



Chapter Ten:

Environment

Chapter 10: Environment

Goal

Protect, maintain, and restore, where practical, the environmental resources and natural ecosystems in the County by promoting land use practices that are in balance with, and minimize the adverse effects on, the natural environment

The Significance to Carroll County

The impacts of development on environmental resources can vary greatly depending on the location, magnitude, type, and design of the development. Nearly every modification to the natural landscape, whether it be farming, building, or any other activity, has an effect on the quality of environmental resources.

It is estimated that Carroll County contains nearly 1,380 miles of streams, all of which ultimately flow into the Chesapeake Bay. Located in the Piedmont region of north-central Maryland, Carroll County is diagonally divided into two major drainage basins by Parr's Ridge. Streams to the north and west drain into the Monocacy River and eventually the Potomac River. Streams to the south and east flow into the Patapsco and Gunpowder Rivers. The County's streams eventually feed into the Chesapeake Bay and contribute to its water quality and ecological health.

In addition to the importance of the County's streams to the Bay's water quality, the health of the County's streams is vital to protecting the drinking water sources for parts of Carroll, Baltimore, Anne Arundel, Harford, and Howard Counties as well as Baltimore City. At least half of the County drains into drinking water reservoirs for various jurisdictions. Liberty Reservoir, fed by the North Branch of the Patapsco River, supplies water to Carroll County residents as well as Baltimore City, Anne Arundel, Baltimore, and Howard County residents. Cranberry Reservoir, which is part of Westminster's community water supply system, is fed by water pumped from the West Branch of the Patapsco River. Piney Run Reservoir, created by the impoundment of Piney Run, is a future water source for South Carroll. Two other reservoirs are undeveloped but planned for future water supply: Union Mills Reservoir, on Big Pipe Creek; and Gillis Falls Reservoir, on Gillis Falls. Portions of eastern Carroll County also drain to Loch Raven and Pretty Boy Reservoirs, located in Baltimore County, which supply public water to Baltimore City and Anne Arundel, Baltimore, and Harford County.

It should also be noted that Little Pipe Creek and Big Pipe Creek drain into the Monocacy River, which supplies water to the City of Frederick. In addition, the Monocacy flows into the Potomac, which provides water to Washington D.C. There is also a small portion of Carroll county that drains to Hanover's water supply. What happens in Carroll County can potentially affect the water systems of all of the surrounding jurisdictions.

Problems with the condition of the reservoirs led to the signing of a Reservoir Agreement in 1979. In 1984, a strengthened Reservoir Watershed Management Agreement was established by signatory agencies, including Baltimore City, Baltimore County, Carroll County, Baltimore County Soil Conservation District, Carroll Soil Conservation District, Maryland Department of agriculture, Maryland Department of Environment, and the Baltimore Metropolitan Council. That agreement provided a sound framework for improving the quality of waters feeding into the reservoirs. The Agreement created the cooperative Reservoir Watershed Protection Program, where oversight and guidance is provided by the Reservoir Watershed Protection Subcommittee and implementation is coordinated by the Reservoir Technical Group of water quality staff from participating organizations. In 1990, six years after the Agreement was signed, the signatories comprehensively reviewed progress in implementing the 1984 Action Strategy, reaffirmed the Agreement, and accepted an updated 1990 Action Strategy. The Subcommittee reviewed progress in implementing the Action Strategy yearly and prepares an Action Report which summarizes that progress.

Although Liberty and Cranberry Reservoirs provide some water to Carroll County, the majority of the County's current population relies on groundwater sources for water supply -- six of the County's eight municipalities depend solely on groundwater for their water supply needs. The protection and preservation of the quality and quantity of the groundwater that supplies municipal wells is vital because these aquifers can be easily impacted. This is particularly true in those areas of the County that rely on aquifers found within carbonate rock areas. Due to the solubility of carbonate rock, it is prone to poor filtration and rapid spread of contaminants. About 2 percent of the County's land area is carbonate rock, and carbonate rock aquifers provide the primary source of water for Union Bridge and New Windsor, as well as contribute substantially to Westminster's water supply system.

