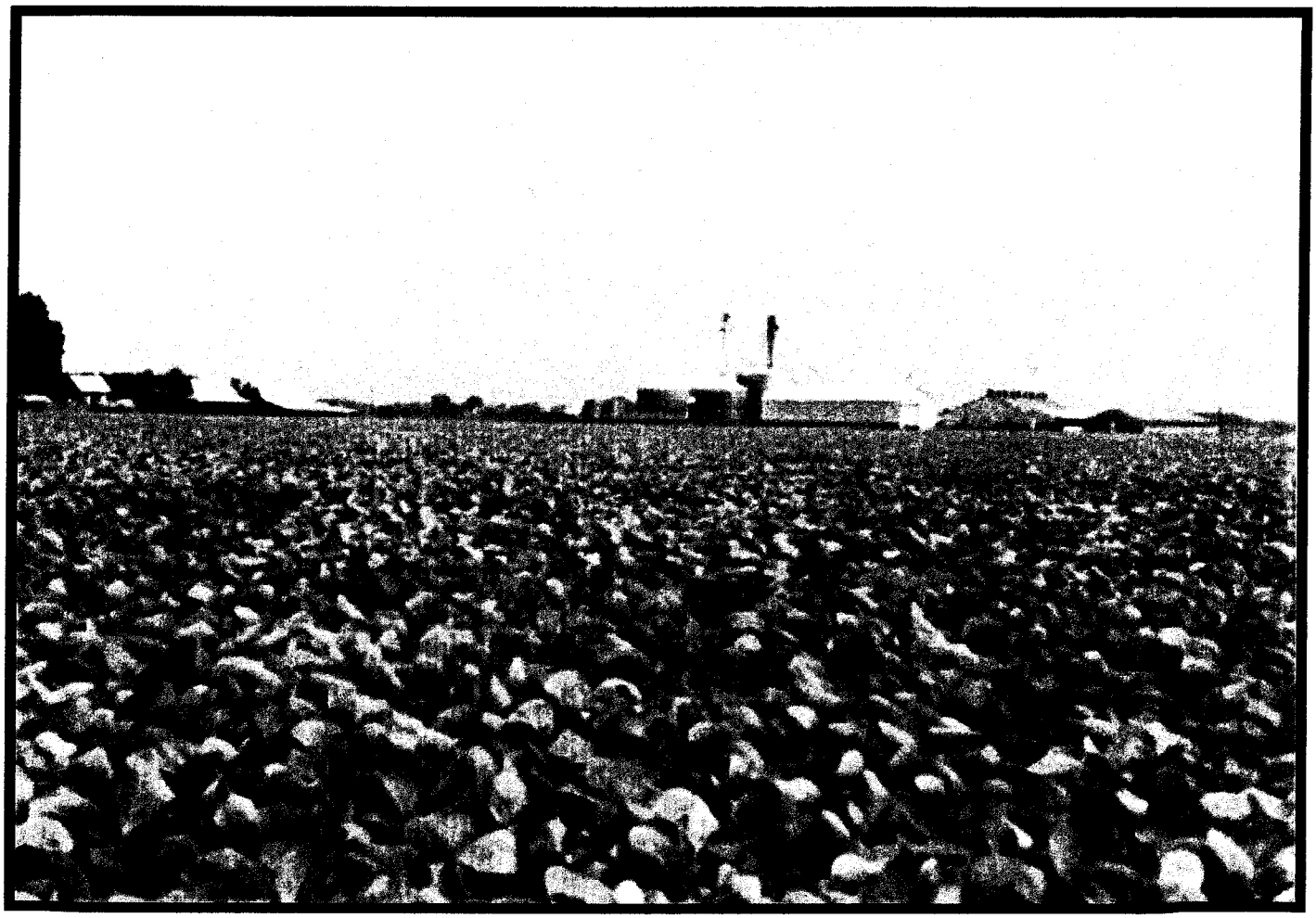
Dorchester County



1996 Comprehensive Plan

RESOLUTION NO. 241

A RESOLUTION PROVIDING FOR THE ADOPTION OF A COMPREHENSIVE MASTER PLAN FOR DORCHESTER COUNTY, MARYLAND, IN ACCORDANCE WITH THE PROVISION OF ARTICLE 66B, ANNOTATED CODE OF MARYLAND.

WHEREAS, Article 66B, Annotated Code of Maryland, empowers the County to adopt a Comprehensive Plan; and

WHEREAS, Maryland's Economic Growth, Resource Protection, and Planning Act of 1992 requires all local jurisdictions to update their Comprehensive Plans by July 1, 1997; and

WHEREAS, the Planning Commission has prepared and approved a new Comprehensive Plan to replace the Comprehensive Plan adopted November 19, 1974 and recommended it to the County Commissioners for adoption; and

WHEREAS, the County Commissioners held an advertised public hearing on August 6, 1996 regarding the new Comprehensive Plan and have given careful consideration to the comments received from the public hearing;

NOW THEREFORE, the County Commissioners of Dorchester County, having complied with the procedural and substantive prerequisites of Article 66B, Annotated Code of Maryland, do hereby repeal the Comprehensive Master Plan , adopted November 19, 1974 and do hereby adopt the Dorchester County Comprehensive Plan, 1996, as submitted, which plan is contained within a single document containing both text and graphic materials and which includes goals, objectives, and recommendations for the long range development of the County covering the areas of population; land use; economics; housing; natural resources; cultural; historic and aesthetic; transportation; community services, and implementation; and be it further resolved that a true and exact copy of the new Comprehensive Plan shall be certified to the Clerk of the Circuit Court of Dorchester County.

Adopted this 24th day of September, 1996

ATTESTED BY:

Deborah G. Byrd
County Administrator

THE COUNTY COMMISSIONERS
OF DORCHESTER COUNTY

Jeffrey C. Powell
President

Stephen M. Willey

William V. Nichols

Glenn L. Bramble

Effie M. Elzey

CERTIFICATION

THE COUNTY COMMISSIONERS OF DORCHESTER COUNTY HEREBY CERTIFIES TO THE CLERK OF THE CIRCUIT COURT FOR DORCHESTER COUNTY, THAT THE FOREGOING IS A TRUE AND EXACT COPY OF THE RESOLUTION ADOPTED AND ORDAINED BY THE COUNTY COMMISSIONERS OF DORCHESTER COUNTY ON THE 24th DAY OF SEPTEMBER 1996 AND FURTHER ORDER THE SAME TO BE RECORDED AMONG THE ORDINANCE BOOKS OF DORCHESTER COUNTY, MARYLAND, WITHOUT COST.

ATTEST:

By: _____
Deborah G. Byrd
County Administrator

THE COUNTY COMMISSIONERS
OF DORCHESTER COUNTY

By: _____
Jeffrey C. Powell
President

FILED
DORCHESTER COUNTY
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Dorchester County Commissioners

Glenn L. Bramble, President

Effie M. Elzey

William V. Nichols

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Stephen M. Willey

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Comprehensive Plan Committee

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Dorchester County Environmental Health

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Dorchester County Forest Service

Dorchester County Highway Department

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Dorchester County Planning Commission

Dorchester Soil Conservation District

USDA Natural Resources Conservation Service

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Town of East New Market

Town of Hurlock

Town of Secretary

Town of Vienna

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Merris Hurley, Zoning Secretary

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Consultants

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INTRODUCTION

Dorchester County is located on Maryland's Eastern Shore, approximately 75 miles from Baltimore and 90 miles from Washington DC. Dorchester is the largest county, water and land combined, in the state (see Figure I-1, Regional Location).

The 1995 Comprehensive Plan is a policy document intended to serve as the county's growth and development blueprint for the next 15 to 20 years. It is an official statement of what residents wish the county to look like in the future and how they wish the county to grow and develop. The primary goal of this plan is to set a framework for the county's desired future which can be implemented over the next several years.

PLANNING FOR CHANGE IN DORCHESTER COUNTY.

The previous Comprehensive Plan was adopted in 1974. A new comprehensive plan is needed for the following reasons

- Although the County has not grown significantly in population since 1974, land development has occurred, and the county's landscape is undergoing significant change.

- Citizens have identified over 30 important issues the county needs to address, affecting the economy, growth and development, agriculture, and government.

- To a greater degree than in 1974, Dorchester County is being affected by change in nearby counties and beyond. If the county does not plan its future, change will continue to occur but, probably, not the kind of change that the county wants.

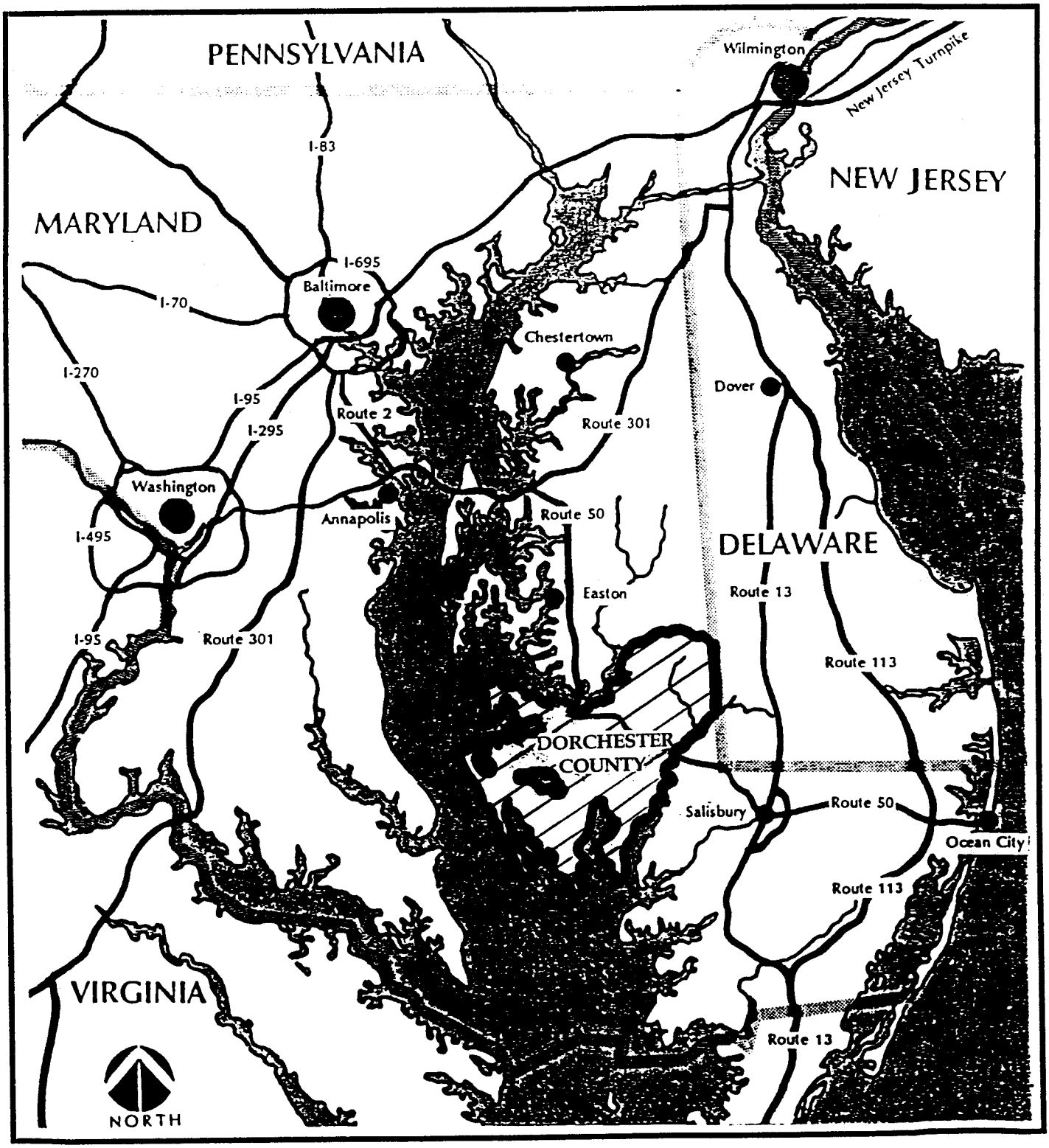
- Changes at the federal and state levels have changed the regulatory environment within which the county operates. Specifically, under the 1992 Planning Act, the State of Maryland is requiring adoption of a new plan and implementation mechanisms by 1997.

A new comprehensive plan can help the county take charge of its future. Through the process of adopting and implementing a comprehensive plan, the county can evaluate whether existing policies are taking the county in the right direction, and decide on changes that need to be made.

Figure I-1

DORCHESTER COUNTY

Regional Location



This plan takes into account known local and regional trends and development proposals. Future events or development proposals that would affect the county could require a reevaluation of the plan's goals, objectives and strategies.

RELATION OF THE PLAN TO TOWNS IN DORCHESTER COUNTY

Under Maryland law, jurisdictions exercising planning and zoning authority must prepare comprehensive plans. As of 1995, Cambridge, East New Market, Hurlock, Secretary and Vienna had either adopted or were in the process of adopting new comprehensive plans. The other incorporated towns, Brookview, Church Creek, Eldorado, and Galestown do not exercise their planning authority. The Dorchester County plan covers the entire county but does not address specific planning issues within those towns which have planning authority. However, because planning issues cross county and town boundary lines, and because county policies affect the towns, and vice versa, the towns were consulted and involved in the preparation of this plan.

