An Evaluation of the Maryland Critical Area Program

Effects on Conservation of Resource Lands and Patterns of Development

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PREFACE

This report covers those aspects of Maryland's Critical Area program that bear most directly on the density, type of use and location of new development in the Critical Area and the protection of forests and farmland from conversion and fragmentation. Its analysis of residential development and loss of resource lands focuses on four case study counties: Calvert County, Anne Arundel County, Queen Anne's County and Cecil County. The analysis of use of growth allocation addresses all sixteen counties with land in the state's Critical Area.

This evaluation does not cover several elements that are also prominently featured in the Critical Area Criteria, including implementation of standards for development related to buffer areas, impervious surfaces, clearing of natural vegetation, and steep slope construction.

SUMMARY OF FINDINGS AND CONCLUSIONS

GENERAL FINDINGS

- Development trends in the Critical Area generally meet expectations implicit in the Critical Area Criteria. Implementation of the criteria has deflected most development pressure away from the Resource Conservation Area and channeled most new development into the Limited Development Area and Intensely Developed Area.

- Although the mandate to maintain and increase forested vegetation throughout the Critical Area has not been achieved, implementation of the Critical Area Criteria has extended significant protection to forests and farmland (resource lands) in the Resource Conservation Area. The level of protection of resource lands in the Resource Conservation Area is superior to protection of resource lands in areas subject to conservation zoning outside the Critical Area (agricultural districts). Loss of resource lands in the Limited Development Area has been relatively high.

- The Critical Area program's success in shielding the Resource Conservation Area (RCA) from development pressure and in protecting resource lands in the RCA is attributed to implementation of non-discretionary criteria governing density and types of land use. Local jurisdictions have primary responsibility for implementing these criteria subject to a clearly defined oversight role for the state Critical Area Commission. (See pages 10-11 and 20-22.)

- The Critical Area program is consistent with several basic precepts of smart growth:

    - It affirms the responsibility of the state to "direct, manage and control development … in order to minimize the adverse impacts of growth…"

    - The emphasis placed by the criteria on resource conservation in the Resource Conservation Area and the permission the criteria give to build mixed-use development at whatever densities allowed by local jurisdictions in the Intensely Developed Area (IDA) are both compatible with the underlying principles of smart growth.

- Other elements of the Critical Area program are out-of-step with, if not hostile to, today's commitment to smart growth:

    - The density and types of land uses promoted by the Critical Area Criteria in the Limited Development Area (LDA) are not compatible with basic precepts of smart growth. The criteria's promotion in the LDA of low-density development and the impediments they impose to mixed-use development clash with the policies central to smart growth to promote mixed-use communities, a variety of housing types, walkable communities, close knit neighborhoods, and transportation choices.

    - Viewed from the perspective of smart growth, the Critical Area Criteria's concept of growth allocation is an irrational anachronism. It sanctions conversion of an arbitrary percentage of resource lands to development without any demonstration of need and without compliance with any requirements for density, mix of uses or proximity to areas that are already developed.

      It is important to provide local jurisdictions with flexibility and opportunities to expand growth areas, but it should be principled, focused flexibility; it should be governed by a rational planning process and not project driven; and it should incorporate mandatory standards based on the principles of smart growth related to where expansion can occur and standards for how it can be used. The latter should include standards related to the density and type of use in expanded growth areas that put resource lands at risk. (See pp 79-81.)

SPECIFIC FINDINGS AND RECOMMENDATIONS

Critical Area as a whole

- Statewide economic trends and population growth in the four case-study counties suggest that development activity would increase significantly in each county between 1985 and 1999. (See Table 4, Table 5 and Table 6, pp 37-38.)

- Demand to build close to the shoreline, reflected in higher prices for residences with water access or water views, support expectations that development will increase at a faster rate in the Critical Area than on adjacent land outside the Critical Area.

- Residential development from 1985 to 1999 did increase in all four counties, mirroring statewide economic trends. (See discussion of Table 7, pp 39-40.)

- In general, development in the Critical Area is less intense and less volatile than in the counties in their entirety. Development in the Critical Area since 1985 declined in Anne Arundel and Cecil counties while increasing in the counties in their entirety. In Calvert County's Critical Area the rate of increase in development since 1985 is less than half the rate of increase in the county as a whole. Only in Queen Anne's County does development in the Critical Area since 1985 track with development in the county as a whole. However, even in Queen Anne's County the rate of increase in development in the Critical Area lags behind that in the county. (See discussion of Table 7, pp 39-40.)

The Resource Conservation Area

- The RCA in three counties is several times larger than the LDA. The ratio of area in the RCA to area in the LDA is three-to-one in Calvert County, 3.7 to one in Queen Anne's County and 3.8 to one in Cecil County. In Anne Arundel County the RCA and LDA are virtually the same size, reflecting a 1.05 to 1 ratio. (See Table 3 for area of the Critical Area districts in each county, p. 35.)

- A strong inverse relationship exists between the percentage of land in the Critical Area assigned to the RCA and the percentage of residential development absorbed by the RCA from 1990 to 1999. The percentage of the Critical Area in the RCA is high, compared to the relatively low percentage of Critical Area development that has taken place in the RCA. (See Table 12 and related discussion, pp 50-53.)

- The number of residences built in the Resource Conservation Area in Calvert and Anne Arundel counties has declined since 1989. The rate of residential development has slightly increased in Cecil County's RCA since 1985, from 35 houses between 1985 and 1989 to 50 from 1995 to 1999. Only in Queen Anne's County has there been a significant increase in the rate of residential development in the RCA since 1989. (See Tables 8, 9, 10 and 11 and discussion of residential development by Critical Area district, pp 43-49.)

- From 1990 to 1997 in Calvert County, Anne Arundel County and Cecil County fewer acres of resource lands (forests and farmland) were lost in the Resource Conservation Area than in the Limited Development Area in spite of the disparity in size between the two districts. (See Tables 13 and 14 and discussion of loss of resource lands by Critical Area district, pp 54-56.)

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Comparison of the Critical Area Resource Conservation Area to agricultural districts outside the Critical Area

- In Calvert County, Queen Anne's County and Cecil County residential development in the RCA either declined or increased at a lower rate than residential development in the agricultural districts outside the Critical Area. (See Table 15 and related discussion, pp 57-60.)

- In Calvert County, Anne Arundel County and Cecil County fewer acres of resource lands were lost in the RCA in relation to its size than were lost in the agricultural districts of the same counties in relation to their size. (See Tables 16 and 17 and related discussion, pp 61-66.)

- Queen Anne's County recorded a significant increase in development in its Critical Area RCA from 1990 to 1999 and a greater loss of resource lands in its RCA than in its agricultural zone outside the Critical Area in relation to the respective size of each. These anomalous results are accounted for by the confluence of several factors: intense development pressure, especially on Kent Island; the location of most of the county's designated growth areas along the shoreline, much of it assigned to the Critical Area RCA; and, most significantly, an exceptionally high incidence of pre-existing lots of record, the right to build on which was grandfathered into the RCA.

  Two-thirds of the residences built in Queen Anne's County's RCA from 1990 to 1999 were built on pre-existing lots of record that were created on Kent Island in a burst of speculative activity in the 1950s, around the time the Bay Bridge was opened. But for development on these grandfathered parcels, it is reasonable to infer that the rate of development and loss of resource lands in Queen Anne's County's RCA in the 1990s would be consistent with that in the other three case study counties. This inference is strengthened by the Director of Queen Anne's County's Department of Planning and Zoning's conclusion related to subdivision activity in the RCA: "…the data clearly shows that the existence of the RCA designation has significantly reduced or slowed down subdivision activity in the RCA." (See discussion at p. 58 and letter attached at Appendix C.)

Protected lands

- The extent of protected lands does not account for the difference in rate of loss of resource lands in the RCA and in the agricultural districts outside the Critical Area. "Protected lands" refers to lands subject to a conservation easement or acquired in fee title for the purpose of protecting their resource values.

- Except for Calvert County's RCA a higher percentage of protected lands does not correlate with a low rate of loss of resource lands in either the RCA or agricultural districts. To the contrary, in the other three case study counties a higher percentage of protected land correlates with a high rate of loss of resource lands. (See Tables 18A and 18B and related discussion, pp 67-71.)

This reinforces the conclusion that the superior degree of conservation of resource lands recorded in the RCA – measured in terms of the rate of loss of resource lands between 1990 and 1997 -- is attributable to implementation of the Critical Area Criteria.

The Limited Development Area

- ¤ Almost all development in the Limited Development Area between 1985 and 1999 was residential. During this period the LDA absorbed between 53 percent and 80 percent of all residential development in the Critical Area of the four counties. Two-thirds of all residential development in the Critical Area of Anne Arundel County and Cecil County took place in the LDA. (See Tables 8, 9 and 10 and discussion of residential development by Critical Area district, pp 43-48.)

- ¤ Although the Limited Development Area has, in relation to its size, captured a large percentage of development in the Critical Area, this development has not created compact settlement patterns. The resource protection policies that apply in the LDA combined with the relatively small size of most parcels in the LDA promote low-density residential development and all but preclude commercial development and compact or mixed-use communities. (See pp 16 and 18 and the discussion of Table 12, pp 50-51.)

- ¤ Resource lands in the Limited Development Area declined significantly from 1990 to 1997. Calvert, Anne Arundel and Queen Anne's counties lost, respectively, 13.88 percent, 6.6 percent and 11.55 percent of the resource lands in their Limited Development Area in this eight-year span. (See discussion of Tables 13 and 14, pp 54-57.)

Intensely Developed Area

- The rate of development has declined since 1985 in the Intensely Developed Area for Calvert County, Anne Arundel County and Cecil County, when their incorporated municipalities are excluded from consideration. The decline in Anne Arundel County is most noticeable, dropping from 1,232 residences in the 1980 to 1984 interval to less than 400 from 1995 to 1999. (See Tables 8, 9 and 10 pp 45-48.)

  When incorporated municipalities are factored into the tally for Cecil County the rate of development in the IDA increases dramatically, suggesting that the Critical Area in municipalities may provide significant opportunities for a broad range of development. (See Table 11, p. 49.)

  The data for residential development in Queen Anne's County's IDA, which included incorporated municipalities, corroborate this hypothesis. They show that residential development in Queen Anne's County's IDA increased both in absolute numbers and as a percentage of all development in the Critical Area since 1985. (See Table 8C, 9C and 10C, pp 45-48.)

Growth Allocation

- Growth allocation is being used by several counties to support scattered residential development in the RCA. Two-thirds of all growth allocation that has been used since 1990 (74 out of 106 projects) has converted land in the RCA to the Limited Development Area. Thirty-four of these 74 projects were not located in or near a designated growth area. (See analysis of data, pp 72-74 and discussion pp 78-79.)

  - At the time the boundaries of the Critical Area districts were initially drawn, 18,187 acres – five percent of the RCA in the state's Critical Area -- became available to the counties for use as growth allocation. By September 1999 the counties had used 4,188 of this allotment, leaving 13,999 acres, or 77 percent, available for later use (pp. 72-73).

  - No county has used up its growth allocation. Only Anne Arundel County and Harford County had used more than 50 percent by 1999. Charles County and Caroline County had used less than five percent and Kent and St. Mary's counties had used less than 10 percent**.** (See Appendix B for a table reporting the amount of growth allocation used by each county and Baltimore City and the amount remaining to each for use after September 1999.)

  - Growth allocation has provided flexibility to counties and municipalities to expand their Limited Development Area and Intensely Developed Area. It has also provided a field of experimentation that has given broad latitude to each county to determine how and where it will use its growth allocation. This flexibility has resulted in a diversity of responses among the counties. (See discussion, pp 77-78.)

  - In most counties use of growth allocation has been project-driven and has not been guided by a rational planning process to determine where new development in the RCA should be located. The Critical Area Commission does not push counties to use their growth allocation in, or adjacent to, existing areas of LDA or IDA. (See pp 75-76.)

  - The state commission's review of local requests to use growth allocation focuses primarily on the number of acres to deduct for a specific project from a county's allotment of growth allocation and compliance with discretionary policies related to protection of a 300-foot shoreline buffer. (See pp 76-77.)

- The lack of direction and focus for how growth allocation can be used undermines rational development patterns in the Critical Area. Future use of the unspent balance of growth allocation has the potential to undo the Critical Area program's success to date in protecting resource lands in the RCA from conversion and fragmentation. Accordingly, the amount of growth allocation available to the counties should not be increased in the future. (See p. 79-80.)

ANALYSIS: WHAT WORKS

Less resource land was lost in the RCA between 1990 and 1997 than in the agricultural zones for the simple reason that the RCA received less development in relation to its size than they received in relation to theirs. The RCA received less development primarily because of the density restriction of one residence per 20 acres, which curtailed creation of new parcels eligible for development, and the policies limiting new commercial and industrial development. The density restriction was able to dampen the rate of development on resource lands in the RCA in spite of the several exceptions carved out of it by the criteria permitting development on grandfathered lots of record and creation of new parcels through intra-family transfers. Only in Queen Anne's County does the high incidence of development on grandfathered parcels appear to have overwhelmed the Critical Area criteria's cap on density of new residential development.

The structure of the Critical Area program may be its most significant innovation and the chief determinant of its on-the-ground successes. The Critical Area Act created an effective, politically acceptable role for the state to play in the formation and implementation of land use policy, which had traditionally been the exclusive province of local jurisdictions. The resulting state-local partnership broke new ground for the State of Maryland.

The role defined for the state capitalizes on the its ability to do things that the counties and cities cannot be relied on to consistently do on their own, such as create a baseline of protection that applies throughout all local jurisdictions with land in the Critical Area. The Critical Area program also provides a degree of consistency from one county council or city council to the next. Yet, this structure respects local responsibility for both land use planning and decision-making and relies heavily on both.

The Critical Area Commission's oversight responsibility for reviewing local land use plans, implementing ordinances and land use decisions has practical, political significance. The state Commission's "one-step-removed" status frees it from local political pressures that can distort local decision-making, especially at the project level. The substantive criteria and state Commission's oversight role can also provide political cover for local elected officials. They can say to their constituents, in effect, "No use throwing us out of office. The Critical Area criteria prevent the county from subdividing your farm into a hundred one-acre lots, regardless of who sits on the county council."

The relation between the state Commission and local jurisdictions is central to the success of the Critical Area program. As a reviewer of this report from Calvert County's Department of Planning and Zoning put it, "The cooperation between the state and

counties in protecting natural resources is one of the best things that have happened as a result of the Critical Area law. The state and counties often disagree, but the law forces them to work together."

PUBLIC ACCEPTANCE, DEMANDS ON STAFF RESOURCES AND EXPENDITURE OF POLITICAL CAPITAL

The Critical Area Commission's implementation of the criteria regulating the types, density and location of land uses in the RCA have generally been well accepted by the public, and its administration of these criteria has not placed heavy demands on staff resources.

At the time the criteria were adopted in the mid-1980s the one residence per 20-acre density restriction in the Resource Conservation Area was viewed as their most controversial feature. However, the public appears to understand and to accept the logical connection between protecting forestland and farmland from subdivision and protecting the Chesapeake Bay's water quality and habitat. More surprisingly, implementation of this density limit has not stirred up the degree of controversy among landowners many observers had anticipated.

Landowner acceptance may reflect several factors, including the flexibility provided by the criteria to increase the density allowed on specific parcels on a case-by-case basis, the increase in property values that has been realized throughout most of the Critical Area since the criteria went into effect and, importantly, the decisiveness with which the reduction in density took place. For most practical purposes the density reduction went into effect in 1986, following promulgation of the Critical Area criteria. Its impact was absorbed, landowners adjusted their expectations and public attention moved on – with little expenditure of political capital by the Critical Area Commission.

The state Commission's continuing oversight of the density restrictions and their limitation on creation of new "buildable" parcels in the Resource Conservation Area has not placed heavy demands on staff resources. For the most part the Commission staff is able to discharge these responsibilities by reviewing proposed amendments to underlying local zoning and applications for subdivisions or, a few times a year, requests to change the designation on a specific parcel on grounds that its initial designation was a mistake.

By contrast, the state Commission's oversight of local administration of the criteria regulating how land in the Critical Area is developed – i.e., the criteria prohibiting development in the 100-foot buffer and those limiting removal of natural vegetation and creation of impervious surfaces and steep slope construction – place relatively heavy demands on both the state Commission's staff resources and political capital. This oversight takes the form of a continuous, year-in and year-out stream of project-by-project reviews of requests for variances. These requests for variances often give rise to complex factual disputes and may raise sensitive issues of fairness or perceived fairness.

By today's standards the criteria do not appear as restrictive as they may have in 1986. Several counties have subsequently adopted more protective standards for protecting resource lands. Baltimore County, for instance, has imposed a maximum density of one residence per 50 acres in its agricultural zone, which is considerably more restrictive than the Critical Area Criteria's limit of one residence per 20 acres in the Resource Conservation Area.

CONCLUSIONS

The record of resource protection in the Critical Area RCA over an eight-year period shows a significant enhancement of resource protection in three of the four case study counties compared to the level of resource protection achieved in their agricultural zones. It is speculated that but for the high rate of development on pre-existing lots of record in Queen Anne's County's RCA, enhanced protection of resource lands would have been found in all four case study counties.

This record also shows a consistent pattern of resource conservation in the RCA among several counties that are subject to divergent pressures and have varying records of resource conservation. These include Anne Arundel County, where resource lands have been subjected to intense development pressure for at least 20 years, and Cecil County, which the State Department of Planning has assigned to the "least protective" category of counties in terms of its protection of resource lands. In both of these counties the rate of loss of resource lands in the Critical Area RCA is less than in their agricultural zones.

These results show that in the brief time since the Critical Area Criteria went into effect they have altered both the rate of development and the rate of loss of resource lands in the Critical Area Resource Conservation Area. The lines of the graphs comparing development in the Critical Area with development in the county at large have started to diverge, as have the lines comparing the rate of development and the rate of loss of resource lands in the Critical Area RCA with performance in the agricultural zones outside the Critical Area in the same counties.

These results take into account development on lands that had been reassigned from the Resource Conservation Area to either LDA or IDA by operation of the criteria's growth allocation provisions. But for the unpredictable effects of potential future use of growth allocation, there is no reason to believe that the superior level of protection of resource lands recorded in the Resource Conservation Area between 1990 and 1997 will not continue in the future.

These results suggest that the State of Maryland does have a constructive role to play in shoring up uniform protection of its resource lands, both by articulating criteria governing the density, location and type of land use on resource lands and by assuming limited responsibility for overseeing local implementation of such criteria.

More effective use of policy-based regulations promises not only to strengthen protection of resource lands in the State of Maryland, it might also free-up the state's acquisition funds for use in building the state's green infrastructure, including parks, trails, habitat areas, connectors between habitat areas and greenbelts to buffer urban growth areas.

The Critical Area Criteria can be viewed as an early effort by the state to assert its regulatory power for the purpose of directing, managing and controlling development. They are an early attempt to define a useful and a politically acceptable state role in protecting Maryland's resource lands. As such, they established a beachhead for the state on the shores of the land-use domain that has long been dominated by local jurisdictions.

CRITICAL AREA CRITERIA

GOALS AND OBJECTIVES OF THE CRITICAL AREA PROGRAM

The goals of the Critical Area program are to accommodate growth, protect water quality and conserve plant and animal habitat within 1000 feet of the shore of the Chesapeake Bay and its tidal tributaries.

In order to achieve its objectives the Critical Area Criteria require local jurisdictions to develop local programs that incorporate means to:

- Regulate the location, density and, in very broad terms, the types of development allowed in the Critical Area.
- Regulate how land is developed in order to mitigate adverse environmental impacts.
- Promote ecologically sound farming and timber harvesting practices.

RESOURCE PROTECTION GOALS EMPHASIZE PROTECTION OF FORESTS, FARMLAND AND PLANT AND ANIMAL HABITAT.

The Critical Area Criteria give especially high priority to maintaining and increasing forested vegetation throughout the Critical Area.[1] Forests are the most effective ground cover for regulating the flow of storm water – evening out peaks and troughs and storing storm water for gradual release – and for filtering nutrients and other toxins harmful to life in the Bay. Forests also provide essential plant and animal habitat. The criteria emphasize protecting riparian forests, forested tracts of 100 acres or more that support interior dwelling birds and corridors of existing forest to provide effective connections between wildlife habitat areas.[2]

The Critical Area Criteria also recognize agricultural lands as a "protective land use" because of the permeability of agricultural soils. Although the commitment to protecting farmland is not as strong as the commitment to protecting forests and plant and wildlife habitat, the Criteria nevertheless promote establishment of programs "to maintain, where appropriate, agricultural lands in agricultural use, to the greatest extent possible." [3]

The Critical Area Criteria further recognize that, "even if pollution is controlled, the number, movement, and activities of persons (in the area of development) can produce adverse environmental impacts." Accordingly, the Criteria direct permitting authorities to consider the potential impacts of increased activity in the Critical Area resulting from new development before approving a project.[4]

[1] COMAR Sections 27.01.05, 27.01.02.04 C (3), 27.01.02.05 B (3) and (4) and C (6).
[2] COMAR Section 27.01.09.04
[3] COMAR Section 27.01.06.02 A and B.
[4] Section 27.01.10.01 O (3).

THE CRITICAL AREA CRITERIA REGULATE THE LOCATION, DENSITY AND TYPES OF NEW DEVELOPMENT IN THE CRITICAL AREA.

The Critical Area Criteria are designed to direct, manage and control development (e.g., residential, commercial, industrial and related facilities) in order to minimize the adverse impacts of growth in the Critical Area.[5] The criteria function like a sluice gate, turning some of the most intense development pressure away from the Critical Area while, within the Critical Area, channeling the flow of new development into one of three Critical Area districts:

- Future intense development activity is directed towards Intensely Developed Areas.
- Low intensity development activity is allowed in Limited Development Areas, but is subject to strict regulation to prevent adverse impacts on habitat and water quality.
- Resource Conservation Areas are designated chiefly for agriculture, forestry, and fisheries activities, other resource utilization activities and for habitat protection. Development is limited in Resource Conservation Areas.[6]

CRITERIA GOVERNING DEVELOPMENT

The Critical Area Criteria required local jurisdictions to map all existing land uses in the Critical Area as of December 1, 1985 and to assign land in the Critical Area to one of the three following districts:

THE INTENSELY DEVELOPED AREA

Land included in the Intensely Developed Area must have exhibited at least one of the following characteristics:

- housing density equal to or greater than four dwelling units per acre;
- a concentration of industrial, commercial or institutional uses; or
- current service by public sewer and water.

The Critical Area Criteria do not impose any restrictions on the types or density of future development in the Intensely Developed Area. These are controlled by the underlying local zoning. However, the Critical Area Criteria do mandate that new development or redevelopment in the IDA must reduce pollutant loadings from stormwater runoff from the development site by 10 percent.[7]

[5] COMAR Section 27.01.02.01.
[6] COMAR Section 27.01.02.02 B.
[7] COMAR Section 27.01.02.03

THE LIMITED DEVELOPMENT AREA

At the time of designation land assigned to the Limited Development Area must have been developed in low or moderate intensity uses and must have exhibited at least one of the following features:

- It supported housing density ranging from one dwelling unit per five acres up to four dwelling units per acre;
- It was an area that is not dominated by agricultural, wetland, forests, barren land, surface water or open space;
- It was less than 20 acres in size, if intensely developed; or
- It was an area having public sewer or public water, or both.[8]

The residential densities allowed in Limited Development Areas fall within the very low to low end of suburban densities, which typically range from one dwelling unit per five acres to 10 to 15 dwelling units per acre. The high end of the typical suburban range is sufficient to accommodate garden apartments. This is significantly more intense than densities sanctioned by the criteria in the LDA.

The criteria direct local jurisdictions to accommodate additional low and moderate intensity development in the LDA provided that the new development would not increase the "overall density … beyond the level established in a particular area so as to change its prevailing character as identified by density and land use currently established in the area."[9] Rigorous adherence to this criterion would foreclose the opportunity to intensify development in the LDA through either infill development or redevelopment. Areas zoned for one residence per five acres at the time the Critical Area boundaries were drawn in the mid-1980s, for instance, would be locked into that low density. In practice, the Critical Area Commission does not enforce this policy. It defers to local zoning determination of standards governing intensification of development in the Limited Development Area up to the ceiling of four residences per acre established by the criteria.[10]

The Critical Area Criteria governing protection of forest resources in the LDA incorporate the fundamental mandates that "The total acreage in forest coverage within a jurisdiction within the Critical Area shall be maintained or, preferably, increased" and "All forests that are allowed to be cleared or developed shall be replaced in the Critical Area on not less than an equal area basis."[11] The Criteria set standards governing clearing of forests on specific

[8] COMAR Section 27.01.02.04
[9] COMAR Section 27.01.02.04 B (3) (b)
[10] In the Critical Area program's early days the Critical Area Commission did discourage intensification of development in the LDA. For instance, the Critical Area Commission conditioned its approval of Calvert County's local Critical Area program on Calvert County not allowing an increase in density on land included in its LDA that Calvert County had zoned for one dwelling unit per three acres.
[11] COMAR Section 27.01.02.04 C (3) (a) and (b).

development sites, mandate that local jurisdictions and developers implement forest management plans and mandate that loss of forest cover in the LDA must be mitigated by aforestation or reforestation in either the Limited Development Area or Resource Conservation Area.[12]

THE RESOURCE CONSERVATION AREA

The emphasis in the Resource Conservation Area is on conserving, protecting and enhancing overall ecological values of the Critical Area, its biological productivity, and its diversity, and on conserving the land and water resource base necessary to maintain and support agriculture, forestry, fisheries activities and aquaculture.

Land assigned to the RCA is supposed to be characterized "by nature dominated environments (that is, wetlands, forests, abandoned fields) and resource utilization activities (that is, agriculture, forestry, fisheries activities, or aquaculture). These areas must have had at least one of the following features in 1985 when land uses were mapped:

- density is less than one dwelling unit per five acres; or
- the dominant land use is in agriculture, wetland, forest, barren land, surface water, or open space.

Land in the Resource Conservation Area may be developed for residential uses at a density not to exceed one dwelling unit per 20 acres.

CLUSTER DEVELOPMENT AND LOT SIZE

The criteria for both the Limited Development Area and the Resource Conservation Area promote cluster development in order to reduce impervious surfaces and maximize areas of natural vegetation.[13] In the RCA the criteria also encourage local jurisdictions to consider imposing maximum lot sizes. These provisions are intended to encourage local jurisdictions to consider alternatives to carving the Resource Conservation Area into 20-acre parcels by promoting scenarios in which development is clustered on smaller lots.

To illustrate how the alternative scenario might play out, consider the options in the RCA for subdividing a hypothetical 100-acre parcel. The density provisions of the criteria would sanction creation of five 20-acre parcels, each carrying the right to build one residence. But the criteria encourage local jurisdictions to adopt policies that might maintain as much as 90 to 95 acres in open space by clustering development on five two acre or one-acre lots. The criteria do not require local jurisdictions to move in this direction, but they give them a green light to do so.

[12] COMAR Section 27.01.02.04 C (3), (4) and (5).
[13] COMAR Sections 27.01.02.04 C (9) and 27.01.02.05 C (4)

COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL DEVELOPMENT

The Critical Area Criteria defer broadly to local zoning the formation of policy related to new commercial, industrial and institutional development in both the Intensely Developed Area and the Resource Conservation Area.. (The Critical Area Commission applies the same development standards to proposals for institutional development, including schools and churches, as it does to commercial and industrial development.)

In the Intensely Developed Area local governments determine the types of all development -- commercial, industrial or residential development -- subject to the mandate to reduce stormwater runoff by 10 percent.

The criteria do not directly limit the types or density of non-residential development in the Limited Development Area. Whatever is allowed by the counties' underlying zoning can bubble up in the LDA. However, the Critical Area Criteria do impose an indirect constraint on commercial and industrial development in the LDA.

The Criteria mandate that man-caused impervious surfaces, regardless of type of land use, must be limited to 15 percent of the site (up to 25 percent on lots less than _ acre). Since undeveloped parcels in the Limited Development Area tend to be relatively small, usually ranging in size from less than one acre to five acres, the 15 percent limitation on impervious surfaces creates a severe impediment to new commercial and industrial development. Typically these uses require a relatively large impervious footprint for buildings and surface parking that cannot be accommodated on 15 percent of the size parcels found in the Limited Development Area.[14]

Although the 15 percent restriction on impervious surfaces also applies to new development in the Resource Conservation Area, it is not as significant a constraint on development there. This is because undeveloped parcels in the RCA can be any size, from tens to hundreds of acres.

However, the Critical Area Criteria directly constrain new commercial development in the Resource Conservation Area on policy grounds. They prohibit local jurisdictions from zoning new land for commercial or industrial development that would increase the acreage zoned for these uses in the RCA.[15] The Critical Area Commission interprets this as a prohibition on zoning *or using* land in the RCA for non-resource based commercial or industrial development that was not already used for those purposes.

