



The quality of life and character of Calvert County are products of the communities, rural landscape and the bodies of water that surround us - the Bay . . .



. . . and the Patuxent River.



Development shapes our communities . . .



. . . ultimately determining what our neighborhoods and Calvert County look like and what kind of place it is to live.



The process of development – though – has a direct effect on the landscape and how it functions and supports our communities.

For example, the clearing of forests . . .



. . . and the loss of individual trees during construction, over time, . . .



. . . are among the factors that have led to a degraded Chesapeake Bay, and degraded local streams as well.



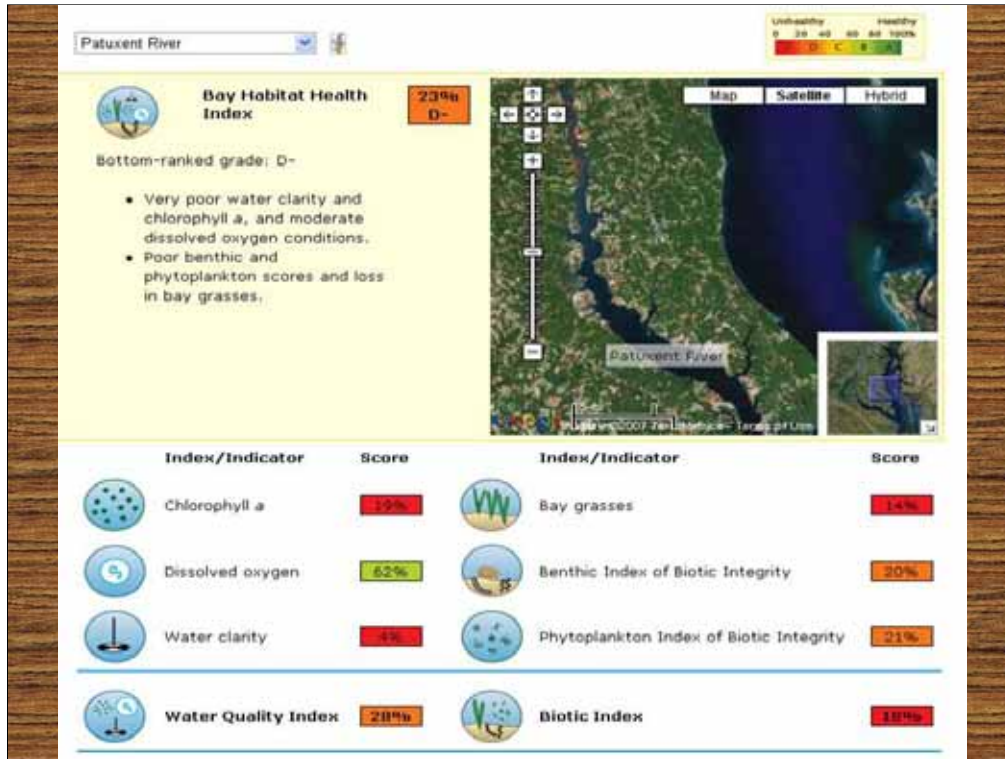
But, forest conservation and tree preservation can help to save the Bay and also contribute a variety of benefits to the businesses and residents of Calvert County. Calvert County's existing Forest Conservation Programs are designed to insure that forests are optimized to benefit your community.

Let's explore the relationship between forests and the Bay, the Patuxent and the community.



First, how are the Bay and the Patuxent doing?

In a recent Report Card on the health of the Chesapeake ecosystem the Bay was given a grade of D+, not quite a clean bill of health.



The current health of these local waters is poor. The Chesapeake Bay 2006 Report Card grades are D- for the Patuxent and D for the Calvert County portion of the Bay.

Is this solely due to what's going on in Calvert County? Absolutely NOT. Practices upstream are extremely influential. But so are practices locally.

Is this due solely to what's happening with forests? No. But forests are the single land cover most protective of water quality.

