

CHARLESTON

GREEN

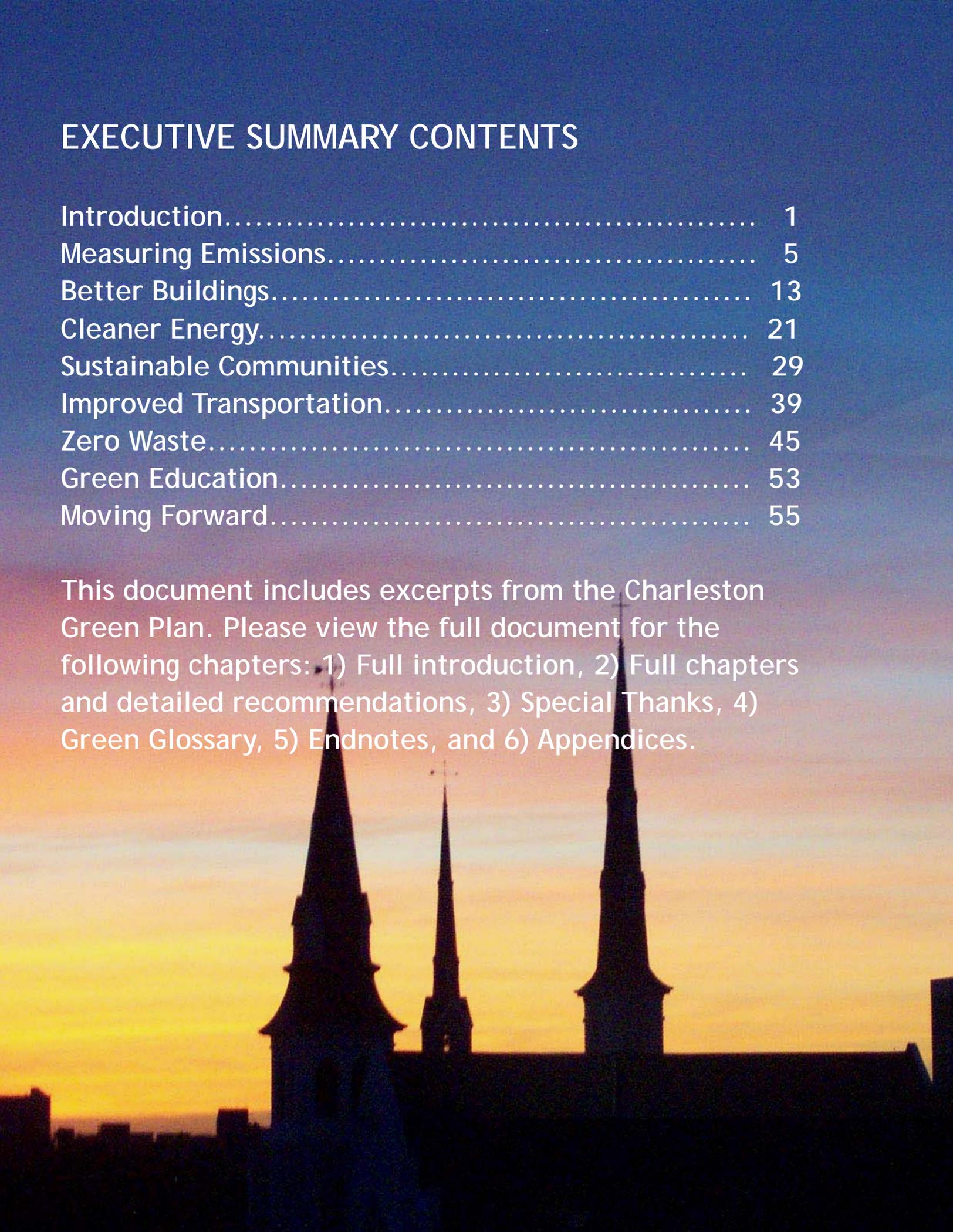
PLAN

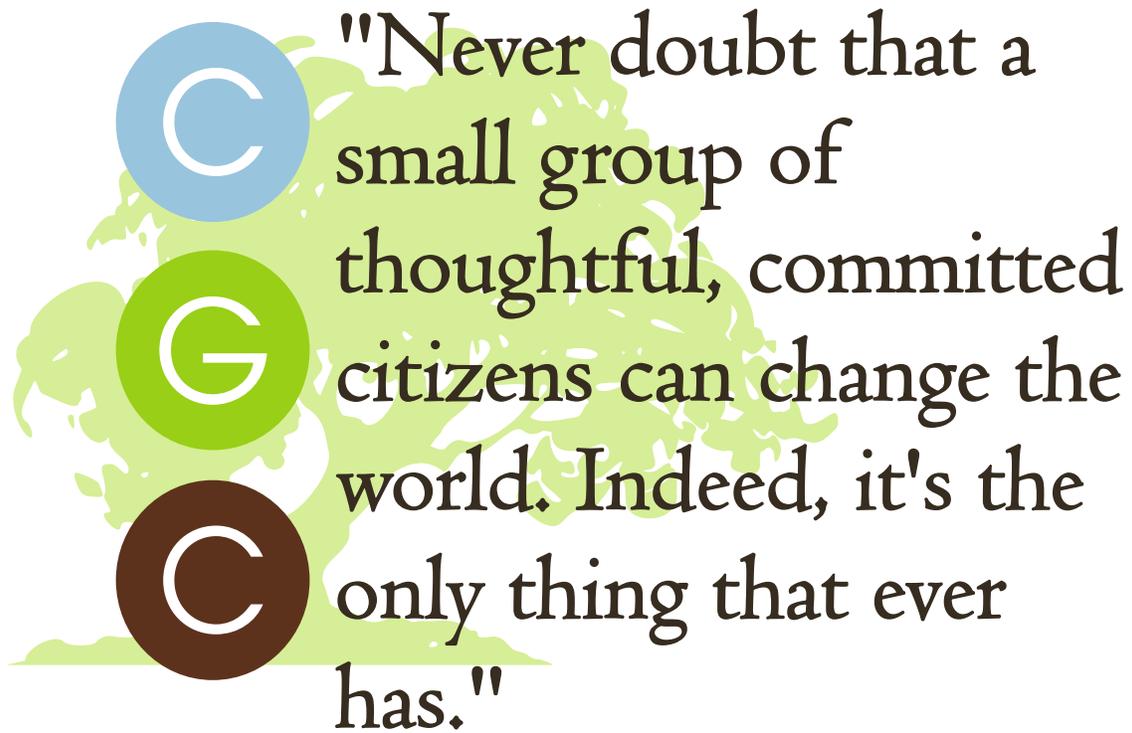
Executive Summary

EXECUTIVE SUMMARY CONTENTS

Introduction.....	1
Measuring Emissions.....	5
Better Buildings.....	13
Cleaner Energy.....	21
Sustainable Communities.....	29
Improved Transportation.....	39
Zero Waste.....	45
Green Education.....	53
Moving Forward.....	55

This document includes excerpts from the Charleston Green Plan. Please view the full document for the following chapters: 1) Full introduction, 2) Full chapters and detailed recommendations, 3) Special Thanks, 4) Green Glossary, 5) Endnotes, and 6) Appendices.





"Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it's the only thing that ever has."

-Margaret Mead

INTRODUCTION

A close-up photograph of a purple passionflower (Passiflora) in bloom. The flower features a central yellow and green reproductive structure surrounded by a dense ring of purple filaments. The background consists of green leaves and a textured brown surface, possibly a tree trunk or bark.

“In the global effort to protect our environment, the first step starts at home.”

Mayor Joseph P. Riley, Jr.

The lush lands of the Lowcountry with its complex network of estuaries and wetlands and rich biodiversity has long drawn people to the Charleston area. For centuries, the native inhabitants of the Charleston area found abundant natural resources, and their communities prospered in relative harmony with nature.

Before the Civil War, wealth from rice, lumber, and trade transformed Charleston into a prosperous community. Today, the abandoned rice fields attract wildlife, and Charleston's wealth is preserved in its historic buildings and landscape.

Charleston's history is intertwined with the lushness of the Lowcountry environment, and this historical reliance on the environment has led to a culture of preservation and a respect for nature. As a consequence, we live in a beautiful environment where wild places abound. Charleston is the home to ancient trees, dolphins, endangered birds, bald eagles, rich wetlands, coastal forests, sea turtles nesting on the beaches, and lush gardens.

Historic preservation and environmental conservation

draw people to the Lowcountry, swelling Charleston's population. Population pressure for more land and resources and global changes have compelled Charleston's citizens to develop a sustainability plan to meet these challenges.

Ordinary Heroes

This document is the work of 800 local people who want Charleston to have cleaner, greener and more sustainable choices for all who work, live and play in the Holy City. For the past two years, citizens and City staffers have worked together to assess the needs, priorities and opportunities for Charleston to pursue a greener path. Here, they offer their consensus about practical, achievable ways for the City to grow and develop sustainably, minimizing negative impacts on natural resources, quality of life, and Charleston's unique character.

Changes recommended at the City level will, in turn, make it easier for residents to drive less, recycle more, save money, and conserve energy at home and at work. It's not about convincing average citizens to do more than they can reasonably do. It's about 800 people committed to living sustainably becoming 8,000 people, and then



Insulating our homes is a simple act that can have a big impact

...actions that
seem heroic
today will seem
routine
tomorrow.



Walking children to school can be a quality of life and health benefit

80,000. When municipal systems provide enough support, actions that seem heroic today will seem routine tomorrow.

Sustainable development is illustrated every day in cities across the country. Residents of Grand Rapids, Michigan now get 20% of their electricity from renewable sources.¹ San Francisco residents toss 400 tons of food scraps and yard clippings into a separate “green waste” pickup each day, to become compost and enter back into the natural environment.² And Charlotte residents were so eager to use a new light rail line that within a few months daily ridership was nearly double what officials expected.³

Sustainability is a Charleston tradition. We may not have been using the word “sustainable” for long, but Charleston has been at the forefront of this movement since 1931, when the City passed the nation’s first historic preservation ordinance. There is no difference, really, between Charleston’s longstanding preservation ethic and the “reduce, reuse, recycle” mantra of today’s sustainability movement.

The City of Charleston, founded more than three

centuries ago, has withstood fire, hurricanes, wars, and earthquakes. We’ve overcome our harshest challenges through the creativity and determination of thousands of ordinary heroes. With the leadership and support of City government, it will become simple and practical - indeed, second nature - for Charleston residents to help their City meet the greatest challenge of the 21st century -- becoming a sustainable community.



“Prosperity and sustainability go hand in hand.”

Mayor Joseph P. Riley, Jr.
City of Charleston



“If they have a choice, most people do the right thing.”

Ian Sanchez, Director,
Lowcountry Environmental
Education Program & Green
Committee member



Message from the Mayor

As a member of the Climate Protection Task Force of the U.S. Conference of Mayors, it is my privilege to be connected to national and international efforts in which top scientists, engineers, economists, physicians, policy makers, and other experts pool their skills to address global climate protection and sustainability issues.

In 2007, City Council decided that Charleston needed its own think tank to address these issues at the local level. Though Council originally appointed 22 citizens and business leaders to create this plan, imagine our surprise and satisfaction when hundreds more people joined this group, bringing many new skills to the table.

This is the beginning of a much larger movement. Just as 20th century Charlestonians are remembered for preserving our magnificent buildings, 21st century Charlestonians will be remembered for protecting this region's landscape and natural systems.

Charleston's 21st century residents will also make their mark on history by creating and fueling a vibrant "green economy." Multiple studies show that tens of thousands of new jobs can be created in South Carolina by investing in energy conservation and renewable energy. I challenge my fellow citizens to make Charleston a national leader in the effort to create green jobs. Here as elsewhere, prosperity and sustainability go hand in hand.

For myself and for City Council, I want to thank the hundreds of passionate and tireless volunteers who created this plan. Truly, in the global effort to protect the natural systems that sustain us, the first step starts at home.

Sincerely,

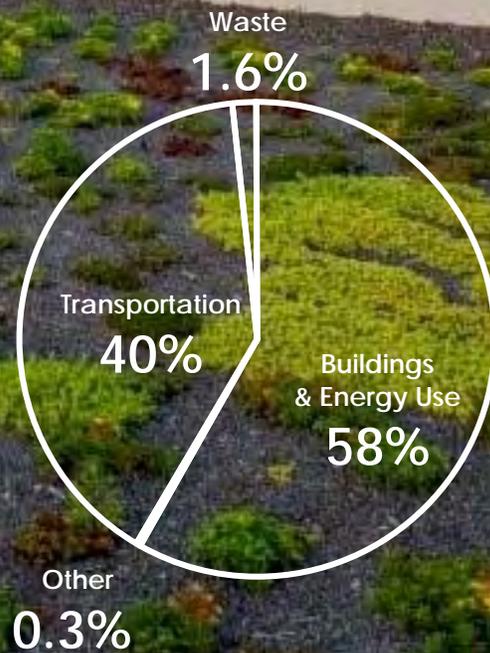
A handwritten signature in black ink that reads "Joseph P. Riley, Jr." in a cursive script.

Mayor Joseph P. Riley, Jr.

Measuring EMISSIONS

Charleston's Greenhouse Gas Emissions

2006 CITY OF CHARLESTON GREENHOUSE GAS EMISSIONS
Buildings produce more than half of Charleston's emissions. Our cars, trucks and buses account for 40%. The remaining 2% comes from waste and other industries' emissions.



Credit: Richard Leo Johnson/Atlantic Archives, Inc.
Design: Frank Harmon Architect PA
Installation: Emilio Ancaya, Living Roofs, Inc

In developing a climate protection and sustainability plan, one of the first tasks for the Green Committee was to understand more about greenhouse gases currently released within the City of Charleston (See "What Are Greenhouse Gases?" on page 6). Armed with this information, the Green Committee's next task was to develop greenhouse gas reduction goals for 2030, 2050, and beyond.

To understand more about current emissions, the Committee relied on two inventories prepared by City staff, one for 2002 and one for 2006. These inventories show that the amount of greenhouse gases released in Charleston is increasing, though at a slower rate than Charleston's population growth. The City of Charleston is committed to updating this inventory by 2010 and to work toward an annual inventory to understand where successes and future challenges lie.

Current Emissions (Citywide)

Buildings includes energy use in residential, commercial, government, and industrial buildings, including water treatment and delivery.

Transportation includes emissions from cars, motorcycles, and trucks, but not boats, ships, or rail, whose contributions could not easily be estimated.

Waste includes landfill and incinerator emissions from residential, commercial, and government waste picked up by City haulers.

Other includes direct emissions from industries that are not fully captured by the above categories.

Citywide greenhouse gas emissions increased 5% between 2002 and 2006 while the City's population grew 13.4%.

In addition to showing an increase in citywide greenhouse gases, the inventories also showed which activities produce these emissions.

Buildings and related energy use release the most greenhouse gases - 58% of the citywide total. Transportation runs a close second, contributing 40% of citywide greenhouse gases.

Current Emissions (City Government)

City buildings and streetlights include all City offices and facilities, as well as all street lighting.

