

CROSS SECTION **RALEIGH, NC**

NEW GREEN HOTSPOTS—DISSECTED



ies, since the city unveiled the first of 30 planned electric-vehicle charging stations in November 2010. In fact, the Electric Power Research Institute (EPRI) will host its fourth annual Plug-In

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—PAULA THOMAS, SUSTAINABILITY INITIATIVES MANAGER

conference in Raleigh this summer. A gathering for car manufacturers and component suppliers, the hybrid- and electric-transportation symposium will take place—for the first time outside of California—at the Raleigh Convention Center, which was one of only two LEED Silver-certified convention centers in the country when it opened in 2008.

"So far, we've already hosted four or five green meetings at the convention center, everything from the National Association of Home Builders Green Building Conference to the Association for the Advancement of Sustainability in Higher Education," says Loren Gold, executive vice president of the Greater Raleigh Convention and Visitors Bureau. "We're trying to strategically position Raleigh as a sustainable destination, not only with our convention

SOUTHERN SUSTAINABILITY

One of America's fastest-growing cities, the City of Raleigh has turned the economic downturn into an environmental upswing with a three-pronged approach to sustainability **BY MATT ALDERTON**

ANYONE WHO'S BEEN THERE knows: North Carolina is NASCAR country. The birthplace of NASCAR legend Dale Earnhardt, the state has hosted nearly 30 NASCAR races and is home to more than a dozen paved race tracks, not to mention the new NASCAR Hall of Fame in Charlotte.

But though critics have

estimated that in a single season, NASCAR drivers consume nearly 2 million gallons of fuel and produce untold amounts of pollution since their vehicles lack mufflers, NASCAR does recycle motor oil and donate shredded tires to construct playground materials, and raceways have begun to harness solar power in incredible

ways (see our story on Pennsylvania's Pocono Raceway in *GBQ's* May/June 2011 issue). And North Carolina as a state is also getting greener by the day, thanks in large part to a sea change in its capital city: Raleigh.

In Raleigh, cars don't just have mufflers. Soon, they'll also have rechargeable batter-

READINESS CAMPAIGN

(Opposite page, Right) A city employee works to install an electric-vehicle plug-in station. The City of Raleigh was one of three cities in the nation to be selected by the Rocky Mountain Institute for Project Get Ready, which prepares cities for plug-in electric vehicles. Raleigh has become a hub for electric vehicles and is a national leader in electronic-vehicle infrastructure.

center, but also with a lot of other initiatives that are being taken up by the city."

Those initiatives include a green-workforce-development program, two solar photovoltaic farms, and at least 40 separate LED lighting projects, just to name a few. "The city has committed a lot of resources to its mission statement, which is to become a '21st-century city of innovation focusing on environmental, cultural, and economic sustainability,'" explains sustainability initiatives manager Paula Thomas. "That's not a mission for my office; it's a mission for the entire city."

A VERDANT VISION

Raleigh has never been far from this explicit mission. "This didn't happen overnight,"



Thomas explains. "There's been a commitment in this community for centuries to environmental quality of life and environmental stewardship." Raleigh's founders nicknamed it the City of Oaks because of its burgeoning population of oak trees, around which the city built a vast system of parks and greenways. Because manu-

facturing failed to take root there during the Industrial Revolution, Raleigh remained small and grew slowly—until the dawn of the 21st century, when it suddenly hit a growth spurt.

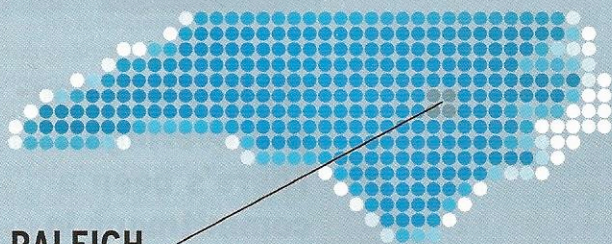
In 2000, Raleigh's population was 276,093. A decade later, it had exceeded 400,000, making it among the fastest

growing US cities, according to *Forbes*.

