

US EPA ARCHIVE DOCUMENT

December 19, 2003

Mr. J. I. Palmer, Jr., Regional Administrator
USEPA, Region 4
Sam Nunn Atlanta Federal Center
61 Forsyth Street, SW
Atlanta, GA 30303

Dear Mr. Palmer:

As a requirement for continued participation in South Carolina's 8-Hour Ozone Early Action Compact, enclosed you will find the December 2003 Progress Report completed by participating counties and the South Carolina Department of Health and Environmental Control (DHEC). Enclosure 1 includes the report for DHEC and Enclosure 2 includes the report for each participating county, grouped by the following areas:

Appalachian: Anderson, Cherokee, Greenville, Oconee, Pickens, Spartanburg
Catawba: Chester, Lancaster, Union, York
Pee Dee: Chesterfield, Darlington, Dillon, Florence, Marion, Marlboro
Waccamaw: Georgetown, Horry, Williamsburg
Santee Lynches: Clarendon, Kershaw, Lee, Sumter
Berkeley-Charleston-Dorchester: Berkeley, Charleston, Dorchester
Low Country: Beaufort, Colleton, Hampton, Jasper
Lower Savannah: Aiken, Allendale, Bamberg, Barnwell, Calhoun, Orangeburg
Central Midlands: Fairfield, Lexington, Newberry, Richland
Upper Savannah: Abbeville, Edgefield, Greenwood, Laurens, Saluda

The modeling and emissions inventory components of the early action process remain on schedule. Meetings continue to be held with local stakeholder groups to assist in determining the emission reduction strategies that will be included in the final local Early Action Plans due to EPA in March 2004. DHEC has requested assistance from EPA, Region 4 in determining emission reductions from proposed strategies.

Thank you for the assistance and support EPA has provided in this process. We look forward to continuing to work with EPA as we implement measures to achieve cleaner air sooner for South Carolina and our neighboring states. Should you have questions or desire additional information, please do not hesitate to contact Jim Joy, Chief of DHEC's Bureau of Air Quality at (803) 898-4123 or Henry Phillips of his staff at (803) 898-3260.

Sincerely,

R. Lewis Shaw, P.E.
Deputy Commissioner
Environmental Quality Control

Enclosures: 1. South Carolina DHEC December 2003 Progress Report
2. December 2003 Progress Reports for Participating Local Areas

cc: Kay Prince, EPA Region 4
County Officials (no attachments*)
Ron Methier, GA Dept. of Natural Resources (no attachments*)
Keith Overcash, NC Dept. of Environmental and Natural Resources (no attachments*)
EQC District Directors (no attachments*)

*All those not receiving attachments will be notified when materials are placed on website.

Statewide Initiatives and Emission Reduction Strategies

Early Action Compact Milestone December, 2003
 List of Emission Reduction Strategies Under Consideration
 Bureau of Air Quality – DHEC
 State of South Carolina

Based on stakeholder consultation and taking into consideration resource and political constraints, the following control measures under consideration can be reasonably implemented. It is anticipated these measures under consideration will assist South Carolina in achieving and/or maintaining the 8-hour ozone standard by 2007 and beyond.

Measure under Consideration	Detailed description of measure	Current assessment of emission reductions	Proposed date for implementation	Geographic area and/or local government
Ozone Forecast/Outreach and Education	The Division of Emissions, Modeling and Support develops a forecast for the 8-hour ozone standard. The forecast is for four areas within South Carolina. These areas include the Upstate, Central Midlands, Central Savannah River and Pee Dee. The Catawba area, including Chester, Lancaster and York counties is included in North Carolina's forecast through a cooperative partnership. A link for the Catawba forecast is included on DHEC's website. This year, 2003, was the first year that South Carolina forecasted for the Pee Dee area. The Division of Air Planning, Development and Outreach is responsible for disseminating the ozone forecast to interested individuals and groups across the state, primarily during the summer months. The forecast serves as a public health advisory to protect those persons who are most at risk to the effects of ozone.	Directionally Sound	Ongoing	Forecast Areas: Upstate area - Anderson, Oconee, Pickens, Greenville, Abbeville, Laurens, Greenwood, Spartanburg, Cherokee, and, Union counties. Central Midlands area – Newberry, Fairfield, Kershaw, Lexington, Richland, Calhoun, Kershaw, and, Sumter. Central Savannah River area – Allendale, Barnwell, Aiken, Saluda, Edgefield, and, McCormick. Pee Dee area – Lee, Darlington, Florence, and, Chesterfield
Support activities implemented by local areas participating in the EAC	SC has been and will continue to work with EPA to assist local areas in determining the emission reduction strategies that will assist the area in achieving emission reductions needed for attaining and maintaining the 8-hour ozone standard within their respective area. The Division of Air Planning, Development and	Directionally Sound	Ongoing	Statewide

Refer to the December 2003 Progress Reports submitted by individual areas for additional activities.

