

SHENANDOAH COUNTY
AGRICULTURE TASK FORCE



REPORT
DECEMBER 2006

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EXECUTIVE SUMMARY

The Shenandoah County Board of Supervisors, working with the Shenandoah Resource Conservation and Development Council, organized an Agriculture Task Force (ATF) in January of 2006. Each member of the Board of Supervisors appointed an agriculture representative from their district, and the Chairman of the Board of Supervisors appointed three at large representatives to round out the representation on the task force. An organizational meeting took place on February 1, 2006, at which time a Chairman was elected. The group decided that they wanted to meet twice a month, and that their objective was to find ways to sustain agriculture in Shenandoah County.

The ATF agreed unanimously that their Mission is: "To develop a plan to be submitted to the Shenandoah County Board of Supervisors with specific recommendations for strengthening the ability to sustain agriculture as an industry in Shenandoah County." The ATF acknowledged that Shenandoah County was already doing many things right to work with the farmers. Equitable land use tax rates and waiver of equipment tax are two examples.

Shenandoah County ranks fifth in overall agriculture production in the Commonwealth. It ranks fourth for poultry and livestock. There are 18 dairy farms that produce more than four million gallons of milk annually; and there are 71 poultry farmers who raise over 19 million head of chickens and turkeys. The County boasts a significant acreage in apple orchards; nine vineyards and three wineries. There are 549 full time farmers in Shenandoah County and 440 part time farmers. The annual gross farm income totaled \$69,658,000 in 2002 (based on the most recent Census of Agriculture). In short, agriculture is one of the leading industries, and contributes to the success of other industries in the County.

The ATF took their assignment very seriously, recognizing its importance to the County's future. They researched a number of topics; heard from agricultural and land use experts; studied land use and agriculture programs in several counties, including site visits. A field trip to Clarke and Fauquier Counties to study Sliding Scale Zoning and Purchase of Development Rights took place on July 12. The ATF sponsored a local public forum on September 6 which featured a presentation by Melvin Atkinson, Director of Agriculture for Virginia Beach. About 60 people attended and learned about the variety of programs implemented by Virginia Beach to protect their agriculture sector. On September 20, the ATF met with Dr. Mike Chandler, Professor Emeritus, VA Tech, who spoke on land use initiatives and State zoning and planning policies.

Based upon the agricultural background of the members, their learning experiences and interactions, the ATF submits the following recommendations for the Shenandoah County Board of Supervisors on ways to sustain agriculture in Shenandoah County:

RECOMMENDATIONS

- Adhere to the vision in the County Comprehensive Plan of maintaining the rural character of the county in every decision made by the Board of Supervisors.
- The Board of Supervisors should work with Officials of incorporated Towns and reach shared agreement on growth boundaries and annexation strategies, consistent with the vision in the County Comprehensive Plan.
- Amend the current zoning in rural areas as quickly as possible to both limit and manage the placement of housing to minimize the impacts on agriculture.
- The County Planning Commission should specifically identify the impacts on agriculture of any development proposed in agricultural or conservation zoned areas of the county with their final recommendations to the Board of Supervisors.
- Promote Stronger Participation in Agricultural and Forestal Districts by:
 - eliminating the need for annual filing for land use tax rate for parcels enrolled in ag/forestal districts;
 - implementing further reductions in the land use tax rate for parcels enrolled in ag/forestal districts; and,
 - providing more information to new and existing rural landowners about the value of enrollment in this program.
- Establish a Purchase of Development Rights Program in the county as quickly as possible. Develop a dedicated source of funding in the county's budget to provide a local funding match to Federal and/or State funding for PDR's, such as through a specified portion of sales tax receipts, etc.
- Establish and staff a permanent, full-time Agricultural Development Director position and provide the necessary financial support as quickly as possible. The primary duties for the position will be to serve as the county 'advocate' for agriculture and provide leadership in implementing the recommendations contained in this report.
- The ATF is willing to continue in a supportive role to follow progress and offer progress briefings to the Supervisors and the public semi-annually in the year after this report is submitted.
- The Agriculture Development Director should implement a comprehensive agriculture education and information effort for school aged children; for the rural non-farm resident; for the prospective rural non-farm resident; for tourists and farmers.
- Shenandoah County should seek out new and enhance existing agribusiness enterprises that benefit multiple farmers.
- Virginia Cooperative Extension, in cooperation with the Agriculture Development Director, should provide technical assistance for sustaining/enhancing existing farms and facilitate the development of new and/or alternative agriculture enterprises.

- The Agriculture Development Director should evaluate the impact of the recent Discontinuation of the Agriculture Program at Lord Fairfax Community College and determine how this type of education can be offered in the future.
- Continue existing County tax policies as they relate to farm machinery, livestock, agricultural land and forestry land.

LAND USE

1. Comprehensive Plan:

Finding:

The ATF finds that the new Comprehensive Plan for Shenandoah County provides an excellent framework for sustaining agriculture in the County. It recognizes the economic, environmental, and social contributions made by the agricultural community to the County's way of life, and the public's support for continuing on that path. The ATF believes that all its recommendations are consistent with the Comprehensive Plan.

Recommendation:

Adhere to the vision in the County Comprehensive Plan of maintaining the rural character of the county in every decision made by the Board of Supervisors.

Recommendation:

The Board of Supervisors should work with Officials of incorporated Towns and reach shared agreement on growth boundaries and annexation strategies, consistent with the vision in the County Comprehensive Plan.

2. Zoning in Rural areas to Protect Agriculture:

Finding:

The ATF finds that the current rural residential agriculture zoning ordinance is one of the main threats to the future of agriculture in Shenandoah County. Allowing housing developments in land zoned for agriculture will lead to the demise of agriculture. It is difficult for production agriculture and housing developments to co-exist. The Board of Supervisors should support the comprehensive plan for Shenandoah County to remain a significant agricultural force. Presently, 43,023 houses could be built in areas with agricultural or conservation zoning. This number does not include the towns or property already zoned residential.

Recommendation:

Amend the current zoning in rural areas as quickly as possible to both limit and manage the placement of housing to minimize the impacts on agriculture.

3. Planning Commission Review of Development Proposals:

Finding:

To reinforce the emphasis on sustaining agriculture in the county, the Planning Commission needs to reflect that priority and perspective in its review of land use proposals.

Recommendation:

The County Planning Commission should specifically identify the impacts on agriculture of any development proposed in agricultural or conservation zoned areas of the county with their final recommendations to the Board of Supervisors.

4. Participation in Agricultural and Forestal Districts:

Finding:

The ATF finds that the State law establishing the authority for agricultural/forestal districts specifically intended to: “encourage the development and improvement of the Commonwealth’s agricultural and forestal lands for the production of food and other agricultural and forestal products...and to conserve and protect agricultural and forestal lands as valued natural and ecological resources...” Unlike agricultural zoning, which for all practical purposes *encourages* low-density residential sprawl, ag/forestal districts *discourage* land uses not in keeping with its stated purpose. Shenandoah County is one of the most active supporters of ag/forestal Districts in the State as it relates to the number of established districts (21 districts covering 41,426 acres as of December 2005). While participation does not cover all the rural, agricultural areas in the county, the farmers and woodland owners who do choose to participate, receive a level of protection in their agricultural efforts. It is an effective shorter-term (10 year) tool, even though it does not permanently protect agricultural land from development.

Recommendation:

Promote Stronger Participation in Agricultural and Forestal Districts by:

- Eliminating the need for annual filing for land use tax rate for parcels enrolled in ag/forestal districts;
- Implementing further reductions in the land use tax rate for parcels enrolled in ag/forestal districts; and,
- Providing more information to new and existing rural landowners about the value of enrollment in this program.

5. Permanent Protection of Agricultural Lands:

Finding:

The ATF finds that agriculture ranks as one of the leading industries in Shenandoah County in terms of gross revenues and fifth in the State in terms of agricultural production receipts. At the current pace of development in our rural area, we will not be able to sustain agriculture and the economic contributions it makes to the county, state and nation. Numerous studies in the State and nationwide (see references in Appendix 2) have found that the cost of services required by agricultural landowners is less than the taxes they contribute. Conversely, those same studies have shown that residential developments in agricultural lands can increase the county’s costs of providing essential services (e.g., schools, roads, emergency services, etc.) by as much as 25% or more than they pay in taxes. As a result, many counties, in order to sustain their agricultural sector AND as prudent fiscal policy for their population, have established Purchase of Development Rights (PDR) programs. There are also adverse environmental implications to rural residential development, including potential degradation of water quality and quantity, air quality, and fish and wildlife habitat, etc. The ATF believes that paying for PDRs will be less costly to all county residents in the long run than providing for the essential services to sprawling residential developments throughout the rural areas

of the county. The ATF understands that the State is currently developing a PDR program with potential matching funds for those counties with established PDR programs. It feels that Shenandoah County should be ready to participate as soon as the State program becomes operational.

Recommendation:

Establish a Purchase of Development Rights Program in the county as quickly as possible. There are successful models for programs in the State and Nation. (See Virginia Department of Agriculture and Consumer Services website for a model for local PDR programs, www.VDACS.virginia.gov/pdffiles/pdf.04.pdf). Develop a dedicated source of funding in the county's budget to provide a local funding match to Federal and/or State funding for PDR's, such as through a specified portion of sales tax receipts, etc.

COUNTY COMMITMENT TO IMPLEMENT THE ATF RECOMMENDATIONS

1. Dedicated Leadership is Essential to Achieve the ATF Recommendations:

Finding:

The ATF finds that its efforts will be in vain if there is no assigned commitment and responsibility for carrying out its recommendations and thus implementing the County's Comprehensive Plan. In counties with less significant agriculture than ours (e.g., Fauquier, Loudoun, Virginia Beach, etc), the commitment to protect their rural areas led to the establishment of specific county positions to help protect, promote and sustain their agricultural sector. We are also aware of counties that had an ATF whose reports and recommendations are still on the shelf because there is no one responsible for their implementation. We do not want that to happen in Shenandoah County. We have worked in good faith to provide prudent, responsible recommendations that we believe will make a positive difference.

Recommendation:

Establish and staff a permanent, full-time Agricultural Development Director position and provide the necessary financial support as quickly as possible. The primary duties for the position will be to serve as the county 'advocate' for agriculture and provide leadership in implementing the recommendations contained in this report. There are several successful examples of such positions available. A suggested Position Description is included in Appendix 3.

2. Progress in Implementing the ATF Recommendations needs to be monitored.

Finding:

The ATF finds that there are many competing demands for action by the Board of Supervisors. It feels that there needs to be ongoing tracking of progress in addressing their recommendations during the next year after this report is submitted to the Board of Supervisors.

Recommendation:

The ATF is willing to continue in a supportive role to follow progress and offer progress briefings to the Supervisors and public semi-annually in the year after this report is submitted.

EDUCATION AND INFORMATION

Finding:

The ATF finds that because most Shenandoah County residents are two to three generations removed from the farm, they do not understand agriculture and thus do not appreciate the importance of agriculture to the community. All citizens need to be educated about agriculture including (1) the role of agriculture in providing society's basic needs (food, clothes, energy, timber and other needs); (2) the economic impact of agriculture on Shenandoah County (3) the social benefit of an agricultural community and (4) normal life in an agricultural community including tractors on the road; odors from animal operations; pesticide application; fencing laws; noise from farm machinery; etc. The Task Force also finds that there is a need to invest in the next generation of farmers through youth education.

Recommendation:

The Agriculture Development Director should implement a comprehensive agriculture education and information effort. Five major groups have been identified because the type of information and delivery mechanism for each group is slightly different:

1. School Aged Children:

Support integrating "Ag-In-The-Classroom" countywide.

Facilitate Farm tours following bio-security and farm safety recommendations.

Continue offering FFA programs in the school and provide robust funding of the FFA program.

Continue adjusting the beginning of school to accommodate the Shenandoah County Fair.

2. Rural Non-Farm Resident:

Provide basic information on the economic benefit of agriculture to Shenandoah County.

Facilitate dialogue between farmers and rural non-farm citizens to enhance understanding of agriculture.

Provide rural non-farm residents information on rural living including varmint control, small scale agriculture opportunities, pond management, fencing laws, pesticide safety, etc.

3. Prospective Rural Non-Farm Residents:

Include a statement on the Record Plat of property located in or adjacent to land zoned agricultural that describes normal farming practices in Shenandoah County. The statement used in Clarke County Virginia (shown in Appendix 4) is recommended as a template.

Develop an informational brochure for prospective county citizens and tourists that provides information about Shenandoah County Agriculture, including life in rural Shenandoah County.

4. Tourists:

Work with the County's Tourism Director to facilitate the development and promotion of agri-tourism opportunities including the development of rural itineraries highlighting Shenandoah County agriculture's diversity and beauty.