CONVERTING APPLES TO ORANGES

The analysis of our inventories was developed using the International Council for Local Environmental Initiatives' (ICLEI) Clean Air and Climate Protection Software.

For simplicity, all emissions were converted to the same units:

mtCO₂e
metric tons of CO₂ equivalents

Using CO₂ equivalents (mtCO₂e) for all measurements allows us to easily measure the impact of unrelated activities, such as a comparison of greenhouse gas reductions achieved from increasing fuel efficiency versus composting.

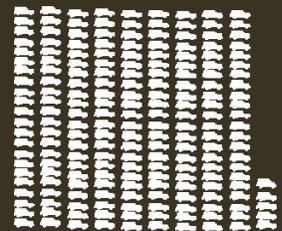
MAKING SENSE OF EMISSIONS

A reduction of one metric ton (1 MT) of greenhouse gases emissions is equal to driving 2,500 fewer miles or removing 1/5 of a car from the road.



1 mtCO₂e =
1/5 car

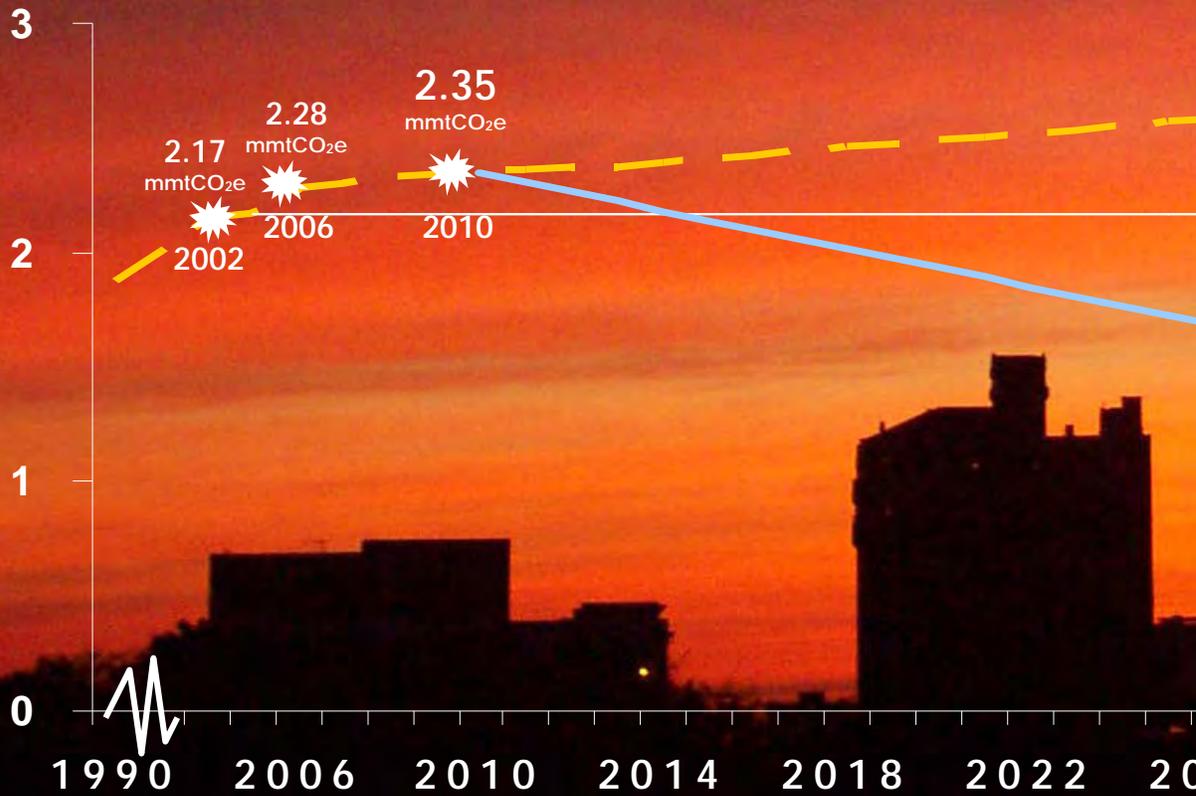
A reduction of one million metric tons (1 MMT) of greenhouse gas is equal to removing about 185,000 cars from the road.



1 mmtCO₂e =
185,000 cars

Each icon above represents 1,000 cars
Credit: [Chicago Climate Action Plan](#)

Charleston Emissions Scenarios
 Business as usual vs. Emissions Reduction Lines
Emissions (Million Metric Tons of CO₂ e)



City vehicle fleet includes all City cars, trucks, cars, police vehicles and construction equipment.

City employee commute includes all employee transportation to and from work.

In addition to looking at emissions across the whole community, the inventories also looked specifically at Charleston municipal government emissions. Similar to emissions for the whole city, municipal

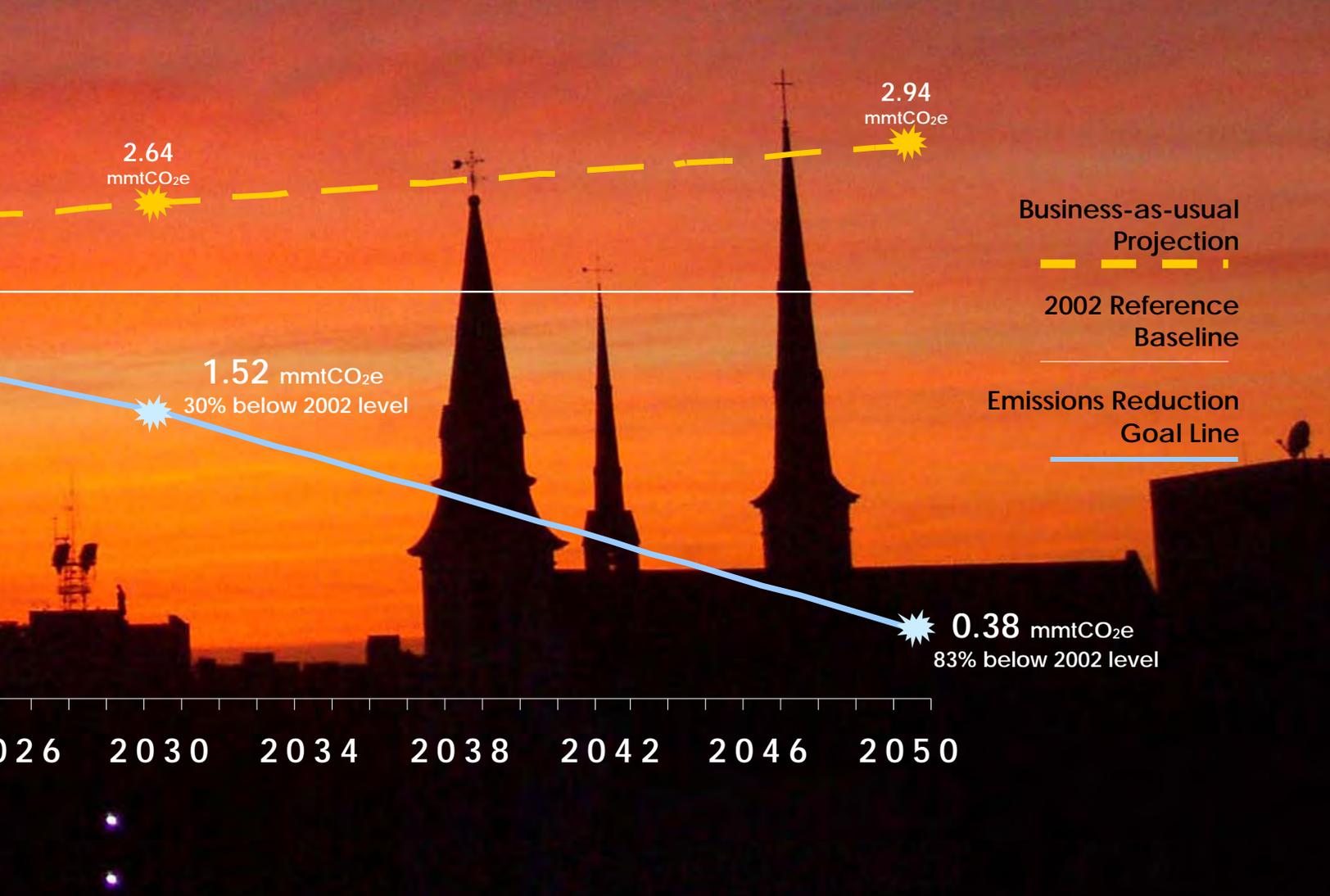
government emissions are primarily from buildings and related energy use, with the rest of the emissions mostly related to transportation.

Emissions Goals

The Green Committee's next task was to determine appropriate goals for reduction of Charleston's greenhouse gas emissions. The Committee took its cues from goals currently being discussed in the international arena.

In July 2009, the leaders of the G-8 nations reached a historic consensus on ambitious goals to reduce carbon dioxide emissions. For the first time, G-8 leaders explicitly acknowledged the need to limit global warming to no more than two degrees Celsius. All agreed that developed nations should reduce emissions to 80% or more below their 1990 levels or more recent years by 2050.

The City's inventories confirm that Charleston



needs to take decisive action as well. If citywide emissions continue along their current path, Charleston can expect a 25% increase in its greenhouse gas emissions by 2050.

The Green Committee recommends that Charleston do its part in lowering emissions by following the global consensus and setting a long term goal to reduce Charleston's overall emissions by 83% from its 2002 levels by 2050.

To achieve this reduction,

the Green Committee recommends a midterm target of 30% reduction below 2002 levels by 2030. Setting a midterm target will allow the City to reevaluate in 2030 to see whether it is on track to reach the 2050 goal.

This plan's key recommendations will produce roughly 99% of the reduction needed to meet the City's 2030 target. As technology improves and the plan's recommendations are implemented, 100% of the 2030 goal will be achieved.

CHARLESTON INVENTORY AND METRICS ONLINE

For more information on the City of Charleston's emissions inventories and metric calculations please visit:

www.CharlestonGreenCommittee.com

or

www.CharlestonCity.info/inventoryandmetrics

REDUCE EMISSIONS

City of Charleston plans to achieve or exceed the following emissions reduction goals, relative to the 2002 baseline measures. This plan identifies quantifiable measures to reach over 99% of the 2030 midterm goal.

30%
reduction
by 2030

AND

83%
reduction
by 2050



CHARLESTON GREEN INITIATIVES

Better BUILDINGS

Buildings and energy use account for 58% of Charleston’s greenhouse gas emissions. This chapter focuses on making the City’s buildings more energy efficient and more sustainable overall, without sacrificing the historical character of our older structures.

Cleaner ENERGY

The focus of this chapter is energy efficiency and expanding renewable energy sources. Both are outstanding opportunities for job creation, as well as essential steps toward climate protection and sustainability.

Sustainable COMMUNITIES

This chapter focuses on designing new development so that it lessens our dependence on cars, allowing us to choose walking, biking, and public transit more often. It also focuses on ways that development can happen with reduced impact on land.

Improved TRANSPORTATION

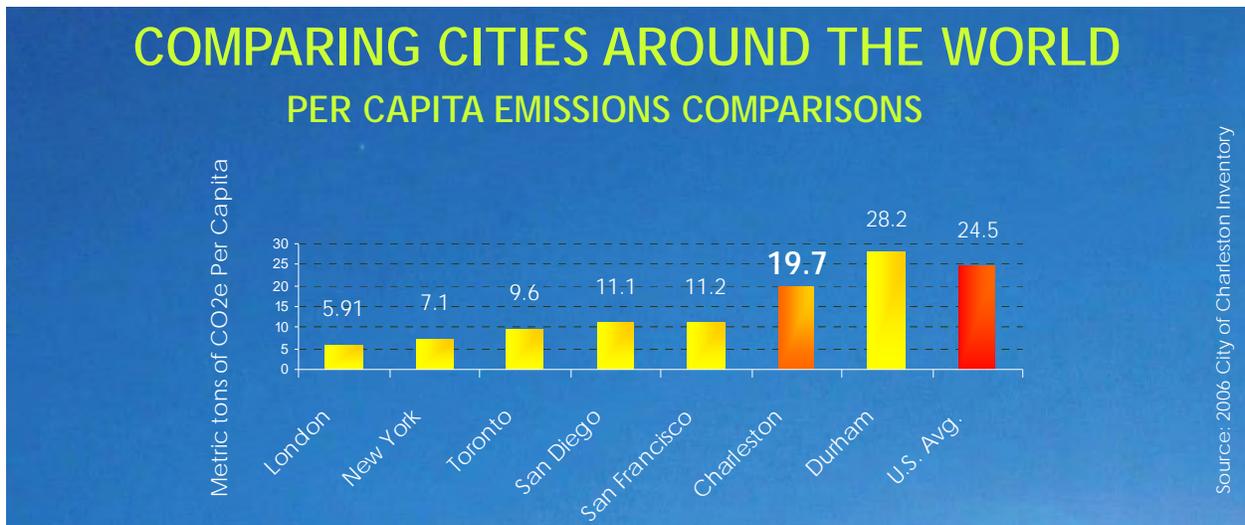
Transportation accounts for 40% of the City’s greenhouse gas emissions. This chapter goes beyond community design to discuss Charleston residents’ dependence on cars and strategies for reducing transportation-related emissions. Topics include street design, public transit improvements, and promotion of fuel efficiency and cleaner fuels.

Zero WASTE

Waste management has an enormous impact on natural resources and climate protection. This chapter shows how Charleston can join cities across the nation in recycling more, composting more, and sending less waste to polluting incinerators and landfills.

Green EDUCATION

Education is the one element that is integral to every initiative. The Education Subcommittee develops public outreach and educational efforts for other subcommittees as well as new initiatives that serve the greater purpose of the Green Committee.



Measuring Success

Within the recommendations outlined in the following sections of this plan are several quantifiable strategies that, if achieved, could result in an emissions reduction of 1,104,316 tons of CO₂e - 99% of our benchmark goal for 2030. The key strategies listed below form a quantifiable set of actions that include initiatives to change our transportation choices, building practices, the energy efficiency for our homes and vehicles, and waste management practices. These strategies represent several of the overarching goals within the plan, which will impact both quantifiable reductions in emissions as well as quality of life improvements.

Many of these implementation strategies are multi-faceted and have an interconnected influence among all of the Green Plan initiatives. Particularly, energy and building initiatives and their impacts are linked. Finally, no recommendations will amount to any carbon reductions without education, understanding, and necessary implementation.

Many important initiatives are not covered because their impacts are less quantifiable. Their unknown potential reductions will take Charleston closer to its climate protection goals.

TRANSPORTATION CHOICES

Improved Transportation

If Charleston maintains projected 2010 vehicle miles traveled (VMT) level by increasing use of public transportation (CARTA) and/or substitutes walking or biking for driving, it could result in a reduction of 152,940 tons of CO₂e in 2030 from projected "business as usual" 2030 level.

FUEL EFFICIENCY

Improved Transportation

If Charleston increases the fuel efficiency of all vehicles by 30% by 2030 (through encouragement of more efficient driving techniques and incentives for purchasing of more efficient vehicles), it could result in a reduction of 202,577 tons of CO₂e in 2030 from projected "business as usual" 2030 level.

