

An Analysis of Selected Community Green Building Programs in Five Southeastern States

Conducted by the **Southeast Watershed Forum**
and **University of Georgia River Basin Center**
On behalf of the **Southeast Smart Growth Network**

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**GREEN
BUILDING**



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executive summary

PROJECT OVERVIEW

In 2010, a consortium of over 20 universities, organizations and agencies came together to form an association called the Southeast Smart Growth Network (Network). The Network is designed to be a collaborative effort to enhance the ability of member organizations to assist southeastern communities in implementing smart growth policies and practices. The goal is to share information and best practices on smart growth activities in southeastern states to enhance efforts in community training, public education and green building.

The Network was interested in identifying common features and practices of local and state government efforts that support green building programs. Several Network members joined together in the development of this research project to review selected green building programs, policies and incentives in five southeastern states where some of the most intense activity has been occurring. These states included Florida, Georgia, North and South Carolina and Tennessee. The Network members participating in this research effort were the Southeast Watershed Forum, University of Georgia River Basin Center and the Georgia Department of Community Affairs. The objective was to gather a regional snapshot of existing green building programs, the kind of incentives used to encourage them and the cost savings being realized.

The focus is on green building, because there are widely acknowledged benefits from green building practices in three general areas. Green building creates healthier homes and workplaces by encouraging the use of safer materials. Green building saves on operating costs by reducing heat loss, reducing energy and water use and encouraging the use of renewable energy sources, like solar or geothermal. And Green building protects the environment through low impact development practices and careful siting of buildings to better preserve trees, habitat, nearby water resources.

Southeastern communities have a history of learning from one another, so it is hoped that this review of green building approaches and programs will inspire communities to craft similar programs tailored to their own needs, politics and demographics. This report certainly showcases a variety of approaches to encouraging green building practices. While various themes and approaches were seen in the communities reviewed, it was evident that each community had their own rationale, incentives, and priorities for implementing green building programs.

This study is designed to provide information that will inspire or encourage other communities to see the benefits from implementing sustainable building practices. While the Network members are an audience for this report, the prime audience is southeastern communities and developers who need to understand the economic and environmental benefits from green building practices. Planners, public works staff, engineers, developers, construction companies, and

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“**Planners, public works staff, engineers, developers, construction companies, and stormwater and utility managers all have a stake in building greener communities where the cost of community services and infrastructure remain sustainable, where local market value and quality of life remains high and where communities are equipped to better face economic and environmental challenges in the years ahead.**”

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REPORT METHODOLOGY

Much of the framework for this report was taken from EPA's Sustainable Design and Green Building Toolkit for Local Communities. The Toolkit offers an assessment process for communities to review their green building practices in such areas as; building materials, materials reuse and recycling, indoor air quality, water and energy efficiency, transportation and green site design and land use. So the term, "green building", as used in this report, refers to a wide range of activities that include sustainable site design and land use development; recycling building materials and construction waste; energy conservation and air quality; water conservation and water quality; promoting the use of environmentally-safe products, and encouraging green power generation and use.

While the research on green building programs focused on these practices, we tried to find integrated approaches that covered not just the building process, but the building site design and its placement within the natural setting.

While this report is not an exhaustive review of every county or city program, researchers looked at approximately 74 communities in five states with green building programs. From the 74 communities reviewed, about 60 communities provided enough specific information for comparison. From this group, 16 community case studies were developed for this report. The case studies offered an opportunity to analyze city or county green building programs in greater depth to learn more about how they were formed and implemented and what led to their success. The communities were chosen for geographical balance and for their variety of approaches to green building practices. Information was sought in four main areas of activity:

1. The type of green building policies being developed,
2. The process and motivation for developing those programs,
3. The type of incentive programs being used to encourage green building, and
4. The cost effectiveness of green building programs.

It is hoped that the analysis of green building requirements, ordinances, cost effectiveness and incentives in selected communities will encourage the replication of such programs in other southeastern communities. In addition, the information and community case studies will provide data on:

- The ways communities are providing incentives for energy and water efficiency in public, residential and commercial buildings and new construction,
- The ways communities are providing incentives for energy and water efficiency in their overall operation and maintenance,
- The ways that communities are reducing waste and increasing efficiency in construction and development to enhance resource conservation,



- Information on the cost of implementing green building programs,
- Specific planning guidance in how to implement green building programs,
- Specific ordinances, practices or incentives to promote to other communities.

This report contains 16 case studies on community green building programs from five southeastern states. They represent a broad range of initiatives which include programs in eleven cities and five counties. They include green building programs in Florida communities guided by the criteria developed by the Florida Green Building Coalition. Georgia case studies include three communities guided by the Atlanta Regional Commission's Green Communities criteria and one county that wanted to be the "Greenest County" in the state. North Carolina case studies include independently-developed community programs and one county green energy development project. South Carolina case studies include one community facing nonattainment for air quality standards and one community-developer partnership for urban renewal. Tennessee case studies reflect all voluntary programs with one showcasing strong leadership from the private sector.

At the end of this report there is an extensive Appendix with additional green building program information and web resources for over 70 southeastern communities. It is worth reviewing for additional ideas on the range and diversity of green building activities in the region. In addition, there is a matrix of "best green practices" comparing the activities of 48 communities against 24 green practices for a quick snapshot of regional practices.

SELECTED HIGHLIGHTS

We discovered some similarities among programs and some surprising differences, especially in the area of economic incentives, all of which are found within the section on **"Selected Highlights from Green Building Research"**. A more in-depth process for how and why communities developed green building practices is found in each of the 16 local case studies.

In reviewing the data collected, it was evident that certain factors led to increased green building activity in some communities versus others. Five keys to success were identified in communities that were successful in developing their own green building initiatives.

APPROACHES THAT ENHANCE SUCCESSFUL GREEN BUILDING PROGRAMS

1. States or communities that have an overarching "green building or sustainability" program, like the Florida Green Building Coalition or the Atlanta Regional Commission's Sustainable Community program, have greater success in encouraging green building programs in a substantial number of communities. Without an overarching program, individual communities often lack the knowledge or political and technical support needed to initiate a green building program.
2. A key to developing and implementing community green building programs is having city-county staff trained in various green certification programs and empowered to address permitting differences between green-developments and traditional construction techniques. The more they understand the requirements of various green building programs,

“Many communities see the need to make long term investments in water and energy efficiency today, in order to reduce their carbon imprint in the future. Such investments will better prepare them for future regional water supply challenges, rising energy costs and climate change impacts. They see long term “paybacks” from green investments made today.”



the better they can work through current planning and zoning rules to enhance program implementation.

3. The most successful communities in implementing green building programs provide developers and construction companies with professional training in green-building certification programs to better acquaint them with the benefits and processes for implementing various green building techniques and technologies. Usually, the training is peer-to-peer, with a lead developer or local business leaders involved in promoting the training program.
4. Many communities see the need to make long term investments in water and energy efficiency today, in order to reduce their carbon imprint in the future. Such investments will better prepare them for future regional water supply challenges, rising energy costs and climate change impacts. They see long term “paybacks” from green investments made today.
5. Many communities developed public-private sector green building partnerships and committees as a way to build greater public understanding and support for implementing green building practices.

A review of the information gathered in this research project identifies at least five needs that should be addressed if green building programs are to become a norm rather than an exception in southeastern communities.

WHAT MORE IS NEEDED TO ENHANCE COMMUNITY GREEN BUILDING PROGRAMS

1. Communities need more information on the economic benefits of green building practices to promote the development of local programs and policies. Economic statistics on the money saved from implementing green building practices and energy-efficient techniques would enhance community interest and support for green building initiatives.
2. Some communities may discontinue green building incentives when their outside funding sources (grants/stimulus funds) run out. Communities need to integrate economic incentives into the cost of doing business to ensure capturing the long term benefits of green building techniques and technologies. Short term grants offer an impetus for program development but do not sustain programs (or benefits) over time.
3. Communities need to better integrate green buildings with green site design, land use and land preservation. Green buildings alone, will not provide long term water and energy efficiency, address stormwater flooding nor mitigate climate change impacts without their appropriate placement within the community. Green building practices need to complement green land use practices, like floodplain protection, forest and wetlands protection, and creating riparian buffers.
4. Voluntary green building initiatives provide selective successes in southeastern communities but do not effect extensive change in a community’s way of doing business. The continued reticence of southeastern communities to implement green building practices lessens their long term economic viability and their resilience to growth pressures, water short-

“Communities need more information on the economic benefits of green building practices to promote the development of local programs and policies.”

“Green building practices need to complement green land use practices, like floodplain protection, forest and wetlands protection, and creating riparian buffers.”

ages, climate change impacts and other future natural or man-made disruptions.

5. As a region with continued growth projections to 2050, the Southeast is in greater need of managing that growth to better enhance, rather than degrade local quality of life. Past growth patterns showed that increased development did not cover the cost of community services and the time to develop new growth and development guidelines is now, before future pressures stress community infrastructure costs.

Addressing these needs and building on these successful strategies will make southeastern communities more sustainable and resilient to the many environmental and economic changes facing the region in the decades ahead.

Christine Olsenius
Executive Director
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INTRODUCTION AND PROJECT OVERVIEW

Why Green Building

How we build and where we build has a significant impact on our communities, their natural resources, the cost of providing community services, long term operation and maintenance costs and long term resiliency to energy costs, water supplies and climate change. Patterns of sprawl that have marked our past approach to development isolated communities, extended expensive infrastructure, were energy and water intensive, required more road building, increased traffic, displaced farmland, forests and habitat and increased stormwater runoff and local water pollution.

“Institutionalizing green practices through policies that regulate the design of buildings and communities creates a new paradigm of holistic community development. Green building and neighborhood policies consider the overall impact the built environment has on the community: from building design that provides healthy and energy-efficient places to live, work, and study to walkable neighborhoods that promote exercise and social interaction.” (Pathways to Green Building and Sustainable Design – Funders Network-2008)

In addition, green building programs are of interest to southeastern communities because they reduce carbon footprints, reduce energy use and costs and conserve water resources. From the winter of 2005-2006 through 2007, the southeastern United States was characterized by the US Drought Monitor as in “extreme or exceptional drought.” 2007 was actually the region’s driest year in 113 years of record-keeping. The drought led to restrictions on water use throughout the region, caused reservoir levels to drop dangerously, damaged crops and opened up conflicts inside and between states on access and use of declining water resources. The drought emphasized once again, the limitations this growing region faces with securing adequate water supplies and the need to develop in ways that best equip communities for addressing similar challenges in the future. Creating buildings and neighborhoods which use less water and less energy builds more resilient communities. And water and energy are inextricably linked, as it takes a great deal of water to produce energy and a great deal of energy to move and process water supplies.

According to the EPA, “The process of designing, developing,



Art Center of Cannon County, - Woodbury, TN. Photo credit LightWave Solar.



Oak Terrace Preserve, South Carolina. Photo credit Southeast Watershed Forum.

Green building programs are of interest to southeastern communities because they reduce carbon footprints, reduce energy use and costs and conserve water resources.

and inhabiting the built environment has a profound influence on a community’s economy, environment and quality of life. In the United States, buildings account for approximately 40 percent of total energy consumption and carbon dioxide emis-



Solar powered truck stop in Crossville, TN. Photo credit LightWave Solar.

“The drought emphasized once again, the limitations this growing region faces with securing adequate water supplies and the need to develop in ways that best equip communities for addressing similar challenges in the future. Creating buildings and neighborhoods which use less water and less energy builds more resilient communities.”

“Using green building techniques can reduce greenhouse gas emissions, minimize water and energy usage, and reduce waste materials in construction by encouraging recycling and reuse of existing materials.”

sions, 13 percent of water use, and 160 million tons per year of construction and demolition debris. Buildings can also contain indoor air that can be 100 times more polluted than outside air.” (Sustainable Design and Green Building Toolkit for Local Communities- EPA – 2010)

Using green building techniques can reduce greenhouse gas emissions, minimize water and energy usage, and reduce waste materials in construction by encouraging recycling and reuse of existing materials. It can also save communities millions of dollars in operation and maintenance costs. In addition, comprehensive green building programs can encourage green

land use practices on the building site and throughout the community by promoting the preservation of trees and natural areas and promoting low impact development practices to better manage stormwater onsite and protect local water quality. Maintaining green infrastructure minimizes the need to build more “grey infrastructure,” thus saving communities on operation and maintenance costs. Green site design leads to healthy neighborhoods and more sustainable communities.

Report Methodology

Green building can mean many things to many people. The EPA’s Sustainable Design and Green Building Toolkit for Local Communities served as a guide for defining the approach to researching green building practices and determined the range of topics to be covered under this research survey. The EPA report includes a comprehensive definition for sustainable design and green building.

Sustainable design includes considering not just how buildings and the surrounding site are constructed, but also where they are constructed...The goal is to integrate local ecology into design and construction, to reduce natural resource impacts, minimize non-renewable energy consumption, use environmentally preferable products, protect and conserve water resources, enhance indoor air quality and improve operation and maintenance practices.

While the Sustainable Design and Green Building Toolkit for Local Communities assesses 65 specific best practices in five resource areas, it was necessary for time and funding limitations to develop research questions around far fewer practices. This survey was more open ended in its review of community programs and more focused on the process of their program development and implementation.

The term, “green building”, as used in this report, refers to a wide range of activities that include sustainable site design; recycling building materials and construction waste; energy conservation and air quality; water conservation and water quality; promoting the use of environmentally-safe products, and encouraging green power generation and use.

Researchers at the University of Georgia River Basin Center reviewed approximately 74 communities in five states with green building programs. From the 74 communities reviewed, about 60 communities provided enough specific information for comparison.

Community-Level Green Building Designation Programs

The Atlanta Regional Commission in Georgia and the Florida Green Building Commission both provide an over-arching green building initiative to both guide and encourage communities to implement green building programs. These designations provide recognition for the efforts of local elected officials and staff that incentivize their sustainability initiatives. These designations also create achievable goals and milestones that communities can work towards with measurable results. Based on the number of communities working on green building programs in Florida and Georgia, and the number of these communities that reported achieving these designations as an important goal in their program development, it seems that these designations have been very successful in promoting environmental sustainability in their respective regions.

🏡 **Communities are awarded points for implementing certain types of programs or achieving certain environmental goals.** 🏡



Green Building Certification Programs

There are a variety of green building certification programs in use throughout the Southeast that standardize best practices for “green building,” providing guidance to developers and confirmation of best practices to communities offering monetary or permitting incentives. Green building programs address green construction practices like: materials usage, energy and water efficiency, materials recycling and operations and maintenance. Some communities prefer the flexibility or emphasis of one program versus another. Most of the green building programs being used in the Southeast include one of the following.

LEED

The U.S. Green Building Council (USGBC) developed the Leadership in Energy and Environmental Design (LEED) rating system in March 2000. LEED provides building owners and operators with a framework for identifying and implementing practical and measurable green building design, construction, operations and maintenance solutions. LEED certification is done by independent, third-party verification through the Green Building Certification Institute (GBCI), an independent non-profit that was established in 2008 with the support of USGBC. The GBCI verifies that a building or community was designed and built using strategies aimed at achieving high performance in areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality. LEED points are also awarded for awareness and education, innovative design, and addressing regionally important issues. There are currently nine LEED rating systems, each appropriate for a different building/renovation project. These are: New Construction (NC); Existing Buildings: Operations & Maintenance (EB: O&M); Commercial Interiors (CI); Core & Shell (CS); Schools (SCH); Retail; Healthcare (HC); Homes; Neighborhood Development (ND). For more information see:

<http://www.usgbc.org/DisplayPage.aspx?CategoryID=19>



Diverse power sources promote sustainable communities.

The Atlanta Regional Commission's (ARC) Green Communities Program is a voluntary certification program for jurisdictions in the 10-county Atlanta Region to encourage local governments to become more sustainable. ARC developed the program to assist local governments in reducing their overall environmental impact. Local governments earn points in 10 categories by implementing specific policies and practices that contribute to overall sustainability. The categories are:

- Green Building
- Energy Efficiency
- Green Power
- Water Use Reduction and Efficiency
- Trees and Greenspace
- Transportation
- Recycling and Waste Reduction
- Land Use
- Education
- Innovation

Green Globes

The Green Building Initiative's (GBI) Green Globes building design, assessment and rating program is a sustainable rating system based on a comprehensive, Web-based assessment of a building's environmental impacts. It uses a 1,000 point scale in which points are awarded in multiple categories including: energy usage, indoor air quality and other environmental factors, site selection, water use and efficiency, resource consumption, emissions, and project/environmental management. A Green Globes third-party assessment includes a document review and a site tour with the facility sustainability team. GBI offers Green Globes for New Construction and Green Globes for Continual Improvement of Existing Buildings. GBI offers the Green Globes Professional (GGP) training and certification for qualified professionals. For more information see: <http://www.thegbi.org/about-gbi/>

EarthCraft

EarthCraft was established in 1999 by the Greater Atlanta Home Builders Association and Southface Energy Institute. EarthCraft is a green building certification program that serves Georgia, Virginia, Tennessee, Alabama, South Carolina and North Carolina by addressing the factors that impact building in this region, including high heat, humidity and temperature swings. EarthCraft serves as a blueprint for energy, water and resource-efficient single-family homes, community developments, multifamily structures, renovation projects, and light-commercial buildings (less than 15,000 sq. ft.). All five EarthCraft programs offer flexibility in achieving environmental performance in specific program areas, including durability, indoor air quality, energy efficiency, water efficiency, resource-efficient design, resource-efficient building materials, waste management and site planning. For more information see: <http://earthcraft.org/earthcraft-programs> EarthCraft Technical Guidelines available at:

<http://earthcraft.org/program-guidelines-a-worksheets>

better built

better built was created by members of the American Institute of Architects Committee on the Environment, Home Builders Association of Southern Tennessee, GreenSpaces and the Chattanooga Association of Realtors. It intends to provide standards and a blueprint for



Measures are worth 5 or 10 points, depending on their difficulty and overall impact. Three levels of certification are awarded:

Level 1 - Bronze: 175 – 229 points

Level 2 - Silver: 230 – 279 points

Level 3 - Gold: 280 – 400 points

For more information see:

<http://www.atlantaregional.com/environment/green-communities>

Florida Green Building Coalition (FGBC)

The Florida Green Building Coalition (FGBC) designates Green Cities and Green Counties for outstanding environmental stewardship. The FGBC developed a list of environmental criteria, and each is assigned a point value. Communities are awarded points for implementing certain types of programs or achieving certain environmental goals. Points are awarded for dozens of specific measures implemented in categories for virtually every local government department. A minimum total point value is set that represents a bar, and local governments which incorporate sufficient criteria such that they meet or exceed the bar are considered “registered” as a Green Local Government. Once all the points awarded are verified, the community will be considered a “certified” Green Community at one of four levels for a period of five years, after which the community must reapply for certification. Typical components of green building programs have traditionally targeted building and construction practices and land development. One of the goals of the Local Government Standard is to increase the use of many types of green activities across the state. The levels of certification are:

high performance homes that lower costs for occupants, appreciate in value because of better design and construction, and reduce the environmental impact of houses. better built focuses on a number of green areas in the building process including energy efficiency, quality site planning, water efficiency and good indoor environmental quality. better built homes are ENERGY STAR qualified, and with the recent upgrades to the program, will reduce long term operating costs. Plus, with a tested Home Energy Rating System (HERS) Index of 85, better built homes perform at least 15% better than a home built to current code standards. better built homes are conscious of how water runs off of the construction site by properly controlling sediment and safeguarding against erosion until the construction yard becomes a backyard. In addition, better built homes support the EPA's WaterSense program with water saving bathroom fixtures that promote the efficient use.

(<http://betterbuiltchattanooga.org/resources/> or <http://betterbuiltchattanooga.org/about/>)

HealthyBuilt Homes

The North Carolina HealthyBuilt Homes Program is a collaborative program between the North Carolina Solar Center, the North Carolina State Energy Office, North Carolina Department of Administration, and a number of local building professional organizations. The Program provides a certificate for homes meeting “green home guidelines” built by residential builders and developers who practice sustainable, high performance building strategies making the home a comfortable, healthy and affordable place to live. In addition to certifying homes, the Program offers technical assistance, marketing assistance, design reviews, workshops, presentations, and field consultation services that enable the builders to increase his or her firm's knowledge. The Program specifically targets small to medium sized home builders who may not have the resources to compete with larger builders in the rapidly-emerging field of green building. NC HealthyBuilt Homes Program also partners with EPA's ENERGY STAR Program to promote energy efficient products and practices that save money and protect our environment. All North Carolina HealthyBuilt Homes must meet ENERGY STAR requirements to earn a label as an ENERGY STAR home. For more information see:

<http://healthybulthomes.org/>

- Bronze: 21-30% of Maximum Applicable Points Total achieved
- Silver: 31-50% of Maximum Applicable Points Total achieved
- Gold: 51-70% of Maximum Applicable Points Total achieved
- Platinum: > 70% of Maximum Applicable Points Total achieved

For more information see:

<http://floridagreenbuilding.org/local-governments>

For the criteria for which points are awarded see the application tool located on the web page above.



ICC National Green Building Standard

The National Association of Home Builders (NAHB) partnered with the International Code Council (ICC) in 2007 to draft ICC 700 National Green Building Standard which is the first and only residential green building rating system to undergo the full consensus process and receive approval from the American National Standards Institute (ANSI). The Standard defines green building for single- and multifamily homes, residential remodeling projects, and site development projects while still allowing for the flexibility required for regionally-appropriate best green practices. For residential buildings, there are four certification levels - Bronze, Silver, Gold, and Emerald. At the Emerald level, the highest rating for a residential green building, a building must incorporate energy savings of 60% or more. To comply with the Standard, a builder or remodeler must incorporate a minimum number of features in the following areas: lot and site development; energy, water, and resource efficiency; indoor environmental quality; and home owner education. In order to attain a higher level of green certification by the NAHB Research Center, a home must accrue successively higher levels of minimum points in every category. The level of certification is dictated by the lowest category score level. For more information see:

<http://www.nahbgreen.org/NGBS/default.aspx>

Green Product Certification Programs

Energy Star

Energy Star is a joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy. Energy Star delivers the technical information and tools to aid builders and developers in constructing more efficient and sustainable buildings, and it provides information that organizations and consumers need to choose energy-efficient solutions and best management practices. Energy Star provides information to new commercial and industrial facilities, new homes, as well as the renovation of existing buildings. To earn Energy Star certification a commercial building or manufacturing plant must earn a 75 or higher on EPA's 1-100 energy performance scale, indicating that the facility performs better than at least 75% of similar buildings nationwide after accounting for differences in operating conditions, regional weather

A Resource for Community Green Building Programs

EPA Sustainable Design and Green Building Toolkit

The Environmental Protection Agency's (EPA) Sustainable Design and Green Building Toolkit assists local governments in identifying and removing barriers to sustainable design and green building within building codes, zoning ordinances or permitting processes. Sustainable design includes how buildings are constructed as well as how the surrounding site is developed. The Toolkit contains an Assessment Tool, a Resource Guide, and an Action Plan for implementing changes to the permitting process. The Assessment Tool is designed for local governments to review their permitting process and identify barriers or resistance to sustainable design practices, which can be done manually on paper or in a spreadsheet tool.

The Assessment offers a series of green/yellow/red evaluations. Green indicates that the community is doing well and encouraging sustainable design. Yellow indicates that there is room for improvement within the existing permitting process. Red indicates that conflicts exist, and the community may want to evaluate the cause of the barrier(s) and identify processes to address the issues identified.

The Resource Guide provides information to aid in making codes and ordinances more compatible or supportive of sustainable design and green building. If green tools or techniques are not permitted or encouraged, this information can help local governments implement changes to allow these techniques.

The Action Plan section helps communities develop an approach for implementing regulatory and permitting changes to allow for more sustainable design and green building practices.

For more information see:
<http://www.epa.gov/region4/recycle/green-building-toolkit.pdf>
The spreadsheet tool is available at:
www.epa.gov/region4/recycle/assessment-tool.xlsx

data, and other important considerations. For residential structures, Energy Star certifies that the homes are at least 15% more energy efficient than homes built to the 2004 International Residential Code (IRC), and include additional energy-saving features that typically make them 20–30% more efficient than standard homes. For more information see:

<http://www.energystar.gov/index.cfm?c=home.index>

WaterSense

WaterSense, a partnership program of the U.S. Environmental Protection Agency, seeks to protect the future of our nation's water supply by offering people a simple way to use less water with water-efficient products, new homes, and services. WaterSense brings together a variety of stakeholders to:

- Promote the value of water efficiency.
- Provide consumers with easy ways to save water, as both a label for products and an information resource to help people use water more efficiently.
- Encourage innovation in manufacturing.
- Decrease water use and reduce strain on water resources and infrastructure.

The program seeks to help consumers make smart water choices that save money and maintain high environmental standards without compromising performance. Products and services that have earned the WaterSense label have been certified to be at least 20 percent more efficient without sacrificing performance. WaterSense ensures consumer confidence in those products with a label backed by third party, independent, testing and certification. If one in every 10 homes in the United States were to install WaterSense labeled faucets or faucet accessories in their bathrooms, it could save 6 billion gallons of water per year, and more than \$50 million in the energy costs to supply, heat, and treat that water! WaterSense products also help building achieve LEED –certification. <http://www.epa.gov/watersense/>

SELECTED HIGHLIGHTS FROM GREEN BUILDING RESEARCH

These are some of the highlights found in reviewing green building practices in five southeastern states.

Mandatory vs. Voluntary Programs

States vary widely in their approaches to green building programs and policies. But states or communities that had overarching regional initiatives, like the Florida Green Building Coalition and the Atlanta Regional Commission's Green Communities programs, were more successful in encouraging a higher number of community-based green building programs.

While many communities promoted LEED construction for public buildings, there were few mandatory policies for commercial or residential buildings. The policies were mostly voluntary and were encouraged through financial and permitting incentives. Communities that offered greater flexibility in choosing green building certification programs like, EarthCraft, Green Globe or **betterbuilt**, also resulted in more green commercial and residential building development.

Multiple Motivations

There were no consistent reasons for why green building programs were developed in various cities and counties. Some were driven by non-attainment issues, some were city-county staff driven in an effort to reduce greenhouse gas emissions, some saw long term economic benefits from energy efficiencies invested in today, and some communities wanted to promote a green image.

Incentives

Communities used a variety of different incentives and funding sources for their green building programs. Some offered economic incentives for developers; some offered expedited permitting and reductions on stormwater fees. Some offered a combination of fees and permitting assistance. To fund such initiatives, some communities raised their own fees from sales taxes or county budgets; some sought government or private sector grants and some levied fees and offered rebates once the green practices had been implemented. All of the communities found financial savings in the green building and green practices implemented.



Brick Mill Falls in Cherokee County, Georgia

While many communities promoted LEED construction for public buildings, there were few mandatory policies for commercial or residential buildings.

Charlotte-Mecklenburg County's green building incentives were funded from setting aside a percentage of the previous year's revenue from building permits. Initially this provided \$1 million but the decline in new construction in recent years meant that revenue from permit fees dropped dramatically and the program had to be put on hold.



Morgan Park Place in Nashville, Tennessee. Photo credit Gwen Griffith.



In addition, offering expedited service for green building development, can burden county/city staffs. During the initial phases of implementation in Gainesville, Florida's program, much of the City's building staff was unfamiliar with the specifics of the green building standards referenced in the ordinance, and the program actually added time to the processing of the first building permit issued under the program.¹

Examples of Community Incentives

The following communities provide some good examples of the variety of green building incentives offered by cities and counties.

St. Petersburg, Florida: established incentives for residential and commercial construction projects incorporating green building techniques. Commercial developments which achieve LEED certification receive a permit fee refund

of \$1,000. For commercial developments on vacant land over one acre, buildings which follow LEED standards receive a permit fee refund of \$2,500.

Tampa, Florida: Tampa's ordinance offers developers of commercial and multi-family residential buildings a 20-80% rebate on building permit fees, depending on the level of LEED certification that the building earns. The ordinance further offers developers of single family homes a 50% rebate on building permit fees if the building meets the current Green Home Designation Standards of the Florida Green Building Coalition.

Charlotte-Mecklenburg County, North Carolina: used a "Green Permit Incentive Program" to promote sustainable building in the city. Buildings meeting certain third party sustainability requirements could receive rebates on their city permitting fees.² The testing methods used were LEED and Green Globes for commercial buildings, along with LEED Residential, EarthCraft, NC Healthybuilt Homes, and National Association of Home Builders (NAHB) National Green Building Program.³ Depending on the level of certification reached – e.g. LEED certified, silver, gold, platinum or One Globe, Two Globes, etc. – the builder could receive 10, 15, 20, or 25% permit rebates, up to \$100,000 for the highest certifications.⁴ Unfortunately, the program had to be suspended on April 20, 2010 due to declining tax revenue.

The City of Asheville, North Carolina uses a point system to reward developers for utilizing green building techniques based upon LEED certification levels. For example, LEED Bronze certification is worth 10 points and reaching each subsequent level of certification results in 10 additional points awarded. LEED Platinum is worth the maximum 40 points. In addition, the percentage of affordable housing units in a development can also nets points: 10 points are awarded for every 10% of a development's units that have rents at 80% of median income or below, up to a maximum of 40 points.⁵ These points then lead to economic incentives that the city gives the developer. For example, 10 points (i.e., LEED Bronze certification, or 10% of housing

1 ROMERO, supra, p. 8; available at: http://www.myfloridagreenbuilding.info/pdf/Review_Municipal_Ord.pdf.

2 Mecklenburg County Code Enforcement's Green Permit Rebate Program, MECKLENBURG COUNTY, NC: CODE ENFORCEMENT, <http://charmec.org/mecklenburg/county/CodeEnforcement/GreenPermitRebate/Pages/default.aspx>

3 *Id.*

4 *Id.*

5 <http://www.mountainx.com/article/1190/Asheville-City-Council-adopts-transformational-development-incentives>

units renting at 80% of median income or below) is worth remittance of one year of property taxes and a 10% reduction in permit fees.⁶

Also in 2007, Asheville approved sustainable residential fee waivers.⁷ Starting in July of that year, the city began waiving fees for building permits and plan reviews to reward renewable energy technologies, such as geothermal heat pumps, solar panels, and stormwater collection systems; or those that achieve a green building certification, such as HealthyBuilt Home, or Energy Star Rating.⁸ The regular fees, ranging from \$50 to \$100 per structure, must be paid in full with the application, but they are rebated once the buildings are certified.⁹

Funding Sources

The communities reviewed for this project offered a diverse array of funding sources.

In January, 2011 **St. Petersburg, Florida** increased local sales tax by one cent to raise \$25 million dollars per year to fund the “Green St. Petersburg” program.¹⁰

City of Gainesville, Florida: estimated the cost of implementing and operating the Green Building Program for its first two years at \$335,487, which it sought to fund with a grant and other public and private agencies. When those sources did not come through, the City elected to continue with the program and allocate the necessary funds on an annual basis.¹¹ But without a dedicated funding source for this program the City Council explicitly limited the applicability of the program according to the availability of funds.¹² Under this process, certain incentives offered under the Program have been decreased, with the allowed permit fee reduction being cut from fifty percent allowed under the ordinance



6 *Id.*

7 <http://www.ashevilleenc.gov/Portals/0/city-documents/Sustainability/SustainabilityHistory.pdf>

8 The HealthyBuilt Homes Program is an umbrella organization that administers an independent sustainable building program that sets statewide guidelines, provides technical support, and coordinates training, marketing and certification. See: <http://healthybuilthomes.org/>

9 http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=NC46F&re=1&ee=1

10 *Id.*

11 Due to limited funds appropriated for this grant program, only four grants were awarded. Gainesville’s application ranked sixth out of the twenty-four applications submitted. <http://www.dep.state.fl.us/waste/categories/recycling/ig/InnovativeGrants2003-04.htm>.

12 GAINESVILLE, FLA., CODE OF ORDINANCES: Part II, Sec. 6-12.

to its current allowance of twenty-five percent.¹³ Several GRU (Gainesville Regional Utilities) incentive programs that encourage green retrofitting and remodeling are in place today, and expenses are funded largely by GRU.¹⁴

Orlando, Florida: Instituted a program, “Solar Orlando,” which was funded through the Department of Energy’s Solar America Cities grant with its partners Orange County and the local utility. By the end of 2012, metro Orlando will have 11 MW of solar installation.

In 2009/10, Orlando was awarded \$2.9 million in energy grants. EECBG and General Electric EcoTreasure Hunt grants –Funds will be used to reduce energy consumption both in the community and government operations.

Mecklenburg County, North Carolina: Depending on the level of certification reached – e.g. LEED certified, silver, gold, platinum or One Globe, Two Globes, etc. – the builder could receive 10, 15, 20, or 25% permit rebates, up to \$100,000 for the highest certifications.¹⁵ Unfortunately, the program had to be suspended on April 20, 2010 due to declining tax revenue. The funding for the program came from setting aside a percentage of previous year’s revenue from building permits specifically to fund the green building permit program. This amounted to a budget of over \$1,000,000.¹⁶ Unfortunately, the decline in the new construction in recent years meant that revenue from permit fees dropped dramatically. Money saved by putting the green permit program on hold allowed the city to retain employees that might otherwise have had to been laid off.

Columbia, South Carolina: Funding was probably the biggest issue the City faced in implementing their program. The largest costs were the actual incentives for the builders, staff training, and staff certification exams. The primary funding source was the American Recovery and Investment Act of 2009, which gave the city \$1,424,100.¹⁷ Of this,



University of Central Florida - Library West, LEED Gold building - one of the most environmentally-friendly buildings on campus. Photo credit: David Moore Photography

\$80,000 was allocated towards the Green Building Incentive Program. The incentives are still done on an as-available, first come first served basis. Approximately half of the money has been spent as of this writing. It is unclear what will happen when the grant money runs out if there is no additional funding allocated.

Federal Financial Support

You will note in this report that communities sought funding for their green building programs from a variety of sources, but one major source came up more often than others. It was the Energy Efficiency and Conservation Block Grant (EECBG) Program from the US Department of Energy. The EECBG seems uniquely developed to assist in enhancing community green building programs.

The Energy Efficiency and Conservation Block Grant (EECBG) Program, funded for the first time by the American Recovery and Reinvestment Act (Recovery Act) of 2009, promotes energy efficiency and conservation through a funding program modeled after the Community Development Block Grant program administered by the Department of Housing and Urban Development (HUD). It is intended to assist states and local government in developing, promoting, implementing, and managing energy efficiency and conservation projects. The specific goals of the program are to:

13 BARBARA LARSON & NICHOLAS TAYLOR, GHG CASE STUDY: GREEN BUILDING ORDINANCE (GAINESVILLE, FLA.) 1 (2011), available at http://www.floridaenergy.ufl.edu/wp-content/uploads/FESC_Green_Building_Ordinance_final_11-01-05.pdf.

14 While specific figures were not available, according to Mr. Hal Knowles, a Ph.D student working with the University of Florida’s Program for Resource Efficient Communities, these programs are funded by an internal conservation budget geared at energy conservation that he estimated amounts to “a couple million dollars a year”.

15 *Id.*

16 Charlotte Builders May be Eligible for Retroactive Green-Permit Rebates, CHARLOTTE GREEN TEAM, Dec. 9, 2009, http://www.charlottegreenteam.com/home/charlotte_greenteam-news.php?news_id=84

17 Grants – Award Summary: City of Columbia, <http://www.recovery.gov/Transparency/RecipientReportedData/pages/RecipientProjectSummary508.aspx?AwardIDSUR=82179>



In the Terrazzo development in Nashville, TN, the builder recycled 75% of the construction waste, diverting approximately 1,600 tons of debris from local construction landfills. Photo credit Terrazzo/BillLefevor

- Reduce fossil fuel emissions;
- Reduce the total energy use;
- Improve energy efficiency in the transportation, building, and other appropriate sectors; and
- Create and retain jobs.

Through formula and competitive grants, the Program empowers local communities to make strategic investments to meet the nation's long-term goals for energy independence and leadership on climate change. For more information see: <http://www1.eere.energy.gov/wip/eecbg.html>

Cost Effectiveness

Public education and some strong local convincing were needed to kick-start some green building programs. In St. Petersburg, Florida, city officials were able to show the public

that there were both environmental and financial benefits to the community in their green building program. They feel that the program was more readily accepted because it was based on cost effectiveness. Most of the communities surveyed for this report show cost effective returns on their green building investments.

St. Petersburg, Florida is replacing incandescent bulbs used in currently operating traffic lights with light emitting diodes (LED lights).¹⁸ The cost of this project is \$450,000; however, it will result in an annual energy savings of \$150,000 per year with a payback period of three years.¹⁹

The additional expenses associated with LEED-certification modifications for the St. Petersburg Water Resources Administration Building cost \$300,000, and the city expects to recover those costs within nine years of the building's completion.²⁰

North Point at Ironwood Community near Gainesville, Florida is a development of sixty-three single-family residences located on eighteen acres.²¹ In order to take advantage of incentives offered under Gainesville's Green Building Program, all homes in the development were built to both Florida Green Building Coalition and ENERGY STAR standards.²² A 2011 study conducted by the Florida Energy System Consortium found that, based on 2009 data, homes in the development were 7.8 percent more energy efficient than comparable homes of the same size and age in the Gainesville area, and they were 39.4% more efficient than the average home in Gainesville.²³ Based on these numbers, the authors of the article found that when compared to other contemporary homes, each home in the development avoided on average 2,186 pounds of excess CO₂ emissions in 2009, which amounts to the burning of 107.4 gallons of gas per year.²⁴ Furthermore, if all of the 38,709 homes built in Gainesville in 2008 had been built to the standards of the Gainesville Green Building Ordinance, 84,671,874 pounds of CO₂ emissions per year would be avoided.

According to a 2011 article from the Charlotte USA Economic Development Guide, the Catawba County, North Carolina Eco-

¹⁸ *Id.*

¹⁹ "The Effectiveness of Green Initiatives" PowerPoint Presentation, on file with Nicole Babcock.

²⁰ Information received from conversations with Mr. Mike Connors, Public Works Administrator for the City of St. Petersburg.

²¹ LARSON & TAYLOR, *supra*, at 1-2.

²² *Id.*

²³ *Id.*

²⁴ *Id.*

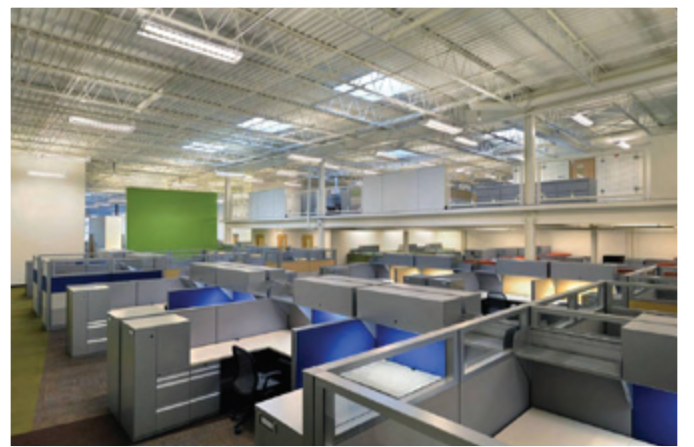
Complex (waste to green energy development) has so far created “\$35 million in taxable investments and more than 150 jobs, with an additional 115 jobs projected when other entities [within the Eco-Complex] begin operation.”²⁵ These numbers are significant in the context of Catawba County as a small population, striving to deal with employment factors. (see Case Study)

Roswell, Georgia’s Energy Strategy for the Future sets forth the city’s fundamental commitment to protect the environment through the continuous improvement of its energy performance. The city estimates that it will save \$62,000 annually from the replacement of traffic signals and school zone flashers with LED bulbs.

Following audits on all of its more than 100 facilities, Gwinnett County, Georgia implemented energy efficiency improvements including lighting upgrades and controls, new HVAC equipment, temperature optimization and implementation of energy management policies. The county’s Intelligent Transportation System and Traffic Control Center Master Plan is estimated to improve annual fuel consumption by 7 percent, CO emissions by 17 percent, and VOC emissions by 12 percent.

St. Petersburg, Florida has synchronized its traffic lights in hopes of conserving fuel by reducing idling.²⁶ The cost of synchronization per year is \$200,000.²⁷ The city hopes to save \$27 million dollars per year as a result of fuel savings.²⁸

In St. Petersburg, an Executive Order mandated that the city “convert all incandescent lights to compact fluorescent lights in City facilities.”²⁹ This was done in the Progress Energy Center parking garage and the South Core parking garage.³⁰ The lighting in both of these parking garages was converted from metal halide and high-pressure sodium lights to inductive systems.³¹ The city expects to save 50% annually on the cost of energy for these parking lots, “with a 400 percent savings over the life of the system, resulting in a payback period for the capital investment of less than five years.”³²



Mechlenburg, County, North Carolina: Valarie C. Woodward Center received LEED Silver certification. Outdoor activities included bioretention areas to reduce runoff and allow for greater filtration of stormwater.

Clemson, South Carolina has no green building requirements, but the city voluntarily conducted two green projects. One is developing an indoor recreation center in which they use a solar water heating system to heat the pool. They received a \$20,000 state loan for the project and while the savings in energy costs is offset by the 10-year debt service, they know they will see savings in years 11 through 20.

In developing a Transportation-Intermodal Center (Bus station/ office/garage complex), Clemson committed to a zero carbon footprint, energy efficiency, water-reuse and use of reclaimed water for washing vehicles. They have a 32kw solar PV system. They estimate that they will see costs savings in 20 years. The City is looking to long term savings from current investments. While the building will reflect LEED standards they would rather use funds for projects than pay for the certification. They are also converting street and park lighting to LED through retrofits.

In Atlanta, Georgia, all new city-owned buildings greater than 5,000 square feet must be LEED certified, and green buildings

25 <http://charlotteeconomicdevelopment.com/catawba-ecocomplex-feeds-charlotte-regions-green-ambitions>

26 *Id.*

27 “The Effectiveness of Green Initiatives” PowerPoint Presentation, *supra* note 61.

28 *Id.* The “Green St. Petersburg” Program, *supra* note 2, presents slightly different numbers for cost and savings than those provided in “The Effectiveness of Green Initiatives” PowerPoint Presentation, *supra* note 61.

29 Executive Order, *supra* note 5.

30 “Green St. Petersburg” Program, *supra* note 2, at 2.

31 *Id.*

32 *Id.*

are encouraged in affordable housing initiatives through the Home Investment Partnership Program and the Neighborhood Stabilization Program. Seven city buildings are under energy performance contracts, resulting in more than 6.6 million kwh saved and over \$2 million in energy savings and O&M cost avoidance in 2008. The remaining buildings will have energy audits completed or performance controls within the next two years.

Energy performance contracts on more than 150 government facilities in DeKalb County, Georgia, have reduced costs by an estimated \$1.5 million annually. The county's lights out/power down policy ensures all non-emergency building lighting and electronic equipment are turned off when not in use and at the end of the work day.