HOW THE PLAN WAS PREPARED

The process began in 1993 with the creation of a 30 member Comprehensive Plan Advisory Committee. Through 1993 and 1994 the committee discussed issues and approaches. In early 1995 over 50 county residents attended a workshop where broad consensus was reached on visions for different geographic areas of the county. These visions are presented in Chapter 1. During February and March, 1995 these visions were presented for community comment at four public meetings in Hurlock, Cambridge, South Dorchester and Vienna. All participants were also given the opportunity to list the most important issues faced by the county and to be addressed in the plan. These issues are listed in Chapter 1. After the public meetings the Committee met through the spring of 1995 to develop policies to achieve the visions for the county. A second public workshop to discuss draft policies was held in June 1995.

The Committee reviewed the draft plan in Fall of 1995 and recommended the plan be forwarded to the Planning Commission on October 30, 1995. The forwarded draft plan was dated November 29, 1995.

The Planning Commission held a public hearing on February 7, 1996 and adopted the plan by resolution on March 6, 1996, forwarding it to the County Commissioners. The Planning Commission responded to questions from the County Commissioners on June 12, 1996.

The Commissioners held a public hearing on August 6, 1996 and approved the plan subject to their amendments, and Planning Commission and staff recommended changes. These changes are incorporated into this document.

CHAPTER 1 BACKGROUND FOR PLANNING

This chapter summarizes the context within which this plan was created. Key data and findings concerning the county are presented so as to permit the reader to understand the background for the specific policies recommended in the plan. Additional detail and discussion is provided in the relevant chapters.

THE 1974 COMPREHENSIVE PLAN.

The previous Comprehensive Plan was developed with considerable public input, and adopted in 1974. The plan divided the County into growth areas and conservation areas. Growth areas were at four levels: Level 1: Cambridge; Level 2: Hurlock; Level 3: Major Towns; and Level 4: Small Towns and Villages. The plan recommended strategies for the appropriate development of each area. Some examples from the 1974 plan are:

- the City of Cambridge should grow in population and supporting development (p.16);
- strip development should be limited (p.29);
- non-agricultural uses should be severely restricted in farmland and forest areas (p.24); and
- the county should revise its subdivision regulations to insure compatibility with the goals of the Plan (p.27).

Most of the 1974 Plan's recommendations were not adopted. Twenty years later many of the recommended policies in the plan have a familiar ring because the same issues are being raised again.

KEY ISSUES FACING DORCHESTER COUNTY

In late 1994, the Dorchester County Comprehensive Plan Committee developed a list of 24 key issues facing the county. The committee and people who attended the public meetings in early 1995 chose what, in their opinion, were the key issues facing the county to be addressed in the comprehensive plan. Taking all 86 responses together, the top ten issues in order of importance were:

1. Lack of Ability to Attract/Keep Industry
2. Lack of Public Water/Sewer Availability
3. Need to improve County Revenue Base
4. Young People Leaving the County Because Lack of Opportunities
5. County Lacks a Positive Image
6. Need for More Diversified Economy
7. Strip Residential Development in Rural Areas
8. Lack of Development of Tourism Potential
9. Coordination Between Town/County/State Agencies
10. Decline of incorporated towns

See Appendix 1 for the complete list of issues and rankings.

SUB-AREA VISIONS

This section contains the visions for the county as developed by the Comprehensive Plan Committee and residents who attended workshops and regional meetings. The visions are for each of three sub-areas: North Dorchester, Cambridge and South Dorchester (see Figure 1-1, Dorchester County Geographic Sub-areas.

Cambridge

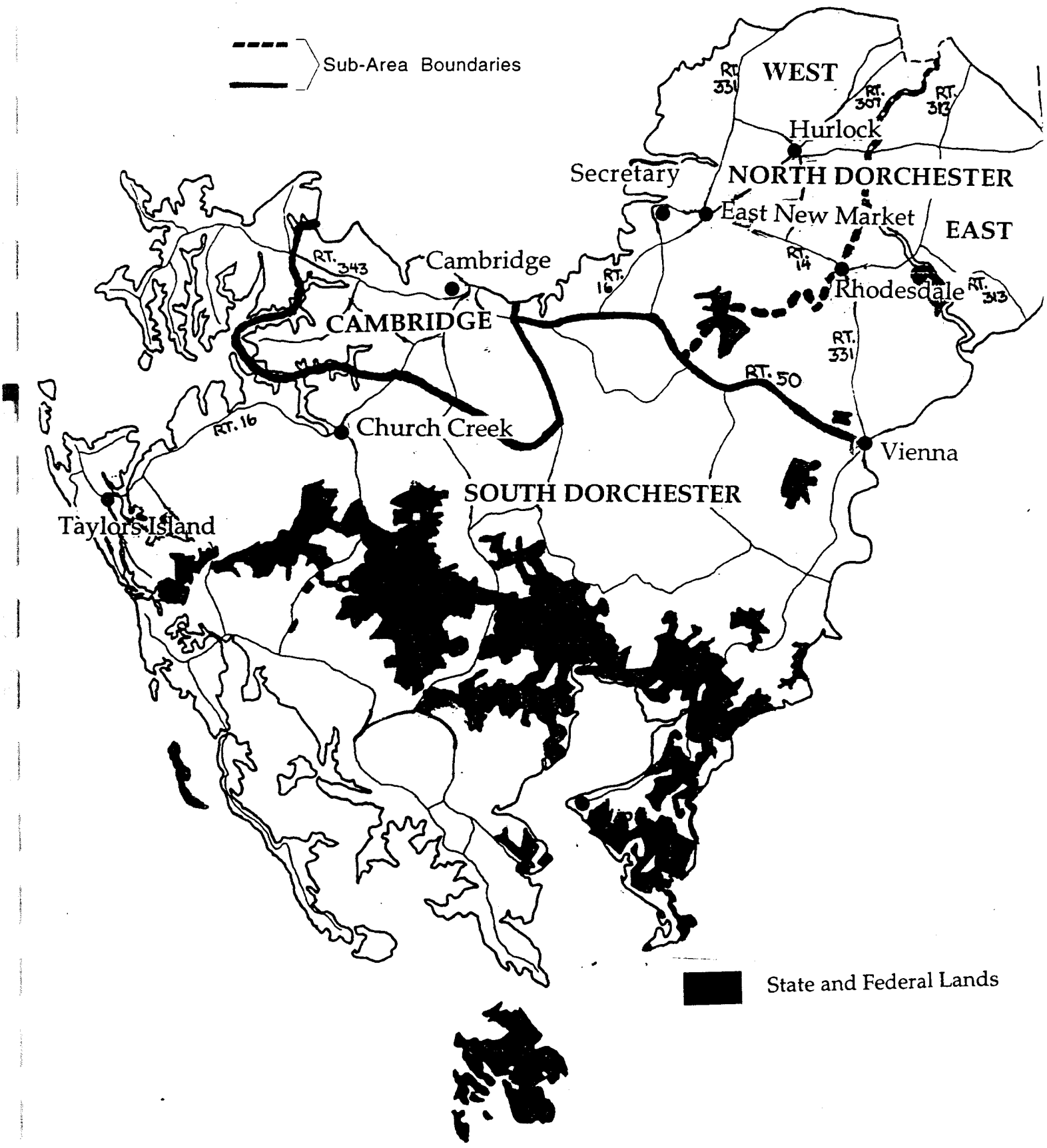
Cambridge will be a vital hub for the County. The health of the county depends on the health of Cambridge and vice versa. Although the City of Cambridge has its own planning authority, the city cannot be physically separated from the surrounding area. Therefore, the City and County should agree and cooperate on policies and actions to build a healthy Cambridge. Cambridge's quality of life will be revitalized and enhanced so as to attract residents, businesses, and visitors. As a result, Cambridge will retain its vitality in spite of competition from Easton, Federalsburg, Preston and Salisbury.

Policies will be adopted to reinforce Cambridge as the County's residential, commercial, and governmental center. It is desirable that the Cambridge area absorb 30 to 40 percent of the County's future projected growth. Expansion of development areas will be dictated by existing development patterns and by geographic and environmental constraints. Most growth will be served with public water and sewer. Emphasis will be placed on investment and rehabilitation of existing buildings and infrastructure, especially the area's historic resources. We want to ensure that new growth does not leave older areas subject to abandonment and decay. The area's historic resources are social, cultural and economic assets to the community and preservation of these resources is vital.

Figure 1-1

DORCHESTER COUNTY

Geographical Sub-Areas



The economy will be diverse. The area will avoid over-dependence on single large employers and will encourage a diverse economic base. The appearance of non-residential development will be better controlled, and barriers to appropriate business development will be removed. Additional commercial development along the Route 50 corridor will be limited. Industrial development will increase and be concentrated near the airport and the existing industrial park. Support facilities for tourism will be developed.

The Cambridge area's image and appearance are vital for attracting residents, businesses, and visitors. Attention will be paid to all aspects of image including signage and the appearance of key sites and locations.

North Dorchester

North Dorchester will be the County's residential growth area. Development is attracted here because of availability of developable land and proximity to major transportation routes. Other areas of the county are more environmentally sensitive and development is more restricted. North Dorchester will absorb 50 to 70 percent of the County's future projected growth. North Dorchester will retain its attractive rural landscape and important natural resources, especially agriculture. New growth will be absorbed carefully and sensitively so that the area's resources are not overwhelmed. A balance is struck between the need to provide opportunities for residential growth, and the competing needs to allow agriculture to remain viable and to retain farm values.

Within North Dorchester, growth will be directed to the Hurlock/Secretary/East New Market area. The incorporated towns will not carry the entire development burden. In the Hurlock/Secretary/ East New Market area, development densities should range from low/medium on private well and septic, to medium/high on public water and sewer. New funding arrangements will be developed to allow expansion of public water and sewer systems. Vienna, which shares characteristics with both North and South Dorchester, will see some growth. Water supply aquifers are protected and maintained.

Elsewhere in North Dorchester, development densities will be low or very low. Special efforts are made to preserve pristine areas along the Marshyhope and Nanticoke Rivers.

New development will be designed to fit appropriately into the landscape. There is no strip development. Attention is paid to how lots are laid out and how new developments are accessed, screened, and buffered so that the overall rural and open character of the area will be retained.

Regulations will have flexibility to achieve design goals. Housing affordability and the need to provide a range of housing opportunities are key concerns. Schools and other community facilities should not be overburdened by growth.

The economic importance of agriculture is recognized, especially the poultry industry. A goal of preserving 100,000 acres of farmland is established to ensure the viability of agriculture in the county. Land use conflicts between agricultural and residential uses are minimized to the extent possible.

Employment and commercial uses will be directed to the towns and existing commercial areas. Small and medium sized businesses will be attracted, reducing economic dependence on large, single employers, and reducing the risk of economic devastation if one business relocates. Traffic conflicts should be minimized and truck routes by-passing town centers will be developed.

South Dorchester

South Dorchester will retain its present character and will have an open, natural, unspoiled feel. The agricultural and maritime cultures should be enhanced and protected. South Dorchester will absorb only approximately 5 to 10 percent of projected future growth. Vienna, which shares characteristics with both North and South Dorchester, will see some growth.

New development will be designed to fit appropriately into the landscape and respecting the existing context so that the overall natural character of the area is retained. Development will be directed to existing villages and crossroads communities. There will be no strip development. Incentives will be in place to encourage rehabilitation of older and historic homes in the area.

South Dorchester will continue to be home to many elderly and retirees with special needs. Residents will have access to community facilities including health and solid waste services. Advanced telecommunications will link the more remote and scattered communities and homes. Recreation opportunities for residents, including youth, are developed.

The economy will be driven by the area's natural resources. Maritime industries such as crabbing and aquaculture will remain vital. Farming and forestry will also be important. Tourism will be promoted and make a significant contribution to the local economy. Support services for tourism will be developed such as bed and breakfasts, organized tours,

and trails. Sailing and yachting clubs with restaurant and other facilities will locate in appropriate locations.

South Dorchester's open, unspoiled character are vital assets to its natural resources based economy. Uses and activities that detract from this character will be regulated and controlled. Uses which promote South Dorchester's pride and character will be encouraged and promoted

DEMOGRAPHIC AND DEVELOPMENT TRENDS, OPPORTUNITIES AND CONSTRAINTS

Population

Tables 1-1 and 1-2 present key recent demographic data for Dorchester County and the incorporated towns. See also Appendices 2 and 3, for demographic change at the election district level.

The county's population (including incorporated towns) has been growing very slowly, with a three percent increase from 1970 - 1990. Population decreased slightly from 1980 to 1990. The only portions of the county with significant population gains between 1970 and 1990 were in North Dorchester: Fork, East New Market, Linkwood and Hurlock (Election Districts 1, 2, 14, 15). The Neck and Madison Districts, west of Cambridge, also saw small population increases.

With the exception of Hurlock and Secretary, all of the incorporated towns lost population between 1970 and 1990. Most portions of South Dorchester had a more than 10 percent loss of population between 1980 and 1990. Many districts had a more than 30 percent population loss between 1970 and 1990.