ARCHITECTURE 2030

Better Buildings

If Charleston requires that all new City construction and historic renovations adhere to the guidelines of Architecture 2030 Challenge, it could result in a reduction of 10,770 tons of CO₂e from projected "business as usual" 2030 level.

If Charleston encourages 25% of residential and commercial new construction to adhere to the guidelines of Architecture 2030 Challenge each year, it could result in a reduction of

127,448 tons of CO₂e in 2030 from projected "business as usual" 2030 level.

HOME WEATHERIZATION

Better Buildings

If Charleston develops a home weatherization program for homeowners that achieves a 50% reduction in energy usage, it could result in a reduction of 160,546 tons of CO₂e in 2030 from projected "business as usual" 2030 level.

WASTE REDUCTION

Zero Waste

If Charleston reduces the waste stream by 50% from the projected 2030 amount, it could result in a reduction of 22,860 tons of CO₂e in 2030 from projected "business as usual" 2030 level.

RENEWABLE ENERGY

Cleaner Energy

If Charleston replaces 30% of the total community energy usage with renewable energy, it could result in a reduction of 427,175 tons of CO₂e in 2030 from projected "business as usual" 2030 level.

Reaching the Goal

These 6 key strategies could result in a reduction of 1,104,316 tons of CO₂e in 2030. This is 99% of the overall goal for an 1,120,000 tons of CO₂e reduction in 2030. See page 18 for a web link with more information.

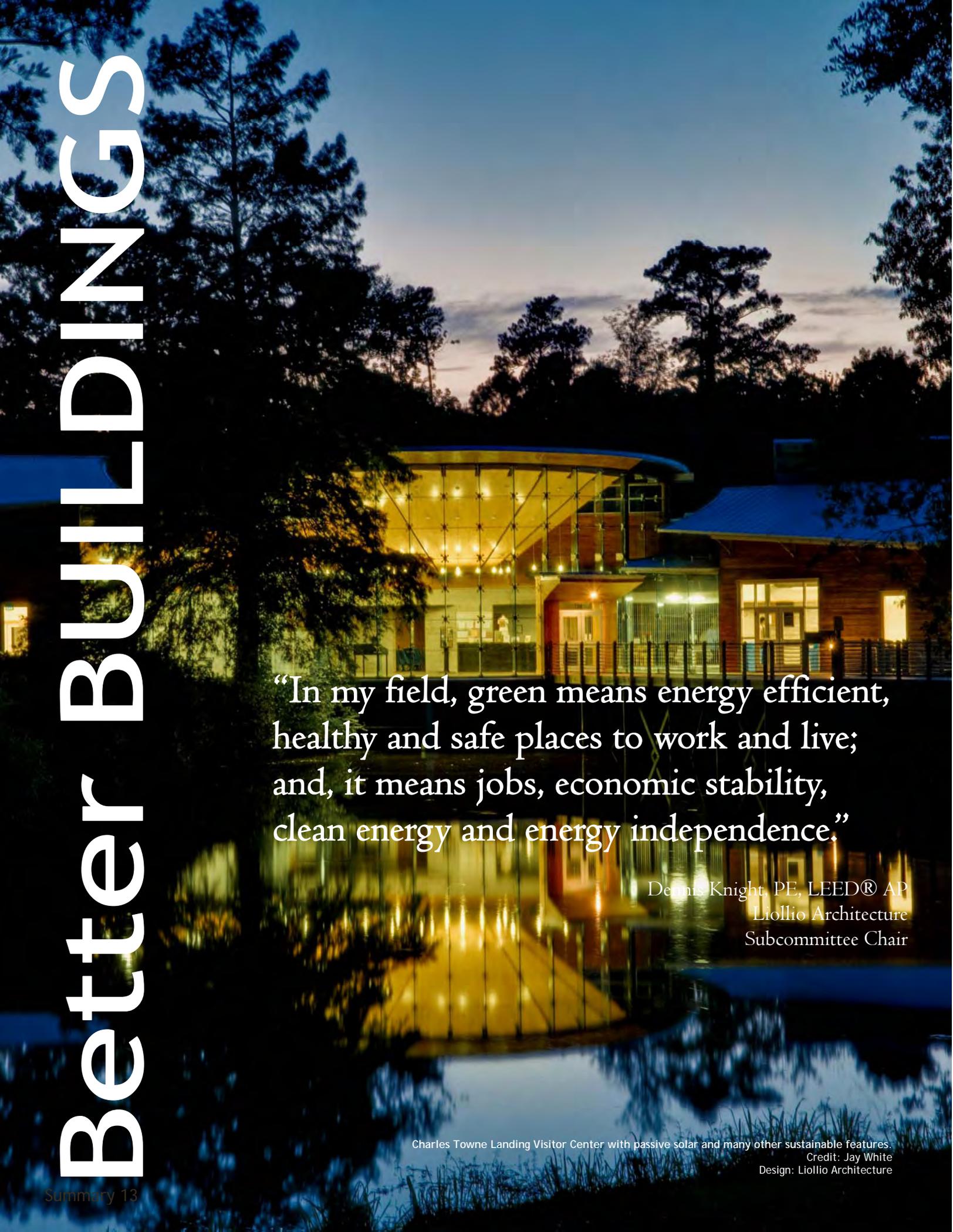
REACHING THE GOAL

Quantifiable Reduction Measures

These measures would collectively equate to ~99% of the 2030 goal to produce at or below 1.52 MMTCO₂e.



Better BUILDINGS



“In my field, green means energy efficient, healthy and safe places to work and live; and, it means jobs, economic stability, clean energy and energy independence.”

Dennis Knight, PE, LEED® AP
Liollo Architecture
Subcommittee Chair

Charles Towne Landing Visitor Center with passive solar and many other sustainable features.
Credit: Jay White
Design: Liollo Architecture

How we construct, preserve, renovate, adapt and use buildings has an enormous impact on our economy, our health, and the environment. The good news is that buildings offer many opportunities to meet our sustainability goals and create greener, healthier, more vibrant social, economic and environmental benefits for the citizens of Charleston.

Charleston is uniquely positioned to be, not only a local leader, but a national and international leader in sustainable building preservation, design, construction and operation. With more than 3000 existing historic structures in the City, historic buildings are a significant contributor to the City's cultural legacy and charm and celebrated throughout the nation and the world. Many of the construction practices used in the past to construct our historic buildings applied principles such as appropriate orientation on the property, the use of local and durable building materials, providing natural ventilation and achieving good day lighting to improve the health and comfort of the building's owners and users. These principles inherent in many of our historic structures, along with improved energy efficiency, are now considered sustainable or "green". Therefore it is fitting that Charleston take a leadership

role in developing the best practices that will integrate the best of historic preservation standards with the best of modern sustainable standards and practices to continue the legacy begun by our founders more than three hundred years ago.

Energy efficiency and sustainability in buildings are largely an untapped resource that can help solve many of the issues we face today with job creation, health care and environmental stewardship. In the US an achievable 23% reduction in energy consumption between now and 2020 could save the American public \$1.2 trillion.¹

In Charleston, buildings and related energy use account for 58% of our energy consumption and the resultant greenhouse gas emissions. Nationally, buildings account for:

- 72% of the electricity used;
- 39% of the energy used;
- 40% of the raw materials used;
- 14% of the potable water used; and
- 30% of the (total solid) waste output.²

As these figures show, choices made during a building's design, construction and operation can have a profound impact. These choices include, for example, the energy efficiency of the building, the environmental impact of the

BETTER BUILDINGS

ACTIONS

1. Require new City-owned buildings and renovations to non-historic existing City-owned buildings to be sustainable.
2. Require modifications to historic City-owned buildings to follow current best practices with regard to integrating historic preservation with modern sustainable practices.
3. Encourage private sector to adopt voluntary sustainable building practices.
4. Encourage disclosure of utility data and building performance.
5. Develop a weatherization program.
6. Help increase financing options.
7. Focus on public outreach.

BENEFITS

-  Reduce energy costs
-  Create jobs
-  Improve public health
-  Protect clean air
-  Protect clean water
-  Conserve natural resources
-  Enhance quality of life
-  Slow climate change
-  Protect cultural identity
-  Raise awareness

materials used, and the amount of water consumed.

Buildings, then, have a broad range of impacts as well as the greatest potential for reducing greenhouse gas emissions.

City Commitments

The City of Charleston has already made significant commitments in this area. The City owns, or operates long term, nearly 200 facilities totaling roughly 2.5 million square feet. In 2001, City officials decided to spend \$3.9 million improving the efficiency of lighting, plumbing, and HVAC systems in many of these buildings. Energy and water efficiency now saves the City nearly \$600,000 per year, and has reduced municipal energy and natural gas use by an impressive 17%.



Sustainability Institute Service Day weatherizing low income home

Recently, the City made two more major commitments in this area:

LEED Certification: On Earth Day 2008, City Council approved a resolution saying that all new construction on municipal buildings would achieve LEED™ (Leadership in Energy and Environmental Design) certification from the U.S. Green Building Council, beginning with construction planned in 2009. LEED certification is an international building performance rating system that covers every aspect of building design, construction, operation and maintenance.

The 2030 Challenge: Also, as a member of the U.S. Conference of Mayors, Mayor Riley adopted the principle of the “2030 Challenge.” The 2030 Challenge encourages that all new buildings, as well as matching amounts of our existing building stock, be constructed and renovated each year to gradually increasing energy performances standards. By 2030, all new buildings and renovated existing buildings should be carbon neutral. In other words, these facilities will use energy that is derived from renewable sources and results in zero emissions of

CARROTS AND STICKS



Nationally, communities are experimenting with various ways to make privately owned buildings more sustainable. Density bonuses and expedited permitting are the most popular.

Charlotte, North Carolina goes further, offering permit fee rebates of up to \$100,000 for sustainable buildings.

Portland, Oregon is getting ready to offer similar incentives to developers who build sustainably. Portland’s program is ingeniously self-sustaining in that it will cover the cost of these incentives by collecting extra fees from developers who just meet minimum building code requirements.⁴

Closer to home, Columbia intends to offer permit fee rebates for sustainable building using Energy Efficiency Block Grant funds.



One Cool Blow—environmentally friendly, mixed-use development on Charleston’s peninsula

greenhouse gases. The potential for nationwide energy savings through the 2030 Challenge is tremendous, since by 2035 three-quarters of U.S. buildings will either have been built or undergone major renovation since 2005.³

Next Steps

Recognizing that Charleston has taken many positive steps in this area, the plan lays out further steps necessary to meet the City's goals and commitments.

City Buildings: The City should commit to continuing to meet higher sustainability standards as they are developed with all municipal buildings. This includes development of separate sustainability guidelines for historic structures. All City facilities should become visible, accessible sources of inspiration and leadership on how to implement sustainable building practices for Charleston



Caulking helps to stem air infiltration and improve the efficiency of a home's heating and cooling systems

residents, visitors, and other government entities.

Private Property Owners: The City should actively encourage private property owners to meet the same high standards of sustainability. Expanding sustainable building in the private sector will require offering meaningful incentives, such as fast-track permit review and waivers of density and other requirements. It will also require effective public relations and community outreach.

Energy Efficiency Partnership: The City is currently helping to create a "one stop shop" public-private partnership that will help home and business owners increase energy efficiency through weatherization and conservation measures. Beginning in 2010, this partnership should raise the capital for a revolving loan fund, educate home and business owners, install and insure the improvements, and offer practical financing. This plan calls for the City to remain a key leader, partner, and facilitator in this undertaking.

Funding for Sustainable Projects: Financial institutions are often not familiar with sustainable building practices. Nor do they know how to value sustainability over a building's life cycle. The City should work with lenders, appraisers, investors, and state

HALF MOON OUTFITTERS



“Green buildings are one of the most worthwhile investments a business can make.”

Beezer Molten is founder and CEO of Half-Moon Outfitters. Molten has integrated green building practices into all Half-Moon facilities, including two Charleston retail stores. The South Windermere store, in particular, is a great example of sustainable reuse and renovation. When an old movie theater was converted into modern retail space, Molten worked with the owner to integrate sustainable features, including advanced insulation and larger windows to capture more natural light. Also, the store's racks and shelving are made from reused, recycled, and rapidly renewable materials, as well as sustainably harvested woods. “At Half-Moon,” says Molten, “we aspire to be good stewards of the environment as well as good retailers. It's nice to be recognized for these efforts, but really it's just what we want to do.”



Native planting helps to reduce irrigation needs and use of chemical fertilizers.

and federal agencies to identify and increase financing opportunities, and advertise these opportunities on its website.

Historic Preservation and Sustainability: Recognizing the need to address green building practices in historic structures, the Historic Preservation work group of the Buildings Subcommittee developed guidelines for homeowners and businesses to help them make the most energy saving choices. See Appendix.

WHAT IS GREEN



Credit: Meadors Construction

Solar panels are an increasingly common installation to provide an alternate source of a building's energy, using a natural and renewable form of energy.

ENERGY

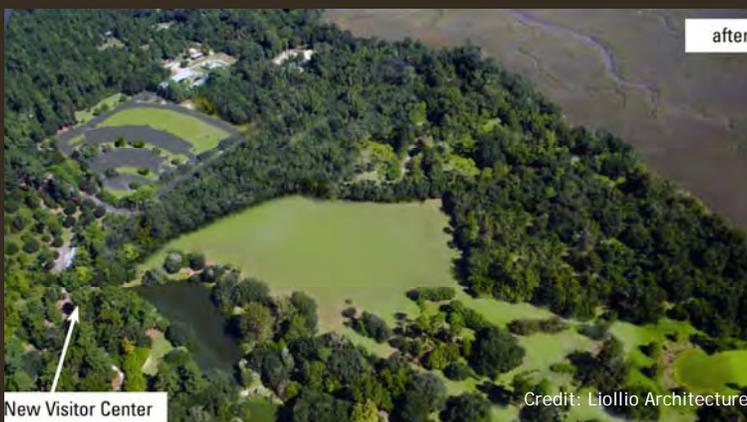
Green buildings use energy efficiently and often rely on renewable energy resources. They maximize the sun's warmth in winter and maximize shade in summer. They are airtight and well-insulated. They also use energy-efficient systems and appliances, and plenty of natural light. When buildings are designed in this way, energy consumption can be reduced by 50% or more at little or no extra cost.⁵

ENVIRONMENTAL IMPACT

Green buildings are made of materials that require less energy to harvest, manufacture, and transport. They often include permeable paving that lets stormwater drain naturally through the soil, rather than pouring it unfiltered into surrounding waterways. They also use landscaping that needs little extra water or maintenance, including native plants. Note: well-designed landscaping can help reduce air conditioning energy consumption by 75%, and can increase property value by as much as 15%.⁶



Credit: Liollio Architecture



Credit: Liollio Architecture

These before and after images of Charles Towne Landing depict the value of siting buildings to achieve their needed purpose and using natural drainage, lessening site disturbance and protecting natural habitat.