The Asheville, North Carolina City Council passed Resolution 07-91 requiring all new, city-owned or occupied buildings to achieve LEED certification.³³ The goal of the resolution is to limit the amount of greenhouse gases caused by government buildings. Using 2001-2002 as the baseline year, the city hopes to reduce greenhouse gas emissions 2% each year for an ultimate total of 80% reduction by 2050.³⁴ They have already documented an 8.4% 3-year reduction in municipal greenhouse gas emissions, compared with the city's stated goal of a 6% reduction. In October of 2010, Asheville also awarded its first permit plan review rebate for LEED certification. Biltmore Farms, LLC received a rebate of \$5,350 for its Hilton Asheville hotel, which earned LEED Silver certification. The hotel's solar hot water heating system alone is estimated to eliminate 25 tons of carbon dioxide emissions per year.³⁵

Education & Training

The research study highlighted the need for more public education and professional training for both city/county staffs and private builders and contractors on green building practices. Several communities paid for staff training in green building so they could better understand the permitting needs and challenges that differ from traditional approaches. Two communities surveyed actually developed committees to coordinate green building permitting so as to remove any undue obstacles with the current codes and ordinances. One of them was Charlotte-Mecklenburg County, North Carolina and the other was Gaines-



ville, Florida. In Mecklenburg County the Code Enforcement Department works with the citizen based Technical Advisory Board.³⁶ This Board helps the Code Enforcement department harmonize enforcement of the current construction code with sustainable building practices when potential conflicts or ambiguities threaten a project's sustainability goals. This avoids situations where inspectors are forced by the language of the building code to impose counter-productive requirements.³⁷

For most Green Building programs, professional training and assistance in "green" criteria and construction led to the development of more green buildings. While Chattanooga, Tennessee does not have an ordinance mandating green building, it has developed a private-sector partnership that provides training and assistance to commercial construction projects that integrate green aspects into their building design. The number of LEED certified projects or those seeking LEED certification has risen from zero in 2007 to 46 in 2011. The boom in Chattanooga's LEED certified projects has also caused many local construction professionals to become more educated about green development, with over 150 LEED professionals operating in the city in 2011, up from only four in 2008.³⁸ Currently there are also four local builders who have committed to use **betterbuilt** criteria on all their future residential homes.

36 Technical Advisory Board, MECKLENBURG COUNTY, NC: CODE ENFORCEMENT, <http://charmeck.org/mecklenburg/county/CodeEnforcement/BDC/Pages/TechnicalAdvisoryBoard.aspx>.

37 *Id.*

38 Casey Phillips, Sustainability Building Initiative Co-Director Fights for a more Efficient Chattanooga, CHATTANOOGA TIMES FREE PRESS, Apr. 26, 2011, <http://www.timesfreepress.com/news/2011/apr/26/sustainable-building-initiative-co-director-fights/>. In an interview, Jeff Cannon cited changing attitudes among contractors and other building professionals as one of the GreenSpaces greatest achievements. He stated that in the beginning, many members of the building community as well as the general public were skeptical of the program, but by proving to these individuals the economic soundness of green building techniques the organization has been able to alter the views of many former skeptics.

33 <http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1852#NC>

34 http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=NC16R&re=1&ee=1

35 <http://www.ashevillenc.gov/NewsandEvents/CityNews/tabid/662/articleType/ArticleView/articleId/24460/CoA-issues-first-permit-plan-review-rebate-for-LEED-certification.aspx>



Oak Park Terrace. Photo credit Southeast Watershed Forum.

🏡 Few green building programs surveyed integrated ‘green’ land use practices as part of their programs. Green building is still more commonly viewed in context of building construction and energy efficiency and less as a full-service approach to building green structures within green locations that manage stormwater, and preserve open space, tree canopy and habitat. 🏡

Green Buildings vs. Green Land Use

Few green building programs surveyed integrated “green” land use practices as part of their programs. Green building is still more commonly viewed in context of building construction and energy efficiency and less as a full-service approach to building green structures within green locations that manage stormwater, and preserve open space, tree canopy and habitat. Those communities that had the strongest land use component were in Florida, along with some of the Atlanta Regional Council’s designated Green Communities. Cherokee County, Georgia has committed to preserve 20 percent of county land as permanent greenspace through their Greenspace Protection Plan. Tallahassee, Florida has one of the most integrated approaches to green building in an effort to tie energy and water conservation into long term regional issues of concern. Their program is designed to protect remaining natural ecosystems, connect neighborhoods, provide “green infrastructure” for alternative transportation routes as well as stormwater management and wildlife habitat, and create and expand recreational opportunities for residents.

Some other highlights from the communities researched include the following examples.

- Several communities, specifically Oak Terrace Preserve in South Carolina and Gainesville, Florida have seen a market advantage in going green in a difficult housing market.
- The Eco-Complex in Catawba County, North Carolina used regional waste streams to generate green energy sources while creating local jobs and economic growth.
- St. Petersburg, Florida was the only community to extend green building practices to require that all city contracts for meeting and conference space be made with hotels or conference facilities that have received the Florida Department of Environmental Protection’s “Green Lodging” certification for best practices in water, energy, and waste efficiency standards.
- In Nashville, Tennessee, the LEED Silver-certified Terrazzo building, is a 14-story mixed-use development featuring 117 condominium homes above office, retail, and restaurant space. At this point, 96% of the condominium spaces are sold.³⁹ Terrazzo features extensive natural lighting, renewable bamboo flooring, Energy Star-rated appliances, low-flow water fixtures, and preferred parking for low emission vehicles. In its construction over 75 percent of waste was recycled, and condo owners use 35-40 percent less energy and 40 percent less water.

Other Benefits from Green Building Programs

Communities surveyed in this research project also identified a number of ancillary benefits from their green building programs. Orlando, Florida developed a Green Neighborhoods Program and POWER Program in partnership with the local Utility. The Power Program will perform 825+ retrofits in 2010/11. Green Neighborhoods will target six high energy consumption neighborhoods to perform retrofits up to \$1,000 per home. The POWER Program will perform substantial and extensive retrofits to another 75 homes that have been identified for above average energy consumption. The City also started the Central Florida Energy Efficiency Alliance in cooperation with Orange County, local utilities and building associations. The program is encouraging 2,000 buildings to use Energy Star Portfolio

³⁹ <http://www.terrazzonashville.com/>



📍 **DeKalb County became the first jurisdiction in Georgia to adopt an ordinance that requires structures built prior to 1993 to replace inefficient plumbing fixtures with low-flow plumbing fixtures prior to obtaining new water service after the sale of a property.**

Orlando developed the Think Blue program, which works to ensure pollution prevention and water quality protection of the lakes within Orlando, and its Stormwater Utility division strives to educate the community on lake pollution. 📍

Manager and reduce energy consumption by 10%. City's Parks and Public Works Departments have converted landscaping and altered irrigation patterns, resulting in an estimated \$500,000 in savings per year. And in 2010, Orlando reached 90% reuse of its waste water, most likely the highest rate in the entire county.

DeKalb County became the first jurisdiction in Georgia to adopt an ordinance that requires structures built prior to 1993 to replace inefficient plumbing fixtures with low-flow plumbing fixtures prior to obtaining new water service after the sale of a property.

Orlando developed the Think Blue program, which works to ensure pollution prevention and water quality protection of the lakes within Orlando,⁴⁰ and its Stormwater Utility division strives to educate the community on lake pollution.⁴¹

Not all green building programs have developed without problems. Some were slow to take hold due to builder resistance, lack of understanding the benefits of green building or lack of coordination of city or county staffs to implement the policies seamlessly. While nearly all communities documented energy and operation and maintenance savings from their green building programs (see section on economic incentives), Gainesville, Florida has recently faced some questions regarding the effectiveness of their Green Building Program's incentives at promoting energy efficiency. One 2008 study found that while new houses built to green standards may out-perform similar traditional residences, such gains may "decay" over time.⁴² Additionally, another survey suggests that Gainesville Regional Utility authorities have significantly overestimated the effectiveness of several rebate programs such as duct sealing and air-conditioning rebates.⁴³ Given such information, parties have proposed certain modifications to Gainesville's Green Building Program including gathering data from wider datasets⁴⁴ as well as developing a system that requires more than the one-time certification of a given building.⁴⁵ It was noted that additional monitoring of green buildings needed to be done over time to better document any change in efficiencies.

40 *Id.*

41 Stormwater Utility, http://www.cityoforlando.net/public_works/stormwater/education.htm (last visited Sept. 07, 2011).

42 Pierce Jones & Ujjval Vyas, Energy Performance in Green Developments: A Florida Case Study, REAL ESTATE ISSUES, 2008(3), at 69-70.

43 Pierce Jones et. Al., Quantifying Household Energy Performance Using Annual Community Baselines, 4 INT'L. J. OF ENERGY SECTOR 593 (2010).

44 *Id.* at 596.

45 Pierce Jones et. Al., Residential Energy Efficiency: A Model Methodology for Determining Performance Outcomes, REAL ESTATE ISSUES, 2010(2), at 46 (stating that programs that rely on one-time evaluations for green certification are making an "assumption [that] is likely to be inappropriate or misguided").

selected case studies

BY STATE

The following case studies provide more of an in-depth look at why and how 16 cities and counties in five southeastern states developed green building programs. They each identify why and how the program was developed, specific incentives used, economic incentives funded, local challenges overcome and lessons learned.

It is hoped that these stories, representative of so many other southeastern communities, will inspire and guide other cities and counties to develop their own green building initiatives. The communities that develop more sustainable practices will be better prepared, economically and environmentally, to meet the future challenges facing this growing region in the decades ahead.

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“It is hoped that these stories, representative of so many other southeastern communities, will inspire and guide other cities and counties to develop their own green building initiatives.”

Gainesville, Florida

GREEN BUILDING PROGRAM

By Alex Robertson

Background

Located in Alachua County in north-central Florida, Gainesville covers a total of 62 square miles and is home to approximately 124,354 residents.⁴⁶ While Gainesville is known for its historical buildings and natural surroundings, the city is also a leader in sustainable development and green building.⁴⁷ Gainesville is also home to the University of Florida, itself a leader in the green building field.⁴⁸ Together, the City and the University have worked to develop a strong sustainable development program.

The City of Gainesville has implemented a multi-faceted Green Building Program to encourage green construction. This initiative, which provides both voluntary incentives for private contractors as well as mandatory reviews for municipal projects, has significantly encouraged green development.

Program Inception and Development

Because of its successful history utilizing green building strategies, the University of Florida played a key role facilitating the development and implementation of Gainesville's Green Buildings Program.

Prior to the development of the City Program, the University had already begun taking steps to maximize the efficiency and minimize the environmental impacts of its campus's buildings. The University constructed its first green building in 1999.⁴⁹ In 2006, UF was the first institution in the United States to sign the American College and University President's Climate Commitment (ACUPCC). Since 2001, UF has required all new buildings and major renovations to meet USGBC Leadership in Energy



Longleaf Village - A 550 master planned community with a focus on Green Building Standards and neo-classical architecture. Photo credit: kristenandrebecca.com

and Environmental Design (LEED)⁵⁰ certification, increasing the minimum certification threshold to Silver in 2006, and more recently to a minimum of Gold. UF now has 21 USGBC LEED certified buildings including the first Platinum and Gold certified buildings within Florida.

In 2009, UF recycled 50.32% of its waste including construction debris and ambitiously aims for zero waste by 2015. Over 95% of all UF campus outdoor irrigation is supplied by reclaimed water from the university's on-campus treatment plants.

UF was also named one of the nation's "Best Workplaces for Commuters" by the U.S. Environmental Protection Agency. Approximately 29% of all UF students, faculty, staff, and visitors travel to campus as pedestrians or bicyclists with another 39% arriving on the public bus system which runs on a 20% biodiesel fuel blend and is partially subsidized by student fees which allows free access to UF card holders.

By 2011, UF earned the honor as the top school on the Roberts Environmental Center's sustainability reporting of the top U.S. universities. And these are merely a sampling of the operational outcomes of the UF sustainability vision which also covers research, curriculum, and engagement.⁵¹

In addition to providing a working example of green construction in action, University of Florida students and faculty were

⁴⁶ U.S. Census Bureau State and County Quick Facts; available at: <http://quickfacts.census.gov/qfd/states/12/1225175.html>.

⁴⁷ The Daily Beast ranked Gainesville, Florida the seventh greenest city in the United States in 2011. See <http://www.thedailybeast.com/galleries/2011/04/23/greenest-cities.html> (last visited November 20, 2011); see also America's Top 10 Bike-Friendly Cities, BICYCLING, May 2010, available at <http://www.bicycling.com/news/advocacy/16-gainesville-fl> (2010 study from Bicycling Magazine listing Gainesville as sixteenth on a list of the most bike-friendly cities in America).

⁴⁸ In 2010, the University of Florida had more green buildings than any other university in the country, and as of 2009, the University had invested over \$450 million in constructing over 1.8 million square feet of LEED-certified space. See <http://www.facilities.ufl.edu/sustain/>

⁴⁹ Christy Newman, New Building Construction School to be the First of UF's "Green" Buildings, UNIVERSITY OF FLORIDA NEWS, Aug. 2, 1999, available at <http://news.ufl.edu/1999/08/02/green/>.

⁵⁰ <http://www.usgbc.org/DisplayPage.aspx?CategoryID=19>

⁵¹ <http://sustainable.ufl.edu/docs/ReachingtheVision-final.pdf>

GAINESVILLE, FLORIDA

instrumental in helping Gainesville develop its current green building incentives. Tom Ankersen, Director of the University of Florida's Conservation Clinic, with the assistance of two law students, drafted Gainesville's green building program in 2001.⁵² Initially, a public workshop was held at the University to gather public opinions on how to develop an effective green building initiative and discuss what components it should include.⁵³ Based on input gathered from the workshop, which saw over forty participants from the local community, an ordinance proposal was created and presented to the Gainesville City Council.⁵⁴

The City of Gainesville's Green Build Program is described in Part II of the City's Code of Ordinances in Sections 6-5 through 6-15.⁵⁵ The key provisions in the ordinance include incentives for private builders allowing for fast track local permitting, which now allows builders to receive required permits in as little as one or two weeks when it would take six to eight weeks for other developments, and up to a 50% reduction in permitting fees. The Program also includes a requirement that all city buildings be built to green standards unless the City Council exempts particular projects where the costs outweigh the benefits.⁵⁶ An initiative through the local utility provider, Gainesville Regional Utilities (GRU), provides cash incentives for green renovation/remodeling. The Green Building Program is jointly administered by Gainesville's building inspection department and the GRU. Funding is appropriated annually by the City Council.⁵⁷

Based on the largely voluntary nature of the Program with respect to private construction and the use of third-party certification systems that would not burden governmental staff, Gainesville's Green Building Program ordinance had strong support from most of the affected stakeholders in the community, and it was passed by the Gainesville City Council on its



University of Central Florida - Library West, LEED Gold building - one of the most environmentally friendly buildings on campus. Photo credit: David Moore Photography

first attempt on October 14, 2002, becoming the first such voluntary program in the State of Florida.⁵⁸ The City of Gainesville issued its first green building permit in January 2003 and the Program continues to operate to this day.⁵⁹

Funding

The City estimated the cost of implementing and operating the Program for its first two years at \$335,487, which it initially sought to fund through grants but ultimately elected to fund itself on an annual basis.⁶⁰

Because the City did not have a dedicated funding source for this program the City Council explicitly limited the applicability of the program according to the availability of funds.⁶¹ Under this process, certain incentives offered under the Program have been decreased, with the allowed permit fee reduction being cut from fifty percent allowed under the ordinance to its current allowance of twenty-five percent.⁶² Several GRU incentive programs that encourage energy and water conservation

52 MARISA ROMERO, A REVIEW OF MUNICIPAL ORDINANCES FOR SUSTAINABLE DEVELOPMENT 7 (2006), available at http://www.myfloridagreenbuilding.info/pdf/Review_Municipal_Ord.pdf.

53 UNIVERSITY OF FLORIDA, SUMMARY OF GREEN BUILDING WORKSHOPS AND NEXT STEPS (2001), available at <http://www.law.ufl.edu/conservation/pdf/greenbuilding.pdf>.

54 *Id.*

55 GAINESVILLE, FLA., CODE OF ORDINANCES, Part II, Chapter 6-5 through 6-15, available at <http://fyn.ifas.ufl.edu/materials/gainesville%20-%20greenbuildingprogram.pdf>; or at: http://library.municode.com/HTML/10819/level3/PTIICOR_CH6BUBURE_ARTI.5GAGRBUPR.html#PTIICOR_CH6BUBURE_ARTI.5GAGRBUPR_S6-6INPU.

56 GAINESVILLE, FLA., CODE OF ORDINANCES, Part II, Section 6-8 states: "For any city-owned civic or office construction project, the city is expected to participate in the program unless the city commission determines that the cost (e.g., time, function, or funding) associated with participation in the program significantly outweighs the benefits of participating in the program to the city."

57 GAINESVILLE, FLA., CODE OF ORDINANCES, Part II, Section 6-5 through 6-15

58 A REVIEW OF MUNICIPAL ORDINANCES FOR SUSTAINABLE DEVELOPMENT *supra*, at 8.

59 PEGREEN HANRAHAN, GREEN INITIATIVES IN GAINESVILLE FLORIDA 29, available at http://www.greentrends.org/Presentations/pegeen_green%20building.pdf.

60 Due to limited funds appropriated for this grant program, only four grants were awarded. Gainesville's application ranked sixth out of the twenty-four applications submitted. <http://www.dep.state.fl.us/waste/categories/recycling/ig/InnovativeGrants2003-04.htm>.

61 GAINESVILLE, FLA., CODE OF ORDINANCES: Part II, Sec. 6-12.

62 BARBARA LARSON & NICHOLAS TAYLOR, GHG CASE STUDY: GREEN BUILDING ORDINANCE (GAINESVILLE, FLA.) 1 (2011), available at http://www.floridaenergy.ufl.edu/wp-content/uploads/FESC_Green_Building_Ordinance_final_11-01-05.pdf.

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and efficiency during retrofitting and remodeling are in place today, and expenses are funded largely by the Utility's internal conservation budget as well as spread among the entire their customer pool.⁶³

Results

The Gainesville Green Building Program has been generally successful, though most of its success has been limited to the residential sector. Initially builders and developers were slow to take advantage of incentives offered under the program primarily because they found the requirements confusing.⁶⁴ Also, during the initial phases of implementation, much of the City's building staff was unfamiliar with the specifics of the green building standards referenced in the ordinance, and the program actually added time to the processing of the first building permit issued under the program.⁶⁵ Experience and public outreach regarding the program eventually resolved both of these issues, and interest in the Program began to pick up by 2006.⁶⁶ Within the four years of the Program's inception, builders saved over \$600,000 in permitting fees.⁶⁷

One example of a recent residential project built according to the City's Green Building Program is North Point at Ironwood Community, a development of sixty-three single-family residences located on eighteen acres.⁶⁸ In order to take advantage of incentives offered under Gainesville's Green Building Program, all homes in the development were built to both Florida

Green Building Coalition and ENERGY STAR standards.⁶⁹

A 2011 study conducted by the Florida Energy System Consortium found that, based on 2009 data, homes in the development were 7.8 percent more energy efficient than comparable homes of the same size and age in the Gainesville area, and they were 39.4% more efficient than the average home in Gainesville.⁷⁰ Based on these numbers, the authors of the article found that when compared to other contemporary homes, each home in the development avoided on average 2,186 pounds of excess CO2 emissions in 2009, which amounts to the burning of 107.4 gallons of gas per year.⁷¹ Furthermore, if all of the 38,709 homes built in Gainesville in 2008 had been built to the standards of the Gainesville Green Building Ordinance, 84,671,874 pounds of CO2 emissions per year would be avoided.

Despite the current condition of the real estate market, in the residential setting, green construction remains a popular

practice, with many builders specializing in the development of both energy efficient as well as zero-energy homes. Some have suggested that the City's green building incentives only play a small part in motivating builders and developers to adopt green building strategies. Instead, the primary motivation may be for residential developments to be more easily distinguished from the existing housing stock available on the market.⁷²

Gainesville's Green Building Program has had less success incentivizing commercial development. Few of Gainesville's commercial builders seek green credentials, in part due to the costs of achieving LEED accreditation.⁷³ Currently, only one govern-

Within the four years of the Program's inception, builders saved over \$600,000 in permitting fees.

Each home in the development avoided on average 2,186 pounds of excess CO2 emissions in 2009, which amounts to the burning of 107.4 gallons of gas per year.

63 While specific figures were not available, according to Mr. Hal Knowles, a Ph.D student working with the University of Florida's Program for Resource Efficient Communities, these programs are funded by an internal conservation budget geared at energy conservation that he estimated amounts to "a couple million dollars a year".

64 Nathan Crabbe, City Borrows "Green Building" from Campus, THE GAINESVILLE SUN, Oct. 1, 2005, <http://www.gainesville.com/article/20051001/LOCAL/210010344?p=2&tc=pg>.

65 ROMERO, supra, p. 8; available at: http://www.myfloridagreenbuilding.info/pdf/Review_Municipal_Ord.pdf.

66 ROMERO, supra, p. 7; available at: http://www.myfloridagreenbuilding.info/pdf/Review_Municipal_Ord.pdf. (Over half of the green permits issued between the development of the program and April 2006 were granted between July-April 2006).

67 LARSON & TAYLOR, supra, at 1-2.

68 LARSON & TAYLOR, supra, at 1-2.

69 *Id.*

70 *Id.*

71 *Id.*

72 Personal communication with Don Davis, president of Gainesville's Capital City Bank and member of the local green building council chapter.

73 Correspondence with Don Davis, supra, and Hal Knowles, supra, supported the assertion that few commercial buildings in Gainesville have participated in the Green Building Program at least in part due to LEED certification costs. Mr. Davis cited a personal example where his company chose not to seek LEED certification on a project in 2009 due to the high cost that went into achieving the certification. The LEED database lists

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ment-owned building has achieved LEED certification, though several City buildings such as the Alachua County/ Gainesville Senior Recreational Center and Gainesville's new Fire Rescue Station 8 are registered with the US Green Building Council as LEED projects.⁷⁴

Gainesville's Green Building Program has had a significant influence on other governments. Drawing from the Gainesville ordinance, Sarasota, Florida adopted a similar program in 2005 with virtually identical language to that used in the Gainesville program.⁷⁵ The Gainesville Program also served as a guide for the Florida Green Building Coalition's 2008 Model Green Building Ordinance, which provides guidance for local governments implementing their own green building codes.⁷⁶ Additionally, Alachua County has constructed a number of its buildings to LEED specifications since 2003, and in 2008, County staff drafted a proposal that would require all County buildings to achieve LEED certifications.⁷⁷

Problems and Challenges

The Gainesville Green Building Program has faced a number of challenges. While the ordinance codifying the Program went

into effect in 2002, the Program initially garnered little attention from builders though City officials were surprised by this initial lack of interest.⁷⁸ By 2006, however, interest in the Program

increased dramatically, at least for residential development. Explanations for this inauspicious start vary, with some developers suggesting that the process was initially too cumbersome⁷⁹ and others attributing it to a failure to properly educate builders and developers about the Program.⁸⁰

While use of the Green Building Program by residential developers has since increased, use by commercial builders remains low. One possible explanation for this is the requirement that commercial developments seek LEED certification. According to Don Davis of the local chapter of the Green Building Council, the cost of actually achieving LEED certification can be daunting

and may outweigh any incentives that require obtaining such certification. As it currently stands, only one privately owned commercial development in Gainesville has achieved LEED certification.⁸¹

Recently, the structure of the Gainesville Program has faced criticism in multiple papers that question the effectiveness of the Program's incentives at promoting energy efficiency. One 2008 study found that while new houses built to green standards may out-perform similar traditional residences, such gains "de-

Despite the current condition of the real estate market, in the residential setting, green construction remains a popular practice, with many builders specializing in the development of both energy efficient as well as zero-energy homes.

Parties have proposed certain modifications to Gainesville's Green Building Program's structure including gathering data on utility programs from wider datasets as well as developing a system that requires more than the one-time certification of a given building.

only one privately owned commercial facility in the Gainesville Area that is LEED certified (Mercedes Benz of Gainesville). LEED Projects and Case Studies Directory, <http://www.usgbc.org/LEED/Project/RegisteredProjectList.aspx> (last visited Sept. 21, 2011).

74 *Id.* LEED registration is the first step in eventually achieving LEED certification and serves as a declaration of intent to eventually seek LEED certification. The costs of taking this step are significant (\$1200) and doing so provides parties with tools necessary to eventually achieve LEED certification. LEED for New Construction: Registering a Project, GREEN BUILDING CERTIFICATION INSTITUTE, <http://www.gbci.org/main-nav/building-certification/certification-guide/leed-for-new-construction/project-registration/registration.aspx> (last visited Sept. 21, 2011).

75 ROMERO, *supra*, at 10.

76 Florida Building Commission, "Green Building Workgroup Recommendations to the Florida Building Commission." January 16, 2008, p. 4. available at: http://consensus.fsu.edu/FBC/GBW/GBW_Report_Jan08.pdf

77 Alachua County "Resource Efficient, High Performance" Civic Buildings Policy Draft ECSC Recommendation – August 4, 2008, <http://govconnect.alachuacounty.us/committees/ECSC/Strategies/Lists/Benchmarks%20for%20ECSC/DispForm.aspx?ID=11> (Click on "Link to Presentation Documents" to view Alachua County documents)

78 Crabbe, *supra* note 22.

79 In a survey of local builders, it is mentioned that early administrative holdups and confusion worked against the achievement of expedited permitting. One builder suggested that it took six to eight weeks to complete what now takes one to two weeks. Other builders have expressed hesitancy toward the program on the grounds that it includes cumbersome requirements that are redundant with ENERGY STAR certification. ROMERO, *supra*, at 8.

80 *Id.*

81 LEED Projects and Case Studies Directory, *supra*, (showing the only non-government or university affiliated project in Gainesville as Mercedes Benz of Gainesville).

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cay” over time.⁸² Additionally, another survey suggests utility authorities have significantly overestimated the effectiveness of several rebate programs such as duct sealing and A/C rebates.⁸³ Given such information, parties have proposed certain modifications to Gainesville’s Green Building Program’s structure including gathering data on utility programs from wider datasets⁸⁴ as well as developing a system that requires more than the one-time certification of a given building.⁸⁵

Other Initiatives

The City of Gainesville has a number of programs in place that work in conjunction with its Green Building Program to improve the overall sustainability of the City. As early as 1997, the City of Gainesville adopted a mandatory commercial recycling ordinance that applies to traditional commercial properties as well as apartment and condo complexes.⁸⁶ Additionally, municipal offices within the City are bound by a recycled-content product procurement policy that requires them to purchase recycled products whenever possible.⁸⁷

Interest in promoting green construction in the Gainesville area has also come from private organizations. One such effort, Gainesville Green, maps Gainesville Regional Utilities’ energy usage data in the hopes of developing future energy incentives that focus on performance-based rather than prescriptive requirements.⁸⁸

Finally, Gainesville Regional Utilities manages several other programs not listed under the Green Buildings Program that

nevertheless work in conjunction with green construction policies to reduce the City’s environmental footprint. One such program is the Gainesville Regional Utilities Feed in Tariff Program, which pays individuals or companies who generate power through solar photovoltaic systems and feed their generated electricity into the power grid.⁸⁹ The program has proven very

popular, with 2011 seeing many more applicants for the program than can be supported under the current model.⁹⁰

This program has helped to make Gainesville a major center for solar power with more than 7 megawatts of installed solar power for roughly 200,000 people. A feed-in tariff system

provides people or businesses with solar power systems with a long-term guarantee that they’ll be able to “feed” the electricity they generate back to the grid--and get paid for it. That makes the initial up-front investment in a solar installation less financially risky.

In Gainesville’s case, if you put solar panels on your roof, you can connect your system to the Gainesville Regional Utilities grid and get a 20-year contract that commits the utility to buying your surplus electricity for as much as \$.32 per kilowatt. The exact price depends on the current cost of solar PV panels and the size of the installation. This makes solar power affordable for homeowners as well as major companies. Indeed, more than a third of Gainesville’s solar capacity is in small, rooftop installations. And, unlike up-front cash rebates, a feed-in tariff system gives solar system owners an incentive to keep them functioning smoothly.

Such initiatives, when combined with the City’s Green Buildings Program, have helped guide the City down a path of environmental sustainability.

The Gainesville Regional Utilities Feed in Tariff Program pays individuals or companies who generate power through solar photovoltaic systems and feed their generated electricity into the power grid.

82 Pierce Jones & Ujjval Vyas, Energy Performance in Green Developments: A Florida Case Study, REAL ESTATE ISSUES, 2008(3), at 69-70.

83 Pierce Jones et. Al., Quantifying Household Energy Performance Using Annual Community Baselines, 4 INT’L. J. OF ENERGY SECTOR 593 (2010).

84 *Id.* at 596.

85 Pierce Jones et. Al., Residential Energy Efficiency: A Model Methodology for Determining Performance Outcomes, REAL ESTATE ISSUES, 2010(2), at 46 (stating that programs that rely on one-time evaluations for green certification are making an “assumption [that] is likely to be inappropriate or misguided”).

86 Gainesville Recycling Division, <http://www.cityofgainesville.org/GOVERNMENT/CityDepartmentsNZ/Recycling/tabid/106/Default.aspx> (last visited Sept. 21, 2011).

87 Recycled Content Policy, CITY OF GAINESVILLE, <http://www.cityofgainesville.org/GOVERNMENT/CityDepartmentsNZ/Recycling/tabid/106/Default.aspx> (last visited Sept. 21, 2011).

88 Personal communication with Mr. Hal Knowles. <http://gainesville-green.com/>

89 See GRU’s Solar FIT Program; details available at: <https://www.gru.com/OurCommunity/Environment/GreenEnergy/solar.jsp>.

90 A 2011 article stated that 136 applicants with the capability of generating over nine megawatts of electricity applied for the program, which was limited to a total capacity of 2.7 megawatts. Given this disparity, a University of Florida professor was asked to randomly select winners. Chad Smith, Application Process for Solar Feed-In Tariff Program Raises Some Eyebrows, THE GAINESVILLE SUN, May 8, 2011, <http://www.gainesville.com/article/20110508/ARTICLES/110509529>.

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For additional resources on Gainesville's Green Building initiatives, go to:

Carbon Case Study:

Gainesville Green Building Ordinance

http://www.floridaenergy.ufl.edu/wp-content/uploads/FESC_Green_Building_Ordinance_final_11-01-05.pdf

Carbon Case Study:

Utility Home Energy Efficiency Rebate Programs (Gainesville Regional Utilities)

http://www.floridaenergy.ufl.edu/wp-content/uploads/FESC_Utility_home_energy_efficiency_rebate_programs_final_11-02-03.pdf

Net Zero Energy Homes (ZEHS)...which incidentally uses my personal home as the case study

http://www.floridaenergy.ufl.edu/wp-content/uploads/FESC-zero-energy-home_final-2.pdf

Homepage - <http://gainesville-green.com/> and <http://gainesville-green.com/home-report?home-id=158677>

<http://openpv.nrel.gov/> and <http://www.fastcoexist.com/1678949/gainesville-florida-an-unlikely-world-capital-of-solar-power>

Orlando, Florida

GREEN BUILDING PROGRAM

By Denise Yen

Background

Orlando, Florida covers an area of 102 square mile in central Florida. In 2010, the U.S. Census Bureau reported Orlando had a population of 283,300 people. Through its comprehensive “Green Works Orlando” plan, the City of Orlando has encouraged the construction of numerous green, LEED-certified buildings throughout the City. Green Works Orlando was created to transform the City into “one of the most environmentally-conscious cities in America”⁹¹ by promoting “environmentally-friendly lifestyles and business practices.”⁹²

Green Works Orlando is composed of five pillars: 1) *Energy Efficiencies and Green Building*, 2) *Transportation*, 3) *Sustainable Infrastructure and Conservation*, 4) *Green Spaces*, and 5) *Advocacy and Education*⁹³ in order to improve the sustainability of the City’s operations and the quality of life of its citizens. In particular, the Energy Efficiencies and Green Building component of Green Works Orlando has lessened the impact the City has on its natural environment.

Program Inception and Development

Green Works Orlando was implemented internally, without community involvement, in 2007 by Mayor Buddy Dyer and his staff.⁹⁴ It is currently managed by the Chief Administrative Office, though other departments such as the Planning Department, Public Works Department, Housing Department, and the Transportation Department also play active roles in the program.⁹⁵ In terms of green building specifically, the Chief Administrative Office directs the program with the Public Works and Housing Departments both playing significant roles.

The Energy Efficiencies and Green Building pillar of the Green Works Orlando agenda includes the City’s commitment to “design all new City buildings to comply with LEED standards, with the goal of achieving LEED certification or appropriate green



The first solar farm in Orange County at OUC’s Curtis H. Stanton Energy Center. The 5.9-Megawatt solar photovoltaic (PV) can generate enough renewable energy to power more than 600 homes.

building standards for all municipal buildings”.⁹⁶ This has led to Orlando constructing the first LEED certified fire station in Florida, and the first newly constructed LEED certified NBA arena.⁹⁷

Green Works Orlando also strongly promotes the construction of commercial and residential green buildings. In December 2007, the City organized a two-day LEED-New Construction (LEED-NC) training course for staff from the Planning, Permitting, Facilities, Purchasing, Capital Improvement, and Housing Departments of both the City of Orlando and Orange County, Florida, designed to provide a comprehensive overview and thorough understanding of the LEED-NC standards. The training course also “showcased incorporating sustainable design features in public buildings, assisting the private sector in attaining LEED standards and instituting green building programs”.⁹⁸ In January, 2008, six Orlando government employees received LEED Professional Accreditation by the U.S. Green Building Council.⁹⁹

91 Green Works Orlando – Message from Mayor Buddy Dyer, <http://www.cityoforlando.net/elected/greenworks/mayormessg.htm> (last visited November 21, 2011).

92 Green Works Orlando, <http://www.cityoforlando.net/elected/greenworks/index.htm> (last visited November 21, 2011).

93 Green Works Orlando Pillars, <http://www.cityoforlando.net/elected/greenworks/gov/pillars.htm> (last visited November 21, 2011).

94 Telephone Interview with Jonathan Ippel, Sustainability Manager, City of Orlando (Aug. 30, 2011).

95 *Id.*

96 Green Works Government, <http://www.cityoforlando.net/elected/greenworks/gov/nrgefficiency.htm> (last visited November 21, 2011).

97 *Id.*

98 Green Works Orlando Green Updates –December 2007, http://www.cityoforlando.net/elected/greenworks/green_updates/07_12.htm#071207 (last visited November 21, 2011).

99 Green Works Orlando Green Updates – January 2008, http://www.cityoforlando.net/elected/greenworks/green_updates/08_01.htm (last visited Sept. 7, 2011). Telephone Interview with Jonathan Ippel, Sustainability Manager, City of Orlando (Aug. 30, 2011).

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Funding

The costs of Green Works Orlando, when the plan was in its infancy, were approximately a hundred thousand dollars, financed mostly by Orlando's General Fund.¹⁰⁰ However, as the program has developed, it has become increasingly more expensive.¹⁰¹ Ongoing costs amount to several million dollars annually, so Green Works Orlando now actively seeks outside funding primarily through grant writing.¹⁰²

In November 2008, Orlando received a \$200,000 Solar America Cities grant from the U.S. Department of Energy in partnership with the Orlando Utilities Commission (OUC) and Orange County, with which to support the use of solar technology.¹⁰³ Additionally, in 2009-2010, the City received a total of \$2.6 million in funding, with which to reduce energy consumption, from both the federal Energy Efficiency and Conservation Block Grant (EECBG) Program and a grant through General Electric's "Eco Treasure Hunt" program.¹⁰⁴

Results

The City of Orlando's government considers Green Works Orlando to be very successful, and City officials are extremely satisfied with this approach to improving their City's sustainability.¹⁰⁵ Twelve green government buildings have been constructed since the program's inception.¹⁰⁶ Orlando boasts the first LEED certified fire station in Florida—Fire Station 15—which was completed in September 2008.¹⁰⁷ Three more LEED certified Fire Stations followed,¹⁰⁸ and then in February 2009 the first LEED-Silver certified fire station in Florida—Fire Station 7—was opened.¹⁰⁹ Fire Station 7 has since achieved



Orlando Utilities Commission Reliable Plaza building - the "Greenest building in downtown Orlando, setting a gold standard for utility conservation.

LEED-Gold certification, and an additional fire station—Fire Station 1—is currently in the process of attaining LEED-Gold certification.¹¹⁰

The City also boasts Florida's first LEED-Platinum certified affordable home;¹¹¹ and another affordable housing building is in the process of attaining LEED-Gold certification. Furthermore, Orlando's premier sports venue, the Amway Center, which is home to the Orlando Magic NBA franchise, received LEED Gold certification. Also, Orlando's Events Center Garage, the Dr. Phillips Performing Arts Center, and City Hall are all awaiting LEED certification.¹¹²

Non-governmental green buildings have also been constructed in Orlando within the past few years. The Orlando Utilities Commission "led by example with their new service center, Reliable Plaza."¹¹³ Certified in November 2009, Reliable Plaza was the first commercial building in central Florida built to LEED-Gold standards.¹¹⁴ In addition, several of the City's residential houses have been certified by the Florida Green Building Coalition (FGBC).¹¹⁵

According to the City's Sustainability Manager, Mr. Jonathan Ippel, the estimated cost for Orlando's green buildings ranges

100 Telephone Interview with Jonathan Ippel, Sustainability Manager, City of Orlando (Aug. 30, 2011).

101 *Id.*

102 *Id.*

103 Green Works Orlando Green Updates – November 2008, http://www.cityoforlando.net/elected/greenworks/green_updates/08_11.htm (last visited Sept. 7, 2011).

104 Green Works Government – Energy and Green Buildings, <http://www.cityoforlando.net/elected/greenworks/gov/nrgefficiency.htm> (last visited Sept. 7, 2011).

105 Telephone Interview with Jonathan Ippel, Sustainability Manager, City of Orlando (Aug. 30, 2011).

106 Green Works Government – Energy and Green Buildings, <http://www.cityoforlando.net/elected/greenworks/gov/nrgefficiency.htm> (last visited Sept. 7, 2011).

107 Green Works Orlando Green Updates – December 2008, http://www.cityoforlando.net/elected/greenworks/green_updates/08_12.htm#leed (last visited Sept. 7, 2011).

108 Green Works Government – Energy and Green Buildings, <http://www.cityoforlando.net/elected/greenworks/gov/nrgefficiency.htm> (last visited Sept. 7, 2011).

109 Green Works Orlando Green Updates – February 2009, http://www.cityoforlando.net/elected/greenworks/green_updates/09_02.htm#Orlando_Fire_Station_7 (last visited Sept. 7, 2011).

110 Green Works Government – Energy and Green Buildings, <http://www.cityoforlando.net/elected/greenworks/gov/nrgefficiency.htm> (last visited Sept. 7, 2011).

111 Green Works Orlando Green Updates – May 2009, http://www.cityoforlando.net/elected/greenworks/green_updates/09_05.htm#LEED (last visited Sept. 7, 2011).

112 Green Works Government – Energy and Green Buildings, <http://www.cityoforlando.net/elected/greenworks/gov/nrgefficiency.htm> (last visited Sept. 7, 2011).

113 Green Works Orlando Green Updates – November 2008, http://www.cityoforlando.net/elected/greenworks/green_updates/08_11.htm (last visited Sept. 7, 2011).

114 OUC News Room – "U.S. Green Building Council Awards OUC's Reliable Plaza Gold LEED Status", <http://www.ouc.com/en/news.aspx?newsId=2e978d1f-55f6-4bec-bd31-9b92e8b799dc> (last visited Sept. 6, 2011).

115 Florida Green Building Coalition – About Us, <http://www.floridagreenbuilding.org/about-us> (last visited Sept. 5, 2011).

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from approximately two to ten percent.¹¹⁶ Despite the additional expense involved, both developers and the public have responded favorably to Green Works Orlando's Energy Efficiencies and Green Building pillar, likely because Green Works Orlando does not establish any mandatory green building requirements.¹¹⁷ The government consequently encourages commercial and residential green building by promoting the cost savings that result from LEED certification.¹¹⁸

The City of Orlando also promotes energy efficiency and renewable electricity by referring developers and residents to the Orlando Utility Commission's (OUC) website¹¹⁹ for information on energy efficiency and renewable energy incentives such as the 30% federal tax credit for the purchase and installation of residential solar electric and solar water heating property,¹²⁰ \$2,000 federal tax credits for new energy-efficient homes, and OUC efficiency incentives for both commercial improvements and new construction applications.¹²¹

Problems or Challenges

Though Green Works Orlando is received positively now, there were some initial misgivings about the program from the general public. These reservations were predominately due to insufficient knowledge about the environment and misunderstandings about the effectiveness of green practices, but through the years the Orlando government has been able to overcome doubts with persistence and education.¹²² Consequently, the Orlando government would not do anything differently with regard to Green Works Orlando.¹²³

116 Telephone Interview with Jonathan Ippel, Sustainability Manager, City of Orlando (Aug. 30, 2011).

117 *Id.*

118 Green Works Business – Energy Efficiency, <http://www.cityoforlando.net/elected/greenworks/business/bizenergy.htm> (last visited Sept. 7, 2011).

119 *Id.*

120 OUC Solar Incentives, http://www.ouc.com/en/commercial/Solar_comm/solar_comm_incentives.aspx (last visited Sept. 7, 2011).

121 OUC Commercial Rebates, http://www.ouc.com/en/commercial/ways_to_save/rebates.aspx (last visited Sept. 7, 2011).

122 Telephone Interview with Jonathan Ippel, Sustainability Manager, City of Orlando (Aug. 30, 2011).

123 *Id.*

Other Initiatives

Orlando has implemented numerous other programs through Green Works Orlando, to help the City achieve its sustainability goals. It helped to establish the Central Florida Energy Efficiency Alliance (CFEEA) in 2009, which is currently sponsoring an energy use reduction plan called the Kilowatt Crackdown Challenge.¹²⁴ The City also operates the Think Blue program,

which works to ensure pollution prevention and water quality protection of the lakes within Orlando,¹²⁵ and its Stormwater Utility division strives to educate the community on lake pollution.¹²⁶

Over six miles of bike lanes were installed in 2010, electronic vehicles have been ordered,

and both rail and high-speed rail lines are being constructed.¹²⁷ The Keep Orlando Beautiful program boosts community involvement by providing education and volunteer opportunities to the public.¹²⁸ Moreover, Orlando's Solid Waste Management Division runs a recycling program for both its commercial and residential communities.¹²⁹

These programs are just a few examples of Orlando's efforts to become a greener, more sustainable city. Green Works Orlando has had a substantial, positive impact, not just on green building, but on the City's overall green practices.

The City also operates the Think Blue program, which works to ensure pollution prevention and water quality protection of the lakes within Orlando, and its Stormwater Utility division strives to educate the community on lake pollution.

124 Green Works Business – Green Business Programs, <http://www.cityoforlando.net/elected/greenworks/business/bizprog.htm> (last visited Sept. 07, 2011).