Measure under Consideration	Detailed description of measure	Current assessment of emission reductions	Proposed date for implementation	Geographic area and/or local government
	<p>Outreach continues to develop a Resource Guide for Air Quality Improvement that contains useful information to assist counties in planning for cleaner air sooner. This guide is a work-in-progress in which DHEC will continue to search for new information and ask that any information gathered and/or found by counties be shared so that it can be added and used for the benefit of everyone. This guide consists of informational text, pamphlets, hand-outs, useful websites, and other resources that will serve as a tool for county planning.</p> <p>Fact sheets have either been developed or revised to assist with understanding ozone, ozone monitoring and the ozone design value. Copies of these fact sheets were included in the June 2003 submittal.</p> <p>Forms for the milestones have been developed by the Division and provided to the participating areas to assist with the reporting aspect of the EAC. These forms were approved by EPA and were shared with other states involved in the EAP process.</p>			
Open Burning	<p>Revise the existing state regulation (R.61-62.2, Prohibition of Open Burning) to reduce statewide NOx/PM/CO emissions. The DHEC Board granted initial approval of the proposed regulation on October 9, 2003. An informational forum was held on November 24, 2003. Final approval by the DHEC Board will be requested January 8, 2004, for submittal to the state legislature.</p>	Currently Evaluating	<p>Promulgation should occur by June 2004. Implementation expected by 2005.</p>	Statewide
South Carolina NOx Control Regulation	<p>This proposed regulation is designed to help control the growth of NOx emissions statewide and focuses on sources currently not subject to NOx control requirements. This proposed regulation would apply to new NOx sources but would exempt units that are regulated by other NOx regulations with equivalent requirements. The DHEC Board granted initial approval of the proposed regulation on October 9, 2003. An informational forum was held on November 24, 2003.</p>	Currently Evaluating (See Attachment 1)	<p>Promulgation should occur by June 2004. Implementation expected by 2005.</p>	Statewide

Refer to the December 2003 Progress Reports submitted by individual areas for additional activities.

Measure under Consideration	Detailed description of measure	Current assessment of emission reductions	Proposed date for implementation	Geographic area and/or local government
	Final approval by the DHEC Board will be requested January 8, 2004, for submittal to the state legislature.			
CAIGE	Develop, implement and market a plan for reducing ground-level ozone precursors by state government.	Voluntary efforts Directionally Sound	April 2005	Statewide
Smart Highways	A plan to ensure transportation plans, programs and projects consider statewide and local air quality goals. Certain aspects of the Transportation Conformity regulations may be incorporated into such a plan.	Not applicable		Statewide
Initiative to reduce NOx emissions from large facilities within South Carolina	Staff within the Bureau of Air Quality, have met with some of the "larger" facilities in South Carolina to negotiate NOx emissions through the permitting process. Those reductions will be made available once they are finalized.	Currently Evaluating	April 2005	Statewide
Tier 2 standards	Federal emission standard for passenger cars, light trucks, and larger passenger vehicles. Program designed to focus on reducing the emissions most responsible for the ozone and particulate matter impact from these vehicles, including NOx and VOCs.	Currently Evaluating (See Attachment 2)	Phase in period 2004-2007	Statewide
Low Sulfur	Program to reduce average gasoline sulfur levels nationwide	Currently Evaluating (See Attachment 2)	Phase in period 2004-2007	Statewide
NOx SIP Call	Federal Rule calling for SIP revision that requires sources in 17 states, including South Carolina to reduce summertime NOx emissions.	18 percent reduction in NOx (See Attachment 2)	2004	Statewide

Refer to the December 2003 Progress Reports submitted by individual areas for additional activities.