"That much growth that quickly raised in the minds of our elected leadership that the City of Raleigh needed to rethink what it was going to be, what it was going to look like, and how it was going to position itself as the growth continued," Thomas says.

"Clearly, there are things that come with a lot of growth and development—there's more traffic, more garbage, more building—and we needed to decide how we were going to manage those things so this would continue to be a great place to live. That was the goal of our mayor, Mayor Charles Meeker, who had a vision of redesigning Raleigh as a 21st-century city."

Meeker's vision coalesced in June 2008, when the City Council adopted the City of Raleigh's more environmentally explicit mission statement. Around the same time, Thomas was hired as the city's first-ever sustainability manager. "My position was created by the City Council when they began to get interested in

**RALEIGH
AT A GLANCE**

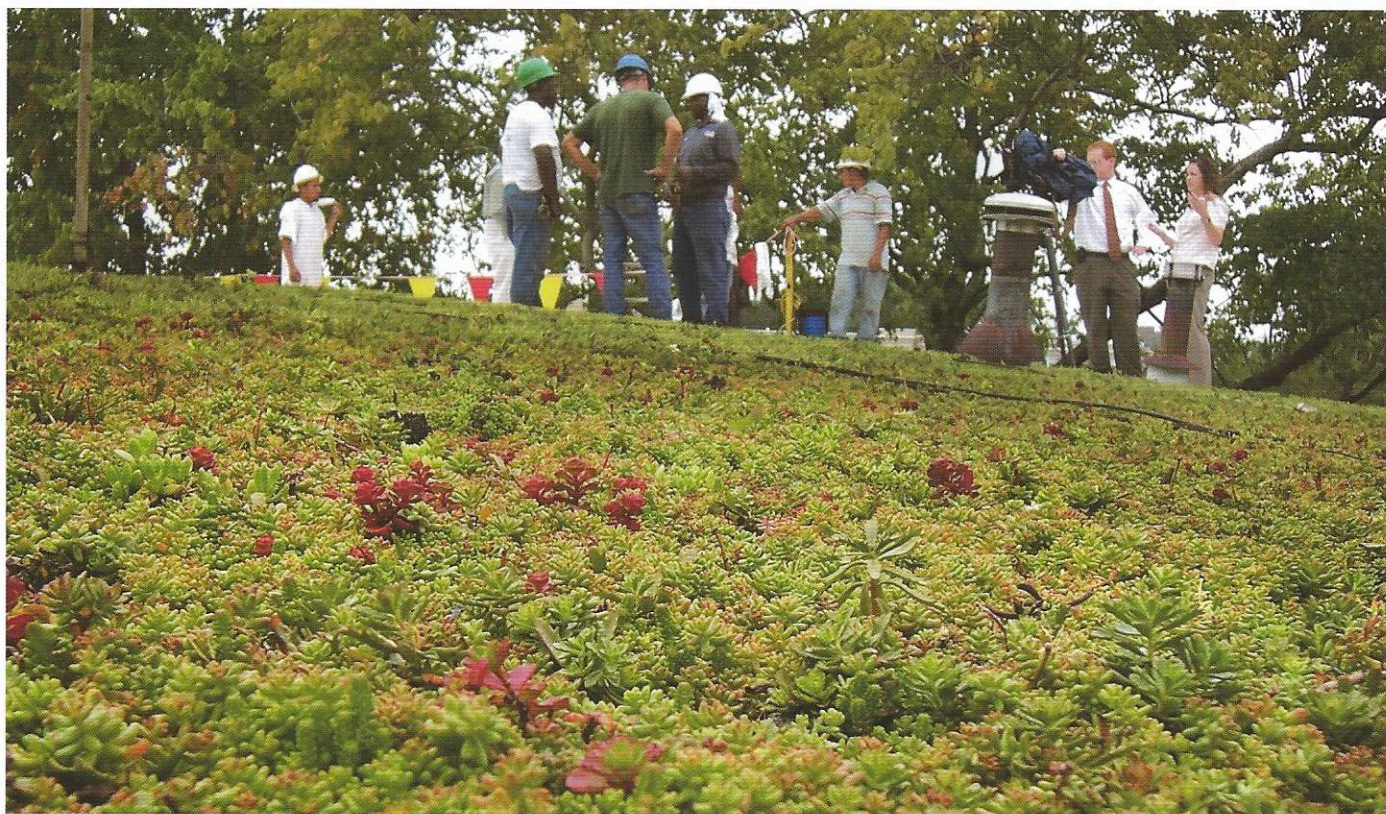
FOUNDED
1792

POPULATION
426,708

GEOGRAPHIC SPAN
145 square miles

This month, Raleigh hosts Plug-In 2011, bringing top professionals from the hybrid- and electric-vehicle industry together for the first time outside of California. That it does so is no surprise; one of only three cities to be outfitted with a slew of electric-vehicle charging stations, Raleigh is attracting the attention of major automobile manufacturers looking for

strategic launch cities. The city will also soon gain a new green icon: the headquarters of the American Institute of Architects (AIA) North Carolina, a Frank Harmon-designed, LEED Platinum addition to downtown. Even the children are involved. As part of Siemens's We Can Change the World Challenge, Hunter Elementary School formed a group of students that set out to reduce daily cafeteria waste. The young team created recycling containers, put up posters, and encouraged fellow classmates during morning announcements. With Raleigh's current leaders already making such progress, it's hard to imagine just how green Raleigh will be when these 5, 6, and 7 year olds grow up.