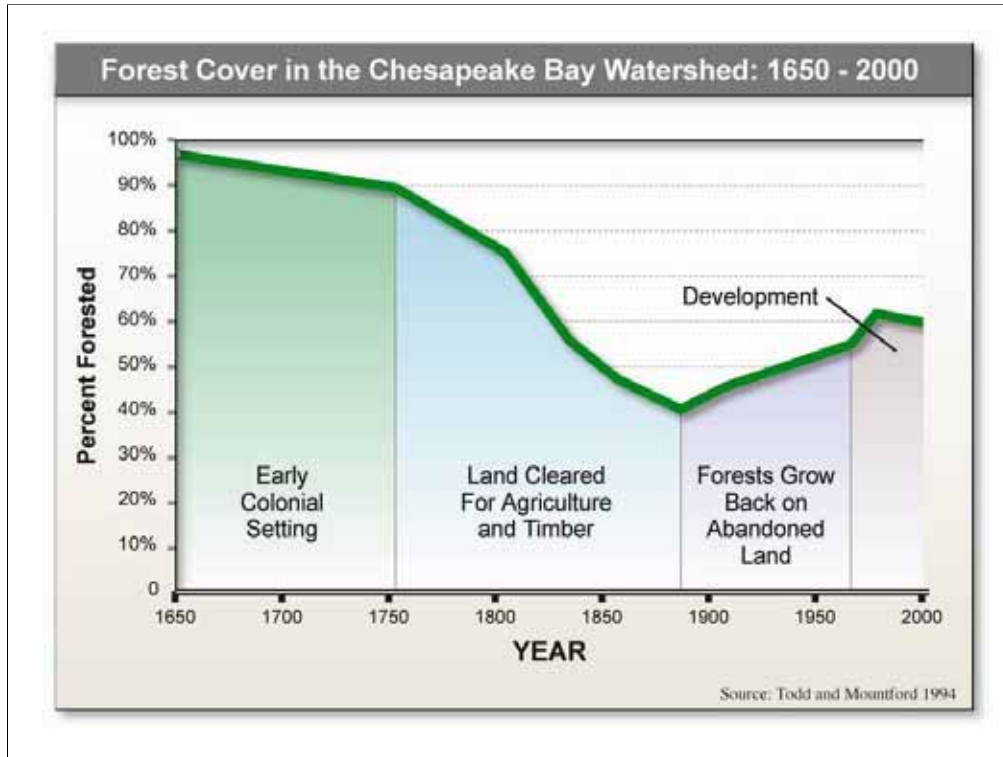
Let's look back a bit . . .



. . . Way back! This year marks the 400<sup>th</sup> anniversary of John Smith's first explorations of the Chesapeake Bay.



Smith found a very different environment than that of today. In 1607, the Chesapeake watershed was 95% forested – Here is a simulation of one of the Bay’s tributaries - and the same view today from a Google Earth image. Think of the changes over 400 years.

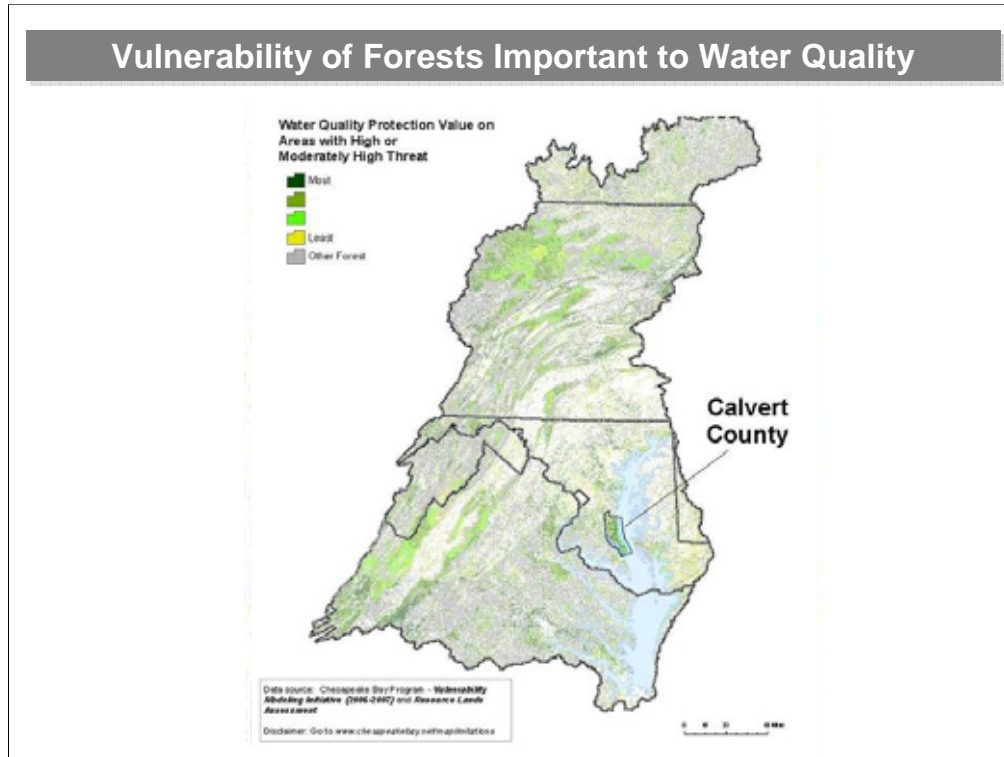


We can actually chart the change in forest cover over 350 years. Many people don't recognize that the low point in forest cover was actually late in the 19<sup>th</sup> century. We have more forests today, but there is a worrisome trend in the past 25 years.