125 *Id.*

126 Stormwater Utility, http://www.cityoforlando.net/public_works/stormwater/education.htm (last visited Sept. 07, 2011).

127 Green Works Government – Transportation, <http://www.cityoforlando.net/elected/greenworks/gov/transportation.htm> (last visited Sept. 07, 2011).

128 Green Works Government – Advocacy and Education, http://www.cityoforlando.net/elected/greenworks/gov/advoc_edu.htm (last visited Sept. 07, 2011).

129 Green Works Business – Solid Waste and Recycling, <http://www.cityoforlando.net/elected/greenworks/business/bizwaste.htm> (last visited Sept. 07, 2011); Green Works Life – Solid Waste and Recycling, <http://www.cityoforlando.net/elected/greenworks/life/lifewaste.htm>

St. Petersburg, Florida

GREEN BUILDING PROGRAM

By Nicole Babcock

Background

St. Petersburg, Florida is a city of 250,000 people that occupies approximately 62 square miles in the middle of Florida's western Gulf coast.¹³⁰ St. Petersburg was the first city in the State of Florida to be named a "Green City" by the Florida Green Building Coalition (FGBC)¹³¹ for its commitment to "sustainable practices."¹³² As part of this commitment, the city has implemented the "Green St. Petersburg" program, designed to meet the city's "double bottom line" by implementing environmentally beneficial programs while also taking cost and return on investment into consideration.¹³³ The mission of the Green St. Petersburg program is to "provide efficient and effective public services that protect and enhance sustainability of environment and the quality of life in St. Petersburg."¹³⁴ The city is fulfilling its mission by implementing a variety of green building initiatives described in Executive Order EO-08-01.¹³⁵

The Executive Order, which was issued by Mayor Baker in 2008 after the city was named a "Green City", mandates that all new city owned and occupied buildings meet the U.S. Green Building Council's (USGBC) LEED-NC standards.¹³⁶ (LEED for New Construction) In addition, reconstruction on all existing government buildings exceeding 10,000 square feet must meet USGBC's LEED-EB (LEED for Existing Buildings) standard.¹³⁷ All major government facilities must also adopt energy con-



Solar water heater and panels. St. Petersburg, Florida.

servation measures for buildings exceeding 20,000 square feet according to the Executive Order.¹³⁸

While LEED-certification is one of the most important green building initiatives mandated by the city, other important green building requirements were implemented by the Executive Order as well. First, the Executive Order mandated that the city "convert all incandescent lights to compact fluorescent lights in City facilities."¹³⁹ The Progress Energy Center parking garage and the South Core parking garage¹⁴⁰ were converted from metal halide and high-pressure sodium lights to inductive systems.¹⁴¹ The city expects to save 50% annually on the cost of energy for these parking garages, "with a 400 percent savings over the life of the system, resulting in a payback period for the capital investment of less than five years."¹⁴² The city also requires conversion of "all T-12 Magnetic Ballast Fluorescent lights to T-8 Electronic Ballast Fluorescent Lights in City facilities."¹⁴³

Additional green building mandates require that "[a]ll [city] contracts for meeting and conference space with hotels or conference facilities . . . be with facilities that have received the

130 U.S. Census Bureau State and County Quickfacts: <http://quickfacts.census.gov/qfd/states/12/1263000.html>.

131 The Florida Green Building Coalition is an organization "dedicated to improving the built environment . . . [by promoting] sustainability with environmental, economic, and social benefits through regional education and certification programs." Florida Green Building Coalition, <http://floridagreenbuilding.org/>

132 "Green St. Petersburg" Program, 1, 1 (September 2008), <http://pinellas.ifas.ufl.edu/sustainability/greengov/pdf/GreenSTPetersburg.pdf>

133 *Id.*

134 *Id.*

135 Executive Order EO-08-01 (Promulgated by Mayor Baker of St. Petersburg, Florida in 2008).

136 *Id.*; LEED-NC is the standard for LEED-certification of new construction (NC). New Construction and Major Renovations, U.S. Green Building Council, August 1, 2011, <http://www.usgbc.org/DisplayPage.aspx?CMSPageID=220>.

137 Executive Order EO-08-01 ("Additionally, when quantified to result in a four year or less payback period, building renovations of all sizes, including window replacement, HVAC unit replacement or other energy conservation measures as identified in energy audits, shall follow LEED-EB standards."); LEED-EB is the standard for LEED-certification for existing buildings (EB). Existing Buildings: Operation & Maintenance, U.S. Green Building Council, July 15, 2011, <http://www.usgbc.org/DisplayPage.aspx?CMSPageID=221>.

138 Executive Order, *supra* note 5.

139 Executive Order, *supra* note 5.

140 "Green St. Petersburg" Program, *supra* note 2, at 2.

141 *Id.*

142 *Id.*

143 Executive Order, *supra* note 5.

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Department of Environmental Protection “Green Lodging” certification for best practices in water, energy, and waste efficiency standards.”¹⁴⁴ In addition, leasing agreements for office space must comply with Energy Star building standards and the city is required to develop a “prototype solar project for City-owned office buildings.”¹⁴⁵

While St. Petersburg has implemented a number of green building initiatives, it is also participating in a number of additional sustainability-related initiatives. These initiatives include the implementation of energy conservation programs and the use of alternative energy sources as well as water conservation and recycling programs.¹⁴⁶ These programs as well as others are detailed in the Other Initiatives section below.

Program Inception

In December 2006, St. Petersburg was designated a “Green City.” Upon receiving the Green City designation from the Florida Green Building Coalition, and in line with the “Green City”¹⁴⁷ designation, Mayor Baker promulgated Executive Order EO-08-01 (described above) in 2008 in which he listed the green building and sustainability actions, policies and procedures to take effect.¹⁴⁸

St. Petersburg then sought to encourage other cities to seek the “Green City” designation.¹⁴⁹

The City approached the National League of Cities (NLC) and asked the group to get involved in raising awareness of the green initiatives that helped St. Petersburg achieve designation as a “Green City.”¹⁵⁰ St. Petersburg also asked the NLC to develop national standards for a “Green City”-type designation.¹⁵¹ As a result, the NLC and others began developing the Star Community Index, a national standard for assessing commu-

144 *Id.*

145 *Id.*

146 “Green St. Petersburg” Program, *supra* note 2, at 2-14.

147 “Green St. Petersburg” Program, *supra* note 2. Date of “Green City” certification provided by Mr. Mike Connors.

148 *Id.*

149 Information learned from Mr. Mike Connors, Public Works Administrator for the City of St. Petersburg; National League of Cities Resolution, on file with Nicole Babcock.

150 *Id.*

151 *Id.*



Water efficiency sign. St. Petersburg, Florida.

nity sustainability.¹⁵² Prior to the Star Community Index, there were nearly two-dozen different standards for designating a city as green.¹⁵³ As a result of the National League of Cities national effort, and St. Petersburg’s request for support from the NLC, national standards have been in the works for the last two and a half years.¹⁵⁴

St. Petersburg was a key player in influencing green building and sustainability practices on both a national and state level.

In December 2008, the Florida Local Environmental Resource Agencies (FLERA) signed a resolution designed “to enact and implement measures and employ environmentally sustainable practices, policies, and methods to achieve the goal of supporting its members becoming designated as Florida Green Local Governments by the Florida Green Building Coalition, and further supporting FLERA’s desire to create more sustainable Florida communities.”¹⁵⁵ In short, FLERA’s goal was to increase the number of Florida cities designated as “Green Cities” by the Florida Green Building Coalition.¹⁵⁶ By seeking the support of the National League of Cities and the Florida Local Environmental Resource Agencies, St. Petersburg was a key player in influ-

152 *Id.*

153 *Id.*

154 *Id.*

155 FLERA Resolution, December 28, 2008, on file with Nicole Babcock.

156 *Id.*

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encing green building and sustainability practices on both a national and state level.

Program Development

The development of the “Green St. Petersburg” program was largely done in-house according to Mr. Mike Connors, the Public Works Administrator for the city of St. Petersburg.¹⁵⁷ Mr. Connors, an environmental engineer, along with city engineers and architects, developed the “Green St. Petersburg” program by following the “double bottom line” strategy wherein the environmental impacts of a project are considered along with its costs in evaluating available alternatives.¹⁵⁸ By considering both the environmental and financial benefits of each possible green initiative, Mr. Connors and in-house staff were able to determine which projects would provide the most environmental benefits as well as the best return on investment.¹⁵⁹ The programs determined to provide the most cost savings were implemented over other programs that were less cost effective.¹⁶⁰

The public also played a role in developing the “Green St. Petersburg” program.¹⁶¹ Mr. Connors and other in-house staff sought feedback on the “Green St. Petersburg” program from the public by working with a non-profit organization called Pinellas Living Green, an umbrella group comprised of members of environmental interest groups such as the Audubon Society, the Sierra Club and other local environmental agencies.¹⁶²

Funding

Funding for most of the green building and green initiative programs came from special grants, local sales tax dollars or Federal Earmarks dedicated to improvement projects.¹⁶³ Local sales tax dollars generate \$25 million dollars per year to help fund the “Green St. Petersburg” program.¹⁶⁴ In addition, \$2.3 million devoted to the “Green St. Petersburg” program came from the Department of Energy as part of the American Rein-



This roof in St. Petersburg, Florida is designed to collect and store rainwater.

“Local sales tax dollars generate \$25 million dollars per year to help fund the ‘Green St. Petersburg’ program.”

¹⁵⁷ Information learned from speaking with Mr. Mike Connors, Public Works Administrator for the City of St. Petersburg.

¹⁵⁸ “Green St. Petersburg” Program, supra note 2.

¹⁵⁹ Information learned from speaking with Mr. Mike Connors, Public Works Administrator for the City of St. Petersburg.

¹⁶⁰ *Id.*

¹⁶¹ *Id.*

¹⁶² *Id.*

¹⁶³ *Id.*

¹⁶⁴ *Id.*

vestment and Recovery Act grant.¹⁶⁵ In addition to tax dollars and stimulus money, some of the sustainability initiatives were funded by various grants.¹⁶⁶ The \$2.0 million solar parks proj-

¹⁶⁵ *Id.*

¹⁶⁶ St Petersburg received \$2.32 million in Energy Block Grant funds, \$2.5 million in federal earmarks to fund the solar park initiative, \$2.5 million in grant money for the waste-to-energy program, and \$680,000 from a USEPA grant designated for air

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ect was funded by federal earmarks, and the city trails expansion were funded through an ISTE federal grant as well as a CMAQ Construction grants. CMAQ stands for Congestion Mitigation and Air Quality Improvement Program, a Federal Highway Administration program to fund alternative projects. About \$60 million dollars were spent on city trails, the solar park, the waste-to-energy project and various water conservation projects.¹⁶⁷

Results

The “Green St. Petersburg” program has been incredibly well received by both the public and the development community.¹⁶⁸ The public is pleased that tax dollars are being used to obtain favorable returns on investments in addition to contributing to the betterment of the environment.¹⁶⁹ The development community is excited about the program from a construction standpoint because it results in additional jobs for individuals working in this sector.¹⁷⁰

Generally, the City of St. Petersburg considers the “Green St. Petersburg” program to be a success because it has helped the city reduce the emission of greenhouse gases into the atmosphere, has educated the public on “being green” and using alternative energy, and has been able to implement useful programs while providing for an excellent return on its investment.¹⁷¹

Currently, the city has three buildings that have achieved LEED-certification as required by the Executive Order.¹⁷² The first building to achieve certification, the Water Resources Administration Building, which also serves as “an additional facility for disaster-related emergency operations,” is certified

Gold.¹⁷³ Features that contributed to the building’s LEED certification include “energy efficient lighting and HVAC systems, water conservation and reuse measures, recycled materials, operational requirements to conserve water and electricity and recycling.”¹⁷⁴ The additional expenses associated with LEED-certification modifications for the Water Resources Administration Building cost \$300,000, and the city expects to recover those costs within nine years of the building’s completion.¹⁷⁵

The second building to achieve LEED-certification is the Jordan School.¹⁷⁶ The Jordan School is an example of a building that was required to comply with LEED-EB standards as it was originally built in 1928 to serve as a school for African-American children. The building was abandoned more than 10 years ago and needed extensive renovations to be returned to use.¹⁷⁷ The Jordan School received Silver LEED-certification and now uses a fraction of the energy that it previously required.¹⁷⁸

Fire Station No. 8 is the third building to become LEED-certified in the city of St. Petersburg.¹⁷⁹ As part of the city’s Master Plan “to renovate or replace [fire] stations where necessary,” the city has received Gold LEED-certification for this particular fire station.¹⁸⁰

Problems or Challenges

The city of St. Petersburg faced few problems in implementing the “Green St. Petersburg” program.¹⁸¹ Mr. Connors believes

“Generally, the City of St. Petersburg considers the ‘Green St. Petersburg’ program to be a success because it has helped the city reduce the emission of greenhouse gases into the atmosphere, has educated the public on ‘being green’ and using alternative energy, and has been able to implement useful programs while providing for an excellent return on its investment.”

emissions controls on diesel engines. Information learned from speaking with Mr. Connors, Public Works Administrator for the City of St. Petersburg.

167 *Id.*

168 *Id.*

169 *Id.*

170 *Id.*

171 *Id.*

172 “Green St. Petersburg” Program, *supra* note 2, at 5.

173 *Id.* This document states that the Water Resources Administration Building was supposed to receive Silver LEED-certification; however, in a conversation with St. Petersburg’s Public Works Administrator, Mr. Mike Connors, I was told the building actually received a Gold rating.

174 *Id.*

175 Information received from conversations with Mr. Mike Connors, Public Works Administrator for the City of St. Petersburg.

176 “Green St. Petersburg” Program, *supra* note 2, at 5.

177 *Id.*; See also note 7

178 *Id.* LEED-certification level provided by Mr. Mike Connors.

179 *Id.*

180 *Id.* LEED-certification level provided by Mr. Mike Connors

181 *Id.*

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“Mr. Connors believes the program was readily accepted because it pursued green initiatives based on how cost effective they would be.”

the program was readily accepted because it pursued green initiatives based on how cost effective they would be.¹⁸² If cost-effectiveness concerns had not been considered prior to implementing the program, there might have been more challenges; however, the city was able to show the public that there were both environmental and financial benefits to the community based on the way the program was designed.¹⁸³

Other Initiatives¹⁸⁴

As previously mentioned, one of St. Petersburg's goals in implementing green initiatives is to provide for sustainability of the environment.¹⁸⁵ The following green initiatives have been implemented for the purpose of enhancing environmental sustainability:

I. Energy Conservation

Florida is heavily reliant on fossil fuels for the production of electricity. While its goal is to replace the use of fossil fuels with natural gas, Florida also hopes to reduce energy waste through energy conservation programs.¹⁸⁶

A. LED Traffic Signals: St. Petersburg is replacing incandescent bulbs used in currently operating traffic lights with light emitting diodes (LED lights).¹⁸⁷ The cost of this project is \$450,000; however, it will result in an annual energy savings of \$150,000 per year with a payback period of three years.¹⁸⁸

B. Energy Audits. The city has “completed energy audits of all city facilities.”¹⁸⁹ Based on information learned from these audits, St. Petersburg “has converted all buildings

using incandescent lights to compact fluorescent lights.”¹⁹⁰ The cost of energy audits is \$3.8 million dollars, but the annual saving in electricity costs as a result is \$540,000.¹⁹¹

II. Alternative Energy

A. Solar Power. A photovoltaic solar energy system was installed at Albert Whitted Park and allows the park to power itself independent of any traditional electrical energy system.¹⁹² In addition, Lakewood High School and St. Petersburg High School receive “fifteen percent of their daily power from solar panels.”¹⁹³ The photovoltaic energy system was grant funded and is expected to save \$60,000 in energy costs per year.¹⁹⁴

B. Methane. The city hopes to capture methane gas that is traditionally “burned-off through the digestion of heated sludge” and released into the atmosphere, and instead “flow it through a heat transfer unit and run turbines that will produce energy to power the treatment plants.”¹⁹⁵ This would save the city twenty percent of its electricity expenses while reducing air emission of methane gas.¹⁹⁶

C. Waste-to-Energy. The plant incinerates one million tons of garbage and converts the energy created from the garbage to electricity that is used to power 45,000 homes in the Pinellas County area.¹⁹⁷ This program costs approximately \$50 million per year to operate. The cost savings associated with the facility is pending analysis.¹⁹⁸

III. Transportation -Fuel Conservation

A. Fleet Operations and Maintenance. St. Petersburg attempts to conserve fuel by: “maintaining its fleet vehicles for efficiency and emissions, recycling waste oil, antifreeze and other materials, and using environmentally friendly cleaning solvents.”¹⁹⁹

B. Fleet Reduction. St. Petersburg hopes to remove ninety cars from its fleet.²⁰⁰

182 *Id.*

183 *Id.*

184 The format of this section as well as green initiative program titles are based on the “Green St. Petersburg” Program report, *supra* note 2.

185 “Green St. Petersburg” Program, *supra* note 1.

186 “Green St. Petersburg” Program, *supra* note 2, at 2.

187 *Id.*

188 “The Effectiveness of Green Initiatives” PowerPoint Presentation, on file with Nicole Babcock.

189 “Green St. Petersburg” Program, *supra* note 2, at 2.

190 *Id.*

191 “The Effectiveness of Green Initiatives” PowerPoint Presentation, *supra* note 61.

192 “Green St. Petersburg” Program, *supra* note 2, at 3.

193 *Id.*

194 “The Effectiveness of Green Initiatives” PowerPoint Presentation, *supra* note 61.

195 “Green St. Petersburg” Program, *supra* note 2, at 3.

196 *Id.*

197 *Id.*

198 “The Effectiveness of Green Initiatives” PowerPoint Presentation, *supra* note 61.

199 “Green St. Petersburg” Program, *supra* note 2, at 6.

200 *Id.*

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Energy Audits. *The city has ‘completed energy audits of all city facilities.’ Based on information learned from these audits, St. Petersburg ‘has converted all buildings using incandescent lights to compact fluorescent lights.’ The cost of energy audits is \$3.8 million dollars, but the annual saving in electricity costs as a result is \$540,000.*

Ultra-Low Toilet Rebate Program. *The city provides rebates when residents replace older toilets with low flush toilets. 28,000 toilets have been replaced, saving as much as 200 million gallons of water per year.*

Alternative Water Sources. *The city has implemented a system in which wastewater is recycled and treated and used for non-agricultural irrigation. As a result of this program, ‘the city became the first utility in the nation to achieve zero discharge of wastewater into adjacent waterways.’*

C. Traffic Signal Synchronization. The City has synchronized its traffic lights in hopes of conserving fuel by reducing idling.²⁰¹ The cost of synchronization per year is \$200,000.²⁰² The city saves over \$27 million dollars per year as a result of fuel savings.²⁰³

D. Alternative Fuels

Bio-diesel Fuel: The city’s fleet of vehicles uses bio-diesel rather than regular diesel. Bio-diesel emits five to ten percent fewer greenhouse gases and costs virtually the same as regular diesel.²⁰⁴

Ethanol: All city cars use a 10 %ethanol/gasoline mixture that reduces greenhouse gas emissions.²⁰⁵

Hybrid Vehicles: The city currently has 24 hybrid vehicles in its fleet.²⁰⁶ Hybrid vehicles cost an additional \$6,000 each, but the estimated annual gas savings per year is \$16,000, resulting in an 8-year payback.²⁰⁷

Public Transit: St. Petersburg is planning to implement a number of public transit programs including a Bus Rapid Transit program as well as a Trolley system for the downtown St. Petersburg area.²⁰⁸

IV. Water Conservation and Supply

A. Ultra-Low Toilet Rebate Program. The city provides rebates when residents replace older toilets with low flush toilets.²⁰⁹ 28,000 toilets have been replaced, saving as much as 200 million gallons of water per year.²¹⁰

B. Water Restrictions. St. Petersburg residents are permitted to water their yards twice weekly.²¹¹

C. Alternative Water Sources. The city has implemented a system in which wastewater is recycled and treated and used for non-agricultural irrigation.²¹² As a result of this program, “the city became the first utility in the nation to achieve zero discharge of wastewater into adjacent waterways.”²¹³

St. Petersburg has lived up to its Green City designation.

201 *Id.*

202 “The Effectiveness of Green Initiatives” PowerPoint Presentation, supra note 61.

203 *Id.* The “Green St. Petersburg” Program, supra note 2, presents slightly different numbers for cost and savings than those provided in “The Effectiveness of Green Initiatives” PowerPoint Presentation, supra note 61.

204 “Green St. Petersburg” Program, supra note 2, at 6.

205 *Id.*

206 *Id.*

207 *Id.*; “The Effectiveness of Green Initiatives” PowerPoint Presentation, supra note 61.

208 “Green St. Petersburg” Program, supra note 2, at 7-8.

209 *Id.* at 10.

210 *Id.*

211 *Id.* at 11.

212 *Id.* at 12.

213 *Id.*

Tallahassee, Florida

GREEN BUILDING PROGRAM

By Amble Johnson

Background

Tallahassee, Florida, is located in Leon County, and serves as the capitol of the State of Florida. It encompasses 95.7 square miles, and in 2010 had a population of 181,376.

The City of Tallahassee is currently developing a five-year plan to develop a more sustainable community and government. With input from business owners, educational institutions, governmental agencies, non-profit organizations, and citizens, the Tallahassee Sustainability Action Agenda (TSAA) will articulate a vision for sustainability in Tallahassee. This vision involves promoting a community with green homes and jobs, alternative transportation, natural resource preservation, and locally-sourced food that has the capacity to address other pressing environmental issues. The TSAA will characterize the City's approach to sustainability, including many measures that are already underway.²¹⁴

Tallahassee's Environmental Policy and Energy Resources (EPER) Department directs the City's green initiatives, and seeks funding for these initiatives from outside sources. EPER and the City's Energy Services Department create and monitor energy-reduction programs. EPER also ensures the City's organizational compliance with federal and state environmental regulations and helps promote environmental stewardship within the community. It also establishes organizational policies for City government departments to keep the City at the forefront of responsible ecological action.²¹⁵

One initiative the City has implemented is the Tallahassee Green Building Program, which is comprised of the Residential Green Building Incentive Program and the Energy Star Certified New or Renovated Home Program. The Residential Green Building Program was a pilot program that served homes that used City utilities. It provided financial incentives that encouraged the construc-



Tallahassee Residential Green Building Incentive Program

tion of "green" energy efficient homes, based on standards set by the U.S. Green Building Council (USGBC), the Florida Green Building Coalition (FGBC) or the National Association of Home Builders (NAHB), which also incorporate environmentally sensitive elements such as water conservation, indoor air quality, site selection and management, health and material resources among many other factors. Similarly, the Energy Star Certified New or Renovated Home Program provides a rebate for homes that meet the Environmental Protection Agency's Energy Star Certification guidelines.

Program Inception and Development

Tallahassee's EPER was established in April of 2008. City Manager Anita Favors Thompson created the Department to bring additional focus and resources to the City's green efforts.²¹⁶ EPER is charged with the development of policies that ensure that the City's operations are implemented with the protection of Tallahassee's natural resources and the encourage-

ment of green practices in mind. Core functions include energy and environmental policy development, environmental evaluation, assessments related to city government operations, monitoring

The Residential Green Building Incentive Pilot Program was launched May 25, 2010. This pilot program awarded certified green homes with financial incentives of \$1.50 per square foot of the home, up to 1,500 square feet.

214 <http://www.talgov.com/eper/>

215 <http://talgov.com/eper/index.cfm>

216 <http://talgov.com/eper/index.cfm>

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and verification of the city's goals and performance, training awareness both within the government and within the citizenry, and development of business and public-private partnerships related to energy policy and research.²¹⁷

The Residential Green Building Incentive Pilot Program was launched May 25, 2010. This pilot program awarded certified green homes with financial incentives of \$1.50 per square foot of the home, up to 1,500 square feet. Applicants for the program must have submitted an application for a building permit after January 1, 2010. The maximum allowable payment was \$2,250 per dwelling. Funding from a US Department of Energy (DOE) Energy Efficiency and Conservation Block Grant (EECBG) of \$115,000 allowed incentives for at least 51 homes.²¹⁸

The Residential Green Building Program and the Energy Star Certified New or Renovated Home Program together make up the City of Tallahassee's Green Building Program. While the Residential Green Building Program was a limited-scope pilot program, the Energy Star Certified New or Renovated Home Program is an ongoing city project.²¹⁹ The Energy Star Certified New or Renovated Home Program offers rebates of \$1 per square foot up to \$2,000.²²⁰ The rebate is for residential units that achieve the EPA's Energy Star certification and also meet the City's requirements for natural gas utilization.

Funding

The Residential Green Building Incentive Program was funded by an allocation of \$115,000 from the City's DOE Energy Efficiency and Conservation Block Grant. The grant was awarded to Tallahassee in September, 2009, by the US Department of Energy.²²¹ Funding for the Energy Star Certified New or Renovated Home Program is appropriated by the City.

Staffing for the EPER represents an ongoing cost of Tallahassee's sustainability measures. Total approved expenditures for 2011 for the Department amounted to \$1,586,420, and are covered by City Budget funds.²²² This budget allows the EPER



Tallahassee Greenways Program

staff to implement and follow its environmental initiatives, and to categorize the initiatives in the EPER Green Initiatives Annual Report, sharing its progress with the community. Staffing also enables Tallahassee to dedicate significant manpower in the pursuit of grants to fund its programs, as well as to focus the funding on projects that help the City's overall sustainability goals.

Results

Tallahassee is a Gold-Certified "Green City" as designated by the Florida Green Building Coalition. Tallahassee moved up from Silver standing to Gold in only a year, and its comprehensive governmental approach to sustainability is cited as the qualifying criteria for this improvement.²²³

The City of Tallahassee also constructed a Solid Waste Administration Building, which received LEED Silver certification from the U.S. Green Building Council (USGBC) in January, 2008, becoming the first municipal building in north Florida (and the second in all of Florida) to do so. The 30-year-old building needed upgrades to provide more space, and when the City planned the already-necessary changes, it decided to renovate the existing structure rather than completely demolishing it. More than 75% of the renovation's construction debris was reused or recycled, and the building's water usage was dramatically lowered compared to before the renovation.

217 <http://www.talgov.com/manager/acms.cfm>

218 <http://www.talgov.com/communications/newsdetail.cfm?id=2377>

219 City of Tallahassee, Fiscal Year 2011 Approved Budget; p.51; <http://talgov.com/eper/greenbuilding.cfm>

220 <http://www.doe.gov/savings/city-tallahassee-utilities-energy-star-certified-new-homes-rebate-program>

221 <http://www.talgov.com/communications/newsdetail.cfm?id=2377>

222 <http://www.talgov.com/dma/budget/fy11/pdf/charterandexecsv.cfm>

223 <http://bclc.uschamber.com/sites/default/files/awards/files/Tallahassee,%20FL.pdf>

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Other Initiatives

Tallahassee's Go Green Initiative is another program that serves the City's broad sustainability goals. The initiative promotes and encourages environmental responsibility in Tallahassee.²²⁴ Go Green is the official community platform for Tallahassee citizens to share, learn, and grow sustainability measures. Go Green allows EPER to enlist community members in environmental efforts. Through Go Green, the community can participate in a Sustainability and You Community Learning Series. Another part of EPER's sustainability outreach is its Go Green Tallahassee Facebook page, which utilizes social media to engage residents and businesses. Through the Facebook page, community members connect to learn about sustainability programs or news and share information. For example, the page promotes innovative ways to engage the community through activities like a Sustainable Fashion Show, Frenchtown Community Garden, as well as government initiatives like the Cash for Trash program and the development of the TSAA.²²⁵

Another facet of Tallahassee's broad sustainability goals is the Tallahassee-Leon County Greenways Program. The Program is designed to protect remaining natural ecosystems, connect neighborhoods, provide "green infrastructure" for alternative transportation routes as well as stormwater management and wildlife habitat, and create and expand recreational opportunities for residents. Signature greenways include two greenways that are nearly 2,000 acres in size, one around 800 acres in size, others of 500 acres, 60 acres, and 25 acres, and a park and trail terminus that may ultimately link to Florida State University's main campus.²²⁶

Another key aspect of Tallahassee's approach to sustainability is EPER's publication of the Green Initiatives Annual Report (GIAR). The 2010 report articulated the achievements of City-led initiatives in the areas of Leadership, Energy, Solid Waste, Land Development and Mobility, Natural Resources, Health, Economics, and Education and Outreach. The document highlighted new and on-going green programs, from adding recycling bins at the airport to government savings from the increased number of residents who participate in paperless billing. The Report is a mechanism for EPER to highlight the City's sustainability steps.²²⁷

All of EPER's programs and initiatives contribute to Tallahassee's broad goal of becoming a municipal leader in sustainability. Already, www.Ourgreencities.org named Tallahassee's Mayor John Marks

to its 20-mayor list of "top mayors for sustainability",²²⁸ and the Florida Green Building Council has designated Tallahassee Florida's first Gold-Certified "Green City", for its comprehensive, diverse array of environmental measures.²²⁹ Tallahassee continues to strive to ultimately achieve Platinum Certification as a "Green City".²³⁰

Another facet of Tallahassee's broad sustainability goals is the Tallahassee-Leon County Greenways Program. The Program is designed to protect remaining natural ecosystems, connect neighborhoods, provide "green infrastructure" for alternative transportation routes as well as stormwater management and wildlife habitat, and create and expand recreational opportunities for residents.

224 <http://talgov.com/eper/green.cfm>

225 See <http://www.facebook.com/GoGreenTallahassee>

226 <http://talgov.com/planning/envirom/greenways.cfm>

227 http://issuu.com/eper2010/docs/green_initiatives_2010_annual_report

228 http://www.talgov.com/eper/pdf/green_inits_annual_2008.pdf

229 <http://talgov.com/communications/newsdetail.cfm?id=1280>

230 For details of the FGBC's green city program see: <http://floridagreenbuilding.org/local-government-certifications>.

Chatham County, Georgia

GREEN BUILDING PROGRAM

By Amble Johnson

Background

Incorporated in 1777 and located at the mouth of the Savannah River, Chatham County has a land area of 426 square miles and a population of 256,128.²³¹ Savannah is the county's largest and most renowned municipality and the Savannah Seaport and Savannah River distinguish the character of the area. Transportation and shipping are key facets of Chatham County's history and culture.²³²

In 2007, Chatham County's Board of Commissioners passed a resolution with the goal of becoming the "Greenest County in Georgia". This resolution articulates the County's goals for natural resource and energy conservation and the building of a "high-tech, knowledge-based, and creative local economy" to create an "environmentally, economically, and socially sustainable future."²³³ To promote this vision, the Board enlisted the Chatham Environmental Forum (CEF), a collaboration of business, environmental advocacy, and government stakeholders formed to promote environmental initiatives that have broad based support in Chatham County to craft a "Road Map" to becoming greener.²³⁴

With Chatham Environmental Forum's Road Map as the overarching guide, the county has initiated and expanded several environmental initiatives. For example, the county is focusing on sustainable building by promoting the green construction of county and commercial buildings. All new county buildings are required to achieve LEED Sil-



Sustainable Fellwood. Green housing development in Chatham County, Georgia.

ver certification or better, and this requirement also extends to renovation projects that cost \$100,000 or more.²³⁵ In addition,

This resolution articulates the County's goals for natural resource and energy conservation and the building of a 'high-tech, knowledge-based, and creative local economy' to create an 'environmentally, economically, and socially sustainable future.'

New commercial buildings that achieve LEED Gold certification receive full abatement of state and county taxes for five years and partial abatement for ten years, if they demonstrably 'increase employment opportunities' and constitute expansion into 'enterprise zones'.

new commercial buildings that achieve LEED Gold certification receive full abatement of state and county taxes for five years and partial abatement for ten years, if they demonstrably "increase employment opportunities" and constitute expansion into "enterprise zones".²³⁶

In addition to achieving LEED certification of new buildings and large scale renovations, the county government has made numerous improvements and modifications to improve efficiency and sustainability of county facilities. As part of Chatham Environmental Forum's Road Map to streamline the government's

sustainability measures, in 2007 and 2008 staff evaluated the county's carbon footprint, and used the findings to implement

231 U.S. Census Bureau State and County Quickfacts; <http://quickfacts.census.gov/qfd/states/13/13051.html>

232 <http://georgiafacts.net/counties?countyid=13051>

233 <http://www.chathamcounty.org/Portals/ChathamCounty/Greenest%20County/Greenest%20County%20Resolution.pdf>

234 <http://www.chathamcounty.org/Home/GreenestCounty.aspx>

235 <http://www.chathamcounty.org/Portals/ChathamCounty/Greenest%20County/Greenest%20County%20Achievements.pdf>

236 Chatham County, Ga., Code § 7-1002(a)(2) (2008).

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2007 and 2008 staff evaluated the county's carbon footprint, and used the findings to implement various energy saving renovations to county facilities.

various energy saving renovations to county facilities.²³⁷ Facility improvements at county buildings in recent years include the installation of acrylic insulating panels on Administrative Courthouse windows, the electronic ballasts and high-efficiency fluorescent light bulbs in the Judicial Courthouse, Administrative Courthouse, and Citizens Service Center buildings, the county's acquisition of the "bulb eater" to recycle fluorescent light bulbs used in county buildings, expanded recycling programs at government buildings, and the installation of an air conditioner to improve energy savings in the Administrative Courthouse.²³⁸

Program Inception and Development

Chatham County's goal of becoming "The Greenest County in Georgia" was articulated on October 5, 2007, in a resolution passed by the Board of Commissioners. Rather than outlining specific policies or criteria to meet its goal, the single-page resolution instead calls upon the Chatham Environmental Forum to develop a plan that identifies ways to "conserve our natural resources; conserve energy in every way possible; enhance our ability to use local labor, talent and materials; and, to make sure that our investment in new infrastructure will help us build a high-tech, knowledge-based, and creative local economy."²³⁹ The Forum should "bring together representatives of local governments, local businesses, and local environmental groups, as well as other community-based institutions" to prepare and execute this plan.²⁴⁰

The Chatham Environmental Forum was originally established in 1989 to provide a venue to discuss local environmental issues. The Forum describes itself as a "three-legged stool" that



Abercorn Common is a LEED-Certified Shopping Center.

Government buildings, new County-funded buildings and renovations costing \$100,000 or more are required to achieve at least LEED Silver certification.

grants equal representation to government, business, and environmental groups' interest in order to offer consensus-based analyses of environmental issues.²⁴¹

In February of 2009, the Chatham Environmental Forum released the 52-page "Road Map for Chatham County". To draft the plan, CEF members and community stakeholders met weekly in committees for over six months. The CEF members who helped in the drafting totaled 24 men and women, 8 rep-

237 <http://www.chathamcounty.org/Portals/ChathamCounty/Greenest%20County/Greenest%20County%20Roadmap.pdf>

238 <http://www.chathamcounty.org/Portals/ChathamCounty/Greenest%20County/Greenest%20County%20Achievements.pdf>

239 Chatham County Resolution "Calling for Chatham County to Become 'The Greenest County' in Georgia," passed October 5, 2007; text available at: <http://www.chathamcounty.org/Portals/ChathamCounty/Greenest%20County/Greenest%20County%20Resolution.pdf>.

240 <http://www.chathamcounty.org/Portals/ChathamCounty/Greenest%20County/Greenest%20County%20Resolution.pdf>

241 <http://www.joininchatham.com/about-cef>

CHATHAM COUNTY, GEORGIA

representing businesses, 9 representing environmental advocacy groups, and 7 representing government. Georgia Power and the Savannah Area Chamber of Commerce were among the business interests represented. The Sierra Club, US Green Building Council, and Savannah Tree Foundation were among the environmental advocacy interests. And government representation included the Georgia Ports Authority, City of Savannah, Chatham County Youth Commission and the Chatham County-Savannah Metropolitan Planning Commission. During the drafting process, one environmental advocate and one business representative held the position of CEF Chair.²⁴²

The document itself is divided into Green Space / Land Use, Energy, Transportation, Climate Change, Creative Infrastructure, Water Management, and Solid Waste sections, each drafted by a different CEF committee.²⁴³ It focuses enhancement and coordination of existing conservation programs and policies to reach an environmentally sustainable Chatham County in each of the targeted sections.

In 2006, the Board of Commissioners adopted an ordinance incentivizing the achievement of LEED Gold certification for commercial buildings. For the first five years, the code grants full state and county tax abatement. This incentive then tapers off by 20% each year from year six to year ten, when it ends. To be eligible, construction projects must be new or expanding into an “enterprise zone” and must increase local employment opportunities.²⁴⁴

For government buildings, new County-funded buildings and renovations costing \$100,000 or more are required to achieve at least LEED Silver certification. This mandate began as a 2010 County Commission motion; in 2011, the Board of Commissioners amended the county code to include the requirement.²⁴⁵

The county has also taken steps to enhance the sustainability of local government buildings through periodic retrofits, upgrades, and new programs. For example, the County has installed acrylic insulating panels on the windows of the Admin-

istrative Courthouse to improve the insulation of the building without compromising its historical aesthetic. Other improvements include electronic ballasts and high-efficiency fluorescent light bulbs in the Judicial Courthouse, the Administrative Courthouse, and the Citizens Service Center. In 2010, the installation of a more efficient air conditioner improved energy savings in the Administrative Courthouse.²⁴⁶

Funding

While much of the funding for Chatham County’s sustainability initiatives comes directly from the county, the local government also coordinates with state and federal programs to achieve its goals. For example, a 2009 Energy Efficiency Community Block grant from Georgia Environmental Facilities Authority allocated Federal stimulus funds. The grant totaled \$300,000 toward lighting and HVAC upgrades. A 25 percent energy savings will then be redirected to fund 80 total “green jobs” for a local poverty reduction initiative.²⁴⁷

Chatham County partially funded the development of the CEF plan. Additional funding was provided by contributions from the CEF and its members.²⁴⁸ The joint funding effort demonstrates one of the benefits of enlisting the CEF to coordinate the county’s green goals.

Results

As a result of Chatham County’s sustainability efforts, the Georgia Department of Natural Resources’ (DNR) Partnership for Sustainable Georgia accepted the county’s 2010 application for bronze-level partnership.²⁴⁹

The Southwest Chatham Library opened in October 2009 with LEED-silver certification. Approximately 50,000 square feet in area, it is the second-largest library in the library system. It includes highly reflective roofing material, landscaping with native plants that do not require irrigation, low-flow water fixtures, and low-VOC adhesives, among other sustainable building practices.²⁵⁰ Also, the library’s innovative use of natural light

242 <http://www.chathamcounty.org/Portals/ChathamCounty/Greenest%20County/Greenest%20County%20Roadmap.pdf>

243 <http://www.chathamcounty.org/Portals/ChathamCounty/Greenest%20County/Greenest%20County%20Roadmap.pdf>

244 http://www.cleanair-coolplanet.org/for_communities/green_building_ordinances.php

245 <http://www.chathamcounty.org/Portals/ChathamCounty/Greenest%20County/Greenest%20County%20Achievements.pdf>

246 <http://www.chathamcounty.org/Portals/ChathamCounty/Greenest%20County/Greenest%20County%20Achievements.pdf>

247 <http://sawdailynews.com/main.asp?SectionID=2&SubSectionID=18&ArticleID=30721>

248 <http://www.chathamcounty.org/Portals/ChathamCounty/Greenest%20County/Greenest%20County%20Roadmap.pdf>

249 <http://www.chathamcounty.org/Portals/ChathamCounty/Greenest%20County/Greenest%20County%20Achievements.pdf>

250 <http://www.liveoakpl.org/upload/SWChathamFactSheet.pdf>

CHATHAM COUNTY, GEORGIA

and light-sensors further contribute to energy efficiency and a smaller carbon footprint. Installation of a green roof is in future plans for the library.²⁵¹

Lessons Learned

In its strong tax incentives for commercial green building and other initiatives, Chatham County has taken aggressive steps toward becoming greener. However, no single government department leads the way. Instead, the Board of Commissioners delegated the overarching goal to the Chatham Environmental Forum.²⁵² The group's make-up of business, environmental advocacy, and government actors has ensured a coherent plan. CEF's emphasis on designing consensus-approved approaches to problems has also been an asset for its goals for the county.²⁵³ In empowering a group of informed stakeholders, Chatham County strives to establish concrete, achievable goals that will help to address the future climate and resource issues that the coastal county will face.

“Land conservation makes sense, therefore, as a primary goal for the county government; the Resource Protection Commission adopted a 2009 site acquisition policy with recommendations from the Environmental Forum in mind.”