RESOURCE CONSERVATION

Green buildings often use recycled, reused, or rapidly renewable materials. They also minimize construction waste. Another important feature is efficient plumbing -- which, along with appropriate landscaping, can reduce water use by 30%.⁷ Sometimes these structures include a "green roof," which is covered with soil and plants. This reduces energy consumption and stormwater runoff, and can protect

BUILDING?



Credit: Richard Leo Johnson/Atlantic Archives, Inc.
Design: Whitney Powers, Studio A, Inc.

Green roofs help insulate and thus reduce energy use. They also reduce stormwater runoff and mitigate urban heat island effect.

clean air and provide wildlife habitat. Sometimes these buildings also include “grey water systems,” which recycle water from sinks and bathtubs into the landscaping.

INDOOR AIR QUALITY

Green buildings are airtight to minimize the entry infiltration (leaking in) of unconditioned, unfiltered outside air that can cause health problems for building occupants and moisture - related problems for the buildings themselves in buildings and control natural ventilation.

When a building is airtight special care must be taken to make sure that the air inside is clean and well ventilated. This is accomplished by using nontoxic building materials and superior ventilation systems that control the amount and quality of outside air introduced into a building.



The use of natural lighting reduces energy consumption and creates a healthier and more comfortable indoor environment.

COMMUNITY IMPACT

Green buildings are often located within easy access of public transportation and/or in communities where it is easy to walk or bicycle to nearby stores and services. They link to existing roads and waterlines and connect people to readily accessible services such as shopping for food, banking, and health care providers rather than sprawling into the countryside, where there is little infrastructure to sustain them. Also, green buildings blend into the community, preserving natural and historic features.

ECONOMIC BENEFITS

1. Lower operating costs
2. Higher value per square foot
3. Increased employee productivity

Source: U.S. Green Building Council

Cleaner ENERGY

“Energy conservation saves dollars
and makes sense.”

Dr. Mitchell Colgan
College of Charleston,
Department of Geology
& Environmental Sciences
Subcommittee Chair

In the previous chapter, energy usage within buildings was discussed, and in this chapter, the production, transmission, and conservation of energy are examined.

The burning of fossil fuels generates much of the energy that powers our daily activities. Charleston's reliance on fossil fuels raises three questions concerning the sustainability of our community and the possibility of reducing our dependence upon these sources:

- How can we reduce our dependence on costly fossil fuels that generate global warming greenhouse gases?
- How can we protect public health and ensure clean air and water while providing needed energy?
- How can we promote the creation of a local "clean energy" economy, which would reduce the flow of energy dollars out of our community and nation?

Charleston citizens can draw on the successes of other communities that have wrestled with these questions and have established practical solutions.

The Current System

Currently, South Carolina depends heavily on fossil fuels for its energy needs, consuming 61% of its electricity from coal-fired power plants.¹ Charleston, in particular, receives at least 66% of its power from this source.²

When coal is used to generate electricity it releases more heat-trapping carbon dioxide than other fossil fuels. Along with carbon dioxide, coal releases oxides of sulfur that produce acid precipitation and trace metals like mercury. As a consequence, coal burning reduces the region's air quality, contaminates waterways, and compromises public health (Visit <http://www.scdhec.gov/environment/water/fish/docs/map.pdf> to view map of SC's contaminated waterways) .

Coal is often seen as an inexpensive generator of electricity, but hidden costs associated with the human health problem and environmental pollution can be costly to a community- three times greater, in fact, than the cost of energy production.³

Win-Win Choices

This plan recommends that Charleston place a high priority on energy efficiency and renewable energy, which would decrease greenhouse gases, reduce toxic

CLEANER ENERGY

ACTIONS

1. Establish an "Efficiency-First" principle.
2. Use energy efficiently.
3. Generate and support renewable energy.
4. Transmit and deliver electricity efficiently.
5. Encourage the public to participate.

BENEFITS

-  Reduce energy costs
-  Create jobs
-  Improve public health
-  Protect clean air
-  Protect clean water
-  Conserve natural resources
-  Enhance quality of life
-  Slow climate change
-  Raise awareness

emissions, conserve natural resources, and protect public health. Fortunately, the implementation of these recommendations will also provide important economic benefits.

According to four recent studies, 20,000 to 28,000 new jobs could be created in South Carolina by expanding our commitment to energy efficiency and renewable energy.⁴ Further, national comparisons show that these clean-energy investments create 16.7 jobs for every \$1 million spent, whereas

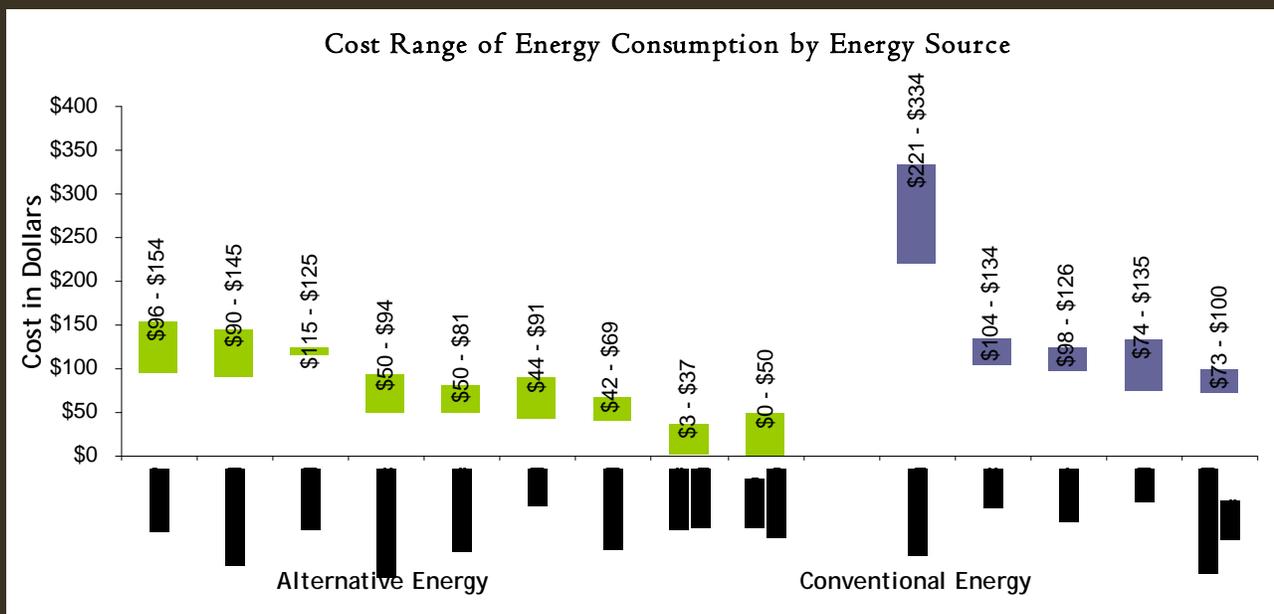
spending on fossil fuels creates only 5.3 jobs for the that same \$1 million investment.⁵

Instead of creating new clean-energy jobs in South Carolina, we currently send more than \$1.5 billion out of state each year to import coal, natural gas, petroleum, and nuclear fuels used to generate electricity.⁶ As fossil fuel supplies diminish and it becomes more likely that coal-fired power plants will need to purchase federal emissions allowances, out-of-state expenditures can only

increase.⁷ Energy efficiency and renewable energy, therefore, are win-win choices for Charleston. They can provide a rich new source of employment and allow more money to circulate through the local economy, as well as helping us reach climate protection and sustainability goals.

Energy Efficiency

Energy efficiency provides the cheapest, cleanest, quickest way for South Carolina to obtain more energy. If one views efficiency as an energy



The graph above vividly shows the benefits of investing in energy efficiency as compared to all other energy resources. This remains true even taking into consideration the costs of administering and marketing an energy efficiency program, and providing incentives for participation. Improved air quality resulting from each unburned pound of coal benefits human health and provides an additional compelling reason for energy efficiency.

Source: "Levelized Cost of Energy Analysis" Lazard, Alternative Energy Conference Report, Version 2.0, June 2008

resource, then it costs three to ten times less than any other energy resource, including renewable energy.⁸

South Carolina residents have the fifth highest rate of electricity consumption in the United States⁹ and the state's energy efficiency policies rank 34th among the fifty states.¹⁰ Therefore, South Carolina must make concerted efforts to improve its policies and support energy efficiency programs.

For our local efforts, there are many successful models that the City can follow to promote energy efficiency, such as:

- Developing energy-efficient procurement standards, which integrate



Climate partnerships between utilities, governments, businesses and residents can work to reduce overall consumption and improve efficiency of energy used.



The City installed a geothermal heating system for this historic structure.

life-cycle cost assessment for municipal governments;

- Helping residents and businesses increase energy efficiency (this program is currently in the planning stages, scheduled to begin in 2010);
- Creating a "climate partnership" that challenges the City's major energy consumers to work together to reduce consumption;
- Supporting South Carolina Electric and Gas (SCE&G) in their continued expansion of technology and management systems that help consumers reduce energy consumption; and
- Encouraging a four-day work-week and telecommuting.

It is worth noting that utilities around the country have already developed ambitious energy-efficiency programs. In ten states, utilities have achieved statewide energy savings on the order of 1% of retail sales per year.¹¹ As of 2006, South Carolina's four largest utilities achieved energy efficiency savings equal to 0% - although Duke Energy Carolinas has proposed to reach 1% per year by 2015, and other utilities are studying the issue.¹²

Renewable Energy

Renewable energy resources include solar, wind, tidal, geothermal, and hydroelectric energy, methane from landfills, and biofuels from sustainable crops. Renewable energy resources are now

SCE&G IN PROGRESS

Since March 2009, SCE&G has actively solicited input from customers and key stakeholder groups throughout South Carolina regarding the types of programs they would like to see implemented to help them save energy. The majority of the feedback the company has received falls into three general categories of interest for program consideration: rebates/incentives, consumer education and in-home services.

In June 2009, SCE&G filed a portfolio of nine proposed Energy Efficiency programs with the South Carolina Office of Regulatory Staff and the Public Service Commission of South Carolina. Seven of the programs are geared toward residential customers, with the remaining two focused on commercial/industrial customers. The company expects a decision regarding these proposed programs by spring 2010. For further information on the proposed programs or for detail on existing tools and resources, visit www.sceg.com/energywise.

SCE&G also offers net metering for customers interested in generating their own renewable electricity to power their homes or businesses and even sell the excess energy back to SCE&G. For additional information and resources, including a comprehensive list of FAQ's, visit www.sceg.com/netmetering.

Additionally, in conjunction with other investor owned utilities in South Carolina, the Office of Regulatory Staff and the South Carolina Energy Office, SCE&G is a founding member and serves on the board of directors of Palmetto Clean Energy (PaCE), a non-profit organization dedicated to supporting renewable energy generation in South Carolina. Through incentives paid by PaCE to renewable energy generators, the organization encourages the development and addition of renewable energy resources, such as solar, hydro, biomass and wind energy to South Carolina's power supply. For more information and enrollment options, visit www.palmettocleanenergy.org.

Felicia Rhue Howard
Director, SCANA Demand Side Management
Green Committee Member

economically competitive with traditional energy sources, and they are likely to become more competitive over time.

Generating electricity from renewable sources produces far fewer greenhouse gases, little air or water pollution, and comparatively few human health risks compared to the burning of fossil fuels. Currently, South Carolina gets less than 3% of its energy from renewable sources (hydroelectric power about 2%; other renewables less than 1%).¹³

This plan recommends that the City, working closely with SCE&G and other utilities, encourages the development of renewable energy resources and to work with state officials to establish a statewide renewable energy portfolio standard equal to or greater than the national average. The City should lead the way by:

Establishing a renewable energy goal of 15% by 2020.

This goal for the City to derive of 15% of its electrical energy from renewable sources is modest compared to other municipalities. Other Cities are setting goals higher than 15% by 2020. Future innovations in renewable technologies might enable the City to easily exceed this goal. Consequently, City officials should be encouraged to increase this goal to keep pace with



The City and citizens can meet its renewable goals through small site installations of alternative energy sources, such as solar and wind energy generators.

changes in technology.

Los Angeles is scheduled to reach 20% renewable energy by 2010, and 40% by 2020 - at that point replacing all of its coal-fired power with renewable energy.¹⁴

Austin, Texas currently gets 12% of its energy from renewable resources, and has set a goal of nearly 40% by 2020.¹⁵

Grand Rapids, Michigan met its goal of 20% renewables in 2008. By 2020, Grand Rapids plans to meet 100% of its energy needs from renewable sources.¹⁶

The City should encourage development of large-scale sources of renewable energy, potentially including solar, tidal, and offshore wind.

Wind energy is an important energy resource for South Carolina, and it is a much more practical option than many people realize. As of 2006, wind farms supplied 20% of Denmark's electrical needs¹⁷, and by 2030, wind farms are expected to supply 25% of Europe's electrical needs.¹⁸ A 2009 U.S. Department of Energy study shows that wind energy could generate 20% of our nation's electrical needs.

Delaware is on the verge of building the nation's first offshore wind farm, and Rhode Island and New Jersey will soon follow suit.¹⁹

South Carolina's strong offshore winds could be harnessed to generate electricity, and this clean, renewable source could meet some of the state's energy needs. Production, deployment, and maintenance of offshore turbines would bring well-paid jobs to the Charleston area.²⁰ But the true economic development opportunity is even larger. An offshore industrial cluster in

SCHOOLS CASH IN ON ENERGY SAVINGS



Charleston County schools saved a total of \$253,563 in energy usage in 2008. In return, each school will receive 20 cents for every dollar saved, totaling to about \$47,000 to spend any way they like. This refund is part of the districts three-year voluntary energy conservation program that was started in 2008. The program is strictly voluntary, but rebate incentives, a monthly newsletter that provides energy saving tips, and a public good will are all that was needed for our county schools to save a lot of energy (and money).

Charleston Progressive Elementary School was among the top five energy savers in Charleston County schools by turning off lights and computers and doing without microwaves and refrigerators in the classroom.