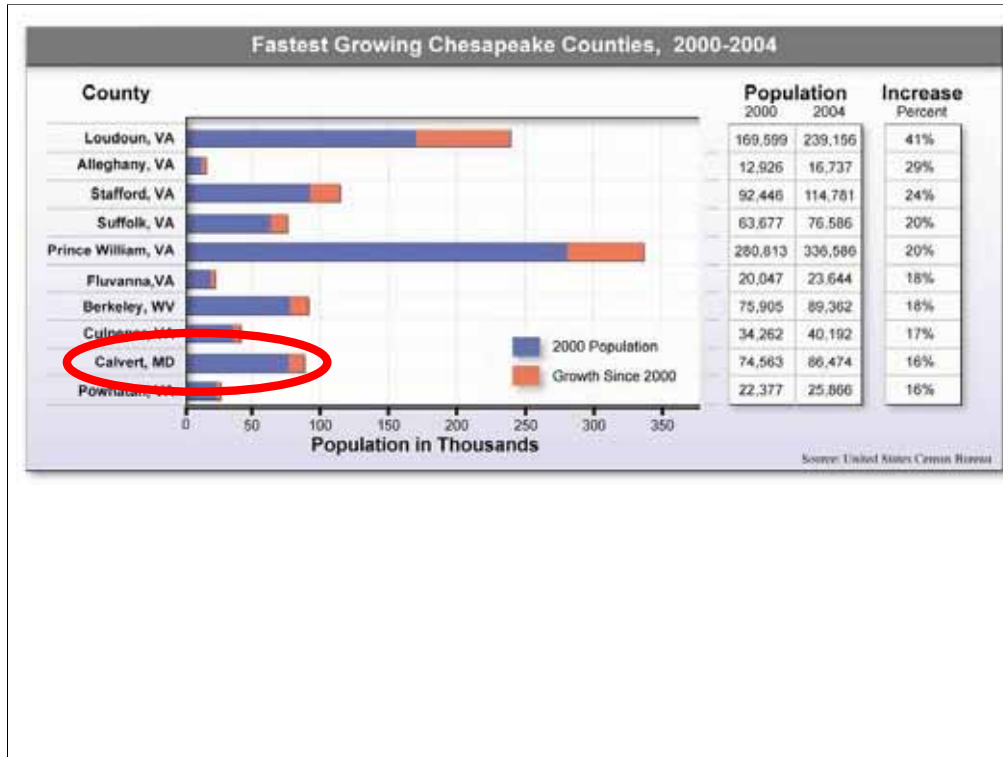
Forest loss is now occurring at a rate of about 100 acres /day in the Bay watershed. This will have a significant impact on the Bay and its ability to recover.

## Vulnerability of Forests Important to Water Quality



If current trends continue, 9.5 million acres of Chesapeake forests will be threatened by conversion to residential development by 2030 - including 31% of those most critical for water quality protection in the Bay watershed.

(Source: State of Chesapeake Forests)



Calvert County has experienced some of the fastest population growth in the Watershed leading all other Counties in Maryland. It also experienced the highest percentage of forest loss in Maryland between 1985 and 1990 mostly due to residential and commercial construction. From 1995 – 2006 over 4,100 acres of forests were cleared for development.