5. Farmers:

Facilitate information exchange between farmers and provide farmers information so that they can be well equipped to inform others about agriculture and the benefits of a rural community.

Continue providing technical assistance and professional development opportunities through Virginia Cooperative Extension.

Facilitate education of farmers about marketing trends and direct marketing opportunities.

ECONOMIC DEVELOPMENT

Finding:

Agriculture is a vibrant sector of the Shenandoah County community. Indicators of the significance of agriculture to Shenandoah County include the following.

<u>Where County Agriculture Dollars are Spent Annually*</u>	
Feed	\$29,242,000
Livestock	\$10,412,000
Supplies, Repairs, and Maintenance	\$ 3,023,000
Gas, Fuel, Oil, and Utilities	\$ 2,870,000
Hired and Contract Labor	\$ 2,538,000
Fertilizer, Seed, and Chemicals	\$ 2,453,000
Property Taxes	\$ 1,464,000
Land and Building Rent	\$ 547,000

*Based on 2002 Census of Agriculture for Shenandoah County

The Agriculture Task Force finds that Agriculture enhances the beauty of Shenandoah county and thus is a significant contributing factor to the tourism industry in the county.

Recommendation:

Shenandoah County should seek out new and enhance existing agribusiness enterprises that benefit multiple farmers. Examples of these types of enterprises are (1) the produce auction in Dayton, (2) the Turkey Cooperative in Hinton, and (3) Fauquier's Finest Meat

Products and Processing. Shenandoah County should support local business ventures such as these.

Finding:

For agriculture to remain vibrant, farmers need information and educational assistance to help them make prudent decisions for investing in new/improved infrastructure, equipment, and new enterprises.

Recommendation:

Virginia Cooperative Extension, in cooperation with the Agriculture Development Director, should provide technical assistance for sustaining/enhancing existing farms and facilitate the development of new and/or alternative agriculture enterprises.

Recommendation:

The Agriculture Development Director should evaluate the impact of the recent discontinuation of the Agriculture Program at Lord Fairfax Community College and determine how this type of education can be offered in the future.

Finding:

The ATF finds that the current County policies about land use tax, equipment tax and livestock tax are both equitable and essential to the viability of farming.

Recommendation:

Continue existing County tax policies as they relate to farm machinery, livestock, agricultural land and forestry land.

REPORT OF THE SHENANDOAH
COUNTY AGRICULTURE TASK FORCE

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MEMBERS
SHENANDOAH COUNTRY AGRICULTURAL TASK FORCE
February 1, 2006
Revised August 21, 2006

District 1	Brent Eaton
District 2	Steve Baker
District 3	Mike Dirting
District 4	Charlie Williams
District 5	Brad Foster
District 6	Paul Fravel
At Large	Gary Lantz
At Large	John Gangwer
At Large	Daryl Bowman
RC&D Coordinator	Kathy Holm
RC&D Liaison	Joan Comanor
Extension Agent	Bobby Clark
Shenandoah Valley Battlefield's Foundation	John Hutchinson
Project Coordinator	Susie Hill

UNIVERSITY OF ILLINOIS EXTENSION

Local Community Resources

Fact Sheets

Costs of Community Services

The term costs of community services (COCS), usually refers to a growing body of literature that focuses on how various types of land use affect local government taxation and spending. In general, this body of literature summarizes studies that use fiscal impact analysis to determine whether various forms of land use contribute to or detract from local government budgets.



Government Finance

During the period immediately following World War II, many communities sought to attract business, industrial, and residential growth for a number of reasons. Among these was that economic growth would raise the property tax base and generate increased revenues for local infrastructure, including schools, roads, and fire/police protection. During the 1980s, however, many skeptics began to question whether economic development in rural areas “paid its own way” in terms of local taxation. For example, when farmland, open space, and woodlands are converted to residential development, local tax revenues increase substantially because property values increase. But the local government and the school district are also required to provide added services to the new

residents. Does the increased revenue cover the costs of the new services? That is the question the COCS studies set out to answer.

The COCS Ratio

It has become conventional in COCS studies to divide land use into three categories: residential, commercial/industrial, and farmland/open space. One of the most common procedures for analyzing fiscal impact is to calculate a COCS ratio for each land use category. The ratio compares how many dollars worth of local government services are demanded for each dollar collected. A ratio greater than 1.0 suggests that for every dollar of revenue collected from a given category of land, more than one dollar is spent.

Many of the early studies providing estimates of COCS ratios were either sponsored or conducted by the American Farmland Trust. But in recent years researchers from a variety of backgrounds have undertaken such studies. Regardless of who conducted the research, the results have been consistent. Virtually all of the studies show that the COCS ratio is substantially above 1 for residential land, demonstrating that residential land is a net drain on local government budgets. The average estimate ranges from about 1.15 to 1.50, which means that for every dollar collected in taxes and non-tax revenue, between \$1.15 and \$1.50 gets returned in the form of local government and school district services. On the other hand, the COCS ratios for the other two land use categories are both substantially below 1. For commercial/industrial, the ratio usually ranges from 0.35 to 0.65, indicating that for every dollar collected, the local government provides only about 35 to 65 cents worth of services. For agriculture and open space, the ratios are only slightly smaller, usually ranging from 0.30 to 0.50.

According to the COCS studies, the largest single expenditure category for communities is the public school system, accounting for 61.4 percent of spending. Since open space and commercial development in themselves do not place any burden on the schools, it should not be surprising that their ratios are lower than those for the residential category.

Several questions emerge from these results, including (1) are these studies reliable, and (2) why do the numbers vary?

The studies appear to be reliable because of the way in which taxes and service expenditures are calculated and imputed. The methods used in the studies have been laid out clearly, and the variation in the COCS ratios is relatively small. The studies are unanimous in showing that residential land use ratios are above 1 and that the other types of land uses are below 1. The primary reason that the ratios vary somewhat is that not all communities are identical. If many

homes in a community are in an extremely high price range and occupied by “empty nesters,” for example, the COCS ratio should be expected to be relatively low. On the other hand, low- or middle-income property occupied by families with numerous children would produce a higher ratio. Some communities have gone beyond simply calculating a COCS ratio and have actually calculated the “break even” home value for their community. Not surprisingly, these values tend to be substantially higher than the median (average) home value.

Another Approach

Other researchers have attempted to measure the costs of growth simply by measuring the statistical relationship between population growth rates and per capita local government spending. Most of these results have shown that in areas with very small growth rates (in the range of 1 to 2 percent per year), costs do not escalate rapidly. For communities with higher growth rates (above 3 percent per year), however, per capita spending begins to increase very dramatically.

The findings of the various types of studies on costs of services seem to support the conclusion that local public per capita spending increases when farmland and open space are converted to residential development.

Criticisms of the COCS Literature

Initially, critics of the COCS studies argued that it may be difficult to generalize from these studies. This criticism has lost some credibility, however, because many studies have been conducted in a wide range of communities nationally. The results seem to be unambiguous.

More recently, critics have developed the argument that looking only at the fiscal impacts on local governments and school districts is too limited in scope. They maintain that new residents do much more than simply pay taxes and demand services. Residents work, earn money, and spend much of it locally, thus contributing to the economic base of the community in a substantial way that is not captured in the COCS studies. The critics argue that future work should include these impacts.

But if COCS studies do not include these “multiplier” effects, it also must be said that they do not include non-economic costs to the community, such as loss of scenic landscape, increased traffic congestion, and other variables associated with quality of life.

Another argument against COCS studies is that they are based on a

“cost theory of taxation” and do not consider how growth, even with increased taxation, increases the values of properties. The rival “benefit theory of taxation” states that as new taxes pay for better infrastructure such as schools and roads, property values (and thus the net worth of property owners) increase. Such considerations have not been measured within the context of COCS.

Implications

One of the most important implications of the COCS literature is that proponents of farmland and open space preservation now have an important economic argument on their side. Some proponents of economic development have argued that a system that allows land to go to the highest bidder provides the most efficient economic results. The COCS findings, however, indicate that residential development often brings costs to the community that are not fully borne by the new residents but are instead distributed throughout the community. Local leaders should be aware that efforts to “promote growth” in their communities will have substantial impacts on revenues and expenditures. They should be able to estimate these impacts when planning for the future.

Two conclusions emerge when reflecting on the COCS issue. The first is that residential development in any area invariably leads to increased per capita demand for publicly provided services, placing increased burdens on local infrastructure and public agencies. As a result, increases in local tax rates to fund additional services tend to follow growth. Second is that it is important for members of any community to ask themselves the broader question, “How do we manage growth in our community, along with all of the impacts (both positive and negative) that it brings?”

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This material written by Allen M. Prindle, Professor of Economics, Otterbein College and Thomas W. Blaine, Northeast District Specialist, Community Development, Ohio State University Extension. Reprinted as part of a multi-state effort to improve land use education.

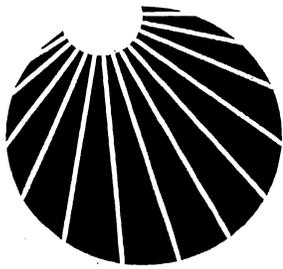
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FARMLAND INFORMATION CENTER

FACT SHEET

COST OF COMMUNITY SERVICES STUDIES



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DESCRIPTION

Cost of Community Services (COCS) studies are a case study approach used to determine the fiscal contribution of existing local land uses. A subset of the much larger field of fiscal analysis, COCS studies have emerged as an inexpensive and reliable tool to measure direct fiscal relationships. Their particular niche is to evaluate working and open lands on equal ground with residential, commercial and industrial land uses.

COCS studies are a snapshot in time of costs versus revenues for each type of land use. They do not predict future costs or revenues or the impact of future growth. They do provide a baseline of current information to help local officials and citizens make informed land use and policy decisions.

METHODOLOGY

In a COCS study, researchers organize financial records to assign the cost of municipal services to working and open lands, as well as to residential, commercial and industrial development. Researchers meet with local sponsors to define the scope of the project and identify land use categories to study. For example, working lands may include farm, forest and/or ranch lands. Residential development includes all housing, including rentals, but if there is a migrant agricultural work force, temporary housing for these workers would be considered part of agricultural land use. Often in rural communities, commercial and industrial land uses are combined. COCS studies findings are displayed as a set of ratios that compare annual revenues to annual expenditures for a community's unique mix of land uses.

COCS studies involve three basic steps:

1. Collect data on local revenues and expenditures.
2. Group revenues and expenditures and allocate them to the community's major land use categories.
3. Analyze the data and calculate revenue-to-expenditure ratios for each land use category.

The process is straightforward, but ensuring reliable figures requires local oversight. The most complicated task is interpreting existing records to reflect COCS land use categories. Allocating revenues and expenses requires a significant amount of research, including extensive interviews with financial officers and public administrators.

HISTORY

Communities often evaluate the impact of growth on local budgets by conducting or commissioning fiscal impact analyses. Fiscal impact studies project public costs and revenues from different land development patterns. They generally show that residential development is a net fiscal loss for communities and recommend commercial and industrial development as a strategy to balance local budgets.

Rural towns and counties that would benefit from fiscal impact analysis may not have the expertise or resources to conduct a study. Also, fiscal impact analyses rarely consider the contribution of working and other open lands uses, which are very important to rural economies.

American Farmland Trust (AFT) developed COCS studies in the mid-1980s to provide communities with a straightforward and inexpensive way to measure the contribution of agricultural lands to the local tax base. Since then, COCS studies have been conducted in at least 125 communities in the United States.

FUNCTIONS & PURPOSES

Communities pay a high price for unplanned growth. Scattered development frequently causes traffic congestion, air and water pollution, loss of open space and increased demand for costly public services. This is why it is important for citizens and local leaders to understand the relationships between residential and commercial growth, agricultural land use, conservation and their community's bottom line.

COST OF COMMUNITY SERVICES STUDIES

For additional information on farmland protection and stewardship contact the Farmland Information Center. The FIC offers a staffed answer service, online library, program monitoring, fact sheets and other educational materials.

www.farmlandinfo.org

(800) 370-4879

COCS studies help address three claims that are commonly made in rural or suburban communities facing growth pressures:

1. Open lands—including productive farms and forests—are an interim land use that should be developed to their “highest and best use.”
2. Agricultural land gets an unfair tax break when it is assessed at its current use value for farming or ranching instead of at its potential use value for residential or commercial development.
3. Residential development will lower property taxes by increasing the tax base.

While it is true that an acre of land with a new house generates more total revenue than an acre of hay or corn, this tells us little about a community’s bottom line. In areas where agriculture or forestry are major industries, it is especially important to consider the real property tax contribution of privately owned working lands. Working and other open lands may generate less revenue than residential, commercial or industrial properties, but they require little public infrastructure and few services.