Other Initiatives

In 2009, Chatham County established a “Green Team” to develop and implement energy and resource conservation strategies, and the same year appointed a Liaison to the Chatham Environmental Forum.²⁵⁴ Chatham County's major sustainability steps extend to land use. The original resolution cites Chatham County's unique geographic wealth, including barrier islands, tidal marshes, the Savannah River delta, and pine and live oak forests, among other ecological treasures.²⁵⁵ Land conservation makes sense, therefore, as a primary goal for the county government; the Resource Protection Commission adopted a 2009 site acquisition policy with recommendations from the Environmental Forum in mind. Granting resource protection is

based on site classification, the landowner's willingness to protect the land, the price of acquisition, and the potential for funds from grants or matching funding sources to supplement Chatham County's financial investment.²⁵⁶ The Resource Protection Commission also adopted an ecological systems ranking manual to guide the classification of each site. The ranking manual is 55 pages in length, and it provides a standard procedure for ranking sites for the county's Resource Protection Commission. Specifically, six ranking criteria focus on the site's environmental qualities, four deal with historical and cultural significance, three address the site's public use value, and one focuses on opportunities for collaboration with other organizations.²⁵⁷

Another example is the Lower Ogeechee River Trail program. Through a \$100,000 grant from the Georgia Rec-

reational Trail Grant Program, Chatham County has routed and will construct two miles of trails through bottomland hardwood forest in land that had been set aside as part of Chatham County's land conservation program in 2008.^{258 259}

Many of the short-term steps advocated by CEF in the Road Map have been met. For example, in 2010 twenty hybrid buses joined the Chatham Area Transit fleet. Also, the Metropolitan Planning Organization adopted “Complete Streets” guidelines, and the Public Works department opened Chatham County's fourth recycling center.²⁶⁰

Another major result of Chatham County's sustainability initiatives is completion of the Westlake / Lamarville Reforestation Project. The project connects two existing County-owned forestlands, provides flood mitigation for the County and resulted in the planting of nearly 500 new trees. It also constituted a successful partnership between Chatham County, the Georgia Forestry Commission, the Savannah Tree Foundation, and neighborhood associations.²⁶¹ In addition to the Westland/Lamarville Reforestation Project, Cha-

251 <http://www.chathamcounty.org/Portals/ChathamCounty/News/Chatham%20County%20Connection/2009/April%202009.PDF>

252 <http://blog.thecreativecoast.org/a-road-map-for-chatham-county-for-its-journey-in-becoming-the-greenest-county-in-the-state-of-georgia/2009/03/03>

253 <http://www.joinchatham.org/about-cef>

254 <http://www.chathamcounty.org/Portals/ChathamCounty/Greenest%20County/Greenest%20County%20Achievements.pdf>

255 <http://www.chathamcounty.org/Portals/ChathamCounty/Greenest%20County/Greenest%20County%20Resolution.pdf>

256 <http://www.thempc.org/documents/CCRPC/Site%20Acquisition%20Policy.pdf>

257 http://www.thempc.org/documents/CCRPC/Evaluation_Manual%201.15.09.pdf

258 <http://www.n-georgia.com/new-ga-trails-press-release-2010.html>

259 <http://www.chathamcounty.org/Portals/ChathamCounty/Greenest%20County/Greenest%20County%20Achievements.pdf>

260 <http://www.chathamcounty.org/Portals/ChathamCounty/Greenest%20County/Greenest%20County%20Achievements.pdf>

261 <http://www.chathamcounty.org/Portals/ChathamCounty/Greenest%20County/Greenest%20County%20Achievements.pdf>

CHATHAM COUNTY, GEORGIA

Chatham County's Conservation Land Program, overseen by the Chatham County Resource Protection Commission, expanded in 2010 to over 3,000 acres of property. Land management plans exist for the 178-acre Pennyworth Island and the 150-acre Whitemarsh Preserve.²⁶²

Extending Chatham County's sustainability theme of cooperation, the county has teamed with the City of Tybee Island to harvest geothermal energy. The Tybee Island Library Branch is currently connected to the geothermal system.²⁶³ The governments are also collaborating in expansion of Tybee's geothermal energy use, requesting proposals from firms to offer services and materials to do this.²⁶⁴

As part of its publicity for the Road Map plan, the Environmental Forum launched a JoIN web site.²⁶⁵ The site offers resources and mechanisms for individuals, businesses, organizations, and municipal governments to enlist in Chatham County's green initiatives. The web presence also offers a place for businesses to highlight their sustainability measures.²⁶⁶

262 <http://www.chathamcounty.org/Portals/ChathamCounty/Greenest%20County/Greenest%20County%20Achievements.pdf>

263 <http://www.chathamcounty.org/Portals/ChathamCounty/Greenest%20County/Greenest%20County%20Achievements.pdf>

264 http://www.cityoftybee.org/Assets/Files/Finance/2011/2011-621_GeothermalRFP.pdf

265 <http://www.scaddistrict.com/?p=20804>

266 <http://www.joininchatham.com/partners-directory>

Cherokee County, Georgia

GREEN BUILDING PROGRAM

By Amble Johnson

Background

Cherokee County is just north of Atlanta off of Interstate 575. Its land area totals 424 square miles, and it has a population of 214,346, which represents a 51% increase over the County's 2000 population.²⁶⁷ Cherokee County is a rapidly growing county on the suburban fringe of the Atlanta metro area. Its median age is 34.0 years, and the median household income of \$64,922 is nearly \$20,000 higher than Georgia as a whole.²⁶⁸ Canton is the county seat, but Cherokee County also contains the cities of Ball Ground, Holly Springs, South Canton, Waleska, and Woodstock. The northern part of the county is mountainous and remains rural, while the southern and eastern parts are growing as Metro Atlanta grows.²⁶⁹

Since 1990, Cherokee County's population has increased as a result of its proximity to Atlanta, and increasing local employment opportunities accelerate this growth. Cherokee County's Community Assessment, done as part of the comprehensive planning in 2007 for the County and the Cities of Ball Ground and Waleska, anticipates the County's 2030 population to nearly double to approximately 420,000 people.²⁷⁰ Many of the



Brick Mill Falls in Cherokee County, Georgia

County's environmental concerns arise from the pressures expected from this continued rapid population growth. The Community Assessment argues for the "proactive" preservation of the county's natural resources, specifically wilderness areas and fresh water and offers some specific ideas for achieving this preservation.²⁷¹

Program Inception and Development

Cherokee County's Green Building Program is designed to ensure new county building projects are green and encourage private development to be green as well. It is important to note that this program is only one part of a multi-pronged approach toward preserving the natural environment, which is an essential part of the community's vision. Cherokee County also has programs in place to protect and preserve greenspace through land acquisition and during the development process.

Cherokee County's construction of its LEED Silver Certified Cherokee County Administration Building in Canton is a tangible example of the County's commitment to sustainable development. The building totals 78,000 square feet. It holds the offices of department heads and other county personnel, as well as a full-service conference center with an auditorium and over 8,000 square feet of flexible meeting space.²⁷² The green building features account for a 20% reduction in energy

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267 U.S. Census Bureau State and County Quickfacts: <http://quickfacts.census.gov/qfd/states/13/13057.html>

268 http://www.city-data.com/county/Cherokee_County-GA.html

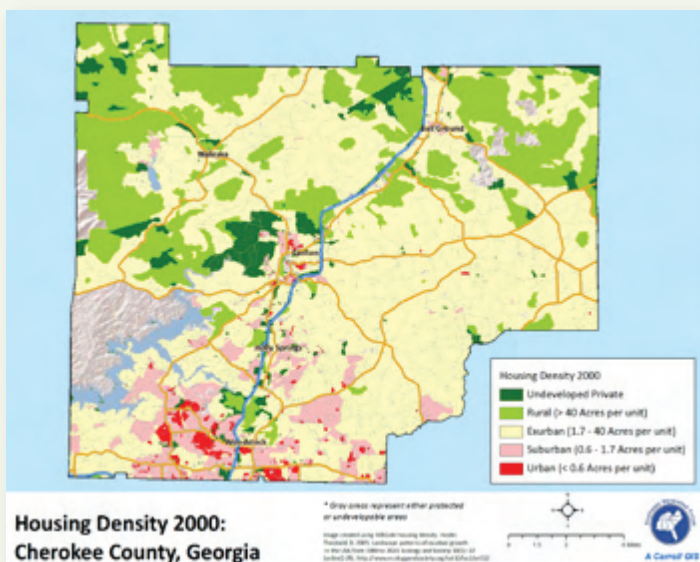
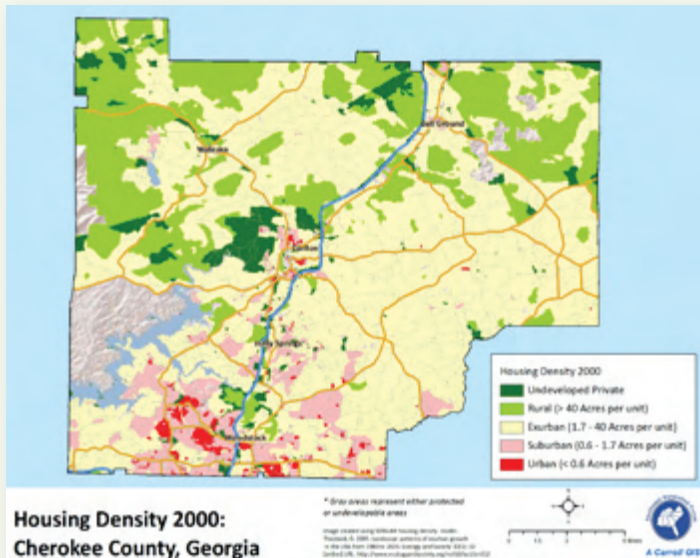
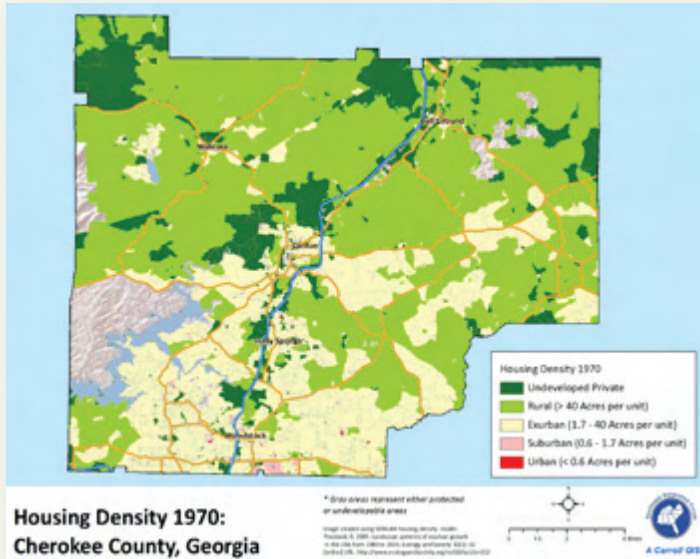
269 http://www.cherokeeega.com/departments/planningandzoning/uploads/File/CompPlan/Cherokee_Assessment_Vol_1_Final.PDF

270 Cherokee County Community Assessment, Vol. 1: Issues and Opportunities. Prepared by Plan Cherokee, January 2007. Available at: http://www.cherokeeega.com/departments/planningandzoning/uploads/File/CompPlan/Cherokee_Assessment_Vol_1_Final.PDF

271 http://www.cherokeeega.com/departments/planningandzoning/uploads/File/CompPlan/Cherokee_Assessment_Vol_1_Final.PDF

272 <http://canton-ga.patch.com/listings/cherokee-county-administration-building-and-conference-center>

CHEROKEE COUNTY, GEORGIA



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costs and 50% reduction in water usage. Through construction materials and practices, the building fosters improved indoor environmental quality and water and energy conservation.²⁷³ 75% of the building's construction waste was recycled. Bike racks and special parking spaces for fuel-efficient and carpool vehicles encourage conservation in employees' transportation. Through low-flow fixtures and water-efficient landscaping, the building boasts 50% reduced water usage. There is also an on-site recycling program, and a white roof that reduces the building's heat island effect and, therefore, the energy usage associated with cooling. Finally, the use of building materials with low VOC content enhances the building's indoor environmental quality.²⁷⁴

The success of the new Administration Building has led county officials to set new county-wide green construction policies. All new county buildings that exceed 5,000 square feet must be LEED certified, and local government building renovations must follow LEED guidelines.²⁷⁵ The County also committed to energy and water use audits to be completed for all county government facilities by 2013.²⁷⁶

To incentivize the private sector to follow the government's lead, green development in residential and commercial buildings is encouraged. Permitting reviews are expedited for new projects that achieve LEED, EnergyStar, or EarthCraft certification. Additionally, fees are reduced for such certification in

273 http://www.cherokeega.com/departments/project2_page.cfm?projectid=62

274 http://www.cherokeega.com/departments/project2_page.cfm?projectid=62

275 http://www.atlantaregional.com/File%20Library/Environment/Green%20Communities/Cherokee_Certified-Green-Community-Presentation_Dec1-2010.pdf

276 http://cherokeetribune.com/view/full_story/10643222/article-Green-is-the-way-to-go

CHEROKEE COUNTY, GEORGIA

🏡 The green building features account for a 20% reduction in energy costs and 50% reduction in water usage. 🏡

🏡 All new county buildings that exceed 5,000 square feet must be LEED certified, and local government building renovations must follow LEED guidelines. The County also committed to energy and water use audits to be completed for all county government facilities by 2013. 🏡

🏡 Permitting reviews are expedited for new projects that achieve LEED, EnergyStar, or EarthCraft certification. Additionally, fees are reduced for such certification in private developments. 🏡

private developments.²⁷⁷ These fee reductions generally total around 50% of the typical permitting cost, and the local government provides initial plan reviews of private green building projects within two days.²⁷⁸

As a water conservation measure, the Cherokee County Water and Sewer Authority (CCWSA) Board of Directors voted to participate in the Metropolitan North Georgia Water Planning Region Toilet Retrofit Program. This program incentivizes homeowners to replace their inefficient toilets with efficient ones. Rebates of \$50 and \$100 are available for houses that were built before 1992 (after 1992, low-flow requirements were added to the rules for new homebuilding).²⁷⁹ After making the switch, a family of three conserves around 33 gallons every day.²⁸⁰

As early as 2001, Cherokee County outlined a “Greenspace Vision” to conserve 20 percent of the county’s land within 10

years in its Planning and Land Use document. The land to be conserved includes: natural areas which have important recreational, ecological and aesthetic values, wildlife management areas and prime habitat, and prime agricultural and forest lands. To fund such efforts, the county received early funding from the Governor’s Greenspace Program, instituted a Special Purpose Local Option Sales Tax and impact fees, and passed a \$90 million Parks and Greenspace Bond in 2009. In 2008 Cherokee County voted to meet the Comprehensive Plan’s call for more aggressive greenspace acquisition. The Parks, Recreation, and Green Space Bond set aside funds to purchase new land and improve existing parks and greenspace. Each acquisition is approved by the Board of Commissioners, and the bond constitutes a significant investment in the county’s greenspace. (Citation: <http://parkbond.cherokeega.com/>)

Cherokee County also offers two ways to incorporate sustainability strategies into new developments. First, developers may choose to utilize the Conservation Design Community Ordinance in most residential zoning districts to reduce residential lot sizes while setting aside a minimum of 40% greenspace within a new neighborhood. This strategy, sometimes known as a Conservation Subdivision, has been successful in allowing land development while preserving sensitive natural areas. Second, Cherokee County has a Traditional Neighborhood Development (TND) zoning district that is available in the more densely developed areas. The Home Depot Foundation’s Sustainable Cities Institute cited Cherokee County’s Traditional TND Ordinance as a model policy. In its description, the institute cited the ordinance’s emphasis on ensuring “integrated and diverse community features and uses.” These uses include the presence of greenspace and the use of thoroughfares for walking and other alternative transportation (specifically, bicycles).²⁸¹

Funding

The initial costs associated with green building is included in \$22 million construction cost of the Cherokee County Administration Building.²⁸² With its LEED Silver certification, however, the increased construction cost should ultimately be offset with savings. Since new construction is an on-going cost for local governments anyway, building sustainable government build-

277 <http://woodstock.11alive.com/content/metro-atlanta-communities-recognized-sustainability-programs>

278 http://www.atlantaregional.com/File%20Library/Environment/Green%20Communities/Cherokee_Certified-Green-Community-Presentation_Dec1-2010.pdf

279 <http://www.northgeorgiawater.org/html/392.htm>

280 http://www.northgeorgiawater.org/files/MNGWPD_Toilet_Rebate_Program_FAQs.pdf

281 http://www.sustainablecitiesinstitute.org/view/page.basic/legislation/feature.legislation/Model_Ordinance_Cherokee_County

282 <http://canton-ga.patch.com/listings/cherokee-county-administration-building-and-conference-center>

CHEROKEE COUNTY, GEORGIA

As early as 2001, Cherokee County outlined a “Greenspace Vision” to conserve 20 percent of the county’s land within 10 years in its Planning and Land Use document. The land to be conserved includes: natural areas which have important recreational, ecological and aesthetic values, wildlife management areas and prime habitat, and prime agricultural and forest lands.

Developers may choose to utilize the Conservation Design Community Ordinance in most residential zoning districts to reduce residential lot sizes while setting aside a minimum of 40% greenspace within a new neighborhood.

ings is an easy way for counties to encourage green building without significant added costs.²⁸³

Results

The Cherokee County Administration Building is a tangible success that has come out of Cherokee County’s Green Building Program. The initial costs of the green features have begun to pay for themselves in reduced water and energy usage. It is an example of local government leading by example by directly

With sprawl a major concern in development, the Conservation Design Community and Traditional Neighborhood Development Ordinances are examples of Cherokee County’s proactive approach to encouraging deliberate, thoughtful development, and this approach guides much of the county’s green building strategy.

demonstrating the benefits of sustainable building practices.²⁸⁴ Data is still being collected and analyzed for the energy retrofit projects on existing county buildings. The incentives for new private developments have yet to be utilized due to the recent economic downturn. With sprawl a major concern in development, the Conservation Design Community and Traditional Neighborhood Development Ordinances are examples of Cherokee County’s proactive approach to encouraging deliberate, thoughtful development, and this approach guides much of the county’s green building strategy.

Lessons Learned

Cherokee County’s emphasis on voluntary programs and zoning options yields a low-cost approach to fostering green building. This is reinforced by the county’s reliance on outside mechanisms to fund and administer many of the green initiatives. The toilet retrofit rebate is not so much a Cherokee County initiative as the county’s participation in a program of the broader Metropolitan North Georgia Water Planning Region. Cherokee County residents have access to many loans and rebates for energy improvements, but these come from the federal government or from energy providers themselves.

However, the Comprehensive Plan shows Cherokee County citizens’ concerns over future growth. Because of the natural growth of the Metro Atlanta area, many pressures encourage sprawling developments. Mandating steps such as the Traditional Neighborhood Developments Ordinance and proactive zoning may be necessary to avoid this.

Other Initiatives

The Cherokee Environmental Sustainability Initiative (CESI) exists to facilitate long-term sustainability, primarily through community involvement. CESI inspires and educates Cherokee County residents to actively sustain the local environment. Specifically, it focuses on the small acts that individuals and small groups can do to contribute.²⁸⁵ For example, the loss of tree cover as the county grows is a specific problem area that CESI has sought to address, through acts such as tree planting and nursery creation.

While it is not part of the Cherokee County government, the Cherokee County Chamber of Commerce also contributes to

283 http://www.cherokeega.com/departments/project2_page.cfm?projectid=62

284 http://www.cherokeega.com/departments/project2_page.cfm?projectid=62

285 http://www.crpa.net/community_cesi.php

CHEROKEE COUNTY, GEORGIA

Cherokee County's sustainability measures. It articulates the goal of "Living green, working green, thinking green." As part of this goal, it maintains a list of Going Green businesses that adhere to a list of environmentally responsible criteria. Participation is completely voluntary and is not rewarded with financial incentive, but by showcasing businesses the Chamber of Commerce contributes to a culture of proactive sustainability.

The steps necessary for businesses to qualify include basic green practices in seven categories: solid waste prevention, recycling, purchasing, energy conservation, water conservation and water quality, transportation, and stakeholder involvement in environmental practices. The Chamber provides businesses with a menu of green business practices, and based on the number of employees businesses must follow a certain amount of these practices. For small businesses with five or fewer employees, four practices must be met. For the largest companies of 100+ employees, fifteen practices must be met. These practices include the use of reusable rather than disposable materials when possible, recycle printer toner and ink jet cartridges, use low-emission building materials for remodeling, the installation of low-flow water fixtures, and other similar steps, and it reinforces the county's goal of empowering people to take steps to protect the local environment.²⁸⁶

A primary concern facing Cherokee County is the encroaching sprawl of Metro Atlanta. As a result, the Comprehensive Plan and the Zoning Ordinance convey citizens' desire to keep the county unique. Since citizens identify environmental beauty as a crucial part of that uniqueness, conservation and intelligent development are a crucial part of the county's green buildings agenda.

²⁸⁶ <http://www.cherokeechamber.com/green.htm>

Douglas County, Georgia

GREEN BUILDING PROGRAM

By Amble Johnson

Background

Named for abolitionist Fredrick Douglas, Douglas County is located 20 miles west of Atlanta. It covers 200 square miles of area. In 2010, the US Census Bureau recorded 132,403 people living in Douglas County, which marked a 43.6% growth since 2000.²⁸⁷ The median per capita income in 2010 was \$24,516, and 12.3% of the population lived below the poverty level.²⁸⁸ The county serves as a western gateway to Atlanta, and it offers convenient access to Hartsfield-Jackson International Airport.²⁸⁹

Rapid growth is a defining characteristic of Douglas County. In a message from the Board of Commissioners available on Douglas County's web site, Chairman Tom Worthan characterizes the county as "a changing community—evolving from a rural area to suburbia and becoming the economic hub of west Georgia. However, we ensure that our growth is 'smart growth', and that the quality of life continues to be high for all our citizens."²⁹⁰ This stated goal of "smart growth" seems to drive Douglas County's sustainability measures, and green building is a significant component of the County's vision of smart growth.

Program Inception and Development

Many of Douglas County's sustainability initiatives were instigated as part of the County's application for the Atlanta Regional Commission (ARC) Green Communities Program. The program encourages local governments to demonstrate "leadership on environmental sustainability in the areas of conserving energy, investing in renewable energy, conserving water, conserving fuel, reducing waste and protecting and restoring the community's natural resources." Specific measures and benchmarks are required for communities to qualify, and a majority of Douglas County's sustainability practices aim to conform to these requirements.²⁹¹



The Emergency Operations Center in Douglas County collects and stores rainwater.

Douglas County's Green Community Ordinance, which the Douglas County Board of Commissioners ratified November 3, 2009, embodies the most significant sustainability measures enacted by the County. It requires New EnergyStar or EarthCraft Light Commercial certification in new construction or renovation of public buildings (subject to Board approval if meeting the certification adds costs exceeding \$10,000). This document also offers expedited plan review, processing, and permitting for privately owned buildings that have LEED, EarthCraft, or EnergyStar certification. Furthermore, it requires the installation of high efficiency water fixtures such as WaterSense certified toilets and faucets in new public building installations.²⁹² These

287 U.S. Census Bureau State and County Quickfacts; <http://quickfacts.census.gov/qfd/states/13/13097.html>

288 *Id.*

289 <http://www.celebratedouglascounty.com/about/index.html>

290 <http://www.celebratedouglascounty.com/about/chairman.html>

291 http://www.celebratedouglascounty.com/view/departments/view_dept/&cdept=350&department=Green%20Community%20Program

292 <http://www.celebratedouglascounty.com/view/global/viewdownload/>

DOUGLAS COUNTY, GEORGIA

🏠 Douglas County has also taken measures to make it easier for homeowners to install solar panels. The County adopted Chapter 26 of the International Residential Code, which prevents both homeowner associations and local government agencies from unnecessarily impeding installation of solar panels on residential structures. 🏠

sustainability requirements for local government buildings ensure that Douglas County leads by example in constructing green building.

Douglas County has also taken measures to make it easier for homeowners to install solar panels. The County adopted Chapter 26 of the International Residential Code, which prevents both homeowner associations and local government agencies from unnecessarily impeding installation of solar panels on residential structures.²⁹³

WaterFirst Community designation is required to be one of ARC's Green Communities. Douglas County received its designation as a WaterFirst Community from the Georgia Department of Community Affairs (DCA) on February 4, 2009. DCA cited the county's recent construction of a new wastewater treatment plant, as well as strong educational programming, stormwater management, and zoning and land use regulations as qualifications.²⁹⁴

Like Green Community designation, the Livable Centers Initiative (LCI) is offered by the Atlanta Regional Commission. The LCI is a program that encourages local jurisdictions to plan and implement strategies that link transportation improvements with land use development in order to create sustainable communities. The program provides grants to plan enhancements of existing transportation centers and corridors.²⁹⁵ The idea of creating sustainable, livable communities through linking

transportation improvements with land use development strategies is an example of the "smart growth" that Douglas County strives for. In March of 2007 Douglas County received an LCI grant for the Highway 92 Emerging Corridor. On September 20, 2011, Douglas County applied for an LCI Transportation Project Grant for a proposed multi-use trail and raised bridge connecting Deerlick Park, Chestnut Log, and Mt. Carmel School.²⁹⁶

Funding

Much of Douglas County's sustainability program was designed to have little or no impact on the County's budget. The County employs no extra staff to work on its sustainability initiatives. Many measures are coordinated by Mark Teal, the Director of Development Services and County Engineer.²⁹⁷ Incentives for private green building are not monetary; expedited permitting does not cost the County money, as they simply move qualifying projects higher up on the list.²⁹⁸ Ultimately, none of Douglas County's sustainability measures cost a significant amount of revenue. This allows the County to implement the steps necessary to achieve Green Community status without straining the \$77.4 million county budget.²⁹⁹

Results

As a result of its environmental sustainability initiatives, the Douglas County Courthouse received the Government Building of the Year Award for 2009-2010 from the Building Owners and Managers Association of Atlanta.³⁰⁰ The courthouse, which was built by the architecture firm Cooper Carry, also earned the US EPA's Energy Star Award in 2009.³⁰¹

Even more significantly, Douglas County met its goal of achieving Atlanta Regional Commission's Green Community status. It received the ARC's Bronze Green Community designation.

Ultimately, the Atlanta Regional Commission's Green Communities Program served as a guide for Douglas County's environmental initiatives. By tailoring its approach on the ap-

http://www.celebratedouglascounty.com/view/departments/view_dept/&docid=3388&file=/Green_Community_Ordinance_11-3-09.pdf

²⁹³ http://www.celebratedouglascounty.com/view/global/viewdownload/&docid=3365&file=/18_Community_Remove_Solar_Barriers.pdf

²⁹⁴ http://www.celebratedouglascounty.com/view/global/viewdownload/&docid=3369&file=/22_Government_DCA_WaterFirst_Community.pdf

²⁹⁵ http://www.celebratedouglascounty.com/view/departments/view_dept/&dept=266&department=Livable%20Centers%20Initiative

²⁹⁶ http://www.celebratedouglascounty.com/view/departments/view_dept/&dept=266&department=Livable%20Centers%20Initiative

²⁹⁷ http://www.celebratedouglascounty.com/view/departments/view_dept/&dept=282&department=Development%20Services

²⁹⁸ http://www.celebratedouglascounty.com/view/global/viewdownload/&docid=3388&file=/Green_Community_Ordinance_11-3-09.pdf

²⁹⁹ <http://www.celebratedouglascounty.com/view/global/viewdownload/&docid=3837&file=/2011Budget.pdf>

³⁰⁰ http://times-georgian.com/view/full_story/6480135/article-Courthouse-chosen-Government-Building-of-the-Year

³⁰¹ <http://www.coopercarry.com/awards/>

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Ultimately, the Atlanta Regional Commission's Green Communities Program served as a guide for Douglas County's environmental initiatives.

Douglas County approaches sustainability with a limited scope. Their initiatives specifically limit the financial burdens; they seek to improve projects that are already required, such as purchasing Energy Star appliances or building more efficient buildings, and they do not use additional staffing to implement these changes.

plication and relying on economically sustainable measures, Douglas County has achieved Bronze Green Community status. Its green buildings approach matches the government's overall goal of "smart growth".

Lessons Learned

Douglas County approaches sustainability with a limited scope. Their initiatives specifically limit the financial burdens; they seek to improve projects that are already required, such as purchasing Energy Star appliances or building more efficient buildings, and they do not use additional staffing to implement these changes. By taking a small, economically conservative approach to environmental sustainability, Douglas County's initiatives avoid controversy while promoting the government's vision of smart growth.

Other Initiatives

The County's Green Community Ordinance's impose a requirement of a ratio of 20 acres of greenspace per 1000 county residents. Another section of the ordinance guides the County's policy toward its vehicle fleet's size and makeup. Finally, it outlines green purchasing policies and a recycled product listing for the county government to follow.³⁰²

The Green Community Ordinance also guides county employees' energy efficiency policy. It requires them to turn off all

lights and non-essential electronic equipment at the end of each work day, to consolidate public meetings when there are "less than four non-emergency, non-time sensitive items for vote on a regularly scheduled meeting agenda," and to install energy efficient light bulbs when bulbs are replaced in government buildings.³⁰³

The local government has also adopted a Bike and Pedestrian Plan to encourage alternative transportation friendly policies. The Plan was adopted as a part of the Green Community application.³⁰⁴ Douglas County also offers nontraditional recycling facilities to deal with such waste as pesticides, herbicides, electronics, batteries, cell phones, and compact florescent light bulbs.³⁰⁵

Douglas County encourages mixed-use private development by offering Community Smart Growth Incentives / Bonuses. Specifically, increased density bonuses are awarded to developers for projects that incorporate mixed-use design principles as specified in Section 507, Article 5 of Douglas County's Unified Development Code.³⁰⁶

Since 2004, Douglas County has adopted shared parking requirements; a green fleet policy for all newly purchased county vehicles, and a no-idling policy for government vehicles.

A Community Water Supply/Conservation Management Plan³⁰⁷ was also developed to help Douglas County's Green Communities application and their long term environmental sustainability.

http://www.celebratedouglascounty.com/view/global/viewdownload/&docid=3374&file=/37_Government_No-Idling_Policy.pdf

http://www.celebratedouglascounty.com/view/global/viewdownload/&docid=3370&file=/23_24_25_Water_Use_Reduction_and_Efficiency.pdf

³⁰³ Ibid.

³⁰⁴ http://www.celebratedouglascounty.com/view/global/viewdownload/&docid=3379&file=/44_Community_Bike-Pedestrian_Plan.pdf

³⁰⁵ http://www.celebratedouglascounty.com/view/global/viewdownload/&docid=3385&file=/51_Community_Nontraditional_Recycling_Facilities.pdf

³⁰⁶ http://www.celebratedouglascounty.com/view/global/viewdownload/&docid=3386&file=/56_Community_Smart_Growth_Incentives.pdf

³⁰⁷ http://www.celebratedouglascounty.com/view/global/viewdownload/&docid=3370&file=/23_24_25_Water_Use_Reduction_and_Efficiency.pdf

³⁰² Ibid.

Roswell, Georgia

GREEN BUILDING PROGRAM

By Nicole Babcock

Background

Roswell, Georgia is a city of 88,346 people located in northern Fulton County, just north of the City of Atlanta. Roswell was the first city in the metro-Atlanta area designated certified silver Green Community by the Atlanta Regional Commission (ARC).³⁰⁸ ARC's Green Community program is a voluntary certification program that awards cities for their efforts to become more sustainable.³⁰⁹ In order to earn certification, metro-Atlanta cities are asked to implement a number of sustainability policies, one of which is a green building program.³¹⁰ Roswell, in an effort to implement programs in line with its mission "to increase environmental accountability; to teach the principles of sustainable living; and to implement innovative programs that protect the environment, provide economic savings and enhance our quality of life,"³¹¹ has instituted a number of green building policies.

Program Inception and Development

The "Roswell Green" effort, which includes both green building and other sustainability initiatives, was led by Councilmember Kent Ingleheart and Roswell's Green Ribbon Committee.³¹² The Green Ribbon Committee is a group of volunteers, including Roswell residents, who donate "their time and expertise to assist the City of Roswell with sustainability visioning and planning efforts."³¹³ Once the "Roswell Green" program was envisioned with help from the Green Ribbon Committee, the Roswell Sustainability Taskforce, an internal group of City employees from all departments, was charged with the task of overseeing city programs designed to meet "sustainability goals by research-



Chattahoochee River Center in Roswell is LEED Gold-certified. Over 200 environmentally efficient practices went into its construction. Photo credit: Georgia Dept. of Economic Development

In other words, if the cost of implementing green building standards for a project will ultimately reduce the total lifetime costs of the building, green construction methods intended to comply with LEED-standards will be instituted.

ing policies and ordinances, engaging both internal and external audiences through education on the web and through RCTV [Roswell's government access television station], as well as assist[ing] in the implementation of sustainability policies approved by [the] Mayor and City Council."³¹⁴

LEED Requirements

As of June 15, 2009, the City of Roswell implemented a green building policy, through Resolution No. 2009-06-31, by which all new city facilities expected to cost more than \$2 million, and renovations of buildings exceeding 5,000 square feet, "must be planned and analyzed at the beginning of each project to ascertain methods of construction which reduce the total building costs, including operating costs."³¹⁵ If the sustainable construction of new and renovated facilities "reduce[s] the op-

308 Sustainability Efforts, Roswell Green, <http://www.roswellgov.com/index.aspx?NID=588> (last visited September 11, 2011).

309 Certified Green Communities Program, Atlanta Regional Commission, <http://www.atlantaregional.com/environment/green-communities> (last visited September 11, 2011) (listing three possible ARC Green Community certifications levels: bronze, silver, and gold).

310 *Id.* (Other areas of improvement that earn communities certification include energy efficiency, water use reduction and efficiency, transportation, recycling and waste reduction, land use, etc.).

311 Roswell Green, <http://www.roswellgov.com/index.aspx?nid=572> (last visited September 11, 2011).

312 Green Ribbon Committee, Roswell Green, <http://www.roswellgov.com/index.aspx?NID=590> (last visited September 11, 2011). Information also provided by Ms. Alice Wakefield, Community Development Director for the city of Roswell.

313 Green Ribbon Committee, *supra* note 16.

314 Sustainability Task Force, Roswell Green, <http://www.roswellgov.com/index.aspx?NID=589> (last visited September 11, 2011).

315 GA Resolution No. 2009-06-31 (June 15, 2009), <http://www.roswellgov.com/DocumentView.aspx?DID=791>.

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📖 **Energy Star certification is a voluntary program, sponsored by the U.S. Department of Energy and the EPA, that awards the Energy Star label to buildings “that exhibit high energy efficiency without sacrificing occupant safety and comfort.” Only those buildings that “score in the top 25 percent based on EPA’s National Energy Performance Rating System” are considered for an Energy Star label.** 📖

erating costs of the facility to the point of reducing the total life-cycle costs, the investment of sustainable construction methods will be made.”³¹⁶ In other words, if the cost of implementing green building standards for a project will ultimately reduce the total lifetime costs of the building, green construction methods intended to comply with LEED-standards will be instituted.³¹⁷

Energy Star Certification

In addition to complying with LEED certifications standards, the City of Roswell also requires city owned buildings to submit “for Energy Star certification through the United States Environmental Protection Agency and [to] benchmark any new or substantially remodeled facility in the Energy Star Portfolio Management System.”³¹⁸ Energy Star certification is a voluntary program, sponsored by the U.S. Department of Energy and the EPA, that awards the Energy Star label to buildings “that exhibit high energy efficiency without sacrificing occupant safety and comfort.”³¹⁹ Only those buildings that “score in the top 25 percent based on EPA’s National Energy Performance Rating System” are considered for an Energy Star label.³²⁰ Factors considered in determining a building’s Energy Star eligibility include: integrated design, energy performance, water conservation, indoor environmental quality, and materials used.³²¹

316 *Id.* (“Life cycle cost analysis looks at the net present value of design options as investments. The goal is to achieve the highest, most cost-effective environmental performance possible over the life of the project.”)

317 *Id.*

318 *Id.*

319 *Id.*

320 *Id.*

321 Green Building and Energy Efficiency, Energy Star, http://www.energystar.gov/index.cfm?c=green_buildings.green_buildings_index (last visited September 11, 2011).



Improvements to the Green Building Program

Resolution No. 2009-06-31 requires all new and renovated city facilities (over 5,000 square feet) to comply with LEED and Energy Star standards. However, the city has not implemented a program requiring privately-owned buildings to be built in a sustainable manner.³²² In order to encourage green building in the private sector, City workers charged with designing green building programs have been asked by the mayor to “look at possible incentives” for encouraging private businesses to build using green methods.³²³ The city is also hoping to upgrade to a gold certification from the Atlanta Regional Commission’s Green Communities program.³²⁴ This may mean that more stringent green building standards will be implemented, as gold certification under the program would require Roswell to earn more points in categories such as green building.³²⁵

Results

Public Approval

In 2010, the City of Roswell conducted a survey of its residents to determine a rating for the quality of life in the City.³²⁶

322 GA Resolution No. 2009-06-31, *supra* note 5.

323 Information learned from speaking with Ms. Alice Wakefield, Community Development Director for the city of Roswell.

324 *Id.*

325 Certified Green Communities Program, *supra* note 2 (Silver level certification requires 230-279 points while gold level certification requires 280-400 points).

326 City of Roswell, Georgia 2010 Resident Survey Report of Results, National Research Center, January 2011, <http://www.roswellgov.com/DocumentView.aspx?DID=1720>.

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The survey indicated that Roswell residents are very satisfied with many city services associated with the City's green initiatives.³²⁷ Based on the survey, Roswell received "good or better" ratings for its park grounds, garbage pickup, parks facilities, curbside recycling, and recycling facilities.³²⁸ Roswell residents indicated that they would like to see improvement in categories such as "ease of walking in the city" and "ease of biking in the city."³²⁹

Green Building Projects in Roswell

Since the implementation of Resolution No. 2009-06-31 on June 15, 2009, there has been no new government building construction in Roswell, though there have been some green improvements to some of the City's maintenance facilities.³³⁰ When new construction begins, the first building the city plans to build using LEED and Energy Star standards is a new fire station.³³¹

Other Initiatives

Along with green building initiatives required by Resolution 2009-06-31, a number of other sustainability programs have been instituted in Roswell, Georgia.

1. Complete Streets Policy - The Complete Streets Policy is designed to make streets more user-friendly for pedestrians, bicyclists, and users of mass transit.³³²

2. Flex Work Arrangements Policy - The Flex Work Arrangements Policy allows for flexible work schedule options, such as compressed work weeks and telecommuting.³³³

3. Lights Out/Power Down Policy - The Lights Out/Power Down Policy, instituted March 16, 2009, requires all traffic signals to use LED light bulbs in order to improve energy efficiency.³³⁴ The estimated cost savings after implementation of this program is \$62K.³³⁵ Additionally, the policy requires government workers

to reduce the expenditure of energy while in the office and while driving.³³⁶ In the office, government workers must turn-off devices such as fax machines, copy machines, computers, and HVAC systems when those devices are not in use.³³⁷ Finally, government workers who drive government vehicles in the course of their work must prevent idling when the car is parked in order to improve air quality and reduce fuel consumption.³³⁸

4. Green Purchasing Policy - The Green Purchasing Policy is a policy by which the City of Roswell has committed to purchasing products that are considered "environmentally certified" or "eco labeled."³³⁹ Purchasing products that are given this designation is important to meeting Roswell's sustainability objections because these products "reduce . . . environmental impact due to the way they are made, used, transported, stored, packaged, and disposed [of]" and because they "do not harm human health [and] are less polluting and . . . minimize waste."³⁴⁰

5. No Net Loss of Trees Policy - The No Net Loss of Trees Policy is based on the understanding that trees serve several functions; they help to reduce the "heat island effect caused by pavement and buildings," and also improve property values and the aesthetic quality of a landscape.³⁴¹ Because trees are so important, the city has instituted a policy in which there will be no net loss of trees "within the boundaries of the city."³⁴²

6. Resolution for the Use of Non-Bottled Water Policy - This policy is designed to reduce the use and purchase of bottled water by the city in order to reduce fuel waste due to the shipment of bottled water as well as to reduce municipal waste.³⁴³

With these practices, Roswell remains committed to its mission of implementing innovative programs that protect the environment, provide economic savings and enhance local quality of life.

³²⁷ *Id.*

³²⁸ *Id.*

³²⁹ *Id.*

³³⁰ *Id.* (Ms. Wakefield knew that improvements were made to the facility, but did not have details as to what types of improvements were made).

³³¹ *Id.*

³³² GA Resolution No. 2009-03-10 (March 2, 2009), <http://www.roswellgov.com/DocumentView.aspx?DID=613> (last visited September 21, 2011).

³³³ City of Roswell Policy for Flexible Work Arrangements, Roswell Green, <http://www.roswellgov.com/DocumentView.aspx?DID=615> (last visited September 21, 2011).

³³⁴ GA Resolution No. 2009-03-15 (March 16, 2009), <http://www.roswellgov.com/DocumentView.aspx?DID=618>

³³⁵ Leading the Way to Sustainability, Atlanta Regional Commission, http://www.atlantaregional.com/File%20Library/Environment/Green%20Communities/ep_roswell_sustainability_measures.pdf (last visited September 21, 2011).

³³⁶ Georgia Resolution No. 2009-03-15, *supra* note 30.

³³⁷ *Id.*

³³⁸ *Id.*

³³⁹ GA Resolution No. 2009-06-05 (June 1, 2009), <http://www.roswellgov.com/DocumentView.aspx?DID=617> (last visited September 21, 2011).

³⁴⁰ *Id.*

³⁴¹ GA Resolution No. R2009-06-29 (June 8, 2009), <http://www.roswellgov.com/DocumentView.aspx?DID=790> (last visited September 21, 2011).

³⁴² *Id.*

³⁴³ GA Resolution No. 2009-07-39 (July 20, 2009), <http://www.roswellgov.com/DocumentView.aspx?DID=792> (last visited September 21, 2011).

Asheville, North Carolina

GREEN BUILDING INCENTIVE

By Amble Johnson

Background

Located in Buncombe County, in mountainous western North Carolina, Asheville has a population of 83,393 which represents an increase of 21.2% since 2000.³⁴⁴ The 469-mile Blue Ridge Parkway, sometimes called “America’s Favorite Drive,” passes through Asheville, and every year the fall foliage around Asheville draws tourists.³⁴⁵ Described as a “must-see destination” by Frommer’s, Asheville prides itself on a vibrant arts community, an exciting downtown area, historic and architectural attractions, and diverse outdoor activities.³⁴⁶ The surrounding wilderness is a big attraction for Asheville’s residents and visitors. In order to preserve this natural setting and vibrant community, Asheville’s local government has taken steps to improve the City’s environmental sustainability and underscore the Community’s commitment to Asheville’s natural beauty.

Asheville’s sustainability efforts focus on the overarching goal of lowering the city’s carbon emissions. A Land Use Incentive Policy approved by the Asheville City Council gives tax breaks and fee waivers to developers for attaining energy efficiency certifications. The measure, approved by the Council with a vote of 6-1, is meant to spur economic development and the greening of Asheville buildings.³⁴⁷

Similarly, the Asheville City Council passed Resolution 07-91 requiring all new, city-owned or occupied buildings to achieve LEED certification.³⁴⁸ The goal of the resolution is to limit the amount of greenhouse gases caused by government buildings. Using 2001-2002 as the baseline year, the city hopes to reduce greenhouse gas emissions 2% each year for an ultimate total of 80% reduction by 2050.³⁴⁹

For private homes, Asheville grants building permit fee waivers for houses that incorporate specific renewable energy technologies, such as geothermal heat pumps, solar panels,



Wesley Grant Sr. Southside Community Center in Asheville, North Carolina

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Using 2001-2002 as the baseline year, the city hopes to reduce greenhouse gas emissions 2% each year for an ultimate total of 80% reduction by 2050.

For private homes, Asheville grants building permit fee waivers for houses that incorporate specific renewable energy technologies, such as geothermal heat pumps, solar panels, and stormwater collection systems; or achieve a green building certification, such as HealthyBuilt Home.

and stormwater collection systems; or achieve a green building certification, such as HealthyBuilt Home,³⁵⁰ or Energy Star Rating. Mixed-use commercial buildings are also eligible for the fee waivers.³⁵¹

344 U.S. Census Bureau State and County QuickFacts: <http://quickfacts.census.gov/qfd/states/37/3702140.html>

345 <http://www.exploreasheville.com/what-to-do/outdoor-adventures/blue-ridge-parkway-75th-anniversary/index.aspx?gclid=CLLRm7P55asCFUPt7Qod6BlaJQ>

346 <http://www.exploreasheville.com/what-to-do/index.aspx>

347 “Green Projects Gain Tax Breaks,” Asheville Citizen-Times, by Joel Burgess, March 9, 2011.