The Critical Area Commission has also negotiated with several counties a list of permissible "quasi-commercial" uses in the RCA. These tend to be small-scale home-occupancy businesses or uses that enhance the economic viability of existing forest and farming

[14] As noted immediately below, the Critical Area Criteria provide a safety valve, through their "growth allocation" provisions, to facilitate commercial and industrial development on land initially assigned to the Limited Development Area. These provisions allow conversion of a finite amount of a local jurisdiction's Limited Development Area or Resource Conservation Area to the Intensely Developed Area.

[15] COMAR Section 27.01.02.05 C (5). Note: land in the RCA may be converted to LDA or IDA through use of growth allocation as discussed in the next section.

operations or provide recreational access to ecological resources or resource based industries. Examples include u-pick berry farms, bed and breakfasts, and kennels.

GROWTH ALLOCATION

Growth allocation provides each county with the ability to expand its Limited Development Area or its Intensely Developed Area, or both, by an area up to five percent of its Resource Conservation Area.[16] Accordingly, the acreage available to each county for use as growth allocation varies directly with the size of its Resource Conservation Area and ranges from a low of 278 acres for Harford County to a high of 2,900 acres in Dorchester County.

The objective of the growth allocation concept is to provide flexibility to the counties, especially to rural counties where most of the Critical Area was assigned to the Resource Conservation Area. The motive was to avoid precluding rural counties from further development along the shore of the Chesapeake Bay and, in a sense, to allow them to partially catch-up with more developed counties closer to the Baltimore and Washington metropolitan areas.

Use of growth allocation is encased in policy recommendations, but few mandates. The Critical Area Criteria urge that new Intensely Developed Areas *should be* located in Limited Development Areas or adjacent to existing Intensely Developed Areas; new Limited Development Areas *should be* located adjacent to existing Limited Development Areas or Intensely Developed Areas; and both new LDA and IDA in the Resource Conservation Area *should be* located at least 300 feet beyond the landward edge of tidal wetlands or tidal waters.[17]

THE CRITICAL AREA COMMISSION'S OVERSIGHT AUTHORITY

The Critical Area Act of 1984 gives the Critical Area Commission significant responsibility for reviewing implementation of criteria that most directly affect the location, density and types of development allowed in the Critical Area. For purposes of this analysis the Commission's authority to monitor these tasks is divided into two segments. The first is the Commission's oversight of the initial identification of Critical Area boundaries, including the boundaries of each Critical Area district, in each local jurisdiction with land in the Critical Area. The second is the Commission's authority for monitoring implementation of local Critical Area programs since it certified them for compliance with Critical Area Criteria in the late 1980s.

MAPPING CRITICAL AREA BOUNDARIES

The initial mapping of Critical Area boundaries in the mid-1980s constitutes the most significant stage in the implementation of the Critical Area program since its inception in terms of its effects on patterns of development. The provisions of the Critical Area Criteria governing these "mapping issues" contained ambiguities, perhaps typical of new, complex legislative programs, resolution of which could have a major impact on property values in significant portions of the state's Critical Area.

[16] COMAR Section 27.01.02.06 A
[17] COMAR Section 27.01.02.06 B

The most troublesome challenge was to identify and separate the Limited Development Area and the Resource Conservation Area. Land included in the Limited Development Area would have substantially more development potential than land assigned to the Resource Conservation Area. Not surprisingly many landowners and their attorneys lobbied their local governments to have the lines drawn so as to include their land in the LDA. Similarly, several counties pushed to expand the amount of land designated for inclusion in their LDA at the cost of removing land from their Resource Conservation Area.

To illustrate, in counties with public water or sewer in the Critical Area disagreements arose over the meaning of the phrase "an area having public sewer or public water, or both."[18] Did land have to be adjacent to an existing water or sewer line to qualify for inclusion in the Limited Development Area or within a prescribed distance, perhaps 2000 feet, of such facilities? Several counties were aggressive in proposing land that had been developed at very low densities for inclusion in the Limited Development Area. "Density averaging" was a favored technique for enlarging the LDA. This term was used to describe the practice of lumping undeveloped land together with nearby developed land to arrive at a combined density greater than the minimum threshold of one residence per five acres in order to include the entire package in the LDA.

The Critical Area Commission was called on to interpret these provisions and to negotiate agreements with each county. This was no easy task, in part because the Commission was not given sufficiently supple tools for the job. The standards governing assignment of land to one of the Critical Area districts were not sufficiently clear to support crisp administration. Further, the Critical Area Act did not make available to the Critical Area Commission a range of sanctions that it could use to prod counties into compliance.[19]

The Critical Area Commission did an admirable job of resolving these issues in spite of the limited tools at its disposal. Nevertheless, in retrospect there is reason to suspect that more land is included in the Limited Development Area than was contemplated in 1984 when the Critical Area Act became law and that this has had significant implications for the amount of low density residential development that has taken place in the Critical Area since 1986.

IMPLEMENTATION OF CERTIFIED LOCAL CRITICAL AREA PROGRAMS

Since the dust settled on the initial mapping issues, Critical Area Commission oversight of patterns of development in the Critical Area has been relatively straightforward. For the most part the Critical Area Act vests the Commission with sufficient authority and adequate tools for monitoring local implementation of the Critical Area Criteria governing the location, density and types of development in the Critical Area. In addition, this component

[18] COMAR Section 27.01.02.04

[19] The only sanction available to the Critical Area Commission to compel a county to develop a local Critical Area program that complied with the Critical Area Criteria was for the Critical Area Commission to take over total responsibility for developing the county's Critical Area program and, in effect, to impose it on the county. This was not a politically viable option. The Critical Area Commission never "took over" development of a local program, although the threat of doing so may have been a factor in negotiations with foot-dragging jurisdictions.

of the Commission's overall oversight responsibility does not appear to place heavy demands on the Commission's limited staff resources.

The Critical Area Commission's oversight responsibility related to patterns of development is expressed primarily through the criteria governing changes to Critical Area boundaries, amendments to underlying local zoning and review of applications for subdivisions that would result in the creation of new parcels eligible for development ("buildable parcels"). Each is reviewed below.

- Changes to Critical Area boundaries. The Critical Area Criteria provide two bases for changing the boundaries of Critical Area districts -- mistake in the initial assignment of land to a Critical Area district and use of growth allocation. Both require Critical Area Commission approval.

  The mistake doctrine, as interpreted by Maryland courts, imposes a stringent test for changing classification of land from one critical Area district to another.[20] Today it is typically invoked in previously developed areas to allow land that had been erroneously assigned to the Limited Development Area to be reassigned to the Intensely Developed Area. Both the number of requests to reassign land based on the mistake doctrine – less than a half dozen per year, on average – and the acreage involved are relatively light.

  Application of the mistake doctrine can be seen in Chesapeake City, an incorporated municipality in Cecil County where expansion of a fire station was frustrated by the 15 percent limit on impervious surfaces that applies in the LDA. The Critical Area Commission determined that the initial classification of this urban fire station as LDA had been erroneous and sanctioned its reclassification as IDA.

  Proposals to use growth allocation for large projects tend to be complex and controversial, imposing significant demands on the Critical Area Commission's staff resources. However, most proposals to use growth allocation are for small projects and are handled routinely.

- Re-zonings and creation of overlay zones. The Critical Area Commission has approval authority over all proposed re-zonings that have potential to affect development in the Critical Area. This review authority extends to all proposed changes in the underlying zoning in either the RCA or LDA that might expand areas open to commercial or industrial development or increase the allowable density of residential, commercial or industrial development.[21]

- Subdivisions. The Critical Area Commission is authorized to review all subdivisions proposed in the RCA and, in the LDA, those that would create more than three buildable parcels and to appeal subdivisions that it concludes are inconsistent with the criteria.

[20] See Bellenca v. County Commissioners of Kent County, 86 Md. App. 219 (1991).
[21] COMAR Section 27.03.01.03 B

Since local jurisdictions tend to amend their zoning ordinances infrequently, Critical Area Commission review of proposed re-zonings does not impose a heavy demand on its staff resources. Oversight of proposed re-zoning provides an efficient vehicle for monitoring development potential in the critical Area at the wholesale level. With respect to subdivisions both the review standards and the Critical Area Commission's review authority are clearly defined. This enhances the prospects that the Critical Area Commission and a local jurisdiction will be able to reach informal agreement on whether a proposed subdivision should go forward. The Critical Area Commission has rarely, if ever, had to invoke its authority to appeal a local subdivision in the Critical Area. This review authority can be viewed as an efficient use of Commission resources at the retail level.

SUMMARY OF EXPECTATIONS CREATED BY THE CRITICAL AREA CRITERIA FOR RESOURCE CONSERVATION AND THE LOCATION, DENSITY AND TYPES OF DEVELOPMENT

The Critical Area program does not provide a basis for forming a precise set of expectations about what implementation of the program is supposed to accomplish.

The Critical Area Criteria do not establish objective standards, or tangible benchmarks, related to either resource conservation or accommodation of new development other than the directive, referred to above, to maintain and increase forested vegetation throughout the Critical Area.

Instead, the Critical Area program is substantially process-oriented. It creates an integrated local and state planning regime based on the premise that accomplishment of the many steps in the planning process will help achieve the program's ultimate goals and objectives to protect water quality and conserve habitat while accommodating new development. Starting with the essential first steps of mapping Critical Area boundaries and inventorying a broad spectrum of coastal resources, the criteria mandate generation of local plans and amendments to existing plans and ordinances to bring them into compliance with the Critical Area Criteria.[22] And, it establishes processes for reviewing and approving development proposals to assure their compliance with certified local Critical Area programs.

[22] Local Critical Area programs must include a forest management plan, a mineral resources plan, an agricultural protection plan, a habitat protection area plan, and a water-dependent facilities planning process. Local jurisdictions are directed to review and revise local plans, programs and ordinances, including comprehensive plans, water and sewer plans, comprehensive solid waste plans and any other health/environment- related plans and ordinances, capital improvement programs, zoning ordinances, and growth management ordinances. In addition local jurisdictions are urged to develop several ancillary plans and programs ranging from education programs to programs that promote use of land conservation tools such as tax benefits to landowners who donate easements over their land to government agencies or non-governmental organizations. See COMAR Section 27.01.10.01. All farms in the Critical Area must implement an approved soil conservation and water quality plan. COMAR Section 27.01.06.03 A (3). Timber harvests in buffer areas must conform to a buffer management plan. COMAR Section 27.01.09.01 C (5) (a).

Expectations about what the Critical Area program will accomplish, especially in the Resource Conservation Area, are also blurred by several uncertainties built into the criteria. Growth allocation has been a major source of uncertainty: where it would be used; how much of it would be used; and what would happen if counties ran out of it. The criteria also grandfather in pre-existing undeveloped parcels, but at the time the criteria were adopted no one knew how many of these were in existence or where they were located. Similarly the criteria allow local jurisdictions to exempt some intra-family transfers from criteria governing density and subdivisions. But at the time the criteria were adopted, the number of potential intra-family transfers was not foreseeable.

Given these uncertainties and the absence of tangible benchmarks, the Critical Area Criteria nevertheless give rise to a general set of expectations.

- In the Intensely Develop Area patterns of development will not be substantially affected by implementation of the criteria. The Critical Area Criteria can accommodate most types and densities of residential, commercial and industrial development in the IDA.

- In the Limited Development Area low-density single-family residential development will proliferate, subject to local restrictions – that is, restrictions not mandated by the Critical Area Criteria – and market forces. There will be little commercial or industrial development due to the restriction on creating impervious surfaces. The acreage of land covered by forested vegetation in the LDA is supposed to be maintained or expanded.

- In the Resource Conservation Area only very low-density residential development, less than one residence per 20 acres, will be allowed. Little commercial and industrial development will occur because it is specifically discouraged by the Critical Area Commission's interpretation of the criteria. The acreage of land covered by forested vegetation in the RCA is supposed to be maintained or expanded and the resource base needed to support commercial farming, forestry, fisheries and aquaculture is supposed to be protected.

Generally speaking the Critical Area Criteria reflect a value pyramid widely subscribed to in the early 1980s, especially in the environmental community. The Resource Conservation Area is best because it incorporates the strongest resource protection measures of the three Critical Area districts and imposes by far the heaviest restrictions on development. The Limited Development Area is next best because it is more protective of targeted resources than the Intensely Developed Area and commercial and industrial development allowed in the IDA. The Intensely Developed Area is the least green, or good, because it is dominated by development, it does not restrict density or types of land uses, and it is the least protective of natural resources.

SCOPE, METHODOLOGY, SOURCES OF DATA AND PERSPECTIVES FOR EVALUATION

SCOPE OF THIS STUDY

This report evaluates the extent to which Maryland's Critical Area program has met expectations created by the Critical Area Criteria with respect to the location, density and types of development on privately owned land in the Critical Area and the success of this aspect of the program in protecting forest and farmland from fragmentation and conversion to development. It is based on an analysis of objective data on development activity and land use change since 1984.

The analysis of objective data is supplemented by interviews with 25 local public officials and private stakeholders in Calvert, Anne Arundel and Queen Anne's counties and staff for the state Critical Area Commission, who shared their views about how the Critical Area program is working, its successes and failures and its acceptance by the public and key constituencies.

This report does not evaluate the effectiveness of criteria intended to mitigate adverse impacts of specific proposals for developing privately owned land. These mitigation measures include protection of shoreline buffer areas and limitations on impervious surfaces, clearing natural vegetation and development on steep slopes. Nor does this study address development activities on state or federally owned land in Maryland's Critical Area.

METHODOLOGY AND SOURCES OF DATA

The approach taken in this paper is to analyze the results achieved in Maryland's Critical Area in terms of the rate of residential development and land use change. The latter refers primarily to the gain or loss of forestland and farmland and the amount of land converted to one of several types of development. This approach reflects an attempt to evaluate tangible results of the Critical Area program and to cut through its inherent uncertainties, the absence of objective benchmarks and the program's emphasis on multiple tiers of planning processes.

This report relies on data compiled or generated by the Maryland Department of Planning and other state agencies for two reasons. It is assumed to be sound data that has been reviewed by well-qualified professional planners and, importantly, it provides a uniform basis for analyzing several complex issues in multiple local jurisdictions.

The data on residential development track development in five-year intervals since 1970 on land that in 1986 was assigned to each county's Critical Area. Residential development is examined for several reasons. First, it is considered the best indicator of overall patterns of development – where it is located, its density and whether it is compact or scattered. Second, data related to residential development is among the most complete, up-to-date and reliable data available. This study uses data compiled by the Maryland Department of Planning that tracks development valued at $10,000 or more on parcels of less than 20 acres. It is assumed that such development is residential in character. Local tax assessors vigorously monitor this data and maintain accurate, current records of it. Third, given the direct and indirect constraints on commercial, industrial and institutional development in both the Limited Development Area and the Resource Conservation Area, residential development will in fact account for most development in the state's Critical Area, especially in its Resource Conservation Area and Limited Development Area.

Analysis of land use change data provides a cogent indicator of how well the Critical Area program is achieving its resource protection objectives. Attention is focused on gain or loss of forest vegetation and farmland. Conversely, this data tracks the land area that is converted to one of several types of development, including commercial, industrial and institutional uses in addition to low, medium and high density residential development.

The Maryland Department of Planning also generated the land use change data used in this report. These data are derived from aerial photographs taken on flights made in 1990 and 1997. The report calculates the gain or loss of resource lands and developed lands during this eight-year span. Since the Critical Area Commission did not conclude certification of local Critical Area programs until 1990, this analysis covers the first eight years in which the state's Critical Area program was fully operational.

Sixteen counties and 43 municipalities have land in Maryland's Critical Area. This analysis focuses on four case study jurisdictions – Calvert County, Anne Arundel County, Queen Anne's County and Cecil County. These counties were selected for several reasons, not the least of which was the availability of digitized boundaries of their Critical Area and Critical Area districts. These boundaries, which were not available for most of the other counties with land in the state's Critical Area, provide the essential framework for the computer analyses of the several data sets used in this report.

These four counties also provide an attractive balance. As discussed in more depth in the next section, Anne Arundel County and Calvert County are in the vortex of metropolitan development pressures spiraling out from Baltimore and Washington. Queen Anne's County, especially on Kent Island, is also subject to these pressures, while most of the remainder of the county, which accounts for the vast bulk of its land area, and Cecil County are more representative of the rural, farm-based communities prevalent on the Eastern Shore.

The Atlas of Agricultural Land Preservation in Maryland, published by the Maryland Office of Planning, the predecessor agency to the Maryland Department of Planning, ranks counties in Maryland according to the level of protection they extend to their agricultural land by assigning each county to one of three categories –most protective, moderately protective or least protective. Calvert, Anne Arundel and Queen Anne's counties are assigned to the moderately protective category, while Cecil County is assigned to the least protective.

Several types of analyses are made of residential development and land use change in each county:

- Comparison of residential development in the Critical Area and the county as a whole,

- Comparative analyses of residential development and land use change in each Critical Area district – the Intensely Developed Area, Limited Development Area and Resource Conservation Area, and

- Comparison between residential development and land use change in each county's Resource Conservation Area and in its agricultural district outside the Critical Area.

The purpose of the last comparison is to provide a basis for detecting possible differences in the degree of protection of resource lands in the Resource Conservation Area and agricultural districts outside the Critical Area that may result in part from implementation of the Critical Area Criteria in the RCA.

The boundaries of land subject to conservation zoning in each county were specifically generated for this report. They generally track with the boundaries for such areas presented in the Atlas of Agriculture Land Preservation in Maryland. For purposes of this report land in the Critical Area of each county was excluded from land subject to conservation zoning to avoid double counting.

The report also analyzes the role played by protected lands in both the Critical Area Resource Conservation Area and on land outside the Critical Area subject to conservation zoning. The term "protected lands" refers to land subject to a conservation easement or acquired in fee title in order to protect resource values. The purpose of this analysis is to investigate the extent to which resource protection in the Critical Area RCA and on land outside the Critical Area subject to conservation zoning may be attributable to acquisition of interests in land (and compensation to landowners) as opposed to enforcement of land use regulations. Data for this analysis was compiled from a variety of local sources in each county by the Maryland Department of Planning working in conjunction with the Maryland Department of Natural Resources.

Each county's use of growth allocation is analyzed in terms of the amount available to each county at the time the Critical Area boundaries were drawn in 1986, the amount each county had used by September 1999, the amount remaining as of September 1999 for future use, the acreage transferred from RCA to LDA or IDA and from LDA to IDA, the proximity of land converted from RCA to existing developed areas and the policies applied by each jurisdiction to guide its use of growth allocation. This analysis is based on records compiled by the state Critical Area Commission.

Data is also presented on economic trends in the State of Maryland generated by the State of Maryland Bureau of Labor Statistics and Bureau of Economic Analysis in order to provide a basis for evaluating the extent to which development trends in the Critical Area mirror, or depart from, broad economic trends.

Although it can be said that the report controls, in a very general way, for the possible influence of protected lands and broad economic trends on its findings, it has not been possible to control for every factor that might influence them. No attempt has been made, for instance, to control for environmental factors, such as high water tables that might affect the capacity of soils to support septic systems and that may be more or less prevalent inside the Critical Area than outside it.

In conclusion, this report presents findings about what has happened in Maryland's Critical Area since the inception of the Critical Area program, but it cannot explain beyond doubt the causes of these findings. In addition to extraneous influences that might skew the results, including those referred to, above, the Critical Area Criteria promote a myriad of planning activities that may, or may not, have had a significant influence on the results reported in this study.

In spite of these uncertainties, it is asserted that the factors that have exerted the most control over the results reported in this study are the hard-edged Critical Area Criteria and the enforcement of which is backed-up by the state Critical Area Commission's oversight authority. The hard-edged criteria include the density limitations and use restrictions and some of the performance standards that apply in one or more of the Critical Area districts but are not a factor on land zoned for conservation outside each county's Critical Area.

EVALUATION PERSPECTIVES: EXPECTATIONS CREATED BY THE CRITICAL AREA CRITERIA AND PRINCIPLES OF SMART GROWTH

The data analyzed in this report are evaluated from two perspectives. First is how the results achieved by the Critical Area program conform to reasonable expectations about what it is supposed to have achieved. Second, the criteria and the analyses made in this report are discussed in terms of their relation to the general precepts of smart growth.

The purpose of the discussion of smart growth is not to make an ex post facto evaluation of a program that was created more than 15 years ago – many years before the concept of smart growth became embedded in official state policy -- but to unveil whatever light this experience might be able to shine today on developing the next generation of resource protection initiatives in the State of Maryland.

This discussion identifies successful elements of the Critical Area program that can be strengthened and, possibly, adapted for broader use under the umbrella of smart growth. And it identifies other elements of the program that appear to be out of step with today's approach both to protecting resource lands and to building successful communities.

The National Governors Association, under Maryland Governor Paris N. Glendening's leadership, adopted a set of smart growth principles at its annual meeting in 1999. These are reproduced here to give a general idea of the smart growth value system that has taken root in Maryland in recent years. This statement serves as a general reference point for the evaluation of the Critical Area Criteria that follows.

> "Approaches to growth will vary widely from state to state. The Governors have identified the following tools that may be helpful in promoting smart growth and the preservation of open space:
>
> - mix land uses;
> - take advantage of existing community assets;
> - create a range of housing opportunities and choices;
> - foster "walkable," close-knit neighborhoods;
> - promote distinctive, attractive communities with a strong sense of place, including the rehabilitation and use of historic buildings;
> - preserve open space, farmland, natural beauty, and critical environmental areas;
> - strengthen and encourage growth in existing communities;

- provide a variety of transportation choices;
- make development decisions predictable, fair, and cost-effective; and
- encourage citizen and stakeholder participation in development decisions.

In addition to the emphasis on preservation of open space, farmland, and critical environmental areas, the focus on mixing land uses, creating a range of housing opportunities and choices, fostering walkable, close-knit neighborhoods and providing a variety of transportation choices are relevant to this analysis.

DATA ANALYSIS AND FINDINGS

CONTEXT: LAND AREA PARAMETERS AND DEVELOPMENT PRESSURE

This section presents data for each of the four case study counties to establish the context for evaluating Maryland's Critical Area Program. The discussion of land area parameters draws out implications of the size of the Critical Area and Critical Area districts in each county and their relation to land zoned for conservation and land zoned for development outside the Critical Area.

LAND AREA PARAMETERS

The Critical Area comprises a significant portion of each case study county: 17 to 19 percent of Calvert, Anne Arundel and Queen Anne's counties and 11 percent of Cecil County. In terms of absolute size, it ranges from approximately 25,000 acres in Calvert and Cecil counties to 41,910 acres in Queen Anne's County and almost 50,000 acres in Anne Arundel County. (Tables 1 and 2)

Within each county's Critical Area allocation of land among the three Critical Area districts varies significantly. Three counties – Calvert, Queen Anne's and Cecil – reflect similar patterns with respect to the relative size of their Resource Conservation Area and Limited Development Area. Seventy to seventy-seven percent of their Critical Area is RCA, less than 24 percent LDA. Anne Arundel County is the exception. Forty-three percent of its Critical Area is LDA, almost as large as its RCA. In fact, Anne Arundel County's Limited Development Area is larger than the RCA in Cecil and Calvert counties. (Tables 1 and 3)

The Resource Conservation Area is the only Critical Area district in which the amount of development is significantly restricted and in which resource lands are given a relatively high level of protection from conversion or fragmentation. The RCA has more in common in these respects with agriculture protection zones located outside the Critical Area than it does with Critical Area land in the LDA and IDA. The latter are fundamentally pro-development districts.

It may be helpful to bear these ratios in mind as one reviews the record of development in each county's Critical Area. The impact on resource lands of the densities allowed in the LDA is relatively contained in Calvert, Queen Anne's and Cecil counties due to the limited size of their LDA, whereas these impacts are amplified in Anne Arundel County where 43 percent of the Critical Area has been pre-empted for suburban development.

The Intensely Developed Area comprises 2 percent or less of Queen Anne's and Cecil counties' Critical Area, 4 percent of Calvert County's and 10 percent of Anne Arundel County's. These areas were already committed to intense development in the late 1980's when the Critical Area boundaries were drawn. (Table 1)

The four counties reflect divergent historical development patterns. Both Anne Arundel and Calvert counties are caught in the vortex of development pressures swirling outwards from the Baltimore and Washington metropolitan areas. In each of these counties agricultural and forest products industries comprise a declining sector of the economy. More land is either developed or zoned for development than for conservation. The ratio in Calvert County is 53 percent zoned for development versus 47 percent for conservation. In Anne Arundel County

the ratio is 56 percent to 44 percent. This calculation combines LDA and IDA in the Critical Area with land zoned for development outside the Critical Area, and it combines land in the Critical Area RCA with land zoned for conservation outside the Critical Area. (Table 1)

Both Queen Anne's and Cecil counties reflect a different pattern. Although development pressure has forcefully hit Kent Island in Queen Anne's County, threshold of Maryland's Eastern Shore, in general these two counties are more representative of agrarian-based regions where development pressure has not been as intense as it has been closer to the center of the Baltimore and Washington metropolitan areas. Eighty-one percent of the land in Queen Anne's County and 62% of the land in Cecil County are zoned for conservation. Only 18% in Queen Anne's County and 38% in Cecil County are zoned for development. (Table 1)

TABLE 1A: CALVERT COUNTY LAND AREA PARAMETERS

County and Critical Area

	Acres	% of Critical Area	% of County
County	137,509		100%
Critical Area	25,160	100%	18.3%
Critical Area RCA	18,111	71.98%	13.17%
Critical Area LDA	6,009	23.88%	4.37%
Critical Area IDA	1,040	4.13%	0.76%
Other	22	0.09%	0.02%

Land Zoned for Conservation

	Acres	% of County
Conservation Zoning (Outside CA)	46647	33.92%
Critical Area RCA	18111	13.17%
Total	64758	47.09%

Land Developed or Zoned for Development

	Acres	% of County
Developed or Zoned for Development (Outside Critical Area)	65,702	47.78%
Critical Area LDA	6,009	4.37%
Critical Area IDA	1,040	0.76%
Total	72,751	52.91%

TABLE 1B: ANNE ARUNDEL COUNTY LAND AREA PARAMETERS

County and Critical Area

	Acres	% of Critical Area	% of County
County	265,372		100%
Critical Area	49,942	100%	18.82%
Critical Area RCA	22,549	45.15%	8.50%
Critical Area LDA	21,369	42.79%	8.05%
Critical Area IDA	5,281	10.57%	1.99%
Other	726	1.45%	0.27%

Land Zoned for Conservation

°	Acres	% of County
Conservation Zoning (Outside CA)	93060	35.07%
Critical Area RCA	22549	8.50%
Total	115609	43.56%

Land Developed or Zoned for Development

°	Acres	% of County
Developed or Zoned for Development (Outside Critical Area)	122,370	46.11%
Critical Area LDA	21,369	8.05%
Critical Area IDA	5,281	1.99%
Total	149,020	56.15%

TABLE 1C: QUEEN ANNE'S COUNTY LAND AREA PARAMETERS

County and Critical Area

°	Acres	% of Critical Area	% of County
County	238,147		100%
Critical Area	41,910	100%	17.6%
Critical Area RCA	32,325	77.13%	13.57%
Critical Area LDA	8,707	20.78%	3.66%
Critical Area IDA	877	2.09%	0.37%

Land Zoned for Conservation

	Acres	% of County
Conservation Zoning (Outside CA)	160864	67.55%
Critical Area RCA	32325	13.57%
Total	193189	81.12%

Land Developed or Zoned for Development

°	Acres	% of County
Developed or Zoned for Development (Outside Critical Area)	35,373	14.85%
Critical Area LDA	8,707	3.66%
Critical Area IDA	877	0.37%
Total	44,957	18.88%

TABLE 1D: CECIL COUNTY LAND AREA PARAMETERS

County and Critical Area

°	Acres	% of Critical Area	% of County
County	222,937		100.00%
Critical Area	25,609	100.00%	11.49%
Critical Area RCA	19,894	77.7%	8.92%
Critical Area LDA	5,213	20.3%	2.34%
Critical Area IDA	502	1.9%	0.23%
Other	728	2.55%	.33%

Land Zoned for Conservation

	Acres	% of County
Conservation Zoning (Outside CA)	119220	53.48%
Critical Area RCA	19894	8.92%
Total	139114	62.40%

Land Developed or Zoned for Development

	Acres	% of County
Developed or Zoned for Development (Outside Critical Area)	78,108	35.04%
Critical Area LDA	5,213	2.34%
Critical Area IDA	502	0.23%
Total	83,823	37.60%