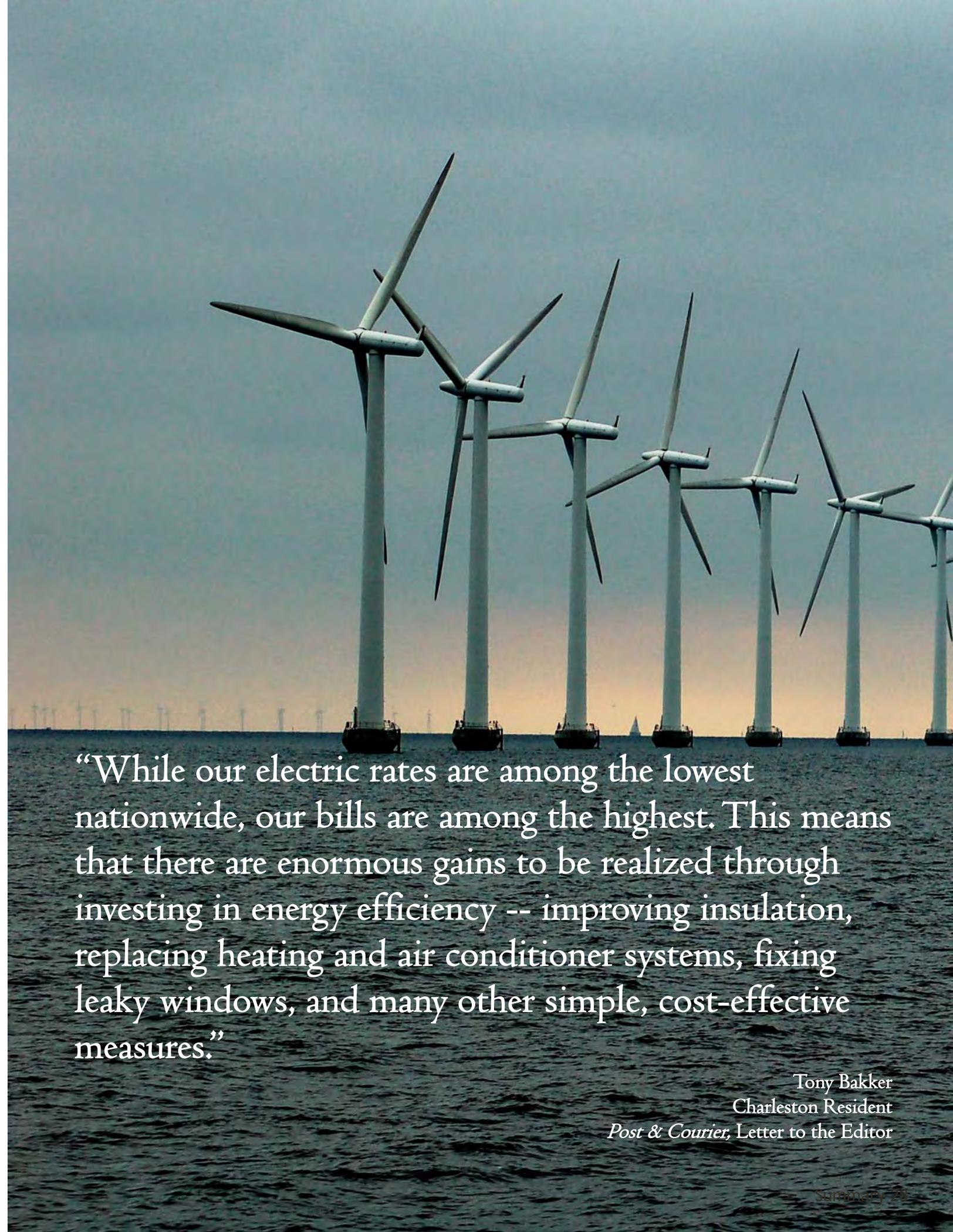
South Carolina could potentially capture locally up to 50% of the costs associated with building offshore wind farms, representing an estimated market greater than \$80 billion over the next twenty years.²¹

Finally, the City should encourage on-site generation of renewable energy.

Strategies include working with local partners to apply for renewable energy grants for public housing, working with SCE&G, amending ordinances as needed, and investigating financing mechanisms to facilitate installation of energy-generating devices at private homes.

Collaboration is Essential

The City of Charleston and its citizens relies primarily on SCE&G to provide its electrical and natural gas needs. The City will need to work closely with SCE&G, Berkeley Electric Cooperative and Santee Cooper to achieve the desired energy efficiencies and reliance on renewable energy to protect our climate, enhance our overall sustainability and promote health.



“While our electric rates are among the lowest nationwide, our bills are among the highest. This means that there are enormous gains to be realized through investing in energy efficiency -- improving insulation, replacing heating and air conditioner systems, fixing leaky windows, and many other simple, cost-effective measures.”

Tony Bakker
Charleston Resident
Post & Courier, Letter to the Editor

Sustainable COMMUNITIES

“We need to provide more sustainable housing options, like Charleston’s historic core, throughout the city.”

Elizabeth Hagood
Subcommittee Chair

Community design has a powerful impact on clean air, clean

water, and the rural areas and natural habitats areas that surround the city. More spread-out communities require more driving, which means more smog. And when communities expand outward they displace rural and natural areas. Community design also determines how much pollution is washed off of paved surfaces into surrounding water ways during rainstorms.¹

Automobile use is a direct result of how our communities are designed: how neighborhoods are laid out, and how they relate to one another. Community design can allow residents to use their cars sparingly, allowing them to choose walking, biking, and public transit more often. Community design can also promote more appropriate stormwater management practices.

Roughly 40% of Charleston's greenhouse gas emissions are related to transportation. To reduce these emissions and to protect the environment and

human health in other ways, it is necessary to reduce the use of automobiles over the next few decades. Fortunately, this is not as daunting a task as it may seem. Ingenious solutions are close at hand, right here in our own city.

Like all healthy cities, Charleston continues to grow and evolve. If the decision is made to grow responsibly - and to use the city's uniquely intact historic neighborhoods as a guide - we can dramatically reduce our dependence on the automobile for future generations. There will also be a special bonus for our children and grandchildren: Charleston will be cleaner, greener, healthier, safer, and generally more livable for our children and grandchildren.

Better Choices

Charleston is a national leader in not only the preservation of our historic structures, but in the preservation of our historic neighborhoods and communities. On the peninsula everything is close together. Homes casually mix with businesses, and residents enjoy the option of walking, biking, or hopping on a bus. Also, the public open spaces are some of the most beautiful in the world -

SUSTAINABLE COMMUNITIES

ACTIONS

1. Plan future growth to reduce vehicle emissions.
2. Decide first where growth should occur, then plan transportation accordingly.
3. Encourage sustainable site design.
4. Create a sea level rise adaptation plan.
5. Raise public awareness.



BENEFITS

Reduce energy costs



Create jobs



Improve public health



Protect clean air



Protect clean water



Conserve natural resources



Enhance quality of life



Slow climate change



Protect cultural identity



Raise awareness

perfect for anything from a morning jog to a neighborhood festival. People can happily live here without a car, and in fact many do.

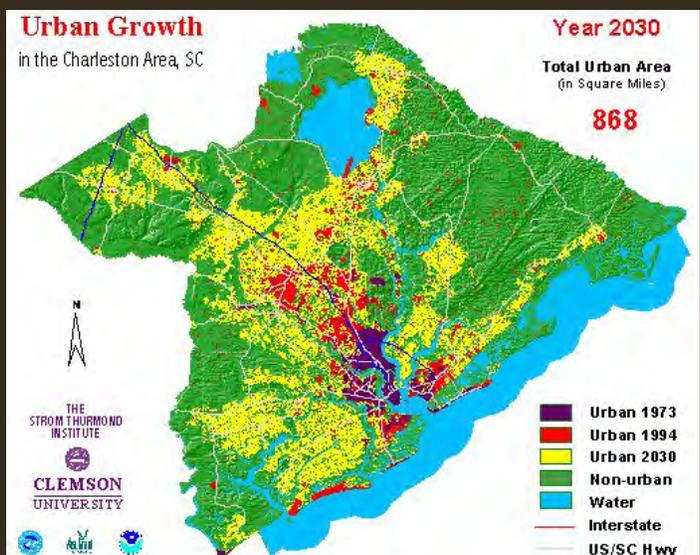
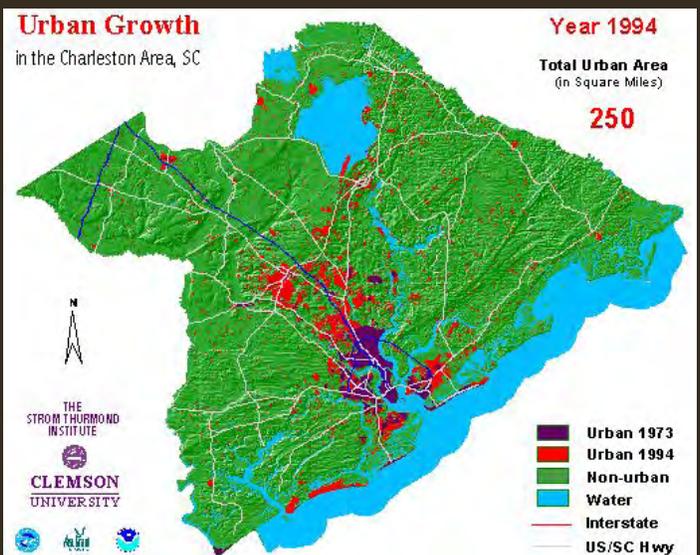
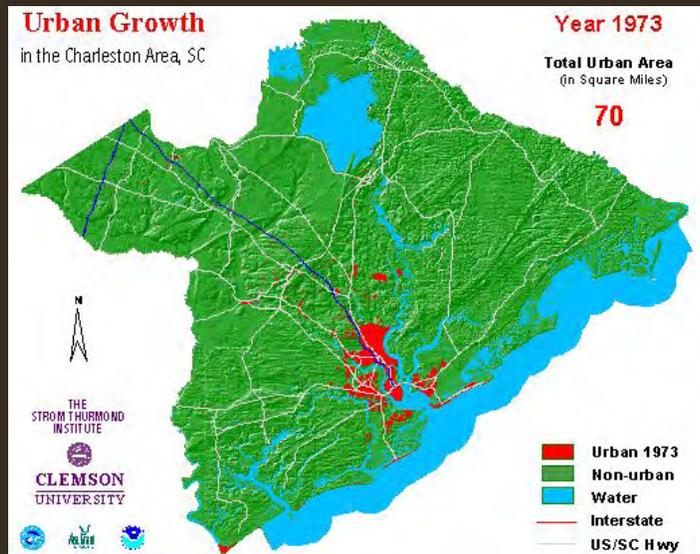
In other cities, core areas have fallen into decay, or fallen to the wrecker's ball. In newer cities, core areas may never have existed. Charleston is very fortunate to have preserved what other cities are now trying to rebuild or create from scratch.

However, in recent decades, Charleston has grown away from its original walkable design, becoming more spread out and more automobile oriented. The result is more heat-trapping gases, dirtier air and water, and the unnecessary loss of rural and natural landscapes.

People often assume that regions sprawl this way because of population growth, but this is not the case. Between 1973 and 1994, the population of Charleston, Berkeley, and Dorchester counties grew 41%, whereas the urbanized area grew 255%. In other words, the urbanized area grew about six times faster than the population.²

According to the most recent analysis, South Carolina ranks fourth in the nation, per capita, for its speedy conversion of rural land to urban uses.³ Moreover, South Carolina ranks fifth in the nation, per capita, for the amount of gasoline consumed.⁴

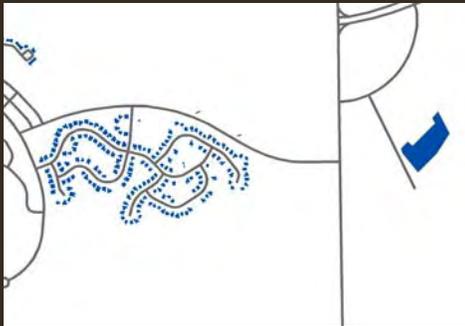
Urban expansion and gasoline consumption per capita, are an accurate gauge of whether our communities are designed to reduce, or to increase, auto use, heat-trapping gases, and negative impacts on clean air, clean water, and rural and



WALKABLE NETWORKS

Charleston has a long history of walkable neighborhoods. Connecting homes with services and jobs reduces dependency on cars, increases sense of community identity and enhances general livability. The City's goal is to build on its innate pedestrian network and provide alternatives to driving through increased connectivity with greenways, bikepaths and sidewalks to areas throughout the City. Well connected communities such as the one on the right, encourage walking.

Driving-only transportation pattern



- 7 minute drive to Piggly Wiggly
- 15 minute drive to Walmart
- 25 minute roundtrip to school
- 32 minute one-way to work



Driving-only transportation pattern in a West Ashley neighborhood and shopping center

Walkable connected transportation network



- 3 minute drive to Piggly Wiggly
- 5 minute walk to local clothing store
- 6 minute walk to school
- 9 minute one-way to work



Biking and walking to services enhances healthy habits and climate protection

natural lands. In the future, Charleston residents can make better choices about development, following the example of the historic peninsula that the city is so fortunate to have preserved.

Outgrowing Sprawl

Sprawl is not inevitable. In Europe, people not only walk and bike to nearby services; extensive public transit minimizes traffic and smog, and miles of productive farmland stretch just beyond the urban core.

In the United States, communities are now choosing to redevelop in a way that mimics these compact, sustainable patterns. The City and Charleston County have already agreed on an **urban growth boundary** to help contain sprawl. For the boundary to be fully effective there must be broader, regional agreement, and expansions of the boundary must be discouraged.

This plan recommends the following steps that the City can take to further align itself with the national movement to redevelop cities sustainably:

Encourage infill development in underused areas near the city core. These new communities should mix residential and

commercial uses with plenty of parks and public open space; they should be compact enough to support public transit; and they should be conducive to biking, walking, working, shopping, and playing near home;

Encourage the “retrofit” of suburban areas, connecting networks of smaller streets to reduce traffic jams on major roads and highways; adding nearby shops, parks, and employment opportunities so that people can choose to stay closer to home; and creating compact, transit-oriented communities along public transit lines;

Decide first where growth should occur, then plan transportation accordingly, rather than allowing big road projects to push urban sprawl into rural areas;

Create a regional public transit plan that supports the recommendations listed above; and

Encourage local food production and distribution, as well as the preservation of rural areas.

Once this plan is adopted, the next task will be to support the development of compact, sustainable communities, resulting in much greater choice for the housing consumer.

Research by the National

BEYOND SPRAWL



Getting beyond sprawl to redefine our sense of community and improve our quality of life is the challenge of Charleston in the 21st century. By encouraging walkability, buying local and planning well we can grow more sustainably.

Association of Homebuilders, the National Association of Realtors, and others indicates that there is considerable demand for housing in compact, sustainable communities. One-third of people surveyed say that they would rather live in a compact, sustainable community than in a typical subdivision. Also, if the location would shorten their commute, nearly 60% of people surveyed would prefer that choice.⁵

Currently, the demand for compact communities is much greater than the supply. As a

result, these communities are now 40% to 100% more expensive per square foot than houses in nearby subdivisions.⁶

Research indicates that if developers simply met this market demand, by 2050 this would reduce transportation-related carbon dioxide emissions by 7% to 10% from current trends.⁷ Among climate protection strategies, facilitating sustainable development is a remarkably inexpensive option. All it involves is shifting investments from the unsustainable to the

sustainable.

Sustainable Site Design

In addition to encouraging better design for entire communities, the City should also influence development decisions on a smaller scale. Here are two key examples:

Stormwater Management: In urban areas, stormwater runoff contains oil, gasoline, pesticides, petrochemical fertilizers, and other chemicals that are toxic to aquatic life. Conventional



Credit: Michael Schimpf Photography

Bennett's Point's outdoor classroom, in the ACE Basin, uses pervious surfaces to improve water quality and manage stormwater drainage.

stormwater management pours this runoff into street drains, then directly into surrounding bodies of water. Also, conventional stormwater systems often do not drain water efficiently, causing frequent floods. This plan recommends, instead, stormwater systems that filter polluted runoff through pervious pavements, healthy soils, and natural plantings. This protects clean water and also minimizes flooding .