Table 1-1 Demographic Change, Dorchester County 1970 - 1994

	1970	1980	1990	1994	Percent Change 1970-1990
Population	29,405	30,623	30,236	30,424	3%
Household Population (1)	28,704	29,991	29,750	n/a	4%
Households	9,725	11,329	12,117	n/a	25%
Average Household Size	2.95	2.65	2.46	n/a	

(1) Excludes group quarters population
Source: US Census, Maryland Office of Planning

Table 1-2 ***Population Change, Dorchester County And Incorporated Towns, 1970-1990***

	1970	1980	1990	Change 1970-1990
Brookview	95	78	64	(31)
Cambridge	11,595	11,703	11,514	(81)
Church Creek	130	124	113	(17)
E. New Market	251	230	153	(98)
Eldorado	99	93	49	(50)
Galestown	123	142	123	0
Hurlock	1,056	1,690	1,706	650
Secretary	352	487	528	176
Vienna	358	300	264	(94)
Total Towns	14,059	14,847	14,514	455
Total Dorchester County	29,405	30,623	30,236	831
County Minus Towns	15,346	15,776	15,722	376

Source: US Census

The county's population is projected to increase by about 2,000 by 2020 for a total of 32,250 (see Table 1-3). Persons aged 55 and over are projected to total 12,421 in 2020, a 46 percent increase over the 1990 total of 8,482.

Table 1-3 ***Projected Demographic Change, Dorchester County 1990 - 2020***

	1990	2000	2010	2020	Percent Change 1990-2020
Population	30,236	30,850	31,751	32,250	5%
Household Population (1)	29,750	30,282	31,113	31,570	5%
Households	12,117	12,777	13,468	14,093	13%
Average Household Size	2.46	2.37	2.31	2.24	

1) Excludes Group Quarters Population
Source: US Census, Maryland Office Of Planning

Income, poverty

Compared to other Maryland counties Dorchester County is relatively poor. Dorchester has a higher proportion of low and moderate income households and a lower effective buying income . In 1990, 14 percent of the population were below the poverty level. The county's housing stock is older and housing values are lower compared to other counties. A higher proportion of homes are substandard (see Table 3-2, 1992 Effective Buying Income and Poverty Status in Chapter 3, and Table 4-1, Selected Housing Data in Chapter 4).

Economy and jobs

The county's economic problems are severe. An estimated 1,150 manufacturing and warehouse jobs have been lost since 1986. Non-manufacturing employment has increased in recent years but has not made up for the loss in manufacturing jobs. The county's unemployment rate was 9.8% in 1993, up from 7.6% in 1990. Statewide the unemployment rate was 6.2% in 1993. Dorchester's share of regional employment fell from 20 percent in 1971 to 15 percent in 1992. Competing job opportunities, decreasing yields, and increasing operating expenses resulted in the decline of farming, forestry and fishing occupations.

Housing

Table 1-4 presents data on housing unit change in the county since 1970. The number of housing units in the county, including the incorporated towns, is growing faster than the rate of population increase. Between 1970 and 1990 there was a 30 percent increase in the number of housing units in the county. This faster growth rate compared to the population increase appears to be due to: 1) an increased rate of household formation, which is a national trend; 2) lower average household sizes; 3) increase in the number of seasonal homes; and 4) population shifts within the county, notably population losses in Cambridge and South Dorchester, and population gains in North Dorchester, resulting in increased vacancy ratres.

Approximately 100 new homes per year were added in the county, excluding incorporated towns, between 1980 and 1990. Based on building permits for new homes issued from 1990 to 1993 (569 permits for 4 years), this pace is increasing slightly. Most of the new housing in the County is being built in North Dorchester: EDs 1, 2, 12, 14, 15, and 8, were the districts which had more than 100 building permits for new houses between 1980 - 1991 (see Appendix 4, for housing unit change by election district).

Table 1-4 ***Housing Unit Change, Dorchester County And Incorporated Towns, 1970-1990***

	Number Housing Units			
	1970	1980	1990	Change 1970-1990
Brookview	40	38	26	(14)
Cambridge	4,414	4,723	5,256	842
Church Creek	57	54	52	(5)
East New Market	91	96	71	(20)
Eldorado	31	33	22	(9)
Galestown	60	64	51	(9)
Hurlock	392	636	679	287
Secretary	134	185	231	97
Vienna	148	149	140	(8)
Total Towns	5,367	5,978	6,528	1,161
Total Dorchester County	11,008	12,753	14,269	3,261
County Minus Towns	5,641	6,775	7,741	2,100

Source: US Census

Mobile homes make up a significant portion of new homes. Out of 1,743 permits for new homes, between 1980 and 1993, 592 or 34 percent were for mobile homes. Of these 592 mobile home permits 55 percent were for the northeast portion of the County (Election Districts 1, 12 and 15).

In 1990, a significant portion (15 percent) of the county's housing units were vacant. This is a higher percentage than for adjoining counties. Seasonal and other types of occasionally used homes made up 1,617, or 75 percent, of the vacant units, an 89 percent increase over the 1980 total.

Cambridge has approximately 37 percent of the county's housing stock. It experienced a small increase in housing units between 1980 and 1990. This increase appears to be due to an increase in multi-family units (including conversions of older homes) versus new home construction.

Subdivision

Between 1984 and 1992 approximately 1,457 new lots were created by subdivision in Dorchester County, excluding the incorporated towns. This is an annual pace of approximately 160 lots. The majority of the subdivisions are small subdivisions mostly between 1 and 4 lots, while

only 30 and 40 percent of the lots are in subdivisions containing 10 or more lots.

As of 1994 there were approximately 1,200 vacant lots in the county in some 120 subdivisions. This represents an 8 to 12 year supply of lots based on a building pace of between 100 and 150 units a year. Approximately 40 percent of these vacant lots were in North Dorchester and 40 percent in South Dorchester.

Water and Sewer

Availability and organization of public water and sewer is a major development issue in Dorchester County. Sewerage is a more constraining factor than water supply. Water is abundant in the county and generally available. More critical is the protection of shallow water supplies from contamination by waste disposal.

Approximately half the county's population is served by municipal water and sewer services. Over 80 percent of these are in the Cambridge District. In addition to Cambridge the only other communities which have a sewerage treatment plant are Hurlock, East New Market/Secretary (shared facility), and Vienna. Municipal water and sewer are available to the county's two industrial parks in Cambridge and Hurlock. The county does not own a treatment plant. As of 1995, excess capacity is available only at the Cambridge and Hurlock treatment plants. In addition to capacity limitations, portions of the East New Market, Secretary and Vienna distribution systems are subject to groundwater infiltration. Major capital expenditures would be needed to increase treatment capacity, and to provide for repairs and extensions to sewer lines.

Key trends related to water and sewer are:

(1) While the Cambridge sewerage treatment plant has considerable available capacity, the city has seen little growth.

(2) Development is increasingly occurring in rural parts of North Dorchester where public water and sewer is either unavailable or is constrained.

(3) Lack of capacity at the East New Market/Secretary and Vienna plants inhibits potential growth of those municipalities. Conversely, available capacity at the Hurlock plant has allowed that town to grow.

(4) A number of rural Dorchester communities have failing septic systems that threaten shallow wells.

(5) All four sewerage treatment plants are owned and operated by the incorporated towns. The county is not in the water and sewer business. The county has a sanitary commission, which is responsible for public water and sewer service outside the towns. However, historically, Dorchester County, through the sanitary commission, has not played a proactive role in encouraging countywide comprehensively planned development of water and sewer services.

Resource and Development Areas

Dorchester County is Maryland's largest county. Dorchester has large natural resource areas including substantial coastal areas, wetlands, forests, and agricultural lands. As shown on Table 1-5, the amount of developable land is small compared to the county's overall size.

Table 1-5 Dorchester County Land and Water Areas

	Acres	Percent
Total Area	629,100	100%
Water (excluding wetland)	278,800	44%
Land Area	350,300	56%
Chesapeake Bay Critical Area	176,600	50% (of land area)
Wetland (tidal and non-tidal)*	86,500	25% (of land area)

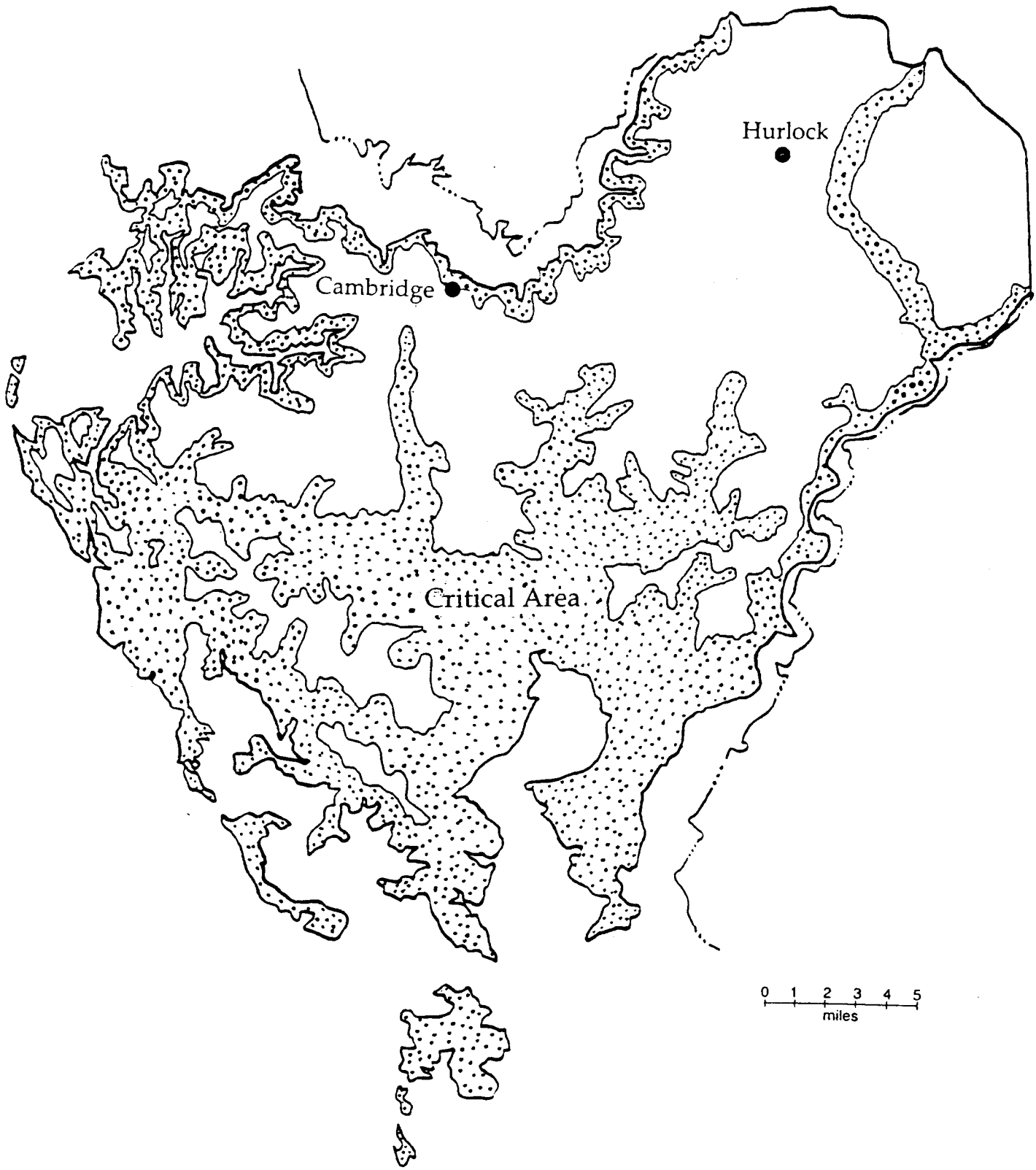
*Some wetlands are within the Critical Area
Source: Maryland Land Use/Land Cover Forecast 1990-2020, Maryland Office of Planning, 1992.

The bulk of the county's developable area is in North Dorchester and around Cambridge. This area coincides with the county's prime agricultural lands, but the area also contains significant non-tidal wetland resources which must be protected. Figure 1-2 illustrates the areas in Dorchester County which are in the Chesapeake Bay Critical Area. (See also Figures 2-2 and 7-3 showing Prime Agricultural Lands and 100 Year Floodplain).

Figure 1-2

DORCHESTER COUNTY

Critical Area



The wider context: State planning and planning in adjoining counties.

State Planning

Dorchester County's power to plan and zone is authorized by state law (Article 66B of the Annotated Code of Maryland). In 1992, the State of Maryland adopted the Economic Growth , Resource Protection and Planning Act (the Act) which amended Article 66B. The Act established a series of land use visions for Maryland's future. Under the Act, the land use visions must be implemented when a local comprehensive plan is prepared. The seven visions are:

(1) *Development is concentrated in suitable areas;*

(2) *Sensitive areas are protected;*

(3) *In rural areas, growth is directed to existing population centers and resource areas are protected;*

(4) *Stewardship of the Chesapeake Bay and the land is a universal ethic;*

(5) *Conservation of resources, including a reduction in resource consumption, is practiced*

(6) *To assure the achievement of the above economic growth is encouraged and regulatory mechanisms are streamlined; and*

(7) *Funding mechanisms are addressed to achieve these visions.*

The Act does not prescribe in detail how a jurisdiction is to implement each vision. This Dorchester County Comprehensive Plan takes the visions as a starting point to establish priorities for the county.