Estimated Reductions Achieved by NOx Control Standards from Uncontrolled Levels

Source Type	Control Technology and/or Emission Limit	Percent Reduction from Uncontrolled
Boilers and Water Heaters		
Natural Gas Fired Boilers		
≥10mmBTU/hr and < 100mmBTU/hr	Low NOx Burners or equivalent technology capable of achieving 30ppmv @ 3% O2 Dry (0.036 lb/mmBTU)	50% ¹
≥100mmBTU/hr	Low NOx Burners + Flue Gas Recirculation or equivalent technology capable of achieving 30 ppmv @ 3% O2 Dry (0.036 lb/mmBTU)	50- 60% ¹
Distillate Oil Fired Boilers		
≥10mmBTU/hr and < 100mmBTU/hr	Low NOx Burners or equivalent technology capable of achieving 0.15 lb/mmBTU	50% ¹
≥100mmBTU/hr	Low NOx Burners + Flue Gas technology capable of achieving 0.14 Recirculation or equivalent lb/mmBTU	60% ¹
Residual Oil Fired Boilers		
≥10mmBTU/hr and < 100mmBTU/hr	Low NOx Burners or equivalent technology capable of achieving 0.3 lb/mmBTU	50% ¹
≥100mmBTU/hr	Low NOx Burners + Flue Gas Recirculation or equivalent technology capable of achieving 0.3 lb/mmBTU	60% ¹

Refer to the December 2003 Progress Reports submitted by individual areas for additional activities.

Multiple Fuel Boilers		The emission limits for boilers burning multiple fuels are calculated in accordance with the formulas below. Additional fuels shall be addressed on a case-by-case basis.
≥10mmBTU/hr and < 100mmBTU/hr	$E_n = [(0.036 \text{ lb/mmBTU } H_{np}) + (0.15 \text{ lb/mmBTU } H_{do}) + (0.3 \text{ lb/mmBTU } H_{ro}) + (0.35 \text{ lb/mmBTU } H_c) + (0.2 \text{ lb/mmBTU } H_w)] / (H_{np} + H_{do} + H_{ro} + H_c + H_w)$ <p>where: E_n is the nitrogen oxides emission limit (expressed as NO₂), ng/J (lb/million Btu) H_{np} is the heat input from combustion of natural gas, H_{do} is the heat input from combustion of distillate oil H_{ro} is the heat input from combustion of residual oil, H_c is the heat input from combustion of coal, H_w is the heat input from combustion of wood residue.</p>	≈50% ¹
≥100mmBTU/hr	$E_n = [(0.036 \text{ lb/mmBTU } H_{np}) + (0.14 \text{ lb/mmBTU } H_{do}) + (0.3 \text{ lb/mmBTU } H_{ro}) + (0.25 \text{ lb/mmBTU } H_c) + (0.2 \text{ lb/mmBTU } H_w)] / (H_{np} + H_{do} + H_{ro} + H_c + H_w)$ <p>where: E_n is the nitrogen oxides emission limit (expressed as NO₂), ng/J (lb/million Btu) H_{np} is the heat input from combustion of natural gas, H_{do} is the heat input from combustion of distillate oil H_{ro} is the heat input from combustion of residual oil, H_c is the heat input from combustion of coal. H_w is the heat input from combustion of wood residue.</p>	≈60% ¹
<i>Wood Residue Boilers</i>		
All types	Combustion controls to minimize NOx emissions or equivalent technology capable of achieving 0.20 lb/mmBTU	0-50% ²
Coal Fired Stoker Fed Boilers		
< 250 mmBTU/hr	Combustion controls to minimize NOx emissions or equivalent technology capable of achieving 0.35 lb/mmBTU	34% ³

Refer to the December 2003 Progress Reports submitted by individual areas for additional activities.

≥ 250 mmBTU/hr	Combustion controls to minimize NO _x emissions or equivalent technology capable of achieving 0.25 lb/mmBTU	53% ³
Pulverized Coal Fired Boilers		
< 250 mmBTU/hr	Low NO _x Burners + Combustion controls to minimize NO _x emissions or equivalent technology capable of achieving 0.35 lb/mmBTU	50% ¹
≥ 250 mmBTU/hr	Low NO _x Burners + Combustion controls to minimize NO _x emissions + SCR or equivalent technology capable of achieving 0.14 lb/mmBTU	70%+ ¹
Municipal refuse fired boilers		
< 250 mmBTU/hr	Combustion modifications to minimize NO _x emissions + Flue Gas Recirculation or equivalent technology capable of achieving 200 ppmv @12% CO ₂ (0.35 lb/mmBTU)	12% ³
≥ 250 mmBTU/hr	Staged Combustion and Automatic Combustion Air Control + SCR or equivalent technology capable of achieving 0.18 lb/mmBTU	55% ³
Internal Combustion Engines		
Compression Ignition	Timing Retard ≤ 4° + Turbocharger w/ Intercooler or equivalent technology capable of achieving 490 ppmv @ 15% O ₂ (7.64 gm/bhp-hr)	20-30% ¹
Spark Ignition	Lean Burn Technology or equivalent technology capable of achieving 1.0 gm/bhp-hr	87% ¹
Landfill or Digester Gas Fired	Lean Burn Technology or equivalent technology capable of achieving 1.25 gm/bhp-hr	≈50% ^{EST}