COCS studies conducted over the last 20 years show working lands generate more public revenues than they receive back in public services. Their impact on community coffers is similar to that of other commercial and industrial land uses. On average, because residential land uses

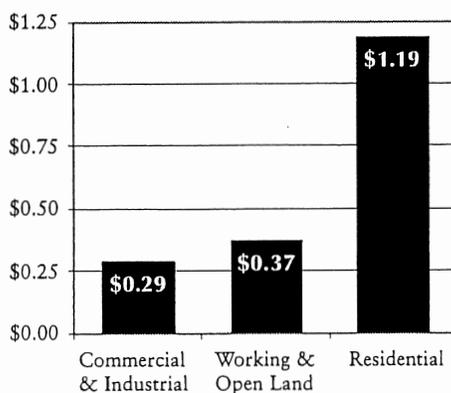
do not cover their costs, they must be subsidized by other community land uses. Converting agricultural land to residential land use should not be seen as a way to balance local budgets.

The findings of COCS studies are consistent with those of conventional fiscal impact analyses, which document the high cost of residential development and recommend commercial and industrial development to help balance local budgets. What is unique about COCS studies is that they show that agricultural land is similar to other commercial and industrial uses. In every community studied, farmland has generated a fiscal surplus to help offset the shortfall created by residential demand for public services. This is true even when the land is assessed at its current, agricultural use. However as more communities invest in agriculture this tendency may change. For example, if a community establishes a purchase of agricultural conservation easement program, working and open lands may generate a net negative.

Communities need reliable information to help them see the full picture of their land uses. COCS studies are an inexpensive way to evaluate the net contribution of working and open lands. They can help local leaders discard the notion that natural resources must be converted to other uses to ensure fiscal stability. They also dispel the myths that residential development leads to lower taxes, that differential assessment programs give landowners an “unfair” tax break and that farmland is an interim land use just waiting around for development.

One type of land use is not intrinsically better than another, and COCS studies are not meant to judge the overall public good or long-term merits of any land use or taxing structure. It is up to communities to balance goals such as maintaining affordable housing, creating jobs and conserving land. With good planning, these goals can complement rather than compete with each other. COCS studies give communities another tool to make decisions about their futures.

Median COCS Results



Median cost per dollar of revenue raised to provide public services to different land uses.

SUMMARY OF COST OF COMMUNITY SERVICES STUDIES, REVENUE-TO-EXPENDITURE RATIOS IN DOLLARS

Community	Residential including farm houses	Commercial & Industrial	Working & Open Land	Source
Colorado				
Custer County	1 : 1.16	1 : 0.71	1 : 0.54	Haggerty, 2000
Saguache County	1 : 1.17	1 : 0.53	1 : 0.35	Dirt, Inc., 2001
Connecticut				
Bolton	1 : 1.05	1 : 0.23	1 : 0.50	Geisler, 1998
Durham	1 : 1.07	1 : 0.27	1 : 0.23	Southern New England Forest Consortium, 1995
Farmington	1 : 1.33	1 : 0.32	1 : 0.31	Southern New England Forest Consortium, 1995
Hebron	1 : 1.06	1 : 0.47	1 : 0.43	American Farmland Trust, 1986
Litchfield	1 : 1.11	1 : 0.34	1 : 0.34	Southern New England Forest Consortium, 1995
Pomfret	1 : 1.06	1 : 0.27	1 : 0.86	Southern New England Forest Consortium, 1995
Florida				
Leon County	1 : 1.39	1 : 0.36	1 : 0.42	Dorfman, 2004
Georgia				
Appling County	1 : 2.27	1 : 0.17	1 : 0.35	Dorfman, 2004
Athens-Clarke County	1 : 1.39	1 : 0.41	1 : 2.04	Dorfman, 2004
Brooks County	1 : 1.56	1 : 0.42	1 : 0.39	Dorfman, 2004
Carroll County	1 : 1.29	1 : 0.37	1 : 0.55	Dorfman and Black, 2002
Cherokee County	1 : 1.59	1 : 0.12	1 : 0.20	Dorfman, 2004
Colquitt County	1 : 1.28	1 : 0.45	1 : 0.80	Dorfman, 2004
Dooly County	1 : 2.04	1 : 0.50	1 : 0.27	Dorfman, 2004
Grady County	1 : 1.72	1 : 0.10	1 : 0.38	Dorfman, 2003
Hall County	1 : 1.25	1 : 0.66	1 : 0.22	Dorfman, 2004
Jones County	1 : 1.23	1 : 0.65	1 : 0.35	Dorfman, 2004
Miller County	1 : 1.54	1 : 0.52	1 : 0.53	Dorfman, 2004
Mitchell County	1 : 1.39	1 : 0.46	1 : 0.60	Dorfman, 2004
Thomas County	1 : 1.64	1 : 0.38	1 : 0.66	Dorfman, 2003
Idaho				
Canyon County	1 : 1.08	1 : 0.79	1 : 0.54	Hartmans and Meyer, 1997
Cassia County	1 : 1.19	1 : 0.87	1 : 0.41	Hartmans and Meyer, 1997
Kentucky				
Campbell County	1 : 1.21	1 : 0.30	1 : 0.38	American Farmland Trust, 2005
Kenton County	1 : 1.19	1 : 0.19	1 : 0.51	American Farmland Trust, 2005
Lexington-Fayette	1 : 1.64	1 : 0.22	1 : 0.93	American Farmland Trust, 1999
Oldham County	1 : 1.05	1 : 0.29	1 : 0.44	American Farmland Trust, 2003
Shelby County	1 : 1.21	1 : 0.24	1 : 0.41	American Farmland Trust, 2005
Maine				
Bethel	1 : 1.29	1 : 0.59	1 : 0.06	Good, 1994
Maryland				
Carroll County	1 : 1.15	1 : 0.48	1 : 0.45	Carroll County Dept. of Management & Budget, 1994
Cecil County	1 : 1.17	1 : 0.34	1 : 0.66	American Farmland Trust, 2001
Cecil County	1 : 1.12	1 : 0.28	1 : 0.37	Cecil County Office of Economic Development, 1994

SUMMARY OF COST OF COMMUNITY SERVICES STUDIES, REVENUE-TO-EXPENDITURE RATIOS IN DOLLARS

Community	Residential including farm houses	Commercial & Industrial	Working & Open Land	Source
Frederick County	1 : 1.14	1 : 0.50	1 : 0.53	American Farmland Trust, 1997
Harford County	1 : 1.11	1 : 0.40	1 : 0.91	American Farmland Trust, 2003
Kent County	1 : 1.05	1 : 0.64	1 : 0.42	American Farmland Trust, 2002
Wicomico County	1 : 1.21	1 : 0.33	1 : 0.96	American Farmland Trust, 2001
Massachusetts				
Agawam	1 : 1.05	1 : 0.44	1 : 0.31	American Farmland Trust, 1992
Becket	1 : 1.02	1 : 0.83	1 : 0.72	Southern New England Forest Consortium, 1995
Deerfield	1 : 1.16	1 : 0.38	1 : 0.29	American Farmland Trust, 1992
Franklin	1 : 1.02	1 : 0.58	1 : 0.40	Southern New England Forest Consortium, 1995
Gill	1 : 1.15	1 : 0.43	1 : 0.38	American Farmland Trust, 1992
Leverett	1 : 1.15	1 : 0.29	1 : 0.25	Southern New England Forest Consortium, 1995
Middleboro	1 : 1.08	1 : 0.47	1 : 0.70	American Farmland Trust, 2001
Southborough	1 : 1.03	1 : 0.26	1 : 0.45	Adams and Hines, 1997
Westford	1 : 1.15	1 : 0.53	1 : 0.39	Southern New England Forest Consortium, 1995
Williamstown	1 : 1.11	1 : 0.34	1 : 0.40	Hazler et al., 1992
Michigan				
Marshall Twp., Calhoun Cty.	1 : 1.47	1 : 0.20	1 : 0.27	American Farmland Trust, 2001
Newton Twp., Calhoun Cty.	1 : 1.20	1 : 0.25	1 : 0.24	American Farmland Trust, 2001
Scio Township	1 : 1.40	1 : 0.28	1 : 0.62	University of Michigan, 1994
Minnesota				
Farmington	1 : 1.02	1 : 0.79	1 : 0.77	American Farmland Trust, 1994
Lake Elmo	1 : 1.07	1 : 0.20	1 : 0.27	American Farmland Trust, 1994
Independence	1 : 1.03	1 : 0.19	1 : 0.47	American Farmland Trust, 1994
Montana				
Carbon County	1 : 1.60	1 : 0.21	1 : 0.34	Prinzing, 1999
Gallatin County	1 : 1.45	1 : 0.16	1 : 0.25	Haggerty, 1996
Flathead County	1 : 1.23	1 : 0.26	1 : 0.34	Citizens for a Better Flathead, 1999
New Hampshire				
Deerfield	1 : 1.15	1 : 0.22	1 : 0.35	Auger, 1994
Dover	1 : 1.15	1 : 0.63	1 : 0.94	Kingsley et al., 1993
Exeter	1 : 1.07	1 : 0.40	1 : 0.82	Niebling, 1997
Fremont	1 : 1.04	1 : 0.94	1 : 0.36	Auger, 1994
Groton	1 : 1.01	1 : 0.12	1 : 0.88	New Hampshire Wildlife Federation, 2001
Stratham	1 : 1.15	1 : 0.19	1 : 0.40	Auger, 1994
Lyme	1 : 1.05	1 : 0.28	1 : 0.23	Pickard, 2000
New Jersey				
Freehold Township	1 : 1.51	1 : 0.17	1 : 0.33	American Farmland Trust, 1998
Holmdel Township	1 : 1.38	1 : 0.21	1 : 0.66	American Farmland Trust, 1998
Middletown Township	1 : 1.14	1 : 0.34	1 : 0.36	American Farmland Trust, 1998
Upper Freehold Township	1 : 1.18	1 : 0.20	1 : 0.35	American Farmland Trust, 1998
Wall Township	1 : 1.28	1 : 0.30	1 : 0.54	American Farmland Trust, 1998

SUMMARY OF COST OF COMMUNITY SERVICES STUDIES, REVENUE-TO-EXPENDITURE RATIOS IN DOLLARS

Community	Residential including farm houses	Commercial & Industrial	Working & Open Land	Source
New York				
Amenia	1 : 1.23	1 : 0.25	1 : 0.17	Bucknall, 1989
Beekman	1 : 1.12	1 : 0.18	1 : 0.48	American Farmland Trust, 1989
Dix	1 : 1.51	1 : 0.27	1 : 0.31	Schuyler County League of Women Voters, 1993
Farmington	1 : 1.22	1 : 0.27	1 : 0.72	Kinsman et al., 1991
Fishkill	1 : 1.23	1 : 0.31	1 : 0.74	Bucknall, 1989
Hector	1 : 1.30	1 : 0.15	1 : 0.28	Schuyler County League of Women Voters, 1993
Kinderhook	1 : 1.05	1 : 0.21	1 : 0.17	Concerned Citizens of Kinderhook, 1996
Montour	1 : 1.50	1 : 0.28	1 : 0.29	Schuyler County League of Women Voters, 1992
Northeast	1 : 1.36	1 : 0.29	1 : 0.21	American Farmland Trust, 1989
Reading	1 : 1.88	1 : 0.26	1 : 0.32	Schuyler County League of Women Voters, 1992
Red Hook	1 : 1.11	1 : 0.20	1 : 0.22	Bucknall, 1989
Ohio				
Butler County	1 : 1.12	1 : 0.45	1 : 0.49	American Farmland Trust, 2003
Clark County	1 : 1.11	1 : 0.38	1 : 0.30	American Farmland Trust, 2003
Knox County	1 : 1.05	1 : 0.38	1 : 0.29	American Farmland Trust, 2003
Madison Village	1 : 1.67	1 : 0.20	1 : 0.38	American Farmland Trust, 1993
Madison Township	1 : 1.40	1 : 0.25	1 : 0.30	American Farmland Trust, 1993
Shalersville Township	1 : 1.58	1 : 0.17	1 : 0.31	Portage County Regional Planning Commission, 1997
Pennsylvania				
Allegheny Township	1 : 1.06	1 : 0.14	1 : 0.13	Kelsey, 1997
Bedminster Township	1 : 1.12	1 : 0.05	1 : 0.04	Kelsey, 1997
Bethel Township	1 : 1.08	1 : 0.17	1 : 0.06	Kelsey, 1992
Bingham Township	1 : 1.56	1 : 0.16	1 : 0.15	Kelsey, 1994
Buckingham Township	1 : 1.04	1 : 0.15	1 : 0.08	Kelsey, 1996
Carroll Township	1 : 1.03	1 : 0.06	1 : 0.02	Kelsey, 1992
Hopewell Township	1 : 1.27	1 : 0.32	1 : 0.59	The South Central Assembly for Effective Governance, 2002
Maiden Creek Township	1 : 1.28	1 : 0.11	1 : 0.06	Kelsey, 1998
Richmond Township	1 : 1.24	1 : 0.09	1 : 0.04	Kelsey, 1998
Shrewsbury Township	1 : 1.22	1 : 0.15	1 : 0.17	The South Central Assembly for Effective Governance, 2002
Stewardson Township	1 : 2.11	1 : 0.23	1 : 0.31	Kelsey, 1994
Straban Township	1 : 1.10	1 : 0.16	1 : 0.06	Kelsey, 1992
Sweden Township	1 : 1.38	1 : 0.07	1 : 0.08	Kelsey, 1994
Rhode Island				
Hopkinton	1 : 1.08	1 : 0.31	1 : 0.31	Southern New England Forest Consortium, 1995
Little Compton	1 : 1.05	1 : 0.56	1 : 0.37	Southern New England Forest Consortium, 1995
Portsmouth	1 : 1.16	1 : 0.27	1 : 0.39	Johnston, 1997
West Greenwich	1 : 1.46	1 : 0.40	1 : 0.46	Southern New England Forest Consortium, 1995
Tennessee				
Blount County	1 : 1.23	1 : 0.25	1 : 0.41	American Farmland Trust, 2006
Robertson County	1 : 1.13	1 : 0.22	1 : 0.26	American Farmland Trust, 2006
Tipton County	1 : 1.07	1 : 0.32	1 : 0.57	American Farmland Trust, 2006