Table 2: Acreage of Critical Area by County

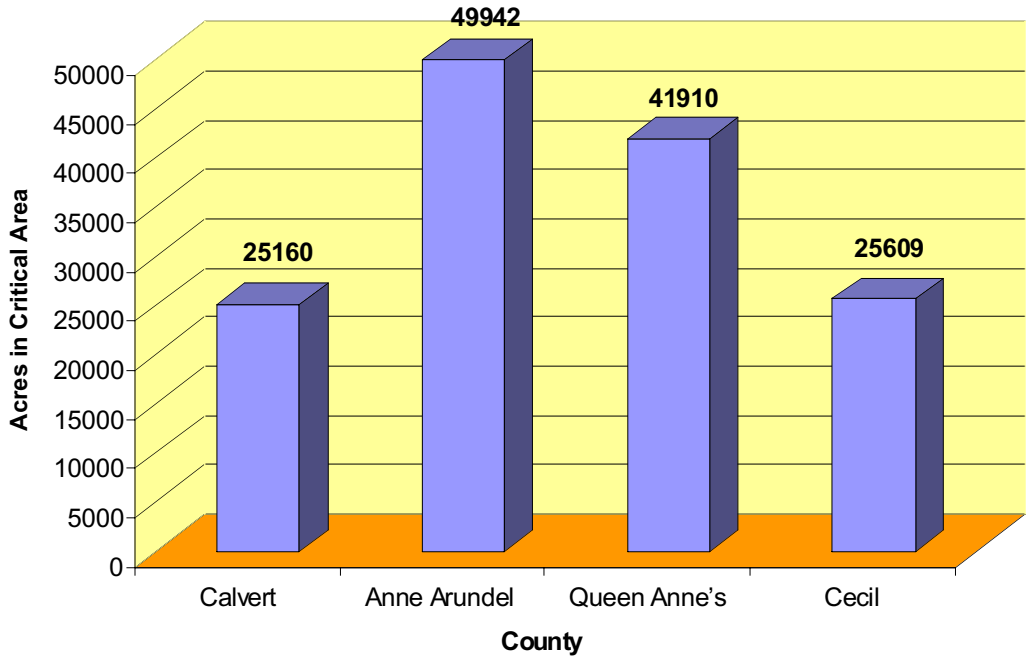
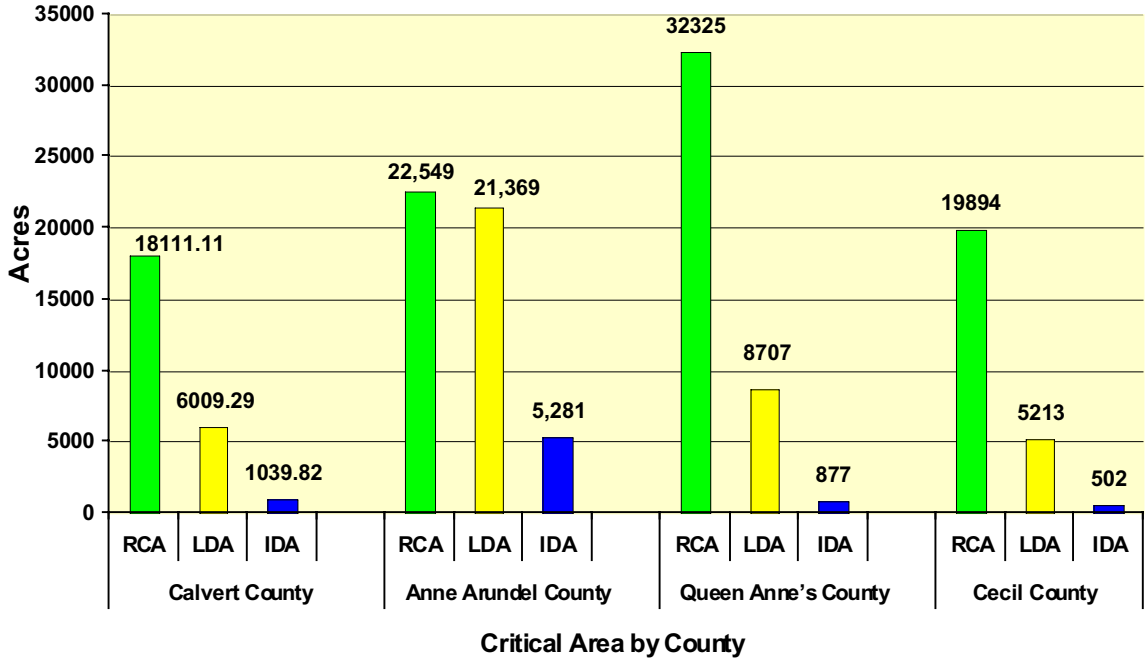


Table 3: Critical Area by Critical Area District



DEVELOPMENT PRESSURE

Population trends suggest that development pressure has steadily increased since 1970 in all four counties. In this 30-year period the population of Calvert County tripled, that of Queen Anne's County doubled, and Cecil County grew by 60%. All three of these counties started in 1970 from a small base compared to Anne Arundel County, which increased its population by almost 200,000 during the same period. Over the last decade, during which the Critical Area program has been in full swing, Cecil County's population increased by 20 percent, Calvert County's by 45 percent, Queen Anne's County's by 19 percent and Anne Arundel County's by 15 percent. (Table 4)

Economic data provides a basis for evaluating the extent to which development activity in the Critical Area and on land zoned for conservation outside the Critical Area may simply be a function of macro-economic forces rather than the effect of implementation of land use policies and regulations. Two sets of data are reported -- total state employment 1984-1999 and total gross state product 1986-1999. Both indicators climb sharply from the mid- to late-1980s, level off or decline from 1989-1992, and resume a sharp climb from 1993 to 1999. (Tables 5 and 6)

Cumulatively, these data paint the following picture since 1984 when the Critical Area Act became law and the late-1980's when the Critical Area Commission approved local Critical Area programs. Population has climbed significantly in all four counties, both in real numbers and as a percentage of 1980 population. Except for the recession from 1989 -1992, the state's economy has steadily expanded since the mid-1980s. As has often been reported in data tracking development trends throughout the State of Maryland, development pressure has steadily pushed outward from urban centers, converting and fragmenting resource lands in its path. Anne Arundel County was the first of the four case study counties to feel the full impact of this development pressure, but since the mid-1980's it has been very evident in Calvert County and western Queen Anne's County. Similar pressure is emanating from the I-95 corridor in Cecil County.

In light of these considerations it is reasonable to anticipate strong and strengthening development activity throughout the four case study counties that would subject their resource lands, both in and outside the Critical Area, to significant pressure for conversion and fragmentation. Further, development pressure may be more intense along the shoreline than immediately inland of the Critical Area's 1000-foot boundary. Residences with water access or water views command premium prices, reflecting strong demand for a limited resource. In the absence of countervailing land use regulations, the popularity of living on the shores of the Chesapeake Bay and its tidal tributaries would lead one to expect the rate of development in the Critical Area to exceed that of adjacent inland areas.

The tables discussed in this section are set out immediately below. The maps are attached as an appendix. The first map set, Protected Lands, presents for each county the Critical Area boundary and the boundaries of each Critical Area district. The Development Over Time maps, the second set, show for each county the spatial relationship of the Critical Area to land zoned for conservation and land zoned for development outside the Critical Area.

Table 4A: Population Growth in Calvert County, Queen Anne's County and Cecil County, 1970-2000

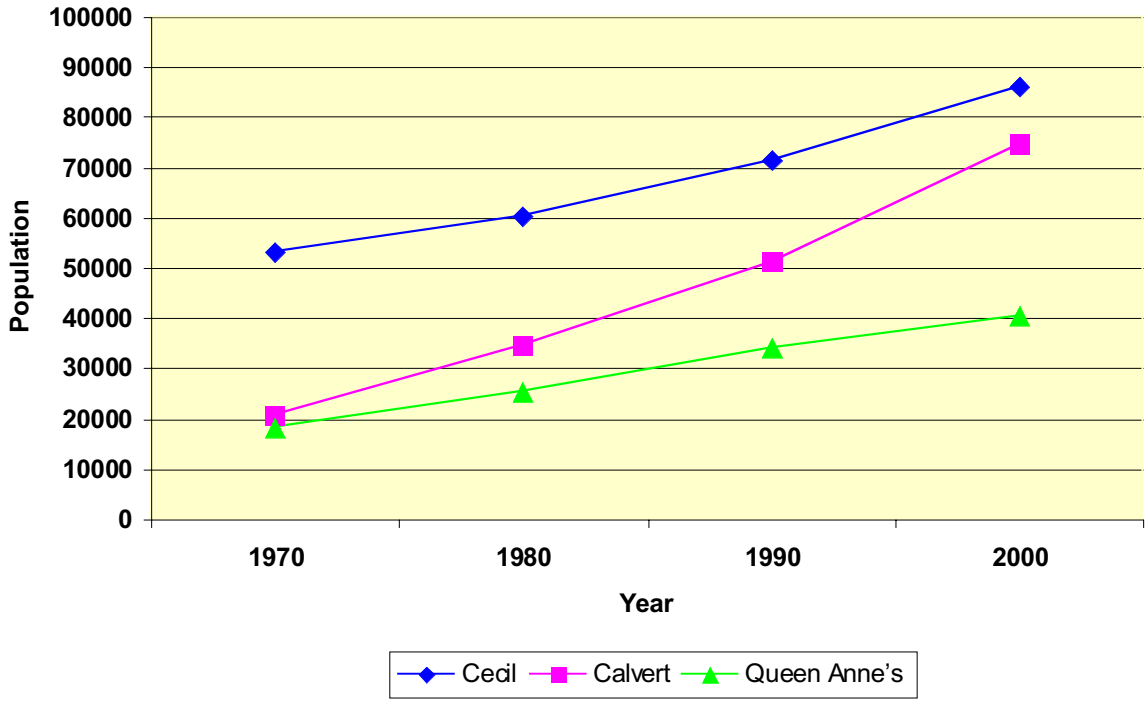


Table 4B: Population Growth in Anne Arundel County 1970-2000

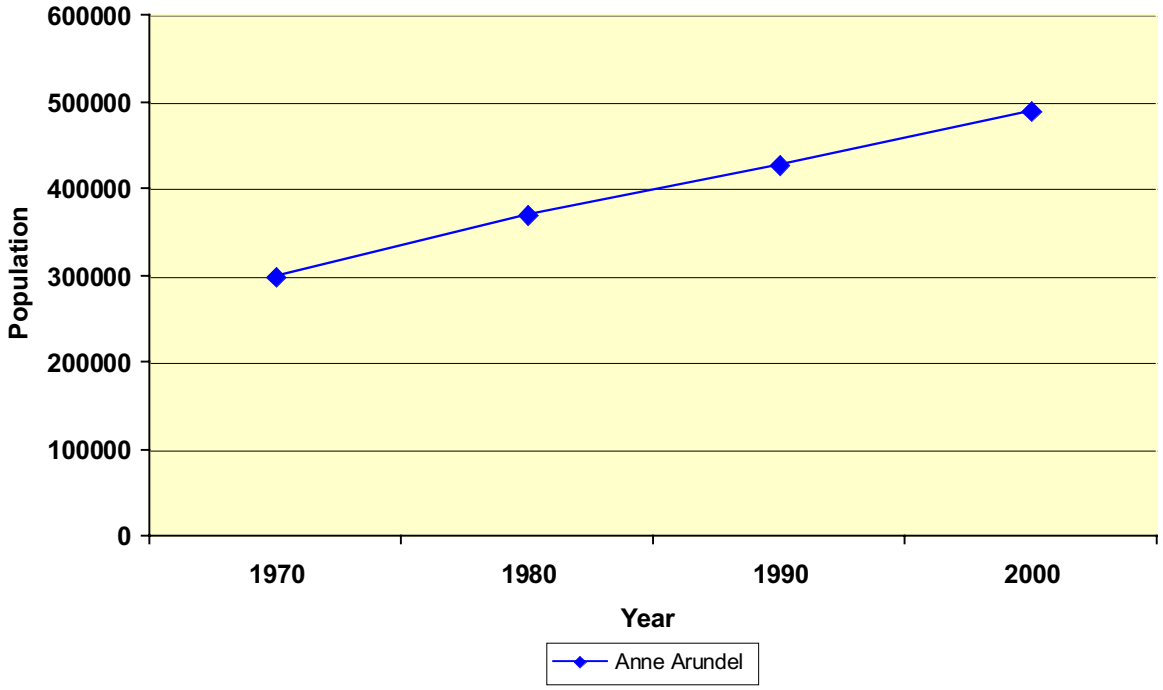


Table 5: Total State Employment 1984-1999

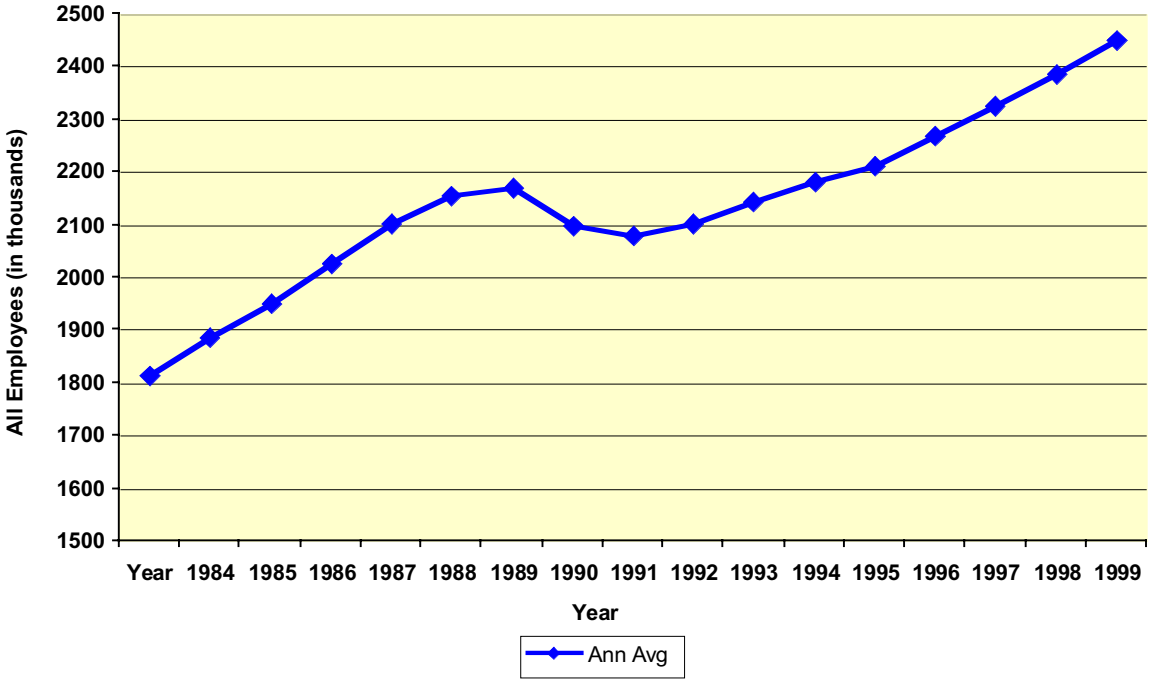
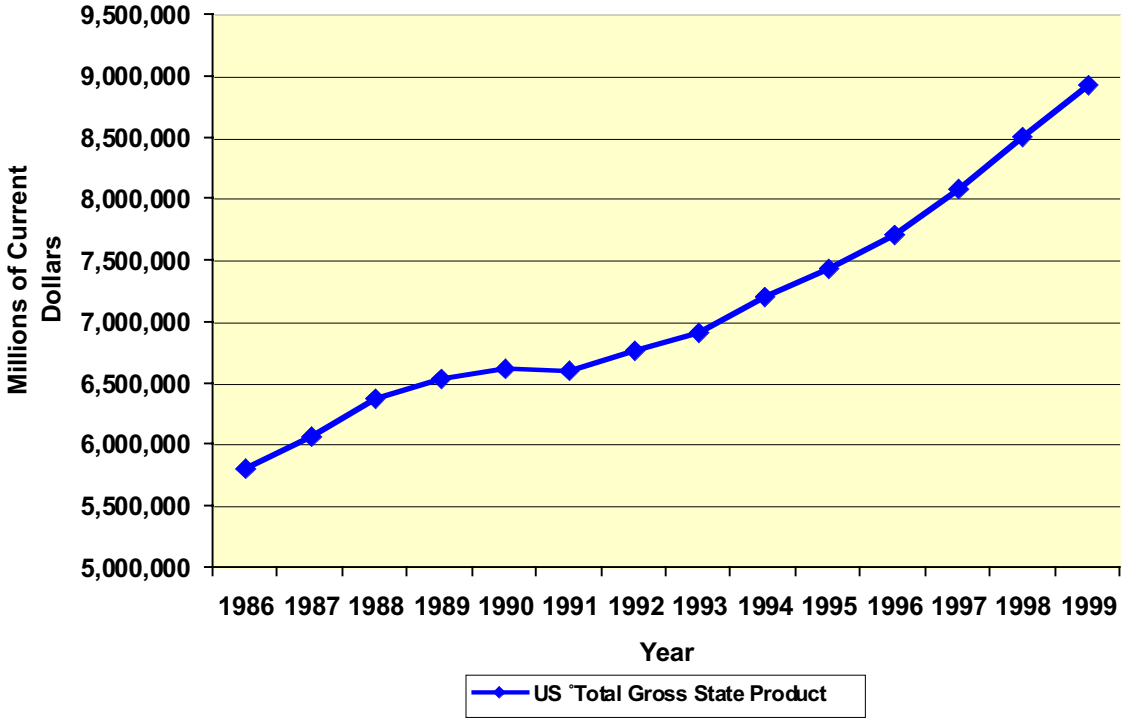


Table 6: Total Gross State Product, 1986 - 1999



RESIDENTIAL DEVELOPMENT OVER TIME, 1970-1999

This section presents several series of graphs each of which summarizes data related to residential development. Maps for each county showing development over time are attached in the appendices. These maps reflect residential development in three time periods – pre-1970, 1970-1990 and 1990-1999 – both inside and outside the Critical Area. Each set of graphs is discussed separately, below.

RESIDENTIAL DEVELOPMENT, 1970-1999, IN COUNTY AND CRITICAL AREA

This series of graphs depicts a divergence between the rate of residential development in the counties in their entirety and in their Critical Area. The rate of development in the counties has been volatile, manifesting steep climbs and falls from one five-year interval to the next. These swings tend to track, in an exaggerated form, the statewide economic trends from the mid-1980s to 1999 reported in Tables 4 and 5. The rate of development accelerated swiftly from 1985-1989, leveled off or declined from 1990 to 1994, and picked up again from 1995 to 1999.

Development in the Critical Area generally reflects a different pattern. In Calvert, Anne Arundel and Cecil counties development in the Critical Area peaked in 1989 and declined for the next 10 years, not only during the recession of the early 1990s but also during the economic boom that began in 1993 and continued for the remainder of the decade.

Queen Anne's County is an exception. Development activity in its Critical Area is highly volatile and mirrors the pattern of development in the county as a whole. The intensity of residential development in Queen Anne's County's Critical Area appears to reflect two factors. First is the extent to which the county's most active growth areas – Stevensville and Chester, both on Kent Island, and Graysonville, Centreville and Queenstown on the mainland – are located in the Critical Area. (Kent Island received 47 percent of the County's residential development in the 1990s.) The second factor that has contributed to residential development in Queen Anne's County's Critical Area is the extent of pre-existing lots of record on Kent Island. The right to build a residence on each of these parcels was grandfathered into Critical Area.

Development in Calvert County as a whole also presents a partial exception. Only in Calvert County did development in the county as a whole decline from 1995 to 1999. This may reflect implementation of county policies to conserve resource lands and to stem the tide of residential development. With respect to protection of resource lands it appears that Calvert County policy and state policy to protect resource lands in the Critical Area are compatible and mutually reinforcing. It should be noted that the rate of decline in development activity during this five-year period in the county as a whole -- eight percent (366 houses) -- is less than the rate of decline in the county's Critical Area – 14 percent (110 houses).

Evaluation of development trends in counties in their entirety and the Critical Area

The divergent development trends in the counties as a whole and in the Critical Area are significant. Since 1985 statewide economic trends and population growth in each case study county create expectations that development would increase over time throughout each county, with a possible lull during the mild recession from 1989 to 1992.

Development since 1985 in the counties in their entirety has met these expectations. But development in the Critical Area of three of the four counties departs from them, especially since certification of local Critical Area programs in the 1988 to 1990 time frame. Since 1990 the rate of development in the Critical Area of these three counties has actually declined. And the rate of development in the Critical Area of the fourth, Queen Anne's County, can be explained by the extraordinary level of development activity occurring in the county's designated growth areas,, substantial portions of which are located in the Critical Area, and the large number of pre-existing lots of record grandfathered into that county's Resource Conservation Area.

Thus, it is accurate to say that since the advent of the Critical Area criteria development trends in the Critical Area appear to have been partially decoupled from broadly prevailing economic trends and trends in land development. The modest reduction in development activity throughout the Critical Area during the boom years of the 1990s generally meets expectations for what the Critical Area Criteria would accomplish in this regard.

The following section addresses the distribution of development activity within the Critical Area, that is, among the three Critical Area districts, since the inception of the Critical Area program.

Table 7A: Calvert County, Residential Development, 1970-1999, in County and Critical Area

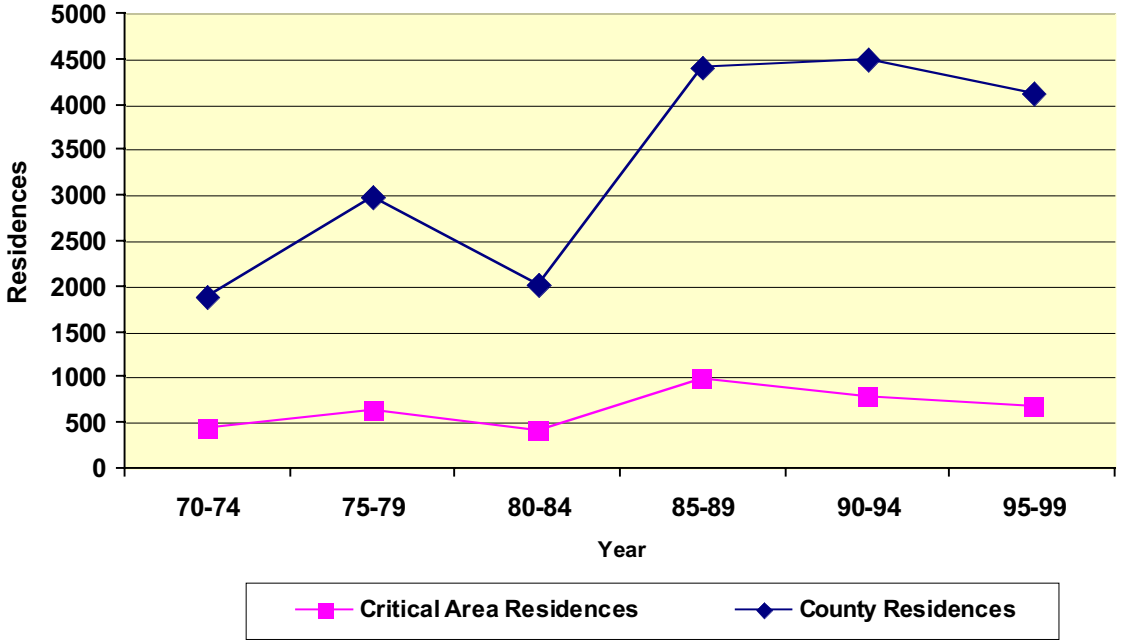


Table 7B: Anne Arundel County, Residential Development, 1970-1999, in County and Critical Area

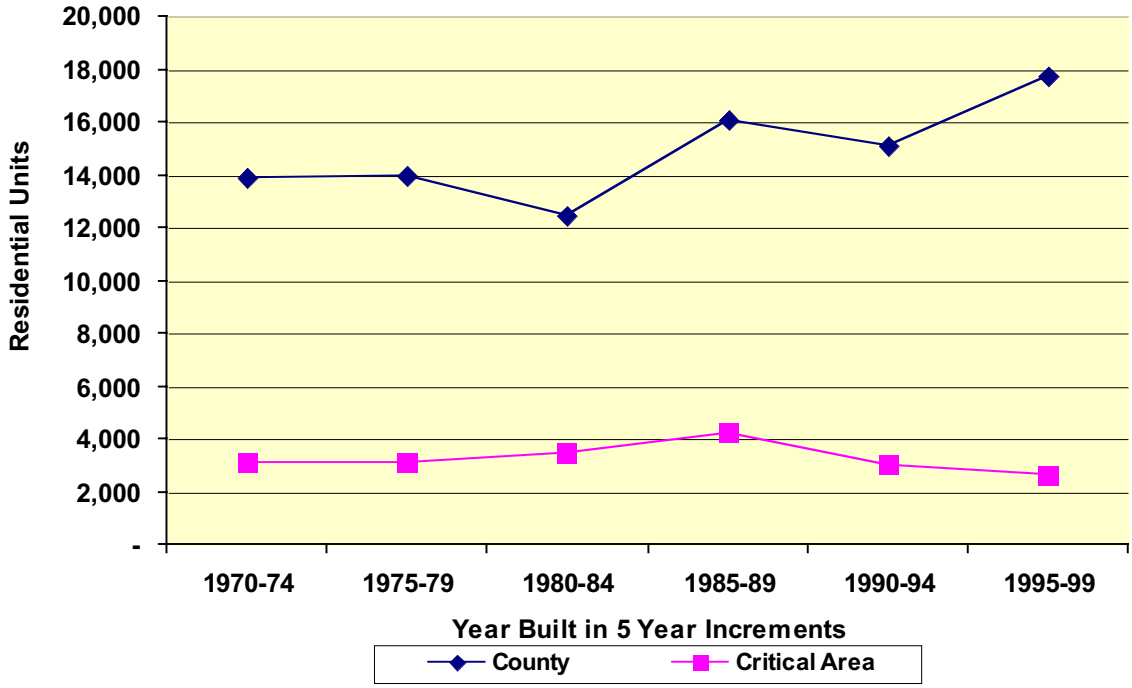


Table 7C: Queen Anne's County, Residential Development, 1970-1999, In County and Critical Area

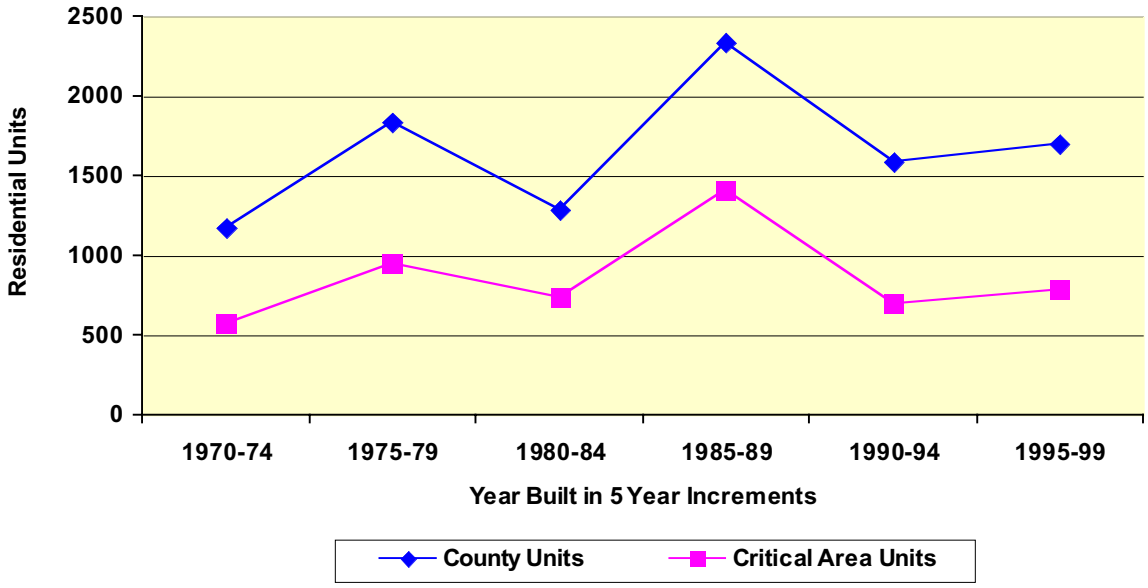
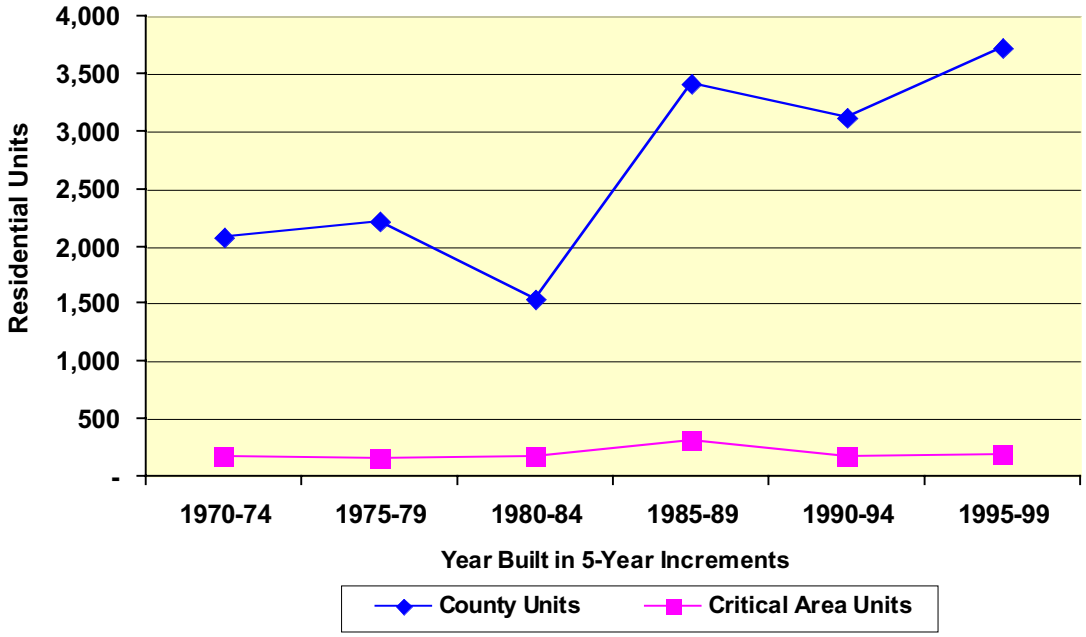


Table 7D: Cecil County, Residential Development, 1970-1999, in County and Critical Area



CRITICAL AREA RESIDENTIAL DEVELOPMENT 1970-1999 BY CRITICAL AREA DISTRICT

Residential development in each Critical Area district is approached from two perspectives. Tables 8, 9, 10 and 11, set out below, report the amount of development in each Critical Area district in five-year intervals both in absolute numbers and as a percentage of total development in the Critical Area. Table 12, which is reported in the following section, juxtaposes the amount of development in each Critical Area district over a 10-year period, 1990-1999, with the area of each district.

