The Status of Natural Resources in Spartanburg County

An Evaluation of Goal 10 of 10

spartanburg community indicators project

Inspiring dialogue, strategy and change.

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An Evaluation of Goal 10 of 10

Spartanburg Community Indicators Project

A collaboration of:

The Spartanburg County Foundation
United Way of the Piedmont
Spartanburg County Government
The University of South Carolina Upstate

Data collected and prepared by:

Kathleen Brady, PhD – MSI Director
Metropolitan Studies Institute at The University of South Carolina Upstate, © 2009

A Letter to the Community

As collaborators in the Spartanburg Community Indicators Project; The Spartanburg County Foundation, United Way of the Piedmont, Spartanburg County Government, and the University of South Carolina Upstate are pleased to provide you an in-depth assessment of another Indicator Goal. Produced by the Metropolitan Studies Institute of USC Upstate, this document builds upon previous Community Indicator reports by providing a quantitative, comprehensive examination of Indicator Goal 10: "Our citizens will manage our natural resources in a way that will support current and future generations."

The information contained in this report is informed by the many subject matter experts in our community who influence the achievement of this goal. Please take the opportunity to review this information and consider its observations relative to the natural resources in our County. In the coming months, community discussions focused on the findings of this report will be initiated. At these meetings you will be asked to not only contribute your commentary but also to help engage the appropriate action in response to the data and discussion.

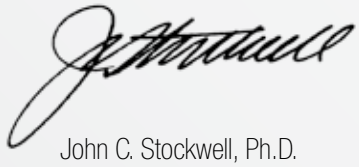
This report could not have been accomplished without support from all of the community partners, funders, and experts in our community who commit the time and effort to advance understanding of the issues that affect our County. We would also like to thank Dr. Kathleen Brady at the Metropolitan Studies Institute of USC Upstate for her work to produce this report. This document represents more than just data. It represents a fundamental advancement in our Community Indicator effort. Valid, objective data underpinning discussion of issues in our community profits us all. A report for each Indicator goal will be produced by the MSI so that our community remains fully informed of the measures that reflect upon our progress. These reports are our gift to the community and represent the inspiration for dialogue, strategy, and change.

Sincerely,

John Dargan
President/CEO
The Spartanburg County Foundation

Katherine A. Dunleavy
President/CEO
United Way of the Piedmont

D. Glenn Breed
County Administrator
Spartanburg County



John C. Stockwell, Ph.D.
Chancellor
USC Upstate

Strategic Spartanburg Goals

Goal 1: Our children will excel academically through the provision of quality education.

Goal 2: Our citizens will obtain the degrees and training to equip them to compete in a knowledge-based workforce.

Goal 3: Our senior population will be able to live independently in so far as possible with necessary support from their communities.

Goal 4: Our families will be stable and nurturing.

Goal 5: Our citizens will be healthy.

Goal 6: Our citizens will have access to living wage jobs.

Goal 7: Our communities will be viable.

Goal 8: Our communities will be increasingly safe.

Goal 9: Our citizens will have opportunities for civic engagement that promotes well-being and higher quality of life.

Goal 10: Our citizens will manage our natural resources in a way that will support current and future generations.

The University of South Carolina Upstate

USC Upstate defines itself as a "metropolitan university." It is a member of the international Coalition of Urban and Metropolitan Universities; and, similar to the missions of its fellow members, USC Upstate regards its relationship to Spartanburg and Greenville and to the Upstate's I-85 corridor communities as of fundamental importance to its purposes and future.

Our recent establishment of "The Metropolitan Studies Institute" as a regional research enterprise is a direct expression of that relationship.

As one of the fastest growing universities in South Carolina over the past 10 years reflecting the growth of the Upstate, and enrolling the second largest number of South Carolina students among the State's 10 comprehensive universities, USC Upstate aims to be regarded as one of the leading metropolitan universities in the Southeast.

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The Metropolitan Studies Institute at The University of South Carolina Upstate

The mission of The University of South Carolina Upstate's Metropolitan Studies Institute (MSI) is to support research efforts between The University of South Carolina Upstate and the community, enhancing relationships, promoting the reciprocal flow of information and ideas, assisting community and economic development, and increasing the strategic use of The University's scholarship and outreach capabilities. The MSI engages in selected community-based research and assessment projects, notable among them the Spartanburg Community Indicators Project, and partners with community agencies to undertake program evaluations, needs assessments, feasibility studies, and data management projects.

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Content

Executive Summary

In 2005, the Spartanburg County Foundation and the United Way of the Piedmont released *Community Indicators VI: Strategic Spartanburg*. The sixth edition was a culmination of many hours of discussion and research, which has resulted in a community-wide project focused on the quality of life for all citizens in our community. Transitioning the data collection and assessment component of the Community Indicators Project to the Metropolitan Studies Institute has allowed for a more comprehensive assessment of the status of each goal, via examination of a wider variety of indicators.

Originally, the Community Indicators Project identified six indicators relative to Goal 10, "Our citizens will manage our natural resources in a way that will support current and future generations." In the current iteration, indicators for Goal 10 have been added and broadened to provide a more comprehensive evaluation of the status of natural resources in Spartanburg County and now include eleven indicators. Indicators have been included or excluded based on their assessed strength, accessibility, or validity of the information they provide. Each of these indicators is thought by subject matter experts, representatives of local organizations and agencies whose missions are driven by these indicators, to be a useful and valid reflection of Goal 10, providing assessment of natural resources in Spartanburg County in as comprehensive fashion as possible. This report is the second in the Civic Engagement cluster of the Community Indicators goals for 2008.

For comparison purposes, data from communities with similar population demographics are supplied where possible. Data were obtained from Greenville County, Richland County, and Charleston County in South Carolina. Certain indicators are assessed based on data for the 10 county Upstate region and the six county area that comprises the Appalachian Council of Governments (ACOG). South Carolina state data and national data are provided where possible and as appropriate.

In decades past, low priority was accorded to the issue of impact measurement, especially as related to the natural environment. Coupled with the lack of a systematic means of such measurement, the case for environmental issues having wider social impact was never sufficiently robust to convince community stakeholders to undertake substantive investigation. However, this document provides evidence that community priorities have shifted and now include data collection relative to the natural environment. As noted in the Spartanburg County Comprehensive Plan,

"That future development and developers be cognizant of the county's natural resources and their place in the ecosystem is critical to sustaining quality of life in the county. One of the principles governing ecosystems is that everything affects everything else. Misuses or destruction of any one of the county's natural resources will have negative repercussions elsewhere in the system."

Analysis of these indicators attempts to address the balance of resource harvesting such that it can be sustained indefinitely without progressively impairing the productivity and functional integrity of ecosystems relevant to Spartanburg County. Results of indicator analyses demonstrate that Spartanburg County fares well on some indicators such as corporate recycling and drinking water quality; however, the county does not fare well on other indicators such as air quality and hazardous waste management. Implications of projected county growth are significant for their impact on natural resources and quality of life. However, local agencies, organizations and subject matter experts are leveraging their respective resources to address the current and projected environmental challenges. Ultimately, the question for Spartanburg County is whether its remaining stocks of natural capital are adequate to sustain the current and anticipated load of its residents.

Strengths And Challenges

Upon examination of the data for each indicator and other data relevant to the status of natural resources in Spartanburg County, there are a number of positive findings. Primary among these are:

- Spartanburg has a significantly higher recycling rate than peer counties and almost twice the recycling rate of the state average
- Spartanburg County has the highest recycling rate than any county in the state.
- Spartanburg is the only county of peer counties (and only one of three counties in S.C.) that recycles more waste than it discards
- Spartanburg County industries are being recognized for their efforts to recycle and reuse a number of materials
- Strategies are in place to bring Spartanburg County into compliance for short term ozone pollution by 2010
- While total acres of farmland have decreased in Spartanburg County, numbers of farms have actually increased since 1974
- Harvested cropland in Spartanburg County has increased in the last two years after declining annually over the previous three years
- There is a burgeoning demand in Spartanburg for locally grown food
- Spartanburg County's Master Plan calls for increased parklands
- Parks and recreational facilities comprise approximately 870 acres of county land
- A 2006 "Rapid Parks Assessment" identified 4,000 acres of top prospects for green space protection in Spartanburg County
- No Maximum Contaminant Levels were exceeded for the 81 potential drinking water contaminants measured for Spartanburg County during calendar year 2007

Assessment of the indicators also results in a number of negative findings. These are:

- While industrial / commercial recycling rates are high, residential recycling rates are low
- Spartanburg County is designated by the EPA as a nonattainment area for ozone as it fails to meet national air quality standards
- Spartanburg County has high rates of short term particle pollution exposure
- There are currently 31 Eligible Response Sites for hazardous waste clean up in Spartanburg County
- Although Spartanburg met its recycling goal for state fiscal year 2007, it did not meet its disposal goal
- Total farmland area has decreased in Spartanburg County since 1974
- Crop diversity has declined consistently in Spartanburg County since 2002
- The amount of developed land in the Upstate will triple by the year 2030
- Upstate growth has been characterized by urban sprawl which increases costs for infrastructure and services and does damage to the ecosystem
- There are nearly 165 acres, or 1,000,000 square feet, of vacant big box space in Spartanburg County and City

Land Use

Every seven seconds a person is born in the U.S. Every 13 seconds a person dies in the U.S. Every 31 seconds a person immigrates to the U.S. Thus, every 11 seconds the U.S. population grows by one person. South Carolina's population is growing by 130 people per day and will grow by another 25% in 15 years.

