

Cultivated Agricultural Lands at Risk from Potential Urbanization in the Tri-County Area

by
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Overview

A working landscape of farms, forest lands and rural settlements is the heritage of the South Carolina lowcountry, but it may not play a large part in the future. More than half of the remaining cultivated land in the Charleston region could be developed by the year 2030, as illustrated by the map, "Cultivated Agricultural Lands at Risk from Potential Urbanization in the Tri-County Region: Berkeley, Charleston and Dorchester Counties, South Carolina," prepared by Clemson University's Strom Thurmond Institute.

Economic growth is not the problem. How the region accommodates the growth, how the different communities physically develop, can be troubling. Between 1973 and 1994, the region's population increased 41 percent, but the amount of developed land, "the urban footprint," went up 255 percent. By any measure, this is an inefficient use of rural land. If such a trend continues, the urban footprint will grow from about 160,000 acres in 1994 to more than 550,000 acres in 2030, according to an earlier Strom Thurmond Institute study.

Today's rural areas that lie in the path of the projected growth harbor many important assets and special places, farming areas in particular. The three county region, based on the available information, currently boasts about 65,000 acres of land in annual and perennial crops. Of this cultivated land, more than 37,000 acres lie within the envelope of the 2030 urban footprint. The following table provides additional details.

Tricounty Cultivated Farmland Vital Statistics

1973 Developed Land	44,789 acres
1994 Developed Land	159,412 acres
1995 Cultivated Land	65,182 acres
2030 Developed Land (Predicted)	551,592 acres
2030 Cultivated Farmland Lost (Predicted)	37,357 acres (57.3% of 1994 Total)

"Even agriculture lands not projected within the 2030 urban footprint may be impacted. As suburban type development moves into traditional rural landscapes, normal agricultural practices often come into conflict with the expectations of these new residents. Smells and dust and slow moving vehicles often raise objections from suburban residents." according

to Robert Becker, Director of Clemson's Strom Thurmond Institute. Vast tracts of timberland are also predicted to be developed, which the Strom Thurmond Institute hopes to document with an upcoming map.

The predicted 2030 urban footprint is not inevitable. Over the next thirty years, the region's population will grow by about 250,000 people, and these newcomers will need a place to live, work and play. Consequently, under any scenario, there will be some farmland loss. The Tricounty community can take measures, however, to influence the amount and location of rural land converted to an urban or suburban use. Some local governments and private landowners have taken important preventative steps already.

Cultivated Agricultural Lands at Risk in the Tricounty:

Possible Responses

There is no "silver bullet" to protect rural communities and farming areas from poorly planned development. However, combining innovative planning tools can get the job done.

Though somewhat counter-intuitive, any rural preservation strategy must begin with a discussion about cities and towns: "Where should they go?" Over the next thirty years, the population of the Tricounty area is predicted to grow by about 250,000 people about a 50 percent increase over current levels. Local government and other public institutions can help identify specific areas to receive the bulk of this new growth. With such a framework of growth areas and rural districts, it would be possible to intelligently apply the range of available planning techniques. Key tools to consider include:

- **compact "mixed-use" development in town**
- **urban infrastructure focused in specific growth areas**
- **generous open space provisions for rural development**
- **donation of conservation easements to private land trusts, and**
- **purchase of development rights (PDRs)**

One of these tools, a PDR program established at the county level, is particularly good at protecting farmland. Under such an approach, the government pays farmers who voluntarily and permanently restrict the right to develop their land. To understand how this works, imagine that the different rights associated with land ownership are a bundle of sticks. The bundle includes the right to farm, to grow trees, to mine sand, to develop and so on. PDR programs enable the landowner to separate the "development stick" from the bundle and sell it for a fair price to a government agency. In return, the landowner legally protects the property from development in perpetuity, through a conservation easement. The farmer still owns the property, managing it for traditional rural uses. PDRs often benefit "cash-poor" but "land-rich" families who sometimes reinvest the PDR payment into their farm operations. PDR's involve willing sellers and willing buyers – property rights remain protected.

Various mechanisms are used to fund PDR programs including sales taxes, real estate related fees and property taxes. PDR programs can save taxpayers money by avert-

ing far-flung rural development requiring government-supplied infrastructure like roads, sewers, schools and emergency services. On the South Carolina coast, Beaufort County has established a PDR program, and Charleston County may soon do so.

For more information on the purchase of development rights, contact your local office of the Clemson Extension Service (843/722-5950 in Charleston), the South Carolina Farm Bureau at the state level (803/799-0675) or the American Farmland Trust (202/331-7300) nationally.

