of town developers interested in Greenville, new businesses, and economic development in general. "This award is like a Good Housekeeping Seal of Approval recognized across the country… APA is recognized across the country and across the world as a good arbiter of what it being done right in terms of planning…" (http://www.youtube.com/watch?v=NA3pIRnw3oc).

Westermeier's advice to other communities engaging in street tree installation is to create larger growing spaces. The competition between healthy tree roots and sidewalks and irrigation systems is ongoing and larger planting spaces saves time and money repairing infrastructure down the road, plus ensures the tree a longer life span. He claims Greenville has a 95% success rate for new plantings and over the past 10 years only five trees have been removed due to decline. The second piece of advice is to be a proactive communicator. Greenville is home to passionate tree protectors and any activity involving the trees is observed and sometimes dramatically responded to. "When people know what it happening they tend to be very supportive", he explains.

Westermeier knows that when the trees are healthy, people (and business) will come. In addition to implementing the downtown revitalization plan, Westermeier's 65-70 person crew maintains over 600 city sites on over 400 acres. Westermeier not only knows the value of talking to merchants and residents, co-departments and Council; he never ceases to praise the people who work for and with him on a daily basis. It is because of their abilities, talents, and commitment to Greenville that the work gets done and everyone benefits. Jimmy Walters, of the SC Forestry Commission perhaps says it best, "Greenville's downtown business district is a shining example of what an urban forest can and should be."