Adjoining Counties

Dorchester County is bordered by four counties: Talbot, Caroline and Wicomico Counties in Maryland and Sussex County Delaware. To the north, Talbot and Caroline Counties have designated the southern portions of their counties adjacent to Dorchester as conservation and agricultural areas. The development policies in these areas are generally more restrictive in comparison to Dorchester. For example, subdivision is allowed generally at a rate of one house per 20 acres compared to one house per one to two acres in Dorchester. Mobile homes are more strictly regulated in these counties as well.

Sussex County, Delaware, and Wicomico County border Dorchester to the east. The portions of these counties close to Dorchester are agricultural in character. Residential development outside the Chesapeake Bay Critical Area is currently permitted at similar or even higher densities than in Dorchester. However, development pressure is not great because the growth areas for Sussex and Wicomico Counties lie further east, towards Salisbury, Seaford, and the Routes 13 and 113 corridors.

There is some feeling on the part of local planners and realtors that, as a result of stricter regulations in Talbot, Caroline and Wicomico counties, Dorchester has become a less regulated and more affordable alternative for some types of housing, especially mobile homes and strip residential development.

CHAPTER 2 LAND USE

The land use plan is key to the implementation of the comprehensive plan's vision for Dorchester County. In this chapter, existing land use is described first, followed by the visions for the county as developed through the comprehensive plan process. Finally, the proposed land use plan describes in detail the actions that should be taken to implement the visions.

EXISTING LAND USE

Existing land use, as of 1990, in Dorchester County is shown on Table 2-1. The County is characterized by open, natural, agricultural and forested areas. Only approximately three percent of the overall land area is developed.

Table 2-1 Dorchester County 1990 Land Use in Acres

	Acres		Percent of Total Land
Residential	9,764		2%
Very low density		3,943	
Low density		4,059	
Medium/high density		1,762	
Non-residential	2,389		1%
Commercial/industrial		1,296	
Other		1,093	
Agriculture	107,426		30%
Forest	143,878		41%
Extractive/barren	342		>1%
Wetland	86,507		25%
Total Land	350,306		100%
Water	278,876		
Total County	629,182		

Source: Maryland Land Use/Land Cover Forecast 1990-2020, Maryland Office of Planning, 1992.

LAND USE DEMANDS

The following assumptions and considerations guided the preparation of the land use plan:

- Between 1990 and 2020 Dorchester's population is projected to increase by just over 2,000 people. The number of households is projected to increase by slightly less than 2,000 (see Tables 1-1 and 1-3).

- If residential development over the next 25 years happens at the same pace as occurred between 1970 and 1990 around 3,000 new housing units will be created in the county (including the incorporated towns).

- Because of the need for prudent planning, the land use plan considers a countywide 1995 to 2020 low growth scenario of around 2,500 new housing units and a higher growth scenario of around 5,000 housing units.

- For agriculture to remain viable in the county 100,000 acres is considered a minimum threshold.

- Economic development considerations are a priority in land use planning.

LAND USE PLAN

The land use plan divides the county into six different land use areas. There are four growth or development areas, comprising approximately eight percent of the county's land area, and two rural areas comprising approximately 92 percent of the county's land area. See Figure 2-1, Land Use Concept Plan. The four growth areas are:

(1) **incorporated towns** with public water and sewer;

(2) **areas adjoining the towns**: in the unincorporated area of the county, but ultimately expected to be connected to public water and sewer;

(3) **development areas**, where residential uses are expected to dominate, but on private or shared water and sewer systems; and

(4) **villages**; pockets of higher density in rural areas.

The two rural areas are:

(5) **agricultural areas**, where the preferred land uses are agriculture, forestry, and agribusiness; and

(6) **natural resource area**, characterized by conservation, maritime industries, and very low density residential development.

Table 2-2 indicates the approximate size of the six areas.

Table 2-2 Proposed Land Use in Acres

Land Use Area	Approximate Acres	Percent
Incorporated Towns	6,000	1.6
Areas Adjoining the Towns	9,000	2.5
Development Areas	11,000	3.0
Villages	5,000	1.3
Agricultural Areas	132,000	35.9
Natural Resource Area	204,000	55.5
Total	367,000	100

Note: Land use area does not equal total in Table 2-1 because a different map base was used for the calculations.

1 & 2) INCORPORATED TOWNS AND AREAS ADJOINING THE TOWNS

Goals:

Concentrate growth in and around Dorchester's towns.

Make the towns attractive places to live.

Reduce costs of supplying government services.

These areas are the towns and areas surrounding Cambridge, Hurlock, East New Market, Secretary, Vienna and Church Creek. They are addressed together in this section because these growth areas are envisioned as natural extensions of the incorporated towns. The towns have planning authority within their boundaries. These are the areas of

the county best suited to accommodate additional residential and employment growth because of the availability or potential availability of public water and sewer.

Directing growth to the towns is essential to the success of other comprehensive plan goals including preservation of rural areas, economic development, and providing government services efficiently and at minimum cost. In the long term (ten years and beyond), these areas should absorb 60 to 70 percent of new growth in the county. However, because of barriers to development, these areas can be expected to absorb only 15 to 20 percent of new growth in the short term.

The main barriers to growth in the towns are lack of public water and sewer and the increased cost of developing housing in towns versus the county. To attract development, the towns must also offer amenities and attractions so that they become places where people wish to live. Although rural subdivisions have become attractive to many people, many others would like to live in a small town environment, where they can be part of a real community. Dorchester's towns offer an excellent opportunity for attractive small town development.

To encourage growth in these areas, this plan recommends extending water and sewer beyond the current town boundaries into the surrounding areas. Coordination for this should take the form of joint county/town local area plans and agreements (see also under water and sewer in Chapter 6). A range of housing types would be built in these areas including single family homes on lots ranging in size from 1/4 to 1/2 acre, townhouses at six to eight units per acre, and multi-family units at up to 10 to 15 units per acre. Multi-family developments would have to be carefully designed and managed to be compatible with existing and traditional development.

Water and sewer extensions beyond Cambridge, Hurlock and Church Creek are unlikely in the short term until more of the undeveloped land within the towns is developed (see discussion under water and sewer in Chapter 6). Cambridge and Hurlock have large areas of undeveloped land within their current town boundaries. For example, the town of Hurlock contains 1,305 acres of which approximately 800 acres are undeveloped. Church Creek is connected to Cambridge via a dedicated forced main.

In the short term, the county should encourage and assist extensions of public water and sewer beyond town boundaries of East New Market, Secretary, and Vienna. Both the East New Market and Secretary shared sewerage treatment plant, and the Vienna plant, are at capacity. In addition portions of their distribution systems are subject to groundwater

infiltration. Communities near all three towns have failing septic systems. Sewer extensions to the communities of Green Point and Depot are planned. Residents of West Vienna wish to be connected to public water and sewer.

To make the towns attractive places to live the county should support efforts such as:

- locating public facilities such as schools, parks, and community centers in towns;

- developing and enhancing amenities such as parks, sidewalks, landscaping, bikeways, water access, public parking areas, and pedestrian trails;

- discouraging strip commercial development outside the towns;

- promoting cultural, recreational and social events;

- ensuring that development outside town boundaries is compatible with development within the towns. The county and town planning commissions should jointly review projects in their respective growth areas.

Local Area Plans

Local area plans should be prepared for some areas of the county to examine issues and concerns in more detail than can be achieved in this comprehensive plan. As priorities, area plans should be prepared for the East New Market-Secretary area, and for the area east of Cambridge between the City and the Route 50/Route 16 north intersection. Area plans for Hurlock and the entire Cambridge area should be pursued in the future.

The East New Market-Secretary plan should be a joint county/town effort. The plan should address growth areas, water and sewer service, and transportation, including the desire for a by-pass around East New Market. Planning for the area must respect East New Market's historic resources. The town is on the National Register of Historic Places. A 1992 study of the town recommended guidelines for protecting existing views, while accommodating new development.

The area east of Cambridge between the City and the Route 50/Route 16 north intersection experiences the heaviest traffic in the county because of highway-oriented commercial uses, as well as Route 50 and Route 16 through traffic. The area contains residential areas as well as sites that are

valuable for the county's economic development such as the airport and the Eastern Shore Hospital Center. Several ideas have been suggested for this area including: (1) residential development with a marina and/or golf course for portions of the hospital center site; (2) development of an industrial park around the airport; (3) improving the appearance of the Route 50 commercial strip through architectural treatments, landscaping, and signage controls; and (4) improvements to traffic flow. To improve traffic flow and enhance economic development opportunities, a new road alignment for Route 16 should be explored: realigned intersection at Route 50/Mount Holly Road, extension south to Cordtown Road, Bucktown Road , thence to Gypsy Hill Road/Woods Road, (see Chapter 5 for further discussion).

Strategies

Work with the towns to increase water and sewer capacity in and around the towns.

Pursue public investment decisions and other strategies to make the towns attractive places to live.

Work with the towns to reduce the cost of developing new housing in and around the towns.

Prepare local area plans for (1) the East New Market-Secretary area and (2) the area east of Cambridge between the City and the Route 50/Route 16 north intersection.

Institute joint county/town project review for projects adjacent to town boundaries.

3) *DEVELOPMENT AREAS*

Goal:

Allow for and encourage rural-residential, affordable and move-up housing in selected rural areas, without overburdening roads and schools

Development Areas are areas of the county that will accommodate rural-residential development at low to medium densities on private or shared septic systems and wells. No extensions of public water or sewer will be provided. Existing agricultural uses in these areas will not be discouraged, but are ultimately expected to convert to residential use. Residential development will be encouraged in these areas, with the goal

of absorbing 50 to 60 percent of new residential development over the next 25 years. If the county grows faster than currently projected, this could translate to around 2,500 new housing units.

Over the past several years there has been residential development in rural areas of the county, driven in large part by market demand. By identifying development districts the county can accommodate a range of housing opportunities, including rural subdivisions, affordable housing, and move-up housing ($100,000 to $160,000 range). Lack of move-up housing has also been identified as an economic development issue (see Chapters 3 and 4). To reduce sprawl and meet other comprehensive plan goals, the county needs to limit rural-residential development to areas best suited to accommodate it.

Three Development Areas are proposed : i) the Cambridge District: the area west and south of Cambridge; ii) the Mount Holly to Secretary District: north side of Route 16 between Mount Holly and Secretary; and iii) the North Dorchester District west of Hurlock: west of Routes 16 and 331, and north and east of Pine Top Road and Cabin Creek Road (see Figures 2 and 4).

The three areas contain approximately 11,000 acres and are an estimated 10 to 20 percent developed. Based on a gross yield of 2 to 4 acres per new subdivided lot, and a development pace of 160 lots per year (equivalent to Dorchester's **countywide** annual average rate of subdivision between 1984 and 1992), the approximately 8,800 acres available for subdivision in these three areas, represents a minimum 14 to 27 year land supply.

Since the Development Areas are expected to absorb up to 60 percent of projected growth, it is important that growth be absorbed without overburdening roads, schools and other county services. The chief concern is with the Route 16 corridor north of Cambridge which emerged during the 1980s as the county's main growth area. Analysis of traffic conducted for this comprehensive plan indicates that the projected growth in this corridor over the next 20 to 25 years will have minimal impact on current levels of service. However, to protect future traffic flows, some corridor protection measures are recommended (see Chapter 5, and under strip development in Chapter 4). With respect to schools, the Board of Education should review its enrollment projections as necessary to conform with this comprehensive plan so as to plan for any resulting enrollment increases in this part of the county.

For Development Areas this plan recommends minor changes to existing development regulations, designed to encourage development in these areas versus development in agricultural or natural resource areas. To

encourage such development the following policies are recommended and described further below:

(1) allow smaller lots and smaller setbacks than are currently permitted, and therefore modestly higher densities;

(2) streamlined development process;

(3) limiting strip residential development; and

(4) allow subdivisions to be served by narrower rural-standard public roads;

Lot size and setbacks

The proposed development areas currently require minimum lot sizes are approximately one or two acres, depending on zoning. Most new lots end up larger than the minimum size required by zoning because of health department requirements for groundwater protection. For example, in the B-1 groundwater protection zone around Secretary, residential density must be at one unit per two acres if groundwater is directly penetrated by a septic drain-field (see under groundwater in Chapter 7). By permitting and encouraging shared water and sewerage facilities, clustering lots, and use of off-site drain-fields, the minimum lot size could be reduced to perhaps, three quarters of an acre or even one half acre (see discussions in Chapters 4 and 7, Housing, and Environmentally Sensitive Areas). Smaller lots would be neither desirable nor achievable on every project, but would allow for more flexibility in design and could reduce development costs in certain locations and situations.

To allow more flexibility in subdivision design, minimum setbacks and front footage requirements could also be reduced, especially if smaller minimum lot sizes are permitted (see discussion of this under affordability in Chapter 4).

Streamlined development process

Streamlining is addressed in detail in Chapter 8. Some of the strategies proposed in that chapter would apply county wide. However, it is intended that some would apply only within the Development Areas. Examples would be the convening of a joint project review group, and possibly, involving federal and state agencies in the joint review. Through streamlining the county will encourage development in designated development areas.

Strip Development

Strip development would be restricted. See detailed discussion of strip development under design issues in Chapter 4, Housing.