Cultivated Agricultural Lands at Risk in the Tricounty:

Methodology

The Strom Thurmond Institute has been involved in several studies over the past five years on changing land-use patterns. Institute researchers have collaborated with many groups including the SC Sea Grant Consortium, SC DNR, NOAA Coastal Services Center, NASA, the University of South Carolina, the College of Charleston, the SC Coastal Conservation League and the Clemson University Agriculture & Forestry Research Station and Extension Service.

This project builds upon a study completed by the Strom Thurmond Institute in 1999 that modeled and predicted the spatial extent of future urban growth by the year 2030 based on the historical trends from 1973 to 1994 (see <http://www.strom.clemson.edu/primelands/>). The historical urbanization trends were established by a study previously completed by the Berkeley/Charleston/Dorchester Council of Governments, the University of South Carolina and the South Carolina Department of Natural Resources. Jeffery Allen, Director of the South Carolina Water Resources Center states, “while the 2030 prediction is just one of many possible growth scenarios, it gives us a viable measure to compare resources that might be impacted by future urban and suburban expansion.”

In the Cultivated Agricultural Lands at Risk study, the predicted spatial extent of urban growth in 2030 was compared to the existing agricultural resources. Five agricultural data sets were considered: cultivated land extracted from NOAA’s “South Carolina Coast: A Remote Sensing Perspective” data; grassland extracted from the same NOAA data set; locations of the metropolitan Charleston area farmers’ markets; locations of farms that supply the farmers’ markets; and locations of the other farms in the tricounty region. The South Carolina Coastal Conservation League prepared the point data on farms and farmers markets. Ultimately, only the cultivated lands coverage was used to represent agricultural resources. The NOAA grasslands coverage includes golf courses and other non-farm land uses, and the point data is redundant.

The NOAA project studied changes in land cover for the South Carolina coastal region between 1990 and 1995 using thematic mapper satellite imagery. The satellite imagery was classified into 15 land cover classes. For this project, only the 1995 classified data has been used. “Cultivated land” was then extracted from the 15 land cover classes, defined by NOAA as:

Cultivated land includes herbaceous (crop land) and woody (orchards, nurseries, vineyards, etc.) land covers. Always associated with agricultural land use (i.e. placed in that particular land use category), cultivated land is used for the production of food and fiber. The total area of cultivated land (65,182 acres) in the Berkeley-Charleston-Dorchester areas was calculated from the NOAA-derived data set.

The 2030 urban data was used to compute how much cultivated land lies inside what is predicted to be urbanized area for the year 2030. Overlaying the 2030 urban area prediction with the cultivated land data allows for the simple calculation of cultivated land at risk to being converted to an urban land use. By comparing the 2030 urban envelope to the 1995 cultivated land, it was estimated that more than 37,000 acres of the existing cultivated land in the Tricounty area is at risk from potential urban conversion.