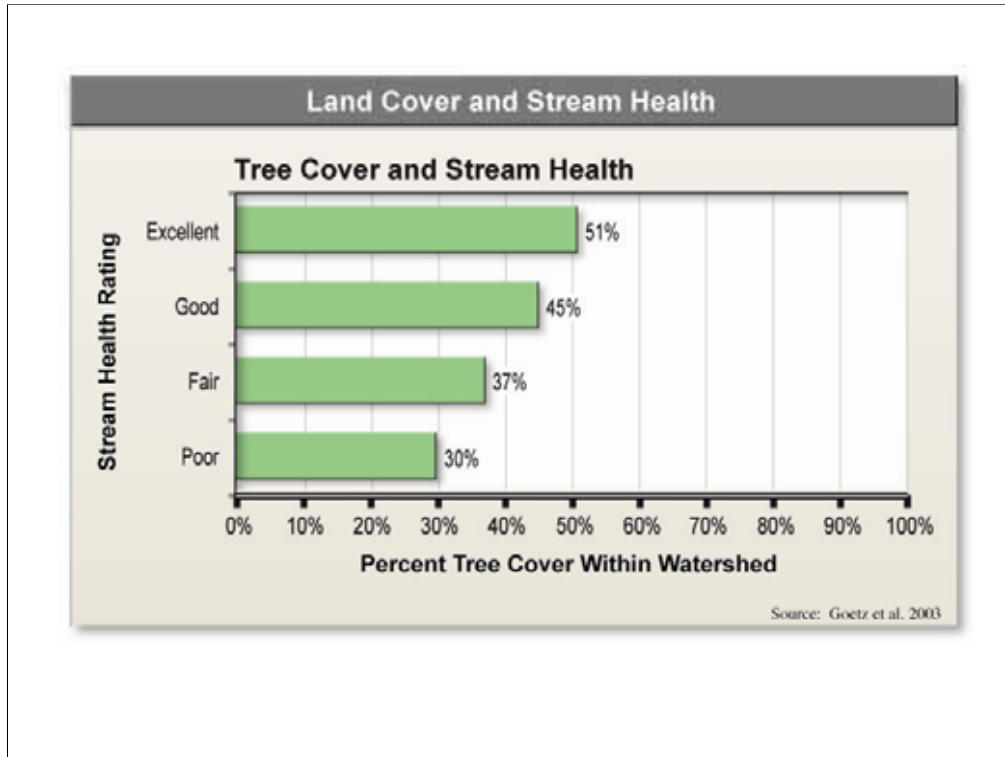
## Forest Cover - Calvert County, MD



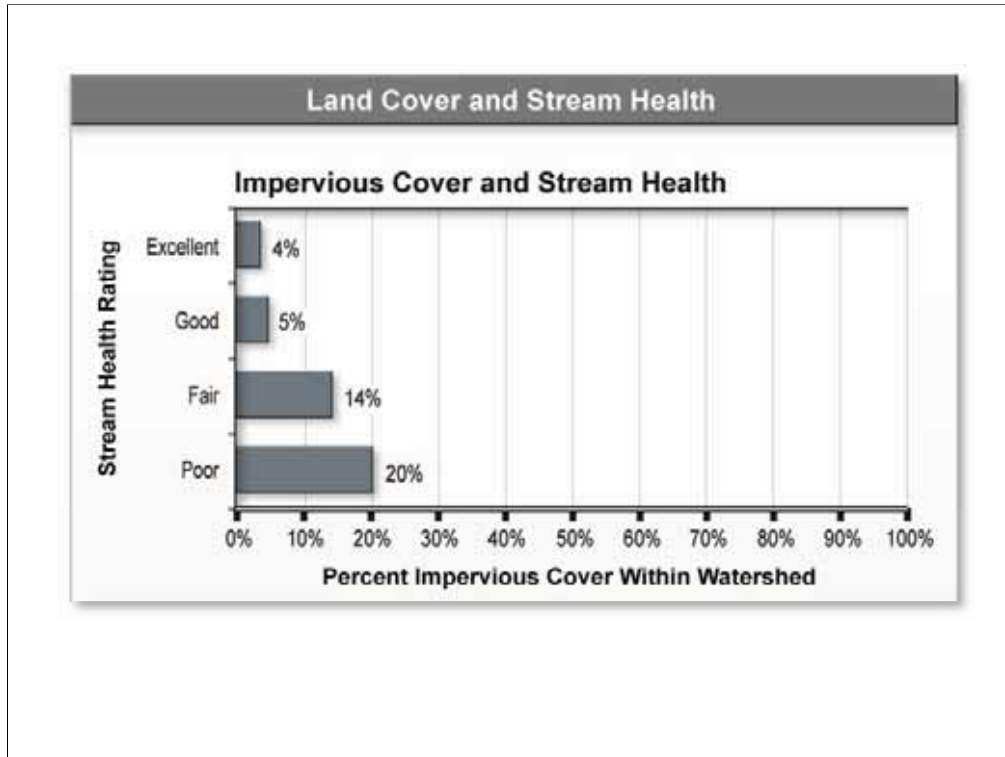
Yet, forest cover for Calvert County remains relatively high at 57%. Again this is significant since forests are the best land cover for water quality and stream health.