As the size of populations increase, consumption of space increases. Meeting the resource requirements of a growing population requires some land-use change. In the 1990s, the ratio of land development in the Upstate increased tenfold, due in part to building and widening of roads, more sprawling layouts of new schools and big box stores, the development of more distant subdivisions characterized by large lots, and abandonment of older shopping areas. Researchers at the Strom Thurmond Institute have predicted that, based on current use patterns, the amount of developed land in the Upstate will triple by the year 2030. That equates to over 1.5 million acres of developed land by 2030, or a rate of 86 acres per day.

Urban Sprawl

Urban sprawl is the spreading of a city and its suburbs over rural land at the fringe of an urban area. Residents of sprawling communities tend to live in single-family homes and commute by automobile to work. Sprawling neighborhoods tend to emit more pollution and consume more land and water per resident.

Upstate growth has been characterized by urban sprawl, low density development areas connected by a vast network of roadways, which increases costs for infrastructure and services and does damage to the ecosystem. The Upstate is reflective of the state, as South Carolina has the fifth worst sprawl rating in the country and ranks fourth in the amount of land being developed on a per capita basis.

There are nearly 1,000,000 square feet of vacant big box space in Spartanburg County and City. This space is thought by subject matter experts to be ripe for redevelopment into the "mixed use villages" modeled by other cities around the country; however, this has not occurred so far on any large scale.

Population Density

Population density impacts most environmental issues, including air and water quality, energy consumption, and land use. Low population density is an indicator of urban sprawl. Increasing land development and sprawl can be reduced by developing less land relative to population growth, or increasing population density. The argument against the effort to increase population density revolves around consumer preference for sprawl. That is, middle and upper class households especially have shown a preference for the suburban lifestyle, favoring lower ambient noise, increased privacy, better schools, less crime and a generally slower lifestyle than the urban lifestyle. Some studies have linked increased population density with increased aggression; however, a number of studies have suggested that affluent "empty nesters" are moving back to urban areas to take advantage of downsized lifestyles, access to cultural amenities, and available public transportation.

Although Spartanburg County has lower population density than its neighboring county, Greenville, it has higher density than aggregate area counties, aggregate Upstate counties and S.C. counties aggregated (Table 1).

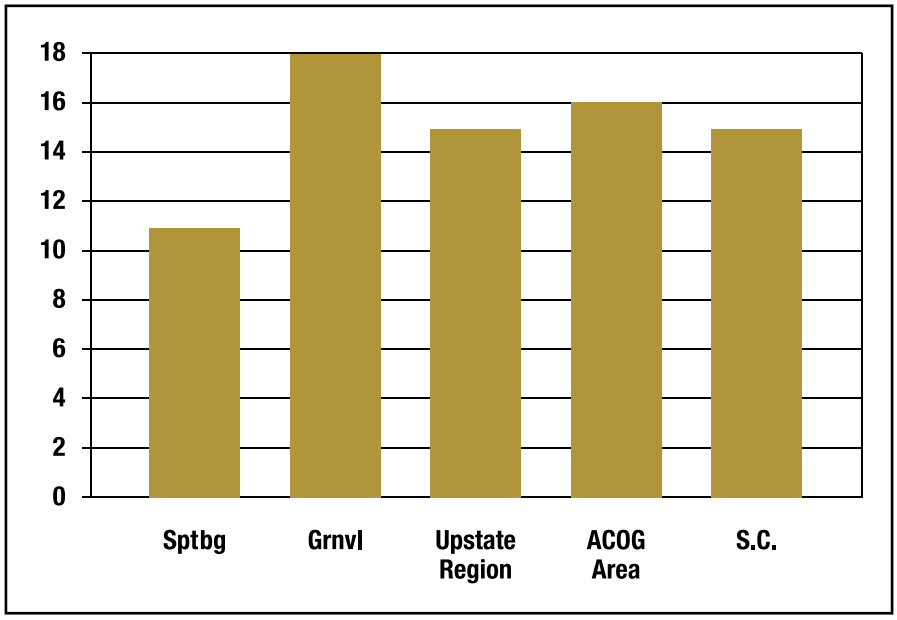
Table 1. Area and Density (per square mile) 1990 and 2000

	1990 Land Area (sq. mi.)	2000 Land Area (sq. mi.)	1990 Population	2000 Population	1990 Population Density	2000 Population Density
Spartanburg	811.0	810.9	226,800	253,791	279.7	313.0
Greenville	792.1	790.1	320,167	379,616	404.2	480.5
Upstate Region*	6,026.7	6,026.8	1,059,915	1,220,542	175.9	202.5
ACOG area**	3,835.8	3.834.0	888,057	1,028,656	231.5	268.3
S.C.	30,111.1	30,109.5	3,486,703	4,012,012	115.8	133.2

InfoMentum
** ACOG counties plus Abbeville, Greenwood, Laurens and Union Counties. **Anderson, Cherokee, Greenville, Oconee, Pickens and Spartanburg Counties.*

Percentage increase in population density from 1990 to 2000 is smallest in Spartanburg County (Figure 1).

Figure 1. Percentage increase in Population Density, 1990-2000



Land Use *(Cont.)*

Population Density *(cont.)*

It should be noted that the latest population density data available from the U.S. Census Bureau is from 2000. Given the growth trends in Spartanburg and the Upstate area, projected population density based on projected growth patterns is indicated in Table 2.

Table 2. Spartanburg County Population Density (population / 810.9 sq. mi.)

	2005	2010	2015	2020	2025
Population	266,710	279,870	293,040	306,210	319,370
Population Density	328.9	345.1	361.4	377.6	393.8

ACOG / InfoMentum

These data project that population density will increase by 114 people per square mile in Spartanburg County from 1990 to 2025.

Land Use Planning

If land continues to be developed in the same manner to support population growth in South Carolina, the state will need 525,000 new houses, 40 million square feet of new office space, 13,000 hotel rooms, and 50% more paved roads within the next 15 years.

The first urban growth boundary in the U.S. was in Fayette County, Kentucky in 1958. In 1973, the state of Oregon enacted a law limiting urban land area through urban growth boundaries. The state's largest city, Portland, is a leader in enacting urban consolidation policies that seek to make areas more compact. Many other areas of the country are engaging in these "smart growth" initiatives.

Smart growth strategies for the Upstate have been identified by the Strom Thurmond Institute and Upstate Forever. Characterized by low impact development, these include:

- Revitalization and adaptive reuse of abandoned buildings
- Adoption of a one-to-one growth ratio
- Infrastructure and service boundaries
- Transfer of development rights program
- A "Big Box" ordinance
- A county conservation bank
- A traditional neighborhood design ordinance
- A mandatory open space development ordinance
- Adoption of the transect model

Farmland / Cropland

Generally, the total area of productive land and natural capital are in decline concurrent with increased population and consumption. The U.S. is losing 1.2 million acres of farmland annually. Total farmland in S.C. has decreased by over 1,331,000 acres since 1974, or 22% since 1974. While total acres of farmland have decreased in Spartanburg County, Greenville County, the Upstate region and the six ACOG counties, numbers of farms have actually increased since 1974 in Spartanburg County, Greenville County and the ACOG counties (Table 3).

Table 3. Farmlands 1974, 1997, & 2002

	# Farms 1974	Farmland Acres 1974	# Farms 1997	Farmland Acres 1997	# Farms 2002	Farmland Acres 2002
Spartanburg	1,184	160,000	1,429	125,192	1,412	126,337
Greenville	771	87,000	1,038	84,836	909	86,852
Upstate Region*	n/a	n/a	8,471	968,169	8,164	948,556
ACOG area**	4,750	657,000	6,152	602,879	5,895	579,054
S.C.	29,275	6,177,000	25,807	4,974,138	24,541	4,845,923

ACOG / InfoMentum
** ACOG counties plus Abbeville, Greenwood, Laurens and Union Counties. **Anderson, Cherokee, Greenville, Oconee, Pickens and Spartanburg Counties.*

The U.S. Census definition of a farm is any place from which $1,000 or more of agricultural products were produced and sold, or normally would be sold, during the census year. Agricultural products include edible and nonedible crops, grain and livestock, horticulture and floriculture.