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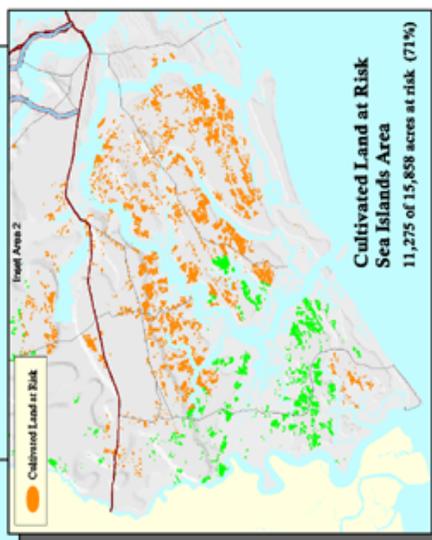
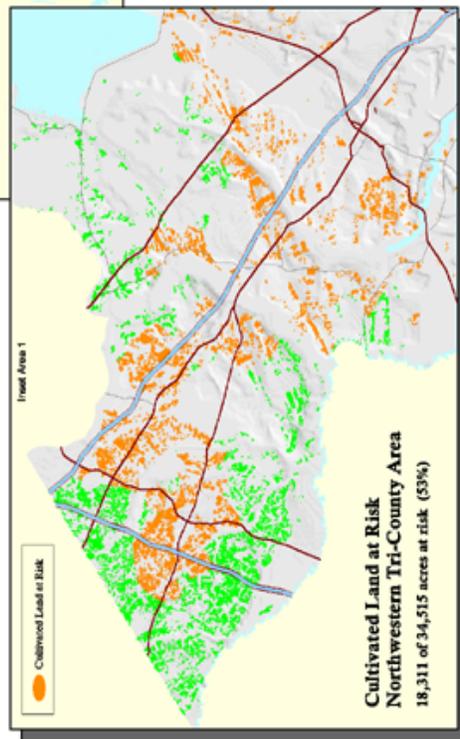
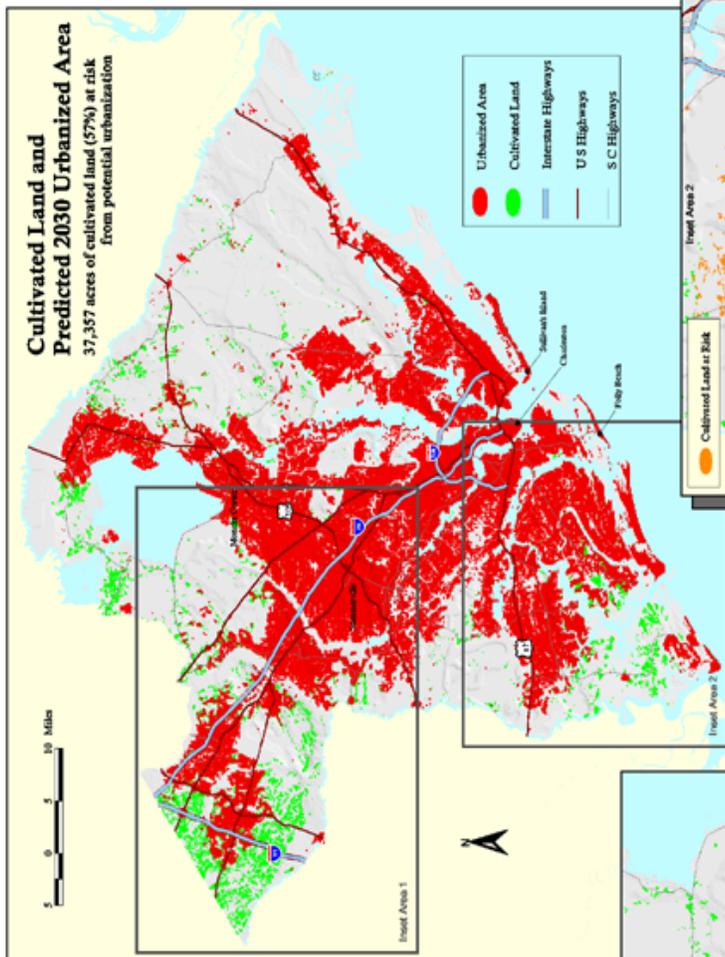
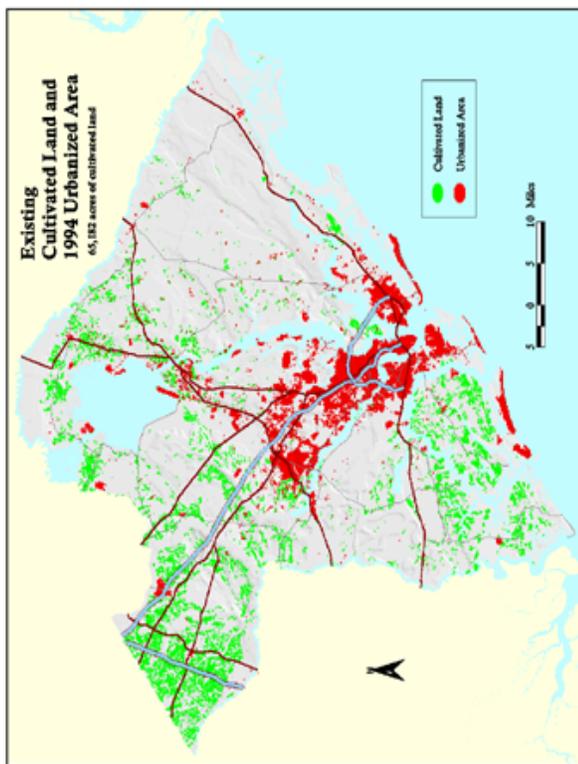
***Note:** Map on the following page can be viewed in larger format at:

http://www.strom.clemson.edu/teams/water_resources/maps/ag-at-risk.html

Click on any of the sections of the map to view a pop-up enlargement of it.

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Berkeley, Charleston, and Dorchester Counties, South Carolina



Cultivated Land At Risk By County

County	Total Cultivated Land (acres)	Cultivated Land At Risk (acres)	%
Berkeley	15,797	10,725	68
Charleston	45,253	12,204	27
Dorchester	45,832	5,382	12
Total	106,882	28,311	27

Data Sources:
 Cultivated Land: USDA National Resources Inventory (NRI) 2002
 Urbanized Area: USDA National Resources Inventory (NRI) 2002
 Interstate Highways: Aerial Imagery
 U.S. Highways: Aerial Imagery
 S.C. Highways: Aerial Imagery
 The map graphic background was created from USGS 1:250,000 scale topographic maps.



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