The rate of development in each Critical Area district in all four counties, with one exception, increased from 1985 to 1989, often dramatically. (The single exception is development in Anne Arundel County's Intensely Developed Area.) This explosion of development may be a reflection of the conjunction of a period of economic expansion with a rush to develop property before local Critical Area programs went into effect. Similarly, the decline in development activity that is apparent after 1990 may reflect the confluence of the economic downturn from 1989 to 1992 and the subsidence of activity by landowners trying to get in under the wire before the Critical Area program went into full effect.

In all four counties the Limited Development Area has captured over fifty percent of all development in the Critical Area since 1985. It has absorbed over two-thirds of residential development in Anne Arundel County and Cecil County. In Calvert County the LDA has claimed a steady 50 percent to 60 percent of Critical Area development, while in Queen Anne's County the percentage of Critical Area development in the LDA has been trending downward from 80 percent in 1989 to 54 percent in 1999.

The number of residences built in the Resource Conservation Area in Calvert and Anne Arundel counties has declined since the 1985 to 1989 interval. The rate of residential development has gradually increased in Cecil County since 1985, from 35 houses between 1985 and 1989 to 50 from 1995 to 1999. Only in Queen Anne's County has there been a significant increase in the rate of residential development in the RCA since 1989.[23]

It is a little more difficult to get clear picture of the rate of residential development in the Intensely Developed Area because of the inconsistent treatment of data for incorporated municipalities in the four case study counties. Since development is relatively concentrated in towns and villages, a greater percentage of the Critical Area in incorporated municipalities has been assigned to the Intensely Developed Area than it is in the rest of a county's Critical Area.[24]

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[23] The low rate of residential development in the RCA recorded by the graphs from 1970 to 1984 is misleading. Only land that had not been developed prior to 1985 was classified as RCA in 1985. Any land developed at a density higher than one residence per five acres between 1970 and 1984 became ineligible by virtue of that development for classification as RCA in 1985.
Due to declining rates of development throughout most of the Limited Development Area and Intensely Developed Area since 1985, development in the RCA gradually climbed as a percentage of all residential development in the Critical Area in all four counties. The percentage of Critical Area development in the RCA from 1995 to 1999 ranged from a high in Calvert County of 38% to 26% in Cecil County, 24% in Queen Anne's County and 17% in Anne Arundel County.

[24] The data for development in each county's IDA was inconsistent. The data for two counties, Anne Arundel and Calvert, excluded their incorporated municipalities (Annapolis in Anne Arundel County and Chesapeake Beach and North Beach in Calvert County). The data for Queen Anne's County included data for its incorporated municipalities but homogenized it with data for the rest of the county. It was therefore not possible to isolate the effect of development in incorporated areas on development trends throughout the county. The data for Cecil County also included data for its incorporated municipalities, but segregated

The data on residential development in Queen Anne's County reported in Tables 8C, 9C and 10C combines the residential incorporated and unincorporated areas of the county's Critical Area. It shows that residential development in the IDA has increased as a percentage of all development in the Critical Area since the inception of the Critical Area program. In addition to development in incorporated municipalities, this increase of development activity in Queen Anne's County's Critical Area also reflects the location in the Critical Area of substantial parts of the county's two most active growth areas on Kent Island.

The data reported in Tables 8 through 10 for Calvert County, Anne Arundel County and Cecil County does not include incorporated municipalities. It reflects that in each of three counties the percentage of development in the Intensely Developed Area has decreased since 1985. Development in Anne Arundel County's IDA declined most significantly, dropping from 35 percent of development in the Critical Area from 1980 to 1984 to 14 percent from 1995 to 1999.

In Cecil County very little development has taken place in the IDA. (See Tables 8D, 9D and 10D.) However, when development in its incorporated municipalities is factored in, as reported in Table 11, the rate of development in the IDA skyrockets.

In summary, with respect to the Intensely Developed Area the data suggests that residential development is declining throughout in the IDA in three, and possibly all four, of the case study counties when incorporated municipalities are excluded from the calculation. Further, in order to get an accurate picture of the capacity of the Critical Area to accommodate high-density residential development and commercial and industrial development, activity in incorporated municipalities with land in the Critical Area must be taken into account.

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it from data for the rest of Cecil County's Critical Area. Table 11 reports the increase in development activity in Cecil County's IDA when development in its incorporated municipalities is factored in.

Table 8A: Calvert County, Critical Area Residential Development 1970 - 1999 by Critical Area District

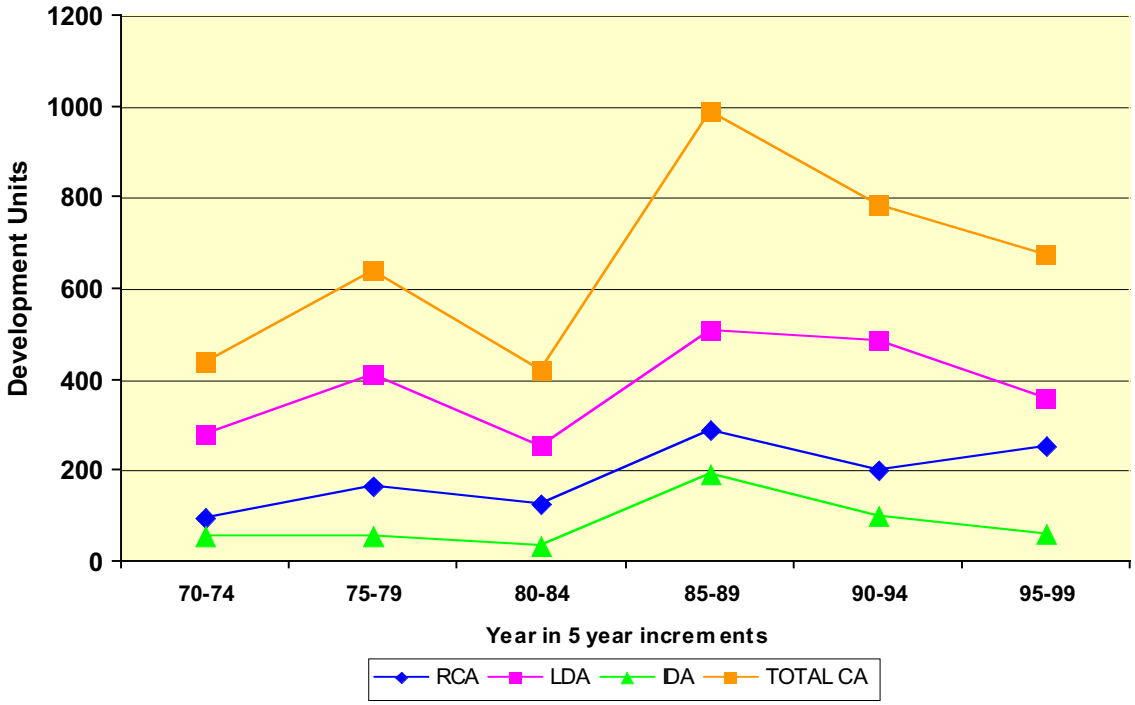


Table 9A: Calvert County, Units of Residential Development in 5-year Increments, 1970-1999, by Critical Area District

	70-74	75-79	80-84	85-89	90-94	95-99
RCA	97	168	129	287	201	255
LDA	281	412	256	509	484	359
IDA	58	58	34	193	101	62
TOTAL CA	436	638	419	989	786	676

Table 10A: Calvert County, Percentage Residential Development in 5-year Increments, 1970-1999, by Critical Area District

	70-74	75-79	80-84	85-89	90-94	95-99
RCA	22.25%	26.33%	30.79%	29.02%	25.57%	37.72%
LDA	64.45%	64.58%	61.10%	51.47%	61.58%	53.11%
IDA	13.30%	9.09%	8.11%	19.51%	12.85%	9.17%
TOTAL CA	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Table 8B: Anne Arundel County, Critical Area Residential Development, 1970-1999 by Critical Area District

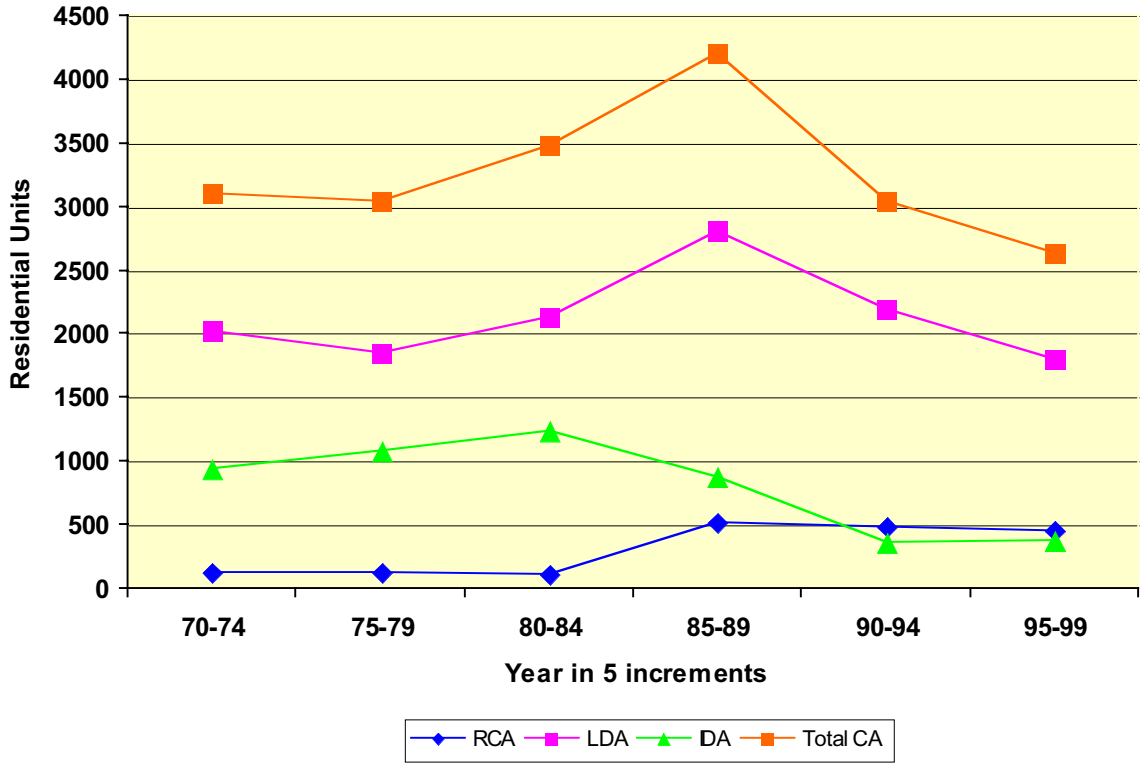


Table 9B: Anne Arundel County, Units of Residential Development in 5-year Increments, 1970-1999, by Critical Area District

	70-74	75-79	80-84	85-89	90-94	95-99
RCA	127	118	113	512	487	447
LDA	2025	1843	2131	2814	2200	1808
IDA	948	1077	1232	876	359	382
Total CA	3100	3038	3476	4202	3046	2637

Table 10B: Anne Arundel County, Percentage Residential Development in 5-year Increments,1970-1999, by Critical Area District

	70-74	75-79	80-84	85-89	90-94	95-99
RCA	4.10%	3.88%	3.25%	12.18%	15.99%	16.95%
LDA	65.32%	60.66%	61.31%	66.97%	72.23%	68.56%
IDA	30.58%	35.45%	35.44%	20.85%	11.79%	14.49%
Total CA	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Table 8C: Queen Anne's County, Critical Area Residential Development, 1970-1999, by Critical Area District

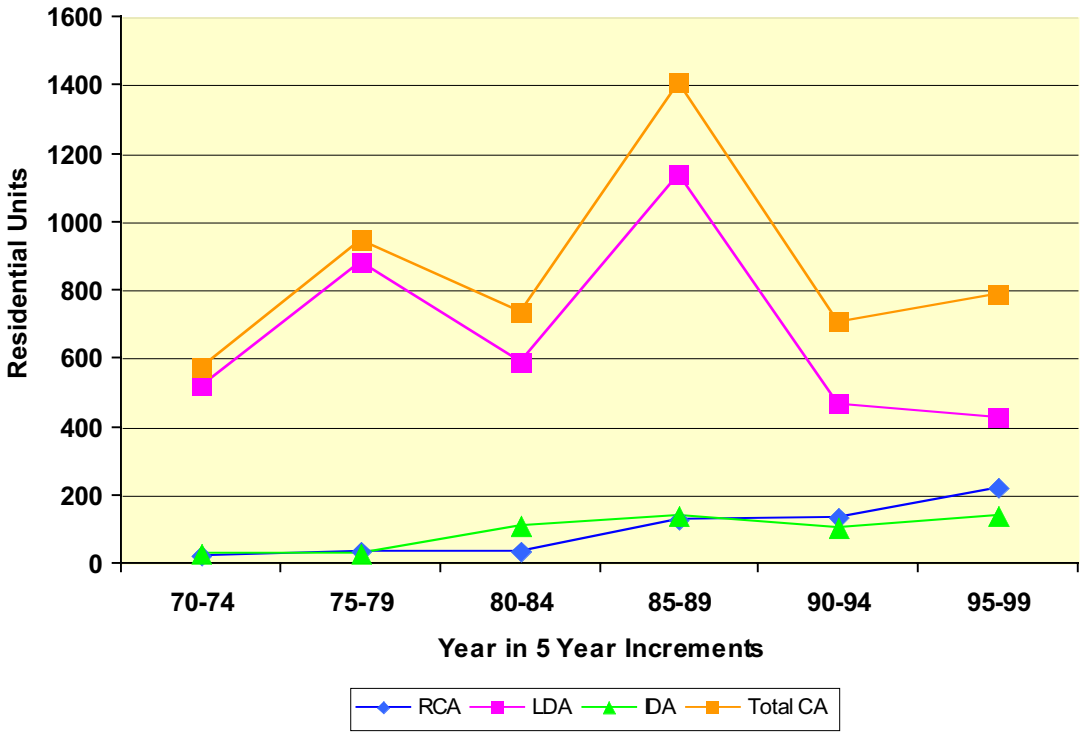


Table 9C: Queen Anne s County, Units of Residential Development in 5-year Increments, 1970-1999, by Critical Area District

	70-74	75-79	80-84	85-89	90-94	95-99
RCA	21	35	34	130	135	219
LDA	520	882	587	1140	468	424
IDA	29	30	112	139	103	143
Total CA	570	947	733	1409	706	786

Table 10: Queen Anne s County, Percentage Residential Development in 5-year Increments, 1970-1999, by Critical Area District

	70-74	75-79	80-84	85-89	90-94	95-99
RCA	3.68%	3.70%	4.64%	9.23%	19.12%	27.86%
LDA	91.23%	93.14%	80.08%	80.91%	66.29%	53.94%
IDA	5.09%	3.17%	15.28%	9.87%	14.59%	18.19%
Total CA	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Table 8D: Cecil County, Critical Area Resiential Devleopment, 1970-1999 by Critical Area District

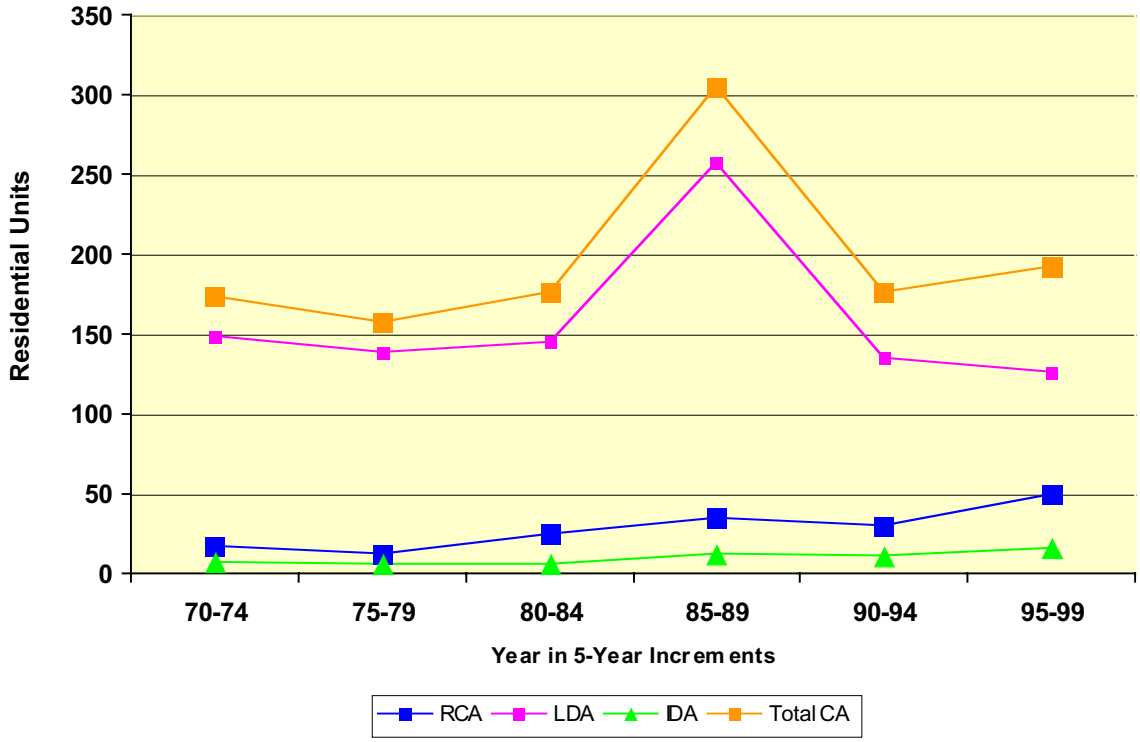


Table 9D: Cecil County, Units of Residential Development in 5-year Increments, 1970-1999, by Critical Area District

	70-74	75-79	80-84	85-89	90-94	95-99
RCA	17	13	25	35	30	50
LDA	149	139	145	257	135	126
IDA	8	6	6	13	11	16
Total CA	174	158	176	305	176	192

Table 10D: Cecil County, Percentage Residential Development in 5-year Increments, 1970-1999, by Critical Area District

	70-74	75-79	80-84	85-89	90-94	95-99
RCA	9.77%	8.23%	14.20%	11.48%	17.05%	26.04%
LDA	85.63%	87.97%	82.39%	84.26%	76.70%	65.63%
IDA	4.60%	3.80%	3.41%	4.26%	6.25%	8.33%
Total CA	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Table 11A: Cecil County with Incorporated Municipalities, Residential Development in 5-year Increments, 1970-1999, by Critical Area District

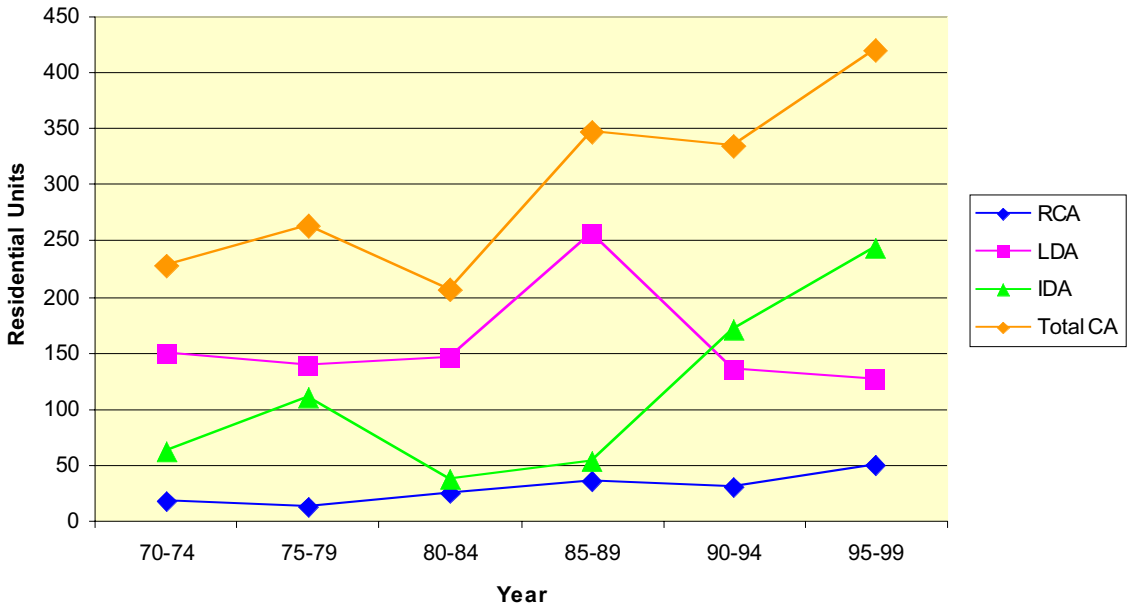


Table 11B-Cecil County with Incorporated Municipalities, Residential Development

	70-74	75-79	80-84	85-89	90-94	95-99
RCA	17	13	25	35	30	50
LDA	149	139	145	257	135	126
IDA	62	111	37	54	170	244
Total CA	228	263	207	346	335	420

Table 11C- Cecil County with Incorporated Municipalities, Percentage Residential Development

	70-74	75-79	80-84	85-89	90-94	95-99
RCA	7.46%	4.94%	12.08%	10.12%	8.96%	11.90%
LDA	65.35%	52.85%	70.05%	74.28%	40.30%	30.00%
IDA	27.19%	42.21%	17.87%	15.61%	50.75%	58.10%
Total CA	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

PERCENTAGE LAND AREA AND RESIDENTIAL DEVELOPMENT, 1990-1999, BY CRITICAL AREA DISTRICT

Table 12 reflects that the amount of residential development in each type of Critical Area district varies inversely with its size.

- The Resource Conservation Area occupies 45 percent to 77 percent of all land in the Critical Area of the four case-study counties, yet in the 10-year period 1990-1999 received only 16 percent to 31 percent of residential development.

- The Limited Development Area, by contrast, contains 18 percent to 43 percent of each county's Critical Area, but has absorbed between 58 percent and 71 percent of residential development in this time frame. The ratio of development to land area in the Limited Development Area varies widely among the four counties, from Cecil County – 71 percent of development and 18 percent of land in the Critical Area, a four-to-one ratio – to Anne Arundel County – 71 percent of development and 43 percent of land in the Critical Area, a 1.65-to-one ratio.

- The Intensely Developed Area occupies from two percent to 11 percent of the Critical Area in the four counties, while absorbing between seven percent and 16 percent of residential development from 1990 to 1999. The ratio in each county of the percentage of all development in the Critical Area that is located in the IDA to the percentage of the land area of that county's Critical Area assigned to the IDA varies widely -- eight-to-one in Queen Anne's County, four-to-one in Cecil County, nearly three-to-one in Calvert County and 1.2-to-one in Anne Arundel County.

Evaluation of residential development trends by Critical Area district

The overall record is consistent with the basic thrust of the Critical Area criteria to deflect development away from the Resource Conservation Area. It may also be consistent with the structure of the Critical Area Criteria that so much low-density development – ranging from 53 percent to over 70 percent of all development in the Critical Area -- is being channeled into the Limited Development Area. As previously noted, in 1986, when the Critical Area Criteria were adopted, low-density residential development appears to have been viewed as relatively benign and the criteria promote it in the LDA.

Some elements of the Critical Area Criteria also appear compatible with today's concept of smart growth. Others do not.

The commitment expressed by the criteria to "direct, manage and control development" in the Critical Area is an early acknowledgement that the state has a degree of responsibility for managing growth. This recognition is the essential starting point for building the state's role in fostering smart growth.

More specifically, the emphasis placed by the criteria on resource conservation in the Resource Conservation Area and the permission the criteria give to build mixed-use development at whatever densities allowed by local governments in the Intensely Developed Area are both compatible with the underlying principles of smart growth. Because of these major elements, the Critical Area Program can be viewed as a precursor of the smart growth value system introduced by Governor Parris N. Glendening in the mid-1990s.

However, the density and types of land uses promoted by the Critical Area Criteria in the LDA are not compatible with basic precepts of smart growth. The criteria's promotion in the LDA of low-density development and the impediments they impose to mixed-use development in the Limited Development Area clash with the policies central to smart growth to promote mixed-use communities, a variety of housing types, walkable communities, close knit neighborhoods, and transportation choices.[25]

The ratios of residential development to land area for each Critical Area district in each county are broken down in Tables 12A through 12D.

[25] The criteria's growth allocation provisions, discussed below, pages 61 to 68, provide a mechanism for re-assigning land from the Limited Development Area to the Intensely Developed Area. This provides a safety-valve that allows land initially restricted to low-density residential use to be developed for other types of development.