## Why so important?

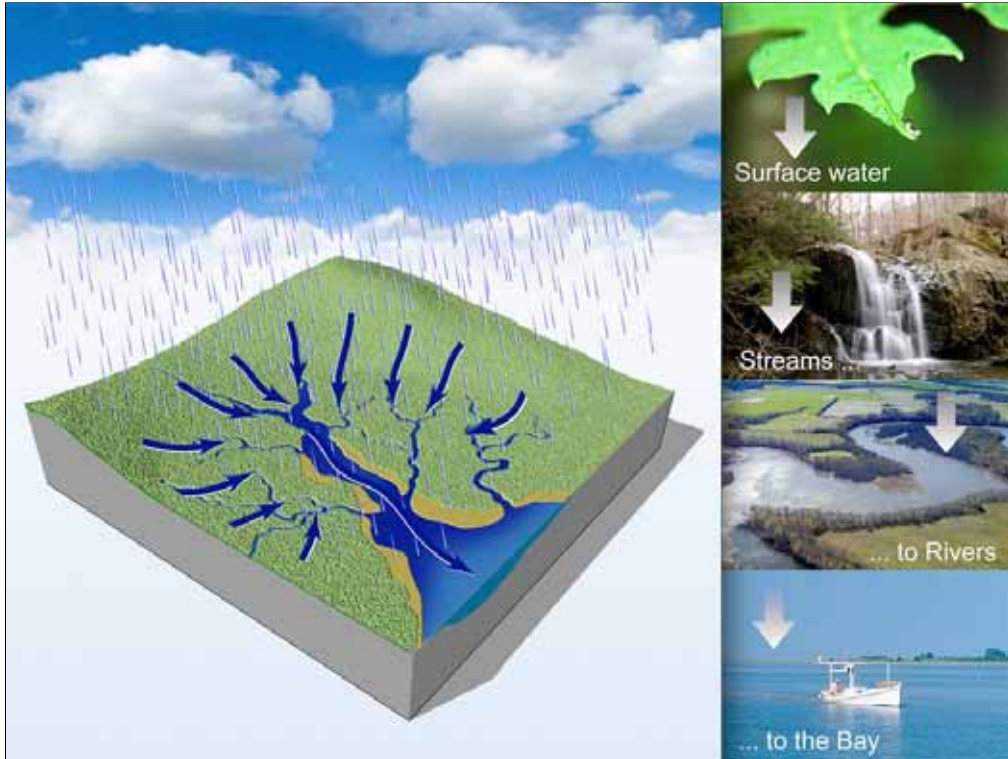
Why are trees and forests so important? The benefits fall into three categories: environmental, economic and social. First, the environmental . . .



At a small scale, the health of local streams is directly related to two factors: the amount of forest cover . . .



. . . and the amount of hardened or impervious surfaces – such as pavement, rooftops, sidewalks.



Why is that so? Rain is absorbed and slowed by trees and the forest floor before it reaches local streams, flows to rivers and ultimately the Bay.



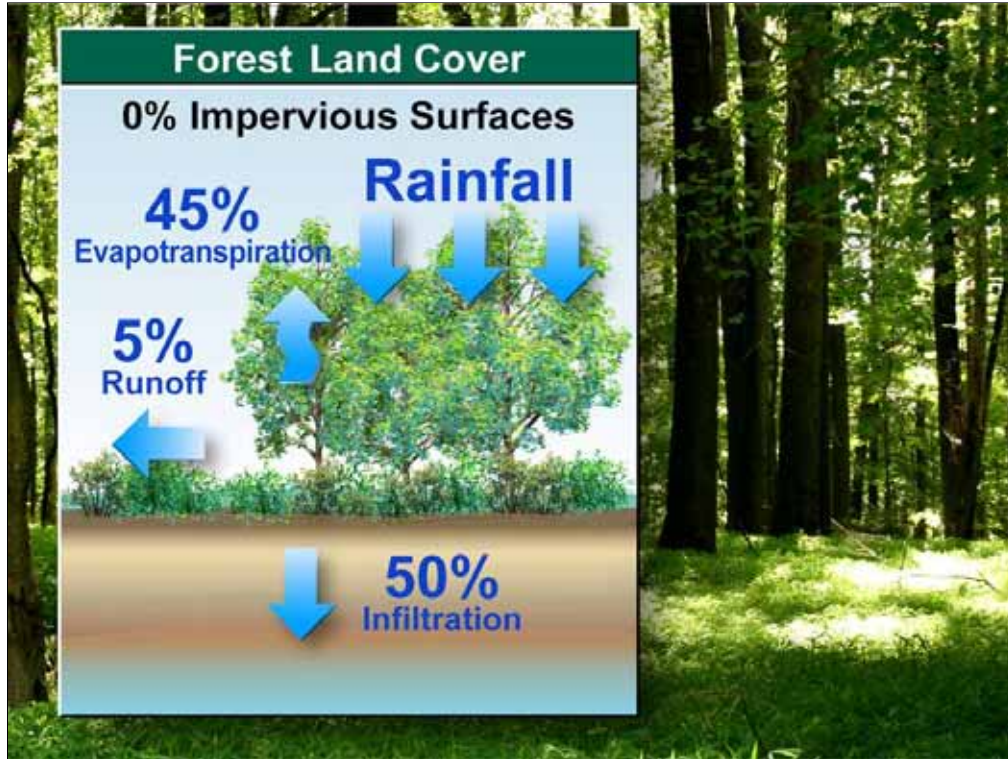
All of this happens within a local watershed . . .



. . . where our decisions about growth, development and natural resource protection take place. These decisions determine what type of land cover we have, the character of our landscape, the health of our water and the quality of life we enjoy.