Harvested cropland in Spartanburg County has increased in the last two years after declining annually over the previous three years (Figure 2). However, crop diversity has declined consistently over the same time period such that corn, soybeans and hay are the only three primary crops in Spartanburg County (Figure 3).

Land Use *(Cont.)*

Farmland / Cropland *(cont.)*

Figure 2. Acres Harvested, Spartanburg County

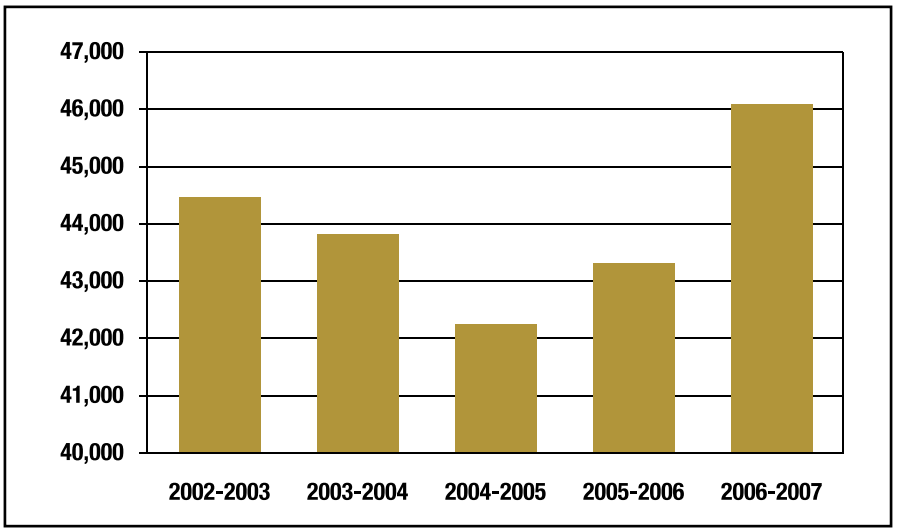
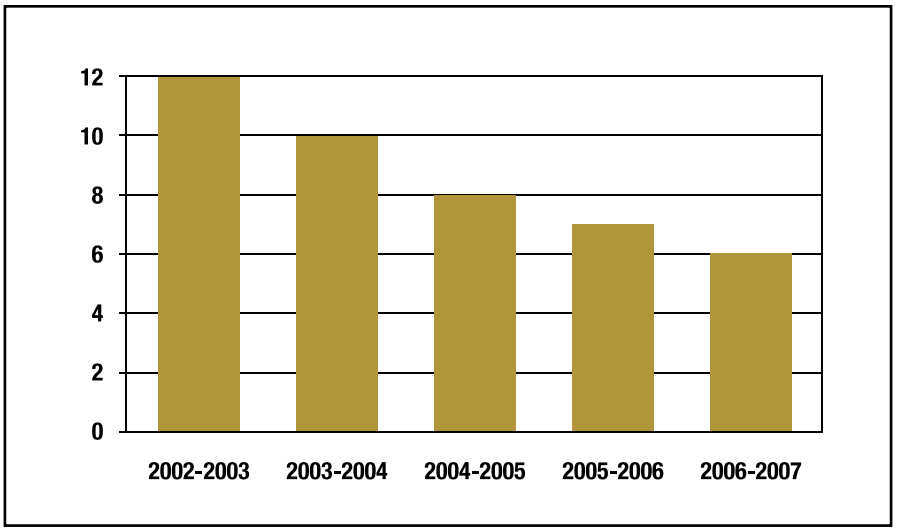


Figure 3. Diversity of Spartanburg County Crops



In 2002, there were 24,584 acres in Spartanburg County designated for select crops as indicated in Table 4. Comparatively, for the same crops, there were 13,980 acres designated in Greenville, 6,838 acres in Richland, and 3,435 acres in Charleston.

Table 4. Select Crops by County, 2002

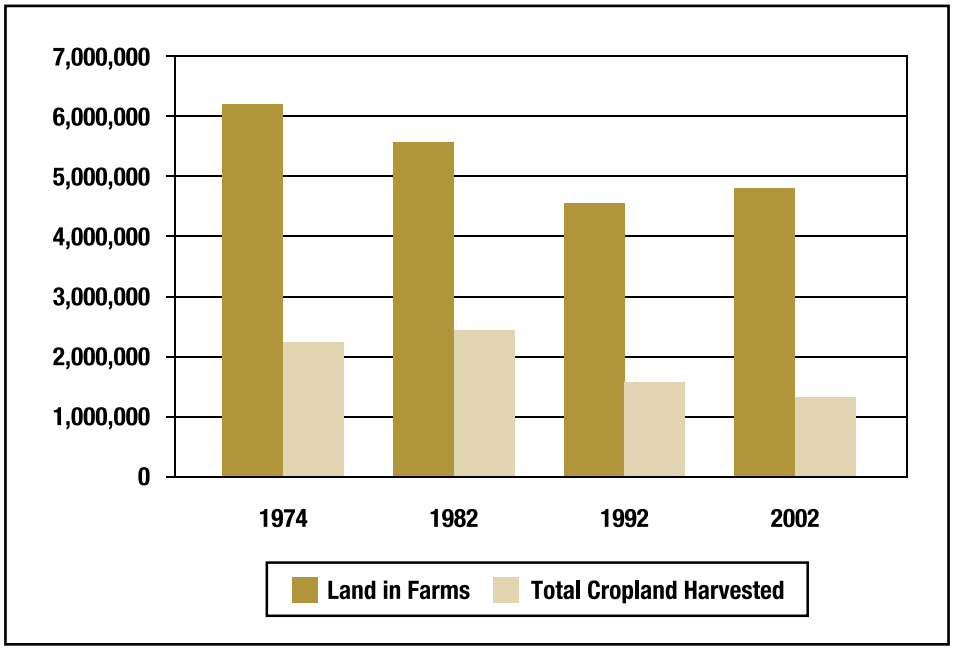
	S.C.	Spartanburg	Greenville	Richland	Charleston
Soybeans (farms)	1.741	4	8	24	0
(acres)	350,272	117	236	4,002	0
(bushels)	5,897,022	2,226	3,110	65,772	0
Forage/Hay (farms)	7,985	539	318	102	52
(acres)	342,207	20,236	10,759	2,610	1,417
(tons, dry)	684,149	38,281	18,042	4,705	3,288
Sunflower seed (farms)	83	10	4	3	8
(acres)	516	10	(withheld)	3	35
(pounds)	111,550	824	356	450	4,620
Vegetables (farms)	1,046	48	28	20	43
(acres)	30,362	477	1,248	61	1,618
Orchards (farms)	1,297	170	47	36	49
(acres)	24,389	3,744	1,737	162	365

USDA National Agricultural Statistics Service

Land Use *(Cont.)*

Total harvested cropland in S.C. has decreased significantly since 1974, as has the amount of land in farms (Figure 4).

Figure 4. Land in Farms and Total Cropland Harvested, S.C. (in acres)



Studies indicate that the ratio of urban to agriculture land use is not a function of population density alone, but is also driven by residential land value, industrial concentration and zoning.

Spartanburg County subject matter experts indicate that there is a burgeoning demand for locally grown food. County residents, restaurants and schools are voicing awareness of the benefit of "eating locally". For example, Chartwells School Dining Services has committed to serving locally grown produce to over 55,400 Spartanburg area school children daily. Over 44,000 pounds of cabbage, 36,000 pounds of sweet potatoes, 3,700 pounds of broccoli, and 1,800 pounds of yellow squash have been served to Spartanburg students since the local produce initiative began in October 2007. School lunches, which cost $1.75 per day, would cost parents $2.50 if they were made at home.

The rise in the number of community gardens throughout the county (32 currently) are evidence of this awareness, as is locally emerging Community-Supported Agriculture. Local organizations will receive payment in advance from individuals, families or groups. Once produce is harvested, supporters will receive what is seasonably ripe. This reduces waste and risk for the farmer, promoting focus on quality care of soils, crops, animals, co-workers and on the customer.