Table 12A: Calvert County, Percentage Land Area and Residential Development, 1990-1999, by Critical Area District

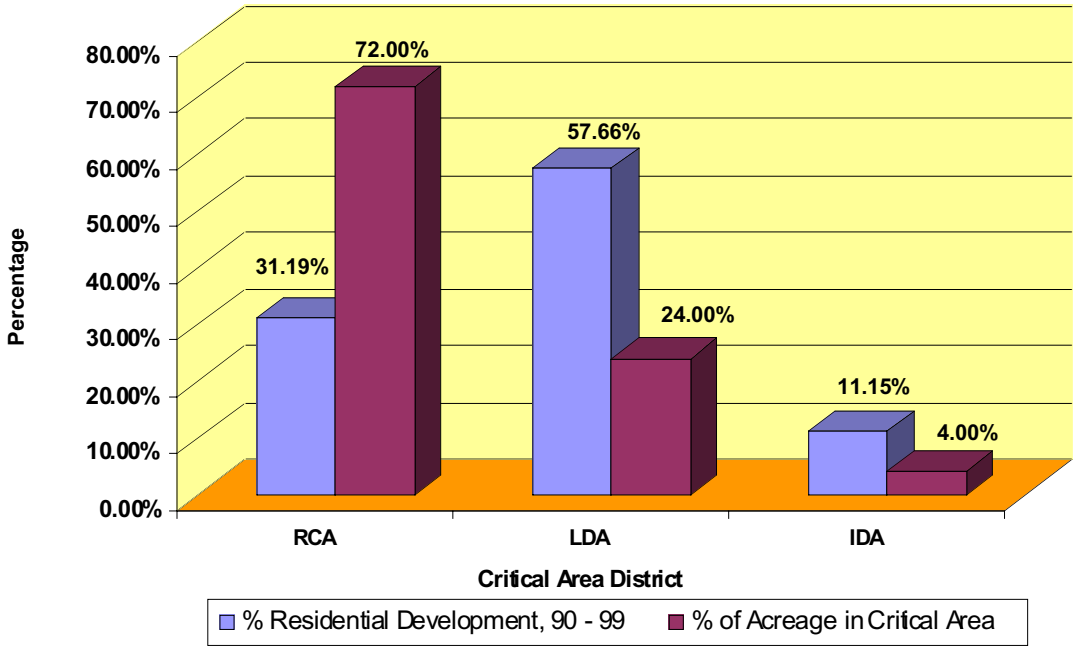


Table 12B: Anne Arundel County, Percentage Land Area and Residential Development, 1990-1999 by Critical Area District

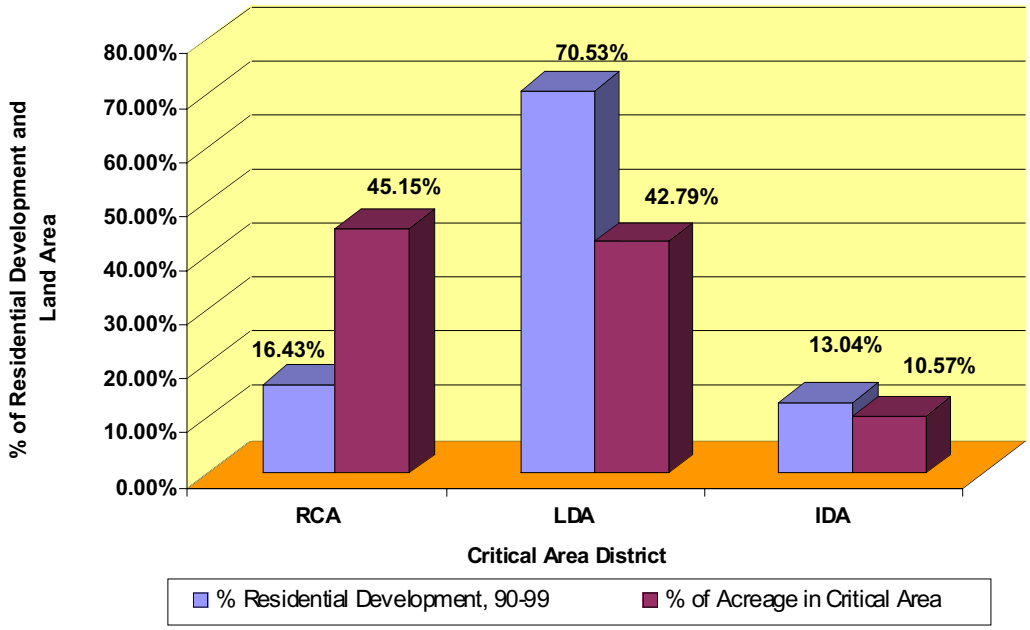


Table 12C: Queen Anne's County, Percentage Land Area and Residential Development, 1990-1999, by Critical Area Districts

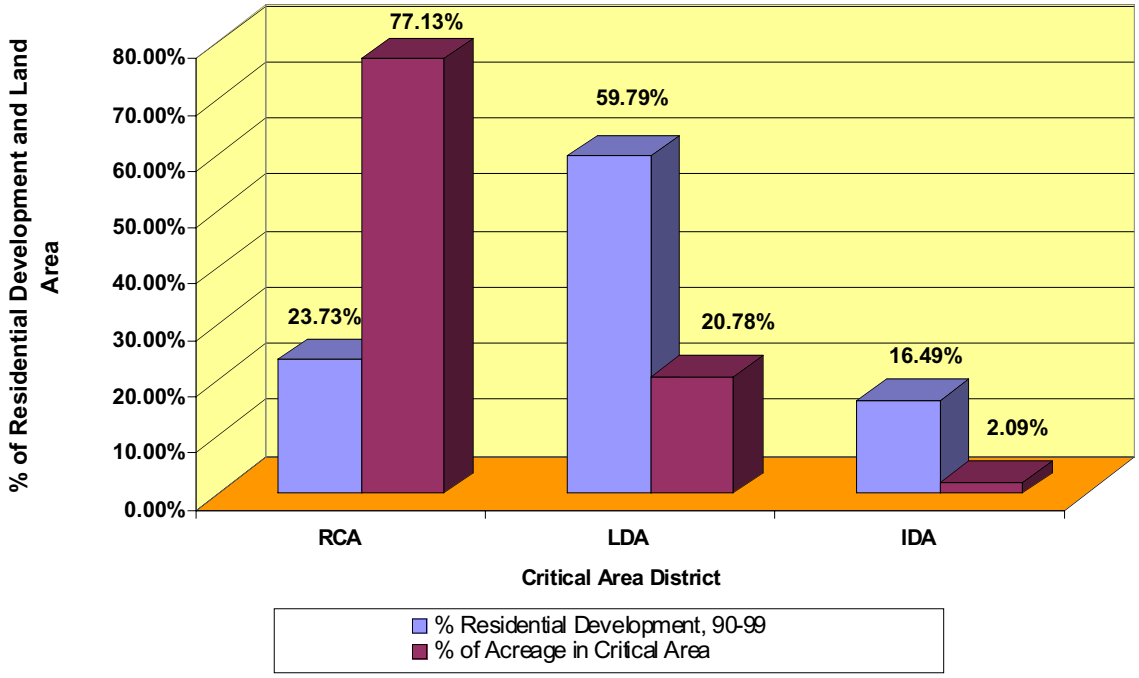
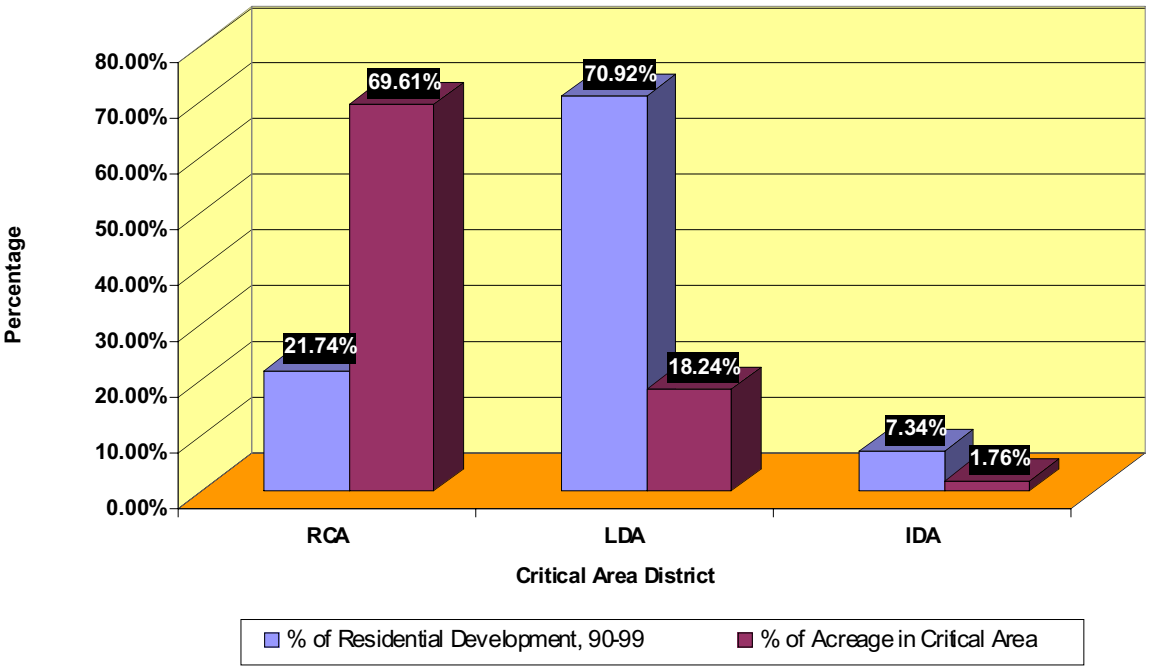


Table 12D: Cecil County, Percentage Land Area and Residential Development, 1990-1999, by Critical Area District



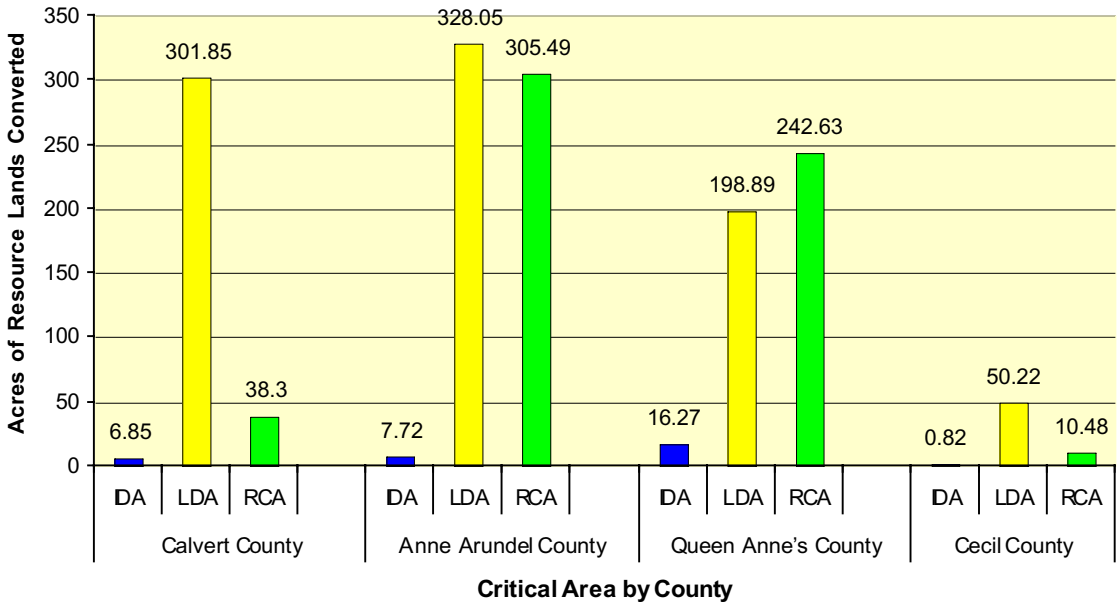
LOSS OF RESOURCE LANDS IN THE CRITICAL AREA, 1990-1997

This report tracks loss of forestland and farmland in the Critical Area separately. The data related to each case study county are included in a summary tables set out in Appendix A. However, for the purposes of the immediate analysis forests and farmland are aggregated and the aggregate is referred to as "resource lands."[26]

In both Calvert County and Cecil County many more acres of forests and farmland were converted to development in the Limited Development Area than in the Resource Conservation Area from 1990 to 1997. (Table 13) This is consistent with the high percentage of residential development in the Critical Area that was absorbed by the LDA. (Tables 10A and 10D)

The lion's share of residential development in Anne Arundel County and Queen Anne's County also occurred in the Limited Development Area during this eight-year period. (Table 10B and 10C) However, in Anne Arundel County almost as many acres of forests and farmland were converted in the RCA as in the LDA. In Queen Anne's County a few more acres of resource land were lost in the RCA than in the LDA. (Table 13)

Table 13: Acres of Resource Lands Converted in Critical Area by Critical Area District, 1990-1997



Although the data do not make clear why more resource lands were lost in the RCA of Anne Arundel and Queen Anne's counties than in the RCA of Calvert and Cecil counties, the

[26] Although the Critical Area Criteria accord significantly higher priority to protecting forested vegetation than they do to protecting farmland (see discussion of the criteria's goals pages 11-14, above), the limitations they impose on density and types of land use protect all resource lands, including wildlife habitat and farmland, from conversion and fragmentation. Farmland can be regarded as the collateral beneficiary of policies intended primarily to protected forests and wildlife habitat.

explanation may lie in the failure of the data to assign loss of resource lands to super low-density development.

The land use change data assigns loss of resource lands to one of three density ranges – low medium and high. The low-density category includes development between two residences per acre and one residence per five acres. Although the Critical Area Criteria leave the door open for counties to allow development on parcels ranging in size from six to 20 acres, the land use change data does not correlate loss of resource lands with development in this super low density range.

It is hypothesized that the surprisingly high number of acres of forest and farmland lost in the RCA in Anne Arundel and Queen Anne's County may be the result of extremely low density residential development -- one residence per parcel on parcels between six and 20 acres -- that is not recognized as a category of development in the land use change data.[27]

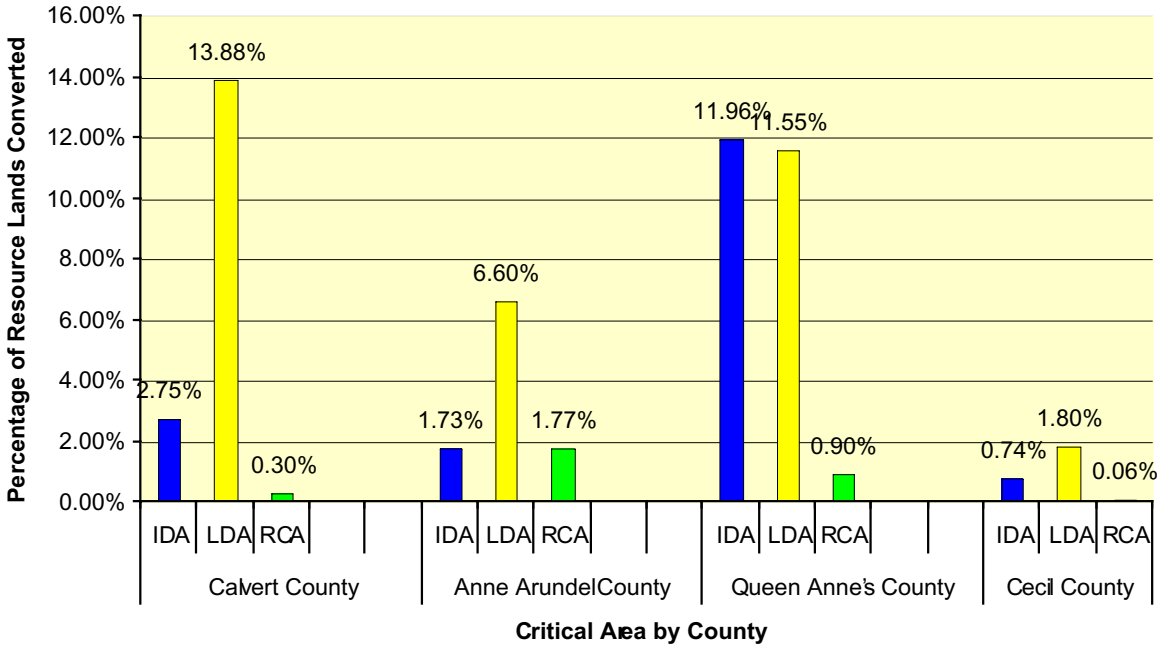
This gap would not exist in the Limited Development Area because counties have tended to interpret the Critical Area Criteria as bounding the range of allowable densities in the LDA between a high of four dwelling units per acre and a low of one per five acres.

This hypothesis begs the question of why super large lot development may be manifest in Anne Arundel County and Queen Anne's County but not in Calvert County or Cecil County. At the risk of further speculation, the absence of such development in Calvert and Cecil counties could be the effect of local zoning restrictions or a lack of demand or a mixture of the two.

Table 14 addresses the percentage of forest and farmland converted in each Critical Area district in each of the four counties. Two findings stand out. The first is that conversion of resource lands in the RCA was held to a very small percentage of all resource lands in the RCA. The second is the high percentage of resource lands lost in the Limited Development Area of Calvert, Anne Arundel and Queen Anne's counties. In this eight-year span they lost, respectively, 13.88 percent, 6.6 percent and 11.55 percent of their resource lands.

[27] The land use change data also covers a broad range of non-residential development. However, the acreage of forest and farmland converted to non-residential uses in the Critical Area of the case study counties is far too low to account for the reported loss of resource lands in either the LDA or RCA. See the Summary Table for each county, Appendix A.

Table 14: Percentage of Resource Lands Converted in Critical Area by Critical Area District, 1990-1997



Evaluation of resource conservation and loss by Critical Area district

The loss of forests in the Resource Conservation Area and the especially heavy loss of forest in the Limited Development Area are not consistent with the criteria's mandate to maintain or increase the total acreage of forested vegetation in the Critical Area.[28]

In other respects the results reported above for the Limited Development Area do not run counter to the scheme established by the Critical Area Criteria.

The Critical Area Criteria allowed local governments to designate expansive Limited Development Areas based on very low-density, pre-existing development and they encourage them to accept future development at those same low densities. Other than by promoting clustering, the criteria do little to foster compact settlement patterns in the LDA and much to discourage them. [29]

The criteria encourage clustering in order to reduce the disruption and extent of impervious surfaces associated with a given density of development. But they do not

[28] The criteria mandate that all forests that are cleared must be replaced through aforestation or reforestation. COMAR Section 27.01.02.04 C (3). Regardless of how much or low little effort has been put into such programs, the data derived in 1997 from aerial photography reflect a net loss of forested vegetation in both the LDA and RCA.

[29] See the discussion of cluster development and commercial and industrial development, pp. 14and 15.

promote higher density development – i.e., more people per acre of development -- in order to reduce its per capita impact on resources. At densities as low as one residence per five acres, clustering cannot be said to promote compact settlement patterns.

With respect to development in the Limited Development Area the criteria appear to be based on the false premise that it is possible to prevent loss of resource lands while allowing low-density development. The relatively heavy loss of resource lands reported in the Limited Development Area tends to confirm the basic tenet of smart growth that low density, single use residential development is highly destructive of resource lands.

With the advantage of hindsight, it appears that the most effective way to reduce the impact on resource lands of the LDA would be to reduce its size, thereby allowing more land to be assigned to either the Resource Conservation Area, where serious protection is afforded to resource lands, or to the Intensely Developed Area, where compact-mixed use communities could reduce the per capita impact on resource lands and water quality.

COMPARISON OF CRITICAL AREA RESOURCE CONSERVATION AREA TO LAND SUBJECT TO CONSERVATION ZONING OUTSIDE THE CRITICAL AREA

A comparison is made between the rate of residential development and conversion of resource lands in the Critical Area Resource Conservation Area and on land subject to conservation zoning outside each county's Critical Area. The purpose of this comparison is to shed light on whether implementation of the Critical Area Criteria is affording resource lands in the RCA with a different level of protection from conversion than the four case study counties are extending to resource lands subject to conservation zoning outside the Critical Area boundary. Lands subject to conservation zoning outside the Critical Area in each county are referred to as the county's "agricultural zone."

The data support two conclusions. First, in three out of the four counties development is accelerating at a faster pace in their agricultural zone than in the Critical Area Resource Conservation Area. Second, fewer acres of resource lands in the RCA were converted in relation to the size of the RCA than were converted in the agricultural zone in relation to its size.

RESIDENTIAL DEVELOPMENT

As detailed below, the data presented in Table 15 demonstrate that residential development is accelerating at a faster pace in the agricultural zone than it is in the RCA in Calvert, Anne Arundel and Cecil counties, especially in the five-year period 1995 to 1999:

- Calvert County. Residential development decreased in both the RCA and agricultural zone between 1990 and 1994. But it decreased at a faster rate in the RCA. From 1995 to 1999 development increased in both areas, but it increased at a faster rate in the agricultural zone than it did in the RCA.

- Anne Arundel County. From 1995-1999 residential development in the Resource Conservation Area declined by 40 houses, or nine percent, from the previous five-year period, while development in the agricultural zone increased by 388 houses, or 47 percent.

- ¤ Cecil County. Very little development took place in the RCA in the 1990s, increasing from 30 residences between 1990 and 1994 to 50 residences between 1995 and 1999. Development in the agricultural zone increased from 1995 to 1999 by 303 residences – 88 percent –over the previous five years.

Queen Anne's County is the exception to this pattern: from 1995 to 1999 development decreased on land zoned for conservation outside the Critical Area while increasing in the Critical Area RCA. The following factors are thought to account for the anomalous results reported in Queen Anne's County:

- The county adopted land use plans in the 1990s that locate most new growth areas around existing waterfront communities, substantial portions of which fall into the Critical Area and were classified as RCA. The downward trend noted in Table 15C for residential development in Queen Anne's County's agricultural zone from 1995 to 1999 may reflect the success with which the county has channeled new development away from its agricultural zone into its designated growth areas. The Catch-22 is that its designated growth areas tend to be coastal communities in the Critical Area, much of which were classified as RCA.

- Queen Anne's County's shoreline is host to an exceptional quantity of pre-existing undeveloped lots of record, created in the 1950s around the time of the Bay bridge opening, that have been grandfathered into the RCA. Two-thirds of new development in Queen Anne's RCA took place on grandfathered parcels. This distinguishes Queen Anne's County from the other three case-study counties, which are not thought to have such an inventory of pre-existing undeveloped lots of record in their Critical Area RCA.

The Director of Queen Anne's County's Department of Planning and Zoning concluded that implementation of the Critical Area program has substantially reduced or slowed subdivision activity in the RCA.

> "…it is apparent that approximately 354 new homes were constructed within the RCA from 1990 to 1999. Assuming this data is accurate, at least 237 or 67% of the new homes constructed in the RCA from 1990-99 occurred on lots of record that predated Critical Areas. The comparison between the number of new homes constructed and new lots created is interesting in that the data clearly shows that the existence of the RCA designation has significantly reduced or slowed down subdivisions activity in the RCA." [30]

[30] Letter dated April 26, 2002 from Steven Kaii-Zeigler, AICP, Director, Department Planning and Zoning, Queen Anne's County to Sandy Hillyer. See Appendix C.

Table 15A: Calvert County, Residential Development, 1970 - 1999: Conservation Zoning and Critical Area RCA

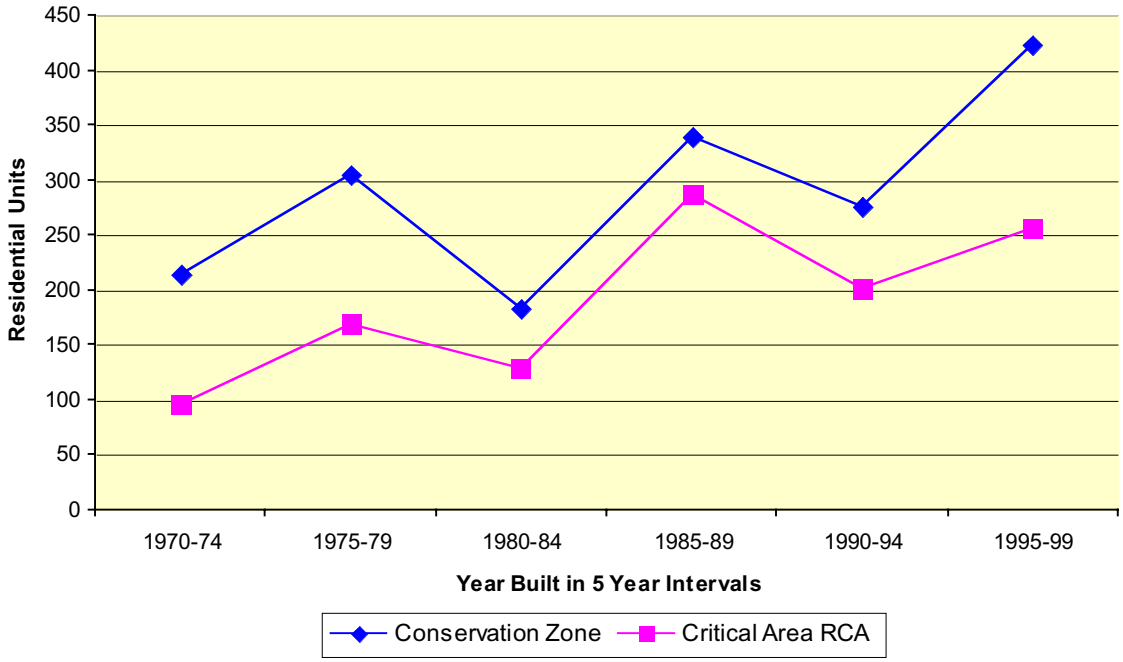


Table 15B: Anne Arundel County, Residential Development, 1970-1999, Conservation Zone and Critical Area RCA

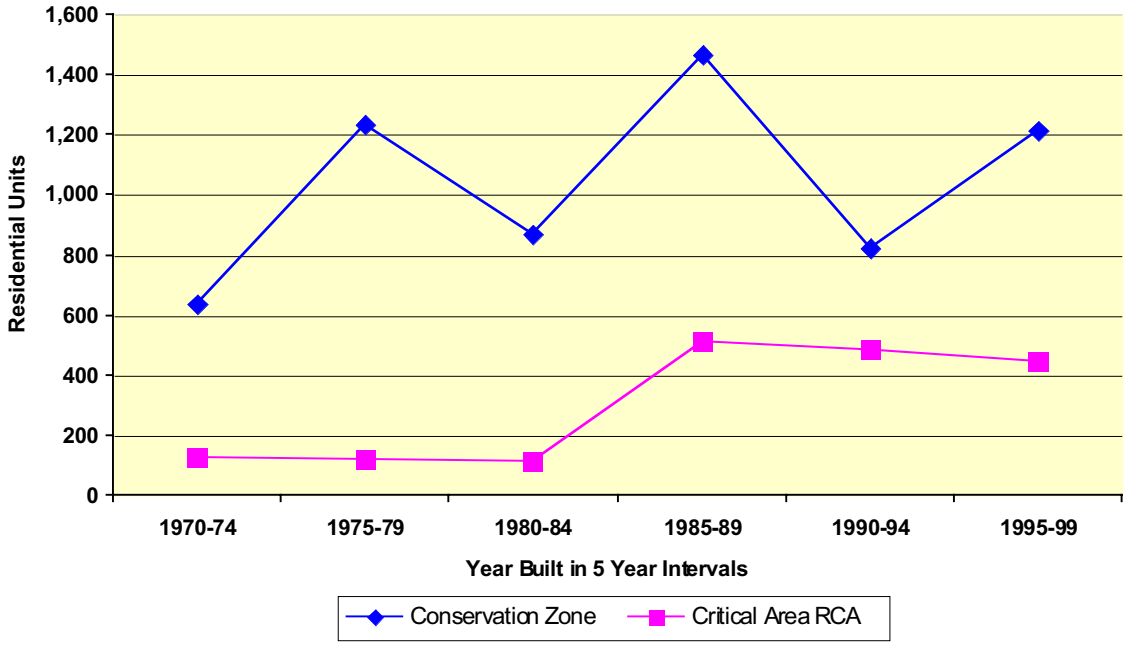


Table 15C: Queen Anne's County, Residential Development, 1970-1999, Conservation Zone and Critical Area RCA

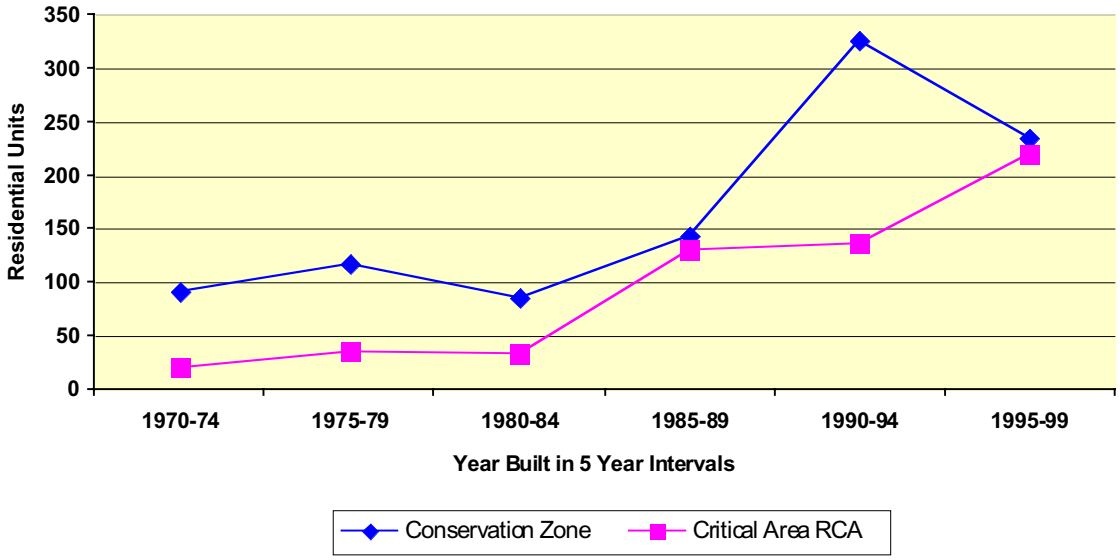
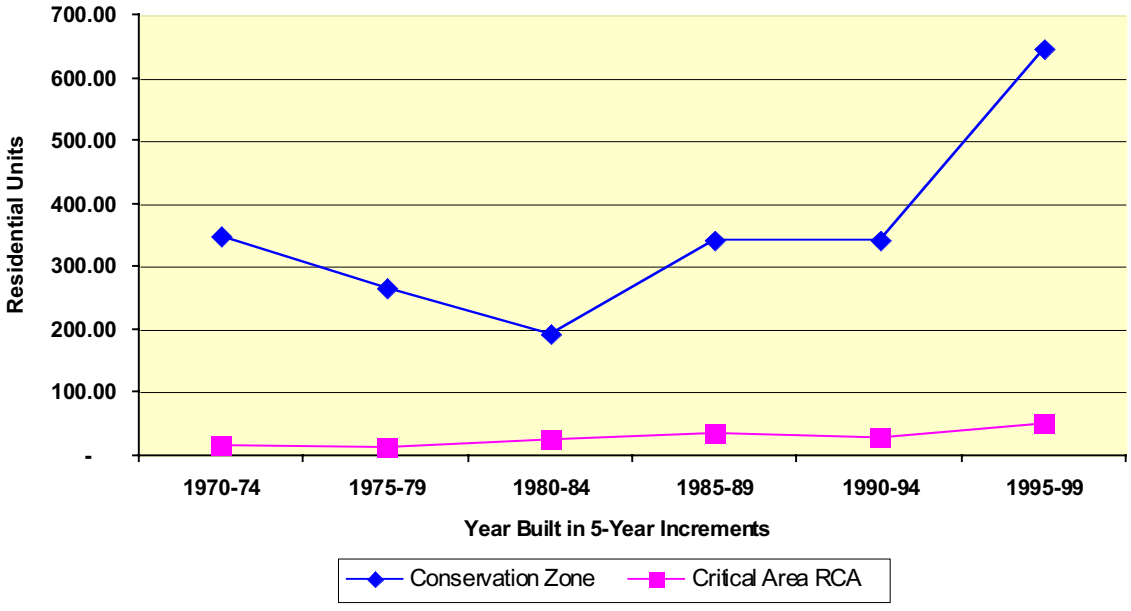


Table 15D: Cecil County, Residential Development, 1970-1999, Conservation Zone and Critical Area RCA



LOSS OF RESOURCE LANDS

Tables 16 and 17 show the rate of conversion of resource lands in relation to the area of each county's Resource Conservation Area and agricultural zone.