SUMMARY OF COST OF COMMUNITY SERVICES STUDIES, REVENUE-TO-EXPENDITURE RATIOS IN DOLLARS

Community	Residential including farm houses	Commercial & Industrial	Working & Open Land	Source
Texas				
Bandera County	1 : 1.10	1 : 0.26	1 : 0.26	American Farmland Trust, 2002
Bexar County	1 : 1.15	1 : 0.20	1 : 0.18	American Farmland Trust, 2004
Hays County	1 : 1.26	1 : 0.30	1 : 0.33	American Farmland Trust, 2000
Utah				
Cache County	1 : 1.27	1 : 0.25	1 : 0.57	Snyder and Ferguson, 1994
Sevier County	1 : 1.11	1 : 0.31	1 : 0.99	Snyder and Ferguson, 1994
Utah County	1 : 1.23	1 : 0.26	1 : 0.82	Snyder and Ferguson, 1994
Virginia				
Augusta County	1 : 1.22	1 : 0.20	1 : 0.80	Valley Conservation Council, 1997
Bedford County	1 : 1.07	1 : 0.40	1 : 0.25	American Farmland Trust, 2005
Clarke County	1 : 1.26	1 : 0.21	1 : 0.15	Piedmont Environmental Council, 1994
Culpeper County	1 : 1.22	1 : 0.41	1 : 0.32	American Farmland Trust, 2003
Frederick County	1 : 1.19	1 : 0.23	1 : 0.33	American Farmland Trust, 2003
Northampton County	1 : 1.13	1 : 0.97	1 : 0.23	American Farmland Trust, 1999
Washington				
Skagit County	1 : 1.25	1 : 0.30	1 : 0.51	American Farmland Trust, 1999
Wisconsin				
Dunn	1 : 1.06	1 : 0.29	1 : 0.18	Town of Dunn, 1994
Dunn	1 : 1.02	1 : 0.55	1 : 0.15	Wisconsin Land Use Research Program, 1999
Perry	1 : 1.20	1 : 1.04	1 : 0.41	Wisconsin Land Use Research Program, 1999
Westport	1 : 1.11	1 : 0.31	1 : 0.13	Wisconsin Land Use Research Program, 1999

American Farmland Trust's Farmland Information Center acts as a clearinghouse for information about Cost of Community Services studies. Inclusion in this table does not necessarily signify review or endorsement by American Farmland Trust.

Cost of Community Services Study

Culpeper County, Virginia

Prepared by
American Farmland Trust

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American Farmland Trust (AFT) is a private, nonprofit conservation organization founded in 1980 to protect our nation's strategic agricultural resources. AFT works to stop the loss of productive farmland and to promote farming practices that lead to a healthy environment. AFT provides a variety of services to landowners, land trusts, public officials, planners, agricultural agencies and others. Services include Cost of Community Services studies, workshops on farmland protection and estate planning, farmland protection program development and agricultural economic analysis.

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EXECUTIVE SUMMARY

At the request of the Board of Supervisors, American Farmland Trust completed a Cost of Community Services (COCS) study to develop a current understanding of the net fiscal impact of existing land uses in Culpeper County, Virginia. The study analyzes revenues and expenditures on a land use basis for fiscal year 2002. It examines revenues by land use and the financial demands of public services (e.g. public safety, government administration, schools, courts, etc.) and shows the cost of providing these services to residential; commercial; and farm, forest and open space land uses. The study focused on the county budget because it represents revenues and expenditures for the majority of the government services provided to residents living in Culpeper County.

The COCS study found that in Culpeper County:

- 73 percent of revenue in FY 2002 was generated by residential land uses; 25 percent was generated by commercial land uses; and 2 percent by farm, forest and open lands,
- 89 percent of county expenditures went to provide services for residential land use compared with 11 percent for commercial/ industrial uses and 1 percent for farm, forest, and open land.

In other words, for each \$1 of revenue received from residential properties in Culpeper County in FY 2002, the county spent \$1.22 providing services to those lands. For each \$1 from commercial and industrial land uses the county spent 41 cents; and for each \$1 received from farm, forest and open land uses the county spent 32 cents providing services.

Residential land uses created a deficit of \$11,647,464 which was offset by the other two land use categories: \$11 million from commercial and the balance from the nearly \$1 million surplus paid by farm and open land. The Culpeper County COCS findings demonstrate that a balance of land uses is necessary to assure fiscal stability. While residential development contributes the largest amount of revenue, its net fiscal impact is negative because the total expenditures for that land use exceed the revenues. Commercial

development's net revenues offset the majority of the shortfall while farm and open land's net revenues contribute the balance.

Study Findings

Combined County & District Services	FY 2002 Budget	Residential Development	Commercial Development	Farm and Open
a) Total Revenues	\$ 73,650,266	\$ 53,402,666	\$ 18,856,414	\$ 1,391,186
b) Total Expenditures	\$ 73,254,915	\$ 65,050,130	\$ 7,766,227	\$ 438,559
Net contribution (a-b)	\$ 395,351	\$ (11,647,464)	\$ 11,090,187	\$ 952,627
Land use ratio*		1: 1.22	1: 0.41	1: 0.32

*Cost for each \$1 of revenue generated

INTRODUCTION

Culpeper County

This is the third in a series of studies of local agriculture and agricultural landowners completed by American Farmland Trust in cooperation with Culpeper County. The previous studies examined the trends in the local agricultural industry¹ and surveyed agricultural landowners about their farming operations and future intentions.² The purpose of these studies is to provide insight into the contribution agriculture makes to the local economy, tax base and quality of life, and to provide some context for decisions about how to encourage the retention of agricultural lands and stimulate investment in the industry.

Culpeper County is located in north-central Virginia and encompasses 381.2 square miles, or 243,968 acres. The county population was 34,262 in 2000, an increase of more than 20 percent from the 1990 census. The number of households increased 25 percent between 1990 and 2000³. Approximately 40 percent of the Culpeper workforce commutes to work out of the county. Much of this growth has been in the northern part of the county closest to the Northern Virginia metropolitan area.

According to records from the Commissioner of Revenue, the estimated 17,114 properties in the county have an assessed value of almost \$2 billion. The majority of this is residential:

- 3,149 urban residential properties
- 10,785 suburban residential properties
- 150 multiple family properties
- 871 commercial and industrial properties, and
- 2,159 agricultural properties.

The 1997 Census of Agriculture reported 521 farms in Culpeper County operating on 114,926 acres of farmland. Small farms (with annual sales of less than \$250,000)

¹ American Farmland Trust, 2000

² Virginia Tech Center for Survey Research, 2000. "Culpeper Landowner Survey 2000."

constitute 93 percent of all farms in the county. County farm numbers and net income continue to grow, lead by the burgeoning small farm sector.⁴ The market value of agricultural products sold was \$21 million in 1997, with an impact of over \$51 million because small farms tend to purchase inputs locally and are important to the local economy. Agriculture is a significant sector of the county economy and is threatened by scattered residential development.

Cost of Community Service Studies

A COCS study is a case study analysis of the net fiscal impacts of existing land uses on county budgets. It provides a snapshot in time of costs versus revenues based on current land use. Unlike traditional fiscal impact analysis, COCS studies are descriptive - not predictive - and are based on real budgets for a specific community. These analyses show what services private residents receive in return for the taxes they pay to their local and county government and how these costs and revenues relate to land use.

The process of conducting a COCS study is relatively straightforward and easy to understand. Local budgetary information is allocated to major land use categories. The studies rely on budget and financial records and in-depth interviews with local government officials and budget managers to understand how revenues were generated and how appropriations were spent during a recent year. The goal of this COCS study is not to prescribe a course of action but to provide reliable financial data to help Culpeper County officials make informed planning decisions and to evaluate strategies to maintain a balance in the distribution of land uses in the future.

AFT developed this low-cost fiscal study to contribute local knowledge to decisions about land use. It is hoped that by using a community's own statistics and financial, land use and economic data, these tools will move public dialogue from speculation to projection – from emotion to analysis. The results of this COCS study show the average fiscal impacts of Culpeper's current land uses.

³ U.S. Census Bureau, 1990, 2000

AFT developed the COCS approach to investigate three common claims often heard at community meetings:

1. Open lands—including working agricultural and forest lands—are an interim land use that should be developed to their “highest and best use”;
2. Agricultural land gets an “unfair” tax break when it is assessed at its actual use value for agriculture instead of at its potential use value for development;
3. Residential development will lower property taxes by increasing the tax base.

While it is true that an acre of land with a new house generates more total revenue than an acre of farmland, this tells us little about a community’s fiscal stability. In areas where farming and forestry are major industries, it is especially important to consider the real property tax contribution of privately owned natural resource lands. Farm, forests, and open lands generate less revenue than residential, commercial or industrial properties, but they require little public expenditure due to the modest demand for infrastructure and public services. COCS studies determine the *net* fiscal impact of land uses in the present by comparing total revenues to total expenditures to ascertain the overall contribution of different land uses.

There are three basic steps in the process of conducting a Cost of Community Services study:

1. Collect data: Obtain relevant reports and other financial records, interview officials, boards and departments.
2. Allocate revenues and expenditures by land use.
3. Analyze data and calculate ratios.

The following section explains how these steps were followed in Culpeper County.

COCS METHOD IN CULPEPER COUNTY

Before the study began, researchers contacted public officials to set up interviews, to understand local issues related to budgets, and to define land use categories for the study.

⁴ Agricultural Trends

After a review of the county property tax classification system three land use categories were defined for this study:

- ***Residential Development*** — property used for dwellings, *including farmhouses*, mobile homes, and rental units.
- ***Commercial and Industrial Development*** — property actively used for business purposes other than agricultural or forestry, including retail and wholesale production and utilities.
- ***Farm and Open Land*** — all agricultural parcels, including those qualifying for agricultural exemptions and vacant residential parcels greater than 20 acres.

Collected Data and Interviews

Appointments were scheduled with county officials. The purpose of these interviews was to obtain relevant information and to collect necessary documents. The Culpeper County Adopted Annual Fiscal Plan for fiscal year 2002 contains descriptions of services provided by all county departments including: general government; judicial administration; public safety; public works; health and social services; parks, recreation and culture; and community development. Other funds for organizations such as social services, the airport, education, and Extension Service, that are county funded but not administered, are also described in the fiscal plan. This Annual Fiscal Plan was reviewed to gain an understanding of the nature of services provided by county departments.

Allocate revenues and expenditures by land use

Interviews were conducted to allocate all fiscal year 2002 revenues and expenditures into the three land use categories. In the interviews, officials were asked to provide records showing how revenue was generated by land use and what land use was served by an expenditure: residential; commercial/industrial; or farm and open land. The next step involved allocating revenues and expenditures to the land use categories based on the information gathered from reports and interviews.

Revenues

Revenues were categorized according to the land use source for that particular item. Fees collected by the Circuit Court were distributed according to the type of land use indicated in a summary report. For example, marriage licenses, concealed weapons permits and passport applications were classified as residential revenues. Fees for notary qualifications were attributed to business. Court fees from wills, estates, and property recordings were divided by the relative assessed value of property in the county.