Stakeholders such as the Hub City Farmers' Market are addressing food access obstacles such as neighborhoods with few stores that sell fresh food and the high cost of fresh foods relative to unhealthy alternatives. These are a major challenge in many communities. The National Association of Counties is assisting county governments to leverage their local food systems in an effort to combat youth obesity and build healthy communities. The Association has outlined four methods to support local food systems:

- Food policy councils to bring stakeholders together, coordinate and deliver new and existing programs, engage in community outreach, and address barriers
- Farm to School Programs that bring fresh food to school meals, educate children about food, instill healthy eating preferences, support the local farm economy, and utilize less energy to transport food
- Infrastructure development to respond to market changes and support the existing agriculture infrastructure, aid farm entrepreneurs, and enable farmers to offer new products to local purchasers
- Agriculture conservation easements to set aside land for farming now and in the future, preserve community character, conserve green space, and ensure long-term ability to grow local fresh foods

The national movement toward Sustainable Agriculture is reflected, directly or indirectly, in the mission of a number of local environmental organizations. Sustainable Agriculture is agriculture that *must be capable of meeting the needs of the current generation of farmers, while leaving equal or better opportunities for future generations. A sustainable agriculture must be ecologically sound, economically viable, and socially responsible.*

Vehicle Miles Traveled

Generally, Vehicle Miles Traveled (VMT) is an indicator of sprawl. With urban sprawl and lower population density come higher automobile ownership and use rates. Because work and shopping areas are far-removed from residential subdivisions, walking or biking are not viable commuting options (a likely reason sprawl is associated with increased obesity rates). Cities that enact strong policy measures to constrain land use and support "smart growth" demonstrate decreased automobile use, cleaner air and reduced energy use.

Nationally, 1.5% to 2.0% of total land surface is devoted to the automobile, mainly for roads and parking lots. In urban areas, 30% to 60% of space is taken up by road transportation infrastructure. In extremely auto-dependent cities such as Los Angeles, this figure approximates 70%.

Vehicle Miles Traveled directly affects the ecosystem and quality of life. Transportation runoff includes, among other compounds, polycyclic aromatic hydrocarbons (PAHs) and benzene that wash into creeks and rivers and result in damage to aquatic systems. Further, one third of U.S. CO2 emissions (i.e. greenhouse gases) are attributed to transportation. Air pollution also affects walkability of a community.

Compared with 1973 data, Americans are traveling 250% more miles each year. Table 5 illustrates the increased number of drivers, percentage of population that drives, and number of miles driven per driver in S.C. from 1980 to 2005.

Table 5. 1980 and 2005 Vehicle Miles Traveled, S.C.

	Population	Total # Drivers	% Population that drives	Annual VMT (millions)	Annual VMT per driver
1980	3,121,820	1,952,830	62.55	22,719	11,633.9
2005	4,255,083	2,987,593	70.21	49,434	16,564.4

Smart Growth America

Preliminary reports for 2008 indicate that VMT decreased due to significant increases in the price of gasoline.

Table 6 illustrates average daily VMT, 1999 and 2015 projected, for Spartanburg County and neighboring Greenville County.

Table 6. Average Daily Vehicle Miles Traveled, Spartanburg and Greenville		
	Spartanburg	**Greenville**
1999 Rural VMT	4,923,779	2,905,566
1999 Urban VMT	2,902,543	6,366,506
1999 County Total	7,826,322	9,272,071
2015 Projected	12,356,299	14,130,135

As of 2000, the mean travel time to work for Spartanburg County residents was 22.5 minutes. This was somewhat lower than the S.C. average of 24.3 minutes. By 2006, commute time for Spartanburg residents had shortened to 21.5 minutes on average. In 2006, 85% of Spartanburg County workers drove to work alone, 10% carpooled, less than 0.5% took public transportation, and 3% used other means. The remaining 2% worked at home. This measure is, in part, related to VMT. Should this number decline over time, the implication will be that more people are living closer to work with access to mixed-use communities, which impacts non-work travel. However, Table 6 indicates that, at the current rate of sprawl, VMT will increase substantially by 2015 in Spartanburg County.

In order to reduce the number of vehicle miles traveled, communities will have to reduce the need to drive and invest in alternative modes of transportation. For example, because food typically travels between 1,500 and 2,500 miles from farm to plate in the U.S., the increasing demand for locally grown food is expected to decrease vehicle miles traveled nationally.

Energy Consumption

It can be argued that, despite our increasing technological sophistication, humankind remains dependent on the resources of the ecosphere, especially when considering energy and national and international dependence on fossil fuels. Case in point: the U.S. currently produces 8.9 million barrels of oil per day, representing 42% of daily consumption (21 million barrels).

Americans seem to be concerned by energy consumption issues. A 2007 Growth and Transportation Survey by Smart Growth America and the National Association of Realtors found that Americans prefer to spend more on mass transit and highway maintenance and less on new roads. In addition, three-fourths of Americans believe that being smarter about development and improving public transportation are better long-term solutions for reducing traffic congestion than building new roads. In 2007, 10.1 billion trips were taken on public transportation, resulting in the highest ridership in 49 years. The fixed route transit system in Spartanburg County (SPARTA) operates primarily within the City of Spartanburg. Currently SPARTA has 11 buses and operates eight routes. Annual ridership is in excess of 600,000.

Transportation accounts for 24% of energy use in S.C. with 97% - 99% of energy derived from petroleum sources. Every year from 1994 to 2004, consumption of motor fuels per registered vehicle was higher in S.C. than the U.S. average (Table 7). This indicates that S.C. drivers are either driving more, are driving less efficient vehicles, or both. In addition, fuel consumption increases as traffic congestion increases. In S.C., vehicle travel on the state's roadways has increased ten times faster than additional roadway capacity has been added.

Table 7. Motor Fuel Consumption per Registered Vehicle

	South Carolina		United States	
	Consumption per registered vehicle (gallons)	% change from previous year	Consumption per registered vehicle (gallons)	% change from previous year
1994	711	-1.0	600	-
1995	864	21.5	726	21.0
1996	886	205	726	-
1997	897	1.2	740	1.9
1998	944	5.2	747	0.9
1999	942	-0.2	758	1.5
2000	929	-1.4	746	-1.6
2001	926	-0.3	725	-2.8
2002	927	0.1	749	3.3
2003	954	2.9	753	0.5
2004	1020	6.9	753	0.0

S.C. ORS

Energy consumption extends, of course, beyond that used for transportation. Table 8 illustrates the types of home heating fuel used in Spartanburg County as compared to peer counties and the state. This data is from 2000, the latest available. Spartanburg does not differ significantly from peer counties or the state on these measures.

Table 8. Type of Home Heating Fuel Used in Occupied Housing Units, 2000 (percentage)

	Utility Gas	Bottled, Tank or LP Gas	Electricity	Fuel Oil, Kerosene, etc.	Coal or Coke	Wood	Solar Energy	Other Fuel	No Fuel
Spartanburg	27.0	8.2	51.2	11.8	0.0	1.2	0.1	0.2	0.3
Greenville	39.7	5.0	45.3	8.8	0.0	0.8	0.0	0.1	0.2
Richland	37.1	3.3	57.8	1.0	0.0	0.4	0.0	0.1	0.3
Charleston	28.6	4.6	64.5	1.6	0.0	0.4	0.0	0.1	0.2
S.C.	26.2	8.6	58.4	5.1	0.0	1.3	0.0	0.1	0.3

S.C. ORS

As compared to the U.S., South Carolina generates significantly more electricity through nuclear sources, and significantly less through natural gas and coal (Table 9).

Table 9. Electricity Generated by Fuel Source, 2004

	South Carolina	United States
Coal	40.1%	50.4%
Petroleum	0.4%	2.5%
Nuclear	52.7%	20.1%
Gas	3.4%	17.8%
Hydro	1.8%	6.9%
Other Renewable	1.6%	2.3%

S.C. ORS

The S.C. Energy Office reports that the state has saved over $250 million since 1995 through public and private energy-saving measures and new energy technologies. The Office is the repository for information pertinent to S.C. regarding tax incentives for alternative energy, radioactive waste disposal, renewable energy, the Governor's Nuclear Advisory Council, the S.C. Biomass Council, the Atlantic Compact Commission, and the Palmetto State Clean Fuels Coalition.

Air Quality

Air quality is determined by a number of interacting factors including pollution, weather and natural phenomena such as forest fires, the interaction of sunlight with natural or man-made chemicals in the air, and intensification of pollutants by heat and humidity. The Environmental Protection Agency is required to control approximately 190 hazardous air pollutants through procedures outlined in the 1990 Clean Air Act. The Clean Air Act requires the EPA to set National Ambient Air Quality Standards for six common air pollutants. Also known as "criteria pollutants" because the EPA sets permissible levels or "criteria", they are particle pollution (often referred to as particulate matter), ground-level ozone, carbon monoxide, sulfur oxides, nitrogen oxides, and lead. These pollutants can harm human health and the environment, and cause property damage. Of the six pollutants, particle pollution and ground-level ozone are the most widespread health threats. The EPA has delegated significant oversight and enforcement authority to state and local regulatory agencies such as the Department of Health and Environmental Control (DHEC) in S.C.