Many times more acres of resource land were lost in each county's agricultural zone than in the Critical Area RCA, which is what one would expect in light of the wide disparity in the size of these two areas in each county. The agricultural zones are far larger than the Critical Area RCA.

However, a comparison of Table 16 and Table 17 for each county also demonstrates that in three of them – Calvert, Anne Arundel and Cecil counties – fewer acres of resource lands were lost in the RCA in relation to its size than in the agricultural zones in relation to their size.

These findings take into account the use of the criteria's growth allocation provisions to reclassify 63 acres in Queen Anne's County and 31 acres in Calvert County from the Resource Conservation Area to the Limited Development Area. For purposes of this analysis all 63 acres in Queen Anne's County and 31 in Calvert County are counted as resource lands converted to development.[31]

Table 16 reflects the ratio between the number of acres of resource lands – the aggregate of agricultural lands and forestlands -- in the RCA and the agricultural zones of each county. Table 17 reports the relationship between the number of acres of resource lands lost between 1990 and 1997 in the RCA and agricultural zone of each county.

Evaluation of loss of resource lands

The relatively low rate of loss of resource lands in the RCA of Calvert County, Anne Arundel County and Cecil County in comparison to the rate of loss of resource lands in the agricultural zones of these counties suggests that the Critical Area Criteria are making a difference. But for enforcement of the criteria, one would expect a common rate of loss of resource lands inside and outside the Critical Area in a given county. If anything, development pressure would be more intense close to the shoreline, resulting in more development and greater loss of resource lands inside the Critical Area than outside it.

The low rate of both residential development and loss of resource lands in Cecil County's Resource Conservation Area may have special significance. The Atlas of Agricultural Land Preservation in Maryland assigns Cecil County to the "least protective" category of counties in the state. Yet, in its Critical Area RCA only 10 and a half acres of resource lands were lost during the eight years analyzed for this study. It seems reasonable to assign responsibility for this achievement to joint implementation of the Critical Area Criteria by Cecil County and the state Critical Area Commission.

[31] This treatment is very conservative and most likely overstates the amount of resource lands that have been lost in the RCA. Aside from reassignment of these acres from one Critical Area district to another, the data available for this report do not reveal how much of the reclassified land was in fact comprised of resource lands (farm and forest lands), whether the land has been developed since reclassification and, if it has been, how much of the resource lands were converted by that development.

Table 16A: Calvert County, Ratio Area
Resouce Lands in Conservation Zone to Area Resource Lands in the RCA

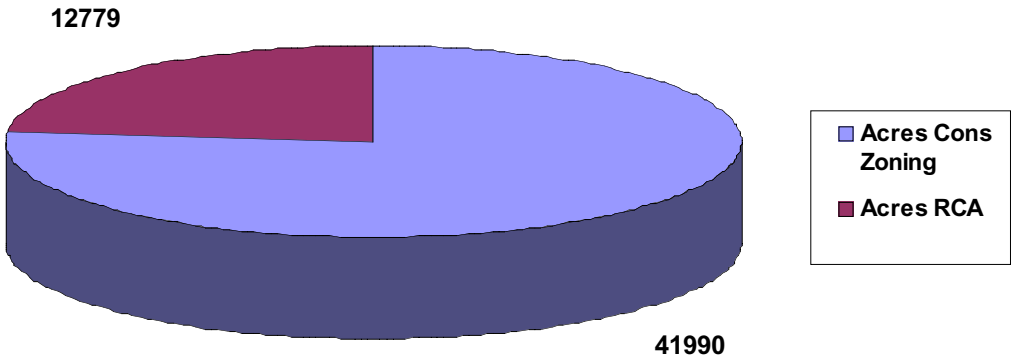


Table 17A: Calvert County, Ratio Resource Land Converted, 1990-1997, Conservation Zoning and RCA

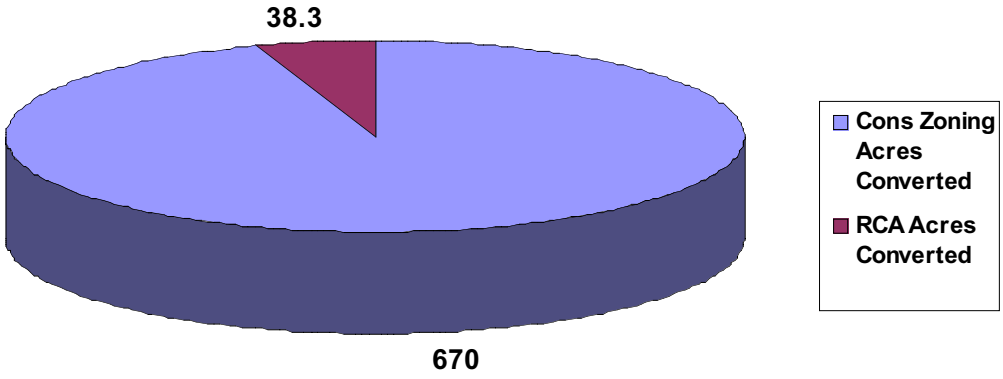


Table 16B: Anne Arundel County, Ratio Area
Resouce Lands in Conservation Zone to Area Resource Lands in the RCA

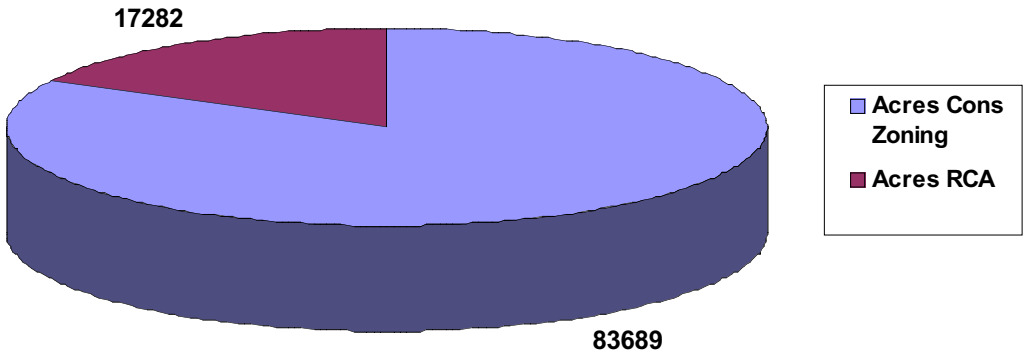


Table 17B: Anne Arundel County, Ratio Resource Lands Converted, 1990-1997, Conservation Zone and RCA

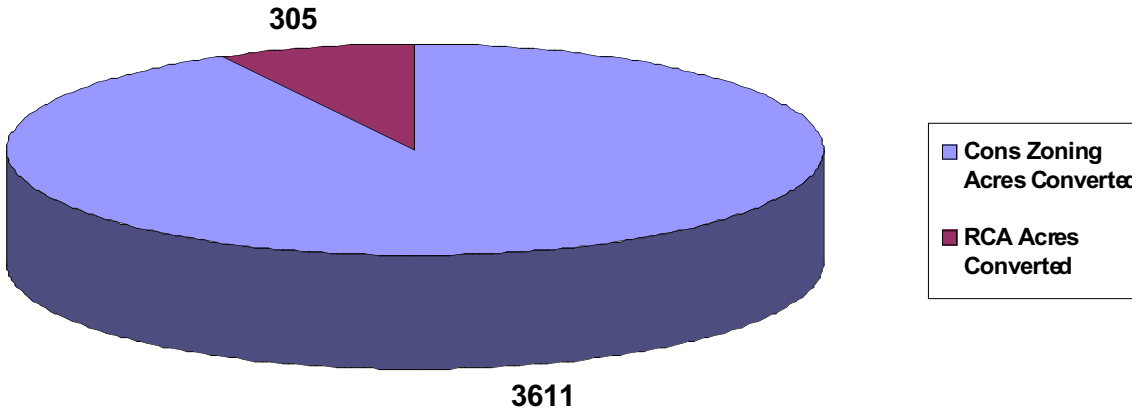


Table 16C: Queen Anne's County, Ratio Area Resource Lands in Conservation Zone to Area Resource Lands in the RCA

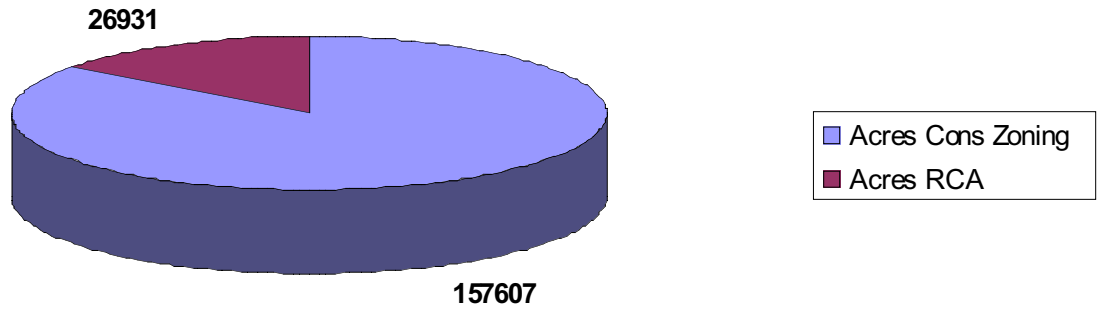


Table 17C: Queen Anne's County, Ratio Resource Lands Converted, 1990-1997, Conservation Zone and RCA

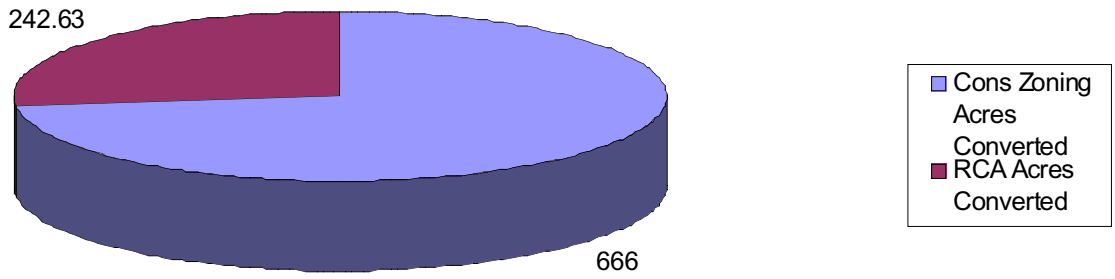


Table 16D: Cecil County, Ratio Area Resource Lands in Conservation Zone to Area Resouce Lands in the RCA

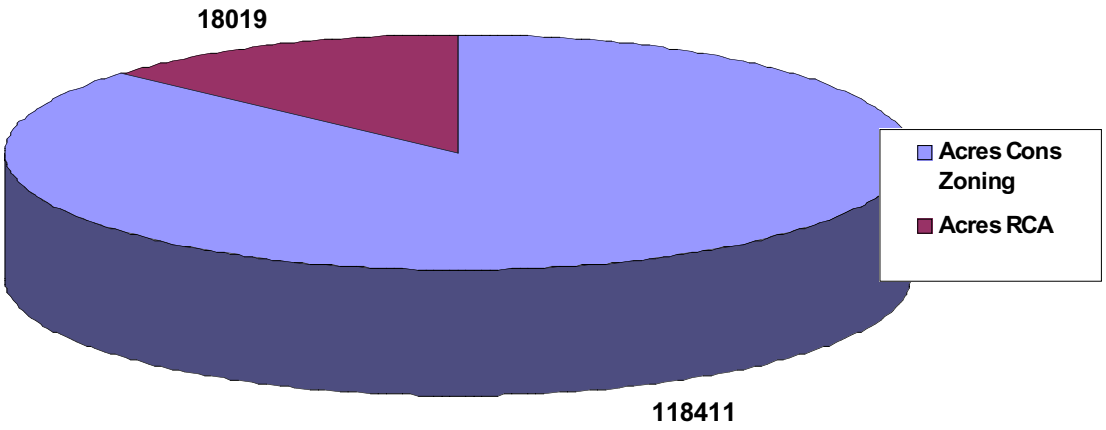
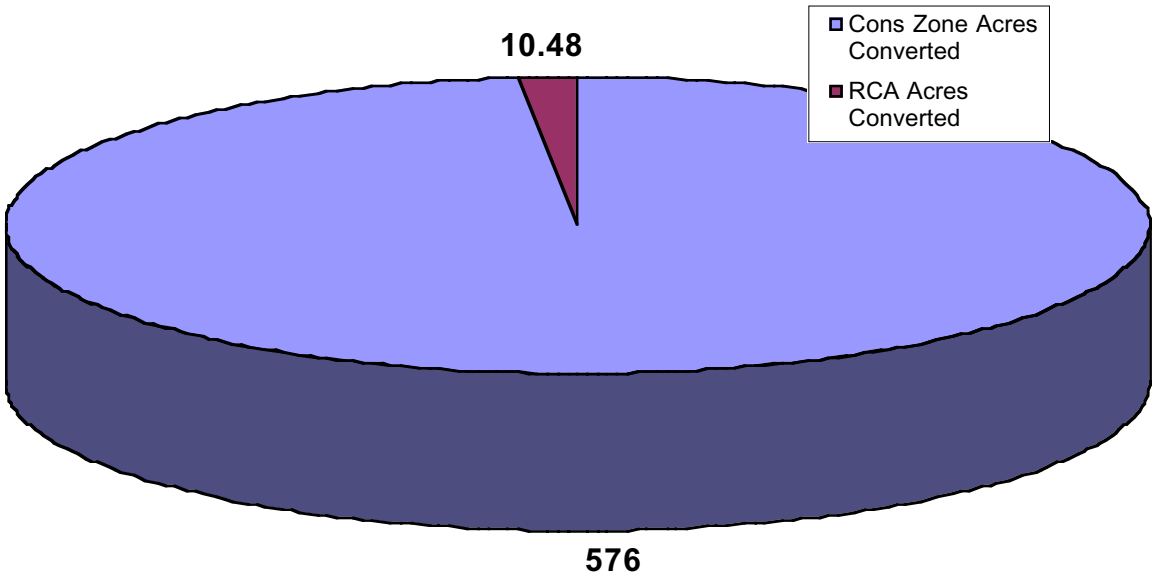


Table 17D: Cecil County, Ratio Resource Lands Converted, 1990-1997, Conservation Zone and RCA



PROTECTED LANDS

The term "protected lands" refers to parcels on which all, or a substantial portion of, the development rights have been extinguished, most commonly through acquisition of fee title or a conservation easement. Public agencies and non-governmental organizations acquire these interests in land in order to protect specific parcels from being developed in a manner that would compromise their resource values.

Invariably these acquisition tools provide compensation to landowners. Compensation is direct when a government agency or non-governmental organization purchases the interest in land. It is indirect when the landowner makes a donation that the Internal Revenue Service recognizes as a charitable donation that qualifies the donor for a tax write-off. In the vast bulk of protected lands transactions in the State of Maryland, the state, itself, provides direct compensation to the landowners through one of several state acquisition programs.

The primary purpose of this analysis is to explore the extent to which conservation of resource lands in the Critical Area and agricultural zones of the four case study counties may be the result of protected lands activity rather than implementation of either the Critical Area Criteria or local zoning.

Data for this analysis were compiled from a variety of local sources in each county by the Maryland Department of Planning working in conjunction with the Maryland Department of Natural Resources. They report the total amount of protected lands that have accumulated through the year 2000.

This report attempts to analyze the extent to which interests in resource lands have been acquired for the purpose of protecting them from development activity that would compromise their resource value. Inclusion of state and county parks that have been created primarily to provide for public recreation would distort this analysis. Accordingly, this report attempts to isolate land that is either subject to a conservation easement or, if it has been acquired in fee title by a government agency, land that was acquired primarily to protect its resource values, whether forest, farmland or habitat values.[32]

The extent and location of protected lands in each of the four case study counties is reflected on the Protected Lands Maps attached as an appendix to this report.

[32] In most instances it has been easy to draw the line between lands that were acquired to protect their resource values from destructive development and those that have been acquired for recreational purposes. Agricultural easements purchased with state funds, easements created through transfer of development rights and purchase of development rights programs and interests in land held by the Maryland Environmental Trust or by non-governmental organizations fall in the resource protection category that is the focus of this analysis. State and county parks are excluded. Federal lands were excluded regardless of the purpose for which they are being held since they are not subject to the jurisdiction of the state or its subdivisions. However, there is a gray area comprised of some of the lands held by the Maryland Department of Natural Resources. In several instances the purpose for which the Department of Natural Resources is holding land is not clear from the data used in this report. In these instances judgment has been used to assign such land to one category or the other. If it was assigned to the resource protection category, it was counted as protected lands for the purpose of this study. If it was assigned to the recreational category (state parks), it was excluded. (Note: the protected lands data included in the summary tables in Appendix A breaks the aggregate of all protected lands in each case study county into several constituent parts – resource lands, recreation lands and federal lands.)

Table 18 A and 18 B, below, report, respectively, the acreage of protected lands that have accumulated in the Resource Conservation Areas and agricultural zones in the four case study counties and the percent of each area that is comprised of protected lands.

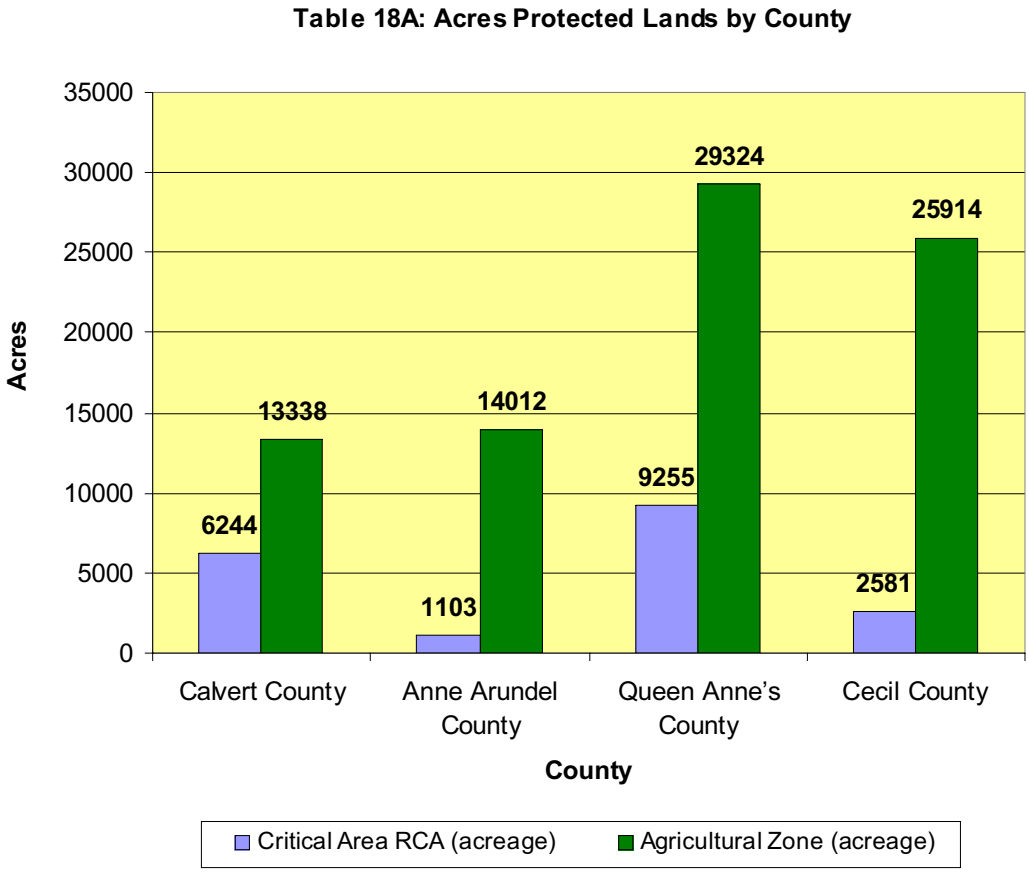
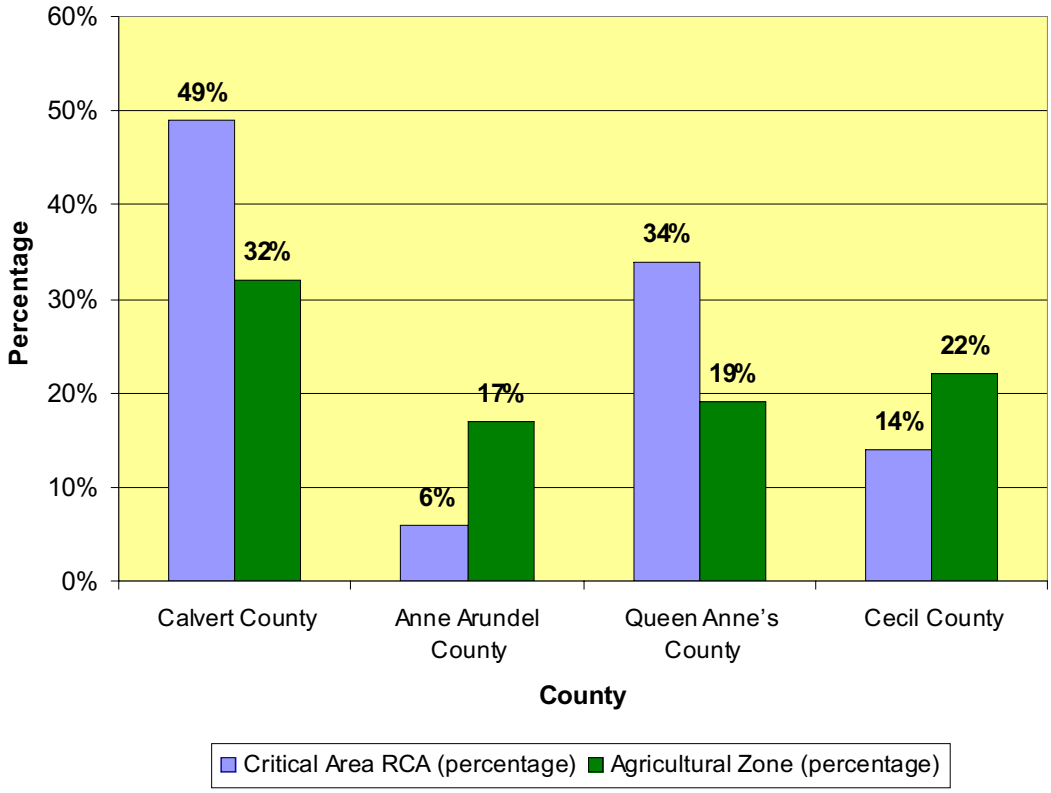


Table 18B: Percentage Protected Lands by County



In terms of absolute numbers many more acres of resource lands have been protected through acquisition in the agricultural zones than in the Critical Area Resource Conservation Area. This is to be expected since the agricultural zones are several times larger than the Critical Area Resource Conservation Area in each of the four counties. (See Table 1, Land Area Parameters.)

In terms of percentages the extent of protected lands in the agricultural zones and the Critical Area RCA is inconsistent. In Calvert County and Queen Anne's County a higher percentage of the RCA is comprised of protected lands than of the agricultural zones. In Anne Arundel County and Cecil County the opposite is true

In light of this lack of consistency there is no evidence that the extent of protected lands has influenced the findings reported above related to the rate of residential development or the loss of resource lands in the RCA and agricultural zones of the four case study counties.

If anything, a relatively high incidence of protected lands is correlated with high rates of loss of resource lands. In Queen Anne's County, for instance, a perceptively greater percentage of resource lands have been protected in the RCA than in the agricultural zone, yet the rate of loss of resource lands between 1990 and 1997 is also higher in the RCA than in the agricultural zone. (See Table 17 C.) Conversely, a higher percentage of lands in the agricultural zones of Anne Arundel County and Cecil County fall into the protected category than in the RCA of these counties, yet the rate of loss of resource lands is also higher in their

agricultural zones. Only in Calvert County does a higher percentage of protected lands in the RCA correlate with a lower loss of resource lands there than in the county's agricultural zone.[33] (See Tables 17A, B and D.)

Commentary on the role played by protected lands and the relation between acquisition program and policy-based regulatory programs

Significant funds have been spent to acquire interests in land in order to protect their resource values in each of the four case study counties in both their Critical Area and agricultural zones. However, this activity does not appear to have influenced the rate of loss of resource lands from 1990 to 1997 in either the RCA or the agricultural zones of any of the counties. Regardless of the percentage of protected lands in either the RCA or in agricultural zones outside the critical Area, except for Queen Anne's County less resource lands were lost to development in the RCA than in the agricultural zones in relation to their size.

Thus, it appears that the Critical Area Criteria are the pivotal variable in reducing the rate of loss of resource lands, not the number of acres that have been protected through acquisition. Lands subject to the Critical Area Criteria for the RCA show a lower rate of resource loss than lands in agricultural zones that are not subject to the criteria, regardless of the extent of protected land acquisitions.

The relation between regulatory programs and acquisition programs may have significant implications for conservation of resource lands in the State of Maryland in the future. Maryland's acquisition programs are among the most robust in the United States. Nevertheless, practical obstacles frustrate the use of acquisition techniques for protecting large land areas comprised of tens, if not hundreds, of parcels, such as the resource conservation areas that are the focus of this study. Acquisition requires both money and willing sellers. In reality, neither the public sector nor non-governmental organizations can generate funds to protect more than a fraction of the state's dwindling supply of resource lands. Further, many owners are unwilling to sell either an easement or title to their land.

Current state policy calls for extending "protected lands" status to 20 percent to 25 percent of the state's resource lands. Even if funds become available to achieve this goal, the fate of the vast bulk of the state's remaining resource lands will be determined by the success of state and local land use regulation. The data analyzed in this report suggest that state oversight of land use in the Critical Area Resource Conservation Area provides a successful model that can be drawn on to strengthen protection of resource lands throughout the state.

The practical limitations on acquisition programs suggest that careful attention should be given to nourishing and strengthening use of policy-based regulations to protect resource lands from conversion and fragmentation. The findings of this report suggest that the type of approach reflected in Maryland's Critical Area program provides valuable lessons

[33] It has not been possible in this study to compare the rate at which resource lands are being "protected" with the rate at which they are being lost in a given time period, such as the 1990s, because the date of acquisition of each protected parcel is not readily available. The protected lands data used in this report reflect the total acreage of protected lands that have accumulated over time. If the year that each parcel achieved protected status were available, it would be possible to monitor the rate at which resource lands are being "protected" and to compare that with the rate at which they are being lost in a given jurisdiction or discreet area within a jurisdiction.

and a point of departure for extending the state's role in assuring a degree of uniform protection to resource lands throughout its twenty-three counties.

In this regard it is worth noting that the Critical Area Program is only a beginning, an early attempt to define a useful and a politically acceptable state role in protecting Maryland's resource lands. In fact, the Critical Area Criteria are not as protective as standards adopted in recent years by several counties. Baltimore County, for instance, has imposed a maximum density of one residence per 50 acres in its agricultural zone, which is considerably more restrictive than the Critical Area Criteria's limit of one residence per 20 acres in the Resource Conservation Area.

GROWTH ALLOCATION

THE CRITERIA

The criteria's growth allocation provisions allow jurisdictions with land in the Critical Area to expand the amount of their Critical Area assigned to the Limited Development Area or Intensely Developed Area. These provisions were intended to provide counties and municipalities with flexibility to accommodate new development on land that had not been developed by 1985 when the boundaries of the Critical Area districts were initially drawn.

The formula for calculating the amount of growth allocation available to a specific county – five percent of the area of its RCA – was specifically intended to allow rural counties opportunities to significantly expand their LDA and IDA.

As initially drawn the criteria limited to 50 percent the amount of growth allocation that a county could use to reassign land from the RCA to one of the other two districts. However, the Critical Area Commission subsequently amended this provision to exempt the 12 most rural counties, making it possible for them to use all of their growth allocation in the RCA.

The result is that in four counties and Baltimore City 50 percent of growth allocation can be used to convert land in the RCA, where resource conservation is the dominant value, to either LDA or IDA, which are both pro-development districts. While in the other 12 counties no limit is set on the percentage of growth allocation that can be used to develop resource lands that were initially assigned to the RCA.

The criteria also allow Growth allocation to be used to convert land from LDA to IDA. This provides a safety valve that can be used to accommodate commercial and industrial development and residential development at densities greater than four residences per acre on land that had initially been assigned to the LDA.

USE OF GROWTH ALLOCATION, 1986 TO 1999

When the boundaries of the Critical Area districts were initially drawn, 18,187 acres – five percent of the RCA in the state's Critical Area -- became available to the counties for use as growth allocation. By September 1999 the counties had used 4,188 of this allotment, leaving 13,999 acres, or 77 percent, available for later use.