Heat Island Effect: Cities become “urban heat islands,” consistently warmer than surrounding areas because of increased pavement, reduced vegetation, buildings that absorb heat and block wind, and waste heat from automobiles, air conditioners, etc. This increases demand for electricity, and consequently increases greenhouse gas emissions. This plan recommends investment in a multi-generation urban tree canopy, the use of pervious surfaces, and green roofs for new City buildings. These strategies, as well as the use of light-colored, reflective roofing, can help reduce the urban heat island effect.

Using a European pattern, our ancestors created a sustainable city where residents could easily work, shop, socialize, and relax near their homes. We still enjoy many acres of farmland and native ecosystems that once provided essential support for their community.

Now, cities around the country are discovering that the best way to meet the needs of future generations is to revive and reuse the old urban pattern that has been carefully preserved in downtown Charleston. Our city, then, finds itself in a privileged position - we are the new American role model for other cities that wish to develop more sustainably.

DESIGN WITH NATURE



Credit: Liollo Architecture

Buildings can be designed to work with natural infrastructure. A building’s site design can capitalize on existing natural systems and enhance the beauty and livability for its occupants.

In the design above, a multi-generational oak canopy is the framework for the design of the site and is preserved for future generations’ benefit.

“Charleston can continue to prosper and grow, without taking such a toll on our wildlife and waterways.”

Capt. Bryan Collins
Owner, Sandlapper Water Tours
& Green Committee Member

NATURE AS INFRASTRUCTURE



Credit: Rick Rhodes Photography

Buildings can live with nature and need not displace it. At the same time buildings benefit from Kiawah Island's natural air conditioning and stormwater management.



Waterfront Park's canopy shades visitors and residents while reducing City temperatures resulting from the urban heat island effect.

Advances in the science of Ecology have given us insights into the role that natural processes play in supporting human life on Earth. We have come to realize that the air we breathe, the water we drink, and even sewage treatment are the products of natural ecological processes. Collectively, the value of these “ecological goods and services” is greater than the economy of all the world’s nations combined: a staggering \$33 trillion (in 1997 dollars).⁸

Curiously though, we lost sight of this value as we developed our own cities and neighborhoods. As we built roadways, power grids, and all the underlying infrastructure of our built environment, waterways were polluted and cities became hotter as asphalt and buildings trapped the sun’s warmth. At the same time, pavement forced rainfall into the streets instead of recharging our groundwater, leading to increased flooding.

Now, as we begin to look for solutions, we are turning back to the role that nature plays in keeping our world livable. We can plant trees, for example, whose canopies shade the pavement, and whose roots break up the soil, allowing rain to recharge groundwater more easily. At the same time, tree trunks sequester the greenhouse gas, carbon dioxide, while leaves

OF OUR BUILT ENVIRONMENT



Credit: Wertimer & Associates

The use of native plantings reduces the need for more irrigation, saves money and absorbs stormwater while reducing runoff.



Credit: Phillip Dustan

Spartina marshes have always been nature's own filtration system that cannot be duplicated by any known human technology while providing us with birds to watch, shrimp, fish and oysters to eat and beautiful vistas.

absorb pollutants and release life-giving oxygen. No man-made machines can accomplish these feats so efficiently at any price.

Today, many of our human activities, pollution, deforestation, and urbanization, have diminished the ecological activity of natural communities. Yet this process can be reversed as we begin to take greater advantage of nature. Swales and wastewater gardens trap and cleanse stormwater runoff. Green roofs cool buildings, trap rainfall, and even become a local source of food. As we enhance the beauty of our environment through trees and natural plantings, we can also create safer, healthier, and more peaceful homes, more livable communities, and a deeper sense of place. All we need to do is open our hearts and minds to real values to realize that nature really and truly does provide the infrastructure for humanity and our built environment.

Dr. Phillip Dustan,
Professor of Biology, College of Charleston,
and Green Committee member

Improved TRANSPORTATION

“At the root of sustainability for transportation are *options* – choice of route, choice of mode – and this plan helps facilitate the number of options for moving people and goods efficiently and safely within the City of Charleston.”

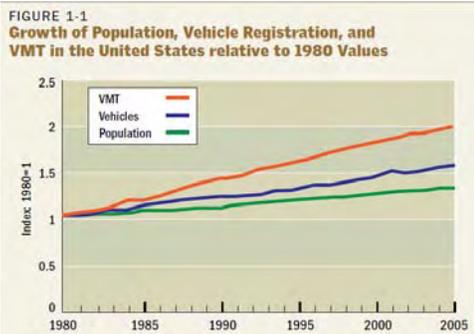
Jennifer Humphreys, AICP
Wilbur Smith Associates
Subcommittee Chair

The previous chapter mentioned that 40% of Charleston's greenhouse gas emissions are transportation related. This chapter continues the discussion about how to minimize transportation-related emissions.

It seems that an obvious way to reduce these emissions would be to improve vehicle and fuel technologies. But it turns out that, by itself, this cannot succeed. Even though vehicle and fuel technologies are advancing quickly, the total number of miles traveled in vehicles is expected to rise.¹

As the graph shows, between 1980 and 2005, the number of miles Americans drove grew three times faster than the population. This trend is expected to continue into the near future. Between 2005 and 2030 the number of miles driven is expected to grow 48% -- more than twice the population growth of 23%.²

In the Charleston region, the rate of population growth and increase in Vehicle Miles Traveled (VMT) is expected to align more closely than this



Source: Federal Highway Administration. "Vehicle Registrations, Fuel Consumption, & Vehicle Miles of Travel as Indices," *Highway Statistics 2005*.

national trend. According to the Berkeley-Charleston-Dorchester Council of Governments (BCDCOG) Long Range Transportation Plan (2003), the region's population is expected to grow by 34.6% from 2003 to 2030, with VMT growing approximately 39% in that same time period.

According to the Urban Land Institute, "the United States cannot achieve...large reductions in transportation related emissions without sharply reducing the growth in the number of miles driven."³ This conclusion is echoed by many groups, including the American Association of State Highway and Transportation Officials (AASHTO), which is now urging that the national growth rate of vehicle miles traveled be cut in half.⁴

Reducing Vehicle Miles Traveled

So why is Vehicle Miles Traveled soaring in the US? Because most newer communities, including Charleston's suburbs, separate workplaces and schools from residential areas and make residents dependent on automobiles for basic needs.

One way to reduce VMT is to rethink community design so that it is easier and safer to bike, walk, or use public transit. Borrowing principles from older areas like the Charleston peninsula, the nation's new, sustainable communities site homes closer to schools and workplaces, leaving green space to be enjoyed by the whole

IMPROVED TRANSPORTATION

ACTIONS

1. Reduce dependence on single-occupancy vehicles.
2. Increase convenient, reliable public transportation.
3. Expand bicycle and pedestrian options.
4. Increase fuel efficiency and use of biofuels.
5. Improve air quality.

BENEFITS

-  Protect clean air
-  Improve public health
-  Reduce traffic congestion
-  Reduce traffic noise
-  Enhance quality of life
-  Slow Climate Change
-  Raise Awareness

population. This provides expanded transportation options that past development patterns did not support. On average, residents of new, sustainable communities drive 20% to 40% less than in traditional suburban communities.

Even better, residents of Atlantic Station in mid-town Atlanta average 8 VMT per day, compared to the regional average of 32 VMT per day.⁵ Instead of using cars, Atlantic Station residents are walking, biking in dedicated lanes, or using a free trolley that carries 60,000 people per month to and from a nearby transit site. Also, the complex features a “commuter café” where people can find out about mass transit, car- and bike-sharing, and other sustainable commuting options.⁶

More Ways to Reduce VMT

Beyond recommending that the City encourage sustainable community design, this plan also recommends that the City take additional steps to reduce Vehicle Miles Traveled. Before discussing these recommendations, it should be noted that the City is already making important progress in this area:

Commuter Rail: State funds have been requested to create a commuter rail line between Summerville and Charleston. The estimated cost of \$75 million to initiate commuter rail service is a modest investment

CHARLOTTE LIGHT RAIL A BIG SUCCESS



In November 2007, the City of Charlotte opened a light rail line between its downtown area and the suburban South End. Within months the line was carrying nearly twice the number of weekday riders anticipated. Weekday ridership was expected to be 9,100 in the first

year. Instead, ridership averaged about 16,500 in June 2008.⁸

Interestingly, 72% of Charlotte’s light rail riders are new to public transit, with large majorities better educated and more affluent than the City’s bus passengers.⁹ Also, public transit ridership increased across the board by 16% after the light rail opened, easing fears that light rail would simply steal ridership from bus lines.¹⁰

Another success attributed to the new light rail is that it was designed to become a magnet for “transit-oriented development” – higher-density, mixed use communities deliberately created along the rail line. This transit planning was thoroughly integrated to foster economic development goals. In 2005, one report said that “the momentum of economic development in this corridor in anticipation of light rail has been outstanding,” with property values along the corridor increasing 89% between 2001 and 2004.¹¹

City officials encouraged this trend by creating special transit-oriented zoning near the rail line. Thousands of new dwelling units have been built or are planned in these areas.¹² As the City continues to encourage and approve new projects,¹³ Charlotte’s transit authority estimates that development along the rail line could total \$1.5 billion by 2011.¹⁴

compared to the cost of design, rights-of-way acquisition, and construction for adding more lanes to Interstate 26. Charleston's Mayor Riley strongly supports the commuter rail idea, saying, "I think the reasonable human expectation should be that people will use it like crazy."⁷

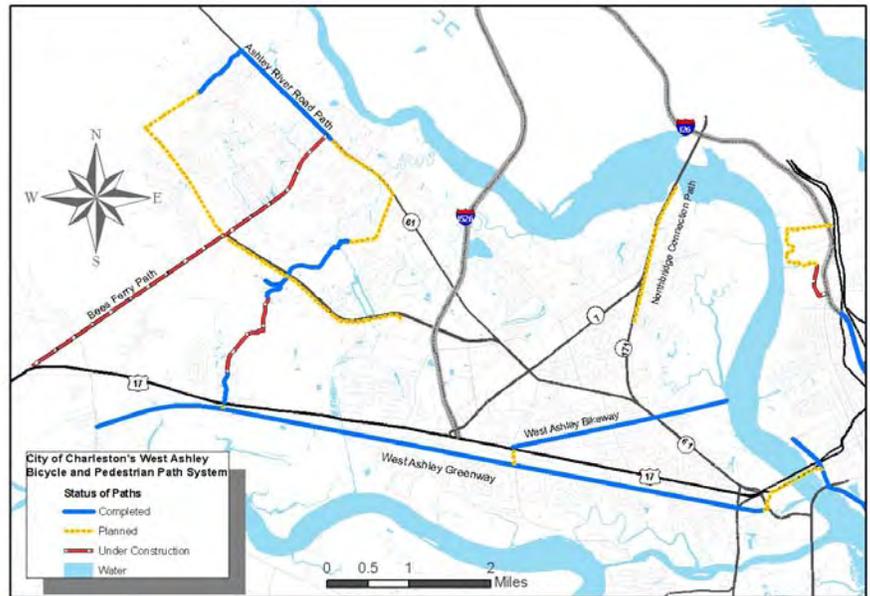
Bicycle & Pedestrian Network:

Charleston is also expanding biking and walking routes, as well as installing new bike racks throughout the downtown commercial district. Recent successes include a bike lane on the new Ravenel Bridge that continues on East Bay Street; a bike and walking path along the Ashley River; and extensions of the West Ashley Bikeway and Greenway among others especially regional connections. Another potential project is a bike lane on the Ashley River Bridge that connects the West Ashley Greenway to the Peninsula. Moreover, in May 2009, the City made a commitment to seek "Bicycle Friendly Community" status from the League of American Bicyclists. This will require creating a more complete network of bike routes and expanding efforts to promote bicycling.

This plan also recommends that the City work with state and regional partners to:

Promote more alternatives to single occupancy vehicles.

Strategies include considering support for programs that reward employees for carpooling, walking, biking, or using public transit; designing new "complete streets"



The growing pedestrian and biking greenways serve as alternatives to vehicular travel.



Sidewalks, crosswalks and trees make neighborhoods more walkable and safer.

that accommodate bicycles, pedestrians, public transit riders, and public transit vehicles and evaluating vehicle-free tourism areas in downtown Charleston.

Provide more support for biking and walking.

Strategies include developing a bicycle and pedestrian plan for the City and restriping appropriate streets to accommodate bicyclists, as



Biking to work can be healthy and save money.

well as fulfilling the requirements necessary to qualify for “Bicycle Friendly Community” status.

Further expand public transit. Strategies include locating bus routes to promote access to public service facilities to make paying bills and getting permits easier via alternative transit; requiring bus stops within new

developments and redevelopments along bus routes; and working with CARTA and Tri-County Link to enhance bus stop safety, provide adequate bus stop seating, and expand bilingual services.

Fuel Efficiency & Cleaner Fuels

Moreover, this plan recommends that the City help increase fuel efficiency and the use of cleaner fuels, again in partnership with state and regional agencies. This is important not just to reduce harmful emissions, but also to protect public health.

Air quality is a component to a sustainable and healthy Charleston. The EPA ranks air quality based on its health concerns through the Air Quality Index. There are six rankings from Good to Hazardous. Each level is



The CARTA bus system is a valuable asset for the City and its citizens.

determined based on the population size that is likely to be negatively affected by the quality of the air. “Unhealthy for Sensitive Groups” is determined when people with lung disease, older adults and children are at a greater risk from exposure to ozone, because persons with heart and lung disease, older adults and children are at greater risk from the presence of particles in the air. While most days of the year Charleston County experiences “Good” air quality, in 2008 there was one day where the air quality was considered as “Unhealthy for Sensitive Groups,” based on the US EPA’s Air Quality Index (AQI). There were no days in 2008 when Charleston County’s air quality was considered to be in the AQI’s “Unhealthy”, “Very unhealthy” or “Hazardous” categories.