348 <http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1852#NC>

349 http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=NC16R&re=1&ee=1

350 The HealthyBuilt Homes Program is an umbrella organization that administers an independent sustainable building program that sets statewide guidelines, provides technical support, and coordinates training, marketing and certification. See: <http://healthybuilthomes.org/>

351 <http://www.ashevilleenc.gov/portals/0/city-documents/Sustainability/Resolutions07-91and07-90.pdf>

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Another example of Asheville's commitment to its carbon emissions reduction goal is the creation of a number of environmental groups that promote sustainability initiatives. For instance, Asheville has a citizens' group called the Sustainability Advisory Committee on Energy and the Environment (SACEE). The committee consists of nine members, appointed by the City Council to serve three-year terms, who develop the short-term projects that serve Asheville's long-term goal of reducing carbon emissions and enhancing the City's environment.³⁵² Asheville's Office of Sustainability then works to achieve the goals outlined by SACEE through solid waste reduction, energy conservation, community outreach, and stormwater management initiatives.³⁵³ The articulation of this approach is made through Asheville's 2009 Sustainability Management Plan.³⁵⁴

Program Inception and Development

While all of Asheville's green building initiatives serve the city's overarching goal of reducing its carbon footprint and enhancing the natural beauty of Asheville, the City's green building initiatives took varying paths to inception, development and implementation. On March 8, 2011, the Asheville City Council approved the Land Use Policy Incentive. The policy uses a point system to reward developers for utilizing green building techniques based upon LEED certification levels. For example, LEED Bronze certification is worth 10 points and reaching each subsequent level of certification results in 10 additional points awarded. LEED Platinum is worth the maximum 40 points. In addition, the percentage of affordable housing units in a development can also nets points: 10 points are awarded for every 10% of a development's units that have rents at 80% of median income or below, up to a maximum of 40 points.³⁵⁵

These points then lead to economic incentives that the city gives the developer. For example, 10 points (i.e., LEED Bronze certification, or 10% of housing units renting at 80% of median income or below) is worth remittance of one year of property taxes and a 10% reduction in permit fees.³⁵⁶

352 <http://www.ashevillenc.gov/Departments/CityClerk/BoardsCommissions/SustainabilityAdvisoryCommittee.aspx>

353 <http://www.ashevillenc.gov/Departments/Sustainability.aspx>

354 <http://www.ashevillenc.gov/Portals/0/city-documents/Sustainability/AVLSustMGMTPlan.pdf>

355 <http://www.mountainx.com/article/1190/Asheville-City-Council-adopts-transformational-development-incentives>

356 *Id.*

While all of Asheville's green building initiatives serve the city's overarching goal of reducing its carbon footprint and enhancing the natural beauty of Asheville, the City's green building initiatives took varying paths to inception, development and implementation.

In addition to the Land Use Policy Initiative, in 2007 Asheville has passed Resolution 07-91, which mandates LEED certification for all new local government buildings. The resolution requires all new, occupied, city-owned buildings 5,000 square feet or larger to be designed and built to LEED Gold standards.

Starting in July of that year, the city began waiving fees for building permits and plan reviews to reward renewable energy technologies.

In addition to the Land Use Policy Initiative, in 2007 Asheville has passed Resolution 07-91, which mandates LEED certification for all new local government buildings.³⁵⁷ The resolution requires all new, occupied, city-owned buildings 5,000 square feet or larger to be designed and built to LEED Gold standards. If project resources and conditions permit, the building should strive for LEED Platinum certification. If, however, the payback period from the operational savings is greater than 10 years for the building, then the building should achieve LEED Silver certification. New, occupied, city-owned buildings less than 5,000 square feet should seek to achieve LEED Silver certification.³⁵⁸

357 <http://www.ashevillenc.gov/Portals/0/city-documents/Sustainability/SustainabilityHistory.pdf>

358 <http://www.ashevillenc.gov/portals/0/city-documents/Sustainability/Resolutions07-91and07-90.pdf>

ASHEVILLE, NORTH CAROLINA

Also in 2007, Asheville approved sustainable residential fee waivers.³⁵⁹ Starting in July of that year, the city began waiving fees for building permits and plan reviews to reward renewable energy technologies, such as geothermal heat pumps, solar panels, and stormwater collection systems; or those that achieve a green building certification, such as Healthy-Built Home, or Energy Star Rating.³⁶⁰ The regular fees, ranging from \$50 to \$100 per structure, must be paid in full with the application, but they are rebated once the buildings are certified.³⁶¹

Funding

The City of Asheville funds the Office of Sustainability, approximately \$80,000 per year, for operational costs and staffing. Additional programs and project implementation are supported by over \$800,000 from the Federal Department of Energy's Energy Efficiency and Conservation Block Grant (EECBG) Program. An additional \$800,000 came from stimulus grants provided through the American Reinvestment and Recovery Act of 2009 to support Office of Sustainability programs.³⁶²

Results

As a result of its initiatives, the City of Asheville received a 2011 Honor Award for Excellence in Environmental Sustainability from the American Academy of Environmental Engineers. The award cites Asheville's early success in reducing emissions (an 8.4% 3-year reduction in municipal greenhouse gas emissions, compared with the city's stated goal of a 6% reduction), community involvement, city buildings being assessed for energy efficiency upgrades, and implementation of the Sustainability Management Plan.³⁶³ The city has also completed a number of retrofit projects that reduce usage and costs in addition to ensuring greater sustainability.³⁶⁴

🏡 Biltmore Farms, LLC received a rebate of \$5,350 for its Hilton Asheville hotel, which earned LEED Silver certification. The hotel's solar hot water heating system alone is estimated to eliminate 25 tons of carbon dioxide emissions per year. 🏡

In October of 2010, Asheville awarded its first permit plan review rebate for LEED certification. Biltmore Farms, LLC received a rebate of \$5,350 for its Hilton Asheville hotel, which earned LEED Silver certification. The hotel's solar hot water heating system alone is estimated to eliminate 25 tons of carbon dioxide emissions per year.³⁶⁵

In October of 2011, the new Wesley Grant, Sr. Southside Center became the first facility constructed by the City of Asheville to comply with Resolution 07-91 by receiving LEED certification. More than 75% of all construction waste was recycled. The Center boasts geo-thermal heating and cooling, a stormwater runoff management system, natural lighting, and a green roof.³⁶⁶

Because of the Office of Sustainability, Asheville has implemented systemic changes in the community leading to greater sustainability. These include cooperation with city officials from diverse areas of the municipal government, support in the development and implementation of the Sustainability Management Plan, the creation of a Climate Action Plan, oversight of a sustainability budget, tracking municipal energy costs and carbon footprints broken down by city department, and identifying and securing outside funding resources. In filling these roles, the Office of Sustainability ensures attention to sustainability practices.³⁶⁷

Lessons Learned

Asheville's creation of the Sustainability Advisory Committee on Energy and the Environment (SACEE) allowed a greater level

359 <http://www.ashevillenc.gov/Portals/0/city-documents/Sustainability/SustainabilityHistory.pdf>

360 The HealthyBuilt Homes Program is an umbrella organization that administers an independent sustainable building program that sets statewide guidelines, provides technical support, and coordinates training, marketing and certification. See: <http://healthybuilthomes.org/>

361 http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=NC46F&re=1&ee=1

362 http://www.sustainablecitiesinstitute.org/view/page.basic/city_profile/content.city_profile/City_Profile_Ashville_NC

363 <http://www.aeee.net/Website/E32011HonorEnvironmentalSustainability1.htm>

364 <http://www.ashevillenc.gov/Departments/Sustainability.aspx>

365 <http://www.ashevillenc.gov/NewsandEvents/CityNews/tabid/662/articleType/ArticleView/articleId/24460/CoA-issues-first-permit-plan-review-rebate-for-LEED-certification.aspx>

366 <http://pollinateasheville.com/2011/10/12/new-wesley-grant-sr-southside-center-opening-thursday-at-5-30-p-m/>

367 http://www.sustainablecitiesinstitute.org/view/page.basic/city_profile/content.city_profile/City_Profile_Ashville_NC

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of civic participation and public ownership of the City's green initiatives. Through tax breaks and fee waivers, the local government has incentivized green building practices in the commercial and residential sectors.

Other Initiatives

With carbon emissions reduction as a central municipal goal, Asheville has implemented many additional sustainability initiatives that complement the green building initiatives outlined above. Asheville's 40/4 plan allows many city workers to work four ten-hour days per week, instead of five eight-hour days reducing commutes to work and greater efficiencies in facilities' use. In addition, city workers are given free access to public transportation, which also limits commuting trips and the miles put on government vehicles.³⁶⁸

Energy retrofit projects at the City of Asheville's buildings compliment its requirement for LEED certification at new government buildings. The lighting at City Hall and Civic Center Banquet Room HVAC both underwent recent retrofitting. Also, two fire stations installed solar thermal water heating, and one installed energy efficient thermal windows. The city's building inspectors also underwent Home Energy Rating Systems (HERS) Program training to evaluate and improve building efficiency and learn to evaluate buildings for Energy Star Certification.³⁶⁹

All of these initiatives—as well as the Land Use Incentive Policy, Resolution 09-71, building permit fee waivers, and the Office of Sustainability, Sustainability Advisory Committee on Energy and the Environment, and the Sustainability Management Plan—contribute to Asheville's overall goal of an 80% reduction in municipal greenhouse emissions by the year 2050. By cutting emissions by 8.4% after just three years of implementing the Sustainability Management Plan, Asheville is well ahead of this schedule.

368 <http://www.aeee.net/Website/E32011HonorEnvironmentalSustainability1.htm>

369 <http://www.ashevillenc.gov/Departments/Sustainability.aspx>

Catawba County, North Carolina

ECO-COMPLEX CASE STUDY

By Amble Johnson

Background

Catawba County sits in western North Carolina in the foothills of the Blue Ridge Mountains. Its 2010 population was 154,358, and it encompasses 405 square miles.³⁷⁰ Catawba County contains eight cities and towns, including Hickory and the county seat of Newton.³⁷¹

In 2006, *Forbes* declared Hickory, North Carolina the third best place in the United States in terms of Cost of Doing Business and number 20 for Cost of Living.³⁷² Nonetheless, the area's traditional manufacturing base has been in economic decline despite the county and city governments' efforts to attract new industries. These include expansion of water and sewer lines and roads (including improvements to I-40 and US Highway 321) and the establishment of the local Industrial Development Commission.³⁷³

Within this context of attracting new jobs in a shifting national employment climate, the government opened the Catawba County Regional Eco-Complex with the goal of developing "a system that recovers all usable products and by-products from a group of private and public partners located in a close-knit defined area" of the county.³⁷⁴ Maximizing waste reuse aims to serve Catawba County in both ecological and economic arenas by providing businesses with facilities where they have lower cost access to raw materials and can lower the costs associated with waste disposal.

Program Inception and Development

On February 6, 2006, Catawba County's Board of Commis-



Catawba County Landfill Gas-to-Energy Facility

Maximizing waste reuse aims to serve Catawba County in both ecological and economic arenas by providing businesses with facilities where they have lower cost access to raw materials and can lower the costs associated with waste disposal.

sioners approved a Letter of Intent with Petra Energy for the preliminary design of an Energy Recovery Facility at its existing Blackburn Landfill site, which was already the site of a County

methane recovery facility. This Energy Recovery Facility was the first phase in the development of a regional Eco-Complex that would attract certain industries to a central location wherein they could make use of the waste streams of the associated industries as the raw materials for their own prod-

ucts. The initial phase called for facilitating the location of a wood pallet company at the site that would supply its wood waste to a county facility that would burn the wood waste for energy to supply electricity, heat, and steam.³⁷⁵ Due to the evolutionary nature of the EcoComplex, an improved technology was discovered that will gasify the wood waste rather than burn it generating the same renewable energy benefits through a more ecologically sound process. This facility will be known as the Wood Gasification Facility.

The Eco-Complex will ultimately present an array of business and research opportunities, from by-products reuse to alternative energy production. Under the terms of the agreement with Petra, the County paid Petra Engineering \$25,000 for an initial feasibility study and agreed that if it was satisfied with

370 U.S. Census Bureau State and County Quickfacts; <http://quickfacts.census.gov/qfd/states/37/37035.html>

371 <http://www.catawbacountync.gov/about.asp>

372 <http://datacentersites.com/EcoComplex%20Marketing.pdf>

373 <http://www.catawbacountync.gov/about.asp>

374 <http://www.catawbacountync.gov/ecocomplex/index.html>

375 <http://www.co.catawba.nc.us/commish/agendas/20606min.pdf>

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the findings of the feasibility study and chose to proceed, Petra would be compensated for actual costs of the development and implementation of the Eco-Complex—with all costs verified by the County pursuant to Petra’s records and industry standards—plus 10% management and administrative cost at an amount not to exceed \$500,000. As the EcoComplex evolved, the Letter of Intent with Petra was terminated at the end of the feasibility study. However, Petra does continue to play a role in the continued development of the EcoComplex as a consultant to the County.

While the Department of Utilities and Engineering and the Board of Commissioners facilitated the initiation of the process, the County continues to head the Eco-Complex’s direction. Many of the Eco-Complex’s subsequent projects are the result of collaborations between outside groups such as the Catawba County Economic Development Corporation, Petra Engineering, Gregory Wood Products, PalletOne, McGill Associates, and CDM-Smith, as well as schools such as Catawba Valley Community College, Appalachian State University, the University of North Carolina - Charlotte, North Carolina A&T State University, and the North Carolina University System. This collaborative approach is a central tenet of the Eco-Complex’s success.³⁷⁶ By centrally locating the reuse of products, fuel and transportation costs are drastically reduced, which served as an early draw to the Eco-Complex.³⁷⁷

The Blackburn Resource Recovery Facility employs 21 people and handles around 415 tons of waste daily. The Gas-to-Energy Facility is another component of the Eco-Complex that is currently operational, and it houses three 1-megawatt generators that burn the landfill’s naturally-produced methane into enough electricity to power around 1,400 average-sized homes. Many of the by-products of Gregory Wood Products, which now employs 115 people, are used by Pallet One. Pallet One, in turn, employs 29 people in Catawba County in pallet recycling and manufacturing. Utilizing required buffer acreage for the Blackburn Resource Recovery Facility, Feedstock Crops of sunflower in the summer and canola in the fall are grown for use in the Biodiesel Research, Development and Production Facility. The Biodiesel Facility, fully operational since mid-August of 2011, is an example of the continuing partnership with Appalachian State University (ASU). It includes a 7,260-square foot process-



Catawba County & Appalachian State University Biodiesel Research, Development, and Production Facility, Certified LEED Silver

“ This Energy Recovery Facility was the first phase in the development of a regional Eco-Complex that would attract certain industries to a central location wherein they could make use of the waste streams of the associated industries as the raw materials for their own products. ”

“ The Eco-Complex will ultimately present an array of business and research opportunities, from byproducts reuse to alternative energy production. ”

376 <http://www.aae.net/Website/E32011HonorEnvironmentalSustainability2.htm>

377 <http://www.bizjournals.com/charlotte/stories/2006/07/24/story8.html?page=all>

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ing building and a 800-square foot remote chemical storage building that ASU graduate students use to test biodiesel produced from on-site feedstock crops. Finally, Hmong Demonstration Site is a 1-acre plot of landfill buffer leased through the local North Carolina Cooperative Extension Office to the Hmong Association for use as a horticultural demonstration site.³⁷⁸

Future plans for the Eco-Complex feature a Biosolids (municipal wastewater sludge) Processing Facility to replace Catawba County's existing Regional Sludge Management Facility which operates at another location. This facility will meet Catawba County's wastewater sludge management needs for the next twenty years. Also, in order to maximize the reuse of waste and by-products from the Eco-Complex's manufacturing partners, the Wood Gasification Energy Facility will use sawdust and biomaterials to generate electricity, heat, and steam energy. It is expected to produce three megawatt hours of electricity and 15,000 pounds of steam per hour. Pending Federal grants, Catawba County and Appalachian State will pursue algae research on-site to explore and refine algae's potential for biodiesel production. Also, a Bioreactor Landfill may be developed to inject graywater residuals from the Biosolids Processing Facility into the existing landfill.³⁷⁹

Catawba County's longer term plans for the Eco-Complex include a composting/soils amendment facility to bag and sell compost/soil amendment products and possibly mulch. Also, 25 to 100 acres of greenhouse facilities are being discussed for growing vegetables and/or flowering plants once the site's expected waste streams are created. Preliminary engineering for an organic waste anaerobic digester facility is underway. This facility would process sewage (wastewater sludge) from

wastewater plants and process animal and food wastes. Biogas from the wastes would then be used to produce electricity and heat. Finally, a biofuel research project that integrates landfill gas, biodiesel, and other fuels into a combined fuel for generating green energy is being considered.³⁸⁰ (A map of current and proposed projects in the Eco-Complex may be found at: http://www.catawbacountync.gov/ecocomplex/EcoComplex_map.asp.)

Funding

Initial costs for the Eco-Complex were paid for through a combination of water and sewer and solid waste funds, along with Energy Facility monthly user fees, the sale of electrical power, as well as investment by the project's business and research partners.³⁸¹ County officials say that no local tax dollars have or will be used on the facility. By using the reallocation of waste, the Eco-Complex's progressive approach in making use of waste streams creates revenue without relying on programs with high initial costs. As a result, in 2010 Catawba County brought in \$688,353 primarily from electrical sales to the utility company. Additional revenues from Renewable Energy Certificates (RECs) and Federal Renewable Energy Production Incentives

By using the reallocation of waste, the Eco-Complex's progressive approach in making use of waste streams creates revenue without relying on programs with high initial costs.

Catawba County brought in \$688,353 primarily from electrical sales to the utility company. Additional revenues from Renewable Energy Certificates (RECs) and Federal Renewable Energy Production Incentives enable Catawba County to grow its programs that offset and reduce its carbon footprint while continuing to save its taxpayers money.

enable Catawba County to grow its programs that offset and reduce its carbon footprint while continuing to save its taxpayers money.³⁸²

Results

Several outside groups have acknowledged and recognized

378 <http://www.catawbacountync.gov/ecocomplex/existing.html>

379 <http://www.catawbacountync.gov/depts/u&e/existing.asp>

380 <http://www.catawbacountync.gov/depts/u&e/Impending.asp>

381 <http://www.catawbacountync.gov/depts/u&e/developing.asp> a 2007 estimate of costs is available at: <http://www.naco.org/programs/csd/Green%20Government%20Database/Catawba%20County%20NC%20EcoComplex%20overview.pdf>

382 <http://www.salisburypost.com/centerfortheenvironment/Catawba-County-EcoComplex--Opens-New-Biodiesel-Facility->

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the Catawba County Eco-Complex. One award was the 2007 Thomas H. Muehlenbeck Award for Excellence in Local Government, presented by the Alliance for Innovation. The Alliance for Innovation cited Catawba County's Department of Utilities and Engineering for promoting innovative thinking in government. In 2008, Catawba County added a National Association of Counties (NACo) Achievement Award for its work in the Eco-Complex.³⁸³ Also, the American Academy of Environmental Engineers presented the Eco-Complex with its 2011 Honor Award in Environmental Sustainability.³⁸⁴

On its web site, the American Academy of Environmental Engineers praises the Eco-Complex's long-term commitment to sustainability. Because of the Eco-Complex, Catawba County residents have reduced fees due to selling of electrical power to the grid, met wastewater biosolids management needs for the next twenty years, and realized economic benefits from attracting business. Environmentally, the Eco-Complex's extensive collaboration among local government, business, and research institutions encourages increased opportunities for reuse and for renewable energy creation.³⁸⁵

As a whole, the Eco-Complex's benefits to Catawba County are far-reaching, and they help generate more potential programs in the future. As Scott Millar, president of Catawba County's economic development program, says, "the opportunity to sell 100% green power being generated out there has been key in our ability to talk with a number of [business] prospects. We get to talk green-energy credits. We're leading the nation in this category. So we can truly say if you're green, you need to contact Catawba County."³⁸⁶

In July 2011, the Catawba County Board of Commissioners unanimously voted to rezone the land surrounding the Eco-Complex from residential use to industrial in order to allow the location of additional economic development in the area. In reaching their decision, commissioners considered the "economic successes" of the area, including the Eco-Complex, and the potential of the successes to serve as catalysts for further development in the area.³⁸⁷

383 <http://www.catawbacountync.gov/depts/u&e/ecoAwards.asp>

384 <http://www.aaee.net/Website/E32011HonorEnvironmentalSustainability2.htm>

385 *ibid.*

386 http://www.news-record.com/content/2011/07/30/article/landfill_of_the_future_turning_trash_into_treasure

387 <http://www2.hickoryrecord.com/news/2011/jul/11/rezoning-approved-near-eco-complex-ar-1198799/>

According to a 2011 article from the Charlotte USA Economic Development Guide, the Eco-Complex has so far created "\$35 million in taxable investments and more than 150 jobs, with an additional 115 jobs projected when other entities [within the Eco-Complex] begin operation."³⁸⁸ These numbers are significant in the context of Catawba County as a small population, striving to deal with tumultuous employment factors.

“The Eco-Complex has so far created \$35 million in taxable investments and more than 150 jobs, with an additional 115 jobs projected when other entities [within the Eco-Complex] begin operation.”

388 <http://charlotteeconomicdevelopment.com/catawba-ecocomplex-feeds-charlotte-regions-green-ambitions>

Mecklenburg County, North Carolina

GREEN BUILDING PROGRAM

By Matt Brigman

BACKGROUND

Mecklenburg County has a population of 919,628, and it covers an area of 524 square miles. Almost three-quarters of the County's population lives in the City of Charlotte. Because the area's population is predicted to increase by 50% by 2025, the County decided to promote sustainable building practices now to lessen the effects this rapid growth would have on the environment.

📌 *The County decided to promote sustainable building practices now to lessen the effects this rapid growth would have on the environment.* 📌

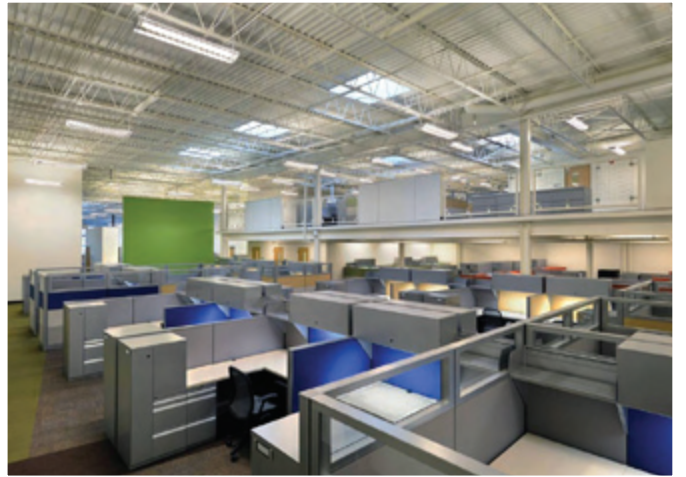
The County initially employed a “Green Permit Incentive Program” to promote sustainable building in the city. Buildings meeting certain third party sustainability requirements could receive rebates on their County permitting fees.³⁸⁹ The testing methods used were LEED and Green Globes for commercial buildings, along with LEED Residential, Earthcraft, North Carolina Healthybuilt Homes, and National Association of Home Builders (NAHB) National Green Building Program.³⁹⁰ Depending on the level of certification reached – e.g. LEED certified, silver, gold, platinum or One Globe, Two Globes, etc. – the builder could receive 10, 15, 20, or 25% permit rebates, up to \$100,000 for the highest certifications.³⁹¹ Unfortunately, the program had to be suspended on April 20, 2010 due to declining tax revenue.

Mecklenburg County also promotes green building through its Technical Advisory Board. This body is tasked with removing unnecessary barriers to the use of green building practices and other sustainability measures presented by local codes or ordinances.

389 Mecklenburg County Code Enforcement's Green Permit Rebate Program, MECKLENBURG COUNTY, NC: CODE ENFORCEMENT, <http://charmeck.org/mecklenburg/county/CodeEnforcement/GreenPermitRebate/Pages/default.aspx>

390 *Id.*

391 *Id.*



Valarie C. Woodward Center received LEED Silver certification.

PROGRAM INCEPTION AND DEVELOPMENT

The initial impetus for the program came from Mecklenburg County's Building Development Commission whose job is to review, advise, and make recommendations to the County's code enforcement department regarding, among a host of topics, the development of new codes and ordinances, and land development/building regulatory programs.³⁹² The Commission is a citizen based group with members appointed by the Mecklenburg Board of Commissioners. Currently the thirteen members of the Building Development Commission represent organiza-

392 Building Development Commission, MECKLENBURG COUNTY, NC: CODE ENFORCEMENT, <http://charmeck.org/mecklenburg/county/CodeEnforcement/BDC/Pages/default.aspx>

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“The inspectors must adhere to the building code, however, in the event that the building code does not address new innovative technology, the Technical Advisory Board provides expertise for providing a compliance strategy that falls within the building code but also allows green technology to be utilized.”

“The program ended with 32 approved projects, and though several of the projects are still pending, awaiting final third party certification, all of those that applied and were initially approved by the department will receive their rebate despite the program being indefinitely suspended.”



Valarie C. Woodward Center received LEED Silver certification. Outdoor activities included bioretention areas to reduce runoff and allow for greater filtration of stormwater.

tions such as the Charlotte Plumbing-Heating-Cooling Contractors Association and the American Institute of Architects as well as the general public.³⁹³

In addition, the Code Enforcement department recently developed the citizen based Technical Advisory Board, a subcommittee of the Building Development Commission.³⁹⁴ This Board helps the Code Enforcement department harmonize enforcement of the current construction code with sustainable building practices when potential conflicts or ambiguities threaten a project's sustainability goals. This avoids situations where inspectors are forced by the language of the building code to impose counter-productive requirements.³⁹⁵

The inspectors must adhere to the building code, however, in the event that the building code does not address new innovative technology, the Technical Advisory Board provides expertise for providing a compliance strategy that falls within the building code but also allows green technology to be utilized.

393 *Id.*

394 Technical Advisory Board, MECKLENBURG COUNTY, NC: CODE ENFORCEMENT, <http://charmeck.org/mecklenburg/county/CodeEnforcement/BDC/Pages/TechnicalAdvisoryBoard.aspx>.

395 *Id.*

Members of the Technical Advisory Board are appointed by the Building Development Commission to three year terms.³⁹⁶ Presently the Board consists of four engineers, two architects, two general contractors, one U.S. Green Building Council representative, and a representative for the University System of North Carolina.

FUNDING

The funding for the Green Permit Rebate program came from setting aside a percentage of previous year's revenue from building permits fees. This amounted to a budget of over \$1,000,000.³⁹⁷ Unfortunately, the decline in the new construction in recent years meant that revenue from permit fees dropped dramatically. According to Jim Bartl, Mecklenburg County's code enforcement director, "We were looking at every place possible to conserve permit fees and we just couldn't afford to do it anymore."³⁹⁸ Money saved by putting the green permit program on hold allowed the County to retain employees that might otherwise have had to been laid off. The Technical Advisory Board was retained as it is composed of volunteers and is only a minimal expense for the County.

396 Mecklenburg County Building Development Ordinance Sec. 107.6 et seq.

397 Charlotte Builders May be Eligible for Retroactive Green-Permit Rebates, CHARLOTTE GREEN TEAM, Dec. 9, 2009, http://www.charlottegreenteam.com/home/charlotte_greenteam-news.php?news_id=84

398 Sam Boykin, Developers wilt over suspension of green program, THE MECKLENBURG TIMES, August 13, 2010, available at <http://mecktimes.com/news/2010/08/13/developers-wilt-over-suspension-of-green-program>

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RESULTS

The green building permit program was well received by builders and by the community at large. The County reports that both the good press and the financial incentives were draws for those using the program. The program ended with 32 approved projects, and though several of the projects are still pending, awaiting final third party certification, all of those that applied and were initially approved by the department will receive their rebate despite the program being indefinitely suspended.

PROBLEMS OR CHALLENGES

Aside from the funding issue, one problem that the program faced at the beginning was a conflict over who was to receive the acknowledgment for constructing green buildings. Initially, the property owners were going to be credited in the County's promotional efforts, but a number of contractors and architects felt slighted. The problem was resolved quickly, however, when the County agreed to credit all parties involved in the projects.

OTHER INITIATIVES

Mecklenburg County's Park and Recreation Department won the Barb King Environmental Stewardship Award, presented by the National Parks and Recreation Association, for the Department's policy for identifying sensitive areas and focusing their green space acquisition on them, along with its active monitoring of rare and endangered animals.³⁹⁹ Also, Park and Recreation's Division of Nature Preserves and Resources is specifically charged with protecting "the county's biological resources and natural areas, while providing opportunities for environmental education, nature-based programs, and outdoor recreation."⁴⁰⁰ The County also contains an extensive greenway system, comprising thirty-five miles of developed trails and paved walkways, and one hundred fifty miles of undeveloped land being held for conservation purposes.⁴⁰¹

For additional resources, go to:

Greenhouse Gas Inventory

<http://charmeck.org/mecklenburg/county/LUESA/environment/Documents/GHGInventoryReport2009.pdf>

Sustainable Facilities and Development Policy

<http://charmeck.org/mecklenburg/county/LUESA/environment/Documents/Sustainable%20Development%20Policy.pdf>

Green Purchasing

<http://charmeck.org/mecklenburg/county/LUESA/environment/Documents/EPPG2010.pdf>

399 *Id.*

400 *Id.*

401 Greenways, MECKLENBURG COUNTY, NC: PARK AND RECREATION,
<http://charmeck.org/mecklenburg/county/ParkandRec/Greenways/Pages/default.aspx>

Columbia, South Carolina

GREEN BUILDING PROGRAM

By Matt Brigman

BACKGROUND

Columbia, South Carolina is located in the central part of the state known as the Midlands. In 2010, it had a population of 129,272, and covered 132 square miles.⁴⁰² Due to recent urban growth in the Midlands area, Columbia and the surrounding region have been threatened with being classified as “non-attainment” by the EPA for not meeting air quality standards under the Federal Clean Air Act (CAA).⁴⁰³ Being labeled a nonattainment area would subject the region to more onerous federal regulation that would burden local residents and businesses and potentially stifle economic growth. It is this threat that led to the creation of the Climate Protection Action Committee (“CPAC”) in 2008.

CPAC oversees many of the sustainability directives the City of Columbia employs. It is a volunteer group consisting of appointees from the city council and advisory members representing environmental groups, local governments, and businesses. It started off focused on greenhouse gas reduction and internal government operations, but it has expanded its scope to become “the City’s unofficial environmental clearing house, focusing on air quality, energy conservation, water conservation and recycling/waste reduction.”⁴⁰⁴ CPAC’s programs now include promoting green building in Columbia.

Run by the city’s Planning and Development Services Department, the City of Columbia’s Green Building Incentive Program allows building projects to receive financial incentives for meeting certain environmental requirements.⁴⁰⁵ For commercial buildings the standard is based on LEED certification, and for one or two family residential projects the builder can use any of the following: Build Green Greater Columbia, USGBC LEED for Homes, EarthCraft House, HealthyBuilt Homes or ICC 700 National Green Building Standard.⁴⁰⁶ The City decided to



The S.C. Bar Conference Center in Columbia, South Carolina earned LEED Certification and CPAC Certification.



Due to recent urban growth in the Midlands area, Columbia and the surrounding region have been threatened with being classified as ‘non-attainment’ by the EPA for not meeting air quality standards under the Federal Clean Air Act (CAA). ¶¶

It is this threat that led to the creation of the Climate Protection Action Committee (“CPAC”) in 2008. ¶¶

use third party accreditation organizations to alleviate the burden developing new standards would place on City staff. The amount of the incentive depends on the cost of the project and the level of certification. For example, the maximum amount of incentive for reaching LEED Silver Certification is 2% of construction costs, whereas reaching LEED Platinum Certification can entitle you to 3% of costs. The exact amount earned is calculated by filling out a worksheet provided by the city.⁴⁰⁷

402 U.S. Census Bureau State and County Quickfacts; <http://quickfacts.census.gov/qfd/states/45/4516000.html>

403 See City of Columbia, Air Quality, <http://columbia.sc.gov/index.cfm/cpac/air-quality/>; Clean Air Act, part D, 42 U.S.C. § 555 et seq. (2011).

404 City of Columbia, About CPAC, <http://columbia.sc.gov/index.cfm/cpac/about-cpac/>

405 City of Columbia, Green Building Incentive Program, <http://columbia.sc.gov/index.cfm/cpac/green-building-incentive-program/>

406 *Id.*

407 City of Columbia, Estimate of Value of Green Building Incentive for Commercial Buildings, http://columbia.sc.gov/cocextranet/assets/File/CPAC/Forms/GBIP_Commercial_Estimate_of_Value_of_Incentive.pdf

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🔗 The City opted for the post-construction reimbursement method where the builder received funds from the grant once the building is completed. City staffers have expressed a desire to adapt this program to encompass remodeling of existing buildings as well as new construction, especially given the number of historic buildings in the city, though there are no plans to make this change. 🔗

PROGRAM INCEPTION AND DEVELOPMENT

Columbia's City Council had been looking to implement some kind of green building initiative for years, but funding was difficult to find. However, in December 2009, the City received an American Recovery and Reinvestment Act grant, a portion of which was used to fund the City's green building program. In developing its present strategy, the City sought input from the City Council Members, city staffers, the South Carolina chapter of the American Institute of Architects, the local homebuilders association, and interested citizens. The program was designed and implemented by City staff, and the program is run internally by the Planning and Development Services Department with minimal additional work beyond the additional training that was required.

FUNDING

Funding was probably the biggest issue the City of Columbia faced in implementing the program. The largest costs were the actual incentives for the builders, staff training, and staff certification exams. The primary funding source was the American Recovery and Reinvestment Act of 2009, which gave the city \$1,424,100.⁴⁰⁸ Of this, \$80,000 was allocated towards the Green Building Incentive Program. The incentives are still done on an as-available, first come first served basis. Approximately half of the money has been spent as of this writing. It is unclear what will happen when the grant money runs out if there is no additional funding allocated.

RESULTS

The program has been well received by City officials and staffers as well as by the community, but so far use of the program has been slow. The South Carolina Bar Building, which achieved LEED Silver Certification and received over \$20,000 in reim-

bursements, is the first and only commercial project to make use of the program.⁴⁰⁹ In addition, six houses have received reimbursements thus far, and there is an apartment complex in the early stages of development that the City staff anticipates will participate. The lack of buildings using the program may primarily be attributable to the lack of construction in Columbia generally rather than a flaw of the program.

PROBLEMS OR CHALLENGES

The Green Building Incentive Program has encountered little resistance. Most problems have concerned procedural matters. For example, there was some conflict between city officials as to whether the builders should get a discount on their initial purchases and applications for approved plans, or get reimbursements after the project had been completed. The City opted for the post-construction reimbursement method where the builder received funds from the grant account once the building is completed. City staffers have expressed a desire to adapt this program to encompass remodeling of existing buildings as well as new construction, especially given the number of historic buildings in the city, though there are no plans to make this change.

OTHER INITIATIVES

Beyond just specific "green building" programs, Columbia has several sustainability and conservation focused initiatives run by the CPAC. The programs include "Green Business" and "Green Congregation" programs that help educate companies and religious organizations on becoming sustainable, and provide recognition to the organizations who are leaders in the field.⁴¹⁰ They also have a "Southern Fried Fuel" program in which residents recycle used cooking oil, which is then converted into bio-fuel for use in certain city vehicles.⁴¹¹ Columbia hosts an annual "SC - Green is Good for Business Conference," which is a day of sustainability related speakers, networking, and a green expo.⁴¹² At the request of its citizens, Columbia's parks and recreation department is also working to implement a community garden program into the city's existing green space.⁴¹³

409 South Carolina Bar, The South Carolina Bar Building is Green!, <http://www.sobar.org/AboutUs/BarConferenceCenter.aspx>

410 City of Columbia, Green Businesses Program, <http://columbia.sc.gov/index.cfm/cpac/green-business-program/>; City of Columbia, Green Congregations, <http://columbia.sc.gov/index.cfm/cpac/green-congregations/>.

411 City of Columbia, Southern Fried Fuel, <http://columbia.sc.gov/index.cfm/cpac/southern-fried-fuel/>

412 City of Columbia, 2011 Green is Good for Business Conference, <http://columbia.sc.gov/index.cfm/cpac/2011-green-is-good-for-business-conference/>

413 City of Columbia, Community Gardens, <http://www.columbiasc.net/communitygardens/490>

408 Grants – Award Summary: City of Columbia, <http://www.recovery.gov/Transparency/RecipientReportedData/pages/RecipientProjectSummary508.aspx?AwardIDSUR=82179&qtr=2011Q2>

North Charleston, South Carolina

OAK TERRACE PRESERVE GREEN BUILDING PROGRAM

By Amble Johnson

Background and Description

Oak Terrace Preserve is a residential community located in the City of North Charleston, South Carolina. This development is an innovative example of a public/private partnership fostering the construction of green buildings. North Charleston's city government purchased the land with the goal of bringing environmental sustainability and economic stimulation to a blighted neighborhood.⁴¹⁴ Oak Terrace Preserve developers follow EarthCraft homebuilding guidelines.⁴¹⁵ When completed, Oak Terrace Preserve will house 374 families in single-family homes and townhouses in its 55-acre location.⁴¹⁶ Currently, approximately 100 homes are occupied, and under the current real estate market conditions, Oak Terrace Preserve anticipates constructing and selling the rest of the homes over the next three or four years.⁴¹⁷

Adherence to environmentally sustainable practices is an important qualifier for the homebuilders that Oak Terrace Preserve uses. The City pre-qualified four home builders that property owners can select to build homes in the subdivision. The builders are Carriage Hill Associates of Charleston, Crescent Homes, Pulte Homes, and the Verdi Group. All four are based in North Charleston or Charleston. Furthermore, while the developers follow strict sustainability guidelines for each home, they used custom and standardized floor plans. Each new house is individually designed in order to encourage a more aesthetically pleasing neighborhood.⁴¹⁸ Also, this approach allows for private homebuilders to tailor their construction to clients' wishes while assuring the government of the ecological benefits of the project. In ensuring the environmental sustainability of Oak Terrace Preserve homes, North Charleston left much leeway to



Street scenes in Oak Terrace Preserve. Photo credits Southeast Watershed Forum.

📖 **This development is an innovative example of a public/private partnership fostering the construction of green buildings.** 📖

📖 **Adherence to environmentally sustainable practices is an important qualifier for the homebuilders that Oak Terrace Preserve uses. The City pre-qualified four home builders that property owners can select to build homes in the subdivision.** 📖

414 Home Depot Foundation Case Study of North Charleston, 2009; http://www.homedepotfoundation.org/assets/files/aoe_scd09_sc.pdf.

415 Oak Terrace Preserve; <http://www.oakterracepreservesc.com/homes/earthcraft.html>

416 An interactive map of the property is available here: http://www.oakterracepreservesc.com/location/interactive_area_map.html.

417 Interview with Keith West, Public Relations for Oak Terrace Preserve.

418 Oak Terrace Preserve; http://www.oakterracepreservesc.com/homes/our_builders.html

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📖 *The only specific requirements builders faced were to follow EarthCraft® building standards and to preserve the site's oak trees.* 📖

📖 *A number of manufacturers have been involved in implementing sustainable products and practices in the neighborhood, including the use of recycled materials for construction, no-VOC carpets, energy-saving lighting, and water-saving toilets.* 📖

📖 *The use of green building standards yields some market advantages for Oak Terrace Preserve as homebuyers look to engage in environmental sustainability while not sacrificing the convenient proximity to North Charleston and Charleston.* 📖



Sustainable technologies like the pervious paving above blend with old oak trees in this green development. Photo credits Southeast Watershed Forum.

developers. In selecting builders, it searched for those with a broad commitment to sustainability. The only specific requirements builders faced were to follow EarthCraft® building standards and to preserve the site's oak trees.⁴¹⁹

Another example of public-private cooperation in Oak Terrace Preserve is its partnership with private manufacturers. In the early 2000s, The Noisette Urban Alliance identified specifications for sustainable products in building sustainable homes. As the project evolved, a number of manufacturers have been involved in implementing sustainable products and practices in the neighborhood, including the use of recycled materials for construction, no-VOC carpets, energy-saving lighting, and water-saving toilets.

While the national real estate market is largely depressed, home sales in the Charleston area are rebounding, sparked by

retirees from the Southeast and the burgeoning technology and aerospace prospects of Boeing. The use of green building standards yields some market advantages for Oak Terrace Preserve as homebuyers look to engage in environmental sustainability while not sacrificing the convenient proximity to North Charleston and Charleston.

Program Inception and Development

Originally, Oak Terrace Preserve was a part of a much larger project conceived in conjunction with the Noisette Company that was generally known as “Noisette”. The goal of the Noisette Project was to revitalize North Charleston—its education, residences, economy, and ecology—through a large scale redevelopment of 3,000 acres centered on the redevelopment

⁴¹⁹ Home Depot Foundation Case Study of North Charleston, 2009; http://www.homedepotfoundation.org/assets/files/aoe_scd09_sc.pdf.

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of the City's abandoned naval yard. The company held community meetings and newsletter communications to gauge the needs of North Charleston residents and businesses.⁴²⁰ Within this broad framework, Oak Terrace Preserve defined its mission as establishing a residential area with close proximity to businesses, schools, and recreation that nevertheless restores "the natural balance of nature that has been compromised by standard development practices."⁴²¹

Oak Terrace Preserve comprises 55 acres of the 3,000 acres that the City, Noisette and other investors planned to redevelop. The City of North Charleston purchased the 55 acres that was originally used to house World War II-era naval shipyard workers. Cedrus Development, LLC is now the project manager responsible for the development of the Oak Terrace Preserve community.⁴²²

While both the Noisette Company and Cedrus Development are private entities, North Charleston's mayor's office and the City Council were both involved in development of the program and in defining its scope over the last ten years, and they continue to be involved in promoting the development.⁴²³ The City Council deems completion and support of Oak Terrace Preserve one of the top priorities of the city's revitalization. The City of North Charleston recognizes Oak Terrace Preserve as a distinguishing feature for its community, and it strives to support the sustainable residential development as a catalyst for the revitalization of Park Circle.

Funding

Oak Terrace Preserve is a public-private project. The original master plan, incorporated into the city's Comprehensive Plan for redevelopment, initially estimated an aggregate \$1 billion in public and private investment throughout the 3,000-acre area over a 15-year period. While private construction and real estate companies market Oak Terrace Preserve, the city remains the landowner, and is responsible for infrastructure costs and the purchase of the development's 55 acres.

For its community revitalization needs, the City of North Charles-



Bioswales enhance water infiltration into the soil, reducing runoff. Photo credits Southeast Watershed Forum.

Oak Terrace Preserve inspired the development of nearby green neighborhoods like Mixson and Hunley Waters, and the sustainable retrofitting of existing homes throughout Park Circle.

420 Noisette Master Plan, Chapter 1: Vision; <http://www.noisettesc.com/masterplan.html>.

421 Oak Terrace Preserve FAQs, 1

422 See Oak Terrace Preserve Press Release dated March 8, 2010; available at: <http://blog.oakterracepreservesc.com/wp-content/uploads/2010/03/OTP-NewsRelease-CedrusContract.pdf>

423 <http://www.postandcourier.com/news/2011/mar/22/noisette-at-10-years/>

ton has utilized South Carolina General Assembly-approved Tax Increment Financing (TIF) districts, located both on and off the former naval base, for its ongoing infrastructure needs.

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Basically, TIF is a method to use future gains in taxes to finance current improvements, which, in theory, will create conditions for those future gains. When public projects are built, there are often gains in the value of surrounding properties, thus luring investment – consequently, the increased site value and investment generates new tax values for the municipal government of the city.