Rural Standard Roads,

Permitting rural standard roads can reduce development costs and help reduce sprawl development. See under Design in Chapter 4.

Strategies

Create Development Areas by amending zoning and subdivision regulations, and other regulations and procedures.

Permit smaller lot sizes and reduced setbacks where feasible and consistent with Health Department regulations.

Restrict strip residential development.

Direct and encourage development in Development Areas through regulatory streamlining.

4) AGRICULTURAL AREAS

Goals:

Preserve agriculture as a viable industry

Increase farm values.

Minimize conflicts between agricultural and residential uses .

Create predictability for landowners in Agricultural Areas.

Accommodate appropriate non-agricultural uses.

Prevent sprawl development.

Agricultural areas are portions of the county where the preferred land uses are agriculture, forestry, and agribusiness. Low density residential development would be permitted at a density of one housing unit per 10 to 15 acres.

Agriculture is a key industry for Dorchester County (see under Agriculture in Chapter 3). Agriculture's importance to the county goes beyond the monetary: it represents tradition and a way of life, and is key to the image of the county held by residents and non-residents. The agricultural landscape contributes to the county's natural, open feel, which makes the county attractive to employers, residents, and visitors. Approximately one third of the county's land is in farms, of which about 75 percent is cropland. As the mid-Atlantic region continues to develop, Dorchester's wide open spaces will become an increasingly valuable economic and social asset. Protecting agricultural land is, therefore, an important economic goal for the county (see Figure 2-2, Prime Agricultural Lands).

In setting land use policy for Dorchester's agricultural areas, the value of farmland as an economic asset to the land owner is a prime concern. Farmland has an agricultural value, but also, potentially, a *residential development* value. The residential development value of most farm land in Dorchester County is low, for reasons discussed below. Through the adoption of comprehensive plan strategies, one of the county's goals is to increase farm values.

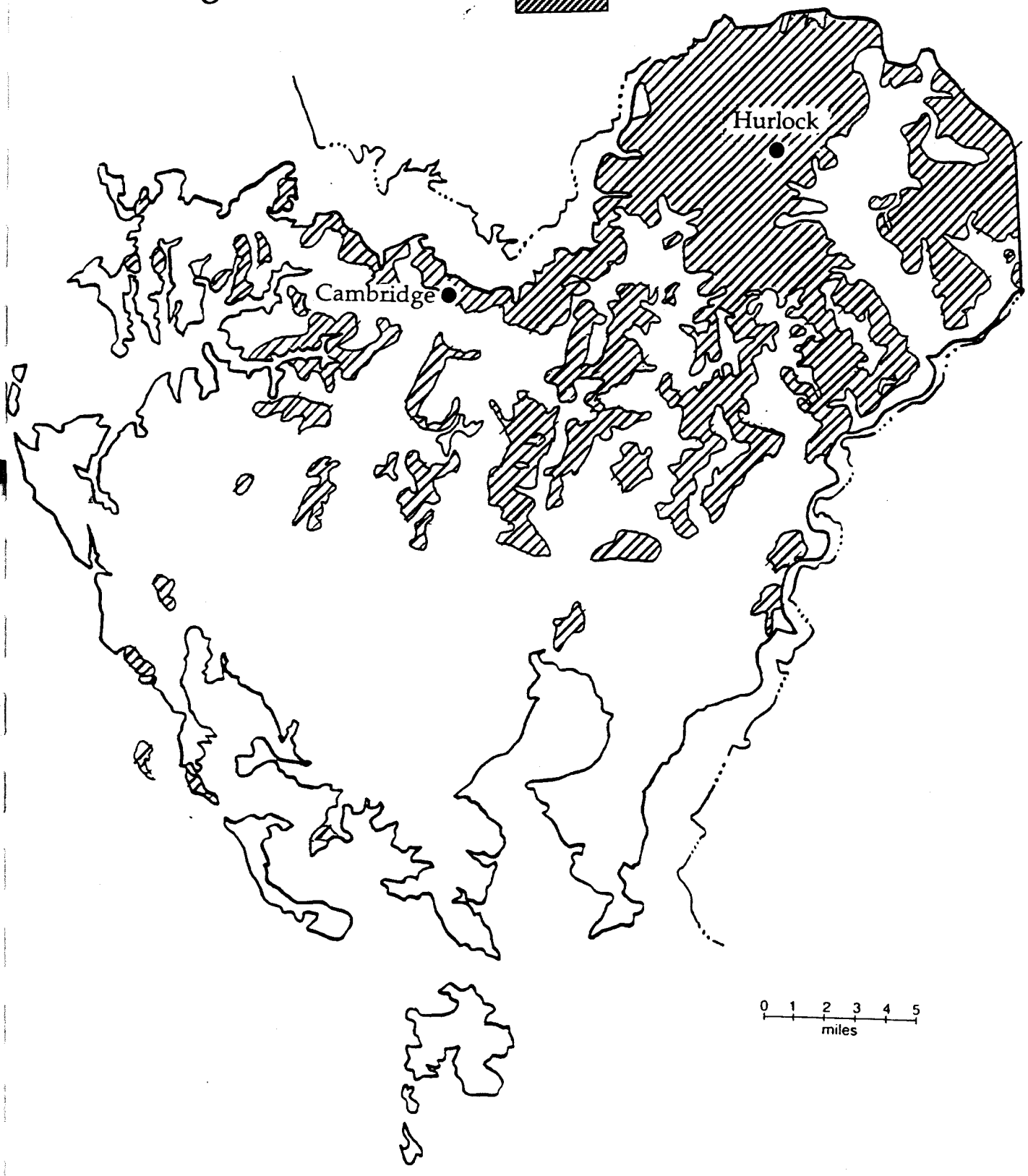
Under the county's current zoning, most agricultural land is zoned for housing with an approximately one acre (40,000 square foot) minimum lot size. Theoretically, then, a one hundred acre farm could be subdivided into 100 housing lots. In reality, such a high density is rarely achieved because of the need to provide land for roads, stormwater management, state forest conservation requirements, and health department requirements for groundwater protection. Since 1988, actual lot yields for residential development countywide have averaged around one lot per five acres. Market effects have also reduced the development value of farmland in two important ways. First, demand for housing in most rural areas has been limited because of the county's weak economy. Second, the supply of lots far exceeds demand. As of 1994 there were some 1,200 lots in the county that were platted but undeveloped . There are additional potential lots from approved subdivision plans which have not been recorded (see also under Streamlining in Chapter 8).

Conversely, residential development in agricultural areas can have a negative impact on farm operations. Farm operators may receive complaints or lawsuits over such issues as noise, odors and slow farm-vehicle traffic. Farmers in agricultural areas also have to live with the uncertainty that a neighboring farm may be sold for development, possibly jeopardizing their own operation. Uncontrolled rural residential development negatively affects the rural landscape, eroding the county's open, unspoiled feel. Since the county's beauty is itself an economic asset, such uncontrolled development is an economic as well as a visual concern.

Figure 2-2

DORCHESTER COUNTY

Prime Agricultural Lands



The land use policies pursued by the county for the last 20 years, primarily through its zoning and subdivision regulations, have not succeeded in protecting agriculture and the rural landscape. Based on the foregoing discussion, the county needs to create areas where agriculture is the preferred use. In these areas, the county's intent is not to deny the farmer's right to develop, nor to restrict a landowner's ability to create lots for children and family members. The intent is to assure that residential development is permitted, but only as compatible with agriculture. Because clustering houses on smaller lots can preserve farmland and protect scenic landscapes, clustered residential development, at higher densities than otherwise permitted, would be encouraged in agricultural areas by permitting cluster subdivisions at a density of one lot per 10 acres compared to one lot per 15 acres in non-cluster subdivisions (see under Housing Design in Chapter 4).

The value of land in Dorchester's agricultural areas will increase over the long term by creating predictability for the farmer with respect to development around existing farmland, and by limiting the current, virtually unlimited supply of potential residential lots. In the long term a transfer of development rights (TDR) program could also help increase farm land values (see under Agriculture in Chapter 3). No rezoning of land in the agricultural area which would permit higher density residential development than is contemplated in this plan should be permitted unless public water and sewer is provided to the property.

The agricultural areas shown on the comprehensive plan's proposed land use map (see Figure 2-1) comprise around 132,000 acres. These lands include most of the county's prime agricultural lands, and much of the agricultural land on the Columbia Aquifer, which underlies most of Dorchester County north of Route 50. The Columbia aquifer is an important source of irrigation water for cropland and has particularly high water yielding capacity around Hurlock. Although extensive residential development is not envisioned in the Agricultural Area, even at the residential densities proposed in this plan, the Agricultural land use area alone could yield, at build out, between 8,800 and 13,200 residential lots, equivalent to a doubling of the county's current population.

Non-agricultural uses

Existing and approved residential developments in agricultural areas would remain. Agriculture, agri-business, and forestry and other compatible non-residential uses would be allowed in this area. Adoption of right-to-farm legislation (see Chapter 3) and the reduction in residential development in agricultural areas should reduce the likelihood that residents will oppose the location of such uses.

Other non-residential land uses may be compatible with agricultural area, or natural resource area, goals provided appropriate site development performance standards are met. An example would be the proposed Delmarva Power and Light power plant (see Chapter 3). More problematic, because of smaller site size, might be economic development opportunities afforded by uses such as a large warehouse or trucking company, or sand and gravel extraction. Such uses have been attracted to North Dorchester, particularly to the Hurlock area, because of location and land availability. To the degree the county desires to accommodate or encourage such uses, the county should consider amending its zoning ordinance to incorporate floating zones and/or zoning with a site plan (see under Industrial Land in Chapter 3). Because such uses can have a major visual impact on Dorchester's flat landscape, performance standards for non-residential uses should be reviewed when the county adopts a design manual (see under Design Issues in Chapter 4).

Within the agricultural area, some non-agricultural uses, residential and non-residential, would be served by multi-use waste treatment facilities or shared facilities, subject to appropriate site development performance standards, and Health Department approval.

Strategies

Create Agricultural Areas by amending zoning and subdivision regulations, and other regulations and procedures.

Permit residential development compatible with agricultural uses as follows:

Allow up to three lots as a matter-of-right on lots or parcels created prior to March 15, 1972[1]. The minimum required lot size would be 40,000 square feet, consistent with current regulations. Lots created through transfers of land to immediate family members[2] will be subject to these lot size and density provisions.

[1]March 15, 1972 was the effective date of subdivision regulations in Dorchester County. April 1, 1995 was the effective date Ordinance Number 235 which instituted a temporary countywide moratorium on subdivisions.

[2]Under Section 140-4 of the County's Subdivision regulations.

Recognizing that lots may have been created after March 15, 1972 in the expectation of further subdivision, this plan proposes that from lots created by subdivision prior to April 1, 1995[1] , additional lots could be created as follows:

Size of previously subdivided lot	Additional lots permitted*
10 acres or less	1
10 to 20 acres	2
20 acres or above	3

*Such lots would have to meet all the requirements of the subdivision regulations. These requirements could preclude the creation of new lots otherwise meeting the size requirements.

Minor subdivisions will be subject to regulations designed to limit strip development (see Chapter 4).

Further subdivision, not clustered, would be permitted at a density of one lot per 15 acres;

Cluster subdivisions would be permitted at a density of one lot per 10 acres (for details, see discussion of cluster development under Design in Chapter 4).

No rezoning of land in the agricultural area which would permit higher density residential development than is contemplated in this plan should be permitted unless public water and sewer is provided to the property.

Adopt right-to-farm legislation, establishing agriculture and agribusiness as preferred, protected uses in agricultural areas.

Explore potential for transfer of development rights (TDR) program as a potential long term strategy for Dorchester.

Explore ways to reduce the inventory of recorded undeveloped lots with little development value in agricultural areas .

If incentives were offered, owners of such lots could be encouraged to combine lots and transfer the development rights to areas in the county where development is encouraged. One option might be to allow such transfers as part of a TDR program.

Review performance standards for non-residential development in agricultural areas.

Permit non-agricultural uses, residential and non-residential, to be served by multi-use waste treatment facilities or shared facilities, subject to appropriate site development performance standards, and Health Department approval.

5) NATURAL RESOURCE AREAS

Goal:

Preserve the Natural Resource Area's open, natural, unspoiled character.

Natural Resource Areas are portions of the county where the preferred uses are:

- conservation
- natural resource based industries such as farming, forestry, fishing, hunting, trapping and tourism; and
- low density residential development.

Natural Resource Areas comprise close to 60 percent of the county's land area, and are located mostly in South Dorchester, with additional areas along the Choptank, Marshyhope and Nanticoke Rivers (see Figure 2-1). Natural Resource Areas include all lands that are in the Chesapeake Bay Critical Area, as well as adjoining lands with limited development potential because they contain large wetland areas. Natural Resource Areas are projected to absorb only limited growth over the life of this plan consistent with the vision for the area (see Chapter 1).

Between 1970 and 1990 many areas of South Dorchester lost population, although the number of housing units increased by 22 percent. Some of the housing unit growth is attributable to seasonal and second homes, a trend which has been particularly noticeable on Elliott Island, Upper and Lower Hoopers Island, and on Taylors Island. In Natural Resource Areas, changes to existing development regulations are required to achieve the vision for the area, and to achieve greater consistency between different sets of regulations affecting these parts of the county. Where residential development does occur, it should be designed to retain the maximum amount of natural area and open space, through techniques such as smaller lot sizes and clustering (see Chapter 4). Opportunities for natural

resources-based economic development such as tourism should be encouraged where appropriate.