Sources of pollutants can be either stationary or mobile. Stationary sources of air pollution include both point source and area or non-point source sites. Point sources are typically fixed sites such as industries, power plants, and mills whose smokestack emissions contain pollutants. Area or non-point sources are clusters of smaller sized facilities that release lesser quantities of pollutants into the air but that, collectively, emit sizable quantities of pollutants. Auto emissions account for most mobile sources of pollutants.

Federal law requires toxic chemicals that are released into the air to be monitored and regulated. The Toxics Release Inventory (TRI) is a list of these chemicals and chemical categories. The EPA adds and deletes chemicals to the TRI annually; as of March 2008 there were 666 chemicals and chemical categories on the TRI. South Carolina ranks 11th among states with the highest emissions of regulated toxic air pollutants in pounds.

For the nation as a whole, the American Lung Association State of the Air 2008 finds:

- Two of every five people (42%) in the U.S. live in counties that have unhealthful levels of either ozone or particle pollution
- Nearly one-third of the U.S. population (31%) lives in areas with unhealthful levels of ozone
- Over one-quarter of the people in the United States live in an area with unhealthful short-term levels of particle pollution
- One in six people in the United States lives in an area with unhealthful year-round levels of particle pollution
- About 30.4 million Americans, roughly one in 10 people, live in 18 counties with unhealthful levels of all three: ozone, short-term and year-round particle pollution

Data from 2004-2006 indicate that in S.C. there were 19 counties with ground-level ozone monitors. Of those 19 counties, two – Spartanburg and Richland – had concentrations of ozone exceeding 0.080 parts per million (ppm). This means that 1,366,363 S.C. citizens (34%) potentially lived in areas represented by poor air quality. Data from 2005-2007 for 20 ozone monitors showed that Spartanburg and Richland continued to have levels exceeding 0.080 ppm, but Anderson and Abbeville Counties also had levels exceeding 0.080 ppm. The EPA has designated these areas of S.C. "nonattainment" areas for ozone since these areas fail to meet national air quality standards for pollutants that cause smog. Thirty-one states in the U.S. have nonattainment areas for ozone. South Carolina ranks 21st for states with the highest portion of the population living in nonattainment areas.

The American Lung Association ranked the Charlotte Metropolitan Statistical Area the 16th most ozone-polluted city in the U.S. in 2007.

The American Lung Association issues an annual State of the Air report on over 700 U.S. Counties subject to EPA monitoring. Counties are graded on two types of pollutants especially dangerous to breathe, ozone (smog formed by reaction of sunlight and vapors emitted when fuel is burned) and particle pollution (soot, ash, diesel exhaust, chemicals, metals and aerosols).

Table 10. Air Pollution Grades

	Ozone		Particle Pollution Short Term Exposure		Particle Pollution Annual Exposure	
	2005	2008	2005	2008	2005	2008
Spartanburg	F	D	C	F	Pass	Pass
Greenville	Unavailable	Unavailable	C	F	Pass	Fail
Richland	F	F	B	F	Pass	Pass
Charleston	B	B	B	F	Pass	Pass

American Lung Association, State of the Air Report

Data in Table 10 indicate that short term particle pollution exposure is problematic for all four counties, and ozone exposure, as already noted, is problematic for Spartanburg and Richland Counties. Only Greenville County failed annual exposure for particle pollution (2008).

Subject matter experts indicate that the Upstate won't meet new federal Clean Air Standards to be determined in March 2010 based on 2007-2009 data. Preliminary ozone monitor data show an average 8-hour ground level ozone reading at a Spartanburg monitor of 0.084 ppm and at a Clemson monitor at 0.080 ppm over a three-year period. The new standard is 0.075 ppm. If the area fails to meet these standards, more stringent air-quality emissions rules would result, making recruiting industry more difficult. Further, federal highway funding could be cut if more complex transportation planning requirements for air pollution abatement are not met. Air quality is an ongoing issue as standards are revised every five years, and are usually tightened.

Air Quality *(Cont.)*

Mercury

"In addition to the traditional visibility and noxiousness problems caused by smog, haze, and other visible air pollutants, the emission of toxics into the air now has been shown to be a major contributor to a host of other diseases and environmental health problems. For example, mercury is a common air pollutant. It is released during the combustion of a variety of substances, including some fossil fuels. It is particularly good at passing through most modern air pollution control equipment. Therefore, some power plant and some factory emissions may contain significant amounts of mercury. Mercury that is released into the air in this manner eventually settles back to the ground and to water bodies. This process is called deposition. Mercury is absorbed easily by fish and shellfish, where it concentrates in their fatty tissues. Because fish and seafood are significant parts of many peoples' diets, especially in a state like South Carolina, the amount of mercury that enters the state's waters is of particular concern"

- S.C. Indicators Project -

In March 2005, the EPA issued the Clear Air Interstate Rule (CAIR) to achieve the largest reduction in air pollution in more than a decade by significantly reducing air pollution that moves across state boundaries. CAIR seeks to reduce and permanently cap emissions of sulfur dioxide and nitrogen oxides in the eastern 28 U.S. states. Sulfur dioxide emissions will be reduced by over 70% from 2003 levels and nitrogen oxide emissions will be reduced by over 60% from 2003 levels. This will result in $85 to $100 billion in reduced healthcare costs by 2015, as well as substantially reduced premature mortality. Additionally, the EPA issued a two-phase Clean Air Mercury Rule (CAMR) to reduce mercury emissions from power plants by 70% by 2018. By 2015 this multi-pollutant strategy will:

- Reduce emissions of sulfur dioxide by 100,000 tons or 49%
- Reduce emissions of nitrogen oxides by 41,000 tons or 53%
- Reduce fine particle pollution and ground-level ozone pollution from S.C. to other areas of the country
- Result in S.C. meeting and maintaining National Ambient Air Quality Standards for ground-level ozone and fine particle pollution
- Bring Spartanburg County and five other S.C. counties into compliance ("attainment" status) for 8-hour ozone pollution by 2010

Water Quality

Sources of drinking water include rivers, lakes, streams, ponds, reservoirs, springs and wells. The Pacolet River Watershed is the entire land area that drains to the Pacolet River, including the North and South Pacolet Rivers, and flows through Spartanburg County, supplying its drinking water. What happens within the watershed affects the quality of drinking water. As water travels over the surface of the land, it can pick up a number of contaminants including:

- Microbiological contaminants such as viruses and bacteria (e.g. fecal coliform or E. Coli) which may come from sewage treatment plants, septic systems, agriculture, pet waste, and wildlife
- Inorganic contaminants (e.g. fluoride, nitrate, chlorine) such as salts and metals which can be naturally occurring or due to urban storm water runoff, wastewater discharges, or industrial discharge
- Organic chemical contaminants (e.g. organic carbon, trihalomethanes, haloacetic acids) which include byproducts of industrial processes and petroleum production, urban storm water runoff, septic systems or gas stations
- Radioactive contaminants which can be naturally occurring or the result of mining or oil and gas production

The protection of buffers along rivers and streams is paramount in order to ensure an abundant supply of clean water. Protecting water at its source aids in the protection of public health and reduces the need for complex water treatments. Spartanburg Water System (SWS) uses surface water from three lakes within Spartanburg County as sources for drinking water: Lake William C. Bowen, Municipal Reservoir #1, and Lake Taylor H. Blalock. Public water systems are required to monitor drinking water for a larger number of chemical and biological contaminants, including those listed above.

The Spartanburg Area Conservancy (SPACE) has formed a partnership with the Spartanburg Water System and the Spartanburg County Foundation to protect the County's watershed. Working with private landowners, SPACE procures riparian buffers within the Pacolet River watershed to help mitigate the threat to the area's water quality and supply by acquiring and protecting critical forested buffer lands along the Pacolet Rivers and their tributaries. Further, in 2008, Spartanburg County was issued a Phase II Municipal Separate Storm Sewer System (MS4) permit by DHEC and now must update local regulations to ensure compliance with federally mandated requirements to assure that unregulated discharges will not occur to local streams and water bodies.

Federal law directs each state to identify its water bodies (lakes, rivers, streams, etc.) for which a water quality standard cannot be implemented because of the level of pollution in the water bodies. States must consider the severity of pollution and priority rank contaminated water bodies for clean up. South Carolina ranked 15th among states for the highest number of impaired water bodies in 2002-2006. Most surface water in S.C. is contaminated by fecal coliforms and other coliforms. Recent studies demonstrate that many S.C. watersheds associated with or adjacent to urban areas are characterized by fecal coliform problems. Because of the relationship of leash-walked dogs along city streets to storm sewers, this is a significant source of fecal coliform contamination within the city of Spartanburg, directly impacting Lawson's Fork Creek and Fairforest Creek, which then flow south to local rivers. In addition to human and animal waste, fecal coliform bacteria are commonly found in pulp and paper mill effluents, textile processing plant effluents and cotton mill and sugar beet processing wastewaters. Cholera, typhoid fever, bacterial dysentery, infectious hepatitis, and cryptosporidiosis are waterborne diseases that spread through water contaminated with fecal matter. The S.C. freshwater standard for fecal coliforms is 200 bacteria colonies or less per 100 milliliters based on five consecutive samples during any 30 day period. The S.C. *Listing of Impaired Waters*, updated by DHEC in 2004, reports that Spartanburg County has 41 impaired water bodies. Of these, 30 are impaired by fecal coliform.