A major objective of the city's revitalization was developing new infill neighborhoods in Historic Park Circle, which had not witnessed new home construction on this scale for more than 50 years. Thus, the TIF investment in Oak Terrace Preserve is deemed a breakthrough, as young families are now moving back to Park Circle.

Before the revitalization of Park Circle, Park Circle neighborhoods did not generate enough tax revenue to support the services they received, including fire and police protection.

Current estimates indicate that Oak Terrace Preserve, upon final build out to 374 homes will generate a new tax base of \$75 million in city and county collections (based on an average value of \$200,000 per unit cost X 374 units) in a once heavily blighted area.

Oak Terrace Preserve inspired the development of nearby green neighborhoods like Mixson and Hunley Waters, and the sustainable retrofitting of existing homes throughout Park Circle.

The Home Depot Foundation estimated Oak Terrace Preserve's costs at \$13.4 million for the first phase of the development, \$4.7 million of which was made up by land costs.⁴²⁴

Results

In the early stage of the revitalization, political division surfaced in North Charleston over the role of government in community development, and there was some dissension over the city's role in residential development. After the completion of Phase One for 100-plus homes, Oak Terrace Preserve is popularly viewed as a source of pride for North Charleston residents. Recognitions for the development include honors from *Cottage Living Magazine*, *Green Builder Magazine*, and *Men's Journal*, as well as the reader-voted "Best New Development"

“In its award, the Foundation cites Oak Terrace Preserve first in its section ‘Successful Implementation of Plan’ for exemplifying intelligent planning in the areas of ‘Housing, Natural Resources, Land Use & Development, and other categories.’”

by local *Charleston City Paper*.⁴²⁵ Those involved in Oak Terrace are most proud of North Charleston's 2009 recognition by the Home Depot Foundation for the prestigious “Award of Excellence for Sustainable Community Development”.⁴²⁶ In its award, the Foundation cites Oak Terrace Preserve first in its section “Successful Implementation of Plan” for exemplifying intelligent planning in the areas of “Housing, Natural Resources, Land Use & Development, and other categories.”⁴²⁷

The City was awarded the National League of Cities Award for Municipal Excellence in late 2010, which was partially attributed to the implementation of the sustainable Oak Terrace Preserve project. In 2011, Oak Terrace Preserve was named a global finalist in Project Award Category for The International Awards for Livable Communities, a United Nations-supported sustainability initiative. (See www.northcharleston.org)

Currently, about 100 of the anticipated 374 family housing units are occupied, despite the generally depressed market for new homes.⁴²⁸ The average home price is \$219,000. The area is a big draw for its proximity to good schools and North Charleston and Charleston resources.⁴²⁹ In 2005, the North Charleston Elementary School, another component of the City's original vision, opened as the South Carolina's first LEED-certified elementary school. *Newsweek* rated the Charleston County Academic Magnet High School (which also has an environmentally sustainable campus) as one of the top 15 public high schools.⁴³⁰ Some credit North Charleston's “long view” toward

425 <http://www.oakterracepreservesc.com/news/>

426 Interview with Keith West, Public Relations for Oak Terrace Preserve

427 Home Depot Foundation Case Study of North Charleston, 2009; http://www.homedepotfoundation.org/assets/files/aoe_scd09_sc.pdf.

428 Interview with Keith West, Public Relations for Oak Terrace Preserve

429 Home Depot Foundation Case Study of North Charleston, 2009; http://www.homedepotfoundation.org/assets/files/aoe_scd09_sc.pdf.

430 “America's Best High Schools,” *Newsweek*, May 27, 2007.

424 Home Depot Foundation Case Study of North Charleston, 2009; http://www.homedepotfoundation.org/assets/files/aoe_scd09_sc.pdf.

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sustainable community development—reflected in initiatives like Oak Terrace Preserve and school improvement—with attracting developments such as the Boeing assembly plant and Clemson University Restoration Institute that have recently located in the area.⁴³¹

Lessons Learned

While the development is broadly seen as having a positive impact on North Charleston, it has faced challenges. For example, the original residences at Century Oaks were unfit for habitation, and largely abandoned. The neighborhood faced major problems with obsolete housing and infrastructure in the former Century Oaks, dating back to World War II-era housing which had a projected ten year lifespan. In order for Oak Terrace Preserve to be built, the dilapidated housing of its predecessor, Century Oaks, had to be removed, so North Charleston provided consultation and financial help to relocating residents. In attracting new residents with improved schools, infrastructure, and housing, the city government assured that resources are available for current residents' use. City ordinances have evolved to better foster Oak Terrace Preserve's vision, and new, innovative amenities were added, like the stormwater management system. These steps include adjusting zoning requirements to allow for the setbacks that preserved Oak Terrace Preserve's oak trees.⁴³²

More broadly, the challenges and success of Oak Terrace Preserve and the Noisette Company offer lessons for broad urban revitalization efforts. The company's efforts were assisted by public involvement and focus on specific initiatives, but they were hampered by ambitious scope and turmoil in national financial and housing markets by 2008.

Other Initiatives

In addition to requiring homes constructed according to Earth Craft guidelines, Oak Terrace Preserve utilizes a number of other low impact development (LID) practices to minimize the environmental impact of the neighborhood. One significant practice is the inclusion of advanced environmental stormwater treatment systems such as using rain garden, bioswales, road side infiltration areas, pervious pavers, and forebays that are interconnected with perforated piping to continually promote

infiltration and retention of stormwater on site, while also preventing flooding of adjacent properties.⁴³³ Pervious walkways and on-site rainwater harvesting techniques, such as rain barrels or cisterns, are used throughout the community, but these are not connected to the piped network though they contribute to reducing the speed and volume of stormwater leaving the site.⁴³⁴ Oak Terrace Preserve has been a leader in implementing stormwater best management practices, and it has been held up as a model for other communities. The development's LID stormwater practices serve as the basis for a guide published by the South Carolina Department of Natural Resources and a number of environmental organizations to instruct other home owner associations in the implementation and maintenance of LID stormwater infrastructure.⁴³⁵

Additionally, public frontage tightly follows set standards. Oak Terrace Preserve mandates the number of ornamental shrubs, canopy trees, and under story trees per 100 lineal feet of frontage, based on which of two types that the buffer area fits.⁴³⁶

Oak Terrace Preserve also allocates certain areas as "Pocket Parks" which ensure preservation of the area's trees and provide passive recreation. A "Pedestrian Green Way" ensures public access between "Public Parks". And "Community Links"

Oak Terrace Preserve utilizes a number of other low impact development (LID) practices to minimize the environmental impact of the neighborhood. One significant practice is the inclusion of advanced environmental stormwater treatment systems such as using rain garden, bioswales, road side infiltration areas, pervious pavers, and forebays.

431 Interview with Keith West, Public Relations for Oak Terrace Preserve

432 Home Depot Foundation Case Study of North Charleston, 2009, http://www.homedepotfoundation.org/assets/files/aoe_scd09_sc.pdf.

433 "Beyond Pipe and Pond: Oak Terrace Preserve Case Study." Clemson Coastal Research and Education Center; August 6, 2010; power point presentation available at: http://www.dnr.sc.gov/marine/NERR/present/pipepond/DeebHorton_OakTerracePreserve.pdf

434 "Low Impact Development: Stormwater Series," S.C. Sea Grant Consortium, available at: http://www.scseagrant.org/pdf_files/lid_final_brochure.pdf. This brochure also contains helpful descriptions and illustrations of some of the stormwater management practices implemented at Oak Terrace Preserve.

435 "Maintenance of Low Impact Development (LID) Stormwater Practices: Guidance for Homeowners Associations Based on Oak Terrace Preserve in North Charleston, SC," available at: <http://www.dnr.sc.gov/marine/NERR/pdf/LIDMaintenanceBrochure.pdf>

436 "Oak Terrace Preserve City of North Charleston Final Application for Planned Development District (PDD)", March 2005

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serve to connect the community as a whole. This includes greenways, bike trails, and other passages, and may follow natural or man-made corridors. All of these open space features contribute to the stormwater management, plant preservation, and natural aesthetic of Oak Terrace Preserve.⁴³⁷ Stormwater management and local species preservation are major focal points of landscaping rules. Impervious pavement is limited to 10% of a lot's surface area, and non-native turf is limited to 20%. The rest of the yard should be native plants of varying species, although they may be arranged formally by the owner. Permanent irrigation is permitted, and is encouraged to link with graywater or rainwater collection systems.⁴³⁸

Oak Terrace Preserve's LID practices also focus on lighting for outdoor spaces. To reduce development impact on natural environments, and to minimize light trespass and improve night sky access, Oak Terrace Preserve's builders are encouraged to follow lighting guidelines outlined in the IESNA Recommended Practice Manual: Lighting for Exterior Environments (IESNA RP-33-99).

These LID practices support Oak Terrace Preserve's overall goal of environmentally aware housing and community design. Such a comprehensive approach to green living also distinguishes Oak Terrace Preserve to homebuyers.

📍 Oak Terrace Preserve also allocates certain areas as "Pocket Parks" which ensure preservation of the area's trees and provide passive recreation. 📍



A pocket park at Oak Terrace Preserve provides a scenic stop where neighbors can meet. Photo credits Southeast Watershed Forum.

⁴³⁷ Ibid.

⁴³⁸ *Id.*

Chattanooga, Tennessee

GREEN BUILDING PROGRAM

By Alex Robertson

Background

Chattanooga, Tennessee is located in the southeastern portion of the state near the Georgia border. It covers an area of 137 square miles, and has a population of 167,674.⁴³⁹ Despite its reputation of environmentalism, Chattanooga has not always come to mind as an eco-friendly locale. In 1969, Chattanooga was listed by the Environmental Protection Agency as the most polluted city in America.⁴⁴⁰ In response to this determination, over the next several decades the city adopted aggressive air pollution regulations that led to the attainment of federal air quality standards in 1989.⁴⁴¹ This has created an awareness of environmental issues that continues to direct Chattanooga's government policies, despite some recurring air quality issues.⁴⁴² Initiatives such as Vision 2000⁴⁴³ and the 21st Century Waterfront Plan⁴⁴⁴ helped the City begin to develop a reputation for being both forward thinking and eco-conscious in its development.⁴⁴⁵

Despite great improvement in environmental quality, several environmental issues continue to loom large in the current de-



Chattanooga **betterbuilt** homes

📈 Since 1990, Chattanooga's carbon footprint has increased by 23 percent. 📉

cade. Major concerns exist concerning Chattanooga's carbon footprint with two separate 2008 studies suggesting that Chattanooga had the twelfth largest carbon footprint among the 100 largest US metropolitan areas,⁴⁴⁶ and since 1990, Chattanooga's carbon footprint has increased by 23 percent.⁴⁴⁷ In response, both public and private entities in Chattanooga are currently making a strong push to reduce the City's carbon footprint as well as prevent further environmental degradation specifically through the implementation of green building practices.⁴⁴⁸

439 U.S. Census Bureau State and County Quickfacts; <http://quickfacts.census.gov/qfd/states/47/4714000.html>.

440 Karen Ceraso, Cleaner, Greener Chattanooga, SHELTERFORCE ONLINE, January/February 1999, available at <http://www.nhi.org/online/issues/103/ceraso.html>.

441 History, CHATTANOOGA/HAMILTON COUNTY AIR POLLUTION CONTROL BUREAU, <http://www.apcb.org/about/history.aspx> (last visited Sept. 7, 2011).

442 WILLIAM THARP & LORI QUILLEN, ENVIRONMENT: 2008 STATE OF CHATTANOOGA REPORT 3 (2008), available at http://www.ochscenter.org/documents/SOCR2008_environment.pdf.

443 Best Practice: Chattanooga Venture/ Community Vision, BEST MANUFACTURING PRACTICES CENTER OF EXCELLENCE, http://www.bmpcoe.org/bestpractices/internal/chatt/chatt_8.html (last visited Sept. 7, 2011).

444 The Chattanooga Riverfront Story, CHATTANOOGA AREA CHAMBER OF COMMERCE, <http://www.chattanoogachamber.com/GetToKnowUs/riverfront.asp> (last visited Sept. 7, 2011).

445 Daniel Glick, Cinderella Story – Chattanooga Tennessee's Sustainable Development Strategy, National Wildlife Feb-Mar 1996, available at <http://www.nwf.org/News-and-Magazines/National-Wildlife/News-and-Views/Archives/1996/Cinderella-Story.aspx> (last visited Sept. 7, 2011) (1996 article profiling how by the early 1990's Chattanooga was receiving praise for its sustainable and eco-friendly practices); see also Green Vacations and Destinations, CBSNEWS, Feb 11, 2009, <http://www.cbsnews.com/stories/2008/02/19/earlyshow/living/travel/main3844136.shtml> (2008 CBS news story naming Chattanooga a top green vacation destination). But see Hugh Bartling & Don Ferris, Chattanooga: Is this Sustainable?, U. OF KENTUCKY, <http://www.uky.edu/Classes/PS/776/Projects/chattanooga/chattnga.html> (last visited Sept. 7, 2011) (early critique of Chattanooga's sustainable practices, especially with regards to natural energy resources).

446 *Id.* at 5.

447 *Id.* at 5.

448

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Private entities in Chattanooga are currently making a strong push to reduce the City's carbon footprint as well as prevent further environmental degradation specifically through the implementation of green building practices.

Program Inception and Development

The GreenSpaces project, the brainchild of local community residents Jeff Cannon and Anj McClain, was initiated in January of 2008 as a three-year project with two stated goals: 1) provide incentive funding for 20 commercial projects in Chattanooga to become LEED certified within three years and 2) to develop “a resource center showcasing the best eco-friendly building materials and methods.”⁴⁴⁹

More recently, GreenSpaces has promoted the development of the **better built** program. **better built** is a local, voluntary certification program launched May 6, 2011 for residential projects that work in a manner similar to LEED but specifically focus on projects in the Chattanooga area.⁴⁵⁰ **better built** offers residential builders looking to go green support in implementing the program.⁴⁵¹

The program has five categories: energy efficiency, site planning, water efficiency, materials and methods, and indoor environmental quality. The core of the program is energy efficiency as quantified by the Home Energy Rating System Index (HERS Index). **better built** homes with a HERS Index of 85 are at least 15% more efficient than code-built homes. However, a couple of homes are currently tracking for energy efficiencies reaching 30% to 40% (HERS Indices of 70 to 60, respectively) better than code-built homes.

Green/Spaces is working with representatives from the Chat-

tanooga Association of Realtors to help incorporate green features and programs into the Chattanooga MLS, as well as to educate them in the features and benefits of **better built** homes. Contractor training is important to educating those building the homes as they are better equipped to incorporate a whole-building approach in the construction of their homes whether or not they pursue **better built** certification. Green/Spaces staff have begun dialogue with the appraisal and lending sectors and hope to gain their support in accounting for the value, as well as providing Energy Efficient Mortgages (EEMs) for these homes.

During the same period the GreenSpace initiative was getting off the ground the City of Chattanooga was also taking steps to promote green building practices. Concerns about the City's increasing carbon footprint lead Mayor Ron Littlefield to sign the US Conference of Mayor's Climate Protection Agreement in 2006.⁴⁵² To fulfill obligations under this agreement, the City developed a roadmap to reduce Chattanooga's carbon footprint.⁴⁵³

The Chattanooga Green Committee was appointed by the Mayor in late 2007⁴⁵⁴ and a public meeting was held in 2008 to allow citizens to express views on how to make Chattanooga a greener and more sustainable city.⁴⁵⁵ As a result, Chattanooga's Climate Action Plan (CAP) was submitted to the Mayor in January 2009 and was adopted on February 24, 2009.⁴⁵⁶ Included in the CAP are 47 initiatives that address ways for the city to minimize its carbon footprint, including two specifically related to green buildings.⁴⁵⁷ These were: 1) a recommendation that all city buildings strive to achieve LEED certification, and 2) a recommendation “to make sustainable building practices mainstream and increase the number of green buildings in Chattanooga.”⁴⁵⁸ To accomplish this second goal the CAP recommended offering incentives to builders such as special

449 Amy Williams, Greenspaces Initiative Encourages Eco-Friendly, Less Wasteful Development, CHATTANOOGA TIMES FREE PRESS ONLINE, February 12, 2008, <http://www.timesfreepress.com/news/2008/feb/12/greenspaces/>; CITY OF CHATTANOOGA, CHATTANOOGA'S CLIMATE ACTION PLAN – INTERIM REPORT 24 (2008), available at http://www.chattanooga.gov/Chatt_Green_Interim_Report.pdf.

449 Amy Williams, Greenspaces Initiative Encourages Eco-Friendly, Less Wasteful Development, CHATTANOOGA TIMES FREE PRESS ONLINE, February 12, 2008, <http://www.timesfreepress.com/news/2008/feb/12/greenspaces/>; CITY OF CHATTANOOGA, CHATTANOOGA'S CLIMATE ACTION PLAN – INTERIM REPORT 24 (2008), available at http://www.chattanooga.gov/Chatt_Green_Interim_Report.pdf.

450 William Thomson, Green Building Guidelines in Chattanooga Cut Energy Costs by 40%, PROPERTY MAGAZINE, May 12, 2011, <http://ptymag.com/green-building-guidelines-in-chattanooga-cut-energy-costs-by-40pc/4662/>.

451 Brandi Hill, Launch, BETTERBLOG (Apr. 27, 2011), <http://betterbuiltchattanooga.org/uncategorized/launch/>.

452 *Id.* at 15.

453 *Id.* at 7. This committee was comprised of fourteen members “representing private business, the public sector, and educational institutions” and was tasked with developing a set of recommendations to aid in a reduction of Chattanooga's carbon footprint.

454 *Id.* at 7. Over 500 people showed up to the public input session and over 220 agreed to volunteer in the future.

455 *Id.* at 1.

456 *Id.* at 8. These initiatives are geared towards many diverse parties including local governments agencies, private businesses, as well as citizens of Chattanooga

457 *Id.* at 30-33.

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permitting for constructing LEED certified buildings as well as researching and promoting other incentives and grants that may exist for green buildings, enforcing, evaluating, and updating building and energy codes, designing a local green homes rating system for residential buildings, and educating the public about the advantages of green construction.⁴⁵⁹ To that end, Chattanooga now allows up to a 60% credit on storm water fees for certain properties that achieve LEED certification.⁴⁶⁰

In order to oversee the implementation of the CAP's initiatives, Chattanooga created an Office of Sustainability. In 2010 the City hired a full-time Director of Sustainability as well as part-time staff through the use of federal grant money.⁴⁶¹ Currently, the office is focused on promoting the CAP through "outstanding sustainability efforts by Chattanooga area businesses, work[ing] with sustainability partners in both the public and private sectors, develop[ing] demonstration projects for energy efficiency and a study of alternative energy sources, and review[ing] sustainable transportation options"⁴⁶². Specifically, the Office of Sustainability is currently working on a draft of green building policies.⁴⁶³

Green/Spaces staff have begun dialogue with the appraisal and lending sectors and hope to gain their support in accounting for the value, as well as providing Energy Efficient Mortgages (EEMs) for these homes.

Chattanooga now allows up to a 60% credit on storm water fees for certain properties that achieve LEED certification.

Funding/Expenses

During the creation of the CAP, the city relied upon ICLEI-Local Governments for Sustainability (ICLEI)⁴⁶⁴ to provide both a roadmap for crafting its proposal as well as software that both helped the city determine its current green house gas emissions as well as develop a reduction target for green house gasses.⁴⁶⁵ For the drafting of specific initiatives, each committee member was assigned to a task force and given duties to research and craft specific recommendations with the assistance of subject matter experts.⁴⁶⁶ Additionally, the Chattanooga-Hamilton County Regional Planning Agency and the City's Urban Forester provided staff assistance and two University of Tennessee-Chattanooga graduate students were hired to assist in the drafting during 2008.⁴⁶⁷

The drafter's of Chattanooga's CAP envisioned initial financial support for its initiatives to draw from various sources. Programs are funded through a \$1.8 million Energy Efficiency and Conservation Block Grant (EECBG) which has also helped the city undertake various energy efficiency related projects.⁴⁶⁸ Chattanooga's CAP also promoted generating additional support through public-private partnerships, citing the fact that the "Chattanooga community has an excellent track record of just

459 *Id.*

460 CITY OF CHATTANOOGA, WATER QUALITY FEE: CREDIT APPLICATION PROCESS 5, available at http://www.chattanooga.gov/Files/WQ_Fee_Credit_App_Process.pdf; http://www.chattanooga.gov/Public_Works/70_AdoptedCodes.htm

461 Cliff Hightower, Office of Sustainability Envisions Green Chattanooga, CHATTANOOGA TIMES FREE PRESS ONLINE, Dec. 24, 2010, <http://www.timesfreepress.com/news/2010/dec/24/office-sustainability-green-chattanooga/>; According to Helen Adcock with the Chattanooga Office of Sustainability, the Office and its projects have been funded through the Energy Efficiency and Conservation Block Grant, which requires grant money to be directed towards achieving energy savings. According to Federal Government statistics, the total award for the City of Chattanooga is \$1,864,300 and project status is listed as less than 50% completed. For more detailed information on this grant see Grants - Award Summary: City of Chattanooga, RECOVERY.GOV, <http://www.recovery.gov/Transparency/RecipientReportedData/pages/RecipientProjectSummary508.aspx?AwardIDSUR=60973&qtr=2011Q2> (last visited Sept. 7, 2011).

462 Chattanooga Green: About Us, CITY OF CHATTANOOGA, http://www.chattanooga.gov/ChattanoogaGreen_About%20Us.htm (last visited Sept. 7, 2011).

463 Personal interview with Heather Adcox with Chattanooga's Office of Sustainability; September 2, 2011, Ms. Adcox confirmed the Office of Sustainability should have draft versions of their new green building policies completed "within a couple months."

464 ICLEI is an association of over 1200 local governments from over 70 countries who have committed to promote sustainable development. "ICLEI provides technical consulting, training, and information services to build capacity, share knowledge, and support local government in the implementation of sustainable development at the local level." Chattanooga became a member of ICLEI in 2006. About ICLEI, <http://iclei.org/index.php?id=about>

465 THE CHATTANOOGA CLIMATE ACTION PLAN, *supra* note 14, at 15-17.

466 *Id.* at 13.

467 *Id.* at 13.

468 Rabbit Zielke, Chattanooga's Office of Sustainability, AROUND AND ABOUT CHATTANOOGA, <http://wutcana.wordpress.com/2010/07/26/chattanoogas-office-of-sustainability/> (last visited Sept. 7, 2011); Hightower, *supra* note 22; Grants - Award Summary: City of Chattanooga, *supra* note 22. In an interview with Heather Adcox of the Office of Sustainability she stated that one of the conditions of the EECBG grant is that all projects funded must be related to energy efficiency/conservation.

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GreenSpaces's *better built* project was established over an eighteen month period and was created by a partnership between members of the American Institute of Architects' Committee on the Environment, the Home Builders Association of Southern Tennessee, GreenSpaces and the Chattanooga Association of Realtors.

By providing grants to commercial construction projects that integrate green aspects into their design as well as by educating local professionals on green building techniques, there are now 16 LEED certified buildings in Chattanooga and 30 registered or seeking LEED certification.

such partnerships.”⁴⁶⁹ An example of this is the City's partnership with GreenSpaces, which has contributed greatly to promoting green development in Chattanooga and the creation of the Mayor's Environmental Pledge has served to “rais[e] awareness of how small everyday choices can help create a healthier, cleaner and safer environment.”⁴⁷⁰

The GreenSpaces project raised \$2,000,000 to fund its first three years of operations through grants from the Benwood Foundation and the Lyndhurst Foundation and it continues to promote better construction practices in Chattanooga.⁴⁷¹ GreenSpaces's *better built* project was established over an eighteen month period and was created by a partnership between members of the American Institute of Architects' Committee on the Environment, the Home Builders Association of

Southern Tennessee, GreenSpaces and the Chattanooga Association of Realtors.⁴⁷² While much of this funding still comes through GreenSpaces, the goal is for the program to eventually become self-sustainable by charging for services provided.⁴⁷³

Results

Since the publication of the City's CAP, the City has begun to promote green construction and development. In Mayor Littlefield's 2010 state of the city address, he pledged that “all new city buildings will be built to LEED certification standards,”⁴⁷⁴ though this has not yet been implemented as official city policy. Nonetheless, later that year a new city fire station was awarded LEED gold status, with another green fire station planned for completion in 2011.⁴⁷⁵ Additionally, the City of Chattanooga and GreenSpaces work collaboratively to make sustainable building practices the norm.⁴⁷⁶

Given GreenSpaces initial goal of supporting the development of 20 LEED certified buildings within three years, the project has been a resounding success. By providing grants to commercial construction projects that integrate green aspects into their design as well as by educating local professionals on green building techniques, there are now 16 LEED certified buildings in Chattanooga and 30 registered or seeking LEED certification.⁴⁷⁷ Some notable examples of LEED certified projects include BlueCross BlueShield's \$299 million headquarters, which was the second largest project in the country to earn LEED certification.⁴⁷⁸ This building has seen total energy savings of approximately 30 percent, which amounts to a reported savings of \$3-4 million per year.⁴⁷⁹ Chattanooga

472 Thompson, supra note 12; Brandi Hill, Launch, BETTERBLOG (Aug. 16, 2011), <http://betterbuiltchattanooga.org/uncategorized/chattanooga's-green-home-rating-system-garners-big-commitments/>.

473 Interview with Brandi Hill, Director of *better built*.

474 Littlefield Calls for New “Green” Approach to Stormwater, Urges Regional Water and Sewer Authority, CHATTANOOGAN.COM, Feb. 4, 2010, http://www.chattanooga.com/articles/article_168306.asp.

475 David Morton, LEED Firestation Planned for Lookout Valley, CHATTARATI, Oct. 3, 2010, <http://chattarati.com/metro/government-politics/2010/10/13/leed-fire-station-planned-lookout-valley/>.

476 Public Works: Land Development Office: Adopted Codes, CITY OF CHATTANOOGA, http://www.chattanooga.gov/Public_Works/70_AdoptedCodes.htm (last visited Sept. 7, 2011).

477 Sustainability in the Scenic City, CHATERCHATTANOOGA.COM, Mar. 31, 2011, <http://www.chatterchattanooga.com/news/2011/mar/31/sustainability-scenic-city/>.

478 *Id.*

479 Sustainability in the Scenic City, supra note 39; BlueCross' Energy Savings, CHATTANOOGA TIMES FREE PRESS ONLINE, MAR. 8, 2011, <http://www.>

469 THE CHATTANOOGA CLIMATE ACTION PLAN, supra note 14, at 76.

470 *GreenSpaces Wins Environmental Award*, NEWS CHANNEL 9, July 19, 2011, <http://www.newschannel9.com/news/green-1003119-institute-award.html>.

471 Williams, supra note 11. In an interview with Jeff Cannon, Director and co-founder of GreenSpaces, he stated that the GreenSpaces project was originally designed with a three year window in mind, and while he has agreed to extend his involvement with the initiative temporarily due to its success, he sees the project eventually evolving into something different under new leadership as future concerns and needs emerge.

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🏡 *This building has seen total energy savings of approximately 30 percent, which amounts to a reported savings of \$3-4 million per year.* 🏡

🏡 *The boom in Chattanooga's LEED certified projects has also caused many local construction professionals to become more educated about green development, with over 150 LEED professionals operating in the city in 2011, up from only four in 2008.* 🏡

🏡 *Local companies are pledging 100 percent of their new residential projects will be better built certified.* 🏡

is also the location of the first stand-alone movie theater in the United States to achieve LEED certification, the Majestic 12.⁴⁸⁰ The boom in Chattanooga's LEED certified projects has also caused many local construction professionals to become more educated about green development, with over 150 LEED professionals operating in the city in 2011, up from only four in 2008.⁴⁸¹

For its work, GreenSpaces was recognized with the Environmental Stewardship Award from the Construction Specifications Institute in 2011.⁴⁸² **better built** has also experienced

success during its short existence. To date, 12 houses have been certified and 15 more are in the process of being evaluated. Perhaps more significantly, the program has garnered significant support from several members of the Chattanooga construction community, with local companies Collier Construction, Steve Birger Construction, Adamson Developers and Chattanooga Neighborhood Enterprise pledging that 100 percent of their new residential projects will be **better built** certified.⁴⁸³ Contractor training has been required from the beginning, including the **better built** Pilot program in May 2010 which has enrolled 44 contractors from 31 different local construction companies.

Problems

Initially there was considerable skepticism and opposition to Chattanooga's sustainability measures on both the public and private fronts. However, once GreenSpaces was able to demonstrate firsthand the economic advantages of green building practices in the local community, there was a swing of opinion in both the general public and in the contractor community that is literally changing the landscape of Chattanooga. However, even with such success, work remains to be done, especially at the local governmental level.

While the city has undertaken some projects related to the green building initiatives of Chattanooga's CAP, such work has been limited. Even with the Mayor's 2010 pledge to ensure all new city buildings are LEED certified, no mandatory requirements have been implemented.

Additionally, the City's Office of Sustainability is currently working to coordinate a very large scale energy efficiency retrofit

🏡 *Once GreenSpaces was able to demonstrate firsthand the economic advantages of green building practices in the local community, there was a swing of opinion in both the general public and in the contractor community that is literally changing the landscape of Chattanooga.* 🏡

timesfreepress.com/news/2011/mar/08/bluecross-energy-savings/.

480 Bill Poovy, Majestic 12 Movie Theater: Chattanooga's New Green Cinema, HUFFINGTON POST, Nov. 13, 2009, http://www.huffingtonpost.com/2009/11/13/majestic-12-movie-theater_n_356802.html.

481 Casey Phillips, Sustainability Building Initiative Co-Director Fights for a more Efficient Chattanooga, CHATTANOOGA TIMES FREE PRESS, Apr. 26, 2011, <http://www.timesfreepress.com/news/2011/apr/26/sustainable-building-initiative-co-director-fights/>. In an interview, Jeff Cannon cited changing attitudes among contractors and other building professionals as one of the GreenSpaces greatest achievements. He stated that in the beginning, many members of the building community as well as the general public were skeptical of the program, but by proving to these individuals the economic soundness of green building techniques the organization has been able to alter the views of many former skeptics.

482 GreenSpaces Honored by CSI, <http://www.greenspaceschattanooga.com/CustomContentRetrieve.aspx?ID=4108137> (last visited Sept. 7, 2011).

483 Chris Serine, better built contractor training, BETTERBLOG (July 18, 2011), <http://betterbuiltchattanooga.org/uncategorized/better-built-contractor-training/>.

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project, which will hopefully be launched in early 2012. They have analyzed energy bills and how they relate directly to their buildings in order to identify any energy/ cost savings. They are also about to install a green roof on the City Council building and will soon, thereafter, launch a program called “No roof left behind” that will engage public and private partners. They hope to transform a minimum of 100 roofs in Chattanooga.

Regarding municipal buildings, the Office of Sustainability has concentrated efforts on:

- Data collection and management: The Office has worked with the City finance department and local utilities to integrate all local government operations energy data in an online dashboard. They have contracted a service that collects electricity, gas and water usage across all local government operations on a monthly and/or quarterly basis (energy, streetlights, water, fleet, solid waste).
- Energy data review, the Office is conducting an evaluation and analysis study to gauge electricity energy intensity (EUI) for City buildings. This is the basis for an extensive energy retrofit and audit program.
- Sustainable Return on Investment analysis on highest priority buildings. This analysis quantifies cash and non-cash return on investment.
- Sustainable Building Policy for City buildings is currently under evaluation.
- City Council Green Roof – The Office is funding design and installation of a green roof on the City Council Building, which is in process now. This the kickoff to a larger “No Roof Left Behind” initiative aiming at minimum of 100 green roofs in Chattanooga’s Downtown CSO area.
- Coordination with Land Development Office and Southeast Energy Efficiency Alliance to implement 2012 building codes.

Other Initiatives

Chattanooga’s green building projects are only a small part of the city’s programs geared towards making the city more environmentally sustainable. For example, other CAP initiatives include plans to promote community awareness about individual energy consumption and the importance of recycling as well as promoting infrastructure modifications to reduce fossil fuel usage. As of September 2011, the Office has undertaken an initiative to make City streetlights more energy efficient and has future plans to develop a bike-share program and to design green roofs for municipal buildings.⁴⁸⁴

The City also plays a role in regulating local air quality. As a response to being named the most polluted city in America in 1969, Chattanooga formed the Air Pollution Control Board and Bureau, known today as the Chattanooga/Hamilton County Air Pollution Control Bureau.⁴⁸⁵ This organization enforces air quality regulations within the city, which include mandatory vehicle emissions inspections, diesel school bus retrofitting, and lower truck speeds on the interstate.⁴⁸⁶

With these initiatives Chattanooga continues to enhance its “green” reputation.

484 Heather Adcox of the Office of Sustainability listed such projects as examples of the Office’s work.

485 History, *supra* at note 3.

486 *Id.* It is of note that these restrictions were implemented as the result of an arrangement with the EPA when the City failed to satisfy certain air quality requirements

Germantown, Tennessee

GREEN BUILDING PROGRAM

By Brad Brizendine

Background

Germantown, Tennessee has a population of 38,344, and covers an area of almost 20 square miles.⁴⁸⁷ In October 2005, the City of Germantown adopted a new comprehensive plan called the Germantown Vision 2020 Plan.⁴⁸⁸ This long-term strategic planning document helps guide the sustainability efforts of the community. One of the primary goals of the Plan is the redevelopment of Germantown's urban center, known as the Heart of Germantown Redevelopment.⁴⁸⁹ In an effort to accomplish this goal, in 2007 Germantown enacted a "Smart Code" as an implementation of its Smart Growth Plan described in the City's comprehensive plan.⁴⁹⁰ This Smart Code includes a height bonus for LEED certified buildings in the heart of Germantown.⁴⁹¹ Also, the City waives permit review fees for buildings that achieve LEED certification.⁴⁹²

Program Inception and Development

The Smart Code was developed with the assistance of the Lawrence Group, a building design, development, and project delivery firm headquartered in St. Louis, Missouri.⁴⁹³ The Lawrence Group is dedicated to sustainable design, and has helped numerous other municipalities and companies achieve their design goals.⁴⁹⁴

Currently, over 300 citizen volunteers serve on 18 city-appointed boards and commissions.⁴⁹⁵ The commissions that are involved in managing the Smart Growth Program include the Planning Commission, the Environmental Commission, and



Germantown began to refocus their economic development efforts on the redevelopment of previously under-performing sites. The plan will be guided over the next 40 years by a form-based code and a public-private partnership program. Design credit - thelawrencegroup.com



Vision 2020 2012 Strategic Plan

City of Germantown
Excellence. Every Day.

The Germantown Vision 2020 Plan is a long-term strategic planning document that helps guide the sustainability efforts of the community.

487 U.S. Census Bureau State and County Quickfacts; <http://quickfacts.census.gov/qfd/states/47/4728960.html>.

488 Germantown Vision 2020 Plan, <http://www.germantown-tn.gov/index.aspx?page=819>

489 Germantown Vision 2020, <http://www.germantown-tn.gov/Modules/ShowDocument.aspx?documentid=2488>. See Goal 7.

490 Smart Growth, <http://www.germantown-tn.gov/index.aspx?page=82>

491 City of Germantown Smart Code; p. 30. Available at: <http://www.germantown-tn.gov/Modules/ShowDocument.aspx?documentid=38>.

492 Phone Conversation with Patrick Lawton, City Administrator, Germantown Tennessee.

493 Phone Conversation with Patrick Lawton, City Administrator, Germantown Tennessee.

494 Who is the Lawrence Group?, <http://www.thelawrencegroup.com/story.html>.

495 Phone Conversation with Patrick Lawton, City Administrator, Germantown Tennessee.

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the Design and Review Commission.⁴⁹⁶ There is also an Environmental Sustainability Cabinet, consisting of members from different City departments that establish and monitor specific performance metrics and ensures that the city is continuously striving to meet its “Triple Bottom Line” of economic, environmental, and social sustainability.⁴⁹⁷

Funding

The funding for the program simply comes from the city’s general fund. While they recognize that not every city has sustainability commissions and initiatives, they consider their efforts “just part of how they operate.”⁴⁹⁸ The costs for the regulatory height bonus are minimal, and the general fund provides sufficient revenue to cover the permit review fee rebates for the foreseeable future. The city did receive a grant from the Department of Energy in 2008 to replace traffic signals with LED lights.⁴⁹⁹

Results

The Vision 2020 Plan and the Smart Code have been well received within the community.⁵⁰⁰ Even developers are on board with the sustainability initiatives because the city waives review fees for newly constructed buildings that attain LEED certification.⁵⁰¹

In one month the City will open the first public fire station in the county to achieve LEED certification.⁵⁰² In addition, the town features a LEED certified private bank and a water treatment facility that was recently renovated to incorporate parts of the green code.⁵⁰³ However, the recession has stalled almost all development in recent years, so much of the benefits of the Smart Code have not been fully realized yet.

Other Initiatives

In addition to implementing the Smart Code as part of its sustainability movement, Germantown has instituted a Storm Water Fee, a sanitation program, and the city can boast because it has the highest recycling rate per capita in Tennessee.⁵⁰⁴ The city is also in the process of installing 10 electric



Public participation is key to visioning the community's future. Photo credit Livablememphis.org

“The Vision 2020 Plan and the Smart Code have been well received within the community. Even developers are on board with the sustainability initiatives because the city waives review fees for newly constructed buildings that attain LEED certification.”

“In addition to implementing the Smart Code as part of its sustainability movement, Germantown has instituted a Storm Water Fee, a sanitation program, and the city can boast because it has the highest recycling rate per capita in Tennessee.”

vehicle-charging stations and⁵⁰⁵ was chosen as a test site for the ECOtality movement.⁵⁰⁶ ECOtality is a leader in clean electric transportation and storage technologies that address the world’s global energy challenges. The company works toward changing community consumption behavior to one that is more environmentally friendly, socially responsible and commercially viable for today and future generations.

496 *Id.*

497 *Id.*

498 *Id.*

499 *Id.*

500 *Id.*

501 *Id.*

502 *Id.*

503 *Id.*

504 *Id.*

505 *Id.*

506 *Id.* Ecotality is a private company specializing in innovative clean electric transportation and storage technologies that address the world’s global energy challenges. See: <http://www.ecotality.com/index.php>.

Nashville, Tennessee

GREEN BUILDING PROGRAM

By Amble Johnson

Background

Nashville-Davidson County, Tennessee, borders the Cumberland River. Its 2010 population was 601,222. The median resident age in 2009 was 33.9 (two years younger than Tennessee as a whole), with estimated median household income of \$45,540 (almost \$4,000 higher than Tennessee as a whole). Nashville has 475.3 square miles of land area.⁵⁰⁷

Nashville's Mayor Karl Dean has set the goal of making Nashville "the greenest city in the Southeast".⁵⁰⁸ One way in which Nashville aims to achieve Mayor Dean's goal is through the implementation of Nashville's Downtown Code. While the pri-

Developments have incentives to provide benefits to the public in their construction, in that the Bonus Height Program (BHP) allows additional building height in Downtown if it meets one of two types of LEED certification, pervious surface, publicly-accessible open space, or underground parking benefits.

mary goal of the Downtown Code is generally the creation of "a unique, economically healthy, and vibrant, urban environment,"⁵⁰⁹ the Code also promotes environmental sustainability. For instance, the Code places a much stronger emphasis on landscape and site design than prior regulations. Also, the Code requires at least one tree be planted or maintained for every thirty feet of street frontage for a development, and it promotes open space and greenways in order to realize a vision of "accessible, enjoyable open spaces to help create vital and functioning neighborhoods within Downtown." Within each



The builder recycled 75% of the construction waste, diverting approximately 1,600 tons of debris from local construction landfills. Photo credit Terrazzo/BillLefevor.

quarter-mile radius neighborhood in Downtown, the Code aims to have a park or some other form of open space. Finally, developments have incentives to provide benefits to the public in their construction, in that the Bonus Height Program (BHP) allows additional building height in Downtown if it meets one of two types of LEED certification, pervious surface, publicly-accessible open space, or underground parking benefits.⁵¹⁰

507 U.S. Census Bureau State and County Quickfacts; <http://quickfacts.census.gov/qfd/states/47/4752006.html>.

508 <http://www.nashville.gov/sustainability/index.asp>

509 <http://www.nashville.gov/mpc/urban/dtc/index.asp>

510 <http://www.nashville.gov/mpc/docs/dtc/DowntownCode.pdf> (p 82 for tree requirements, 85-92 for open space, and 93 for bonus height)

Program Inception and Development

Nashville's Metropolitan Council approved the Downtown Code on February 2, 2010;⁵¹¹ it was amended on May 26, 2011.⁵¹² The Code regulates the physical form and layout of buildings to ensure that every development makes a positive contribution to the comprehensive urban environment plan. All Downtown developments are held to high standards that ensure the livability of Nashville and its offer of open space for citizens.

The Code includes incentives for green building measures. If an individual building achieves LEED certification or a development meets LEED for neighborhood development certification (LEED-ND), those buildings are eligible for a height bonus under the Downtown Code. Generally a higher bonus is allowed for projects achieving a higher level of certifications, but the actual height bonus varies among Nashville's urban districts.⁵¹³ To ensure that projects that receive the height bonus actually achieve the LEED certification claim in documents approved by the City, the Downtown Code provides for a noncompliance fee to be charged against the building for up to ten years or until certification is achieved.

Per Ordinance #BL2008-217, the City Council established a "Green Permit" for new residential and commercial buildings, issuing a green certificate of occupancy for LEED-certified commercial buildings and LEED or EarthCraft-certified homes.

Also, Mayor Dean's predecessor, Bill Purcell, amended Title 16 of the Metropolitan Code to require all public and publicly-funded building projects greater than 5,000 square feet in size to be designed and built to LEED Silver certification. Also, all new construction in Downtown Nashville is encouraged (but not required) to be LEED certified.⁵¹⁴

Funding

The Committee's report split its recommendations into "Quick Wins", "Short Term", and "Long Term", to ensure that the Nashville government would have economically and politically feasible steps to be able to take to help environmental sustain-



Appliances are Energy Star rated, bamboo flooring is from a renewable resource and low-emitting paints, coatings, sealants and adhesives in the cabinets, flooring and wall coatings provide healthier indoor air. Photo credit Terrazzo/BillLefevor.

🏡 All new construction in Downtown Nashville is encouraged (but not required) to be LEED certified. 🏡

ability. It also recommended the establishment of the Mayor's Office of Environment and Sustainability to optimally address ecological challenges.⁵¹⁵

In the Downtown Code, Nashville implemented environmental improvements through mandates (such as tree-planting for street footage) and incentives (such as the Bonus Height Program) that do not burden the government with heavy up-front costs.⁵¹⁶ The Mayor's Environmental Pledge and PowerWise, meanwhile, focus on outreach and education, so they also do not bear heavy costs. Therefore, staffing at the Mayor's Office of Environment and Sustainability, with a Director and an Energy Efficiency Program Director, is one of the few significant sources of cost of Nashville's sustainability initiatives.⁵¹⁷

What costs Nashville does face in funding environmental measures, moreover, is partially met by aggressively seeking grant funding. A program incentivizing residential retrofits to improve energy efficiency was funded with \$250,000 from the

511 <http://www.nashville.gov/sustainability/accomplishments/index.asp>

512 <http://www.nashville.gov/mpc/urban/dtc/index.asp>

513 <http://www.nashville.gov/mpc/docs/dtc/DowntownCode.pdf> (p.99).