A TASTE OF RALEIGH (Above) Raleigh's fire stations boast green roofs (as seen here), rainwater-harvesting systems, and solar-thermal hot water systems. (Right) Paula Thomas has led the city's efforts since she became its first-ever sustainability manager three years ago. (Opposite page) North Carolina is rooted in agriculture, and its citizens know the importance of local foods. Each week, Raleigh brings local farmers to the center of the city for a mid-week market.

sustainability issues and realized they needed a dedicated staff person to help steer that ship," says Thomas, who spent her first six months defining sustainability for the city and taking inventory of existing practices. Her office also developed a sustainable budgeting process—focusing on cost of ownership versus capital investment—and a strategic sustainability plan to guide sustainable policy development for the North Carolina capital.

The City Council eventually assigned six full-time employees and officially established Raleigh's Office of Sustainability under Thomas's direction in February 2010. "It's been a very exciting time because the city really is committed to sustainability," Thomas says. "They're not just talking the talk; they really are walking the walk."

CITY FIRST

Since 2008, Raleigh has made considerable progress toward its sustainable vision, starting with three goals that were set by the City Council: achieving a 20-percent fossil-fuel reduction in the city's fleet, mandating LEED Silver certification for all newly constructed city buildings of more than 10,000 square feet, and taking inventory of greenhouse-gas emissions for the purpose of reducing them.

Because there were few resources available at the beginning, the most difficult of those goals has been the fossil-fuel reduction, according to Thomas, who says Raleigh has nonetheless reduced its dependence on gasoline. "Two years ago, we implemented a consumption budgeting process for fuel," she says. "Instead of a dollar amount, every year city departments

get a number of gallons allocated to them that they can use for their operations, which has created awareness and accountability around how much they're consuming."