Grants from the state and federal government were classified according to the type of program that received the income, under the assumption that the revenue is provided to pay for a specific service. For example, a grant for senior citizen services would be allocated to the residential category. Library aid, a school resource officer grant and a crime victim assistance grant were all allocated to the residential category. A Virginia Environmental Endowment grant was allocated to farm and open land.

The State of Virginia provides almost \$3 million of funding to the county to offset the service costs for constitutional officers or elected officials whose positions are established by the Constitution of the Commonwealth or its statutes (Commonwealth's Attorney, Sheriff, Commissioner of the Revenue, Treasurer and the Clerk of the Court.) This revenue was allocated based on information obtained in the interviews about the relationship of office activities to land use.

Another important source of county revenue is the local and state sales tax levied on products sold in the county. Sales tax revenue of \$20,220,402 in the school operating fund was allocated as a combination of residential and commercial land use source. Even though sales tax is generated from commercial land use, primarily county residents pay it, with the businesses acting as pass-through agents. It is different than taxes or fees generated by a business out of operating expenses. However, it could also be argued that without commercial establishments, there would be no sales tax revenue in the county.

To evaluate the relative residential, commercial and farm contribution to sales tax, the quarterly taxable sales reports for FY 2002 were obtained from the Virginia Department of Taxation. Taxable sales for the county are listed by a two-digit business code. The tax contribution from any business not likely to sell their products to residents was first allocated to commercial land use and subtracted from the total. For example, the machinery, equipment, and supplies group (construction, professional equipment, service establishment equipment) sells, for the most part, to other businesses. Tax revenue from hotels, motels, and tourist camps, was allocated entirely to the business category because they generally do not provide services to county residents. The remaining sales tax revenue was allocated to all residential and commercial land use categories based on the relative assessed value of these property groups in the county. The result is that both state reimbursed and local sales tax revenue were attributed to residential (71 percent), and commercial (29 percent.) Business purchases by farmers and tangible property used for agricultural production for market are exempt from sales tax.

Expenditures

County officials and department heads were interviewed to determine how county expenditures should be allocated to the three land use categories. Department heads gave an overview of their services and identified any reports (dispatch records, permit summaries, organizational charts) and other secondary sources of information. In the interviews, officials were asked which land use benefited from each expense: residential; commercial/industrial; or agricultural and open land.

The Sheriff's Department and Fire and Emergency Medical Service expenditures were allocated according to a sample of the calls made. Court expenses were allocated according to a review of case file statistics. Several service expenditures were clearly residential such as senior services, parks, libraries and arts programs. Economic development and Chamber of Commerce expenditures were for commercial/industrial land use. State shared sales tax revenue (\$22 million) spent in the school operating budget was attributed to residential land use because it was given to the county to pay for education, a residential service.

Unusual, one-time only revenues or expenditures can distort the COCS snapshot picture of a typical fiscal year. In this study, this situation occurred in the case of the school capital fund. In fiscal 2002, a total of \$12,262,668 was spent including large expenditures for the Floyd T. Binns school construction (\$8,932,288) and the High School addition (\$3,096,994). Since this debt will be paid off over a period of twenty years, only 1/20th of these construction expenses, or \$601,604 were included in the FY 2002 analysis. This was added to the remaining school capital fund expenditures resulting in a final capital fund expenditure of \$1,326,975.

The breakdown of property tax revenues into land use classes was available from the Commissioner of Revenue. The property categories used by the county were grouped into the three land use categories used for this study: residential, commercial and industrial, and farm and open space. Agricultural land in Culpeper within the farmland and open space category is land that falls under Virginia's agricultural valuation process, and therefore is assessed at the value of its current use, rather than at the value of its potential use for development.

Mobile home parks were included in the residential category because of the nature of public service demands. Likewise, taxes from farmhouses were included in the residential category to correspond with services demanded by homeowners separate from the agricultural business. Appendix B shows how land is classified for assessment purposes in Culpeper and how all or a portion of the taxable value of these classes was moved to fit the defined land use categories of this study.

Calculation of "Fallback" Percentages

Even after extensive record searches, in a few cases, it is not possible to attribute some line items to specific land use categories. For example, administrative salaries and public buildings serve the entire county in a general capacity. In this situation, a fallback breakdown was applied. It was calculated based on the percentage of **taxes contributed**

from real and personal property for fiscal year 2002 taxes (Appendix B). The land use distribution of these revenues resulted in the following:

- 69 percent were from residential development,
- 25 percent from commercial and industrial development, and
- 6 percent from agricultural and open land.

These fallback percentages were used for both revenues and expenditures, but only in cases where line items lacked a clear relationship to land use.

Analyze data and calculate ratios

Once the necessary data was collected and interviews completed, the information was synthesized on a spreadsheet. The dollar amount for each line item of the budget was allocated among the three land use categories according to the associated percentage breakdown. The percentages were entered for each line item and total revenues and total expenditures were summed for each of the three land use categories. By comparing total revenues to total expenditures in each category, the total net surplus or deficit was calculated. The County budget allocations are included in this report as Appendix A. This information is also presented as ratios to show the actual expenditure for every dollar raised (See Table 1 on page 13). The findings were checked for accuracy. Finally, draft findings were sent to the study sponsors for their review and comments. These comments were discussed with the sponsors and incorporated into the final report.

FINDINGS

In fiscal year 2002, Culpeper County residential land use generated \$53,402,666 in revenues to cover residential land use expenditures of \$65,050,130. Comparing revenues to expenditures shows that residential land use had a deficit of \$11,647,464, which was covered by a surplus of \$952,627 from agricultural and open land revenues and \$11,090,187 from commercial/industrial development.

Findings for Culpeper are presented in the table below. The first two rows of the table show the total dollar amounts allocated to each land use for revenues and expenditures. The third row shows the net dollar impact on the budget for each land use. This was

determined by comparing the revenues generated with the expenditures provided. The next row of the table presents this same information in ratio form. This is a clear way to see how much each land use costs for each dollar of revenue that it generates for the county, schools, and water districts.

The final land use ratios show the costs required per \$1 of revenue generated in fiscal year 2002. For each \$1 of revenue received from residential properties in Culpeper County in FY 2002, the county spent \$1.22 providing services to those lands. For each \$1 from commercial and industrial land uses, the county spent 41 cents and for each \$1 received from farm, forest and open land uses the county spent 32 cents providing services.

Table 1. Study Findings

Culpeper County Services (County & District Services)	FY 2002 Budget	Residential Development	Commercial and Industrial Development	Agricultural and Open
a) Total Revenues	\$ 73,650,266	\$ 53,402,666	\$ 18,856,414	\$ 1,391,186
b) Total Expenditures	\$ 73,254,915	\$ 65,050,130	\$ 7,766,227	\$ 438,559
Net contribution (a-b)	\$ 395,351	\$ (11,647,464)	\$ 11,090,187	\$ 952,627
Land use ratio*		1: 1.22	1: 0.41	1: 0.32
Percent of Revenue by Land Use		73%	25%	2%
Percent of Expenditure by Land Use		89%	10%	1%

* Cost for each \$1 of revenue generated

DISCUSSION

COCS studies provide a baseline of information to help local officials and citizens make informed land use decisions. They offer the benefit of hindsight to see the effect of development patterns to date. They also demonstrate the fiscal importance of privately owned land in agricultural or other open space uses.

The purpose of a COCS study is to determine the net fiscal contribution of working and open lands so these lands may be duly considered in the planning process, not to

recommend one type of land use over another. Because the studies are descriptive, they should not be used to predict the impact of a single development or to project future costs of services created by new development. COCS studies are not designed to judge the value of one land use over another or to compare one type of new development to another.

The results of this study provide reliable financial information that demonstrates the importance of agricultural and open lands to the fiscal stability of Culpeper County. It suggests that development of strategies to retain this land base for future agriculture would be a good long-term investment and that:

Taxes and other revenues from residential development do not cover all the public services residents receive from the county. A balance of land uses, including agricultural and open lands, is needed to provide adequate revenue to pay for these services. As more residential development occurs, an imbalance may grow creating the need for tax increases. The ratio of \$1:1.22 for residential land use would have been much higher if not for the contribution of over \$20 million of state money for education.

Agricultural and open lands pay more in local tax revenues than these working lands receive in services. Differential property tax programs are justified as a way to provide an incentive to keep land open and in active agricultural use. Even with a reduced assessed value, agricultural properties contribute a surplus of revenue to pay for public services for residents of Culpeper County.

The findings of this study show the fiscal benefits that result from open and agricultural lands and factual information to help residents understand the delicate fiscal balance between the costs of public services and the revenues generated for them.

This information should be useful for county leaders and residents when faced with land use decisions now and in the future. In addition to helping maintain fiscal balance, agricultural and open lands help sustain Culpeper County's economy and rural character, and help shape the overall quality of life in the region.

APPENDICES

A. Budget Allocation

B. Allocation of Property Taxes By Land Use

APPENDIX A. BUDGET ALLOCATION

REVENUES

LOCAL SOURCES	FY 02 Actual	Residential	Comm/ Ind	Farm & Open
General Property Taxes				
Real Property Taxes	\$ 15,206,334	\$ 12,110,324	\$ 1,993,550	\$ 1,102,459
Public Service Corporation Taxes	\$ 984,706	\$ -	\$ 984,706	\$ -
Commonwealth Collection Fees	\$ 8,753	\$ 6,971	\$ 1,148	\$ 635
Mobile Home Taxes	\$ 29,722	\$ 29,722	\$ -	\$ -
Personal Property Taxes	\$ 4,335,134	\$ 3,788,907	\$ 450,854	\$ 95,373
Charged off Taxes	\$ 732	\$ 583	\$ 96	\$ 53
Machinery & Tools Taxes	\$ 1,633,156	\$ -	\$ 1,633,156	\$ -
Merchants Capital Taxes	\$ 519	\$ -	\$ 519	\$ -
Interest / All Property Taxes	\$ 233,374	\$ 161,751	\$ 59,814	\$ 11,809
Penalty / All Property Taxes	\$ 133,579	\$ 92,583	\$ 34,236	\$ 6,759
Total gen. prop. taxes	\$ 22,566,008	\$ 16,190,842	\$ 5,158,079	\$ 1,217,088
Other local taxes				
Local Sales and Use Taxes	\$ 3,659,581	\$ 2,585,969	\$ 1,072,428	\$ 1,184
Utility Taxes	\$ 1,270,679	\$ 927,596	\$ 343,083	\$ -
County Business Licenses	\$ 1,000	\$ -	\$ 1,000	\$ -
Transient Occupancy Tax	\$ 5,379	\$ -	\$ 5,379	\$ -
Motor Vehicle Licenses	\$ 503,264	\$ 456,662	\$ 46,602	\$ -
Recordation Taxes	\$ 368,118	\$ 293,170	\$ 48,260	\$ 26,689
Minerals Tax	\$ 9,866	\$ -	\$ 9,866	\$ -
Total other local taxes	\$ 5,817,888	\$ 4,263,396	\$ 1,526,620	\$ 27,873
Permits, Fees and Licenses				
Animal Licenses & Kennel	\$ 11,512	\$ 11,512	\$ -	\$ -
Building Code Academy	\$ 387	\$ 332	\$ 55	\$ -
Zoning and Subdivision Permits	\$ 40,135	\$ 18,480	\$ 18,662	\$ 2,993
Unlicensed Motor Vehicle Licenses	\$ 320	\$ -	\$ -	\$ 320
Transfer Fees	\$ 1,658	\$ 1,320	\$ 217	\$ 120
Special Use & Variance App.	\$ 17,375	\$ 17,375	\$ -	\$ -
Sign Permits	\$ 906	\$ -	\$ 906	\$ -
Occupancy Permits	\$ 220	\$ 220	\$ -	\$ -
Land Use Application Fees	\$ 2,225	\$ 2,225	\$ -	\$ -
Building Inspection Fees	\$ 3,444	\$ 2,957	\$ 487	\$ -
Building Permits	\$ 633,936	\$ 546,985	\$ 86,951	\$ -
Total Permits, Fees and Licen.	\$ 712,117	\$ 601,406	\$ 107,278	\$ 3,433
Fines & Forfeitures				
County Fines & Forfeitures	\$ 41,576	\$ 31,344	\$ 8,614	\$ 1,617
Revenue - Use of Money & Property				
Interest - Bank Dep. & Investment	\$ 488,718	\$ 338,730	\$ 125,258	\$ 24,729
Interest - Library/Penniman Fund	\$ 233	\$ 233	\$ -	\$ -
Interest - Cash Performance Bond	\$ 33	\$ 33	\$ -	\$ -
Interest - Ban	\$ 43,212	\$ 29,950	\$ 11,075	\$ 2,187
Interest - LLEBG Federal Grant	\$ 352	\$ 352	\$ -	\$ -
Rent of County Property	\$ 19,200	\$ 13,308	\$ 4,921	\$ 972
Total Use of Money & Property	\$ 551,748	\$ 382,606	\$ 141,255	\$ 27,887