514 <http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1852#TN>

515 http://www.nashville.gov/sustainability/docs/grc/GRC_Report_090701.pdf

516 <http://www.nashville.gov/mpc/docs/dtc/DowntownCode.pdf>

517 <http://www.nashville.gov/sustainability/about/index.asp>

Southeast Energy Efficiency Alliance.⁵¹⁸ Additional needs, such as a program for open space acquisition, are met with funds of the Metro Government budget.⁵¹⁹

Results

After a year and a half, the effects of the Downtown full impact on green building remain to be seen. The Terrazzo Nashville building presents one of the green building achievements in Nashville. It is a 14-story mixed-use development featuring 117 condominium homes above office, retail, and restaurant space. At this point, 96% of the condominium spaces are sold.⁵²⁰ Terrazzo is Nashville's only LEED-certified green condominium high-rise. It features extensive natural lighting, renewable bamboo flooring, Energy Star-rated appliances, low-flow water fixtures, secure bicycle storage, and preferred parking for low emission vehicles. In Terrazzo's construction, over 75% of waste was recycled, and Terrazzo homeowners use 35-40% less energy and 40% less water.⁵²¹

Nashville also received \$6.2 million from an Energy Efficiency and Conservation Block Grant from the Department of Energy, the majority of which will go to Metro building energy efficiency retrofits. These projects will generally have payback periods of less than 10 years. In addition, the city has completed green renovations to the government's Fulton Campus. Further, the government has focused funds from a Southeast Energy Efficiency Alliance grant on residential energy efficiency promotion, which the Committee thinks will help the goal of green job creation.

Other Initiatives

Nashville's Mayor Karl Dean signed Executive Order No. 033 creating Nashville's Green Ribbon Committee on June 19, 2008. This Committee is charged with writing recommenda-



The Apollo Middle School is the first public school to go solar in Nashville. Photo credit LightWave Solar.

“ The Terrazzo Nashville building presents one of the green building achievements in Nashville. ”

“ In Terrazzo's construction, over 75% of waste was recycled, and Terrazzo homeowners use 35-40% less energy and 40% less water. ”

tions to guide Nashville's environmental initiatives.⁵²² The Committee's report was presented to Mayor Dean on April 16, 2009.⁵²³ The report recited 16 goals and 71 recommendations addressing five topics: Greenhouse Gases, Education and Outreach, Energy and Building, Mobility, and Natural Resources.⁵²⁴

The first of the Committee's recommendations to be implemented

was the Office of Environment and Sustainability on April 1, 2010, naming attorney Chris Bowles the Director.⁵²⁵ The Office is guided by recommendations made by the Mayor's Green Ribbon Committee to protect the natural environment and promote environmental sustainability. The program has two staff positions, Director and Energy Efficiency Program Director. It works with the Cities of Service and Healthy Nashville programs, which are also mayoral initiatives.⁵²⁶

As part of the drive toward environmental sustainability, the government has articulated a five-point approach for citizens to reduce their ecological impact. It encompasses the areas of

518 <http://www.nashville.gov/sustainability/accomplishments/index.asp>

519 http://www.nashville.gov/finance/docs/omb/capital_budget/spending_plan_fy2011.pdf

520 <http://www.terrazzonashville.com/>

521 <http://terrazzonashville.net/news/>

522 http://www.nashville.gov/sustainability/docs/grc/executive_order_033.pdf

523 <http://www.nashville.gov/sustainability/grc/index.asp>

524 http://www.nashville.gov/sustainability/docs/grc/GRC_Report_090701.pdf

525 <http://www.nashville.gov/sustainability/docs/news/OfficeEnvironmentSustainability.pdf>

526 <http://www.nashville.gov/sustainability/about/index.asp>

energy, water, air, land, and waste. Each small step is broken into a simple action each citizen can take, the sum total of that individual's action over a certain amount of time, and the sum total if every citizen of Nashville took that action over time. For example, the one for water reads: "I PLEDGE to turn off the water when brushing my teeth. I CAN save 3.8 gallons of water a day. TOGETHER all Nashvillians can conserve enough water in a year to fill L.P. Field four times."⁵²⁷

On February 3, 2010, the Nashville Electric Service announced PowerWise to help users analyze and improve their home energy use. A free bill analyzer available through the Nashville Electric Service web site takes less than 10 minutes, and it offers such information as estimated usage, seasonal factors, and energy-saving recommendations. It also answers specific questions that users may have, such as the effects of long term investments in home efficiency improvements, easy ways to lower costs, and the causes of month-to-month cost changes.⁵²⁸

An Open Space Master Plan calls for the acquisition and preservation of 22,000 acres of undeveloped land in Nashville over the next 25 years for public benefit. In transportation, the Metropolitan Council Ordinance 734 allows vehicles registered as environmentally friendly to park for free at Downtown parking meters, and Mayor Dean has signed a formal letter of intent to host around 35 electric vehicle charging stations on Metro property for public use.⁵²⁹ These green building measures contribute to Nashville's sustainable initiatives.

I PLEDGE to turn off the water when brushing my teeth. I CAN save 3.8 gallons of water a day. TOGETHER all Nashvillians can conserve enough water in a year to fill L.P. Field four times.

An Open Space Master Plan calls for the acquisition and preservation of 22,000 acres of undeveloped land in Nashville over the next 25 years for public benefit.



Solar power supports this Sonic Drive-In in Nashville. Photo credit LightWave Solar.

527 <http://www.nashville.gov/sustainability/pledge/index.aspx>

528 <http://www.nashville.gov/sustainability/accomplishments/index.asp>

529 <http://www.nashville.gov/sustainability/accomplishments/index.asp>

APPENDIX: CHART OF BEST GREEN PRACTICES

It was only after securing data for this report that the excel template developed by the Atlanta Regional Commission (ARC) for its **“Summary of Green Communities Achievements”** was considered as an interesting vehicle for quickly comparing green building programs across a variety of southeastern communities. The original ARC chart was developed to compare the activities of Georgia communities being certified for the Green Communities program in 2009-10. The ARC template covered 48 best practices under categories for green building, energy and water efficiency, trees and greenspace preservation, and transportation.

The following “Chart of Best Green Practices” has been modified to compare the activities of 48 southeastern communities against 24 green practices. However, because this format was created after the research process had ended, nearly 16 communities listed on the chart have not had an opportunity to review or confirm their information which was largely secured through web searches. So while this chart provides a quick reference to green activities being implemented by southeastern communities, its complete accuracy cannot be guaranteed.

	Green Policy	LEED Building	Earth Craft, etc.	Incentives	Self-Funded	Energy Audits	Power Down	LED Lights	Energy Codes	Outdoor Lighting	Renewable Energy	Solar	Water Audits	High Energy Plumbing	Water Reuse	Water Conservation	WaterSense Program	Green Land Use	Greenspace Plans	Tree Preservation	Green Fleet Policy	No Idling Policy	Alternative Policy	Alternative Fuels	Green Purchase Policy	
Alpharetta, GA	●	●	●		●	●		●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Athens- Clarke County	●																									
Atlanta, GA	●	●	●		●	●								●	●			●	●	●						
Chamblee, GA	●		●	●		●		●				●	●	●	●			●	●	●	●				●	
Chatham County, GA	●	●		●		●											●	●	●	●			●			
Cobb County, GA	●		●	●		●						●	●	●	●		●	●	●	●	●	●	●	●	●	●
Cherokee County, GA	●	●	●	●	●	●			●		●	●	●		●	●	●	●	●	●	●	●	●	●	●	●
Conyers, GA	●		●																							
Coweta, GA	●		●	●																						
Decatur, GA	●	●	●	●		●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Dekalb, GA		●			●	●	●			●				●	●			●	●	●	●	●	●	●	●	●
Douglas County, GA			●	●		●	●	●			●	●	●	●	●	●		●	●	●	●	●	●	●	●	●
Dunwoody, GA	●		●	●		●	●	●	●		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●
Fairburn, GA	●		●	●		●					●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Fulton County, GA		●			●	●	●		●			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Gwinnett County, GA	●	●	●		●	●	●	●	●	●			●	●	●	●	●	●	●	●	●	●	●	●	●	●
Kennesaw, GA	●		●	●		●	●	●	●		●	●	●	●	●	●		●	●	●	●	●	●	●	●	●
Norcross, GA	●		●	●		●	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Roswell, GA	●		●			●	●	●		●				●	●	●	●	●	●	●	●	●	●	●	●	●
Suwanee, GA	●		●			●			●				●		●		●	●	●	●	●	●	●	●	●	●
Tybee Island, GA	●																									
Woodstock, GA	●		●	●		●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cutler Bay, FL	●	●	●	●	●				●	●	●												●	●		
Deland, FL	●	●		●	●				●				●	●			●				●					
Dunedin, FL	●	●	●	●	●	●		●	●					●	●	●	●		●							
Gainesville, FL	●	●	●	●	●	●			●									●								
Hillsborough County, FL				●		●	●	●													●				●	
Indian River County, FL																										
Jacksonville, FL	●	●		●	●				●	●																●
Martin County, FL	●	●		●	●			●						●	●											●
Miami-Dade County, FL	●	●		●	●			●	●																	
Orange County, FL	●			●																						
Orlando, FL	●	●			●		●	●	●	●	●			●	●		●	●	●	●	●	●	●	●	●	●
Sarasota County, FL	●	●	●	●				●																		●
St. Petersburg, FL	●	●		●	●			●	●					●	●					●						
Tallahassee, FL	●	●	●	●	●	●		●	●	●				●	●		●	●	●	●	●	●	●	●	●	●
Tampa, FL	●	●	●	●	●	●							●		●						●					
Volusia County, FL	●		●	●	●				●																	
West Melbourne, FL	●	●		●	●																					
Asheville, NC	●	●		●	●		●	●	●	●							●							●		
Catawba County, NC		●		●						●														●	●	
Mecklenburg County, NC		●	●	●	●												●	●		●	●				●	●
Columbia, SC		●	●	●																						
No. Charleston - Oak Terrace Preserve	●		●		●								●		●		●	●	●						●	
Chattanooga, TN - Green Spaces		●	●	●													●	●								
Franklin, TN	●	●						●																		
Germantown community, TN	●			●																						
Nashville, TN	●	●	●	●	●	●	●	●	●	●	●	●	●					●	●					●		

APPENDIX OF SELECTED RESEARCH ON COMMUNITY GREEN BUILDING PRACTICES

FLORIDA COMMUNITIES

Florida House Bill 697 (2008)

The Florida Legislature enacted HB 697 in the 2008 session. House Bill 697 established new local planning requirements relating to energy efficient land use patterns, transportation strategies to address greenhouse gas reductions, energy conservation, and energy efficient housing. There is already a substantial body of literature addressing the connection among land use, transportation, energy, and the reduction of greenhouse gas emissions. As discussed in this literature, transportation is a major source of greenhouse gas emissions. In Florida, over 40% of greenhouse gas emissions are produced by the transportation sector. Of these emissions, over 80% come from vehicular travel. Therefore, in order to reduce greenhouse emissions from the transportation sector, we must reduce vehicle miles traveled. In review of current literature, we suggest that reduction of vehicle miles traveled will require new or enhanced transportation and land use planning strategies, including planning for alternative modes of travel, more compact mixed-use development, greater jobs-housing balance, and higher densities in appropriate places.

FGBC Green Local Government Certifications

The Florida Green Building Coalition's Green Local Government Designation program recognizes cities and counties for achievements in outstanding environmental stewardship. To earn certification, a municipality must employ a comprehensive list of criteria and meet a minimum level of points, organized in terms of department functions, which are outlined in the FGBC Green Local Government Standard. The Standard focuses on improving environmental performance through a number of mediums: energy, water, air, land, and waste; and evaluates environmental practices done in-house, incentives and ordinances that foster green practices, and educational activities for the community to improve the environment. The following communities have received certification.

Aventura	Certification Level: Silver	Certified: 11/2/2010
Charlotte County	Certification Level: Silver	Certified: 5/24/11
Clearwater	Certification Level: Silver	Certified: 11/5/2009

The City of Clearwater has earned the silver-level FGBC Green Local Government Designation by demonstrating environmentally friendly practices and implementing green policies. Clearwater has developed their environmental goals and taken inventory of their greenhouse gasses. A large portion of their fleet is comprised of alternatively-fueled vehicles, including the police department that utilizes bicycles and electric vehicles for pier and neighborhood patrols. Bicycle and pedestrian traffic is encouraged in the community and continues to guide transportation planning, recreation facilities, conservation, education and economic development. Regular efforts are made to enhance the connectivity of the network. The City of Clearwater demonstrates coastal management practices through its participation in the Florida Department of Environmental Protection's Clean Marina program and the Blue Wave Campaign.

Clearwater has also brought trash to treasure by converting closed landfills into community parks. All major areas of their parks also provide recycling stations to reduce the amount of material entering the waste stream.

Cutler Bay

Certification Level: Silver

Certified: 11/19/2009

The Town of Cutler Bay was the first local government to be certified in Miami-Dade County. Cutler Bay achieved the designation by offering green building incentives to encourage environmentally friendly building practices within the town, and by utilizing hybrid and fuel efficient vehicles. It also incorporated timers and energy efficient lighting on the city's sports fields and offers online bill pay for their water utility. Cutler Bay continues to pursue and achieve green goals outlined in their environmental strategic plan. In 2009, Cutler Bay adopted and implemented the green cleaning and maintenance procedures recommended by the Florida Department of Environmental Protection (FL DEP), and also adopted and implemented an Environmentally Preferable Purchasing program that encourages the purchase and use of environmentally friendly products.

The Town of Cutler Bay was recently successful in its efforts to gain legislative authority to create a district to provide a Financing Initiative for Renewable and Solar Technology (FIRST). Essentially, the bill would allow citizens in certain areas to voluntarily opt-in to a program in which the district loans the money to pay the initial cost associated with the installation of an alternative energy-producing device, and then subsequently the property owner would repay the cost over time. Their Property Assessed Clean Energy (PACE) program now enables property owners to borrow money to buy solar panels, wind generators, insulation or shutters for their homes.

Bonds are issued by the special district and backed by property tax liens on the residences of owners who are awarded Property Assessed Clean Energy (PACE) loans from the bond pool. The property owner repays the loan over a 10, 15 or 20-year period through an increase on their annual property taxes approximately equal to one-twentieth of the loan plus interest. For many homeowners, the annual energy cost savings they will realize from the retrofitting will exceed the cost of the annual repayment costs.

<http://www.cutlerbay-fl.gov/going-green/index.html>

Town of Davie

Certification Level: Silver

Certified: 6/29/11

The Town of Davie encourages constructing, and operating facilities to minimize environmental impacts by incorporating the use of resources and energy efficient materials, renewable resources, alternative energy sources, water conservation, waste reduction, pollution prevention and other strategic actions to promote sustainability and green building design. (Resolution-2007-182)

The Town is a member of several organizations dedicated to stewardship including:

- U.S. Green Building Council (USGBC)
- Florida Green Building Coalition (FGBC)
- Florida Local Environmental Resource Agencies (FLERA)
- National Wildlife Federation (NWF)
- ICLEI (International Council for Local Environmental Initiatives)
- Green Housing Initiative

http://www.davie-fl.gov/Pages/DavieFL_HousingCDv/GreenInitiative/index

http://www.davie-fl.gov/Gen/DavieFL_Green/S0169EFA-0177F578

DeLand Certification Level: Silver Certified: 5/3/2010

DeLand, located in Volusia County, has achieved the Florida Main Street Designation in its historic downtown, which is also lit with efficient LED lighting. DeLand has also earned Tree City USA honors, has officers trained in Crime Prevention through Environmental Design (CPTED), and encourages green building within the community. Building construction projects pursuing LEED certification are eligible for building permit fee reductions of .06 percent of valuation. LEED projects are also eligible for expedited permitting at no charge.

The city excels in vehicle maintenance and operations by implementing Green Fleet Management in its public works and emergency management vehicles. The City also encourages members of the community to conserve resources through their water and stormwater education campaign, offering low flow fixture rebates, and providing solid waste services with volume based rates. DeLand also created a reclaimed water infrastructure, a historic preservation ordinance, and offers mulched yard waste for community use.

<http://www.deland.org/Pages/Green>

<http://www.deland.org/Pages/Green>

http://www.deland.org/Pages/DeLandFL_Building/green

Dunedin Certification Level: Gold Certified: 12/19/2007; Upgrade: 10/6/2011

The City of Dunedin incorporated environmental protection into the city's comprehensive plan, became an Energy Star Partner, and through the local utility company, offers energy audits and workshops to the public. Dunedin monitors and tracks usage in city buildings to look for opportunities for conservation and increased efficiency in the areas of energy use, water use, solid waste reduction and recycling. The City converted 23 traffic signals to LED technology. Electrical savings are averaging \$23,000 per year with an estimated two-year payback period. It also constructed a 43,000 s.f. green-certified Community Center for education programs and recreational activities. It has initiated the Sustainability Seminar Series to teach residents conservation techniques with the goal of encouraging changes in behavior. Seminar topics include energy conservation, recycling, composting, saving water and more. There is a follow-up process for each seminar to determine what, if any, barriers exist to changing behavior and how effective the seminars are in fostering that change. Dunedin also teaches environmental preferable purchasing, waste reduction techniques and recycling workshops to local businesses, and provides bicycle racks at all public amenities. The city expanded its curbside collection of large appliances to include electronics. Dunedin has collected and recycled more than 50,000 pounds of e-waste through this program. Dunedin also developed and enacted policies and ordinances to accomplish some environmental objectives. These include:

- Historic preservation ordinance
- Tree preservation ordinance
- Landscape ordinance
- Watering restrictions & conservation water rates
- Maximum utilization of reclaimed water to offset potable usage for irrigation
- Septic system replacement ordinance
- Mitigation for the consumption of natural resources
- Purchasing Energy Star electronic equipment for in-house use

Upgrade achievements include:

- Enacted green landscaping ordinance for newly constructed government buildings
- Received Florida-Friendly Landscape certification for city parks
- Enacted green building incentives that include fast-track permitting, density bonuses, and 25% reduced parking requirement.
- Offers permit fee rebates to builders who certify their projects under the Florida Green Building or LEED standards.
- Partnered with Habitat for Humanity to construct green certified townhomes for low-income families.
- Offers an annual workshop to educate the community about Dunedin's green building program
- Provides street signage and recognition on the City's website for green building projects.
- Requires mitigation for consumption of natural habitat or resources
- Converted to digital photo storage to minimize photo processing waste
- Installed recycling stations at all city-owned recreational areas

Flagler County

Certification Level: Silver

Certified: 6/21/2010

Flagler County has led the way for environmental stewardship for a number of years with its environmentally sensitive lands purchasing program, trails and thousands of acres of preserves. Through the strategies of the FGBC Green Local Government certification program it was able to realize the economic benefits of “going green.” By softening the water in a chiller that provides air conditioning to two government buildings, the County is able to reuse the water more often and save about three million gallons of water a year and \$20,000 a year in city utility fees. The chiller plant saves on air conditioning costs by serving two buildings. The County installed an Energy Recovery Ventilator system that uses exhaust air from the buildings to cool or heat fresh air coming into one of the buildings. The process lowers energy loss by as much as 70 percent. Rainwater harvested from rooftops becomes landscaping irrigation water, saving the use of expensive potable water. Rain fall and drainage from the buildings and parking lots is collected in a retention pond and the pond water is used to irrigate lawns and shrubbery. Along with these innovative practices, the County implemented simple habits to reduce costs as well, such as turning off lights in rooms not being used, installing flow restrictors on faucets, cutting back on the thermostat, and implementing recycling programs in their buildings. Recycling programs were also implemented for county residents.

Indian River County

Certification Level: Gold

Certified: 3/5/2009

Indian River County (IRC) has adopted green building standards as the official minimum criteria for new government buildings, plus they have implemented green cleaning and maintenance practices. IRC also encourages Environmentally Preferable Purchasing programs, conducts a green building awards program and maintains an electronic database of all building energy code compliance. Indian River County developed an eco-tourism campaign, maintains a green fleet, and assists with greening affordable housing. <http://www.ircgov.com/green/Index.htm>

Jacksonville

Certification Level: Gold

Certified: 5/20/10

The City of Jacksonville is the 20th Certified FGBC Green Local Government, achieving Gold-level certification. Jacksonville implemented an environmentally preferable purchasing program (EPP) and adopted a green cleaning ordinance for local government buildings. The City

also participates in the Florida Clean Marina program, assisted in the creation of organic community gardens, engages in carpool assistance, and provides mitigation audits to homes, businesses and local government buildings to help minimize the impacts of a disaster. The City of Jacksonville utilizes landfill gas as an energy resource, operates energy-efficient LED traffic lights, and trains their police officers in Crime Prevention through Environmental Design (CPTED). Jacksonville provides green building education and incentives, offers green power choices through JEA and provides distributed generation incentives to encourage the adoption of alternative energy technologies.

In November, 2008, Mayor John Peyton signed Executive Order 2008-03, establishing a Sustainability Policy for the City of Jacksonville. As part of this Executive Order, all new municipal building construction and major renovation were required to achieve the appropriate LEED certification. The Executive Order also required all existing and future municipal buildings to be maintained and operated according to the LEED for Existing Buildings checklist. On April 22, 2009, the Jacksonville City Council adopted Ordinance 2009-211, creating the Jacksonville Sustainable Building Program. The program offers numerous incentives to new residential and commercial buildings that achieve LEED certification including expedited permitting, density bonuses, and grants of up to \$1,000 to cover to costs of certifying the project.

<http://www.coj.net/Departments/Environmental-and-Compliance/Office-of-Sustainability-Initiatives.aspx>

Maitland	Certification Level: Silver	Certified: 9/3/2010
Manatee County	Certification Level: Silver	Certified: 4/19/11

Green Achievements included:

- Developed an environmentally preferable purchasing program (EPP)
- Provide incentives for local businesses who utilize EPP or other solid waste reduction strategy
- Implement the use of alternative fuel in school busses and other vehicles
- Maintain staff or group to coordinate current and future green activities
- Enact green landscaping ordinance for local government buildings
- Enact and enforce a tree preservation or land-clearing ordinance
- Apply Florida Friendly landscaping principles at public amenities
- Enact a rain sensor ordinance applicable to all functioning automatic irrigation systems
- Enact a landscaping ordinance for new construction
- Offer free or discounted green products to the public, including rebates for low-flow toilets
- Offer green building or green local government education to the community
- Develop a historic preservation ordinance
- Firing ranges utilize non-lead bullets or trap and collect fragments
- Maintain a Recycling program and recycle of end-of-life electronic equipment
- Enact policy so all electronic equipment purchased has conservation features
- Develop environmental education content for county website, television programs, etc.
- Create an endangered lands conservation / purchasing program
- Take part in Florida Clean Marina program
- Enact manatee protection plan and coastal areas enact sea turtle ordinance
- Provide air and water quality information on county website

- Create a reclaimed water infrastructure
- Maintain organic community gardens
- Minimize chlorine in community swimming pools
- Implement energy efficient lighting & controls for outdoor courts, parks, and playfields
- Utilize integrated pest management
- Utilize solar or other energy efficient streetlights
- Monitor and track building energy usage in the school district
- Construct / renovate green schools
- Involve students in green projects within the school

Martin County

Certification Level: Gold

Certified: 9/10/10

As of September 10, 2010, when Martin County earned its FGBC Green Local Government certification, it had achieved the second highest score to date by accomplishing 46 percent of FGBC's recommended practices. Martin County has made a significant commitment to establishing policies, guidelines, goals, and strategic actions to promote sustainability and energy conservation throughout the County. It achieved the FGBC Green Local Government designation by employing green cleaning and maintenance practices within their facilities, adopting an Environmentally Preferred Purchasing (EPP) program, launching an eco-tourism campaign, encouraging mixed-use zoning and development, and implementing fast-track permitting for green buildings. The County participates in the clean marina program, recycles their end-of-life office equipment, and provides bicycle racks at all public amenities. County schools have initiated a recycling program and Martin County has enacted energy and water conservation policies to closely monitor and manage consumption with strategies to achieve short- and long-term goals. It was awarded the Florida Dept of Environment Protection (FL DEP) plant operations excellence award in 2008 for their water treatment facility.

City of North Miami

Certification Level: Silver

Certified: 1/27/2011

The City of North Miami underwent an extensive evaluation of their operations and initiated the following sustainability measures:

- Participation in Cities for Climate Protection Campaign;
- Use of alternative fuel vehicles;
- Adopted green standards as official minimum criteria for new government buildings;
- Provides incentives for green certified commercial and institutional buildings;
- Provides incentives for green certified land development projects and green redevelopment; Provide incentives for construction of green affordable housing;
- Enacted green landscaping ordinance for local government buildings;
- Offered incentives to create organic farms, or sustainable/water efficient agriculture;
- Enacted ordinances to promote water conservation & offered rebates on low-flow water fixtures;
- Enacted ordinances to protect water quality through septic tank replacements;
- Provides incentives for alternative commuting by local government employees;
- Provides environmental education to community residents and local government employees; Maintains community organic gardens;
- Implemented community recycling stations;
- Implemented energy efficient lighting & controls for outdoor courts, parks, and playfields; and, Operates and maintains a green fleet maintenance program and Mandates green cleaning practices in green government buildings.

In 2009, the City of North Miami adopted Ordinance 1278 which added Section 29-415 to the municipal code creating a Sustainable Building Program. The Ordinance stipulates that all new construction or additions of city-owned buildings must achieve LEED Silver certification or higher. Substantial renovations to existing city-owned buildings must achieve LEED Certified or higher. Minor renovations to existing city-owned buildings must incorporate as many LEED green building principles as is feasible from a practical and fiscal perspective. For the residential sector, all Community Redevelopment Agency-owned or funded projects are required to attain certification at LEED Silver level or higher. Existing Community Redevelopment Agency (CRA) structures undergoing major renovations must be LEED Certified. Minor CRA renovations are to pursue as many LEED credits as is feasible. New construction, additions or substantial improvements of commercial developments are required to be LEED Certified while minor commercial improvements are required to incorporate as many LEED green building strategies as is feasible.

Ordinance 1278 also added Section 29-304 to the municipal code creating residential density bonuses for projects certified at each level of the LEED rating system. An individual may be granted a density bonus up to 25 dwelling units per acre for green building certification coupled with transit oriented development. Projects pursuing LEED certification may also receive expedited permitting, reduced permit fees, final project recognition by the city and be featured on the greennorthmiami website.

Orange County Certification Level: Gold Certified: 2/15/2008

Orange County was the first “county” to reach gold-level certification under the FGBC Green Local Government Designation. It installed one of the largest solar photovoltaic (PV) array in the southeast on the roof of the Orange County Convention Center, which will allow for a substantial energy savings, and will become a model for clean energy in the community and the nation. It offers green products to the public such as cotton bags for shopping and tire pressure gauge to reduce waste and improve fuel efficiency, plus it added hybrid and alternative-fuel vehicles to its fleet. Best management practices are conducted to prevent stormwater pollution and recycling waste. It hosts an awards program that recognizes green building projects and it installed a GIS system with sustainability indicators that assist in community and environmental planning.

On March 4, 2008, Orange County established the Orange to Green Development Program, offering “Green Carpet Service” (personal assistance with the permit application process), expedited permitting and development review, and community recognition to construction and renovation projects incorporating green building techniques. On March 20, 2007, Orange County adopted Ordinance 2007-01 encouraging individual retail and commercial establishments greater than 75,000 sq. ft. to incorporate sustainable building practices including LEED and Energy Star standards. (Chapter 38, Article IV, Section 153 of the county code)

Orlando Certification Level: Gold Certified 11/9/2009

The City of Orlando is currently tied with the cities of Plantation and Tallahassee for the highest score for a city. GreenWorks, an environmental action agenda for Orlando, focuses on action plans to:

- Conserve natural resources and protect the environment
- Invest in green buildings, vehicles and materials

- Foster alternative transportation options
- Increase the amount of trees and green spaces in the City
- Provide residents the tools and information they need to become more environmentally responsible
- Work together as a community to combat the urgent threat of global climate change

The LYNX Transportation system utilizes biodiesel and the city encourages EnergyStar, green building and the Florida Friendly Landscaping Program in the community. The City of Orlando built the first LEED certified fire station in the state of Florida and has realized significant savings by installing LED traffic lights. Orlando further demonstrates environmental leadership by offering a green business workshop program to teach waste reduction strategies and encourage environmentally friendly purchasing for businesses. Specific green building measures include the following actions.

- 1) Green Government Buildings - The City constructs municipal buildings to LEED standards,
- 2) Green Affordable Housing - The City's Housing Department is committed to meeting LEED standards for its construction projects, including the first LEED Platinum affordable home in Florida
- 3) Green Neighborhoods Program and POWER Program, both in partnership with the Orlando Utilities Commission (OUC), performed nearly 825+ retrofits in 2010/11. Green Neighborhoods will target six high energy consumption neighborhoods to perform up to \$1,000 per home. The POWER Program will perform substantial and extensive retrofits to another 75 homes that have been identified for above average energy consumption.
- 4) Central Florida Energy Efficiency Alliance – The City started CFEEA with Orange County, local utilities and building associations. The program is encouraging 2,000 buildings to use Energy Star Portfolio Manager and reduce energy consumption 10%.
- 5) Solar Orlando - The City was awarded the Department of Energy Solar America Cities grant with its partners Orange County and OUC. The team has a goal of 15 MW of installation by 2015. By 2011, the area will possess 11 MW.
- 6) EECBG and GE EcoTreasure Hunt grants – In 2009/10, the City was awarded \$2.9 million in energy grants. Funds will be used to reduce energy consumption both in the community and government operations.
- 7) The City's Parks and Public Works Departments have converted landscaping and altered irrigation patterns – resulting in an estimated \$500,000 in savings per year
<http://www.cityoforlando.net/elected/greenworks/gov/pillars.htm>
<http://www.cityoforlando.net/elected/greenworks/gov/nrgefficiency.htm>
- 8) Sustainable Materials Facility - By 2014, Orlando will possess what is potentially the most innovative wastewater plant in the world. Orlando intends to showcase economically-viable and environmentally-friendly methods to process waste – both to reduce its footprint and cost, and to demonstrate these technologies to other municipal leaders.
- 9) In 2010, Orlando reached 90% reuse of its waste water, most likely the highest rate in the U.S.
<http://www.cityoforlando.net/elected/greenworks/gov/conservation.htm>
- 10) Outreach and Advocacy: http://www.cityoforlando.net/elected/greenworks/gov/advoc_edu.htm

Ormond Beach Certification Level: Silver Certified: 11/23/2010

Ormond Beach monitors and tracks its energy and water use, participates in the Cities for Climate Protection campaign, and dedicated a staff person to coordinate green activities. In other planning measures, the city purchased alternative fuel vehicles, adopted green cleaning and maintenance practices, established a recycling program for electronic equipment, and developed a funding mechanism for historic preservation. Green building education is provided to the community through both printed materials and website content. To protect its natural resources, Ormond Beach enacted a sea turtle ordinance, manatee protection plan, and boat facility siting plan. Energy conservation was addressed by the installation of LED traffic lights and solar or other energy efficient street lights. Waste reduction is addressed through recycling programs and the operations of a reuse/swap store.

Palm Bay Certification Level: Silver Certified: 7/1/2009

Palm Bay adopted green cleaning and maintenance practices available from the Florida Department of Environmental Protection, operates an alternative fueling station for its fleet, and developed a reward program for employees that demonstrate environmental innovation within the Public Works Department. The City encourages water conservation by utilizing block rate structures for its utility customers, and by sponsoring a showerhead exchange program. Green activities also exist within emergency services, the police force is trained in 'Crime Prevention Through Environmental Design' and the city provides disaster mitigation incentives.

Palm Coast Certification Level: Gold Certified: 2/20/2009;
Upgrade 3/23/10

The City of Palm Coast encourages water conservation by requiring developments to include native, drought-tolerant vegetation (at least 50%) in landscape plans. It minimizes the amount of chlorine in their community swimming pools, and coordinates the City's intricate bicycle/pedestrian network into the transportation planning process. Palm Coast uses their recycling revenue to directly fund special recycling programs, green education and publicity including Christmas Tree recycling events, sustainability workshops and the city's Arbor Day celebration. Palm Coast received the Plant Operations Excellence Award from the Florida Dept of Environmental Protection for water resource management.

Pinellas County Certification Level: Silver Certified: 10/27/2006

Pinellas County offers a Green Building Program incentive for contractors building homes or businesses with certification from one of the following:

- LEED - U.S. Green Building Council
- NAHB - National Association of Home Builders
- FGBC - Florida Green Building Coalition

Incentives for the program include fast tracking of permits, marketing opportunities and inclusion in the Pinellas County Green Map.

The Pinellas Green Home demonstration is funded by a Department of Energy grant and will be built on the campus of the Florida Botanical Gardens next to Extension, located at the Parks and Conservation Resources facility. Construction will begin in late 2011 and will be designed to meet LEED (Leadership in Energy and Environmental Design) certification. It will showcase various techniques for green building and new technology that reduces environmental impacts and increases resource conservation.

Pinellas County Extension offers a variety of homeowner and contractor educational programs for green building, energy conservation, water conservation and other green practices.

http://www.pinellascounty.org/Plan/pdf_files/GreenPolicies.pdf

<http://pinellas.ifas.ufl.edu/sustainability/greenBuilding.shtml>

<http://www.pinellascounty.org/greenpinellas/>

Plantation

Certification Level: Gold

Certified: 6/26/2009

At the time of its certification, the City of Plantation was the smallest city to achieve FGBC Green Local Government certification. Sustainability efforts concentrated on their policies and daily activities, including recycling toner cartridges, reusing scrap paper for note pads, and donating end of life computer equipment to non-profit organizations. In addition, they utilize drought tolerant landscaping and have qualified as a Tree City USA community for 30 years. Community education efforts include hosting an annual “Green Day,” which provides information on living more sustainably to residents and businesses. Their “Operation Habitat” campaign helps schools, businesses and residents learn how to create backyard wildlife habitats. Plantation’s waste management department developed a cost structure by the bag, encouraging solid waste reduction and recycling. On request, Plantation provides a real-time water monitoring device for residents, which helps encourage water conservation and identifying leaks. The City also has a disaster mitigation program that identifies reuse and recycling opportunities for C&D debris, fallen trees, and other salvageable materials.

Sarasota County

Certification Level: Gold

Certified: 9/24/2008

Sarasota County is recognized as a leader in the greening of local governments and to date holds the highest certification score within the FGBC Green Local Government Certification program. The County has adopted the green cleaning and maintenance practices recommended by the Florida Department of Environmental Protection, and have adopted the FGBC and LEED green building standards as the official minimum criteria for future government buildings. They have also encouraged green building in the commercial and residential sector by offering incentives for buildings and developments that meet the FGBC, LEED and EnergyStar standards. Preservation has also been a top priority in the county, and they share, maintain and promote that beauty through eco-tourism. Their websites provide volumes of sustainability education, and their interactive Green Map constantly promotes green projects within the county and is a fun, easy way to find locally available green activities, organizations and facilities. The city has discontinued the green building rebate program.

<http://www.scgov.net/greenmap/>

<http://www.scgov.net/Sustainability/County.asp>

Green Map program:

<http://www.scgov.net/GreenMap/default.asp>

<http://www.scgov.net/GreenMap/Energy.asp>

Supports FL Green Lodging Program:

<http://www.scgov.net/SustainableCommunities/GreenLodging.asp>

South Daytona

Certification Level: Gold

Certified 8/7/2009

The City of South Daytona was the first city in Volusia County to achieve the FGBC Green Local Government Certification, demonstrating their commitment to sustainability through numerous local government policies and programs. They are dedicated to the conservation of

natural resources, operate a reuse center, protect environmentally sensitive lands, and have implemented green fleet management practices. The City is addressing water conservation by adopting Florida Friendly Landscape principles and installing automated faucets at city facilities.

City of St. Cloud

Certification Level: Silver

Certified: 8/16/2011

The designation demonstrates exemplary leadership by St. Cloud Mayor Rebecca Borders and other elected officials who provided the framework and support to move forward with the process that helps to better manage the cost of government. Green achievements included:

- Maintain an office, person, or group to coordinate current and future green activities
- New employee orientation includes the city's commitment to the environment
- Organize green building seminars and/or training for staff and elected officials
- Train and certify select staff as certified arborists
- Employ green cleaning and maintenance procedures
- Require recycling at all local government buildings
- Develop a disaster waste management plan
- Provide city-wide chemical/hazardous waste collection
- Create a reclaimed water infrastructure
- Use LED traffic lights
- Encourage mixed-use zoning / development
- Maintain or reduce net impervious surface area through zoning decisions
- Enact and enforce a tree preservation or land-clearing ordinance
- Enact a septic system replacement ordinance
- Enact a landscaping ordinance for new construction
- Enact open burning regulations
- Use of alternative fuel vehicles and/or bicycle patrol for urban/neighborhood areas
- Firing ranges utilize non-lead bullets or trap and collect fragments
- Police trained in crime prevention through environmental design (CPTED)
- Offer free or discounted green products to the public
- Recycle end-of-life electronic equipment
- Enact policy so all computer electronic equipment purchased has conservation features
- Mandatory recycling of typical recyclables and C&D debris for homes and businesses
- Mandatory recycling program for large volumes of C&D debris
- Offer waste assessments to businesses
- Offer educational materials to increase recycling program participation
- Enforce watering restrictions during meter reads
- Enact a rain sensor ordinance applicable to all functioning automatic irrigation systems
- Create an education campaign for water use reduction (xeriscaping, rainwater collection, etc.)
- Achieve Florida Main Street Designation
- Develop a historic preservation ordinance
- Become a Tree City USA
- Take part in Florida Clean Marina program
- Operate a website dedicated to St Cloud's green program and develop environmental education

- Provide public transportation route searching via the internet
- Offer mulched yard waste to community
- Involve students in green projects within the school
- Maintain organic community gardens

St. Lucie County Certification Level: Gold Certified: 4/26/2010

St. Lucie County implemented a county-wide Environmentally Preferable Purchasing Program (EPP), employs green cleaning policies and practices, and adopted a green buildings ordinance. It also requires recycling at local government buildings. The County understands the importance of water conservation and has undertaken a community stormwater education campaign, offers water audits to homes and businesses, is a partner in the groundwater guardian program, structures water rates based on consumption to promote conservation, maintains Florida friendly landscapes, and operates a Florida Yards & Neighborhoods outreach program. The fire department collects and reuses water during training exercises. The County encourages green business through the Green Collar task force program, takes part in community energy efficiency workshops, and assists low-income neighborhoods with an energy renovation program. St. Lucie County provides bicycle racks at all public amenities, and as an official local government policy has adopted the Healthy Street Design to encourage a more walkable, livable and enjoyable community. The school district maintains a recycling program, utilizes biodiesel in school busses, monitors and tracks building energy use, operates an equipment reuse program, and involves students and teachers in green projects in and outside of the schools. As reported in their FGBC Local Government Certification Report, ultimately sustainability is not about undertaking green actions, but rather, greening every action undertaken.

City of St. Pete Beach Certification Level: Silver Certified: 8/11/2011
St. Petersburg Certification Level: Silver Certified: 12/1/2006

On May 15, 2008, the City of St. Petersburg's former Mayor Rick Baker signed Executive Order 08-01, known as the Green City Initiative, requiring all new city-owned and occupied buildings to adhere to LEED standards for new construction. All redevelopment projects in St. Petersburg over 10,000 sq. ft. must follow the LEED guidelines for Existing Buildings.

On February 15, 2007, Ordinance 812-G (Section 12-3 of the city code) established incentives for residential and commercial construction projects incorporating green building techniques. Commercial developments which achieve LEED certification will receive a permit fee refund of \$1,000. For commercial developments on vacant land over one acre, buildings which follow LEED standards will receive a permit fee refund of \$2,500. The city mandated energy conservation at all public facilities and conversion to energy efficient lighting.

St. Petersburg maintains one of the nation's oldest and largest reclaimed water systems, stringent watering restrictions, and a graduated water rate structure to promote conservation. The community has also implemented very active street-scaping and tree cover policy.
<http://www.stpete.org/green/>

Tallahassee Certification Level: Gold Certified: 12/12/2007
Upgrade 1/5/09

The City of Tallahassee has continued to demonstrate leadership in "Greening Local Government". Originally certified at the silver level in December 2007, within a year the City had

pursued an upgrade and achieved the gold-level FGBC Green Local Government Certification, making it the first “city” to reach the gold-level accomplishment. Tallahassee regularly organizes green building training to educate its elected officials and staff, and it includes green principles in new employee orientation by providing information on energy saving features, recycling guidelines, and alternative commuting options and incentives. Tallahassee promotes and tracks eco-tourism, participates in a speaker’s bureau, and applies Florida Friendly Landscaping principles (FY&N) at its facilities. As a utility, the City of Tallahassee offers green power, renewable energy credits and distributed generation incentives. The City also encourages the proper disposal of hazardous waste by rewarding participants with utility rebates and energy-saving compact fluorescent lights (CFLs), and it operates alternative fueling stations. Additional information is available online for the following programs.

The city offers incentives for residential green building and Energy Star certification.
<http://talgov.com/eper/greenbuilding.cfm>

The Environmental Policy and Energy Resources (EPER) Department was developed in April 2008 by City Manager Anita Favors Thompson to bring additional focus to the City’s “green” efforts.
<http://talgov.com/eper/index.cfm>

The Tallahassee Go Green Initiative provides information and links to a wide variety of Tallahassee’s environmental and sustainability programs, including: solar power initiatives, schools on solar, tree protection, waste reduction, and water quality programs.
<http://talgov.com/eper/green.cfm>

The Tallahassee-Leon County Greenway Program seeks to protect natural resources and conservation features identified in the Comprehensive Plan.
<http://talgov.com/planning/environ/greenways.cfm>

Environmental Initiatives described in their 2010 Environmental Initiatives Annual Report
<http://www.talgov.com/eper/>

Tamarac Certification Level: Gold Certified: 5/19/2008;
Upgrade 5/4/2010

Originally certified on May 19, 2008 with 31 percent (Silver level), the City of Tamarac continues to demonstrate their commitment to sustainability by increasing environmental strategies and activities which have earned them the FGBC Gold-level designation on May 4, 2010. Tamarac’s commitment to outstanding environmental stewardship are evidenced by their Crime Prevention Through Environmental Design (CPTED) training; citizen education programs on water source, water quality and water conservation; and new bicycle racks at all public amenities in an effort to encourage biking over driving. Additionally, many of Tamarac’s medians, streetscapes and facilities have been certified as Florida Friendly Landscapes, and Tamarac is working on programs that will offer affordable green housing to all public employees.