Water Quality *(Cont.)*

Non-point source pollution, runoff from urban and suburban areas that contains pollutants like sediment, fertilizers, oil and heavy metals, has resulted in all urban streams in Spartanburg being impaired. Non-point source pollution from runoff is attributable, in large part, to vast impervious surfaces created by parking lots in urban areas. National studies indicate that there is a huge surplus of parking spaces during all but 19 hours of the more than 3,000 shopping hours per year.

Although contaminants may be present in drinking water, they do not necessarily pose a health risk; however, some individuals are more vulnerable to these contaminants. In order to ensure that drinking water is safe, the EPA regulates the level of certain contaminants in public water systems.

Shortly following the 1974 federal *Safe Drinking Water Act*, DHEC became the primacy agency responsible for the regulatory oversight and enforcement of South Carolina's public drinking water program. As such, DHEC is responsible for ensuring that all public water systems monitor for contaminants and report results, certifying that contaminants are within regulatory limits and that the public is informed of any Maximum Contaminant Level (MCL) exceedances. Since 1996, states have been required to submit annual compliance reports to the EPA. In 2007, S.C. ranked 13th among states for percentage of the population served by facilities reporting a health violation.

In calendar year 2006, 99% of South Carolina's 1,476 federally-defined public water systems were considered to be in significant compliance with drinking water regulatory requirements. Of the nine systems (1%) considered to be in significant noncompliance, seven are under either a consent or administrative order, one is in enforcement and one has returned to compliance. Of the 144 systems that incurred violations in 2006, 69% incurred only a single violation during the year. Eighty-one systems had MCL violations for bacteriological contamination, and 66% of these were one-time occurrences.

Metro sub-districts, the Spartanburg Water System and S.C. DHEC routinely monitor for 81 chemical and biological contaminants in Spartanburg County drinking water. The *Annual Drinking Water Quality Report* for Spartanburg, issued in June 2008, shows that no Maximum Contaminant Levels were exceeded for contaminants measured during calendar year 2007. The 2005 Spartanburg Water System *Water Quality Report* indicates that that the System was in full compliance for all regulated contaminants including inorganic contaminants, lead and copper, microbiological contaminants, organic contaminants, and radioactive contaminants.

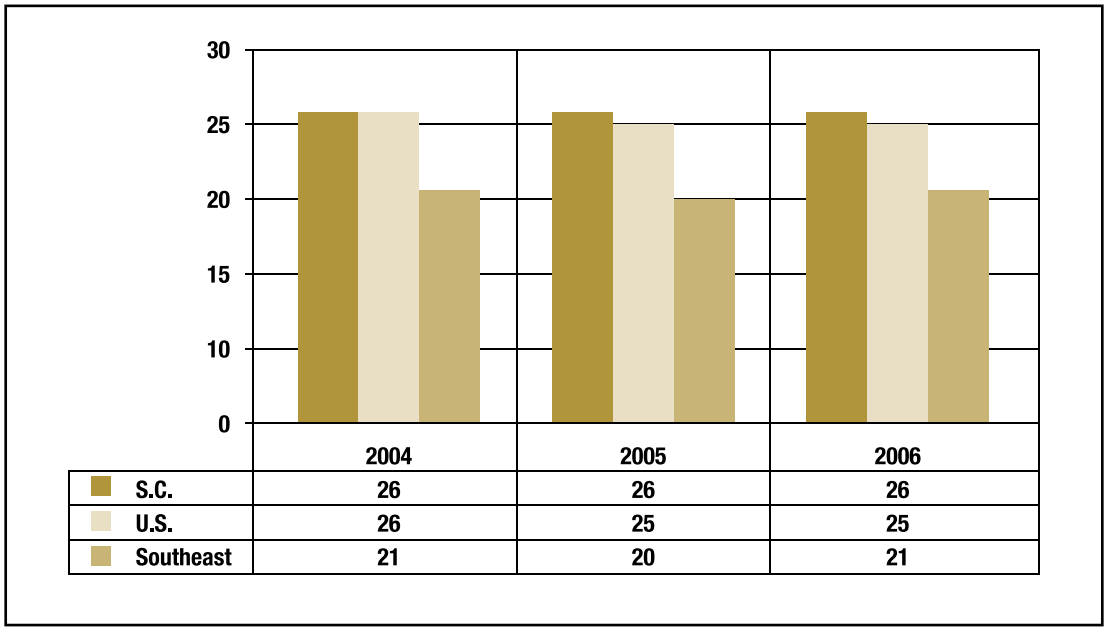
For the 40% of S.C. residents who obtain drinking water from groundwater (wells), rather than surface water, a network of public and private water supply wells has been established that provide groundwater quality data representing all of the State's major aquifers. Ambient groundwater quality monitoring, however, is generally being conducted at regulated industrial or commercial sites which have known or potential groundwater contamination. There are no comprehensive data available for the quality of private well water for Spartanburg County.

Hazardous Waste Management

Hazardous waste includes a large number of substances that are regulated because they may pose a risk to human health and the environment. These substances are typically produced through manufacturing, mining or other industrial or commercial activities. Federal and state laws place strict controls on the treatment, storage, and disposal of these wastes. In 2005, S.C. generated 177,734 tons of hazardous waste, significantly lower than the U.S. and southeastern state averages of 765,125 tons and 710,195 tons, respectively. In 2005, S.C. ranked 25th among U.S. states for quantity of hazardous waste generated.

The Superfund Program, or the Comprehensive Environmental Response, Compensation Liability Act of 1980, was created to identify and prioritize clean up of dangerous hazardous waste sites. These sites may be eligible for award of federal money (the "Superfund") to be used for their clean up. Many of these hazardous waste sites are abandoned, or their ownership is unclear. The number of Superfund sites contained in a state provides a measure of the potential exposure of humans, wildlife and the environment to hazardous substances. The number of Superfund sites in S.C. is higher than numbers in other southeastern and U.S. states on average (Figure 5).

Figure 5. Number of Superfund Sites by State



	2004	2005	2006
S.C.	26	26	26
U.S.	26	25	25
Southeast	21	20	21

USC Institute for Public Service and Policy Research
Southeast region consists of Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee.

Hazardous Waste Management *(Cont.)*

Of all states in 2006, New Jersey has the most Superfund sites (113 sites) and North Dakota has the least (0 sites). South Carolina ranks 16th.

The "Brownfields" component of the Voluntary Cleanup Program administered by DHEC allows a non-responsible party to acquire a contaminated property with state Superfund liability protection for existing contamination by agreeing to perform an environmental assessment and/or remediation. Brownfields are properties for which expansion, redevelopment, or reuse may be complicated by the presence or potential presence of hazardous substances, pollutants or contaminants. DHEC has made available to five counties, including Spartanburg, a revolving loan fund totaling $4.25 million to support Brownfields cleanup efforts. There are also various tax incentives for Brownfields cleanup.

According to the DHEC Public Record database, there are currently 31 Eligible Response Sites for clean up in Spartanburg County. Eligible Response sites are:

- Responsible Party Voluntary Cleanup Program Sites
- Non-Responsible Party Voluntary Cleanup Program (Brownfields) Sites
- State Superfund Sites
- State Consent Agreement Sites
- State Consent Order Sites
- Dry-cleaning Sites
- Certain Regulated Underground Storage Tanks (USTs)
- Formerly Used Defense Sites

Of these 31 clean up sites, three (all Arkwright Mill properties) have been completed.

Comparison data by peer county is reported in Table 11.

Table 11. Eligible Response Sites by County, 2008

	# Cleanup Sites	# Completed
Spartanburg	31	3
Greenville	44	2
Richland	22	2
Charleston	59	0

S.C. DHEC

Waste Management/Recycling

Total nonhazardous waste is categorized by municipal solid waste (MSW), construction and demolition debris (C&D), land clearing debris (LCD) and industrial solid waste (ISW). MSW typically consists of items such as yard trimmings, food scraps, paper, wood, rubber, leather, textiles, plastics, metals, and glass. South Carolina residents generate more municipal solid waste (MSW) per day than U.S. residents on average. S.C. residents also dispose of more MSW and recycle proportionately more MSW than U.S. residents on average. Currently, there are 18 permitted MSW landfills operating in S.C. Local governments own 10 of these, and eight are privately owned. Spartanburg is one of only two counties in the state with more than one MSW landfill. One Spartanburg County landfill is commercially owned, is the second largest in the state, and is permitted to accept the equivalent of one quarter of the state's entire landfill-destined waste stream per year, and imports almost half of its content from out of state. The second landfill is much smaller and is owned by Spartanburg County and accepts only waste generated in Spartanburg County. The county landfill is estimated to remain open for another 20 years.