Revenues continued

Charges for Services	FY 02 Actual	Residential	Comm/ Ind	Farm & Open
Excess Fees of Clerks	\$ 18,830	\$ 13,051	\$ 4,826	\$ 953
Sheriff's Fees	\$ 6,207	\$ 5,086	\$ 1,087	\$ 34
Law Library Fees	\$ 13,600	\$ 10,253	\$ 2,819	\$ 528
Courthouse Maintenance Fee	\$ 15,166	\$ 11,433	\$ 3,144	\$ 588
Commonwealth's Attorney	\$ 1,224	\$ 1,224	\$ -	\$ -
Security Work - O/T Sheriff's Office	\$ 7,893	\$ -	\$ 7,893	\$ -
Repayment for Vet Services Recvd	\$ 75	\$ 75	\$ -	\$ -
Vaccination Fees	\$ 212	\$ 212	\$ -	\$ -
Animal Shelter Reclaiming Fees	\$ 1,100	\$ 1,100	\$ -	\$ -
Owned Animal Care Donation	\$ 17	\$ 17	\$ -	\$ -
Animal Shelter Adoption Fee	\$ 15,065	\$ 15,065	\$ -	\$ -
Animal Shelter Misc.	\$ 55	\$ 55	\$ -	\$ -
Donations/Animal Shelter	\$ 1,191	\$ 1,191	\$ -	\$ -
Animal Shelter County Pickup Fee	\$ 1,020	\$ 1,020	\$ -	\$ -
Recreation Fees Collected	\$ 37,545	\$ 37,545	\$ -	\$ -
Sale of Maps, Surveys, Etc.	\$ 2,680	\$ 1,858	\$ 687	\$ 136
Library Fees and Fines	\$ 20,372	\$ 20,372	\$ -	\$ -
Donations/ Library	\$ 7,107	\$ 7,107	\$ -	\$ -
Donations - Hult Wilson Foundation	\$ 1,169	\$ 1,169	\$ -	\$ -
Library Fees - Collection Agency	\$ 281	\$ 281	\$ -	\$ -
Sale of Publications	\$ 2,111	\$ 2,111	\$ -	\$ -
Total Charges for Services	\$ 152,920	\$ 130,226	\$ 20,456	\$ 2,238
Miscellaneous Revenues				
Expenditure Refunds	\$ 3,313	\$ 2,296	\$ 849	\$ 168
Administrative Collection Fees	\$ 11,907	\$ 8,253	\$ 3,052	\$ 603
Bad Check Charges	\$ 1,410	\$ 1,410	\$ -	\$ -
Overpayments of \$20 or less	\$ 314	\$ 314	\$ -	\$ -
Sale of Unclaimed Property	\$ 47,131	\$ 47,131	\$ -	\$ -
Sale of Photocopies	\$ 281	\$ 281	\$ -	\$ -
Credit Card Fee	\$ (982)	\$ (982)	\$ -	\$ -
Miscellaneous	\$ 61,773	\$ 42,815	\$ 15,832	\$ 3,126
Misc. Accounts Recv. - Workcomp	\$ 4,935	\$ 4,935	\$ -	\$ -
Misc. Accounts Recv. - QualChoice	\$ (1,711)	\$ (1,711)	\$ -	\$ -
Indirect Cap/Rev. Max	\$ 89,115	\$ 89,115	\$ -	\$ -
Dare Donations	\$ 5,935	\$ 5,935	\$ -	\$ -
Cable TV - Franchise Fees	\$ 75,511	\$ -	\$ 75,511	\$ -
Total Miscellaneous	\$ 298,931	\$ 199,791	\$ 95,244	\$ 3,896
Recovered Costs				
Payments from another CO or City	\$ 13,000	\$ 9,010	\$ 3,332	\$ 658
Town Payment/ECDV/E911/BZA	\$ 27,998	\$ 13,999	\$ 13,999	\$ -
Total Recovered Costs	\$ 40,997	\$ 23,009	\$ 17,331	\$ 658
Total Revenue from Local Sources	\$ 30,182,185	\$ 21,822,619	\$ 7,074,876	\$ 1,284,689

Revenues continued

STATE GOVERNMENT	FY 02 Actual	Residential	Comm/ Ind	Farm & Open
Non-Categorical Aid-State				
Mtr. Vehicle Carr/Rolling Stock	\$ 38,716	\$ -	\$ 38,716	\$ -
Wine Taxes	\$ 34,672	\$ -	\$ 34,672	\$ -
State Recordation Taxes	\$ 186,787	\$ 148,757	\$ 24,488	\$ 13,542
Passenger Car Rental Tax	\$ 4,864	\$ -	\$ 4,864	\$ -
Mobile Home Titling Tax	\$ 34,256	\$ 34,256	\$ -	\$ -
A.B.C. Profits	\$ 66,865	\$ -	\$ 66,865	\$ -
State PPTRA Payment Received	\$ 2,437,139	\$ 2,211,460	\$ 225,679	\$ -
Sterilization Funds (DMV)	\$ 676	\$ 613	\$ 63	\$ -
Total Non-Categorical Aid-State	\$ 2,803,975	\$ 2,395,086	\$ 395,347	\$ 13,542
Shared Expenses (Categorical)				
Commonwealth Attorney	\$ 307,594	\$ 286,986	\$ 20,609	\$ -
Sheriff	\$ 2,002,756	\$ 1,641,258	\$ 350,683	\$ 10,815
Commissioner of Revenue	\$ 102,355	\$ 70,942	\$ 26,234	\$ 5,179
Treasurer	\$ 122,420	\$ 84,849	\$ 31,376	\$ 6,194
Medical Examiner	\$ 450	\$ 450	\$ -	\$ -
Registrar/ Electoral Board	\$ 92,103	\$ 92,103	\$ -	\$ -
Clerk of Court	\$ 273,419	\$ 206,131	\$ 56,653	\$ 10,636
Shared Exp - Com Ct (Magis.)	\$ 7,694	\$ 7,694	\$ -	\$ -
Total Shared Expenses (Cat.)	\$ 2,908,792	\$ 2,390,414	\$ 485,554	\$ 32,825
Categorical Aid - State				
Library Aid	\$ 138,661	\$ 138,661	\$ -	\$ -
Local Jails	\$ 190,932	\$ 190,932	\$ -	\$ -
Options	\$ 23,300	\$ 23,300	\$ -	\$ -
School Resource Officer Grant	\$ 26,386	\$ 26,386	\$ -	\$ -
Two for Life Funds	\$ 15,782	\$ 13,893	\$ 1,577	\$ 312
VA Environmental Endowment Grant	\$ 5,000	\$ -	\$ -	\$ 5,000
Yth Comp Serv. - CSA Pool & Admin	\$ 616,576	\$ 616,576	\$ -	\$ -
Litter Control Grant	\$ 7,692	\$ 5,331	\$ 1,971	\$ 389
Commission for the Arts	\$ 5,000	\$ 5,000	\$ -	\$ -
Fire Service Program	\$ 24,730	\$ 21,042	\$ 3,143	\$ 544
Criminal Justice Services	\$ 258,891	\$ 258,891	\$ -	\$ -
DJCP Grant (Crime Victim Assist)	\$ 64,340	\$ 64,340	\$ -	\$ -
Emergency Services Grants	\$ 147,254	\$ 129,631	\$ 14,715	\$ 2,908
Families First	\$ 318,965	\$ 318,965	\$ -	\$ -
LVA Records Preservation Grant	\$ 21,567	\$ 16,259	\$ 4,471	\$ 837
Health Department	\$ 772	\$ 772	\$ -	\$ -
Total Categorical Aid - State	\$ 1,865,848	\$ 1,829,981	\$ 25,878	\$ 9,990
Total Revenue Commonwealth	\$ 7,578,615	\$ 6,615,481	\$ 906,778	\$ 56,357

Revenues Continued

FEDERAL GOVERNMENT	FY 02 Actual	Residential	Comm/ Ind	Farm & Open
Emergency Services	\$ 14,292	\$ 12,582	\$ 1,428	\$ 282
DMV Selective Enforcement Grant	\$ 8,875	\$ 8,053	\$ 822	\$ -
Law Enforcement Grant	\$ 20,860	\$ 17,095	\$ 3,653	\$ 113
DCJS Grants	\$ 2,500	\$ 2,333	\$ 168	\$ -
VSTOP Grant - Commonwealth Attn.	\$ 52,880	\$ 52,880	\$ -	\$ -
School Resource Officer	\$ 35,954	\$ 35,954	\$ -	\$ -
LSTA Grants	\$ 3,115	\$ 2,553	\$ 545	\$ 17
Total Federal Government	\$ 138,476	\$ 131,449	\$ 6,616	\$ 412
OTHER FINANCING SOURCES				
Commonwealth Debit Account	\$ (1,860)	\$ (1,289)	\$ (477)	\$ (94)
Insurance Recoveries	\$ 87,420	\$ 60,591	\$ 22,406	\$ 4,423
Cancelled checks	\$ 170	\$ 170	\$ -	\$ -
Subtotal Other	\$ 85,731	\$ 59,472	\$ 21,929	\$ 4,329
GENERAL FUND TOTAL	\$ 37,985,007	\$ 28,629,021	\$ 8,010,199	\$ 1,345,787
SPECIAL FUNDS				
Department of Social Services	\$ 2,844,312	\$ 2,844,312	\$ -	\$ -
Revenue Maximization	\$ 390,372	\$ 390,372	\$ -	\$ -
Culpeper County Daycare	\$ 1,238,467	\$ 1,238,467	\$ -	\$ -
Career Resource Center	\$ 684,708	\$ 342,354	\$ 342,354	\$ -
Airport Fund	\$ 521,845	\$ -	\$ 521,845	\$ -
E911 Fund	\$ 651,220	\$ 613,254	\$ 37,966	\$ -
School Fund				
Revenue from use of property	\$ 5,120	\$ 3,549	\$ 1,312	\$ 259
Charges for education	\$ 8,158	\$ 8,158	\$ -	\$ -
Expenditure refunds	\$ 508,529	\$ 508,529	\$ -	\$ -
Miscellaneous	\$ 3,525	\$ 3,525	\$ -	\$ -
State Sales Tax	\$ 20,220,402	\$ 14,288,338	\$ 5,925,520	\$ 6,544
School Construction	\$ 347,180	\$ 347,180	\$ -	\$ -
Other State Revenue	\$ 65,892	\$ 65,892	\$ -	\$ -
Education - Federal	\$ 1,425,658	\$ 1,425,658	\$ -	\$ -
Reimbursement for damages	\$ 9,815	\$ 9,815	\$ -	\$ -
Cancelled checks	\$ 223	\$ 223	\$ -	\$ -
Cafeteria Fund	\$ 1,907,110	\$ 1,907,110	\$ -	\$ -
Textbook Fund	\$ 440,614	\$ 305,390	\$ 112,929	\$ 22,295
School Capital Fund	\$ 308,949	\$ 214,132	\$ 79,184	\$ 15,633
Capital Improvements Fund				
Revenue from use of property	\$ 6,709	\$ 4,650	\$ 1,719	\$ 339
Miscellaneous	\$ 100,000	\$ 100,000	\$ -	\$ -
Aviation Grant - State	\$ 497,421	\$ -	\$ 497,421	\$ -
VA Indoor Plumbing Program	\$ 70,080	\$ 70,080	\$ -	\$ -
Aviation Grant - Federal	\$ 2,155,314	\$ -	\$ 2,155,314	\$ -
Debt Services (state categorical)	\$ 6,500	\$ 4,505	\$ 1,666	\$ 329
Landfill Fund	\$ 1,199,607	\$ 78,154	\$ 1,121,453	\$ -
Water & Sewer Enterprise	\$ 47,531	\$ -	\$ 47,531	\$ -
Special Funds Total	\$ 35,665,259	\$ 24,773,645	\$ 10,846,215	\$ 45,399
TOTAL, ALL REVENUES	\$ 73,650,266	\$ 53,402,666	\$ 18,856,414	\$ 1,391,186