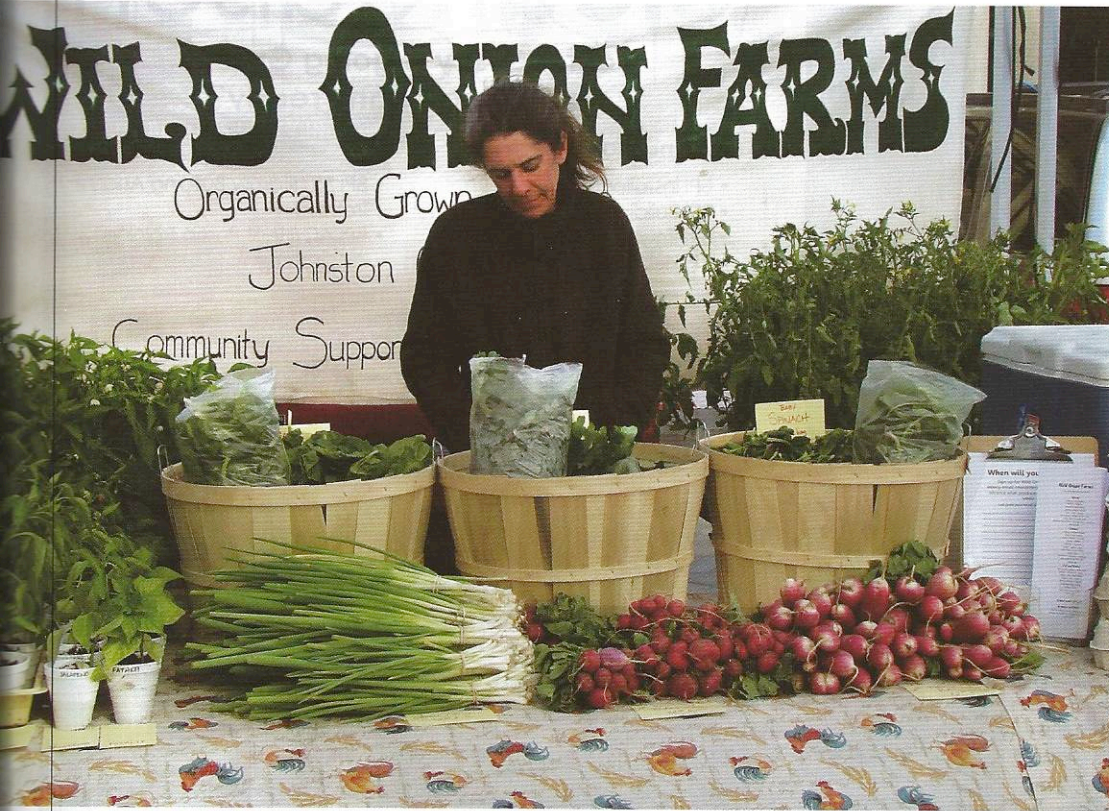
The city also has created a fleet-transformation plan; when a city vehicle qualifies for replacement, it's exchanged, when possible, with a hybrid or alternative-fuel vehicle. Meanwhile, Raleigh also is investing in the infrastructure needed to support such vehicles. In 2004, the city opened its first compressed-natural-gas pumping station, and in 2009 it used grant money to purchase a 1,000-gallon mobile fuel tanker that will dispense E85 ethanol fuel.

Raleigh's LEED pursuits have been even more fruitful. In addition to the 500,000-square-foot Raleigh Convention Center, which completed a new solar roof



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installation in April, the city recently built a LEED Silver-certified training and administration building at its wastewater-treatment plant. As for its third goal, the city recently completed its first emissions inventory, and is in the process of developing a 20-year sustainability plan based on its findings.

"It's intentional that all these things are focused on municipal operations," Thomas says. "We didn't want to get too far out into the community with these programs—regulating people and asking them to be sustainable—without first having our own experience. We wanted to get our own house in order first, banking on learning some lessons. So, right now we're focused internally, and that will probably continue until the end of 2011. The public engagement piece will be rolled out in 2012."

Although Raleigh began with just three goals, its Office of Sustainability has since amassed dozens of projects spanning all city departments.

BLUE RIBBONS FOR A GREEN CITY A SAMPLING OF RALEIGH'S MANY "FIRSTS"

1. First "LED City" in the world
2. Installed the first thin-film photovoltaic panels in the Southeast
3. First municipality in the nation to partner with the Environmental Defense Fund in the Climate Corps Program
4. First of three cities nationally to participate in the Project Get Ready
5. Originally one of only two municipal convention centers to obtain LEED Silver certification
6. First large-scale, solar LED off-grid lighting project in North Carolina
7. First municipality in North Carolina to implement a server-virtualization program
8. First municipality to develop state legislation helping cities implement sustainability projects that benefit their communities
9. First municipality in the nation to pilot the Periscope program, a building-automation software that provides enhanced energy-use analytics in buildings
10. Named 2010's "Most Wired City" by *Forbes* magazine, ranking higher overall than any other US city in broadband usage, access options, and Wi-Fi hot spots

In 2006, Raleigh partnered with Cree Inc., a local LED manufacturer, to become the world's first "LED City." Since then, it's installed more than 40 municipal LED projects, encompassing streetlights, traffic lights, outdoor lighting at city parks, and interior lighting at city buildings. The savings are substantial—the city is approaching a nearly 40 percent reduction in dollars spent for lighting.