Currently, the residential development density permitted under the county's base zoning and the development density permitted under the Chesapeake Bay Critical Area Program are inconsistent. The base zoning is mostly Maritime-Agricultural-Residential (M-A-R) or Agricultural Residential (A-R) with a 40,000 square foot minimum lot size. However development is limited to one dwelling unit per 20 acres in 90 percent of the Critical Area. The Critical Area Program regulations act as an overlay zoning district that take precedence over the base zoning regulations. For the Natural Resource Area, the county should adopt base zoning classifications that correspond to the critical area program goals, policies, and standards. This would help simplify administration of the ordinances and eliminate confusion and conflict between the two regulations. Areas that are within the comprehensive plan's Natural Resource Area, but **outside** the Critical Area, would have less restrictive regulations with respect to permitted uses and residential development.

Certain areas within the critical area portion of the Natural Resource Area should be predesignated for residential growth allocation to ensure that this finite resource is used in appropriate locations. Only 1,250 acres remain out of the county's original 2,900 acre allocation (see under Critical Area Program in Chapter 7). Suitable areas are those areas of the Critical Area that are adjacent to Development Districts. The county will continue to review non-residential growth allocation on a case by case basis.

Strategies

Adopt base zoning classifications that correspond to the Intensely Developed Area (IDA), Limited Development Area (LDA), and the Resource Conservation Area (RCA) program goals, policies, and standards.

Permit residential development compatible with natural resource uses as follows:

In areas located **outside** of the Critical Area, but **within** the Natural Resource Area, allow up to three lots as a matter-of-right on lots or parcels created prior to March 15, 1972 (effective date of subdivision in Dorchester County). The minimum required lot size would be 40,000 square feet, consistent with current regulations. Lots created through transfers of land to immediate family members will be subject to these lot size and density provisions. Minor subdivisions would be subject to access restrictions set forth under strip development in Chapter 4. Further subdivision would be at a density of one unit per 20 acres. All

major subdivisions (more than three new lots) would have to be clustered, consistent with the cluster development regulations of the Critical Area Program, which currently require a minimum 30 percent open space. Consideration should be given to adopting a **maximum** permitted lot size, to ensure that large areas of residential subdivisions remain in a natural state.

In areas located within the Critical Area, land use and subdivision would be consistent with the requirements of the Critical Area Program.

Explore opportunities to expand permitted non-residential uses within the Natural Resource Area.

Permitted uses in the Resource Conservation Area (RCA) and Maritime-Agricultural-Residential (MAR) district should be revised to permit facilities needed for tourism and other natural resource-based economic development. Permitted uses in the RCA could be used as a guide. For example, bed and breakfasts are permitted in the RCA but not in the M-A-R. Hotels and motels are not permitted in the RCA or in M-A-R, but may be appropriate, and important, for economic development in portions of the Natural Resource Area. Any changes to regulations within the Critical Area would have to be approved by the Critical Area Commission.

As in the agricultural area, certain non-agricultural uses, residential and non-residential, would be served by multi-use waste treatment facilities or shared facilities, subject to appropriate site development performance standards, and Health Department approval.

Predesignate areas of the Critical Area adjacent to Development Districts for Growth Allocation

6) VILLAGES

Goals:

Encourage the growth and development of Villages in Dorchester County's rural areas.

Strengthen Villages as community centers.

Protect historic resources in Villages.

Villages are located in Agricultural or in Natural Resource Areas (see Figure 2-1). They are an important resource adding to the county's character and charm. Villages are existing incorporated towns without public water and sewer, such as Eldorado, Brookview and Galestown, and other villages and crossroads communities. In some cases they contain important community services such as a church, post office, fire hall or country store. Some villages contain important historic resources. Some villages and small communities lost population between 1970 and 1990.

Some Villages are already zoned for higher density development than the surrounding areas, either through the underlying zoning or by being classified as Critical Area Limited Development Areas (LDA). For example, portions of Taylor's Island are zoned R-2 (40,000 square foot minimum lot size) and classified as LDA (up to four dwelling units per acre). Other communities such as Hoopers Island, Wingate, and Crapo were designated LDA, but are not suitable for higher density development because of soil constraints. The county should explore whether the permitted density in such LDA designated areas could be transferred to other portions of the Critical Area.

This plan recommends that Villages function as small development areas within Dorchester's rural area. Attracting rural development to Villages will help retain the character and charm of the surrounding Agricultural and Natural Resource Areas, and will strengthen the function of the Villages as community centers. To encourage development in Villages, incentives similar to those in the Development Areas would apply. These would permit and encourage the following:

- shared water and sewerage facilities;
- clustered lots, and off-site drain-fields;
- reduced minimum lot sizes, where feasible; and
- streamlined development process.

Soil conditions may preclude higher densities where villages are located in environmentally sensitive areas. However, as in Development Areas, higher density growth should be permitted and encouraged where it can be achieved.

The county will try to make Villages attractive and desirable places to live. Some of the recommendations for attracting development to the towns in North Dorchester would be equally applicable to Villages, though on a smaller scale. New development in and around Villages should be compatible and harmonious with traditional development in matters such

as scale, lot layout, and design. Review of development projects against adopted design guidelines might be appropriate for some Villages.

Central to efforts to attract development to Villages are improvements in the rural economy. Without jobs there will be little opportunity to attract development to Villages (see also Chapter 3). To strengthen the local economy, employment uses such as offices, resource-based light industrial uses, tourism-related facilities and retail uses should be encouraged in Villages, to the extent that they are consistent with the Critical Area Program goals and objectives.

Strategies

Examine the appropriateness of zoning and Chesapeake Bay Critical Area designations for proposed Villages and make necessary changes.

Pursue public investment decisions and other strategies to make Villages attractive places to live.

Encourage employment uses in Villages through means such as zoning and public investments.

Ensure compatibility of new development.

Consider an enhanced review process for development in Villages, based on design guidelines.

HISTORIC AND CULTURAL RESOURCES

Goals:

Preserve and enhance the County's historic and cultural resources, natural landscape and heritage.

Identify and implement techniques to preserve local heritage, culture and architecture.

Establish public policy and direction for County preservation efforts.

Promote historic and cultural resources as an economic development tool throughout the County.

Existing Resources

Dorchester County contains many important historic and cultural resources. These include architecturally important structures, special archaeological and historic sites and clusters of historic buildings. The county also has a number of "traditional cultural properties", reflecting the presence of Native American and African American communities in the county. The resources are located throughout the county in historic villages such as East New Market to more remote areas in the southern portion of the County. County citizens have shown a strong interest in preserving the county's historic and cultural resources. The demolition of the Old Jail in Cambridge in 1994 was highly controversial.

Some key resources are described in "A Visitor's Guide for Dorchester County" prepared by the Dorchester County Tourism Office. They include:

- Bazel Church (Bestpitch Ferry Road) - Small wooden church where Harriet Tubman worshipped in the mid 1800's.
- Big Liz (Green Briar Swamp) - Big Liz was a slave on the Bucktown Plantation.
- Birthplace of Harriet Tubman (Green Briar Pond) - She was the founder of the Underground Railroad resulting in freeing over 300 slaves.
- Cartegena (Willow Street, Secretary) - Built by Lord Henry Sewell.

- Hoopers Island - Comprised of three islands, Upper, Middle and Lower. Some properties have the earliest land grants in the County, issued in 1659, ten years before the County was established.
- Town of Hurlock - Incorporated in 1892, Hurlock is the second largest town in the County.
- Old Trinity Church (Route 16 South) - The oldest Episcopal Church in continuous use in the United States, circa 1690.
- Patty Cannon House (Intersection of MD 392, MD 577 and DE 20) - Home of murderess and slave trader Patty Cannon.
- Secretary - This town was established in 1661 at the time of the proprietary governorships of Maryland.
- The Nathan of Dorchester - The 45-foot wooden working boat designed after the working dredge boats of the Chesapeake Bay.

Walking tours have been developed for the City of Cambridge, highlighting the colonial buildings of High Street, East New Market, a National Historic District, and Vienna, one of Maryland's oldest settlements.

Currently, the county relies upon the Maryland Historical Trust and local historic societies and museums to identify potentially significant historic and cultural resources. There is no formalized process developed at the County level, to preserve and promote historic and cultural resources. However, national, state and local level preservation methods are being applied to historic and cultural resources in Dorchester County. These include: national historic landmark, national register of historic places, historic sites survey index, conservation easements, and local historic district designations.

National Register of Historic Places

The federal government's official list of historic properties, including historic districts, is the National Register of Historic Places, established by Congress in 1966. The Maryland Historical Trust is responsible for managing this listing for the state. The National Register of Historic Places has 21 listings for Dorchester County (see Table 2-3).

Table 2-3 Dorchester County Listings on the National Register Of Historic Places

	Property	Location	Inclusion Date
1.	Rehoboth	Puckum Road, Eldorado	11/09/72
2.	Friendship Hall	MD14, East of MD16, East New Market	10/18/73
3.	Archeological Site	Address restricted, Vicinity of Cambridge	05/12/75
4.	Archaeological Site	Address restricted, Vicinity of Eldorado	05/12/75
5.	Rock School (Stanley Institute)	MD16, Cambridge, Maryland	09/11/75
6.	East New Market, Historic District	Junction of MD16 and MD14	10/01/75
7.	Glasgow (Wings of Glasgow)	1500 Hambrooks Boulevard Cambridge, Maryland	10/08/76
8.	Ridgeton Farm	Bayshore Road	10/05/77
9.	Yarmouth	Bestpitch Ferry Road, near Cambridge	03/29/78
10.	K. B. Fletcher's Mill (demolished)	Hurlock Public Road	12/14/78
11.	Dale's Right	Casson Neck Road, Cambridge	04/03/79
12.	Bethlehem Methodist /Episcopal Church	Hoopers Neck Road, Taylor's Island	06/07/79
13.	Grace Episcopal Church Complex	Hoopers Neck Road, Taylor's Island	07/24/79
14.	La Grange (Meredith House)	904 LaGrange Avenue, Cambridge	01/24/80
15.	Dorchester County Courthouse and Jail (demolished 1994)	206 High Street, Cambridge	12/16/82
16.	Christ Episcopal Church and Cemetery	Cambridge	04/12/84
17.	Glen Oak Hotel	201 Academy Street, Hurlock	09/08/84
18.	Patricia (Sailing log canoe)	903 Roslyn Avenue, Cambridge	09/18/85
19.	Sycamore Cottage	417 High Street, Cambridge	03/30/88
20.	Goldsborough House	200 High Street, Cambridge	12/29/88
21.	Cambridge Historic District (Wards I and III)	Bounded by Glasgow, Glenburn, Poplar, Race and Gay Streets and Choptank River	09/05/90
22.	Annie Oakley House		Pending Park Service review.

Historic Sites Survey Index

The Maryland Historical Trust maintains a County Historic Sites Survey Index. The index includes buildings, structures and sites. The index contains over 700 listings in Dorchester County. The majority are located in the towns of East New Market, Cambridge and Vienna.

Conservation Easement Program

The Conservation Easement Program is administered by the Maryland Environmental Trust. The program promotes the preservation of open space throughout the state. In conjunction with the Conservation Easement Program, the Environmental Trust established a Rural Historic Village Protection Program in 1988. This program helps citizens in protecting the rural and natural character of the states' villages and farmland, forested lands and historic open space surrounding these areas. Currently, almost 5,000 acres in Dorchester County are protected through the Easement Program (see Table 2-4).

Table 2-4 ***Conservation Easements in Dorchester County***

	Property	Acres
1.	Carpenter Easement (West of Cambridge)	719.72
2.	Bright Easement (Taylors Island Area)	92.77
3.	Wilson Easement (West of Cambridge)	75.44
4.	Goodyear, Horning Easements (West of Cambridge)	111.43
5.	Garett Easements (West of Cambridge)	274.63
6.	Shear Easement (Town Point Road)	195.25
7.	Hyde Easement (Morris Neck)	92 .0
8.	Radcliffe Easement (Rt 343 South of Castle Haven Road)	270.75
9.	Tudor Farms (Hurlock Neck)	2532.5
10.	Abend Easement (Whitmarsh Madison Road)	91.2
11..	Austin Easement (Suicide Bridge Road)	263.25
12	Smock Easement (River Road on Marshyhope Creek)	38.01

Local Historic Districts

Local historic districts have been established in the City of Cambridge and in the town of East New Market. No historic districts have been established in the unincorporated area.

Strategies

Update the county's listing of historic sites and map all sites.

Include a systematic survey of pre-1940 properties in the county.

Focus attention on the rural villages, crossroads and other settlements.

Incorporate a screening process into the subdivision process that identifies potential adverse impacts on historic resources.

The process could reference the updated historic site inventory.

Create a countywide preservation alliance to help coordinate and promote preservation efforts.

Such an alliance could be the basis for the later creation of a countywide historic preservation commission.

Support the efforts of the Maryland Environmental Trust on the protection of rural villages.

Increase awareness of financial and other programs that offer incentives for preservation and/or protection of historic resources.

Encourage adaptive reuse of historic structures for uses that are compatible with the surrounding neighborhood.