The American Lung Association (ALA) has raised concerns about air pollution in Charleston County. Particle pollution, which comes mostly from diesel exhaust, is “the most dangerous, and deadly, of the widespread outdoor air pollutants,” according to the ALA. These small toxic particles cause asthma, stroke, cancers, heart disease, and premature death.¹⁵

Strategies for reducing fine particle pollution and other harmful emissions include:

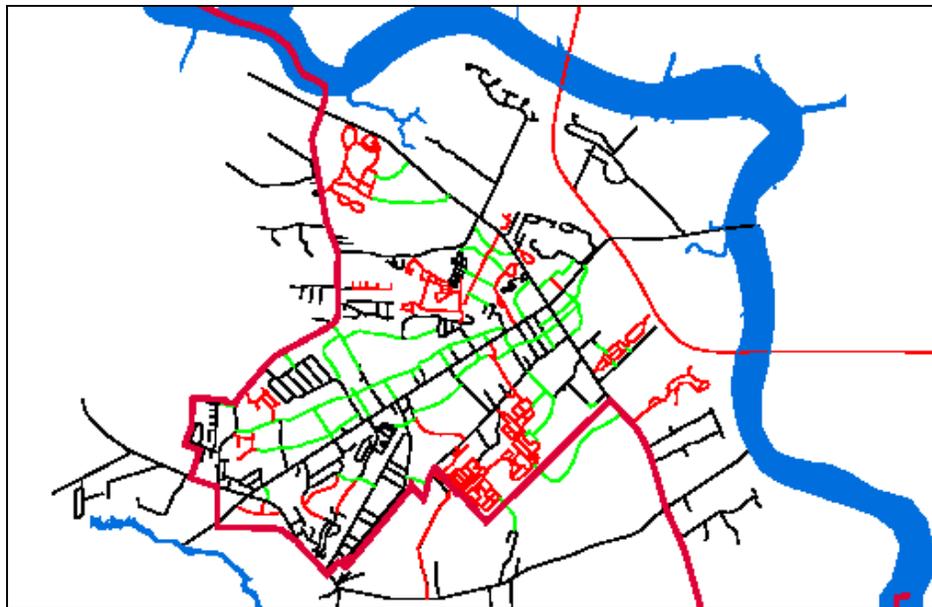
- Setting high standards for the purchase, use, and maintenance of fuel-efficient City vehicles;
- Supporting similarly high standards for the CARTA fleet;
- Continuously improving traffic flow;
- Enforcing anti-idling policies and anti-idling programs and technologies; and
- Supporting strict enforcement of speed limits, which reduces fuel consumption.



The City has a growing fleet of hybrid vehicles with high mileage and low emissions

In addition, this plan recommends that the City support a significant reduction in emissions from truck, train, and ship traffic. Specifically:

- Decreasing congestion of freight corridors by road



Proposed street network on Johns Island supporting connectivity between existing and new neighborhoods

- and rail to decrease freight travel times; and
- Using cleaner fuels and reducing unnecessary idling by ships, trains, buses, and trucks.

Specifically, this plan urges the City to identify opportunities to participate in the decision making process for policy and actions related to the Port of Charleston and local industries that have a significant impact on fuel efficiency, cleaner fuel, and air quality.

In 2008, the Charleston County Medical Society and the South Carolina Medical Association called for a reduction in fine particle pollution, expressing

particular concern about port facilities in and around Charleston.¹⁶ The City should play a more prominent role in encouraging emissions reductions from port facilities, industries, and vehicles.

Zero WASTE

“Governing efficiently and effectively means giving citizens sustainable options.”

Christine Cooley,
MUSC Sustainability Manager
Subcommittee Chair

This plan was developed during a time of great opportunity for the City to directly influence positive changes to waste management. During 2008 and 2009, issues coalesced to motivate and influence the waste management practices of the City, its citizens, and its businesses.

Beginning July 2008, the Bees Ferry Landfill no longer accepted construction and demolition waste from private haulers. In 2009, Charleston County Council committed to end its waste incineration program by January 2010. Also in 2009, Charleston County set a goal of a 40% recycling rate¹ -- four times the current rate. The County has also created a "Green Ribbon Committee" to evaluate existing waste management practices and gather public input.

Working in the context of these changes, the City of Charleston can capitalize on new opportunities to support progress on the County level and further the goals of climate protection and sustainability.

Where We Begin

Currently, Charleston participates in the County's successful but limited recycling and waste reduction program. For years, the County has been

burning 70% of its garbage in the incinerator, and putting 20% in the Bees Ferry Landfill.² Therefore, only 10% of waste is diverted from the incinerator and the landfill through recycling or composting.

As Charleston seeks to increase this "diversion rate," other cities and states can provide inspiring models. Six major cities nationwide, including Los Angeles, have diversion rates of 60% or better.³ California diverts 58% of its waste, and Maryland diverts nearly 50%.⁴ Major corporations are leaders in diversion as well. Safeway stores divert 85% of their waste, and Hewlett-Packard diverts more than 90%.⁵

The following recommendations roughly follow the EPA's solid waste hierarchy of reduce, reuse, recycle, and provide specific suggestions about how to proceed, focusing on the City and its potential to influence County decisions:

Zero Waste

The City should pass a resolution to have Zero Waste as its goal. Much as an employer sets "zero accidents" as a workplace goal, the resolution would frame the issue so that garbage is no longer accepted as inevitable.

In 2008, Zero Waste topped Newsweek's list of "10 Fixes for the Planet."⁶ Atlanta recently

ZERO WASTE

ACTIONS

1. Commit to a goal of Zero Waste.
2. Expand recycling and composting.
3. Explore energy recovery technologies.
4. Educate the public.

BENEFITS

-  Reduce energy costs
-  Conserve natural resources
-  Protect clean air
-  Protect clean water
-  Improve public health
-  Create jobs
-  Enhance quality of life
-  Slow climate change
-  Raise awareness

established a Zero Waste Zone downtown,⁷ and communities across the country, including Austin, Texas and Carrboro, North Carolina, are passing Zero Waste plans and resolutions.⁸ A Zero Waste resolution is an important first step that will establish the foundation for continued improvement and innovation within waste management services.

Waste Less, Pay Less

The City should encourage the County to create a structure that

allows businesses and residents to save money when they reduce their waste and recycle. Just as our utility bills are based on how much water or electricity we use, we should be billed only for the solid waste we throw away.

According to a federal EPA analysis, implementing such a system is “the single most effective action that can increase recycling and diversion, and can also be one of the most cost effective.”⁹ More than 7,000 municipalities nationwide, including 30% of the largest cities, use some form of this “unit-based” pricing.¹⁰ Fortunately, unit-based

pricing does not significantly increase illegal dumping of trash, as might be expected.¹¹

In the City of Charleston, unit-based pricing could divert more than 50% of the waste stream, or roughly 30,000 tons of waste per year, according to a federal Environmental Protection Agency calculation. This would save the City \$1.2 million annually in landfill costs.¹²

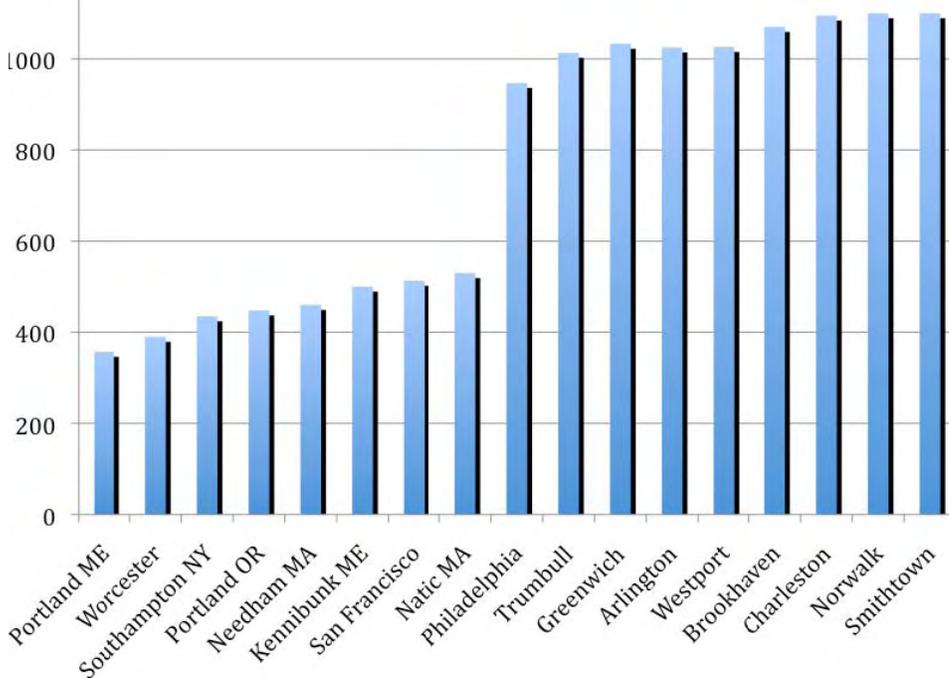
Purchase Wisely

This plan encourages the City to adopt a policy on “Environmentally Preferable Purchasing” (EPP). EPP programs require employees to reduce waste by purchasing products that are nontoxic, durable, repairable, long lasting, recyclable, compostable, energy efficient, and/or third party tested, when these products are comparable in life cycle cost and quality.

Benefits of EPP programs can include significant cost savings. Rather than buying cheap throwaway items again and again, EPP programs analyze costs throughout a product’s lifecycle.

Many municipalities, states, and the federal government have such programs, as do major corporations. The South Carolina DHEC recently drafted a policy for our state agencies and state universities. The City will set a

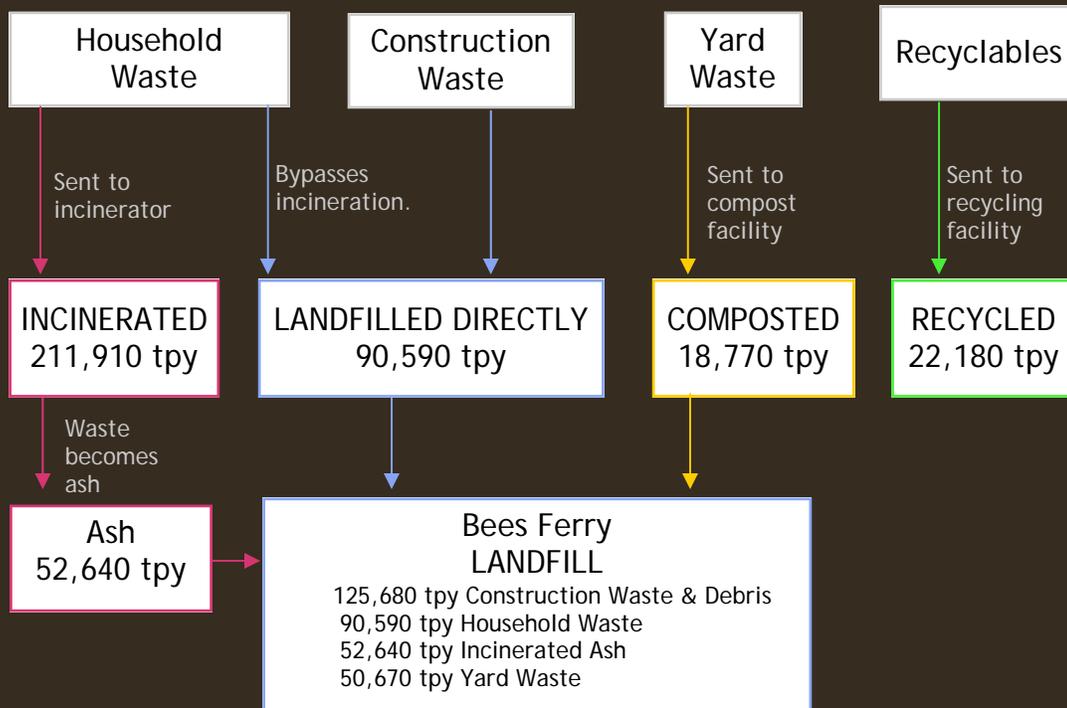
PER CAPITA WASTE IN COMMUNITIES SIMILAR TO CHARLESTON



The communities that pay the true cost of waste disposal are incentivized to waste less. Communities on the left use unit-based pricing with weekly curbside recycling, those on the right use only weekly curbside recycling.

Source: Kristen Brown, Green Waste Solutions

THE WEB OF WASTE MANAGEMENT



South Carolinians generate an average of 6.3 lbs of waste per day, of which approximately 4.3 lbs are disposed of via landfill or incineration and 2 lbs are recycled.

The category of waste most familiar to us is called municipal solid waste (MSW), and consists of common household waste materials such as paper, plastics, glass, textiles, tin and aluminum cans, food waste and yard debris.

MSW accounts for about 35% of South Carolina's total solid waste stream (TSW) - distinct from construction and demolition waste (C&D), which constitutes about 23%, and industrial solid waste, which includes agricultural, mining and manufacturing waste, which makes up the remaining 42% of the state's TSW.

In Charleston County, the municipalities are responsible for pick-up and hauling of residential waste, while the County provides recycling pick-up and maintains the disposal facilities. Until 2010, the County operated three facilities for waste and refuse disposal: Bees Ferry Landfill, the Montenay Incinerator, and Jenkins Recycling Center.

In 2009, Charleston County decided to no longer use the incinerator for garbage disposal. The County committed, instead, to increasing recycling rates in order to offset some of the increased MSW going to Bees Ferry; as well as explore alternative disposal methods to reduce the amount of waste sent to our landfill.

*TPY: ton per year

valuable standard for its employees, businesses, and residents by establishing such a policy.

Rethink Organic Waste

One of the biggest challenges in waste management is organic waste - food scraps, yard trimmings, soiled paper, and other organic materials. In Charleston, food scraps and yard trimmings make up roughly 35% of the household waste stream. When we bury these materials in a landfill, it releases methane gas - a greenhouse gas 21 times more potent than Co2.¹³

The solution, as communities across the country are discovering, is to compost organic waste. This process dramatically reduces methane emissions, produces a product that can be used or sold to farmers, landscapers and gardeners, and allows waste



Credit: Georgia Downey

Children get hands-on with food scraps during a vermicomposting workshop.

to reenter the natural cycle rather than being sent to the landfill.

In September 2009, Charleston County Council voted to compost all yard waste brought to the Bees Ferry Landfill, and to investigate the potential to compost other organic waste as well.¹⁴ Cities in North Carolina, Minnesota, Michigan, Colorado, California, and Washington State are collecting organic material, including food scraps, for composting.¹⁵ San Francisco has the premier organic waste program in the country. More than 400 tons of organic waste, including food scraps, are collected at the curb each day and composted.¹⁶ Among the recommendations, therefore, is to support composting opportunities throughout the City.

Increase Recycling

Recycling is a critical element of any waste management system. Recycling not only reduces pollution associated with waste disposal; it also reduces the pollution, environmental damage, and heat-trapping emissions associated with extracting, transporting, and processing

Mohawk Carpet: cradle to cradle manufacturing



Mohawk Carpet, located in Summerville, Ga is a large scale purchaser of Charleston County's soda and water bottles. Last year they purchased 128 tons of Charleston County's #1 bottles.

Annually, they keep 3 billion bottles out of landfills by processing 25% of all the bottles collected in North America made from polyethylene terephthalate (PET, #1) to produce 170 million pounds of recycled fiber for the production of carpet. Mohawk carpets are sold by retailers throughout Charleston County, and is marketed with its ReCover program allowing customers to have old carpet picked up and recycled into new products, or into new Mohawk carpet.

By purchasing recycled materials Mohawk achieves:

- smarter resource use,
- lower emissions from recycled production and regionalized transportation cycles,
- reduced landfill tonnages,
- higher rates of job creation and
- better stewardship.

virgin materials. Moreover, recycling saves energy: producing an aluminum can from virgin materials, for example, requires 20 times more energy than when recycled metal is used.