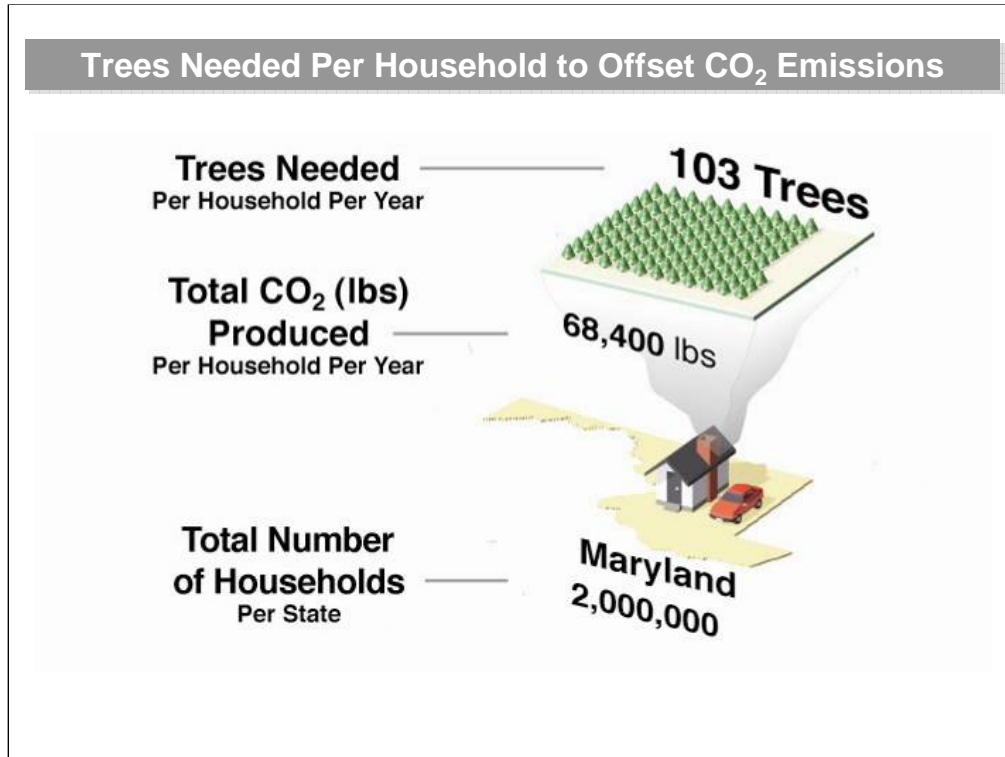


Impervious surfaces associated with land that has been converted to development allows for minimal infiltration and high levels of polluted runoff that has adverse effects on our streams.



In contrast, forest land cover has very little polluted runoff carrying sediment and nutrients that damage our watersheds; forests are the best land cover for promoting water quality.

For example, 100 large trees intercepts over a half million gallons of rainfall annually, reducing the need for stormwater controls and providing cleaner water.



Forests are also beneficial to air quality with shade that lowers temperatures, the reduction of carbon dioxide, absorption of air pollutants and the filtering of fine particulate matter.

In Maryland, for instance, to offset the CO<sub>2</sub> emissions of each household each year, about 100 trees are needed. These same 100 trees also remove another 430 pounds of other pollutants each year (like ozone and particulates).

McPherson, E.G., J.R. Simpson, P.J. Peper, S.E. Maco, S.L. Gardner, S.K. Cozad and Q. Xiao. 2005. *Midwest community tree guide: benefits, costs and strategic planting*. Davis, CA: Center for Urban Forest Research, Pacific Southwest Research Station, USDA Forest Service. 82.






Calvert County forests support vital habitat for many sensitive species.

## Trees pay us back

In all, Chesapeake forests provide approximately \$24 billion dollars a year in ecological services such as air and water filtration, wildlife habitat, and flood control.

The benefits trees provide are not solely environmental there are many economic benefits to preserving trees and conserving forests. Trees pay us back!

(Note: This number also includes recreation which is covered in the SOCIAL section below). (Source: State of Chesapeake Forests)



**Lower Development Cost** (\$7,000 avg)  
**Quicker Sales** (50% Faster)  
**Higher Home Values** (12-16%)

Conservation residential subdivisions where trees are preserved cost less to develop, have a higher sales price and sell much quicker than conventional developments.



Conserving trees during development can reduce storm water requirements and land clearing costs. At a site in Maryland, the developer saved \$200K by eliminating the construction of two stormwater ponds and reduced clearing and grading costs by \$160K. The conservation design also added 2 buildable lots for an additional \$90K value.