Residents who participated in community meetings during preparation of the comprehensive plan identified the economy as their top issue of concern. The inability to keep and attract industry was ranked issue number one, improving the county's revenue base ranked number three, young people leaving the county because of lack of employment opportunities was issue number four, and the need for a more diversified economy ranked number six (see Appendix 1).

ECONOMIC BASE OVERVIEW

The county's economic problems are severe (see Tables 3-1 and 3-2).

- With 4,347 jobs in 1992, the manufacturing sector accounted for 38 percent of jobs located in Dorchester County. Between 1982 and 1992 manufacturing, and the transportation, communications and utilities sectors lost 240 jobs. An estimated 1,150 manufacturing and warehouse jobs have been lost since 1986. These were primarily from Philips Technologies Airpax Protector Group, Chun King, Duxbak and Hurlock Sportswear.
- Non-manufacturing employment has increased in recent years but has not made up for the loss in manufacturing jobs because (1) some former manufacturing employees have failed to obtain new jobs; and (2) new jobs typically pay less and have fewer benefits.
- The county's unemployment rate was 9.8% in 1993, up from 7.6% in 1990. The statewide unemployment rate was 6.2% in 1993.
- Dorchester's share of regional employment fell from 20 percent in 1971 to 15 percent in 1992.
- Competing job opportunities, decreasing yields, and increasing operating expenses have resulted in a decline in farming, forestry and fishing occupations.
- Social problems are severe in the county and have been cited as contributing to labor force quality problems and lagging incomes, (see under Social Services in Chapter 6).

Table 3-1 At-Place Employment By Industry Dorchester County, 1982-1992*

Industry	Jobs		Change 1982-1992	
	1982	1992	Number	Percent
Agriculture Forestry Fisheries Mining (a)	80	40	-40	-50%
Construction	409	495	86	21.0%
Manufacturing	4,490	4,347	-143	-3.2%
Transportation, Communication, Utilities	529	432	-97	-18.3%
Wholesale Trade	345	438	93	27.0%
Retail Trade	981	1,695	704	71.8%
Finance, Insurance, Real Estate	164	215	51	31.1%
Services	1,335	2,085	750	56.2%
Government	1,634	1,600	-34	-2.1%
Total	9,927	11,347	1,420	14.3%

* Excludes self-employed and others not covered by the Maryland Unemployment Insurance Law.
(a) Employment estimated. Sources: Bureau of the Census, U. S. Department of Commerce, Maryland Department of Economic and Employment Development, Dorchester County Economic Development Office.

Table 3-2 1992 Effective Buying Income, 1990 Poverty Status For Maryland And Lower Eastern Shore Counties

	Percent Households				
1992 Effective Buying Income*	Dorchester	Caroline	Talbot	Wicomico	Maryland
Under $10,000	16%	16%	11%	14%	9%
$10,000 - $19,000	21%	21%	15%	19%	12%
$20,000 - $34,000	28%	29%	25%	29%	22%
$35,000 - $49,000	18%	21%	19%	20%	20%
$50,000 and over	17%	13%	30%	18%	37%
Median Household Income	$26,954	$26,760	$34,156	$28,882	$40,260
Average Household Income	$32,283	$30,337	$45,523	$34,963	$47,246
Per Capita Income	$12,978	$11,131	$18,812	$13,106	$17,277
Total EBI (millions)	$391	$309	$596	$1,010	$85,464
Persons below poverty level, 1990	14%	11%	8%	11%	8%
Families below poverty level, 1990	10%	9%	6%	8%	6%

*Effective Buying Income is personal income less personal tax and non-tax payments. It is also known as disposable personal income. Sources MD DEED Brief Economic Facts, US Census.

See Appendices 5, 6, and 7 for additional labor force and employment tables.

ECONOMIC DEVELOPMENT

Goals:

Strengthen and diversify Dorchester County's economy.

Improve the county's revenue base.

Economic Development Planning

Economic issues lie at the heart of the county's problems. Increasing the number of well paying jobs would have a ripple effect throughout the county on land sales, the housing market, the retail and commercial sectors, as well as on schools and social services. However, attracting well paying jobs is a major challenge.

Through its economic development office, Dorchester County has embarked on a strategic planning effort to create a more diversified economic base for the county. The key components of that planning effort are to identify industry growth opportunities, and to recommend strategies to respond to the loss of defense industry related jobs. Completion of the economic development strategic plan is expected in late 1995. A preliminary report was submitted to the county in August, 1995. With respect to growth opportunities the preliminary report stresses the importance of nurturing existing businesses. Industries recommended for primary targeting include sporting and athletic goods, back office services, aquaculture/agriculture, plastics/injection molding, and health care/medical equipment. Secondary targets include health care services and recycling. Three overall strategies are recommended: (1) position the county for growth; (2) promote existing resources; and (3) make investments for the future.

The strategic plan suggests what kinds of jobs the county is suited to attract and identify strategies toward attracting them. However, this alone will not mean the jobs will come. Dorchester competes with other counties on the Delmarva Peninsula, which share many of Dorchester County's assets and who are also eager to attract jobs.

Attracting jobs involves creating an overall economic, physical, and social climate that will make Dorchester County attractive to employers and workers and encourage them to locate in Dorchester rather than

elsewhere. Thus, the county's economic development is closely tied to issues such as land use, water and sewer, transportation, government, housing, and the environment. Improving each of these aspects of county life will make Dorchester a more attractive place to work and live. From this perspective, the entire comprehensive plan is an economic development plan. Chapter 1 of this comprehensive plan includes an overall vision for Dorchester County. Each plan chapter contains strategies geared towards achieving that vision. For example, the housing section contains strategies designed to increase the value of residential property and to create incentives to build move-up housing attractive to middle management and the streamlining section contains strategies designed to improve and facilitate the development process. Implementation of the entire comprehensive plan will create an overall context for successful economic development.

The relative contributions of the various sectors of the economy to the county's overall health are less well understood. The county needs a better understanding so it can invest its limited resources wisely. For example, manufacturing, agriculture, forestry and tourism are all important, but which have the greatest potential to assist the county? Should the county spend money on advertising to attract tourists, on tax relief to existing or potential employers, or on buying easements to preserve agriculture? Which investment will provide the biggest return? What should the level of support be for each sector? A thorough economic analysis of the county is beyond the scope of the strategic plan or the comprehensive plan but would help the county in making such difficult decisions. The preliminary Economic Development Strategic Plan recommends that the county adopt a capital improvements program which would prioritize the county's investments.

Strategies:

Pursue the strategies of the economic development strategic plan towards creating new jobs.

Complete an economic analysis of the county to assist the county in making investment decisions.

Consider adopting a formal capital improvements program.

COUNTY IMAGE

Goal:

Improve Dorchester County's image.

Dorchester County's lack of a positive image was the fifth highest ranked issue from all of the community meetings held during preparation of the comprehensive plan. Image is a broad-brush term that means different things to different people, but, cumulatively, a poor image has a negative effect on economic development, which ultimately hurts every county resident. Lack of a positive image can result in businesses or investors looking at alternate locations, potential home buyers not considering the county, and potential visitors not frequenting county businesses.

Among the attitudes expressed during preparation of this plan that concern image were the following:

- lack of a "can-do" attitude on the part of the county;
- no embodying theme or message for the entire county;
- run-down areas, buildings in poor repair;
- trash and litter;
- uncontrolled signage;
- perceived lack of coordination between county and towns;
- inability to grapple with government and management issues;
- perceived failure of past development/redevelopment efforts; and
- perception of uncertainty with respect to business environment.

Because they involve political and organizational matters, solutions to many of these issues are beyond the scope of a comprehensive development plan. However, the fact that citizens rated the issue so highly indicates a general and real concern that merits specific attention. In much the same way as a private corporation or business looks at itself and how the public perceives it, the entire county needs to be looked at for areas where it can improve its image. Solutions might include the following: creating joint town and county boards and commissions; adopting and enforcing new regulations on signage; and exploring ways to improve the physical appearance of key locations; adopting a standard format for county letterhead and publications; exploring ways to more effectively coordinate and market existing volunteer and non-profit efforts, in areas such as government, social services, recreation, education, police and fire, museums and the arts. The economic strategic plan also

contains recommendations on image enhancement to counteract negative publicity. These include communication initiatives and creating a centralized source of information about the county.

Strategies

The county should create a broad ranging, interdisciplinary and interjurisdictional committee to study the county's image and make specific recommendations for ways to make improvements.

Inventory dilapidated buildings and properties which detract from the appearance of the community. Work with the owners to clean up such sites.

INDUSTRY

Goals:

Attract and retain industry.

Create flexibility in the county regulations to respond to potential employers' site needs.

As previously noted, lack of ability to keep and attract industry was the top ranked issue by participants in the comprehensive plan process. In addition to identifying the kinds of jobs the county is best suited to attract, the economic development strategic plan, cited above, will assess the county's economic development constraints. Some constraints may be physical such as lack of suitable sites or buildings, or lack of access. Other constraints may be financial such as lack of competitive financial packages. Still other constraints may be beyond the county's control.

Industrial Land

Dorchester's two industrial parks are located in the incorporated towns of Cambridge and Hurlock. There are approximately 1,900 acres of industrially zoned land in the unincorporated portion of the county. 1,086 acres are zoned Light Industrial (I-1), and 850 acres are zoned Heavy Industrial (I-2). Approximately 40 percent, or 760 acres, is undeveloped. The major locations are identified on Table 3-3:

Table 3-3 ***Major areas of industrially zoned land in Dorchester County, excluding incorporated areas.***

Area of County	Acres	
	I-1	I-2
Hurlock [1]		322
East New Market	238	
Linkwood/Linkwood Road		261
Cambridge area including airport	710	109
Vienna	118	60
Scattered	20	98
Total	1,086	850

1. The Hurlock industrial park, 90 acres, is located within the Town of Hurlock.
Source: Dorchester County Planning and Zoning

It is important for the county to have an adequate supply of industrial land for potential users. All areas except Vienna contain areas of undeveloped industrially zoned land. Within the City of Cambridge there are vacant or underutilized industrial buildings. It is desirable that these buildings be reused for employment use. In some cases the sites are in poor condition and detract from the county's image and ability to market vacant sites and buildings. Some simple, inexpensive, site clean up could improve the appearance of these sites.

Based on demand in recent years and the preliminary findings from the Economic Development Strategic Plan, the county appears to have a sufficient supply of industrially zoned land. The Strategic Plan suggests that six acres of new industrial land would be needed annually, whereas the county has a supply of about 760 acres. The county should periodically review the quantity, quality and location of the county's industrial land inventory with respect to market demand.

Several participants in the comprehensive plan process wished to discourage employers from locating new sites in rural areas on so called "green field" sites, but rather encouraged the reuse of existing, abandoned, or underutilized buildings. This comprehensive plan strongly supports reuse and rehabilitation of older industrial buildings. However, given the importance of attracting jobs and improving the revenue base, the county should not discourage economic development opportunities in new locations, provided they are consistent with the overall vision for the county. Therefore, provided appropriate performance standards protecting existing and proposed land uses are met, this comprehensive

plan would allow for new industrial uses in the proposed development districts. Stronger performance standards for industrial uses should be met in the agricultural or village areas.

It can be difficult for a county to anticipate a potential employer's land needs. Lack of appropriately zoned land may be a disincentive to a potential employer and cause the employer to look to another county where land is immediately developable. On the other hand, if the county zones large areas of existing rural land for industrial or commercial use, undesirable uses may be attracted, and neighboring properties may be dissuaded from developing in desired ways.

The county needs to have the flexibility to respond quickly to a potential employer or economic development opportunity should an opportunity arise. Therefore, to add flexibility, the county should consider amending its zoning ordinance to incorporate floating zones and/or zoning with a site plan (see discussion under Streamlining in Chapter 8).

Airport

The Cambridge-Dorchester Airport is a 183-acre facility located on Bucktown Road, three miles east of Cambridge. It is owned and operated by Dorchester County (see Chapter 5 for a description of planned improvements at the airport). An Airport Protection Overlay Zoning District surrounds the airport approximately 3 miles in all directions and prohibits uses or development hazardous to air navigation.

The airport is a significant economic asset to the county. Approximately 15 acres on the airport site are available for industrial development. Lands east and south of the airport may be suitable for development into a new industrial park. The Preliminary Economic Development Strategic Plan recommends that the county acquire land in this area. Improved road access would be needed, and Chapter 5 of this comprehensive plan recommends that the county and state explore a possible future extension of Route 16 from Mount Holly to Cordtown Road, and extending on to Church Creek Road south of the Chesapeake Industrial Park. This would create a bypass around the busiest stretch of Route 50.

Delmarva Power and Light Power Plant

Delmarva Power and Light Company (Delmarva Power) is seeking approval for a 300 megawatt coal powered generating station on an 1,130 acre site northwest of Vienna, south of Maiden Forest Road. If approved, start of operation is not expected before 2004. Under Maryland law the Maryland Public Service Commission must consider the environmental

impacts of the facility and can require conditions to minimize any adverse impacts.

The plant is expected to have a positive fiscal impact to Dorchester County, although the county and Delmarva Power negotiated an abatement plan that reduces property taxes during the early years of operation. A major investment in the Town of Vienna's water and sewer system would have to be made to accommodate the plant.