The majority of S.C. waste, five million tons in 2007, is disposed of in the privately owned MSW landfills. An additional 1.38 million tons were disposed of in the state's publicly owned MSW landfills. Of these 6.4 millions tons of solid waste, 1.7 million tons were imported from nine other states. Six S.C. counties exported 177,926 tons of MSW out-of-state. According to SCDHEC regulations, the Spartanburg County landfill has the right to replace itself when the time comes, but the current SCDHEC rules would permit the replacement to be extremely large, prompting concerns about the possibility of vastly increased importation of MSW. The combined waste stream transported into Spartanburg County and disposed of in Spartanburg County could equal half of the waste stream of the entire state.

Because Spartanburg County is situated near the top of the Broad River watershed, it is difficult to site a landfill in the county without impacting major water bodies throughout the rest of the state. The Tyger, Enoree, and Pacolet rivers and several streams ultimately flow into the Broad River, the Cooper River, and finally the Atlantic Ocean. Any landfill contamination of these county rivers widely threatens water quality, so extending the life of the existing Spartanburg County MSW landfill is viewed by subject matter experts as being extremely important.

When all forms of MSW (residential, commercial, institutional/non-profit, and industrial/office) are included, Spartanburg has a significantly higher recycling rate than peer counties and almost twice the recycling rate of the state average (Table 12). In fact, Spartanburg County has the highest recycling rate than any county in the state. Further, Spartanburg is the only county of peer counties (and only one of three counties in S.C.) that recycles more waste than it disposes of.

Table 12. All Municipal Solid Waste Recycling, 2007

	Population	Recycling Rate	Recycling (tons)	Disposed (tons)
Spartanburg	271,087	61.6%	378,674	235,906
Greenville	417,166	25.5%	164,182	478,617
Richland	348,226	10.0%	35,010	315,139
Charleston	331,917	29.5%	132,008	314,812
S.C. Total	4,343,204	31.0%	1,551,365	3,460,656

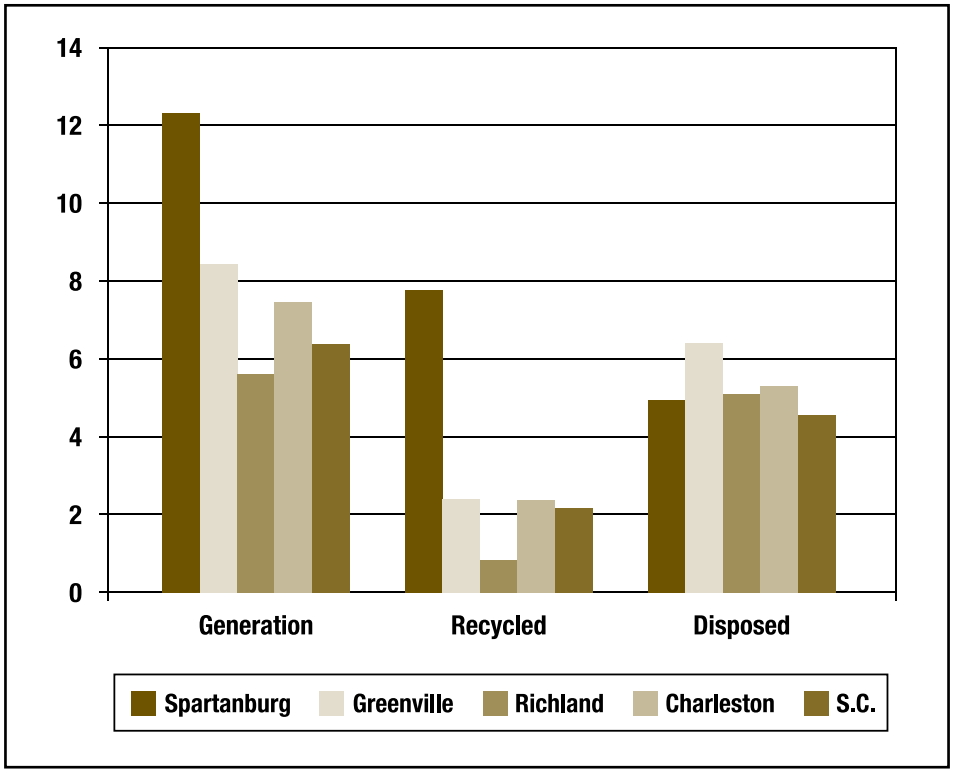
S.C. Solid Waste Management Annual Report

Waste Management/Recycling *(Cont.)*

However, when recycling at the individual household level is considered, these figures are misleading. Although Spartanburg residents generate waste at a very high rate comparatively, they recycle at a very low rate. The statewide disposal rate goal is 3.5 pounds per person per day (p/p/d); however, the Spartanburg County rate is 4.4 p/p/d. The statewide average residential recycling rate in 2007 was 2 p/p/d. The Spartanburg County residential average was 0.7 p/p/d.

When commercial and household MSW is taken together, in state fiscal year 2004, three of the state's 26 counties met the state's recycling goal. By fiscal year 2007, 11 had met the goal. In 2007, 14 counties had met the state's disposal goal and eight met both goals. Spartanburg met the recycling goal but not the disposal goal. Of peer counties, Spartanburg generates and recycles significantly more MSW than the other counties and the state average. Spartanburg also disposes of less MSW per person than the other counties, but more than the state average (Figure 6).

Figure 6. Per Person Waste Generation, Recycling and Disposal (in pounds), 2007



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It should be noted that, although the S.C. Department of Health and Environmental Control reports a 61.6% recycling rate for Spartanburg County in the 2007 South Carolina solid waste management annual report, the Spartanburg County Public Works Recycling Division reports that the total waste recycling rate for the county is 42%.

There are more than 300 recycling industry companies in S.C. that broker, collect, process, manufacture and transform recovered materials into new products that are used every day. More than 37,000 people are employed in the recycling industry statewide, generating an estimated economic impact of $6.5 billion, including a personal income impact of $1.5 billion.

Spartanburg County industries are being recognized for their efforts to recycle and reuse a number of materials. The S.C. Recycling Market Development Advisory Council awarded the Michelin Spartanburg facility the "Best Large Industry Recycling Program" and Cleanlites Recycling Inc. the "Partner of the Year" in 2006. In 2007, Milliken and Company received the Business Recycling Program Award from the Carolina Recycling Association. Milliken has implemented processes that result in less than 1% of the company's solid waste stream being landfilled and 38 of Milliken's domestic locations sending zero waste to landfills in 2006. BMW uses recyclable synthetics in the manufacturing of their vehicles to ensure that they can be recycled quickly and efficiently. As a result, the BMW Manufacturing Group is among the leaders on the Dow Jones Sustainability Group Index, the world's most recognized list of sustainability-oriented companies. Further, an employee-driven recycling program ensures that approximately 75% of all waste generated at the Spartanburg County BMW manufacturing plant is recycled.

As of 2006, there were 15 recycling companies located in Spartanburg County. There are two drop-off recycling centers in Spartanburg and 17 attended recycling centers throughout the county.

The City of Spartanburg has offered free curbside recycling to its residents since the early 1990s. Pickup of plastic, newspapers, cardboard, glass, aluminum, yard waste and "white goods" (household appliances) occurs weekly. In 2007, the city collected 850 tons of recyclables and 9,000 tons of yard waste. Approximately 25% of city residents participate in the curbside recycling program. County residents do not have access to curbside recycling.

Subject matter experts report that studies are underway to develop a county plan for recycling hazardous household waste such as drain cleaners, pesticides and other toxic waste. Currently no recycling options exist for hazardous household waste, although it is illegal to dispose of these materials along with regular household waste.

Recycling Quick Facts

- Each ton of recycled paper can save 17 trees, 380 gallons of oil, three cubic yards of landfill space, 4,000 kilowatts of energy and 7,000 gallons of water
- Making recycled paper uses 64% less energy and 58% less water than making new paper
- More than 1/3 of all fiber used to make paper comes from recycled paper
- It takes a 15-year-old tree to produce 700 grocery bags
- Disposable diapers last centuries in landfills – an average baby will go through 8,000 of them
- Recycling a stack of newspapers three feet high can save one tree
- One tree can filter up to 60 pounds of pollutants from the air each year
- Only 1% of the world's water supply is usable (97% is in the ocean and 2% is frozen)
- Recycling a ton of mixed paper can save the energy equivalent of 185 gallons of gasoline
- Glass bottles and jars, along with aluminum cans and some papers, have the highest level of recycled content

Green Spaces

More than 80% of the U.S. population lives in metropolitan areas, and there has been an increased focus, in recent years, on community parks and green spaces. In January 2008, a 2% hospitality tax for parks funding took effect in Spartanburg County. The County Council was lauded by a representative of Upstate Forever for its unanimous approval of the tax, commenting that, "Parks are necessary for the public good, not simply as an amenity." Parks and green spaces are increasingly valued for enhancing community quality of life through mitigating the effects of pollution and "nature deficit disorder", as well as providing opportunities for recreation, exercise, and social interaction.