Refer to the December 2003 Progress Reports submitted by individual areas for additional activities.

Gas Turbines		
Simple Cycle – Natural Gas		
< 50 Megawatts	Combustion Modifications (e.g. dry low-NOx combustors) to minimize NOx emissions or equivalent technology capable of achieving 25 ppmv @ 15% O ₂ Dry (0.054 lb/mmBTU)	81% ⁴
≥ 50 Megawatts	Combustion Modifications (e.g. dry low-NOx combustors) to minimize NOx emissions or equivalent technology capable of achieving 9.0 ppmv @ 15% O ₂ Dry (0.033 lb/mmBTU)	84% ¹
<i>Combined Cycle – Natural Gas</i>		
< 50 Megawatts	Dry Low-NOx Combustors or equivalent technology capable of achieving 9.0 ppmv @ 15% O ₂ Dry (0.033 lb/mmBTU)	84% ¹
≥ 50 Megawatts	Dry Low-NOx Combustors + SCR or equivalent technology Capable of achieving 3.0 ppmv @ 15% O ₂ Dry (0.011lb/mmBTU)	94% ¹
<i>Simple Cycle - Distillate oil combustion</i>		
< 50 Megawatts	Combustion Modifications and water injection to minimize NOx emissions or equivalent technology capable of achieving 42 ppmv @ 15% O ₂ Dry Basis (0.16 lb/mmBTU)	68% ¹
≥ 50 Megawatts	Combustion Modifications and water injection to minimize NOx emissions or equivalent technology capable of achieving 42 ppmv @ 15% O ₂ Dry Basis (0.16 lb/mmBTU)	68% ¹
<i>Combined Cycle - Distillate oil combustion</i>		
< 50 Megawatts	Dry Low-NOx Combustors with water injection, or equivalent technology capable of achieving 42 ppmv @ 15% O ₂ Dry Basis (0.16 lb/mmBTU)	68% ¹

Refer to the December 2003 Progress Reports submitted by individual areas for additional activities.

≥ 50 Megawatts	Dry Low-NOx Combustors, water injection, and SCR or Equivalent technology capable of achieving 10.0 ppmv @ 15% O ₂ Dry Basis (0.038 lb/mmBTU)	90% ¹
Landfill Gas Fired	Water or steam injection or low NOx turbine design or equivalent technology capable of achieving 25 ppmv @ 15% O ₂ (0.097 lb/mmBTU)	48% ⁴
Cement Kilns		
All	Low NOx Burner or equivalent technology capable of achieving a 30% reduction from uncontrolled levels	30%
Fluidized Bed Combustion (FBC) Boiler:		
Coal Fired	SNCR- Urea (Selective Noncatalytic Reduction - Urea) capable of achieving 0.07 lbs/mmBTU (51.8 ppm @ 3% oxygen)	75% ¹
Wood Fired	SNCR- Urea (Selective Noncatalytic Reduction - Urea) capable of achieving 0.07 lbs/mmBTU (51.8 ppm @ 3% oxygen)	55% ¹
Recovery Furnaces		
All	4 th level or air to recovery furnace/good combustion practices or equivalent technology capable of achieving 100 ppm @8% oxygen	0-30% ⁵
Lime Kilns		
All	Combustion controls or equivalent technology capable of achieving 175 ppm @ 10% oxygen	25% ³
Fuel Combustion Sources Not Otherwise Specified: (Examples include but are not limited to process heaters, dryers, furnaces, ovens, duct burners, incinerators, and smelters)		

Refer to the December 2003 Progress Reports submitted by individual areas for additional activities.