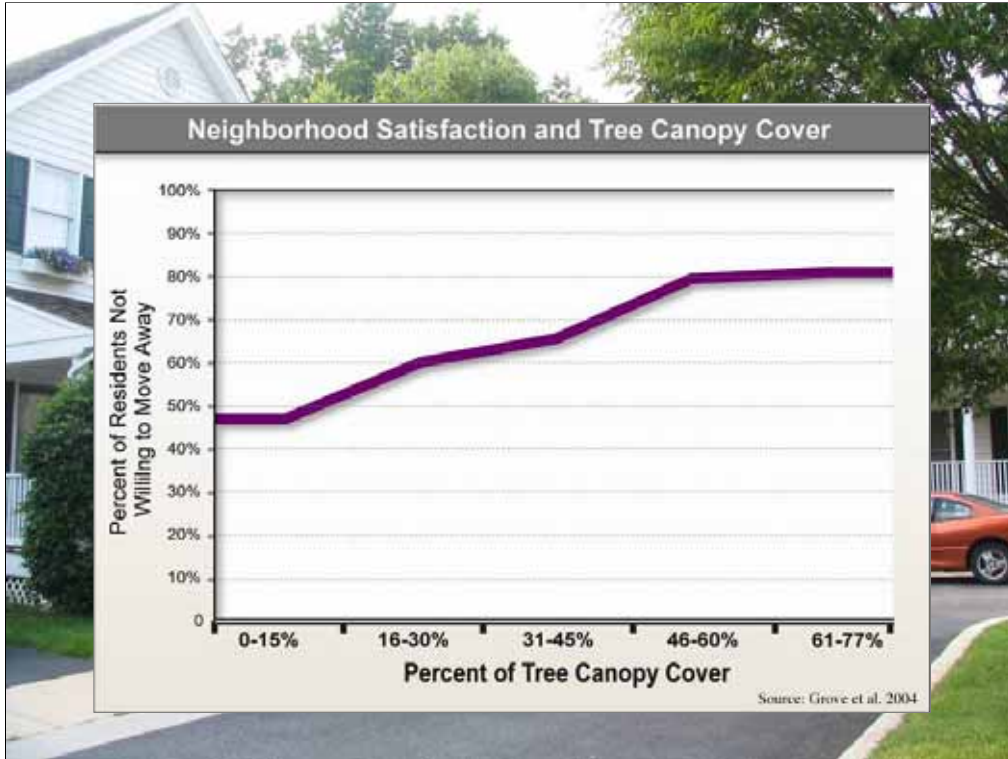


Home values are higher when mature trees are on the lot:

- Each large front yard tree adds about 1% to the resale value of a home
- Large specimen trees can add 10% or more to property values.

Neely, D., ed. *Valuation of Landscape Trees, Shrubs, and Other Plants*. Seventh Edition. Urbana, IL: International Society of Arboriculture, 1988.

Anderson, L.M.; Cordell, H.K. "Residential Property Values Improve by Landscaping With Trees." *Southern Journal of Applied Forestry*, 9 (1988): 162-166.



One study found that as neighborhood tree canopy cover increases so too does the percentage of residents committed to remaining in that neighborhood.



Trees also mean better business.

Customers prefer retail shopping areas that are well landscaped with trees. A national study of public perception conducted by the University of Washington shows that customers will spend more time and money (an average of 11% more) at the well treed area as well.

Wolf, K.L. "Nature and Commerce: Human Ecology in Business Districts." In C. Kollin, ed. *Building Cities of Green: Proceedings of the 1999 National Urban Forest Conference*. Washington, D.C.: American Forests, 1999, 56-59.



Well placed trees on a residential property can also reduce energy costs.

- Shade from two large trees on the west side of a house and one on the east side save 56% of a typical residence's annual air conditioning costs.
- Trees properly placed around buildings as windbreaks can save up to 25% on winter heating costs

McPherson, E.G., J.R. Simpson, P.J. Peper, S.E. Maco, S.L. Gardner, S.K. Cozad and Q. Xiao. 2005. *Midwest community tree guide: benefits, costs and strategic planting*. Davis, CA: Center for Urban Forest Research, Pacific Southwest Research Station, USDA Forest Service. 82.

Heisler, G.M. 1986. "Energy Savings With Trees." *Journal of Arboriculture*, 12:113-125.



Public trees in *town centers* have a positive return on investment. NOTE:

Typical benefits – energy savings, air quality, stormwater runoff/water quality, and real estate – from 100 trees over 40 years outweigh the costs - planting, pruning, removal and disposal, pest and disease control, infrastructure, irrigation, clean-up, liability and legal, administration – by over 2 to 1.

McPherson, E.G., J.R. Simpson, P.J. Peper, S.E. Maco, S.L. Gardner, S.K. Cozad and Q. Xiao. 2005. *Midwest community tree guide: benefits, costs and strategic planting*. Davis, CA: Center for Urban Forest Research, Pacific Southwest Research Station, USDA Forest Service. 82.

**Data**

Estimated 40-year total benefits and costs for a public tree planting of 100 large trees.