Between adoption of the Critical Area Criteria in 1986 and certification of local programs any land developed in the RCA at densities greater than one residence per 20 acres was deducted from a county's growth allocation. During this interim period, which lasted from three to five years depending on the date of certification of a particular local program, the counties cumulatively consumed 2,237 acres of growth allocation. This is more than half of all the growth allocation that had been used by 1999.

The rapid rate of consumption of growth allocation during the interim period reflects the convergence of the rush to develop before certification of local programs, including

development projects that were already in the approval pipeline before 1986, an expanding economy and an initial permissiveness on the part of several counties. Since certification these counties appear to have tightened-up their administration of growth allocation. Anne Arundel County reflects the extreme in this regard. During the interim period it allowed 776 acres of its growth allocation to be used, while from 1990 to 1999 none was used. As of September 1999 Anne Arundel County had 142 acres of growth allocation available for future use, the same amount as 10 years earlier.

The amount of growth allocation available to each county covers a wide range, from a low of 278 acres in Harford County to 2900 acres in Dorchester County. Even more striking are the disparities in the rate at which the several counties are using their growth allocation. On one end of the spectrum, Anne Arundel County has used 85 percent. At the other, Caroline County has used only four percent and Charles County one percent. The acreage of growth allocation allotted to each county and the amount each had used by September 1999 are set out in Appendix B.

What follows is an analysis of the 1,951 acres of growth allocation that the Critical Area Commission has approved for use by counties and municipalities since it certified local programs for compliance with the criteria between 1988 and 1990. Post-adoption of local Critical Area programs the state commission reviewed 106 requests to use growth allocation, approving 99 and denying approval to seven. All seven denials were in response to requests from counties -- two by Dorchester County, four by St. Mary's County and one by Somerset County. The Critical Area Commission has not denied approval to any requests to use growth allocation from municipalities.

USE OF GROWTH ALLOCATION BY CRITICAL AREA DISTRICT, SUMMARY OF DATA

Resource Conservation Area to Limited Development Area

- More than two-thirds of all growth allocation has been used to convert land in the RCA to LDA. That includes 74 transactions out of a total of 106 and 1,394 acres, or 71 percent, of all acres that had been used for growth allocation.

- Of these 74 transactions, 71 were in counties, three in municipalities.

- The size of individual transactions covers a broad range.

    - Nine were less than two acres.
    - Seven were between two and five acres.
    - Nine between five and 10 acres.

- Twenty-one between 10 and 20 acres.
- Twenty-two between 20 and 40 acres. And,
- Six over 40 acres.

- 40 were in, or adjacent to, established growth areas, 34 were not. Nine out of the 16 transactions involving less than two acres were not adjacent to established growth areas.[34]

- Out of these 74 transactions, 100 percent of the parcel was counted against growth allocation in 18. Thirty-two transactions left a remainder greater than 20 acres in the RCA. 22 transactions left a remainder less than 20 acres in the RCA. No data related to remainders was available for three transactions.

Resource Conservation Area to Intensely Developed Area

- Twelve transactions, totaling 341 acres, reassigned land from the RCA to the IDA.

- Eight of these were in the counties, four in municipalities.

- With respect to size,

  - None was less than five acres.
  - Five were between five and 10 acres.
  - One between 10 and 20 acres.
  - Three between 20 and 40 acres. And,
  - Three over 40 acres.

- Ten out of the twelve were located in, or adjacent to, growth areas.

- One hundred percent of the parcel was deducted from growth allocation in five of these 12 transactions. A remainder of 20 acres or more was left in two. A remainder of less than 20 acres was left in two. Data was not available for three transactions.

Limited Development Area to Intensely Developed Area

- Twenty transactions, totaling 216 acres, shifted land from the LDA to IDA.

- Of these, 14 were in counties, six in municipalities.

[34] This is based on a rough, informal evaluation made by Critical Area Commission staff.

- With respect to size:
    - Three were less than two acres
    - Seven were between two and five acres.
    - Seven between five and 10 acres.
    - One between 10 and 20 acres.
    - One between 20 and 40 acres. And,
    - One over 80 acres.

- Nineteen out of the 20 were in or adjacent to established growth areas.

- One hundred percent of the parcel was deducted from growth allocation in eight of these transactions. Two left remainders in the LDA greater than 20 acres. Eight left remainders less than 20 acres. Data was not available for two transactions.

PROCESS: USE OF GROWTH ALLOCATION HAS BEEN PROJECT-DRIVEN.

The criteria are silent about the process counties should deploy to determine when and where to use their growth allocation. It would be consistent with the rational thrust of these policies for the counties to take the initiative in planning areas where it would be appropriate for them to use growth allocation and to submit their plans for review by the Critical Area Commission as proposed amendments to their Local Critical Area programs.

However, the vast majority of counties, with the Critical Area Commission's acquiescence, have eschewed this approach in favor of a developer-initiated, project-driven process. Typically, a developer proposes a project that would require use of growth allocation. If the county determines that the proposal complies with its land use plans and implementing ordinances, it may request the Critical Area Commission to approve use of growth allocation to reassign the parcel proposed for development from one Critical Area district to another.

Calvert County and Queen Anne's County are exceptions. Since adoption of its Critical Area program, Calvert County has contributed 120 acres of growth allocation to the municipalities of North Beach (20) and Chesapeake Beach (100), both of which are growth areas, and has designated Solomons Town Center (also a growth area) as a priority area for receiving growth allocation. Since adoption of its program Calvert County has used an additional 15 acres of growth allocation, all in the Solomons Town Center. No growth allocation has been used in RCA areas or other non-growth areas other than those projects that were underway when the county program was adopted. Since Calvert County has determined that growth allocation can only be used for commercial and industrial development and since neither is allowed in the RCA, all future use of growth allocation should occur in the Limited Development Area.

In the late 1990s Queen Anne's County identified areas for future growth and pre-mapped RCA within them for use of growth allocation. This pre-mapping preceded public announcement by developers of their intentions to develop parcels the county had proposed for reclassification to IDA or LDA.

THE CRITICAL AREA COMMISSION'S STANDARD OF REVIEW DOES NOT ADDRESS A PROJECT'S LOCATION.

The Critical Area Commission review of requests to use growth allocation focuses on the number of acres that will be counted against the county's share of growth allocation and compliance with the criteria's discretionary buffer policies. The state commission does not review the suitability of an area for reclassification as LDA or IDA based on its proximity to existing LDA or IDA. And it has never denied approval to a request to use growth allocation on grounds that the parcel at issue was not close enough to existing LDA or IDA.

It follows that the distribution of land on which growth allocation has been used does not reflect an attempt by the Critical Area Commission to implement the criteria's policies regarding location of new LDA and IDA. Instead, use of growth allocation reflects local land use planning and decisions that each jurisdiction could have made with or without enactment of the Critical Area program.

METHOD FOR CALCULATING THE AMOUNT OF LAND DEDUCTED FROM A COUNTY'S GROWTH ALLOCATION.

At the time the criteria were adopted few had thought through the complexities of determining how much of a parcel proposed for reclassification from the RCA to LDA or IDA would be deducted from a county's growth allocation. Many observers assumed that if a portion of a parcel were reassigned from RCA to LDA 100 percent of it would be counted against that county's growth allocation. It has not worked out that way.

This assumption was quickly challenged by counties that sought to deduct from growth allocation only the portion of a parcel that would actually be developed in ways that were inconsistent with the parcel's initial classification as RCA or LDA. The objective of these attempts to reduce the area counted against growth allocation has been to stretch the initial allotment of growth allocation to each county as far as possible.

The Critical Area Commission has adopted policies to clarify how much land is counted against a county's growth allocation. If a development envelope is proposed in the RCA and less than 20 acres remain outside the envelope, the entire parcel must be deducted. If more than 20 acres remains outside the development envelope, only the development envelope is deducted.[35] According to the state commission, this policy promotes the criteria's objective to reduce the impact of human activity on plant and wildlife habitat

by encouraging counties to protect the integrity of 20-acre, or larger, blocks of resource lands.

As noted above, 32 of the 74 projects that converted land in the RCA to LDA left remainders greater than 20 acres in the RCA. In several of these, small parcels, less than five acres in size, were chipped off larger parcels to create new spots of LDA. In several instances this accomplished the Critical Area Commission's objective to protect the

[35] Policy adopted by the Critical Area Commission, February 3, 1993 (Amended October 4, 1995)

integrity of remainder parcels at least 20 acres in size. It also allowed the local jurisdiction to shrink the number of acres that were counted against their growth allocation and to approve development on small islands of land surrounded by resource lands.

Over the years several counties have treated growth allocation as bullion, that is, as wealth to treasure, spend carefully or hoard. They spend as little as possible on a given project in order to save as much as possible for later use. Treatment of growth allocation as bullion has generated a banking model in which the Critical Area Commission is cast in the role of accountant/auditor. Its responsibility is to assure that appropriate amounts of growth allocation are deducted from a county's account for each project on which it is used.

This banking approach may explain the level of detail in the Critical Area Commission's records. For example, these records report that 3.332 acres of growth allocation were deducted from Cecil County's account for the Retting project, which converted land from the RCA to the LDA and was not located near a growth area and left a balance of 85.368 acres in the RCA. 38.2 acres of growth allocation were deducted from Dorchester County's account for the Middleton Train project, which converted land from the RCA to the LDA and was located in or near a growth area and left a balance of 3.18 acres in the RCA.

POLICY GUIDELINES ESTABLISHED BY THE COUNTIES

In addition to their discretion to determine the rate at which they use their allotment of growth allocation, the criteria, as interpreted by the Critical Area Commission, give counties broad discretion to determine how and where they will use it. This has created a field of experimentation, the results of which are characterized more by diversity than uniformity. Set out below are several examples of the divergent approaches reflected in the counties' actions since certification of their local programs.

- Although most counties propose use of growth allocation on a project-by-project basis, as noted above, Queen Anne's County has charted a different course. The latter pre-maps land within its planned growth areas for use of growth allocation.

¤ Several counties including Dorchester, Prince George's, Talbot, and Worcester counties, award all, or a substantial portion of, their growth allocation on a first-come, first-served basis. Others, including Caroline and Harford counties, review requests to use growth allocation on a semi-annual or annual basis. While Charles, Caroline and Kent counties have allowed almost no use of growth allocation.

¤ With respect to types of land use, Calvert and Dorchester counties give priority to commercial or industrial development. Caroline County gives preference to minor residential subdivisions. Prince George's County has used 90 acres on a single large-scale mixed-use project (the National Harbor Project). Queen Anne's County is using several hundred acres on the Four Seasons residential development.

- Generally counties give their municipalities whatever growth allocation they request.[36] However, Talbot County and St. Mary's County have recently asserted an interest in reviewing each proposed municipal use of growth allocation. St. Mary's County recently required the Town of Leonardtown to submit a proposal to use growth allocation for review through *the county's* process for allocating growth allocation.

¤ Approximately half of the counties with land in the Critical Area review project proposals to use growth allocation for conformance to a broad range of performance criteria or resource protection criteria. These include Calvert County, Kent County, Harford County, Cecil County, Baltimore County, St. Mary's County, Somerset County and Anne Arundel County. Several of these incorporate into their process for project review the policies in the Critical Area Criteria regarding proximity to existing LDA and IDA. Most do not.

The divergent interpretation of policy translates into divergent results on the ground. Queen Anne's County is using growth allocation to expand its IDA and LDA in the path of intense development pressure on Kent Island. Dorchester County, Somerset County, and Talbot County, have allowed relatively liberal use of growth allocation to convert their RCA to LDA without regard to its proximity to existing LDA or IDA. Kent County and Caroline County have elected not to allow much use of growth allocation at all. To the extent Kent County allows use of its growth allocation, it is channeling it towards incorporated communities.

THE IMPACT OF THE USE OF GROWTH ALLOCATION ON PATTERNS OF DEVELOPMENT

Use of growth allocation since 1990 (the close of the interim period) and 1999 was relatively restrained. Even when the binge during the interim period in a few counties is factored in, less than 25% of all available growth allocation had been used up by 1999, leaving 77 percent for future use.

According to the estimates of Critical Area Commission staff, 29 out of the 32 projects that converted land to the Intensely Developed Area were in, or adjacent to, areas that local jurisdictions had designated for future growth. Even though the term "growth area" is vague, the proximity of new IDA to existing growth areas appears consistent with the values associated with smart growth to strengthen and encourage new development in existing communities and to preserve open space, farmland, natural beauty, and critical environmental areas.[37]

Projects that converted land from the Resource Conservation Area to the Limited Development Area appear more problematic. The data available for this report do not

[36] The Critical Area Criteria mandate each county to work with its municipalities to establish a process to accommodate the growth needs of their municipalities. COMAR Section 27.01.02.06 A (2)

[37] See the National Governors Association's smart growth principles, infra, pp 15-16. It is not as clear that lands converted to the Intensely Developed Area, which may be adjacent to designated growth areas, are consistent with the Critical Area Criteria policies that promote location of new IDA adjacent to existing IDA or in LDA. Designated growth areas can be expansive and usually include significant undeveloped land. The criteria are stricter. They do not encourage use of growth allocation adjacent to areas planned for future development but areas that are already developed and have been classified as IDA and LDA.

support a conclusive finding about the impact of the use of growth allocation on resource lands in the RCA, whether by fragmenting resource lands or converting them to development. For that, the location of each project in the RCA would have to be mapped, and the acreage of resource lands converted by them would have to be tallied. Be that as it may, the fact that 34 out of 74 projects that used growth allocation to convert RCA to LDA were not in, or near, growth areas supports the preliminary finding that growth allocation is being used to facilitate scattered development in the RCA.

The Critical Area Commission attempts to mitigate the impact of this development by encouraging projects using growth allocation to leave a remaining parcel in the RCA that is at least 20 acres in size. Thirty-two of the 74 projects that converted RCA to LDA left remaining parcels in the RCA that were larger than 20 acres. Forty-two did not.

THE IMMEDIATE THREAT

Today what remains of the 77 percent of growth allocation that had not been used by 1999 hovers like a cloud over the Critical Area, especially over the Resource Conservation Area. This cloud appears darker today than it did 16 years ago when the criteria were adopted.

It appeared then that growth allocation might provide the state with means to coax counties to channel new development towards areas that had already been developed. That potential has fizzled out. Further, the amount of growth allocation available to the counties also appeared smaller in the mid-1980s than it does today. Then it was assumed that 100 percent of a parcel on which growth allocation was used would count against a county's growth allocation. Now counties have more leeway to slice and dice growth allocation so that they can reserve more of it for use on other development projects in the Critical Area. Sixteen years ago the criteria capped the percentage of growth allocation that could be used in the Resource Conservation Area. Today that cap has been removed for most of the state's Critical Area.

Ninety percent of all growth allocation used since 1990 was used to convert land in the RCA to one of the other two districts. If ninety percent of the 14,000 acre unspent balance of growth allocation is similarly used to allow development on land in the RCA, another 12,600 acres of resource lands in the RCA could be lost.

The implication of these developments is that the unspent balance of growth allocation poses a serious, on-going risk to protection of resource lands in the RCA. Depending on how counties choose to use it, growth allocation has the potential to unravel progress that has been made to date in protecting resource lands in the RCA.

GROWTH ALLOCATION IN THE FUTURE

Ever since adoption of the criteria there has been speculation about how soon the counties would run out of growth allocation and what would happen when they did. Would the state legislature hold firm by not allowing more land in the Resource Conservation Area to be converted to LDA or IDA, or would it relax the five percent limit imposed by the criteria to allow greater conversion of resource lands?

As discussed above, no county has run out of growth allocation. Only Anne Arundel County appears to be approaching its limit and, with 56 percent of its shoreline already committed to development, there would seem to be little urgency, and no policy rationale, for converting further land in the Resource Conservation Area to either IDA or LDA.

The rate at which counties may draw down their growth allocation in the future is uncertain. The pace could pick up at any time. In 2001 Queen Anne's County approved use of growth allocation for the Four Seasons project that converted over three hundred acres from RCA to IDA and LDA for a single project. Given the uncertainties about how quickly the initial allotment of growth allocation may be exhausted, it is prudent to give forethought to how to respond if, and when, counties start to run out of it.

It is the position of this paper that the growth allocation concept established in the Critical Area Criteria should not be extended in the future, not only because of its immediate threat to resource lands, but also because it is fundamentally out of step with the principles of smart growth that have taken root in Maryland in the last decade.

INCOMPATIBILITY WITH SMART GROWTH

Yes, local jurisdictions need flexibility to expand growth areas and to create new ones – two of the ultimate goals served by growth allocation. But expansion of growth areas that put resource lands at risk should be tied to a demonstration of need and to compliance with basic development standards.

With respect to need, the state could adopt a policy to maintain sufficient development opportunities, including land zoned for development, to accommodate projected growth for a defined period of time, such as the next 20 years. Boundaries of growth areas could be reevaluated every five years and expanded, as needed to maintain an inventory of development opportunities for a perpetually receding time horizon. The purpose of development standards is to assure that whatever resource lands are opened for development are not squandered on patterns of development that are inconsistent with state policy.

The State of Maryland is moving in this general direction. The cornerstone of Governor Glendening's smart growth initiatives is to channel state funding for infrastructure and public services into "priority funding areas." In order to qualify as a priority funding area, thereby establishing a priority claim on state resources, an area must be zoned for a minimum of 3.5 dwelling units per acre. This is a start. The minimum density for priority funding areas is likely to be raised in the future in order to encourage compact settlement patterns and to provide transportation options and diversity of housing types.[38] Similarly, standards should be established governing use of resource lands that may be opened to future development. The Critical Area Criteria recommend standards for

[38] Maryland's minimum density standard for priority funding areas, 3.5 units per acre, is a starting point for developing standards for acceptable levels of development. 3.5 units per acre is not high enough to support public transportation or generate transportation options. For reference purposes it is instructive to consider a set of model criteria for evaluating development proposals for their compliance with smart growth development standards compiled by the Chesapeake and Potomac Regional Alliance. With respect to density the standards range from a minimum of four residences per acre for small towns or villages to a minimum of 14 units per acre in urban areas and 20 units per acre for projects within _ mile of a rail transit station. See "Smart Growth Proposal" by the Chesapeake and Potomac Regional Alliance.

creating 300-foot shoreline buffers when land in the Resource Conservation Area is converted to LDA or IDA. But the criteria do not establish any requirements that land converted from the Resource Conservation Area to one of the two pro-development districts be zoned for a minimum density. In fact, they go in the opposite direction since they impose a density ceiling on land converted to the Limited Development Area.

Viewed from the perspective of smart growth, the Critical Area Criteria's concept of growth allocation is an irrational anachronism. It sanctions conversion of an arbitrary percentage of resource lands to development without any demonstration of need and without compliance with even the most minimal requirements for density or mix of uses, or as noted above, proximity to areas that are already developed. Growth allocation allows local jurisdictions, responding to the initiative of a developer, to convert resource lands on a project-by-project basis anyplace in the Resource Conservation Area to the Limited Development Area. Once converted to LDA land is, for all intents and purposes, committed to single use, low-density residential development. Local jurisdictions are free under the Critical Area Criteria to zone land in the LDA as low as one residence per five acres.

EVOLVING STRATEGIES FOR ECONOMIC DEVELOPMENT CREATE OPPORTUNITIES FOR RE-THINKING THE CONCEPT OF GROWTH ALLOCATION

Growth allocation was intended, in part, to support the economic development of rural counties where most land in the Critical Area was assigned to the Resource Conservation Area. The criteria respond to the concern that mapping the Critical Area districts on the basis of on-the-ground development patterns in 1985 could have foreclosed opportunities for these counties to develop. The formula for determining the amount of a county's growth allocation, five percent of its RCA, was intended to favor rural counties with relatively large amounts of their Critical Area assigned to their RCA with flexibility to expand their growth areas however they chose to.

Attitudes towards effective economic development strategies have evolved over the past 15 years. In the mid-1980s local jurisdictions were more likely to have assumed that all development was good development -- the more of it, the better, regardless of use, density or location. This is similar to the environmental orthodoxy of 15 to 20 years ago that the less development the better, regardless of density or per capita consumption of resource lands.

Today there is greater appreciation that, in fiscal terms, most residential development does not pay its way and that scattered, low-density development is often the most costly of all. Local economic development strategies are increasingly designed to promote job-creating commercial and industrial investment or residential development that is revenue positive, meaning that it generates tax revenue in excess of the costs of the public services it demands.

In light of evolving attitudes about what constitutes beneficial economic development, it is doubtful that random use of growth allocation to convert land in the RCA to low-density residential development is perceived by local jurisdictions as helping them accomplish their fiscal objectives.

In summary, the gap appears to be narrowing between local perceptions of fiscally beneficial economic development and the state's commitment to the principles of smart growth. Nevertheless, in spite of this emerging confluence at the policy level, local jurisdictions will continue to be subject to political pressures to allow randomly located development on resource lands. It can be anticipated that left to their own devices local jurisdictions would provide uneven and inconsistent protection to resource lands. Accordingly, the state has an essential role to play in assuring a uniform level of protection of resource lands both in the Critical Area and throughout the state.

Present attitudes may create opportunities to rethink approaches to reconciling protection of resource lands with effective economic development strategies and to reconciling state and local responsibilities for protecting resource lands.

It is time to jettison the concept of growth allocation advanced in the Critical Area Criteria. It served its immediate purposes of providing flexibility and a field of experimentation. This may have been appropriate for a new, untried program that asserted new state responsibilities for managing growth. However, more principled flexibility to expand growth areas or create new ones, consistent with the tenets of smart growth, is the way of the future.

APPENDICES

APPENDIX A. SUMMARY TABLES: LAND USE CHANGE, 1990-1997, AND PROTECTED LANDS

Appendix A
Summary Table: Calvert County, Land Use Change, 1990-1997, and Protected Lands

	Critical Area IDA	% change IDA Resource /total IDA Resource	Critical Area LDA	% change LDA Resource /total LDA Resource	Critical Area RCA	% change RCA Resource /total RCA Resource	Con. Zone	% change Conservation Zone Resource /total Conservation Resource
Total Acreage	1039.82		6009.29		18111.11		46647	
Resource Lands, 1990					12779		41990	
Acres Developed 90-97	9		316.51		75.33		667.17	
Low and Moderate Density Residential	7.7		311.92		74.33		594.28	
High Density Residential	0		0		0.46		-0.65	
Commercial, Industrial, Institutional	1.27		4.59		0.54		73.54	
Acres of Resource Lands Converted	-6.85		-301.85	-13.88%	-38.3	-0.30%	-669.52	-1.57%
Farmland	-4.53		-85.57	-14.59%	-7.73	-0.15%	-313.9	-2.22%
Forest	-2.31		-216.28	-13.62%	-30.57	-0.40%	-355.61	-1.28%
Acres of Protected Land, Total	27.77		119.52		7596		15475.57	
Acres Protected Resource Lands					6244		13338	
Acres Protected Recreation Lands					1332		2138	
Acres Federal Lands					19			
% Resource Lands Protected					49%		32%	

Appendix A
Summary Table: Anne Arundel County, Land Use Change, 1990-1997, and Protected Lands

	Critical Area IDA	% change IDA Resource /total IDA Resource	Critical Area LDA	% change LDA Resource /total LDA Resource	Critical Area RCA	% change RCA Resource /total RCA Resource	Conservation Zone	% change Conservation Zone Resource /total Conservation Resource
Total Acreage	5281		21369		22549		93060	
Resource Lands, 1990					17282		83689	
Acres Developed 90-97	10.48		381.23		312.06		3828.92	
Low and moderate Density Residential	3.58		270.1		278.02		3698.45	
High Density Residential	3.16		58.65		1.72		-0.55	
Commercial, Industrial, Institutional	3.74		52.49		32.31		131.02	
Acres of Resource Lands Converted	-7.72	-1.60%	-328.05	-6.60%	-305.49	-1.77%	-3611.32	-4.29%
Farmland	0	0	-69.8	-9.60%	-51.33	-1.25%	-1295.02	-3.58%
Forest	-7.72	-1.78%	-258.26	-6.09%	-254.16	-1.93%	-2316.3	-4.88%
Acres of Protected Land, Total	507.87		191.64		4208.25		20225.74	
Acres Protected Resource Lands					1103		14012	
Acres Protected Recreation Lands					2611		2652	
Acres Federal Lands					494		3563	
% Resource Lands Protected					6%		17%	

Appendix A
Summary Table: Queen Anne's County, Land Use Change, 1990-1997, and Protected Lands

	Critical Area IDA	% change IDA Resource /total IDA Resource	Critical Area LDA	% change LDA Resource /total LDA Resource	Critical Area RCA	% change RCA Resource /total RCA Resource	Conservation Zone	% change Conservation Zone Resource/total Conservation Resource
Total Acreage	877		8707		32325		160864	
Resource Lands, 1990					26931		157607	
Acres Developed 90-97	27.21		151.22		228.39		645	
Low and Moderate Density Residential	9.15		138.93		223.15		629	
High Density Residential	0.82		4.78		0.02		0	
Commercial, Industrial, Institutional	17.24		7.51		5.22		16	
Acres of Resource Lands Converted	-16.27	-9	-198.89	-12	-242.63	-1	-666	-0.42
Farmland	-16.18	-14.45	-139.81	-13.35	-205.01	-1.05	-440	-0.39
Forest	-0.09	-0.37	-59.08	-8.76	-37.62	-0.51	-226	-0.49
Acres of Protected Land, Total	57		65		9492		29814.05	
Acres Protected Resource Lands					9255		29324	
Acres Protected Recreation Lands					237		490	
Acres Federal Lands								
% Resource Lands Protected					34%		19%	

Appendix A
Summary Table: Cecil County, Land Use Change, 1990-1997, and Protected Lands

	Critical Area IDA	% change IDA Resource /total IDA Resource	Critical Area LDA	% change LDA Resource /total LDA Resource	Critical Area RCA	% change RCA Resource /total RCA Resource	Conservation Zone	% change Conservation Zone Resource /total Conservation Resource
Total Acreage	502		5213		19894		119220	
Resource Lands, 1990					18019		118411	
Acres Developed 90-97	0.81		64.4		9.66		348	
Low and Moderate Density Residential	0.81		50.09		9.66		147	
High Density Residential	0		0		0		1	
Commercial, Industrial, Institutional	0		14.31		0.01		200	
Acres of Resource Lands Converted	-0.82	-0.74%	-50.22	-1.80%	-10.48	-0.06%	-576	-0.51%
Farmland	-0.49	-2.90%	-28.43	-4.84%	-11.79	-0.18%	-222	-0.31%
Forest	-0.33	-0.37%	-21.79	-1.01%	1.31	0.01%	-354	-0.87%
Acres of Protected Land, Total					4828		28007	
Acres Protected Resource Lands					2581		25914	
Acres Protected Recreation Lands					1980		250	
Acres Federal Lands					267		1843	
% Protected Lands					14%		22%	

APPENDIX B. SUMMARY TABLES: GROWTH ALLOCATION

STATUS OF GROWTH ALLOCATION RESERVES
CHESAPEAKE BAY CRITICAL AREA
(As of September 28, 1999)

Program	Original Amount (Acres)	Amount Used as of 9/99 (acres)	Amount Remaining (Acres)	Percent of Total Remaining
Anne Arundel	918	776	142	15%
Baltimore City	22	0	22	100%
Baltimore	462	153	309	67%
Calvert	684	300	384	56%
Caroline	434	17	417	96%
Cecil	996	107	889	89%
Charles	1128	9	1119	99%
Dorchester	2900	1170	1730	60%
Harford	278	148	130	47%
Kent	1399	78	1321	94%
Prince George's	329	150	179	54%
Queen Anne's	1525	240	1285	84%
St. Mary's	1686	101	1585	94%
Somerset	1504	204	1300	86%
Talbot	2554	434	2120	83%
Wicomico	894	174	720	81%
Worcester	474	127	347	73%
Total	**18187**	**4188**	**13999**	**77%**

Data generated by the Maryland Critical Areas Commission

APPENDIX C. LETTER FROM DIRECTOR OF PLANNING, QUEEN ANNE'S COUNTY

DEPARTMENT OF PLANNING & ZONING
QUEEN ANNE'S COUNTY
160 COURSEVALL DR.
CENTREVILLE, MARYLAND 21617

410-758-4088 Permits
410-758-3972 Fax
410-758-1255 Planning
410-758-2905 Fax
410-758-2126 TDD

April 26, 2002

Mr. Sandy Hillyer
Metropolitan Strategies
100 Lafayette Ave.
Annapolis, MD 21401

RE: NEW LOTS IN RCA FROM 1/90 – 1/2000

Dear Sandy:

As we had previously discussed, I believe we have been successful in researching the number of new lots recorded on land with a Resource Conservation Area (RCA) designation. The chart below outlines the time period (1/90 – 1/95 and 1/95 – 1/2000) and the number of new lots recorded in the RCA. I have also added how many of those lots were created through the use of growth allocation or through Critical Area TDR's.