The City should therefore adopt, or encourage the County to adopt, the following policies (some of which are already in the planning stages):

Increase construction and demolition waste diversion (recycling and salvage/reuse):

In South Carolina, construction and demolition (C&D) waste represents roughly one-quarter of our total solid waste stream,¹⁸ yet only about one-third of it is typically recycled.¹⁹ It is possible, however, to divert 90% of construction job site waste and 80% of demolition waste from the landfill.²⁰ Some cities require 50% - 90% diversion, depending on the type of construction waste.²¹ The City, therefore, should commit to diverting a high percentage of its own construction waste. The City should also encourage private builders, with incentives, to recycle, ultimately moving toward specific recycling requirements tied to building permits and building inspections.

Make recycling easy, and

mandatory: According to the County's solid waste consultant, we could more than double our current residential recycling rate of 22,000 tons per year, recycling 45,000 tons instead. To accomplish this goal, we should make recycling as easy as throwing out garbage. For example, recycling collection should be as frequent as garbage collection, and larger, rolling recycling containers should be available. Also, recycling should be required for both homes and businesses.

Recycling is mandatory in many cities across the country, including Pittsburgh, Seattle, San Diego, Wilmington, North Carolina, and Cambridge, Massachusetts.²²

Expand Materials Collected:

Residential curbside recycling pickup should be expanded to include cardboard and all plastics #1 through #7, not just the plastics bottles, jugs and jars #1 and #2 that are currently accepted.

- Cardboard is roughly one-quarter of all municipal recyclables collected in South Carolina.²³ Charleston County does recycle cardboard, yet does not provide curbside pickup due to the limited



Charleston County recycles 10% of the municipal waste stream. In 2009 it established a goal of increasing recycling to 40%.

capability of the current recycling truck fleet to hold large sheets of cardboard. The solution is to use a compactor truck, typical for garbage collection, to haul cardboard for recycling.

- Plastics #3 through #7 and #1 and #2 other than bottles, jugs, and jars are not currently accepted by the County for recycling. The recommendation encourages the County to explore commodities markets for these plastics, and expand curbside recycling pickup to include them. While plastics account for a small percentage of total recyclables collected in South Carolina (2%), they

AIRPORT RECYCLES



Credit: Charleston County Aviation Authority

The Charleston County Aviation Authority successfully launched their Recycling Program in July of 2009. Significant in that commercial recycling is entirely voluntary and they worked closely with the Charleston County Government and DHEC to train their employees and obtain the proper receptacles. They successfully diverted 90 tons of trash from the landfill over the first nine months and helped lead the way for other commercial operations to reduce their waste streams and demonstrate there are cost savings to be realized at the same time.

The education of their tenants and staffs will undoubtedly extend beyond the daily operations and into their personal lives as well. Prominent recycling messages also set an important tone for the many visitors coming through the airport letting them know Charlestonians are proud of their natural environment and are working to retain the beauty and character of Charleston.

are a rapidly growing segment of our municipal solid waste stream.²⁴ Therefore, capitalizing on recycling opportunities to keep plastics out of the landfills will have a great impact on overall waste reduction.

Provide public recycling bins, and require recycling at events. Public and event recycling are visible statements of the City's commitment to zero waste. We should not underestimate how important this can be for visitors from places where recycling is the norm.

Energy Recovery Technologies and Landfill

Efforts such as unit-based pricing, environmentally preferable purchasing, composting, and recycling should reduce our waste stream by 40% or better. While we are working to reduce our waste stream to as close to zero as possible, the residual solid waste could be converted to an energy source. Creating energy from our residual solid waste would be preferable to landfilling. All such energy recovery technologies should meet or exceed federal and state air quality standards and should recycle materials like metal and glass not converted to energy. Energy recovery technologies should not undercut the economics or take the place of source reduction, composting, and recycling.



Credit: MUSC

MUSC has an aggressive recycling program which significantly reduces the waste stream from all campus sources.



The second annual Green Fair recorded a 93% waste diversion rate. Vendors were required to use compostable and recyclable materials and participants were encouraged to use reusable containers.

Green EDUCATION



“Outreach and education are the tools of the sustainability trade; with this plan we have broken ground. Now its time to roll up our shirtsleeves and get to work.”

Jenny Bloom,
Recycling Education Coordinator, Charleston County
Education Subcommittee Chair

The Education Subcommittee supports the recommendations developed by the subcommittees of the Green Committee, as well as the best practices associated with these recommendations. This subcommittee also develops public outreach and educational efforts that go beyond the issues covered by the subcommittees, but serve the greater purpose of the Green Committee.

In the future, our efforts will become more varied as we develop programs to reach out to inform the public, Charleston businesses, and City employees about the recommendations.

From training volunteers to collect recyclables at City events in support of the Zero Waste Subcommittee; to creating resource guides on the web to help residents interested in weatherization per Building and Energy subcommittee goals; to advocating for more sustainable practices in City offices and schools, the Education Subcommittee helps the Sustainability Director and Charleston residents implement the programs that will move this plan's recommendations into everyday practice.

Since early 2009, some forty subcommittee members have

met monthly and worked more frequently in committee to develop educational programs to facilitate the big picture outlined within these pages. Unlike the other subcommittees, we are not asking the City to adopt additional recommendations. We exist to support the recommendations of other subcommittees with action and advice.

Some subcommittees will use the Education Subcommittee as a research and resource base, and some will rely on our combined skills to address larger marketing and outreach goals to "message" our community's directional shifts. Community outreach and education efforts will focus on introducing new opportunities and technologies, as well as age-old, simple behaviors and practices that impact environmental preservation and energy conservation, and support healthier, more sustainable lifestyles. Our campaigns and actions are based on what will be most helpful to the City in becoming a leader in sustainable operations.



Green Committee in action

GREEN EDUCATION

ACTIONS

1. Provide volunteer training and support
2. Research and resource development
3. Develop curriculum and outreach

BENEFITS

-  Reduce energy costs
-  Create jobs
-  Improve public health
-  Protect clean air
-  Protect clean water
-  Conserve natural resources
-  Enhance quality of life
-  Slow climate change
-  Protect cultural identity
-  Raise awareness

MOVING FORWARD

“I’m excited about taking the Green Plan to the street -- in my neighborhood just a little education would make a big difference.”

Nina Fair,
Principal, Fair Consulting, LLC
Green Committee Member

From its inception the Green Committee has benefitted from the enthusiastic participation by a diverse cross section of the community. Over two years, attendance at monthly meetings was consistently strong - 75-147 people came out to learn and study best practices and innovative ideas from around the country and around the world. Perhaps the strongest aspect of the recommendations in this document is that they are the culmination of hundreds of people working in subcommittees focusing on the details in order to determine what will work here in the Lowcountry. The City of Charleston's unique set of jurisdictional challenges and opportunities combined with its climate, geography, and existing infrastructure were all considered as the committee planned not only what should be adopted but also how to ensure implementation.

Initially tasked with the development of this plan by Mayor Riley in October 2007, in many ways the work of the Charleston Green Committee has only just

begun with its submission to City Council for adoption. The Committee is dedicated to engaging the community of Charleston, including its schools, businesses, and community organizations, in the implementation of this plan, as well as the implementation of other long-term goals that will make Charleston a healthier, more sustainable, and more environmentally-friendly city.

Some of the recommendations detailed in this plan are the "low-hanging fruit" - short-term tactics proposed because of their low cost and ease of implementation while other recommendations are for the long term, intended to be a guide for future policies, programs, and objectives.

Other recommendations consist of education, study, testing and/or implementation. The Green Committee will continue to take a leadership role in advocating for more sustainable practices and educating and supporting the City and its staff and the public on the goals of its work particularly through the Green Committee's Education Subcommittee, and assisting with implementing its recommendations.

Bringing the plan into being will be a cooperative, all-inclusive effort of both private and public enterprise.

The work will include:

- Community outreach, education and public awareness campaigns on the concepts, goals and recommendations presented in the plan; and
- Regional leadership and cooperation and public-private collaboration.

Community Outreach, Education and Public Awareness

Over the past two years of the plan's development, the Green Committee has been involved in many public events and activities, and has developed a presence in the community as a source of information and advocacy on sustainable development and green living. The Green Committee has also created tools to engage the citizens and businesses of Charleston to help them understand and support the various initiatives of the Committee.

These resources are listed in the box to the right.

Continued reliance on these and development of new resources will be important to community outreach and education, as well as the implementation of the Green Committee's recommendations and a focus of its ongoing work.

Moving forward, the Education Subcommittee will be working hand in hand with the other subcommittees to continue efforts to engage the public, Charleston's business community, and City staff with tools and resources to increase awareness, understanding, and support for more environmentally responsible and sustainability-driven



Practicality and feasibility of the recommendations were major priorities for James Meadors of Meadors Construction, Green Committee Chairman.

practices. Education and outreach efforts are critical to the success and utility of the plan, as well as the acceptance and support of the overall sustainability movement. As enthusiasm and participation continue to grow, with new people joining the ranks each month, the Committee welcomes everyone to the table.

With these ideas in mind, perhaps the most critical piece is to acknowledge the great impact small changes can make to collectively achieve long term sustainability and environmentally responsible lifestyles. The common theme to ensure success in all areas is to educate and raise awareness by continually being in front of people with the message until this new way of life becomes routine.

Collaboration and Leadership

Some of the plan's recommendations go beyond the boundaries of the City of Charleston, transcending our jurisdiction, and ultimately will need regional cooperation to succeed. Several transportation

ALONG THE WAY

- Earth Day Resolutions adopted by City Council April 23rd, 2008. See appendix for details.
- A guide for construction and demolition waste diversion;
- Event volunteers to support recycling, which led to an event recycling training program;
- Financial support and advice in the initial development of a "one-stop shop" energy efficiency and financing program for improvements for all buildings within the City;
- Support for events such as the first Charleston Green Fair and the region's first Lawn Mower Exchange;
- Educational tools to share the work and success of the Green Committee with others as well as;
- An independent website hosting information and resources related to Green Committee activity.

GREEN WORKS



Katie Wells runs KEW Solutions, Inc., a Charleston-based service training company that works with hotels and convention centers nationwide. Earlier this year, her “green” credentials landed her a contract to train service staff for the G-20 summit at the Pittsburgh convention center -- the first convention center in the U.S. to be certified “LEED Gold” for its sustainable features, including rigorous recycling.

“Being green has given my business a competitive edge.”

Here in Charleston, Wells helped start the local Green Fair, and used sustainable practices in a recent office renovation. What’s more, every time she lands a new client she gives a generous donation to support environmental education in local schools. “Hey,” says Wells, “I need to practice what I preach!”

recommendations depend on coordination with CARTA and the BCDCOG. Likewise, many waste management and recycling recommendations relate to the County’s plans for improved efficiency, waste diversion, and alternative disposal options. The City is in a position to support, and in some instances spearhead, regional efforts to foster sustainable growth and development. The plan also encourages the City to use its authority and influence to remove barriers and enable opportunities for businesses and citizens to engage in a more sustainable community and have more environmentally conscious lifestyle choices.

Implementation will also require the cooperation of both private and public sectors. Neither the burden nor the benefit of this plan’s recommendations will fall completely on the City, its citizens, or its business community. The City must seek to lead and influence private enterprise and civic leaders to engage in more sustainable practices, and, in turn, private enterprise and the citizenry must support the City with their own initiative and innovation. The City is in a

strong position to lead and to use its authority to create a positive arena in which to grow and develop sustainably, and businesses and citizens will benefit by taking the initiative and assuming responsibility for their own future and the future of the City.

Plan for the Future

The plan has been designed, in part, so that successful implementation will lead to further initiatives and practices that support a more sustainable City. Tracking and benchmarking progress is essential. A first step of the Green Committee was to take stock of current conditions. The City inventoried greenhouse gas emissions by sector, analyzed them over time (2002 and 2006), and compared them to emissions in other cities. With this inventory in mind, the subcommittees made recommendations to facilitate better environmental management, combat climate change, and encourage sustainable growth and development. The continued tracking of greenhouse gases and other metrics is an important

component of the plan's implementation and is suggested throughout many recommendations. Tracking and benchmarking should continue with a 2010 greenhouse gas inventory, if not sooner.

Tracking and benchmarking data related to the recommendations will enable the City to evaluate progress over time as well as to help prioritize and refocus efforts if needed, and inform further initiatives and improvement. As initiatives are implemented and successes achieved, the process starts over. New goals are set, new practices are developed, and new successes achieved - the process is cyclical, constantly evolving for a better City, better services, and better investment in a more sustainable future.

The City of Charleston has an expressed motivation and commitment to sustainability as a principle of growth and development - social, cultural, economic, and environmental. This is evident in the City's 2008 Preservation Plan, all of its recent and ongoing comprehensive planning and numerous projects and programs intended to conserve energy, reduce environmental impacts of urbanization, and retain a high quality of life in Charleston.

In addition, much of the work

SUSTAINABILITY DIRECTOR

Starting in October 2009, this commitment expanded to include a City Sustainability Director - a new position and a new division in the Department of Planning, Preservation, and Sustainability. The Sustainability Director will take the lead on many of the issues outlined in the plan, and serve as counsel for the Mayor and City staff on issues of climate protection and sustainability.

"It is an exciting time to come to Charleston where there are already so many resources and successes. We certainly need and expect to create more and I am happy to be a conduit and a liaison for you."

Brian P. Sheehan
Charleston's 1st Sustainability Director

Within City operations, sustainability cannot stay confined to a single department. It must transcend all departments and all operational initiatives. Therefore, the Sustainability Director's duties will include helping to establish an environmental ethic throughout City government and among the public at large. At a minimum, each department should develop its own sustainable operations plan using the City of Charleston's Green Plan as a guide and resource. By integrating the principle of sustainability into all levels of government and operations, it can serve as a foundation for all new policies, programs, and objectives.

that is outlined in this plan will and must ultimately be performed in the community, beyond the reach of government. It is therefore imperative that the Green Committee continue to function as the go-to resource, not only for all levels of government and its operations, but also for every citizen and business that has come to rely on it through the development of this plan.

The Green Committee's make-up and representation is a strategic advantage, not

only for the City of Charleston but also for the region. It can and should continue to be a primary resource for this and other communities. Its ability to shift resources and refocus efforts quickly will help capture new opportunities beyond those ever envisioned in this plan. Although the structure of and representation on the Green Committee can and will change over time, again, this fluidity will allow for rapid response as well as permanence over the generations, both of which

are necessary ingredients to success.

The Green Committee's network of professionals, students, citizens, businesses, non-profits and community stakeholders is quite simply the most dynamic force for positive change in the region and a tremendous asset in sustaining these efforts moving forward.



Mayor Riley works with Buist Academy students to plant a tree that will have a benefit to future generations.

Green Plan Online

In an effort to preserve trees and reduce greenhouse gas emissions, this document is available online at www.CharlestonGreenCommittee.com and www.CharlestonCity.info. When printing, please print on recycled paper. We also hope that you will help us continue to be sustainable by sharing printed plans with friends and recycling it when needed.

Green Plan Creative Direction, Editing & Design



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