Average annual benefit = \$94.72/tree

x 40 years = 3788.80/tree

x 100 trees = 378,880

Average annual cost = \$36.99/tree

x 40 years = 1479.60/tree



Management of forests in rural areas - such as the working landscapes of Calvert County - also contributes to the forest products industry. Bay watershed-wide forest products generate \$22 billion for the regional economy each year.

# Forests for people

So the conservation of forests and trees does pay us back, but there are other benefits to the community that are more social than economic or environmental.



Forest conservation will improve the quality of life in your community. Preserved forests help maintain the health of your local watersheds, protect human health, and contribute to the rural character of Calvert County. The conservation of forests and trees provides opportunities for recreation, fishing and hunting.



Studies have shown that hospital patients with views of trees need less medication and have faster recovery times following surgery.

Ulrich, R.S. "Human Responses to Vegetation and Landscapes." *Landscape and Urban Planning*, 13 (1985): 29-44.



Spending time among trees has been shown to lessen the symptoms of ADHD and improve self discipline for some children.



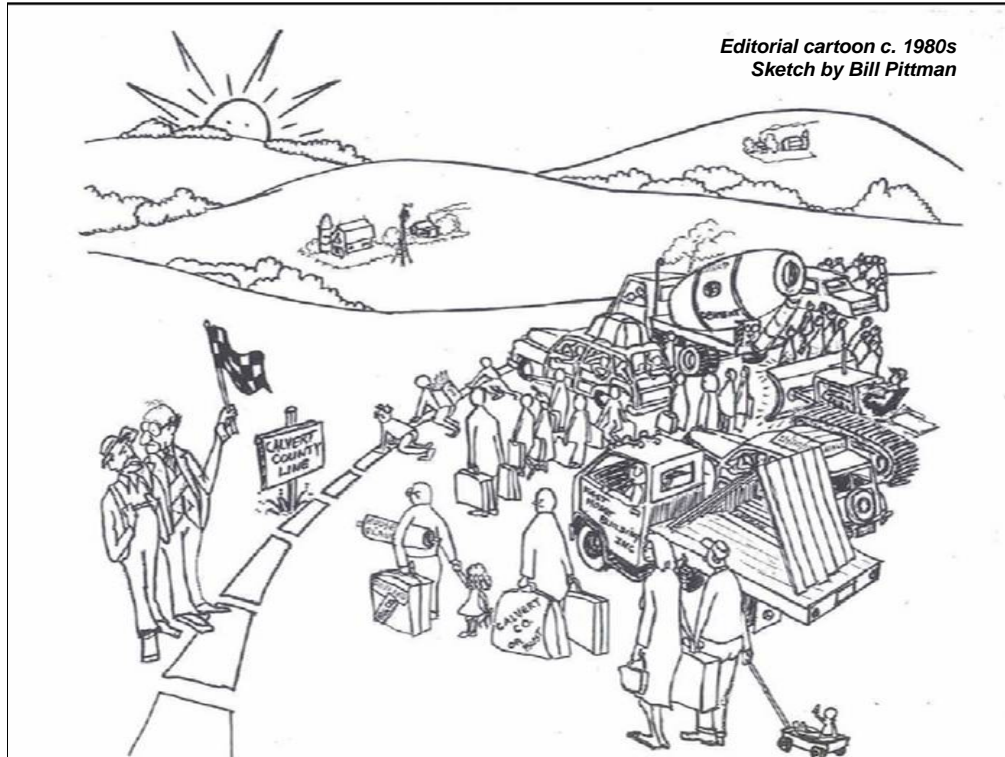
A study of drivers found that they highly prefer seeing trees in the roadside - and that views of nature enhanced their ability to cope with the stresses of driving.



A study by University of Illinois researchers found that domestic violence and other forms of crime are lower in housing projects surrounded by trees and other greenery. Trees reduce mental fatigue, help people relax, and reduce aggression. They also bring people together outdoors, increasing surveillance and discouraging criminals.

Green residential landscaping has also been shown to strengthen communities. Residents of buildings with more trees reported that they knew their neighbors better, socialized with them more often, had stronger feelings of community, and felt safer and better adjusted than did residents of barren, but otherwise identical buildings.

In many ways, these and other benefits of forests are among the factors that have contributed to Calvert County's quality of life.



And, the desirability of Calvert County as a place to live and work has led to extensive growth in the past 20 years. The challenge is how to grow and maintain that quality, including the county's significant forest resources.

What does that take? In short . . .

***Put date and source if using***

# CONSERVE



Three things. Conserve existing trees and forests during development planning, by not converting forest land to other developed uses.

# PROTECT



When development must be near existing trees, minimize the impact. Protect existing trees through proper development practices.



Finally, plant more trees – as replacements for those removed – or just on principle because of the benefits! But, remember, it takes a long time to grow a 40 year old tree.



Development in Calvert County will be building a better community for the future with forest conservation.