All	Low NOx Burners or equivalent technology capable of achieving 30 ppmv @ 3% O ₂ Dry (0.036 lb/mmBTU)	0-60% ¹
-----	--	--------------------

- ¹ – EPA 456/F-99-066R “EPA Technical Bulletin – Nitrogen Oxides (NO_x), Why & How they are Controlled”, Nov. 1999.
- ² – EPA 453/R-94-022 “Alternative Control Techniques Document – NO_x Emissions from Industrial/Commercial/ Institutional Boilers”, March 1994
- ³ – Compared with emissions from EPA’s AP-42 “Compilation of Air Pollutant Emission Factors”
- ⁴ – EPA’s “Emission Factor Documentation for AP-42 Section 3.1 Stationary Gas Turbines”, April 2000
- ⁵ - Information found on EPA’s RACT/BACT/LAER Clearinghouse plus information found in the Willamette PSD permit review (SC).

Utility Reductions from EGUs in the NOx SIP Call

<i>Utility</i>	<i>1998 Emissions¹ (tons/day)</i>	<i>2007 Emissions (tons/day)</i>	<i>2012 Emissions (tons/day)</i>
Progress Energy	13.76	30.97	30.97
SCE&G	147.8	84.06	84.06
Santee Cooper	151.65	21.34	30.97
Duke Power	17.21	13.70	13.70
Total	330.42 tons/day	150.07	159.70
Reduction from 1998 Levels	-	54.6%	51.7%

¹ - Emission data represents modeling episode only.

Note: Data is for the EGU units under the NOx Trading Program Only.

Reductions from Tier II and Low Sulfur Fuel Regulatory Changes
 (For May 1998 Episode & Future Years Using Mobile6 Model)

Year	Mobile On-Road Emissions (tons/day)	% Reduction from 1998 Levels
1998	345	-
2007	153	55.6%
2010	128	62.9%
2012	116	66.3%

Refer to the December 2003 Progress Reports submitted by individual areas for additional activities.

These are the Draft Plans of Emission Reduction Strategies for the Central Midlands Region submitted for the December 10, 2003 Early Action Compact Milestone.

Early Action Compact Milestone - December 2003
List of Emission Reduction Strategies Under Consideration

Newberry County

According to the latest 8-hour ozone monitoring data, Newberry County should remain attainment for the 8-hour ozone standard. However, in an effort to assist other areas in South Carolina and in the interest of public health and the environment, in December 2002, Newberry County agreed to participate in the 8-hour ozone early action process. Therefore, based on stakeholder consultation and taking into consideration resource and political constraints, the following emission reduction strategies remain under consideration. Newberry County will continue to evaluate the air quality within the county and may implement one or more of the following measures under consideration.

Measure under consideration	Detailed description of measure	Current assessment of emission reductions	Proposed Date for implementation	Geographic area and/or local government
Park & Ride	Regional Transit to pick up riders and Newberry Shopping Center and Take them to work in Columbia and return in the afternoon	N/A	Implemented 11-2003 by DOT & CMRTA	Newberry
Web Page	Add Web page to County web site with guidelines and strategies for reducing omissions	N/A	03/2004	Newberry County

List of Emission Reduction Strategies Under Consideration

County of Lexington, South Carolina

Based on stakeholder consultation and taking into consideration resource and political constraints, the following control measures have been selected. Study of control measures will be ongoing until the County's Final EAP is submitted March 31, 2004. These measures under consideration will assist the County of Lexington, South Carolina, in achieving and/or maintaining the 8-hour ozone standard by 2007.

Measure under Consideration	Description of Measure (A more detailed description will be included in the Early Action Plan.)	Estimate of Emission Reductions (if available)	Proposed Date for Implementation	Geographic Area and/or Local Government
Ozone Action Coordinator	County Staff Person	N/A	July 2003	County Government

Ozone Action Contacts	Establish Industry/Local government contact persons	N/A	August 2003	Various companies/Municipalities
Park & Ride facilities	Staff will be contacting churches, shopping centers, etc. with large parking lots to discuss park & ride program	N/A	December 2003	Various companies, churches, government facilities
Alternate work schedule	Discuss with industry, companies, municipalities, county departments	N/A	December 2003	Countywide
Bio-diesel/Alternate fuels	Companies, municipalities, county investigate feasibility of these methods	N/A	March 2004	Countywide
Idle Reduction	Establish County policies to reduce or stop idling time	N/A	July 2003	Countywide
Landfill methane reduction	Analyze methane production and reduction, recycle efforts	N/A	March 2004	Countywide