In 2010, Raleigh unveiled one of North Carolina's largest rooftop solar-photovoltaic arrays at its E.M. Johnson Water Treatment Plant. The 250-kilowatt array is the first in the Southeast to use thin-film photovoltaic technology, which allows the solar panels to generate electricity for longer periods during the day.

A year before, in 2009, the city undertook a number of massive projects: the Downtown Raleigh Alliance introduced the R-Line, a free downtown hybrid electric bus system; the city secured a \$1.3 million grant to build a geothermal cooling-and-heating system at its new municipal solid-waste facility, opening this year; and the US Department of Energy awarded Raleigh a \$4 million Energy Efficiency Conservation Block Grant, which was used in part to fund a green-building training-and-certification program.

Perhaps its most significant project to date has been Raleigh's installation of the aforementioned EV charging stations as part of the Rocky Mountain Institute's Project Get Ready, a pilot project designed to ready three cities—Portland, Oregon, Indianapolis, and Raleigh—for the rollout of electric vehicles. Thanks to the project, Raleigh has become a hub for electric vehicles. Ford, GM, and Nissan have all announced partnerships with Raleigh that will position the city to be a launch market for the



HOLDING A CHARGE Charging electric vehicles may soon become a much more usual sighting around Raleigh. The city is in partnership with Ford, GM, and Nissan to serve as a launch hub for forthcoming electric vehicles.

companies' forthcoming electric vehicles.

TASTING THE FUTURE

Like a municipal NASCAR driver, Raleigh has gone from zero to 60 with sustainability, embracing everything from LED and LEED to solar hot water and sustainable budgeting. What's next, then, for the City of Oaks?

According to Thomas, it's food. "North Carolina has been an agricultural state since the beginning of time," she says, "so there's a whole movement in the City of Raleigh to begin developing our urban food initiatives."

That movement began in 2010 when a group of citizens expressed an interest in community gardening, which in

turn sparked a citywide conversation about health, nutrition, and obesity. In response, the Office of Sustainability is in the early stages

of developing several food-and-beverage programs. The city is modifying its zoning ordinances to allow community gardens, for instance, and is considering a food-diversion program that would feed the hungry with edible food waste from farmers markets. It's also in talks to support urban agriculture in downtown Raleigh and to begin growing produce at a city-owned greenhouse, where it also hopes to offer public nutrition classes.

"We're making a lot of progress," Thomas says. "Eight months ago, we weren't yet focused on food." Of course, three years ago, Raleigh wasn't yet focused on electric vehicles or geothermal energy, either. "It's overwhelming how far we've come in such a short time," she says. "And we're not done. We're going to continue doing what we're doing, which is looking for opportunities to lead and collaborate and leverage. We set a goal initially of being a leading municipality in the Southeast; we've now modified that to being a leading city in the nation." **GBQ**

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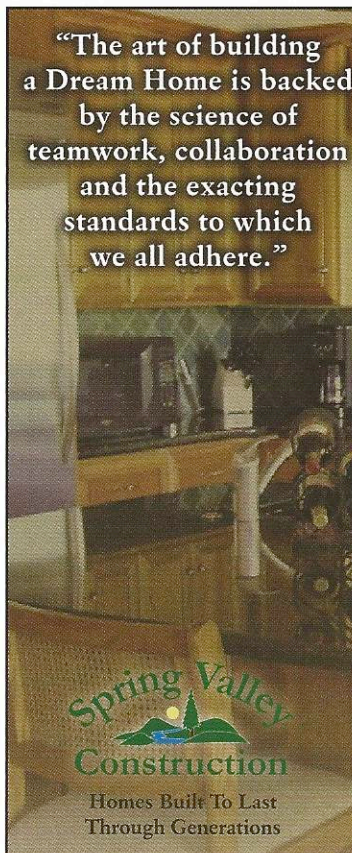
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