Time Period	New Lots	Growth Allocation	TDR's
1/90 – 1/95	30	0	0
1/95 – 1/2000	87	14	32
1/90 – 1/2000	117	14	32

Based on the data shown on Page 44 of the draft "An Evaluation of the Maryland Critical Area Program", it is apparent that approximately 354 new homes were constructed within the RCA from 1990-1999. Assuming this data is accurate, at least 237 or 67% of the new homes constructed in the RCA from 1990-99 occurred on lots of record that predated Critical Areas. The comparison between the number of new homes constructed and new lots created is interesting in that the data clearly shows that the existence of the RCA designation has significantly reduced or slowed down subdivision activity in the RCA.

Although not included in the above chart, we did have one situation where 81 existing lots of record in the RCA were recombined into one lot. If we had used this information in the overall analysis, only 36 total new lots would have been recorded in the RCA.

I hope this information is helpful. Please contact me if I can be of further assistance.

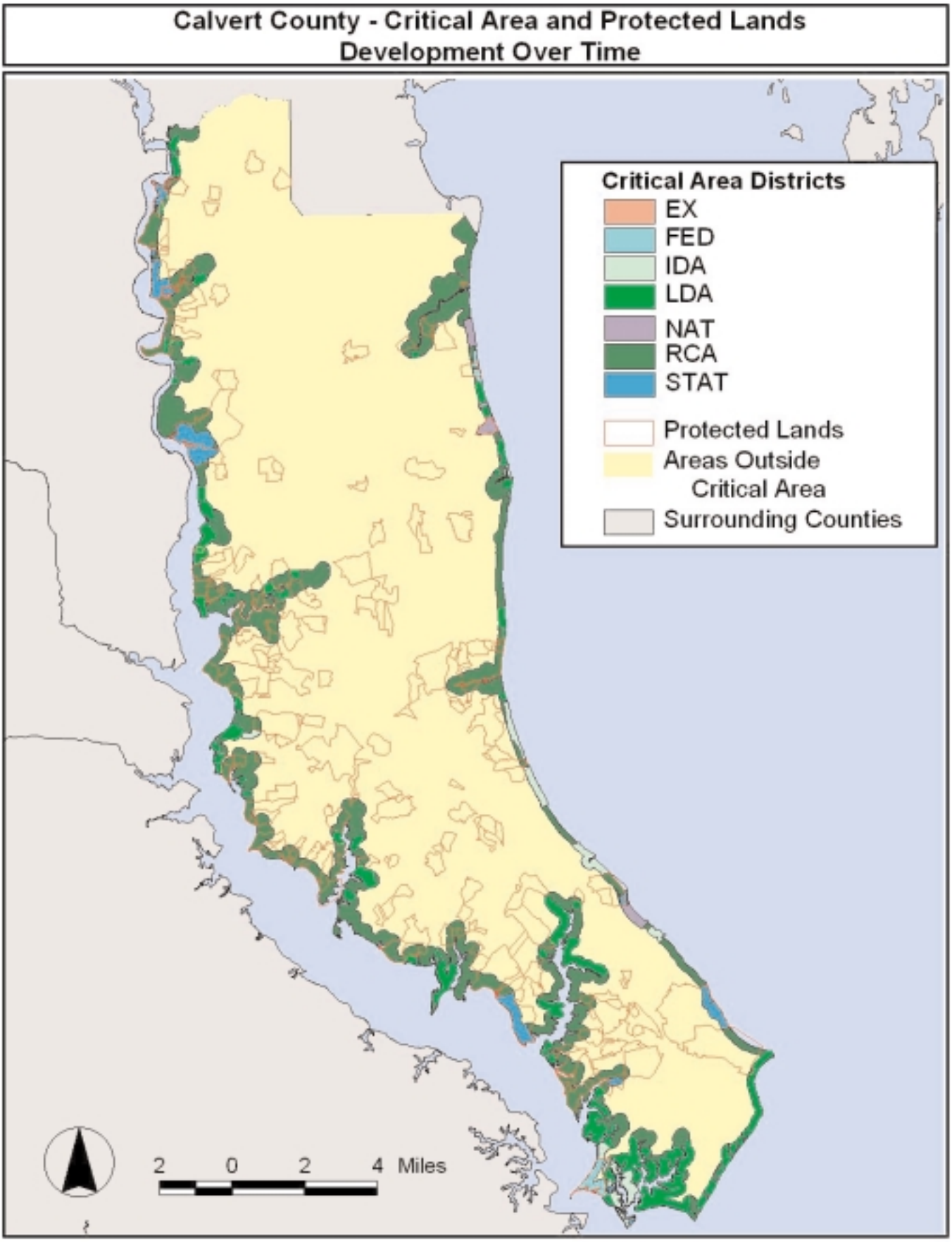
Sincerely,

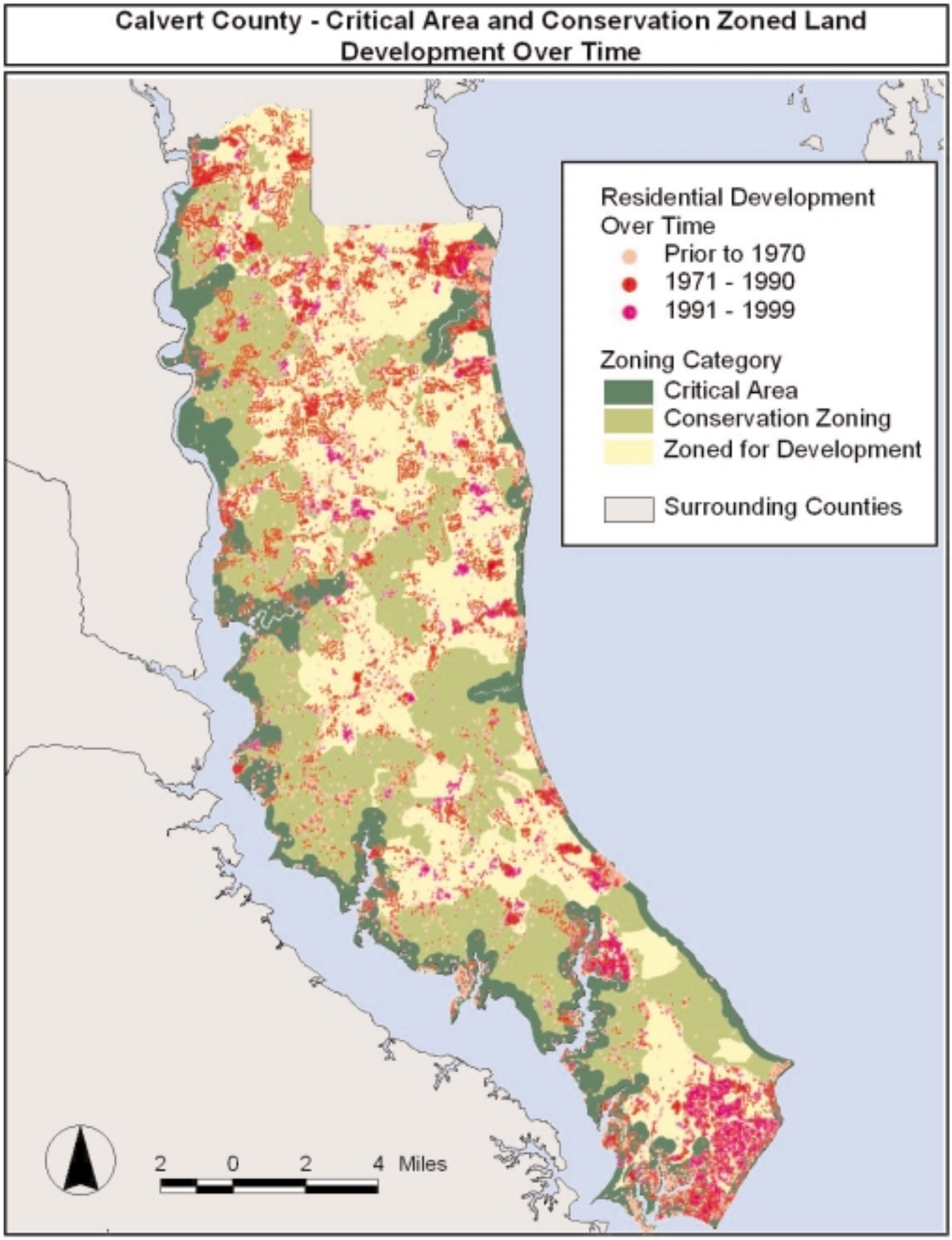
Steven Kaii-Ziegler, AICP
Director

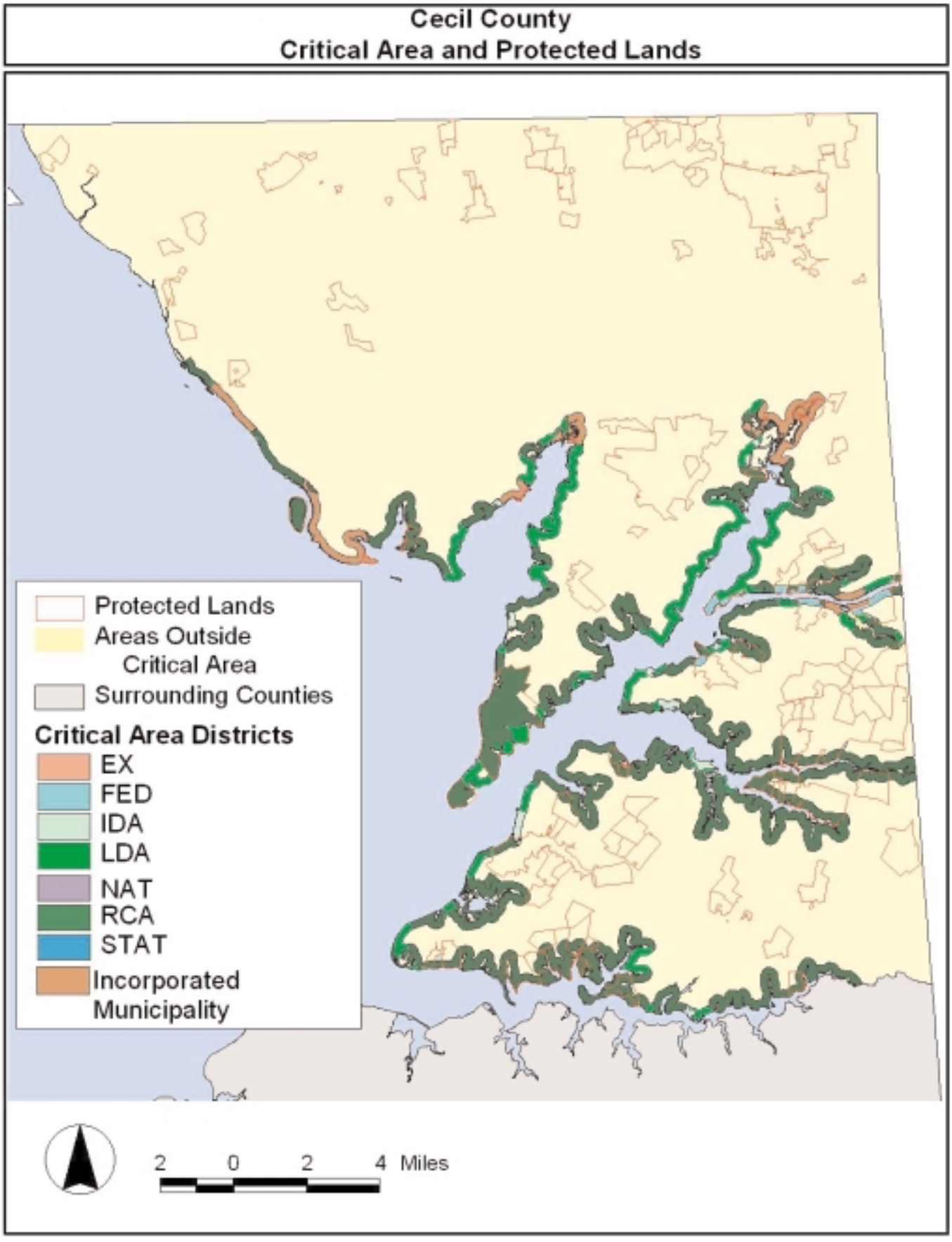
SKZ:cm

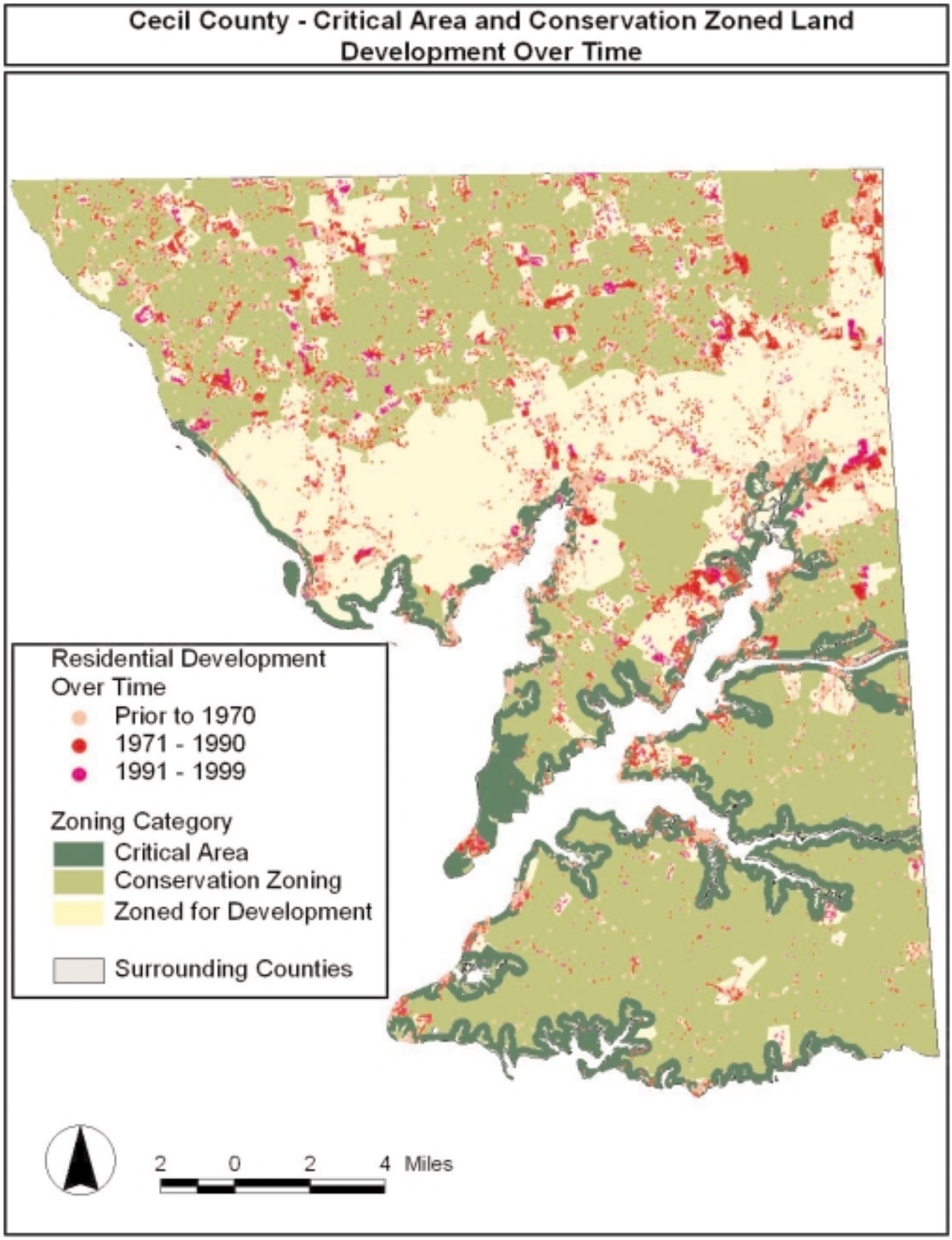
CC: Steve Cohoon
Dawn Meyers

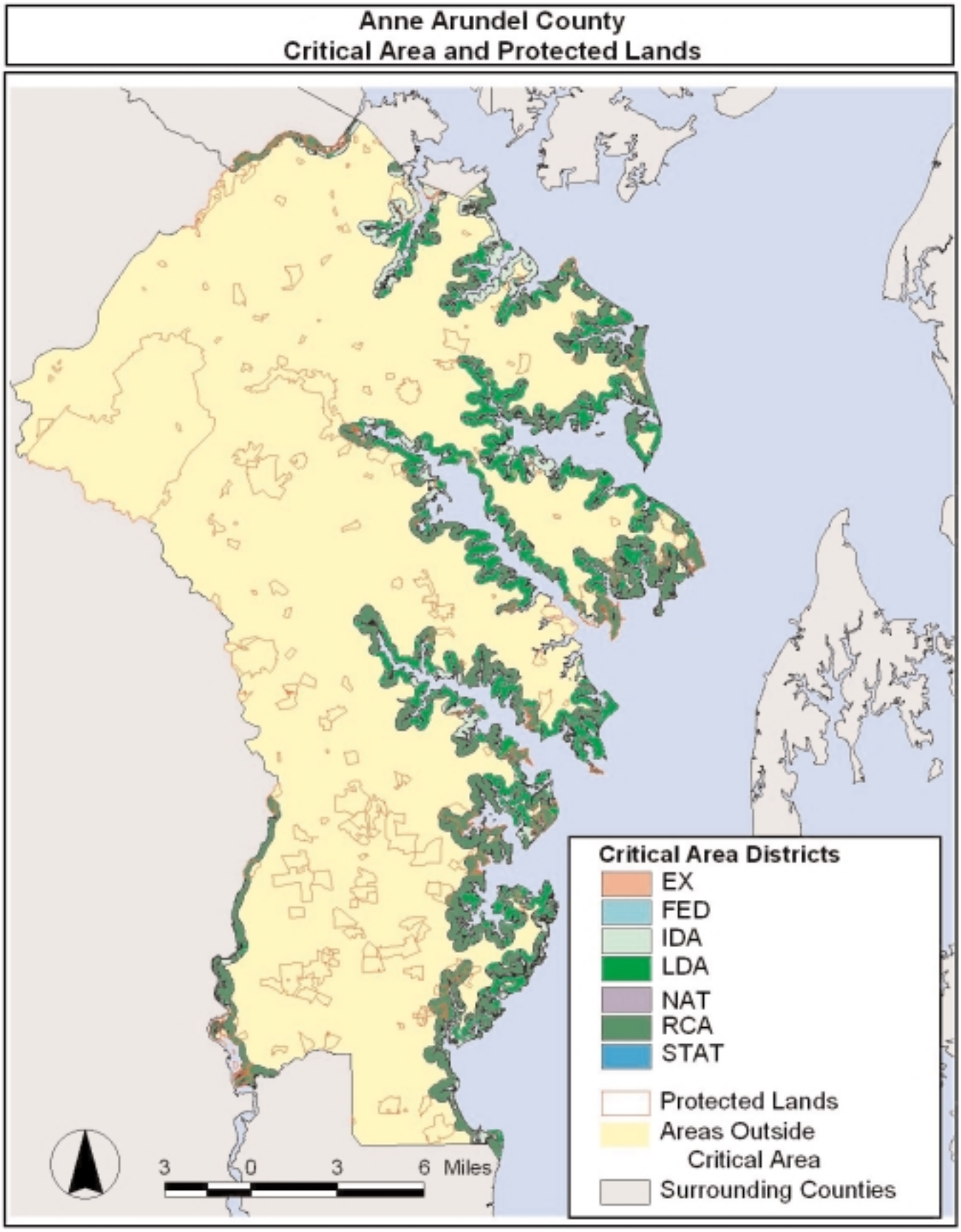
\\steve\hillyerapr26.doc

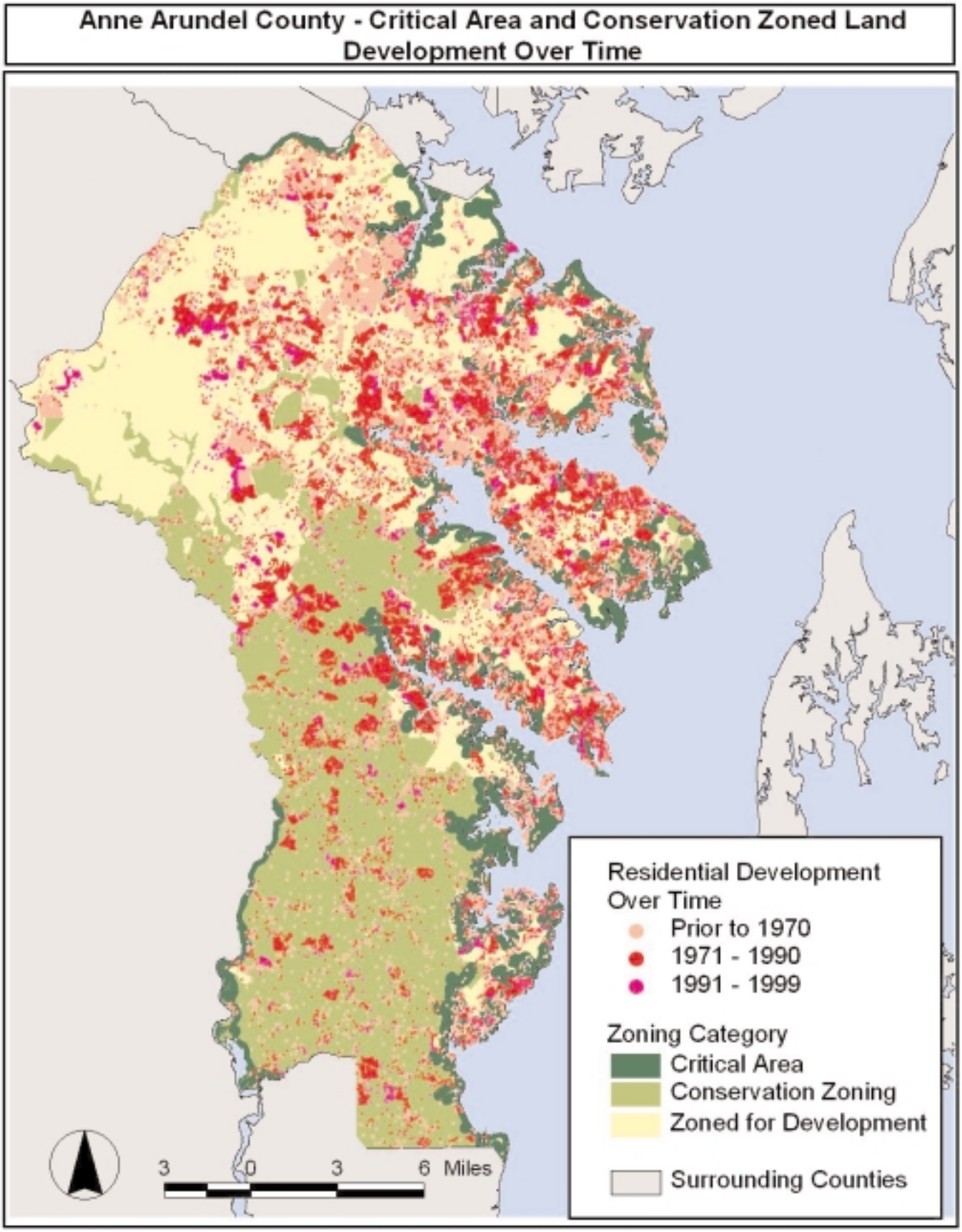

Calvert County - Critical Area and Protected Lands
Development Over Time
Critical Area Districts
EX
FED
IDA
LDA
NAT
RCA
STAT
Protected Lands
Areas Outside
Critical Area
Surrounding Counties
2 0 2 4 Miles

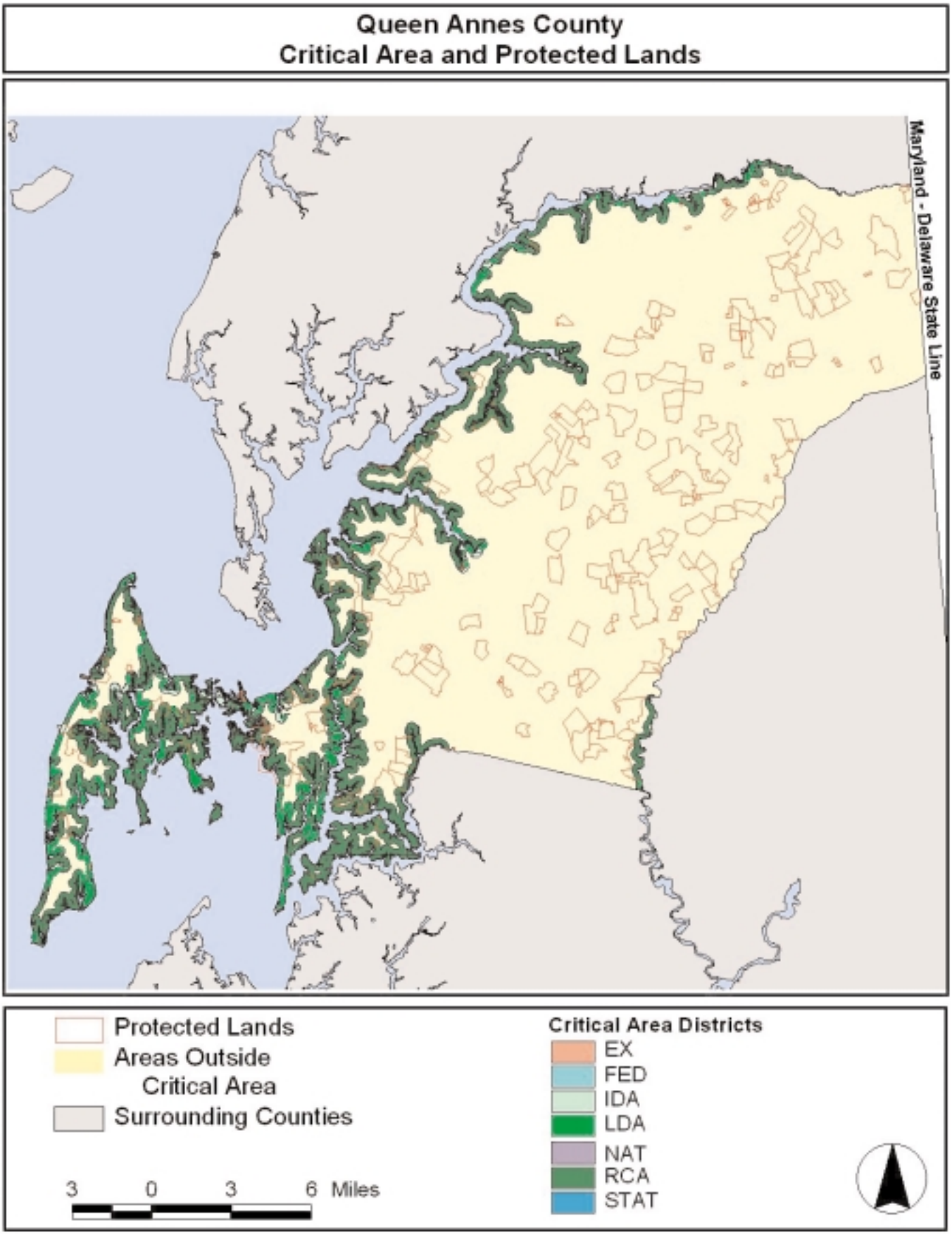

Calvert County - Critical Area and Conservation Zoned Land Development Over Time
Residential Development Over Time
Prior to 1970
1971 - 1990
1991 - 1999
Zoning Category
Critical Area
Conservation Zoning
Zoned for Development
Surrounding Counties
2 0 2 4 Miles


Cecil County
Critical Area and Protected Lands
Protected Lands
Areas Outside Critical Area
Surrounding Counties
Critical Area Districts
EX
FED
IDA
LDA
NAT
RCA
STAT
Incorporated Municipality
2 0 2 4 Miles


Cecil County - Critical Area and Conservation Zoned Land Development Over Time
Residential Development Over Time
Prior to 1970
1971 - 1990
1991 - 1999
Zoning Category
Critical Area
Conservation Zoning
Zoned for Development
Surrounding Counties
2 0 2 4 Miles


Anne Arundel County
Critical Area and Protected Lands
Critical Area Districts
EX
FED
IDA
LDA
NAT
RCA
STAT
Protected Lands
Areas Outside
Critical Area
Surrounding Counties
3 0 3 6 Miles


Anne Arundel County - Critical Area and Conservation Zoned Land Development Over Time
Residential Development Over Time
Prior to 1970
1971 - 1990
1991 - 1999
Zoning Category
Critical Area
Conservation Zoning
Zoned for Development
Surrounding Counties
3 0 3 6 Miles


Queen Annes County
Critical Area and Protected Lands
Maryland - Delaware State Line
Protected Lands
Areas Outside
Critical Area
Surrounding Counties
3 0 3 6 Miles
Critical Area Districts
EX
FED
IDA
LDA
NAT
RCA
STAT

Queen Annes County - Critical Area and Conservation Zoned Land Development Over Time