EXPENDITURES

General Fund	FY 02 Actual	Residential	Comm/ Ind	Farm & Open
Government Administration				
Board of Supervisors	\$ 162,341	\$ 112,518	\$ 41,608	\$ 8,214
County Administration	\$ 225,544	\$ 156,324	\$ 57,807	\$ 11,413
County Attorney	\$ 151,793	\$ 113,036	\$ 32,646	\$ 6,111
Auditor	\$ 24,155	\$ 16,742	\$ 6,191	\$ 1,222
Commissioner of Revenue	\$ 269,959	\$ 187,109	\$ 69,191	\$ 13,660
Assessor	\$ 96,072	\$ 66,588	\$ 24,623	\$ 4,861
Treasurer	\$ 318,833	\$ 220,983	\$ 81,717	\$ 16,133
Dept. of Finance & Management Svcs.	\$ 377,042	\$ 261,328	\$ 96,636	\$ 19,078
Dept. of Information Technology	\$ 294,181	\$ 203,897	\$ 75,399	\$ 14,886
Electoral Board	\$ 32,888	\$ 22,795	\$ 8,429	\$ 1,664
Registrar	\$ 74,948	\$ 51,947	\$ 19,209	\$ 3,792
Subtotal Administration	\$ 2,027,756	\$ 1,413,266	\$ 513,455	\$ 101,035
Judicial Administration				
Circuit Court	\$ 48,566	\$ 36,616	\$ 10,065	\$ 1,886
Magistrate	\$ 1,835	\$ 1,835	\$ -	\$ -
Clerk of Circuit Court	\$ 431,261	\$ 325,145	\$ 89,373	\$ 16,744
LVA Records Preservation	\$ 3,668	\$ 2,765	\$ 760	\$ 142
Law Library	\$ 18,240	\$ 13,751	\$ 3,781	\$ 708
Crime Victim Assistance Program	\$ 69,419	\$ 69,419	\$ -	\$ -
Combined Court	\$ 18,172	\$ 13,700	\$ 3,767	\$ 705
Court Security	\$ 266,305	\$ 200,767	\$ 55,205	\$ 10,333
Commissioner of Accounts	\$ 386	\$ 291	\$ 80	\$ 15
Commonwealth's Attorney	\$ 469,896	\$ 438,394	\$ 31,502	\$ -
Criminal Justice Services	\$ 214,723	\$ 214,723	\$ -	\$ -
Subtotal Judicial	\$ 1,542,472	\$ 1,317,407	\$ 194,533	\$ 30,532
Public Safety				
EMS Council	\$ 15,022	\$ 12,782	\$ 1,909	\$ 330
Fire and Rescue	\$ 690,587	\$ 587,620	\$ 87,783	\$ 15,183
State Forestry	\$ 5,674	\$ -	\$ -	\$ 5,674
Sheriff	\$ 2,130,143	\$ 1,745,664	\$ 372,949	\$ 11,530
Grants				
Dare Program	\$ 6,697	\$ 6,697	\$ -	\$ -
Law Enforcement Block Grant	\$ 2,387	\$ 2,387	\$ -	\$ -
School Resource Officer	\$ 77,209	\$ 77,209	\$ -	\$ -
Jail	\$ 1,754,583	\$ 1,754,583	\$ -	\$ -
Juvenile Probation	\$ 121,217	\$ 121,217	\$ -	\$ -
Intensive Probation Parole Officer Grant	\$ 31,658	\$ 31,658	\$ -	\$ -
Probation Officer Family Support Grant	\$ 38,404	\$ 38,404	\$ -	\$ -
Options Grant	\$ 57,449	\$ 57,449	\$ -	\$ -
VSTOP/ Commonwealth Attny.	\$ 63,448	\$ 59,197	\$ 4,251	\$ -
Building Inspection	\$ 480,996	\$ 413,044	\$ 67,952	\$ -
Animal Control	\$ 277,430	\$ 277,430	\$ -	\$ -
Medical Examiner	\$ 800	\$ 800	\$ -	\$ -
Emergency Services	\$ 323,582	\$ 284,856	\$ 32,336	\$ 6,389
Subtotal public safety	\$ 6,077,285	\$ 5,470,996	\$ 567,182	\$ 39,107

EXPENDITURES continued

Public Works	FY 02 Actual	Residential	Comm/ Ind	Farm & Open
General Properties	\$ 778,230	\$ 539,391	\$ 199,460	\$ 39,378
Health & Welfare				
Local Health Department	\$ 266,191	\$ 194,319.43	\$ 71,871.57	\$ -
Community Services	\$ 321,100	\$ 321,100	\$ -	\$ -
Community Youth Services	\$ 1,080,715	\$ 1,080,715	\$ -	\$ -
Families First	\$ 320,261	\$ 320,261	\$ -	\$ -
Options	\$ 61,718	\$ 61,718	\$ -	\$ -
Community College	\$ 17,616	\$ 17,616	\$ -	\$ -
Subtotal Health & Welfare	\$ 2,067,600	\$1,995,728	\$71,872	\$0
Parks, Recreation, Cultural				
Parks and Recreation	\$ 259,664	\$ 259,664	\$ -	\$ -
Library	\$ 637,963	\$ 637,963	\$ -	\$ -
Subtotal Parks, Rec, Cultural	\$ 897,627	\$ 897,627	\$ -	\$ -
Community Development				
Department of Planning & Zoning	\$ 397,982	\$ 351,106	\$ 18,557	\$ 28,318
Chamber of Commerce	\$ 10,000	\$ -	\$ 10,000	\$ -
Zoning Board	\$ 1,300	\$ 1,234	\$ 43	\$ 24
Economic Development	\$ 227,551	\$ -	\$ 227,551	\$ -
Subtotal Community Development	\$636,833	\$352,340	\$256,151	\$28,342
Other Miscellaneous				
Soil & Water Conservation	\$ 38,647	\$ 12,616	\$ 7,077	\$ 18,953
Extension Office	\$ 123,970	\$ 91,176	\$ 3,458	\$ 29,336
Employee Benefits	\$ 3,871	\$ 2,683	\$ 992	\$ 196
General Fund - Debt Service	\$ 134,268	\$ 93,061	\$ 34,413	\$ 6,794
Subtotal Other	\$ 300,756	\$ 199,537	\$ 45,940	\$ 55,279
SPECIAL FUNDS				
Social Services Administration	\$ 3,334,967	\$ 3,334,967	\$ -	\$ -
Revenue Maximization	\$ 627,508	\$ 627,508	\$ -	\$ -
Culpeper County Daycare	\$ 1,197,338	\$ 1,197,338	\$ -	\$ -
Welfare to Work	\$ 467,344	\$ 233,672	\$ 233,672	\$ -
Airport Fund	\$ 679,953	\$ -	\$ 679,953	\$ -
E911 Fund	\$ 805,749	\$ 758,774	\$ 46,975	\$ -
School Operating	\$ 38,678,494	\$ 38,678,494	\$ -	\$ -
School Food Service	\$ 1,745,797	\$ 1,745,797	\$ -	\$ -
Textbook Fund	\$ 354,064	\$ 354,064	\$ -	\$ -
School Capital	\$ 1,326,975	\$ 1,326,975	\$ -	\$ -
County Capital	\$ 4,823,571	\$ 2,147,983	\$ 2,671,929	\$ 3,659
Debt Service	\$ 2,791,029	\$ 1,934,462	\$ 715,341	\$ 141,226
Landfill (Dept. of Env. Services)	\$ 1,942,220	\$ 469,590	\$ 1,472,630	\$ -
Water and Sewer Enterprise	\$ 97,134	\$ -	\$ 97,134	\$ -
Emerald Hill	\$ 27,707	\$ 27,707	\$ -	\$ -
Mitchells	\$ 26,507	\$ 26,507	\$ -	\$ -
Special Funds Total	\$ 58,926,358	\$ 52,863,838	\$ 5,917,635	\$ 144,885
TOTAL, ALL EXPENDITURES	\$73,254,915	\$65,050,130	\$7,766,227	\$438,559

Study Findings

		Residential	Comm/ Ind	Farm & Open
County Revenue	\$ 73,650,266	\$ 53,402,666	\$ 18,856,414	\$ 1,391,186
County Expenditure	\$ 73,254,915	\$ 65,050,130	\$ 7,766,227	\$ 438,559
Revenues minus expenditures	\$ 395,351	\$ (11,647,464)	\$ 11,090,187	\$ 952,627
Land Use Ratio*		1.22	0.41	0.32
Land Use Percent of Revenue		73%	26%	2%
Land Use Percent of Expenditure		89%	11%	1%
Combined Excess Commercial, Industrial and Farm and Open				\$ 12,042,815

APPENDIX B: ALLOCATION OF PROPERTY TAXES BY LAND USE

Real Property				COCS STUDY ADJUSTMENTS			
Property Class	Total Value*	Total Tax	Residential	Commercial	Farm/Open	Value Adjustments	
01 - Residential (SF, Urban)	\$ 254,747,800	2,241,781	\$ 2,241,781			None	
02 - Residential (SF, Suburban)	\$ 975,053,700	\$ 8,580,473					
minus vacant parcels > 20 acres	\$ 2,373,500	\$ 20,887			\$ 20,887	value of open land >20 acres?	
adjusted 02 value	\$ 972,680,200	\$ 8,559,586	\$ 8,559,586				
03 - Residential (multiple family)	\$ 28,584,500	\$ 251,544	\$ 251,544			None	
04 - Commercial & Industrial	\$ 238,543,100						
minus apartments	\$ 9,225,100	\$ 81,181	\$ 81,181			Apartments Code 11	
adjusted 04 value	\$ 229,318,000	\$ 2,017,998		\$ 2,017,998			
05 - Agricultural (20 - 100 acres)	\$ 144,918,300						
06 - Agricultural (>100 acres)	\$ 107,330,700						
total agricultural	\$ 252,249,000						
total building value	\$ 99,306,841	\$ 873,900	\$ 873,900			farmhouses	
land value (house)	\$ 24,972,000	\$ 219,754	\$ 219,754			one-acre house site	
utility value	\$ 3,544,500	\$ 31,192	\$ 31,192			utility value	
Adjusted 05 and 06 value	\$ 124,425,659	\$ 1,094,946			\$ 1,094,946	farmland	
Real Property Totals	\$ 1,749,178,100	\$ 15,392,767	\$ 12,258,936	\$ 2,017,998	\$ 1,115,833		

*Value after deferments

Personal Property							
Class	Value	Total Tax Due	Residential	Commercial	Farm/Open		
Airplane	\$ 1,393,760	\$ 35,249	\$ -	\$ 35,249	\$ -	none	
Business Equipment	\$ 77,137,870	\$ 1,951,154	\$ -	\$ 1,951,154	\$ -	none	
Boat	\$ 1,204,772	\$ 31,180	\$ 31,180	\$ -	\$ -	none	
Camper	\$ 910,736	\$ 23,356	\$ 23,356	\$ -	\$ -	none	
Motorcycle	\$ 2,529,430	\$ 64,165	\$ 64,165	\$ -	\$ -	none	
Large Truck	\$ 8,140,605	\$ 206,506	\$ 187,384	\$ 19,122	\$ -	based on PPTRA*	
Mobile Home	\$ 3,335,500	\$ 30,488	\$ 30,488	\$ -	\$ -	none	
Motor Home	\$ 1,538,233	\$ 39,050	\$ 39,050	\$ -	\$ -	none	
Machinery & Tools	\$ 85,457,408	\$ 1,716,238	\$ -	\$ 1,716,238	\$ -	none	
Trailer (Hauling)	\$ 2,673,626	\$ 69,292	\$ 62,875	\$ 6,416	\$ -	based on PPTRA	
Tractors	\$ 4,435,722	\$ 112,799	\$ -	\$ -	\$ 112,799	none	
Tractor Trailer	\$ 2,064,780	\$ 52,703	\$ -	\$ 52,703	\$ -	none	
Vehicle	\$ 179,838,778	\$ 4,542,282	\$ 4,121,667	\$ 420,615	\$ -	based on PPTRA	
Personal Property Totals	\$ 370,661,220	\$ 8,874,463	\$ 4,560,166	\$ 4,201,498	\$ 112,799		
Combined Real and Personal	\$ 2,119,839,320	\$ 24,267,230	\$ 16,819,102	\$ 6,219,497	\$ 1,228,631		
Land Use Percentage			69.31%	25.63%	5.06%		

* Personal Property Tax Relief Act for state assistance of 70% payment for residential vehicles in the county.

Res Commercial Combined

\$ 23,038,599

Res/Comm Fallback

0.7300

0.2700

100.0000%

Shenandoah County, Virginia

Classification Specification

Classification Title: Agriculture Development Director

Purpose of Classification

The purpose of this classification is to plan, develop, and implement programs and services, which sustain and enhance Shenandoah County agricultural business and economic activities to assist in maintaining the rural character of Shenandoah County; and to advise the County Board of Supervisors on agricultural policies and related issues. Performs related work as directed.

Essential Functions

The following duties are normal for the position. The omission of specific statements of the duties does not exclude them from classification if the work is similar, related, or a logical assignment for this classification.

Other duties may be required and assigned.