Air quality is also a concern in Carroll County. The Baltimore Metropolitan Region has some of the worst air quality nationwide. Much of the contribution to lower air quality levels is made by automobiles, which produce carbon monoxide, sulfur dioxide, nitrogen oxide, and on hot, sunny days ground-level ozone, as byproducts of fossil fuel combustion. In addition to degrading our air quality, high levels of these compounds in the atmosphere can result in the atmospheric deposition of nitrogen, a nitrification process through which nitrogen attaches to water molecules and enters waterways. Addressing the quality of air in the region thus requires in part examining the driving habits of the region's automobile users. In 1990, 55 percent of the County's residents worked outside the County. Of the six northcentral Maryland counties (Baltimore, Carroll, Frederick, Harford, Howard, and Washington), Carroll County had the highest median travel time to work at 32 minutes. Nearly 16 percent of its workers traveled between 45 and 59 minutes to work each day. This situation is compounded by patterns of development in the County where residents of low-density, single-use developments are heavily

dependent on the automobile not only for travel to work, but also for shopping, recreation, and other activities.

Carroll County's state roadways continue to show the effects of an increasing number of local citizens commuting elsewhere to work. The Average Daily Traffic (ADT) on MD 140 at the Baltimore-Carroll County line indicated the largest state-wide increase in traffic volumes during the 10-year period between 1985 and 1995 (approximately 108 percent). In 1995, the 43,000 vehicles counted per day at the permanent count station on MD 140 east of the Liberty Reservoir Bridge was comparable to traffic volumes observed on I-70 near Frederick and Mount Airy (46,000 ADTs) and I-83 near Hunt Valley (46,000 ADTs). This increase, while significant locally, is indicative of a regional increase in overall miles traveled and, therefore, a continuing deterioration in air quality levels throughout the greater Baltimore metropolitan area.

The Challenge to Carroll County

Carroll County and the incorporated municipalities, working through an Interjurisdictional Steering Committee, recently completed and adopted an Environmental Resources Element (ERE) of the Master Plan. This Element satisfies the State requirement to develop and adopt a "sensitive areas" element to the Plan. The ERE is focused on reducing any additional adverse impacts on the environment as the County and municipal land use plans are implemented, especially water quality and land-based resources. County and municipal plans have been amended to address the established set of "visions", which were prepared as part of the 1987 Chesapeake Bay Agreement between Maryland, Virginia, the District of Columbia, and Pennsylvania and were reiterated in Maryland's 1992 Planning Act. The ERE and implementing measures provide a uniform definition and protection for identified environmental resources throughout the County. These resources include the following: 1) streams, 2) stream buffer (100 feet from each bank), 3) steep slopes (>25%), 4) 100-year floodplains, 5) habitats of threatened and endangered species, 6) wetlands, 7) wellhead buffers (100 feet), 8) carbonate rock areas, 9) reservoir watersheds, and 10) Use III waters. More specific goals, objectives, and action strategies have been developed and included to implement the overall environmental goal established in this Carroll County Master Plan.

Implementation measures in the ERE for the County and municipalities include the amending the subdivision regulations to require stream buffers, wellhead buffers, and design guidelines. Zoning texts should be amended to address cluster provisions, PUDs, and the Conservation District. The Plan also recommends the adoption of a water resources protection ordinance. The Plan strives to provide uniform and consistent protection of resources among the nine jurisdictions. Therefore, each municipality has specific recommended actions to make this happen. Numerous other issues are discussed and are accompanied by recommended action strategies for addressing them. This issues include, but are not limited to, air pollution and street plans, tracking and monitoring, design guidance, residential cluster subdivision design techniques, groundwater and wellheads, process delays, streamlining, groundwater aquifers, and use of geographic information systems (GIS).

Air quality was not addressed in the ERE although Carroll is part of the Baltimore Regional non-attainment area. Land use decisions can make a difference as far as use of the automobile, a major source of air pollution, is concerned.

Possibly the most difficult challenge the County faces in environmental protection is influencing individuals to alter their behavior to have a positive influence on the environment. Certain actions, such as Best Management Practices (BMPs) on farms, voluntary stream buffer planting, reduction of personal auto use, and wise lawn care, are difficult to mandate. Yet these actions sometimes can be the most effective for protecting our natural resources. The County has a role in facilitating this change in behavior. Providing alternative transportation options and crafting regulations that encourage the creation of communities that protect the natural features of the site and are not wholly dependent upon the automobile as a means of transportation are ways in which the County can directly influence the protection of natural resources. As more people move into the County, the more the County's natural resources will be stressed. Determining ways to influence personal choices that conserve energy, reduce pollution, and protect the quantity and quality of our water supplies will possibly be the greatest challenge we face in the coming years.

Almost half of the County's land area, that which is east of the Parr's Ridge, falls within a reservoir watershed for drinking water. That same area is the location of the County's major designated growth areas, the Freedom and Westminster CPAs. The Hampstead, Manchester, and Finksburg CPAs are also within this watershed. The land use decisions that are made in these areas are impacted by and have an impact on the Reservoir Management Agreement and the watershed it covers.