Tampa Certification Level: Gold Certified: 1/22/2009

The City of Tampa was the second city to reach gold-level certification. As part of their efforts, the City offers incentives for green commercial and residential building as well as incentives for residential Energy Star certification. Their water conservation programs are widely recognized and include car wash and fountain standards, conservation through education, incentives, and rebates for low-flow fixtures. They also apply Florida Friendly Landscaping principles, utilize integrated pest management to reduce the use of pesticides, and have conducted a city-wide energy audit of their facilities in an effort to measure and identify goals to reduce energy consumption.

On June 26, 2008, the Tampa City Council adopted the City of Tampa Sustainability Ordinance, requiring that all new municipal buildings over 5,000 sq ft of air conditioned space to earn a minimum of LEED Silver certification and that the renovation of all municipal buildings follow LEED guidelines. The ordinance also offers developers of commercial and multi-family residential buildings a 20-80% rebate on building permit fees, depending on the level of LEED certification that the building earns. The ordinance further offers developers of single family homes a 50% rebate on building permit fees if the building meets the current Green Home Designation Standards of the Florida Green Building Coalition. Finally, the ordinance encourages developers of multi-family and single family homes constructed after October 10, 2008 through any of the City's affordable housing programs to follow the Florida Green Building Coalition's Green Home Standard.

http://www.tampagov.net/dept_green_tampa/information_resources/Green_Permit_Process.asp

Tampa Green Fast Track Review is available to anyone wishing to build an environmentally sustainable or "green" project. Once approved, plans are moved to the "front of the line" for review at the Construction Services Center. There are two options for Tampa Green Fast Track Review:

- **Option A** is available for any project, but required for commercial projects over 5,000 square feet which must be registered with a third party rating system.
- **Option B**, Tampa's Green Fast Track Checklist, is available for all residential projects and commercial projects under 5,000 square feet.

http://www.tampagov.net/dept_green_tampa/information_resources/Green_City.asp

Tarpon Springs Certification Level: Silver Certified: 10/8/2008

The City of Tarpon Springs was the first municipality application organized from an office of public safety. The Tarpon Springs Police Department utilizes lead-free (non-toxic) ammunition at its firing range. After each use, officers are tasked with cleaning the range and recycling both the bullet residue and spent casings. Simulator training systems employed further reduce the use of environmentally harmful components. The city adopted the green cleaning and maintenance procedures recommended by the Department of Environmental Protection in all of their government buildings, reducing the use of hazardous chemicals and improving indoor air quality. Tarpon Springs ordered an extensive energy audit to identify opportunities for energy conservation. They encourage their employees to carpool through a preferred parking program and encourage residents to bicycle by installing security racks at all public amenities. Their landscaping and tree protection ordinance was written to promote water conservation, energy conservation and to reduce heat island effect through shading and use of native plants, while preserving existing vegetation. In the event of a natural or other disaster, a debris management plan is in place that calls for a recycling strategy for salvageable materials. Yard waste is regularly collected, recycled as mulch and offered back to the community. Tarpon Springs was the recipient of the 2007 Florida Department of Environmental Protection Wastewater Plant Operations Excellence Award, and encourage their customers to conserve through education and the rate structure. The City utilizes closed landfill management practices.

Volusia County Certification Level: Silver Certified: 8/11/2010

On December 17, 2009 the Volusia County Council approved the county's first voluntary Green Building Program resolution. The resolution provides incentives for fast-tracked permits

and reduced fees to promote efficient new construction and remodeling of residential and commercial buildings. The program is funded by \$50,000 from a federal stimulus grant which sunsets in 2012 or when the \$50,000 is expended, unless reauthorized by the Council. Projects pursuing green building certification from the Florida Green Building Coalition, USGBC, National Association of Home Builders or Green Building Initiative will receive expedited permitting, public exposure as a “green” builder, and a 50% application fee rebate. Residential projects are eligible for a rebate up to \$300, commercial developments are eligible for a rebate up to \$1,000, and land development projects may receive a refund up to \$2,500.

<http://www.volusia.org/green/GreenBuildingBrochure.pdf>

Volusia County also installed LED traffic lights, utilizes green cleaning practices, created a re-claimed water infrastructure, and provides recycling (including fishing line) at their beaches. It provides a public transportation network with connectivity to a bicycle and pedestrian-friendly circulation system. Community residents can search online for route information plus, find information on carpool and vanpool assistance. The County also operates a public reuse store, encourages green building and development, utilizes green fleet management, and encourages employee environmental innovation to save fuel, electricity and other resources through a “Go Green, Win Green” reward program. Economic Development, tourism, and an enhanced quality of life environment are promoted through the ECHO tourism campaign, which provides hiking, biking and blue trails, as well as heritage and cultural value within the county.

www.floridagreenbuilding.org/files/1/File/certified_projects/VolusiaPR2010.pdf

City of Winter Park Certification Level: Gold Certified: 8/25/2011

In 2008, Winter Park adopted a resolution to pursue Green Local Government certification. A Sustainability Program was then developed as a means of coordinating the city’s green efforts. New projects and policies implemented to increase sustainability include: requiring all public buildings be constructed to green standards; retrofitting existing buildings with federal stimulus dollars to reduce energy and water usage and greenhouse gas emissions; passing a Complete Streets resolution to design future street projects that accommodate various modes of transportation including pedestrians and bicyclists; installing LED street lights; adopting an Environmentally Preferable Purchasing policy; preserving green spaces; and promoting community gardening and local food programs.

ADDITIONAL FLORIDA COMMUNITIES WITH GREEN BUILDING PROGRAMS

Hillsborough County

On May 14, 2007, the Hillsborough County Manager approved the Residential Green Homes Policy, offering expedited permitting to home builders with a completed scorecard from either the LEED for Homes program or the Florida Green Home Standard Checklist. Scorecards must be supplied by a LEED for Homes provider or a qualified, third party green home certifier.

On October 9, 2007, the Hillsborough County Board of Commissioners updated its Development Review Procedures Manual, allowing for expediting plan reviews for projects with a completed scorecard from either the U.S. Green Building Council or the Florida Green Building Coalition as of January 1, 2008.

Jupiter

On January 5, 2010, the Jupiter Town Council adopted Ordinance 41-09 creating a green building incentive program for planned unit developments seeking LEED Silver or Florida Green Building Coalition certification or higher. Projects exceeding the minimum standards for certification and incorporating specified green building strategies—energy efficient design, use of renewable energy sources, drought tolerant plantings, reduced interior potable water usage, enhanced onsite treatment of stormwater, and improved indoor environmental quality—may be awarded waivers for certain zoning requirements. Green building program applicants are required to meet with Planning and Zoning staff at least 30 days prior to applying for a permit, submit a LEED or FGBC checklist, and a list of all waivers sought. Projects must also submit an irrevocable letter of credit equal to at least 5% of the total estimated construction costs. The letter of credit will be refunded within 60 days after a project has received certification or will otherwise be forfeited to the Town.

Miami-Dade County

Green buildings use environmentally-superior building materials, employ mechanical systems and technology that are energy-efficient and conserve water, are designed to reuse stormwater on site, and avoid impacts on local natural habitat. Green buildings also take their surroundings into account by locating near transit. Green buildings also rely more on natural daylight for illumination and using less toxic building materials than traditional buildings.

On October 18, 2005, the Board of County Commissioners approved Resolution #R-1200-05, which established the incorporation of sustainable development building measures into the design, construction, renovation and maintenance of County-owned, County-financed and County-operated buildings. Ordinance 07-65, which was approved by the Board on May 8, 2007, amended the Code of Miami-Dade County to establish a Sustainable Buildings Program for Miami-Dade County facilities. In this legislation, the County established a program to promote the green design, construction and operation of buildings that are developed, constructed and managed by the County.

The primary mechanism for determining compliance with the program is the United States Green Building Council's Leadership in Energy and Environmental Design (LEED) Green Building Rating System. The Sustainable Buildings Program requires new construction projects to obtain LEED silver certification and remodeling/renovation projects to obtain basic LEED certification. Currently, Miami-Dade County has 32 green building projects in planning, design or under construction, including the Marlins Ballpark and the Children's Courthouse. And recently, the General Services Administration (GSA) Trade Shop became the first silver LEED-certified County facility.

Further improvements to the way the County builds will be made through the Energy Efficiency and Conservation Block Grant Program (EECBG). The Sustainable Capital Improvement Procedures & Guidelines project includes the creation of procedures, guidelines and an accompanying training program for capital departments. The project will ensure the County's capital improvement process maximizes energy conservation and the use of renewable energy for new construction, major/minor renovation and, where applicable, miscellaneous capital improvement services that involve energy-consuming commodities.

Green Permits & Product Approvals

On a community-wide level, the Building and Neighborhood Compliance Department developed an expedited review process for commercial, industrial and residential “green” building-certified projects. In addition, the Building Code Compliance Office (BCCO) offers additional information on green building, also known as sustainable building. BCCO also offers the Green Sustainable Attributes (GSA) program designed to provide a vehicle to verify and confirm the Green Attributes for products and or systems which have a Miami-Dade County Notice of Acceptance (NOA). <http://green.miamidade.gov/buildgreen.htm>

St. Pete Beach

On June 3, 2008, the City Council adopted Ordinance 2008-12 requiring all new development and redevelopment projects in the Community Redevelopment District to obtain certification from at least two of eight listed standards—the Florida Green Building Coalition certification for multiple buildings, LEED for New Construction, FGBC High-Rise Residential Standard, FGBC Residential Standard, LEED for hotels and lodging, LEED for Existing Buildings, LEED for Commercial Interiors, and the Florida Department of Environmental Protection for temporary lodging.

Wellington

Developments in the Village of Wellington pursuing LEED Silver certification or higher are eligible for expedited permitting. (Section 5.1.15 of village code)

West Melbourne

In December 2008, West Melbourne adopted Ordinance 2009-17 granting buildings in the town center pursuing LEED, Green Globes or Florida Green Building Coalition certification a height bonus up to 25 feet. (Section 99-10 of city code)

GEORGIA COMMUNITIES

Atlanta Regional Commission Certified Green Communities

<http://www.atlantaregional.com/environment/green-communities/certified-green-communities>

Alpharetta

Gold - Certified

December 2010

The city's sustainability initiatives are implemented through the Alpharetta Green City Program, established by the city council. LEED or EnergyStar certification for all new local government buildings, a green fleet policy, and "green" purchasing policies are among the policies Alpharetta has adopted. Using its own inspectors, the city has completed water and energy on more than half of the city's buildings. The remaining audits will be completed by 2014. Rock Mill Park demonstrates stormwater best management practices and displays environmental education materials throughout the park. The park includes enhanced swales, marsh areas, rain gardens and a green roof pavilion. The city has a number of demonstration projects throughout the city including a green roof at Rock Mill Park, a solar panel array at Wills Park, a cool roof at City Hall and rainwater capture and reuse at Webb Bridge Park and other buildings. Other measures include community incentives for green building and WaterSense homes, a commercial recycling requirement, installation of LED bulbs in all traffic signals and a no-idling policy for government vehicles.

Description of Alpharetta's sustainability measures (pdf):

http://www.atlantaregional.com/File%20Library/Environment/Green%20Communities/GC_Alpharetta_2010.pdf

Presentation on Alpharetta's sustainability measures (pdf):

http://www.atlantaregional.com/File%20Library/Environment/Green%20Communities/Alpharetta_Certified-Green-Community-Presentation_Dec1-2010.pdf

Atlanta

Bronze -Certified

December 2009

The city passed Ordinance #03-0-1693 in December 2003 requiring that all new city-owned buildings greater than 5,000 square feet or costing \$2 million must be LEED certified. Green buildings are encouraged in affordable housing initiatives through the Home Investment Partnership Program and the Neighborhood Stabilization Program. Seven city buildings are under energy performance contracts, resulting in more than 6.6 million kWh saved and over \$2 million in energy savings and O&M cost avoidance in 2008. The remaining buildings will have energy audits completed or performance controls within the next two years. The city's telework policy, discounted MARTA cards and participation in ARC's RideSmart program and the Clean Air Campaign encourage city employees to reduce single-occupancy vehicle trips. The Connect Atlanta Plan includes bicycle and pedestrian-friendly policies encourages the construction of sidewalks and a system of bicycle routes. Curbside recycling and yard debris collection are available to residents of single-family homes. The Power to Change Campaign focuses on individual actions such as water and energy conservation, reducing solid waste and emissions and improving the rates of recycling. The Greenhouse Gas Emissions Inventory and Report identifies and measures city emissions by source and type as well as recommends approaches for reduction.

Description of Atlanta's sustainability measures (pdf):

http://www.atlantaregional.com/File%20Library/Environment/Green%20Communities/ep_atlanta_sustainability_measures.pdf

Presentation on Atlanta's sustainability measures (pdf):

http://www.atlantaregional.com/File%20Library/Environment/Green%20Communities/ep_atlanta_sustainability_measures_presentation.pdf

Cherokee County

Bronze - Certified

December 2010

Cherokee County's updated Procurement Ordinance incorporates many sustainable policies, including LEED certification for county-owned buildings, the purchase of Energy Star rated appliances and equipment, the use of LED bulbs in traffic signals and the installation of Water-Sense certified plumbing fixtures. Cherokee has committed to preserve 20 percent of county land as permanent greenspace through the Greenspace Protection Program. Residents can recycle electronics and cell phones at semi-annual drop-off events and fluorescent light bulbs and batteries through the "Lamptracker" Program. More than 70 percent of county facilities have received energy and water audits, resulting in HVAC and lighting upgrades, installation of cool roofs, discontinuation of irrigation and replacement of inefficient plumbing fixtures. Expedited permitting reviews and reduced permitting fees are offered to encourage builders to use solar energy in new projects or achieve LEED, EnergyStar, or EarthCraft certification. Three synchronized traffic corridors, with a fourth due 2011, ease congestion and reduce idling times. An old office and warehouse facility has been renovated for use by county office and Cherokee Area Transportation System (CATS), and the county offers a comprehensive recycling program at government facilities for traditional and nontraditional recyclable materials. The Bells Ferry LCI plan promotes many smart growth measures, such as mixed-used development, bicycle and pedestrian friendly designs, mixed-income housing and diversity of housing types.

Description of Cherokee's sustainability measures (pdf):

http://www.atlantaregional.com/File%20Library/Environment/Green%20Communities/GC_Cherokee_2010.pdf

Presentation on Cherokee's sustainability measures (pdf):

http://www.atlantaregional.com/File%20Library/Environment/Green%20Communities/Cherokee_Certified-Green-Community-Presentation_Dec1-2010.pdf

Cobb County

Silver - Certified

July 2009

Cobb County is an ARC Certified Silver Green Community as of July 2009. Cobb County adopted a Sustainable Practices Policy that incorporates a variety of sustainability measures such as LEED or EnergyStar certification for all new local government buildings, a green fleet policy and the use of organic and drought-tolerant landscaping practices. The county adopted a comprehensive environmental purchasing policy that gives preference to environmentally friendly products and services and considers life-cycle costs when the county makes purchases. The county also remediated a brownfield site at an old Kroger shopping center and located the West Park Government Center at the site. Other notable measures implemented by Cobb County are the replacement of older plumbing fixtures with high-efficiency plumbing fixtures in all county buildings, alternative fueling stations for government vehicles, the implementation of a Smart Corridor system and the adoption of a complete streets policy.

Description of Cobb County's sustainability measures (pdf):

http://www.atlantaregional.com/File%20Library/Environment/Green%20Communities/ep_cobb_sustainability_measures.pdf

Presentation on Cobb's sustainability measures (pdf):

http://www.atlantaregional.com/File%20Library/Environment/Green%20Communities/ep_cobb_sustainability_measures_presentation.pdf

Decatur

Gold Certified

December 2010

The city's Sustainability Policy, adopted in April of 2009, formalized many of the Green Communities measures already in place throughout the city. Policies include purchasing of green products, a green fleet policy, green building standards and more. Recycling is available at all city facilities and employees must sign the Lights Out/Power Down policy and the No-Idling pledge. Fire Station #2 is LEED silver certified and uses 25 percent less water and 35 percent less energy than a standard building of the same size. Educational materials throughout the building explain the benefits of its many sustainable features, including LED lights, a cool roof and solar panels. The city has a notable Safe Routes to School Program that is a partnership between the schools and the city to encourage elementary and middle school children to walk and bicycle to school and to make the trips to school safer. Other sustainable measures adopted by the City are a Pay-As-You-Throw program for trash disposal, a comprehensive residential recycling program and a Health Impact Assessment incorporated into the transportation plan.

Description of Decatur's sustainability measures (pdf):

http://www.atlantaregional.com/File%20Library/Environment/Green%20Communities/GC_Decatur_2010.pdf

Presentation on Decatur's sustainability measures (pdf):

http://www.atlantaregional.com/File%20Library/Environment/Green%20Communities/Decatur_Certified-Green-Community-Presentation_Dec1-2010.pdf

DeKalb County

Bronze - Certified

December 2009

DeKalb's Gregory A. Adams Juvenile Courthouse is LEED-certified and has an Energy Star rated cool roof. Energy performance contracts on more than 150 government facilities have reduced costs by an estimated \$1.5 million annually. The county's lights out/power down policy ensures all non-emergency building lighting and electronic equipment are turned off when not in use and at the end of the work day. Its Green Energy Facility at Seminole Road Landfill generates 3.2 megawatts of electricity from captured methane gas. The county's green fleet policy encourages the purchase of hybrid, fuel-efficient and low emission vehicles. DeKalb became the first jurisdiction in Georgia to adopt an ordinance that requires structures built prior to 1993 to replace inefficient plumbing fixtures with low-flow plumbing fixtures prior to obtaining new water service after the sale of a property. An ozone system at the county jail which converts oxygen to ozone, significantly reduces the need for hot water, detergent and rinse cycles in the laundry. It has resulted in more than \$25,000 in energy savings annually.

Description of DeKalb's sustainability measures (pdf):

http://www.atlantaregional.com/File%20Library/Environment/Green%20Communities/ep_dekalb_sustainability_measures.pdf

Presentation on DeKalb's sustainability measures (pdf):

http://www.atlantaregional.com/File%20Library/Environment/Green%20Communities/ep_dekalb_sustainability_measures_presentation.pdf

Douglas County Bronze - Certified December 2009

New city-owned buildings must achieve Energy Star or EarthCraft Light Commercial certification. Expedited plan reviews and permitting are available for developers planning to build LEED, EarthCraft, and Energy Star certified projects in the county. Low-flow plumbing fixtures have replaced inefficient ones in all county-owned buildings, and all new city-owned buildings must install high-efficiency plumbing fixtures such as WaterSense certified toilets, urinals and faucets. The retention pond at Boundary Waters collects rainwater that is used to water ball fields at the park. Douglas's Community Transportation Plan includes a complete streets policy that calls for the design and construction of roads that adequately accommodate all users of a corridor. Traffic signals have been synchronized to decrease trip time, idling and fuel usage. The county has an environmentally preferable purchasing policy as long as the purchase price does not exceed 10 percent of the cost of a less sustainable product.

Description of Douglas's sustainability measures (pdf):

http://www.atlantaregional.com/File%20Library/Environment/Green%20Communities/ep_douglas_sustainability_measures.pdf

Presentation on Douglas's sustainability measures (pdf):

http://www.atlantaregional.com/File%20Library/Environment/Green%20Communities/ep_douglas_sustainability_measures_presentation.pdf

Dunwoody Bronze - Certified December 2010

City of Dunwoody encourages green building by offering expedited permitting reviews for projects that achieve LEED, EnergyStar, EarthCraft, or WaterSense for New Homes certification or include the installation of solar projects or pervious paving materials. Purchasing policies give preference to environmentally friendly goods and services, including recycled content paper, folders, and other paper goods, green cleaning products. The city has also replaced disposable goods with products that are re-usable, recyclable, or compostable. The green fleet policy provides preference to the purchase of alternative fuel and hybrid vehicles. So far, 34 flex fuel police vehicles have been purchased. Curbside recycling is available to all residents and commercial customers for paper, plastics, and metal and glass containers. Through the Safe Routes to Schools Program, the city works with the five elementary schools in Dunwoody to improve the walking and biking environment around the schools and increase the number of students that bike and walk to school. The Dunwoody Sustainability Commission, established in 2008, has developed a public awareness and education campaign on Dunwoody's sustainability efforts through the use of brochures, business cards, stickers, T-shirts, and social networking.

Description of Dunwoody's sustainability measures (pdf):

http://www.atlantaregional.com/File%20Library/Environment/Green%20Communities/GC_Dunwoody_2010.pdf

Presentation on Dunwoody's sustainability measures (pdf):

http://www.atlantaregional.com/File%20Library/Environment/Green%20Communities/Dunwoody_Certified-Green-Community-Presentation_Dec1-2010.pdf

Fairburn Bronze - Certified December 2009

Fairburn's sustainability policies and procedures are compiled in the Fairburn Clean and Green - Guide to Sustainability in Municipal Operations. All new city-owned buildings greater than 5,000 square feet must be LEED certified. Expedited plan reviews and permitting are available

for developers planning to build LEED, EarthCraft, and Energy Star certified projects in the city. LED bulbs have been installed in all traffic signals, and the city has a lights out/power down policy. Fairburn has conducted water audits on all local government buildings and anticipates implementing recommendations by June 2010. All new city-owned buildings must install high-efficiency plumbing fixtures such as WaterSense-certified toilets, urinals and faucets. City policy requires Xeriscaping and drought-tolerant landscape practices at government facilities to minimize the use of chemicals and encourage the use of native plant species. Fairburn offers curbside recycling for single-family, multi-family and commercial establishments. Recycled materials include glass, newspaper, magazines, plastics, aluminum and bi-metal cans. Zoning ordinance provides incentives for smart growth in residential subdivisions by providing for in-fill, residential cluster and planned developments.

Description of Fairburn's sustainability measures (pdf):

http://www.atlantaregional.com/File%20Library/Environment/Green%20Communities/ep_fairburn_sustainability_measures.pdf

Presentation on Fairburn's sustainability measures (pdf):

http://www.atlantaregional.com/File%20Library/Environment/Green%20Communities/ep_fairburn_sustainability_measures_presentation.pdf

Fulton County Bronze - Certified December 2010

Fulton County's East Atlanta Library, completed in November 2003, achieved silver LEED certification as the county's first LEED building. The library was constructed on a remediated brownfield. Energy and water audits have been completed on more than 40 percent of county facilities, with the remaining facilities to be completed in four years. More than 300 exit signs have been replaced with LED fixtures, saving an estimated 92,000 kWh per year. The Johns Creek Environmental Campus uses the most advanced wastewater treatment technologies and is a world-class example for wastewater treatment. It has no odor, no noise and blends seamlessly with the surrounding greenspace and neighborhoods. Other sustainable policies adopted by the county include a requirement for new plumbing fixtures to be WaterSense certified, a lights out/power down policy, and an anti-idling policy.

Description of Fulton's sustainability measures (pdf):

http://www.atlantaregional.com/File%20Library/Environment/Green%20Communities/GC_Fulton_2010.pdf

Presentation on Fulton's sustainability measures (pdf):

http://www.atlantaregional.com/File%20Library/Environment/Green%20Communities/Fulton_Certified-Green-Community-Presentation_Dec1-2010.pdf

Gwinnett County Bronze - Certified December 2010

Following audits on all of its more than 100 facilities, Gwinnett County implemented energy efficiency improvements including lighting upgrades and controls, new HVAC equipment, temperature optimization and implementation of energy management policies. The county's Intelligent Transportation System and Traffic Control Center Master Plan is estimated to improve annual fuel consumption by 7 percent, CO emissions by 17 percent, and VOC emissions by 12 percent. The county has improved signal timing, established a traffic control center and developed smart corridors as recommended by the plan. Methane gas produced by anaerobic digesters at the F. Wayne Hill Water Treatment Plant is captured to meet the heating needs of the digestion process. One notable project is the LEED certified Gwinnett Environmental and

Heritage Center, which features a pervious pavement parking lot, high efficiency plumbing fixtures, the largest sloped green roof in the Southeast, and the use of clean, non-potable reuse water for irrigation, flushing toilets, and in the HVAC system. Examples of sustainable county policies include the requirement for county-owned buildings to achieve LEED certification, a lights out/power down policy, requirement for new plumbing fixtures to be WaterSense certified, a green fleet policy, and an anti-idling policy for county fleet vehicles.

Description of Gwinnett's sustainability measures (pdf):

http://www.atlantaregional.com/File%20Library/Environment/Green%20Communities/GC_Gwinnett_2010--5-.pdf

Presentation on Gwinnett's sustainability measures (pdf):

http://www.atlantaregional.com/File%20Library/Environment/Green%20Communities/Gwinnett_Certified-Green-Community-Presentation_Dec1-2010_2.pdf

Norcross Silver - Certified December 2010

The City of Norcross, with significant commitment and support from the Sustainable Norcross Commission, designed and implemented policies to make the city more sustainable, including a requirement for city-owned buildings to achieve LEED certification, anti-idling policy and lights out/power down policies and a green fleet policy with a preference for alternative fuel and hybrid vehicles. Unique to Norcross is its closed loop processing of yard debris. Residential yard debris is collected curbside and processed at a local business into compost, mulch, and soil products, which are sold to the city, local businesses, and residents. Located in the heart of downtown and adjacent to the railroad tracks, the cleverly named Whistle Stop Farmers Market offers local produce and products and is open Tuesday evenings in the summer and fall. The Norcross Welcome and History Museum is a redeveloped property that was previously a used car lot and uses rainwater and HVAC condensate collected in rain barrels for irrigation. Norcross expects to reduce printing costs by 40 percent through its policy of eliminating paper copies at city meetings and consolidating printers, copiers, and other electronic devices. Norcross provides recycling at all the city's special events and encourages shared and reduce parking. A Redevelopment Area Overlay District promotes smart growth and revitalization of underused commercial and residential areas.

Description of Norcross's sustainability measures (pdf):

http://www.atlantaregional.com/File%20Library/Environment/Green%20Communities/GC_Norcross_2010.pdf

Presentation on Norcross's sustainability measures (pdf):

http://www.atlantaregional.com/File%20Library/Environment/Green%20Communities/Norcross_Certified-Green-Community-Presentation_Dec1-2010.pdf

Roswell Silver - Certified December 2009

An Energy Star partner, Roswell's Energy Strategy for the Future sets forth the city's fundamental commitment to protect the environment through the continuous improvement of its energy performance. The city estimates that it will save \$62,000 annually from the replacement of traffic signals and school zone flashers with LED bulbs. The Leita Thompson Park dog park lighting is solar powered. The city has a no net loss of trees policy, and trees that cannot be replaced onsite will be planted on other government property. The Tree Planting Partnership is a public-private partnership to improve tree canopy and density on public lands. It has resulted in the planting of 788 hardwoods and 3,838 shrubs and flowers. Roswell offers com-

mute options to staff that include a flexible work arrangements policy provides for telecommuting, compressed work week and flex time. Recycling containers government facilities are located at individual desks and in common areas for traditional and non-traditional recycling. Residents of single-family homes have curbside recycling, and multi-family complexes are required to provide recycling. Roswell's zoning ordinance provides incentives for mixed use zoning districts and the Midtown Roswell Overlay District.

Description of City of Roswell's sustainability measures (pdf):

http://www.atlantaregional.com/File%20Library/Environment/Green%20Communities/ep_roswell_sustainability_measures.pdf

Presentation on City of Roswell's sustainability measures (pdf):

http://www.atlantaregional.com/File%20Library/Environment/Green%20Communities/ep_roswell_sustainability_measures_presentation.pdf

Suwanee Bronze - Certified December 2009

The city's zoning ordinance addresses light pollution and energy efficiency for outdoor lighting by restricting wattage, requiring enclosed bulbs and downward pointing lighting. New city-owned buildings must install high-efficiency plumbing fixtures such as WaterSense certified toilets, urinals and faucets. The Recreation and Open Space Needs Assessment focuses on greenways, and passive greenspace and trails throughout the city connect the community. The Comprehensive Landscape Inspection Program enforces the city's tree ordinance, which includes a continual maintenance clause for trees and landscapes. Properties with approved landscape plans are inspected to insure landscape plan is being maintained. As a result of the inspections, 824 trees were planted in 2008. The zoning code calls for shade in parking lots by requiring one over-story tree for every seven parking spaces. Suwanee's complete streets policy assures that new roadways and roadway improvements include adequate infrastructure, where appropriate, for all users. The community bicycle facility policy requires bike racks for a minimum of five bicycles to be located at all parks and community facilities. The city also requires businesses to have one bike parking space for every five parking spaces.

Description of Suwanee's sustainability measures (pdf):

http://www.atlantaregional.com/File%20Library/Environment/Green%20Communities/ep_suwanee_sustainability_measures.pdf

Presentation on Suwanee's sustainability measures (pdf):

http://www.atlantaregional.com/File%20Library/Environment/Green%20Communities/ep_suwanee_sustainability_measures_presentation.pdf

Woodstock Bronze - Certified December 2010

The City of Woodstock's Greenprints Project Master Plan is a comprehensive park, trail and open space initiative that establishes a foundation and framework for the creation of a city-wide green infrastructure system. It calls for more than 60 miles of trails to connect greenspace, neighborhoods and activity centers throughout the city. Woodstock already has 21 acres of permanently protected greenspace per 1,000 residents. The city is testing the use of LED light bulbs in its elevators and estimates the replacement of just 12 traditional incandescent light bulbs will save \$1,000 a year in energy and maintenance costs. Twenty percent of the outdoor lights in Woodstock City Park are being replaced with LED fixtures and bulbs to further the city's use of LED technologies. All new city buildings will achieve LEED certification. Residential and commercial green building is encouraged by offering reduced development review

time and fees for projects that achieve LEED, EarthCraft, Energy Star or WaterSense for New Homes certification or include the installation of a renewable energy project that is a minimum of 1 kWh. The Downtown Woodstock LCI Plan encourages smart growth through pedestrian-oriented development, mixed-use development and redevelopment of the downtown area. The city is committed to reducing its energy and water use by implementing a lights out/power down policy and requiring all new plumbing fixtures to be WaterSense certified. The city uses rainwater for irrigation at the Woodstock Community Center and has adopted an anti-idling policy.

Description of Woodstock's sustainability measures (pdf):

http://www.atlantaregional.com/File%20Library/Environment/Green%20Communities/GC_Woodstock_2010.pdf

Presentation on Woodstock's sustainability measures (pdf):

http://www.atlantaregional.com/File%20Library/Environment/Green%20Communities/Woodstock_Certified-Green-Community-Presentation_Dec1-2010_2.pdf

OTHER GEORGIA COMMUNITY GREEN BUILDING PROGRAMS

Athens-Clarke County

On June 1, 2004 the Mayor and Commission of the Unified Government of Athens-Clarke County (ACC) Georgia adopted a resolution requiring all new municipal buildings to earn LEED Certified, with priority given to credits related to indoor air quality credits. The resolution also requires all new municipal projects to include a LEED AP in the design and construction oversight teams. Since that time a Policy and Procedure statement has been prepared by staff that gives priority to the certification efforts of municipal buildings of at least 5,000 sq ft of conditioned space and intended for regular occupancy. This statement also covers building major renovations involving more than 50 percent of the aggregate area of the building.

Chamblee

On March 18, 2008 the Chamblee City Council adopted a policy amending City Code of Ordinances requiring all future public construction of any size to earn LEED Certified or one Green Globe. The policy also requires that all new commercial construction of 20,000 sq ft or greater earn LEED Certified certification or one Green Globe.

Chatham County

In May 2006, the Board of Commissioners of Chatham County passed an ordinance (page 79-85) amending Chapter 7 of the county code that gives full property state and county tax abatement for commercial buildings achieving LEED Gold certification for the first five years, then tapering off by 20% each year until the tenth year. Qualifying projects are new or expanding businesses in an enterprise zone that increase employment opportunities.

Conyers

On October 1, 2008, the Conyers City Council adopted Ordinance 777, requiring all new residential or municipal buildings with over 5,000 sq ft of occupied space to achieve LEED certification or be EarthCraft House certified.

Covington

On June 30, 2008, the City of Covington passed an ordinance requiring all applicants for development over 50,000 sq. ft. to submit a LEED checklist at the time of application. (Title 16 of code of ordinances)

Coweta County

Section 85 of the County Zoning Ordinance requires all proposed developments in an RI-A Single-Family Residential Infill District to submit an affidavit that 100% of the proposed residences will be EarthCraft or LEED for Homes certified. New developments in a Center Village District pursuing LEED certification are eligible for a 1,000 sq. ft. density bonus. (Section 136.3 of the County Zoning Ordinance)

Doraville

On August 4, 2008, the Doraville City Council adopted an ordinance requiring all new municipal buildings and all commercial, industrial, and multifamily residential buildings over 20,000 sq ft to be LEED Certified.

East Point

Chapter 4, Article A of the Zoning Code encourages new developments in East Point to pursue LEED certification.

Forest Park

On December 7, 2009, the Forest Park City Council adopted Ordinance 2010-61 requiring all new residential construction and renovations to meet LEED certifiable or equivalent standards. (Title 8, Article J of code of ordinances)

Norcross

Construction projects with a redevelopment area overlay district pursuing LEED Silver certification or above are eligible for a 0.25 density bonus. (Chapter 115, Article III of city code)

Paulding County

On September 23, 2008, the County of Paulding adopted Resolution 08-25 encouraging developments within the Paulding Airport Master Overlay District to incorporate LEED green building design and construction practices. (Appendix A, Article III of county code)

Stone Mountain

New developments within a Traditional Residential District are eligible for up to 35 feet or three stories of additional height if the principal dwelling promotes sustainable building practices as outlined by LEED or EarthCraft building standards. (Appendix A, Article V of city code)

Tybee Island

On May 25, 2006, the City of Tybee Island unanimously passed a resolution adopting a green building policy declaring that all new, occupied buildings will achieve the LEED Silver certification level and achieve a higher certification level when conditions and resources permit. Projects designed to the LEED Silver level must have a payback of no more than five years. If payback is anticipated to be over five years, city staff will recommend the level of LEED certification. All renovation projects and non-occupied buildings will include as many principles of LEED and the city's green building program as possible.

NORTH CAROLINA

Asheville

- 1) Approved the Land Use Incentive Policy which provides financial incentives to encourage development projects that include address strategic goals set by the City Council, which includes the promotion of green building along with other LID practices.

http://www.ashevillenc.gov/uploadedFiles/Departments/Planning_and_Development/Land%20Use%20Incentive%20Policy%206-20-11.pdf

- 2) Approved resolution to build LEED certified buildings.
- 3) Approved sustainable residential building fee waivers.
- 4) Maintains and Office of Sustainability that performs a variety of local sustainability activities. Formed a citizen group called the Sustainability Advisory Committee on Energy and the Environment, which lead to the creation of the Sustainability Management Plan.

http://www.ashevillenc.gov/departments/administration/default.aspx?id=11040&terms=leed&searchtype=2&fragment=False#Annual_Report

http://www.ashevillenc.gov/uploadedFiles/Departments/Administration/Sustainability/Asheville_SustainabilityManagementPlan_ExecutiveSummary.pdf

Mecklenburg County

- 1) The County has a policy that directs that all County facilities be built and operated according to “environmental best practices.”

<http://charmeck.org/mecklenburg/county/LUESA/environment/Documents/Sustainable%20Development%20Policy.pdf>

- 2) Developed a Technical Advisory Board to work with County Code Enforcement in dealing with atypical green design or construction practices that may conflict with a portion of an adopted building code. The TAB advises the Department to avoid confusion in this area and to determine appropriate enforcement strategies.

<http://charmeck.org/mecklenburg/county/CodeEnforcement/BDC/Pages/TechnicalAdvisoryBoard.aspx>

- 3) The County has a Land Use and Environmental Services Agency (LUESA) with the objective to ensuring the County operates in a sustainable manner and is a model for environmental stewardship. It is an umbrella organization made up of parts of other County departments with responsibilities ranging from enforcing building and zoning codes to managing air and water resources.

<http://charmeck.org/mecklenburg/county/LUESA/environment/Pages/default.aspx>

- 4) The LUESA composes annual Environmental Action Plans for County activities.

<http://charmeck.org/mecklenburg/county/LUESA/environment/Documents/ELPgoals.pdf>

- 5) The LUESA also publishes periodic State of the Environment Reports to advise the County's Board of Commissioners and the public about environmental conditions and provide objective measures to evaluate progress toward a healthier environment.

<http://charmec.org/mecklenburg/county/LUESA/Pages/SOER%202010.aspx>

- 6) Example of successful green building projects:
Charlotte-Mecklenburg Utilities Environmental Services Facility

Chatham County

- 1) Initiated a High Performance Building Rebate Program that provides rebates of permit fees for projects meeting one of a number of certifications. It also provides for expedited permitting processes for these projects.

<http://www.chathamnc.org/Index.aspx?page=1448>

- 2) Created a Green Building and Sustainable Energy Advisory Board to advise county commissioners on green building and sustainable energy policies and procedures; and, to raise public awareness of green building and sustainable energy techniques and opportunities by providing accurate and up-to-date information about legislation, industry techniques and economic opportunities affecting the county, its communities and individuals.

<http://www.chathamnc.org/Index.aspx?page=380>

- 3) In addition to their normal land use plan, the County developed a Land Conservation and Development Plan to better balance land development with conservation.

<http://www.chathamnc.org/Index.aspx?page=441>

SOUTH CAROLINA

Columbia

- 1) The Columbia Green Building Incentive Program (GBIP) provides financial incentives to the construction of residential and commercial green buildings.

<http://www.columbia.sc.gov/coc/index.cfm/cpac/green-building-incentives/>

- 2) The City may require that its government buildings be constructed according to green building practices.

- 3) The Green Business Program recognizes local businesses that adopt a variety of green initiatives, including the incorporation of some green building practices. The program provides promotional support for these businesses. There is also a Green Congregations Program with a similar mission for faith-based organizations.

*<http://www.columbia.sc.gov/coc/index.cfm/cpac/green-business-program/>
<http://www.columbia.sc.gov/coc/index.cfm/development-gateway/planning-and-development-services/%20>*

- 4) Through the Congaree Coalition, the City of Columbia in partnership with the City of West Columbia, distributes grant funds provided by EPA to assist in Phase I and Phase II environmental assessments to facilitate brownfield development.

<http://www.ctcbrownfields.com/columbia/>

- 5) Incorporated community gardens into its comprehensive green space plan.

<http://www.columbiasc.net/communitygardens/490>

http://columbia.sc.gov/cocextranet/assets/File/PlanningDevelopmentServices/Buildings/PDS_GreenBuildingIncentivePackageFinal.pdf

North Charleston

<http://www.oakterracepreservesc.com/>

<http://www.noisettesc.com/>

TENNESSEE

Chattanooga

- 1) Created greenspaces in partnership between the University of Tennessee Chattanooga and the City, with the support of various private entities and non-profits. Greenspaces offers funds for commercial construction and renovation projects covering all administrative costs associated with obtaining LEED certification and offering dedicated funding for the installation of high profile, very public, exemplary sustainable design features such as green roofs, solar or wind energy generation and geothermal heating. It also provides a resource center for commercial and residential projects, showcasing the best eco-friendly materials and methods.

<http://www.greenspaceschattanooga.com/home>

- 2) Provides Stormwater Credits for LEED certified buildings.

<http://www.chattanooga.gov/files/leed.pdf>

- 3) Adopted the 2006 International Energy Conservation Codes (IECC), while the 2003 IECC is all that is mandated by the state.

- 4) Chattanooga was chosen to participate in the STAR Communities Program. This performance-based sustainability management system breaks ground by uniquely combining the following elements: a framework for sustainability -- based on the pillars of environment, economy, and social equity; an online data-management platform that gathers, organizes, analyzes, and presents information required to meet community and government sustainability goals through effective management; and a management model and rating system that drive continuous improvement in community health, vitality and prosperity for all residents.

<http://www.icleiusa.org/star>

http://www.ochscenter.org/documents/SOCRR2008_environment.pdf

http://www.chattanooga.gov/Final_CAP_adopted.pdf

Franklin

- 1) Adopted a Sustainable Community Action Plan in 2009 that included the goals of adoption of the 2009 International Energy Conservation Code (IECC), constructing only LEED certified municipal buildings, and providing incentives for private construction of green buildings.

<http://www.franklin-gov.com/Modules/ShowDocument.aspx?documentid=5877>

- 2) The 2011 Evaluation of the Sustainable Action Plan indicates the IECC was adopted, and the City has committed to building on LEED certified municipal buildings. The goal of providing incentives of private green buildings has not begun but is not eliminated.

<http://www.franklin-gov.com/Modules/ShowDocument.aspx?documentid=6744>

- 3) Adopted Greenway and Open Space Master Plan.

<http://www.franklin-gov.com/Modules/ShowDocument.aspx?documentid=1244>

- 4) Live Green Partnership program encourages businesses to own or occupy a third-party certified energy efficient building. This program provides promotional support

for partnership members.

<http://www.franklin-gov.com/index.aspx?page=463>

- 5) Established a Sustainability Commission to advise the Mayor and Board of Alderman on sustainability issues. Also hire a sustainability coordinator.
- 6) Examples of successful green building projects:
Police Headquarters
Franklin Theatre

<http://www.franklintn.gov/index.aspx?page=188>

<http://www.franklintn.gov/index.aspx?page=264>

<http://www.franklintn.gov/Modules/ShowDocument.aspx?documentid=5877>

Germantown

Adopted the “Smart Code For the Germantown Smart Growth Plan”, which provides height incentives for use of sustainable building practices. The Smart Code also requires or promotes various other LID practices for landscaping and site design.

<http://www.germantown-tn.gov/modules/showdocument.aspx?documentid=38>

<http://www.germantown-tn.gov/index.aspx?page=82>

<http://www.germantown-tn.gov/Modules/ShowDocument.aspx?documentid=49>

<http://www.germantown-tn.gov/Modules/ShowDocument.aspx?documentid=45>

Nashville

- 1) Approved development and design standards for its downtown area, known as the Downtown Code, that provides various green building incentives.

http://www.nashville.gov/mpc/docs/dtc/DTC_OrdinanceNo_BL2009_586_adopted02Feb2010.pdf

- 2) Also, based on the recommendations of the Mayor’s Green Ribbon Committee the city created an Office of Environment and Sustainability to work with the metro government and the broader community to implement sustainable development, including green building practices. Accomplishments include securing grant funding to increase residential energy efficiency. Retrofitting government buildings using green building practices. Also, this office works with two other City initiatives, Cities of Service and Healthy Nashville, to promote green space preservation, tree planting, and stormwater control.

- 3) Publication of the Mayor’s Environmental Pledge to reduce environmental impacts.

<http://www.nashville.gov/sustainability/pledge/index.aspx>

- 4) Powerwise is a free online tool Nashville Electric Services provides that helps analyze home energy use and provides tips on saving through energy conservation.

<http://www.nespower.com/commercialPowerwise.html>

- 5) Examples of green buildings:
Julia Green Elementary School
The Terrazzo Nashville

<http://www.nashville.gov/sustainability/index.asp>

http://www.nashville.gov/sustainability/docs/grc/executive_order_033.pdf

<http://www.nashville.gov/sustainability/docs/grc/2010Update.pdf>