Fairfield County Early Action Compact
List of Emission Reduction Strategies

Emission Reduction Strategy	Description and analysis of how strategy will be implemented	Estimate of emission reductions (if available)	Date for implementation	Geographic area and/or local government
Air Quality Contact	Ronald Stowers, Fairfield County Director of Planning, Building and Zoning Department is designated as the Air Quality Contact. At a minimum, this contact will be responsible for ozone education/outreach and dissemination of ozone forecast.	Not available	March 2003	County wide
Support state-wide efforts	Fairfield County will support the efforts of SC DHEC regarding state-wide emission reduction strategies.	Not available		County wide
Amendment of the Fairfield County Zoning	Amend the Fairfield County Zoning Ordinance, Article IV,	Not available	November 2003	Unincorporated area of Fairfield County

Ordinance	Conditional Uses, Section 4-9, Manufacturing Uses to add prescriptive requirements for reducing/or maintaining ozone levels.			
Amendment of the Fairfield County Zoning Ordinance	Evaluate the Fairfield County Zoning Ordinance, Article VI, Screening, Landscaping and Common Space Regulations determine adequacy of tree planting/landscaping standards to help promote strategic tree planting.	Not available	November 2003	Unincorporated area of Fairfield County
Amendment of the Fairfield County Zoning Ordinance	Amend the Fairfield County Zoning Ordinance, Article 3 to promote Planned Development Districts that would encourage land use planning that will help improve air quality.	Not available	November 2003	Unincorporated area of Fairfield County
Awareness	Work with and provide information to the Incorporated areas of Fairfield County on Land Use Planning measures that will help improve air quality.	Not available	June 2003	Incorporated area of Fairfield County
Awareness	Promote ozone education/awareness by distribution of information, including Ozone Alerts to County employees as well as to Town of Ridgeway and Town of Winnsboro.	Not available	Ongoing	Unincorporated and Incorporated areas of Fairfield County
Operation and Maintenance Activities	Work with County Public Works to develop strategies to reduce activities that would effect ozone levels during Ozone Action Days	Not available	Ongoing	Fairfield County

Early Action Compact Milestone - December 2003
 List of Emission Reduction Strategies Under Consideration

Richland County

Based on stakeholder consultation and taking into consideration resource and political constraints, the following control measures under consideration can be reasonably implemented. It is anticipated these measures under consideration will assist <insert county name> in achieving and/or maintaining the 8-hour ozone standard by 2007 and beyond.

Measure under consideration	Detailed description of measure	Current assessment of emission reductions	Proposed date for implementation	Geographic area and/or local government
Air Quality Contact	County staff person responsible for air quality education/outreach and dissemination of ozone forecast. Roxanne Matthews is county contact.	Not applicable	March 2003	County wide
Support state-wide emission reduction efforts	County will offer support to DHEC for statewide emission reduction efforts such as open burning, and BACT	Not applicable	Upon implementation by state	County wide
Promote land-use planning intentionally altering the urban environment to improve air quality. Examples are transit oriented development, infill development, and pedestrian oriented development, concentrated activity centers, strengthening downtowns, balancing location	Richland County is in the process of rewriting its outdated Land Development Code. This ongoing process has included input from citizens and staff, and the information contained within this updated code incorporates these ideas within the document. The code contains many positive, proactive land-use planning directives. The Land Development Code puts forth the ideas that are prevalent throughout the code; that of zoning regulations, design controls, and "green development" practices, each of which promotes smart growth, and thereby inadvertently improves air quality. One section of the code deals with the Town and Country Zoning District. This zoning		Early 2004	County wide