A 2006 study of park acreage in Spartanburg County resulted in findings that there are only 2.44 acres of parkland per 1,000 residents of the County. This falls significantly short of the national average of 6.25 acres per resident. As of March 2008, there were 27 Spartanburg County parks and recreation facilities in use and four proposed facilities. These parks and facilities comprise approximately 870 acres of county land.

In 2006, Upstate Forever engaged the services of The Conservation Fund to identify protection opportunities for parks, greenways and greenbelts in Spartanburg County. The resulting "Rapid Parks Assessment" identified 4,000 acres of top prospects for protection and potential fulfillment of the County's Master Plan goal of 1,500 acres of new parkland by 2009. The Assessment also identified opportunities for existing park expansions, greenway trails and a potential greenbelt along the Palmetto Trail and Pacolet River.

Local subject matter experts indicate that acres of land set aside for greenways are increasing and that there is a regional greenways plan being crafted. There are three large preserves in Spartanburg County protected through Spartanburg Area Conservancy (SPACE): the 118-acre Edwin M. Griffin Nature Preserve (home to the Cottonwood Trail), the 36-acre Upper Chinquapin Greenway, and the 13-acre Glendale Shoals Preserve.

A Spartanburg County map showing land parcels that are conserved or preserved is found in Appendix II.

Environmental Stewardship

There are a number of community organizations and groups in Spartanburg County that are engaged in activities that preserve or enhance the natural environment.

Upstate Forever is a regional nonprofit that *promotes sensible growth and protects special places in the Upstate region of South Carolina*. Of the 10,391 cumulative upstate acres protected by Upstate Forever in ten years, approximately 1,563 acres are in Spartanburg County, comprising two properties under conservation easements. Upstate Forever has a total of 57 conservation easements in and around the Upstate. In 2005, Upstate Forever contracted with The Lawrence Group to conduct an "active living assessment" of the land development regulations and plans for Spartanburg County and the City of Spartanburg and to identify "provisions that impede the development of active living neighborhoods and communities" - neighborhoods that allow and encourage people to engage in regular physical activity, such as bicycling and walking, as part of their daily routine. This extensive study resulted in a matrix listing of 70 major recommendations to revise City and County regulations and policies to support active living and recommendations for an action agenda for implementation.

Spartanburg Area Conservancy (SPACE), is a local non-profit conservation organization chartered in 1989 whose purpose is to *protect and preserve natural areas of ecological, historical, and aesthetic value to enhance the quality of life for all residents and future generations*. SPACE reports that 1,600 acres have been protected through their auspices, including 11 conservation easements, legally binding agreements which restrict land from future development. Unlike Upstate Forever, SPACE actually holds title to some properties for conservation purposes.

The Hub City Farmers' Market estimates that the total combined economic impact of its Saturday market on the community, including nearby businesses, was $756,613 in 2007. The Hub City Farmers' Market provides Saturday and Wednesday markets, other support and education services to local farmers, Senior Farmers Market Nutrition Program vouchers, and other community agriculture and education programs.

In the summer of 2005, an effort to acquire and restore Anderson Mill in Spartanburg County was initiated and eventually led to the formation of The Tyger River Foundation in the fall of 2007. Rooted in belief that history and the outdoors are vital to mental and physical well being as a society, the mission of the Foundation is to *promote, protect and restore the natural and historic resources of the Tyger River Basin.* Although independent, the Foundation works with many local organizations and particularly with Upstate Forever, on conservation issues.

There are a number of other groups and organizations that support environmental causes in Spartanburg. An example of a small grass-roots organization that is quite active in Spartanburg County is the Kudzu Coalition. The Coalition is a nonprofit organization run by volunteers dedicated to the removal of kudzu from public areas throughout Spartanburg County. Another organization, the Glendale Outdoor Leadership School, whose mission is to *enhance quality of life and personal growth through outdoor recreation and education*, offers a wide variety of programs for children and adults to promote wellness and lifestyle changes.

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Goal 10 Indicators

Because Spartanburg is a dynamic community, the issues that impact the growth, health and quality of life for its citizens are in flux. Since the 2005 iteration of the Community Indicators VI report was presented to the community, it has become necessary or beneficial to change a number of the indicators for various goals. The subject matter experts who have advised on these changes were representatives of local agencies and organizations whose missions are driven by these indicators. The rationale for the revised indicators for Goal 10 is provided below. A number of indicators were expanded to provide a more comprehensive picture of the status of natural resources in Spartanburg County. In the current iteration, peer county and other comparison data were provided for most indicators.

Indicators for Goal 10	
Community Indicators VI	**Current Iteration**
Population Density	Maintained under "Land Use"
Vehicle Miles	Maintained
Farmland Use: Cropland	Maintained under "Land Use"
Solid Waste / Recycling	Maintained as "Waste Management/Recycling"
Air Quality	Maintained
Water Quality	Maintained
	Added: Green Spaces
	Added: Environmental Stewardship
	Added: Hazardous Waste Management
	Added: Land Use
	Added: Energy Consumption

The American Lung Association also calls for these key steps needed to improve the air we all breathe.

Ensure every county is protected from ozone. The U.S. Environmental Protection Agency (EPA) has just adopted a new, tighter national standard for ozone, an important step that drives the measures to clean up the sources of ozone pollution all across the nation. Now the EPA must determine which counties to protect and which counties to leave out of the clean up requirements. The American Lung Association urges the EPA to include every county in planning and protection in every metropolitan area that has monitored unhealthy levels of ozone. The Lung Association opposes leaving counties left out of the planning for protection from this dangerous pollutant.

Protect the Clean Air Act. Since 1970, the Clean Air Act has proven to be one of the nation's leading public health laws. Thanks to clean-up measures put in place under the Act, emissions from all pollutants have dropped in half since 1980. However, in March the EPA proposed substantial changes to the Act, changes that would weaken decades-old protections to the public. The American Lung Association will oppose any changes that weaken the Clean Air Act.

Clean up dirty power plants. Old, coal-fired power plants are among the biggest industrial contributors to unhealthful air, especially particle pollution in the eastern United States. The toll of death, disease and environmental destruction caused by coal-fired power plant pollution continues to mount. The EPA issued rules in 2005 that give states the tools to clean up these plants. However, the EPA has issued other rules that give the electric power plants huge loopholes in complying with the Clean Air Act. The American Lung Association and our partners will continue to take steps to ensure that loopholes are removed. Several Northeastern states are considering adopting even more stringent requirements for their power plants. The American Lung Association repeatedly urged the EPA to use this opportunity to clean up even more pollution, faster. The American Lung Association supports efforts in Congress to strengthen the Clean Air Act to further clean up these heavy polluters.

Clean up existing diesel equipment. New diesel buses, trucks, and heavy equipment are cleaner than ever, thanks to clean up requirements EPA has put in place in the last decade. Diesel fuels are also much cleaner. However, old diesel engines last a long time. Diesel engines in school buses, highway trucks, and other equipment continue to operate for hundreds of thousands of miles, threatening the health of millions—especially those on or near highways—with dangerous exposure to diesel exhaust. Each community should move rapidly to retrofit and replace old diesel school buses and other equipment in the public diesel fleet. Communities should require contractors to clean up trucks and construction equipment. These and other steps can reduce the burden of pollution from old, dirty, diesel equipment and vehicles.

Require all ships calling on U.S. ports to use cleaner marine fuels and engines. Although international shipping is essential to the global economy, it also produces large amounts of air pollution. Emissions from these engines seriously worsen national ozone, carbon monoxide, sulfur oxide, and particle pollution levels, especially in communities near commercial ports such as Seattle, Oakland, Chicago, Los Angeles, New Orleans, and New York. Both foreign-flagged as well as U.S. ships must be required to use much cleaner fuels and engines.

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Spartanburg Community Indicators Project is a collaboration of The Spartanburg County Foundation, United Way of the Piedmont, Spartanburg County Government, and The University of South Carolina Upstate. It reports on progress of key issues that are the clearest indicators of quality of life in the County of Spartanburg, South Carolina. Its goal is to report on data and community initiatives to inspire dialogue and strategy that leads to change within the community.

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