- Manages the County's Agricultural Development Office; formulates short and long range goals and objectives; and develops and directs agricultural development programs, services, and resources.
- Administers agricultural development programs including the Farmland Preservation Purchase of Development Rights; and develops and implements programs to enhance farming-related business support, development, and retention throughout the County.

- Plans and administers the budget; controls expenditures; writes and reviews agricultural related grants; administers awarded grants and ensures compliance with grant reporting procedures.
- Establishes and implements public relations, marketing and communications plans to promote agriculture development in the county; develops marketing campaigns and materials for County sponsored agricultural events; writes press releases; promotes and maintains editorial responsibility for the County's agricultural development website; implements and promotes programs to foster youth development

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awareness in agriculture; provides information to the public and creates and delivers presentations and speeches to community groups, agricultural associations, schools, local business and general public. Provides advice, guidance and expertise on agricultural development plans, policies, trends, and related agricultural issues to help the local

farming community in obtaining information and assistance;

- Serves as an advisor to the County Board of Supervisors regarding agricultural related policies including land use, zoning, and federal and state programs.
- Serves as Executive Officer to the Agricultural Advisory Committee to be developed by the Board of Supervisors.
- Serves as a member of varying boards, task forces, committees, and management and planning teams; serves as liaison between the County and local, state and federal agencies, the media, citizen groups, non profit

organizations, and the general public; and makes presentations as requested.

- Plans, supervises, coordinates and implements special events and activities, such as farm tours, festivals, dinners, and other special events; promotes and supports 4-H and agricultural programs in the County schools; develops event work plans and budgets; obtains needed resources; and coordinates logistical aspects of special events and activities.

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- Works closely with the Shenandoah County Agriculture Extension agent to conduct research and analyze agricultural data; to identify trends; analyze new developments; and apply information where needed to carry out the objectives of the program.

- Prepares a variety of statistical and operational reports pertaining to Office programs, and services; presents reports to County Board of Supervisors upon request; publishes and distributes reports, correspondence and other materials where needed to meet the objectives of the program.
- Operates a computer, and general office equipment as necessary to complete essential functions, to include the use of word processing, spreadsheet, database, or other system software. Also, must possess a valid driver's license.

Additional Functions

- Performs general administrative and clerical duties in support of assigned responsibilities including preparing correspondence, entering, and retrieving data using automated information systems, and answering telephones.
- Performs other related duties as required.

Minimum Qualifications

Bachelor's degree in an agricultural field, marketing, public relations, or business field; supplemented by five years of progressively responsible experience in agricultural economics or related agricultural business; and/or equivalent combination of education, training, and experience which provides the requisite knowledge, skills, and abilities for this job.

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**CLARKE COUNTY
AGRICULTURE
DISCLAIMER STATEMENT**

7-C-3-(n)
4/21/98

The following statement shall be shown on the Record Plat of property located in the Agricultural-Open Space-Conservation (AOC) Zoning District:

AGRICULTURAL OPERATIONS NOTICE

This property is in the Agricultural-Open Space-Conservation (AOC) Zoning District. Agriculture is the primary economic activity of this zoning district. Owners, residents, and other users of property in the AOC District may be subjected to inconvenience, discomfort, and the possibility of injury to property and health arising from agricultural operations even though conducted in accordance with best management practices and/or in accordance with existing laws and regulations of the Commonwealth and the County. Such agricultural operations may generate noise, odors, and dust, may involve the operation of machinery, including aircraft, the storage and disposal of manure, and the application of fertilizer, soil amendments, and pesticides. Owners, occupants, and users of land in the AOC district should be prepared to accept such inconveniences or discomfort as a normal and necessary aspect of living in a zoning district in a county with a strong rural character and an active agricultural sector.

Impact from watershed's population growth may overtake gains in Bay cleanup

Efforts to control nutrients, sediment will need to be stepped up to offset increased loads from sewage, impervious surfaces

By Karl Blankenship

The Chesapeake Bay watershed population is growing significantly faster than a decade ago, according to new U.S. Census Bureau data—a finding that means states in the region may need to undertake even greater nutrient and sediment control actions to meet Bay cleanup goals.

A new analysis of census data shows that from 2000 through 2005, the population within the the watershed increased by 170,000 per year—or about 466 people every day.

That's significantly higher than the growth rate of 124,000 people per year that existed during the 1990s. The overall population in the watershed hit 16.6 million last year, according to the analysis.

More people generally means more nutrients going to septic systems or wastewater treatment plants; more runoff from roads, driveways, rooftops and other impervious surfaces; and more air pollution as people drive farther—all factors that degrade Bay water quality.

"Population growth in the watershed challenges our ability to restore and maintain the health of the Chesapeake Bay," said Peter Claggett, a scientist with the U.S. Geological Survey who made the analysis for the state-federal Bay Program.

"It is a big challenge because we are trying to improve water quality conditions over what they are now, and yet population growth and all the associated land changes that come with that threatens to impede our progress," he said.

Virginia had the greatest population increase, growing by 447,959 people from 2000 through 2005. Almost all of the state's growth took place in the Bay watershed, and was led by Loudoun County, the second-fastest growing county in the nation, which gained 81,555 people, a 46.9 percent increase.

An analysis by the University of Virginia's Weldon Cooper Center for Public Service states that about 46 percent of the growth came from births; the rest from people moving into the state.

Meanwhile, Maryland's portion of the Bay watershed grew by 286,536 people, Pennsylvania's 72,336, West Virginia's 26,936, the District of Columbia's 10,993 and Delaware's 9,794. According to the census data, the number of people living in New York's portion of the watershed decreased by 3,454.

More people are on the way: About 16,000 military jobs are being shifted to Maryland in coming years because of bases closing elsewhere. State officials expect that to trigger the movement of military contractors and other support businesses, resulting in a total job growth of 60,000.

Accelerated population growth could make it more difficult to meet the Bay Program's 2010 cleanup goal.

The Bay Program in 2003 set nutrient and sediment reduction goals, which were divided among all the states and tributaries in the Bay watershed. The states then developed "tributary strategies" that outlined how they would achieve those goals by 2010. The strategies were also designed to offset additional growth expected through 2010.

Faster growth means that more nutrient reductions would be needed to offset the additional impacts.

"It will essentially steepen the curve to make up for additional population that we hadn't projected earlier," said Rich Batiuk, associate director for science with the EPA's Bay Program Office. "In other words, you have to run faster just to keep up with the population."

It's one of the factors that will be explored during an ongoing review by the EPA and the states in the Bay watershed of the existing cleanup goals, and whether they will be achieved through existing tributary strategies.

The issue of growth may be even more acute in the future.

That's because the nutrient and sediment goals set for 2010 are considered an absolute "cap" on the amount of those pollutants that can enter the Bay and still maintain water quality that supports its diverse fish and shellfish populations, as well as their habitats.

Once the nutrient and sediment goals are achieved, all nutrients associated with more people moving into the watershed—or any additional source of nutrients—has to be offset with further reductions to maintain the cap.

For some places, such as New York's portion of the watershed where the population is declining, that will not be a major issue. But the job could be far more daunting for areas where the rate of growth is rapid, such as the Washington suburbs in Maryland and Virginia, southern Pennsylvania, West Virginia and Delaware.

To come to grips with those issues, the Bay Program is in the early stages of developing a series of projections about the impact that population growth and other factors—such as changes in agriculture and other land uses—will have on the Bay through 2030.

"We need to understand how much 'push back' are we going to get from increased population and other factors," Batiuk said. "Does that make us think differently about how the tributary strategies continue to be implemented or the kind of policies that need to be there?"

The analysis will explore how different land use policies, and other variables, will affect the region's ability to maintain the caps. Officials say there is little they can do about population growth, but that policies can affect the impact of additional people on the watershed and the Bay.

"This is the time that we have to be masters of our own destiny," said Carin Bisland, associate director for ecosystem management with the EPA's Bay Program Office. "We are not going to put gates around the watershed, but we have an opportunity to influence how people make decisions about where they go and how much space they take up."

Increasingly, growth is taking place farther from core metropolitan areas, a trend that began in the late 1980s and early 1990s. The trend is illustrated by Virginia's Loudoun County, on the western edge of the Washington, D.C., metropolitan area. A rural area only a couple of decades ago, it is the fastest growing county in the watershed and is the second-fastest growing county in the nation.

The latest figures show a spike in the growth rate of even more distant areas: Some of the fastest rates of growth in the watershed are coming in the West Virginia and Delaware portions of the watershed, where the populations have increased 11.6 percent and 11.3 percent respectively since 2000.

Doing a better job of projecting where population growth is likely to take place can help provide a heads-up to planners in those areas, Bisland said.

"A lot of the counties that are going to be experiencing the highest rates of growth do not have the capacity, or the staff, to deal with the issues that a high rate of growth has," Bisland said.

By projecting where that will take place, she said, states may be able find ways to provide assistance to those areas before they are overwhelmed. "It is not trying to take power away from the localities," she said, "but it is actually giving assistance to localities where you are going to see most of the growth occurring that have the least capacity to deal with it."

Where those people go can make a huge impact on the Bay.

A recent report on Chesapeake Watershed forests estimated that 5.5 million acres of forest in the watershed are vulnerable to development. Forests absorb more nitrogen than any other land use, so if those woodlands were lost, it would result in an additional 30 million pounds of nitrogen reaching the Bay each year, according to computer model estimates. That would more than offset the 17.5 million-pound-a-year reduction that will be achieved by upgrading all major wastewater treatment plants in the watershed.

Bay Program figures show that if homes are built on septic systems in rural areas, each new person results in about 3.7 pounds of nitrogen entering the local stream. If the home is hooked to a state-of-the-art wastewater treatment plant, that can be reduced to 1.6 pounds per person.

In the 1990s, while the population grew by only 8 percent, the amount of impervious surfaces in the watershed grew by 41 percent as development sprawled over more land, triggering the construction of new roads and shopping centers. Because of such growth, Bay Program figures show that stormwater controls are failing to offset the nutrient impacts associated with new development.

The new Bay Program effort is not the first attempt to project the impact of growth and development through 2030, but it provides more spacially specific growth and land consumption information than has previously been developed.

In 2003, a report by the Bay Program's Scientific and Technical Advisory Committee, "Chesapeake Futures," warned that if current development patterns continued, nitrogen and phosphorus inputs to the estuary from new developments would likely offset much of the recent nutrient control efforts. The report estimated that nitrogen loads to the Bay caused by new development and population growth could increase by 35 million pounds per year by 2030, while phosphorus loads could increase by 1.8 million pounds if current development patterns continue.

Under current trends, the report estimated that more than 2 million acres of land would be developed by 2030 to accommodate the increasing population. That would be a 60 percent increase in developed land in the watershed.

Sediment loads would increase as land is disturbed for construction. Each new household will likely consume more than an acre of land based on both the housing construction and the development of support services, such as highways, schools and parking lots.

More sprawl development means more impervious surfaces and therefore, increased runoff. It also means new homes are more likely to have septic systems, which usually are ineffective at removing nitrogen, rather than being hooked into sewer systems.

Alternatively, the report said that those impacts could be reduced if growth management programs were implemented to protect agricultural and forest lands, promote redevelopment and steer new development to areas where most new homes could be hooked to sewer systems.

Under such a scenario, the report said new development might consume just 350,000 acres by 2030, and nitrogen loads to the Bay might increase by just 8 million pounds a year.

Donald Boesch, president of the University of Maryland Center for Environmental Science and an author of "Chesapeake Futures," said some actions—such as new limits on wastewater discharges that are being imposed by state and federal agencies—will help to prevent the high-end nutrient increases described in the report.

But less progress has been made in other areas, such as managing land use, he said. Nonetheless, Boesch said he was pleased that the Bay Program was attempting to assess long-range implications of policy decisions being made today.

"I'm really glad they're doing it," Boesch said of the Bay Program effort. "The program has been so focused on the short term that they have not thought about the long term. This is the way that we need to be thinking."

About Pollution Caps

In 2003, the Bay Program estimated the maximum amount of nitrogen, phosphorus and sediment that could enter the Chesapeake during an "average" rainfall year and still attain the water quality standards that establish conditions needed to support Bay life.

Once achieved, those numbers become pollution "caps" that must be maintained in the future. Baywide, those caps are:

- 175.1 million pounds of nitrogen (2004 levels were estimated at 270 million, down from 337 million in 1985.)
- 12.1 million pounds of phosphorus (2004 levels were estimated at 18.7 million pounds, down from 27.1 million in 1985.)
- 4.15 million tons of sediment (2004 levels were estimated at 4.9 million tons, down from 5.83 million tons in 1985.)

Related stories in this issue:

- [U.S. population consuming its way to 300 million and beyond](#)

Karl is the Editor of the Bay Journal.

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