<p>of housing and employment opportunities. Can include policies, programs, or actions such as zoning regulations, design controls, "green development" practices, and incentive programs to encourage smart growth.</p>	<p>designation illustrates transit-oriented development, pedestrian oriented development, concentrated activity centers, strengthening downtowns, and balancing location of housing and employment opportunities. Landscaping Standards are also included in the Land Development Code. Planted trees reduce the need for air conditioning, reduce the heat island effect in urban areas, and reduce energy usage. Tree ordinances have been drafted to establish minimum tree planting standards for new development, and to promote strategic tree planting, street trees, and parking lot trees. Stringent specifications are laid out in the landscaping portion of the code, along with repercussions for not abiding by these standards. The Code also points out smoke and particulate matter being released into the environment. The Land Development Code promotes pedestrian-friendly developments, and encourages bicycling and mass transit. Air quality is also enhanced by open spaces provided for in the Code.</p>			
<p>Join and participate in Clean Cities</p>	<p>Richland County is a stakeholder in Clean Cities. We will seek forth ways to possibly increase the availability of alternative fuels in our county, to increase the use of those fuels, and to increase public awareness of the benefits of using alternative fuels. Richland County sends a representative to Clean Cities meetings.</p>		<p>July 22, 2003</p>	<p>County Wide</p>
<p>Require replacement of all gasoline golf carts with electric.</p>	<p>Richland County has researched the possibility of purchasing electric golf carts for our county fleet. We currently have 4 golf carts, all of which use gasoline. Electric carts are lower maintenance and lower cost, and parts are also easier to get, thus</p>		<p>Emphasis will be placed the next time a golf cart is purchased. Per a Procurement employee: "I</p>	<p>County Government Initiative</p>

	<p>providing more of an incentive to purchase electric carts in the future. The recommendation has been made to our Procurement Department that purchasing electric golf carts be pursued in the future.</p>		<p>will let the buyer who normally handles the purchase of these know. We don't typically order a bunch of these but we will definitely make note of this for any future purchases."</p>	
<p>Assist with establishing alternative fuels for public fleets. Fuels other than gasoline and diesel that are used to power on-road vehicles. Examples of alternate fuels include bio-diesel, electricity, ethanol, liquefied petroleum gas, methanol, and natural gas.</p>	<p>Richland County has researched alternative fuels and the possibility of purchasing alternative fuel vehicles. County may consider alternative fuels for use in the County fleet in the future. (Bill Peters, Fleet Manager) is very interested in this project. He is currently researching alternative fuels, and their use in the County.</p>	<p>Approximately 965 cars in county fleet</p>	<p>Perhaps in the future.</p>	<p>Internal County Government Initiative</p>
<p>Implement a program to educate and motivate individuals to take actions to minimize ozone pollution. Includes a focused distribution of educational materials, dissemination of</p>	<p>Richland County staff has composed and distributed a flier that is to be conspicuously displayed in all County departments. This information will also be placed on the County's website. Fliers include educational information regarding ozone awareness, and preventive measures that can be taken by all citizens. Email alerts to Richland County employees will be sent out on unhealthy air quality days (beginning May 1st, 2003). This information will also be posted on the</p>		<p>June 2003 (Website up.) June 2003 (Flier distributed to County Departments)</p>	<p>County wide initiative. Information available online to the public at www.richlandonline.com</p>

<p>SCDHEC ground-level ozone forecast, increased media alerts to specific audiences, and includes action oriented components (i.e. ridesharing, telecommuting, etc.)</p>	<p>county's website.</p>			
<p>Meet with representatives of other metropolitan areas that have implemented programs to learn from experiences. Determine feasibility of replicating successful programs or components in local areas.</p>	<p>Spoke to other county representatives to discuss steps they have taken in this process that might be profitable for Richland County. Actively participating in Clean Cities, which has members from other counties / municipalities.</p>		<p>Ongoing (Began Spring 2003)</p>	<p>Internal County Government Initiative</p>
<p>Use compressed work weeks or flexible work hours, which helps reduce traffic congestion during the peak driving hours by spreading out the number of vehicles on the roadway over a longer period of time.</p>	<p>Many Richland County employees operate on a flex-schedule. We hope to expand this program to other departments, where feasible.</p>	<p>Various departments utilize flex scheduling. This not only helps the environment, but cuts down on employee absenteeism as well.</p>	<p>Ongoing</p>	<p>Internal County Government Initiative</p>
<p>Encourage carpooling / vanpooling as an</p>	<p>Determining the feasibility of posting names and contact information of interested carpoolers by area on employee intranet.</p>	<p>Depending upon the number of people who carpool, a</p>		<p>Internal County Government Initiative</p>