Although traditionally not raised as a major concern in Carroll County, air quality issues and their disposition often have an impact on life in the County. The County's location as part of the Baltimore Metropolitan Region, its proximity to the Chesapeake Bay, and the fact that the region's prevailing winds are from the southwest and northwest results in the fact that what happens in Carroll County has a bearing on the overall air quality of the region. Pollutants are distributed through the process of transport and deposition. During that transport process, atmospheric chemical reactions change and re-change elements and compounds through a complex system of synergistic reactions. Neither air nor water pollution are respective of political boundaries. The number of vehicle miles traveled; the direction those miles are traveled; and the numbers, types, and quality of industry all have a bearing on overall environmental quality. Increases in automobile usage and truck transport as well as increased fuel combustion from any source does degrade air quality. However, economic development that provides jobs within the County can reduce those miles, resulting in better air quality.

The Choice: Goals, Policies, Thresholds, & Recommendations

Goal

Protect, maintain, and restore, where practical, the environmental resources and natural ecosystems in the County by promoting land use practices that are in balance with, and minimize the adverse effects on, the natural environment

Policies

- A. The state-wide policy of reducing nutrient loads to the Chesapeake Bay by 40 percent will be supported.
- B. The State law of no net loss of wetlands will be supported.

- C. The reforestation of stream buffers will be supported.
- D. County-owned property will comply with environmental regulations.

Recommendations

- A. Cluster development to protect environmental resources.
 - Encourage clustering through all reasonable zoning mechanisms.
 - Allow, but do not require, clustering of residential development across zoning lines.
 - As to clustered lots in the conservation zone, or any such lots derived from a conservation zone, a minimum lot size of 1 (one) acre shall be permitted.
 - The cluster provisions in the Zoning Ordinance shall be amended to reflect items set forth in items 1, 2, & 3 above.
 - Maximize the amount of protected land in each cluster subdivision.
- B. Limit the impact of new development on recharge rates of community supply wells to allow for the maximum recharge possible so that optimum water supply and use of the wells is available.
- C. Encourage the creation/retention of wildlife corridors, stream buffer restoration, and protection of unique ecosystems in the County on properties subject to development review.
- D. Plant trees in stream buffers, where feasible, when reforestation/afforestation is required to protect riparian habitat and enhance water quality.
- E. Develop incentives that preserve or help create forested riparian buffers to further protect water quality and riparian habitats.
- F. Evaluate current design-related regulations and guidelines to minimize paving and impervious surfaces and to reduce runoff and improve infiltration.
- G. Evaluate the potential for using design standards and incentives to promote creativity in development design while meeting environmental goals.
- H. Evaluate impacts to sensitive watersheds and recharge areas for community water supplies when determining new development patterns.
- I. Develop guidelines to locate public facilities in a way that minimizes impacts to natural resources.
- J. Adopt a water resource protection ordinance.

COMMUNITY VIABILITY THRESHOLD 1

ADOPT LAND USE RECOMMENDATIONS TO REDUCE THE AVERAGE DAILY TRAFFIC PER HOUSEHOLD ON STATE ROADS IN THE COUNTY.

Recommendations

- A. Support land use recommendations for employment campus and telecommuting centers to reduce the length and number of household trips related to work, thereby improving air quality.
- B. Review the County's Subdivision Regulations and Zoning Ordinance for obstacles to the creation of neo-traditional communities and mixed-use communities so that ADTs can be reduced through greater use of non-motorized transportation facilities and the clustering of uses.
- C. Increase Park-and-Ride lots where needed and appropriate in the County, and encourage the use of alternative transportation services to improve air quality by reducing the number of vehicles on the road during the week.
- D. Review the feasibility and desirability of requiring through-access or connections of all subdivision streets when environmental conditions permit to provide for shorter and fewer vehicle trips and better traffic circulation.
- E. Encourage community centers in major subdivisions so that community functions and meetings can be accessible by means other than automobiles.
- F. Increase employment opportunities to reduce commuting outside of the County.
- G. Consider granting parking variances for the addition of commercial space when site amenities such as trails or transit can be demonstrated to reduce vehicular trips to that site.
- H. Improve subdivision and road design to provide bicycle and pedestrian-friendly routes to shopping, schools, and recreation areas.

Fiscal Impact to the County

While some modification of existing regulations will occur as a result of implementing the environmental goal, thresholds and recommendations, there will be limited financial impact on the County budget.

Most of the recommendations are directed towards private development and serve to encourage more environmentally-friendly design.