<p>option where employees living in the same area agree to ride to work together rather than to drive their individual vehicles to work.</p>	<p>Employees can match themselves up with potential pools in their area.</p> <p>Based up a survey I sent out to County employees (7/21/2003), many are NOT interested in carpooling or using public transportation primarily because they like the freedom a personal vehicle provides.</p>	<p>number of cars taken off highway can be determined.</p>		
<p>Local government joins and participates in the SC Early Action Plan for 8-hour ozone.</p>	<p>Richland County is actively participating in this process.</p>		<p>County Council agreed to participate in December 2002. Process is ongoing until 2007.</p>	<p>County wide</p>
<p>Develop City and County Energy Plan (Energy Conservation) An energy plan could be developed that directs municipal departments to reduce energy use. This could include retrofitting municipal buildings/city schools and street lights for energy efficient, i.e. "Energy Star" Program, white roofs, etc., promoting transportation alternatives, and encouraging</p>	<p>Richland County currently promotes internal recycling in the administration building, as well as other county-owned buildings. Recycling bins are placed throughout the building, ranging from white paper to aluminum cans receptacles. Will remind employees to turn out lights and turn off computers when not in use.</p>		<p>Ongoing</p>	<p>Internal County Government Initiative</p>

recycling and composting.				
Assign staff to become air quality contact / expert for jurisdiction.	Roxanne Matthews, Research Analyst roxannematthews@richlandonline.com (803) 576-2057 P.O. Box 192 Columbia, SC 29202	Not applicable	December 2002; Ongoing	Internal County Government Initiative
Encourage mass transit (transportation choices and alternatives)	The only local mass transit choice that is currently available in some areas is the transit bus. I have bus route information, and have informed County employees of this. They can request bus routes from me at any time.		Ongoing	County wide and Internal County Government Initiative
Encourage not overfilling your fuel tank. Stop when the nozzle clicks off.	This information is contained on fliers that are posted throughout county departments. The flier is also online, and available to the public.		June 2003	County wide and Internal County Government Initiative
Restrict mowing days and times all year, especially during ozone season / ozone action days. Promote the use of electric and propane lawn mowers.	Richland County's Public Works Department will be presented with this idea, and it shall be determined if this is a feasible option.		PW operates under a tight schedule. Mowing may have to occur on certain days and at certain times with weather permitting.	Internal County Government Initiative and possibly suggest County Wide to citizenry
Consider tree planting/landscaping standards. Planted trees reduce the need for air conditioning, reduce the heat island effect in urban areas, and reduce energy usage. Tree ordinances could be	Landscaping Standards are included in the Land Development Code. Tree ordinances have been drafted to establish minimum tree planting standards for new development, and to promote strategic tree planting, street trees, and parking lot trees. Stringent specifications are laid out in this section, along with repercussions for not abiding by these standards.		Early 2004	County Wide

<p>drafted to establish minimum tree planting standards for new development; and to promote strategic tree planting, street trees, and parking lot trees.</p>				
<p>Reduction of NOx, VOC emissions at International Paper: Eastover</p>	<p>The International Paper (IP) facility in Eastover has utilized the "best available control technology" on all of their NOx and VOC emission units at the time of initial installation, and subsequently as part of any significant modification. The power boilers at the Eastover Mill produce low NOx emission levels because of both their design (e.g. tangential firing) and fuel type (e.g. waste wood). One power boiler at the Eastover Mill is covered under the "NOx SIP" and is expected to have emission levels well below their current allocation. IP has made recent changes that have resulted in both actual and allowable NOx emission reductions. IP is also currently evaluating innovative approaches that would result in significant future reductions of VOC emissions (>100 tons per year), without any increases in NOx emissions.</p>			<p>International Paper (Eastover Mill)</p>
<p>Reduction of emissions from SCE&G</p>	<p>SCR was installed on SCE&G's coal-fired units at the Wateree Station</p>		<p>2003</p>	<p>SCE&G (Wateree Station)</p>
<p>Prohibit/limit/ban open burning (all year or May – September or on Ozone Action Days); encourage to</p>	<p>Richland County's Code of Ordinances speaks to this measure. All fires of any kind are prohibited within the right-of-way of any street, road, or highway except in certain cases. Open fires may be set in performance of an official duty of any public officer when</p>		<p>Enforcement can be quite tricky. County staff is in short supply and high demand.</p>	<p>County wide ordinance</p>

<p>mulch clearing debris rather than burning it.</p>	<p>deemed necessary to protect property, life, or the public welfare. Salamanders or other devices may be used for heating by construction or other workers, provided no nuisance is created. Open burning is prohibited within any "residential" zoning district (with a few exceptions). During a pollution alert declared by duly constituted authority, any and all open burning shall be unlawful.</p>			
--	---	--	--	--