The power plant site is in the Comprehensive Plan's proposed agricultural area. The plant can be consistent with the land use goals for that area provided negative impacts are minimized. The plant could have significant transportation impacts (see discussion in Chapter 5).

Strategies:

Periodically review the county's inventory of industrially zoned land.

Support the reuse of existing industrial buildings

Consider amending the county zoning ordinance to include a floating industrial or employment zoning district.

Support the proposed Delmarva Power and Light power plant. Minimize negative impacts associated with the facility.

Review performance standards for non-residential uses as part of a design manual (see also under Design Issues in Chapter 4).

RESOURCE BASED INDUSTRIES

Agriculture

Goals:

Preserve agriculture as a viable industry.

Increase farm values.

Minimize conflicts between agricultural and residential uses.

Agriculture is a key industry for Dorchester County. According to the 1992 Census of Agriculture, Dorchester's 347 farms covered one third of the county's land. The total value of all agricultural products sold

exceeded $64 million, the most valuable products being poultry and poultry products, followed by soybeans, corn and wheat. Fresh vegetables, aquaculture, and watermelons, and hogs are also important. Close to 500 farm employees earn over $3.3 million, (see Table 3-4).

Table 3-4 ***Dorchester County Selected Agricultural Statistics***

	1982	1987	1992
Number Of Farms	438	392	347
Farms By Size			
1-9 Acres	26	37	39
10-49	70	65	69
50-179	145	122	87
180-500	110	86	64
500-1000	60	52	59
1000+	27	30	29
Land In Farms (Acres)	139,416	125,019	123,762
Percent Of County	39%	35%	35%
Average Size Of Farm (Acres)	318	319	357
Harvested Cropland (Acres)	98,845	83,948	94,671
Soybeans (Acres)	60,138	52,811	62,006
Corn (Acres)	28,628	19,399	18,827
Wheat (Acres)	15,004	14,725	19,962
Market Value Of All Agricultural Products Sold (in $ thousands)	$56,193	$51,509	$64,089
Rank In State (23 Counties)	8th	8th	7th
Value Of Selected Products:	$27,760	$29,494	$35,065
Poultry & Poultry Products			
Soybeans	$8,405	$5,180	$10,861
Corn	$6,923	$3,449	$5,215
Wheat	$2,161	$1,961	$3,604
Other	$10,944	$11,425	$9,344
Number Of Paid Farm Employees	N/A	N/A	498
Payroll ($1,000)	N/A	N/A	$3,357
Acres In Agricultural Preservation Districts			3,170
Acres With Perpetual Easements			1,303
Total Acres In Agricultural Programs			4,473

Source: 1992, 1987 Census Of Agriculture, Dorchester County Dept. Planning And Zoning

Agriculture is important throughout the county, but the prime agricultural soils are found in North Dorchester, (see Figure 2-2). This land is also closer to residential and employment centers, and valuable for development.

Community meetings held in preparation for this plan revealed the following concerns on the part of farmers:

- The farmer's land is a present and future asset. Policies should not be adopted that would diminish the value of that asset.
- Farmers do not want their land to be regarded as "open space" for the community.
- If the community values agriculture, it should be prepared to pay to support it.
- Residential development and agricultural uses are typically incompatible. Increasing residential development in agricultural areas has negative impacts on the practice of agriculture.
- Adoption of right-to-farm legislation would send an important message that agriculture is a valued and protected activity.

There is considerable interest in the potential of a transfer of development rights (TDR) program as a potential long term strategy for Dorchester. In a TDR program, residential density is transferred in the form of development rights from agricultural areas to development areas, at a higher density than otherwise permitted in the agricultural area. Thus a farmer is able to both continue farming and receive money for the development value of his land. TDRs have been successful in counties with strong development pressure such as Calvert, Howard and Montgomery. Program success typically depends on, (i) demand for lots which the farmer is able to sell as development rights; and (ii) receiving areas, typically on public water and sewer, willing and able to absorb an increase in density compared to existing base density.

Because demand for new housing in Dorchester is weak, and because few areas have the capacity to absorb additional density above base zoning, the potential for a successful TDR program is limited in the short term. Proponents would like to see a program adopted so that it is in place when demand rises. Should the county adopt a program, it should also explore the feasibility of allowing platted, undeveloped lots to be transferred from agricultural and natural resource areas to development areas, towns and villages. This could help reduce the county's large inventory of such lots.

Strategies:

Create an agricultural zoning district where farming is the primary use. (see Agricultural Area section in Chapter 2.)

Adopt a right-to-farm ordinance in the agricultural district.

The following features should be considered for inclusion:

- Definition of farm function;
- Limitation on circumstances in which agricultural operations may be deemed a nuisance;
- Requirement that plaintiffs pay costs if a nuisance suit is filed in bad faith; and
- Real estate transfer disclosure statement and/or statement on subdivision plats regarding right-to-farm.

Focus the efforts of the Agricultural Land Preservation Program in the agricultural district.

Seek alternative funding sources for additional easement acquisitions to permanently protect farming. Explore the feasibility of property tax relief for farms participating in easement programs.

Expand and encourage use of conservation easements in support of agricultural preservation.

Explore potential for transfer of development rights (TDR) program as a potential long term strategy for Dorchester.

Consider applying the program in both the Agricultural and Natural Resource Areas as shown on Figure 2-1.

Maritime Based Industries and Employment

Goal:

Maintain and strengthen Dorchester County's maritime industries.

Dorchester watermen have been harvesting the bay and its tributaries since the early 1600's. Maritime industries are a significant employer and, historically, have been a mainstay of the economy. Over 50 percent of a nearly $67 million statewide harvest was landed in Dorchester County (see Table 3-5) .

Table 3-5 Dorchester County and Statewide Seafood Harvest, 1993

Fishery	Value of Catch in $ millions	
	State	Dorchester County
Finfish	8.0	2.1
Crab	57.6	34.1
Soft Clam	0.92	0.51
Oyster	0.13	0.03
Total	66.7	36.7

Source: Maryland Department of Natural Resources

The Federal Bureau of Economic Analysis estimates that several hundred people are employed in fisheries. Coldwater Seafood Corporation with approximately 400 employees, is one of the county's largest employers. According to the Department of Planning and Zoning's 1993 Waterman Facility and Access study, there are approximately 12 seafood operations in the county, plus eight more in incorporated towns.

Counties on tidal waters are required by state law to designate areas for commercial fishing and support facilities in their comprehensive plans. The 1993 Waterman Facility and Access Study recommends 19 locations around the county for "watermen facility" designation. The study is incorporated by reference into this comprehensive plan.

Center for Environmental and Estuarine Studies (CEES)

The CEES, one of the 13 institutions of the University of Maryland System, is headquartered at the Horn Point Environmental Laboratory, located west of Cambridge. The center is an important employer. In 1994 the CEES, had a workforce of 95 regular employees and 51 graduate students with a payroll of $4.3 million. The research emphasis at Horn Point includes aquaculture, seafood science, coastal oceanography, and wetlands and seagrass ecology.

The county should explore ways to strengthen the ties between the center and the community, and to maximize the potential economic development impact of the center.

Strategies:

Link maritime industries into the county's overall economic development program including boating and tourism.

Support policies which will improve fish and shellfish yields. Encourage stewardship of the Chesapeake Bay, its tributaries and watersheds by supporting federal, state and local initiatives designed to protect important aquatic resources.

Support the Center for Environmental and Estuarine Studies (CEES) and explore ways to maximize the potential economic development impact of the center.

Forestry

Goals:

Conserve the county's forest resources.

Broaden the economic development impact of the county's forest resources.

Historically, woodland and forest products have been important to Dorchester County's economy. Industries directly dependent on forestry include four saw mills, including a cooperage, and four secondary industrial facilities: wood chips; composting; firewood; and fishnet poles. Ninety eight percent of the forest land is privately owned: 40 percent by farmers, the remainder by industry and private individuals. Loblolly pine is the principal commercial timber species because it grows rapidly, tall and straight. Selected data concerning the county's forest resources are shown on Table 3-6.

Table 3-6 Dorchester County Selected Forestry Statistics

Total Forest Area (1995)	162,000 acres
Commercial Forest Area	141,000 acres
Commercial forest as percent of county	40 percent
Predominant tree species:	loblolly pine (31%) oak pine (28%) hardwood (41%)
Value of standing saw timber	$43.9 million (as of 1980)
Number of forest landowners	2,200
Number of tree farms*	64
Number of forest industry jobs	150

*Definition: Over 10 acres, and having a Forest Management Plan
Source: Maryland Forest Service

A local forestry board, appointed by the secretary of the State Department of Natural Resources, reviews timber harvest plans within the Chesapeake Bay Critical Area. Outside the Critical Area, forest resources are protected primarily through non-tidal wetlands regulations and the county's forest conservation ordinance. Loss of forest land to crop farming has declined and the size of the county's forest resources has stabilized. This comprehensive plan's land use plan designates much of the county's forest land as natural resource area. As part of its economic diversification efforts the county should explore ways to incorporating forest-based industries into the county's overall economic development program, including tourism.

Forest Conservation

The county adopted its forest conservation program, as required by the State, in 1994. The forest conservation program is described in Chapter 7. The use of forest planting to buffer new residential development is discussed under Design in Chapter 4.

Strategies:

Support forest-based industries.

Explore ways to link forest and forest-based industries into the county's overall economic development program including tourism.

Mineral Resources

Goal:

Support mining in appropriate locations.

According to the Maryland Geological Survey, sand, and to a lesser extent, gravel are the county's only mineral resources. Areas of potential sand or sand and gravel are located mostly in North Dorchester, and south of Vienna to Henry's Crossroads. Most of the material is used locally because of the distance to major population centers. The sand and gravel industry grew from one operator in 1966 to seven in 1992. These operations are scattered but most are north of Route 50. Production was 175,847 tons in 1993, down from 446,325 tons in 1991. As of 1994, 220 acres were under permit for mining and 111 acres were actively being worked.

The county permits mineral extraction by special exception in most areas. A state permit is also required, issued by the Maryland Department of the

Environment. Both the special exception and the state permit require site restoration or rehabilitation upon completion of mining activities. There may, therefore, be some unnecessary duplication in the regulations. Eighty four acres have been reclaimed under the state program since 1977.

Strategy:

No major changes to existing policy are proposed in this plan.

To encourage streamlining, the county should examine the special exception text for overlap with the state requirements.

Tourism

Goal:

Increase tourism and tourism expenditures in the county.

Tourism has significant potential in contributing to Dorchester's economy. Table 3-7 shows that in 1992, US travelers spent approximately $17 million in the County. Compared to other counties in Maryland, Dorchester ranked 21st out of 24 in terms of expenditures by travelers. By some measures, the study may underestimate total visitor expenditures, but there is general agreement that Dorchester County has the potential to greatly increase its tourism development .

Table 3-7 Impact of Travel on Dorchester County, 1992

	$ Millions
Expenditures	17.34
Payroll	3.54
State Tax Receipts	0.7
Local Tax Receipts	1.24
Employment	220 persons

Source: Maryland Tourism Council, U.S. Travel Data Center

The county has a tremendous variety of natural and cultural resource assets including boating, nationally renowned natural areas, historic towns and villages, heritage areas, hiker/biker trails, hunting, fishing, and trapping. Total visitation to the Blackwater National Wildlife Refuge in 1993 was over 120,000. Dorchester County is also convenient to large

urban markets and is located along the heavily traveled Atlantic Ocean tourist route. With these assets, Dorchester County also appears well placed to take advantage of the growing ecotourism and cultural tourism markets. Ecotourism is responsible travel to natural areas that conserves the environment and sustains the well-being of people. According to the Ecotourism Society, ecotourism is a growing segment of the worldwide tourism industry. South Dorchester, in particular, has the natural assets to attract large numbers of ecotourists. Among ecotourism's goals is to manage tourism such that tourism does not harm the very resources that attract visitors.

As with all forms of economic development, planning must be done to take full advantage of tourism opportunities. The county's tourism department, with one full-time staff person, has overall responsibility for tourism in the county. In late 1994, the department prepared a strategic plan, that established a mission and policies for Dorchester County tourism. To set the agenda for tourism planning and programming, the county should work with the towns and various organizations in the county, such as the newly formed Bed and Breakfast Consortium, to prepare a comprehensive tourism plan. The plan should evaluate resources, create a strategy, examine existing and potential conflicts, and include financial, marketing and management considerations (see Figure 3-1). Surrounding counties should be included in this effort. Potential links with the proposed Ocean Heritage Highway and the Atlantic Flyway Byway Projects, proposed by the Delmarva Advisory Council, should also be explored.

Lack of quality accommodation in the county has been cited as a deterrent to tourism and overall economic development. Efforts to attract quality hotels or other transient accommodations should continue. The county's zoning regulations for bed and breakfast inns should be reviewed. Currently bed and breakfast inns are defined only within the Chesapeake Bay Critical Area regulations.

Sailwinds Park

Sailwinds Park is located on state owned land in the City of Cambridge but is being developed as a countywide facility to promote tourism and economic revitalization. Development of the park began in 1992. A private non-profit organization directed by a 12-person board oversees development of the park. The ultimate uses for the project include a visitors center and exhibition center, a park, beach and playground, a festival hall and convention center, 200-slip marina, and a 300-room hotel. Sailwinds Park is a significant investment and should play an important role in Dorchester's overall tourism and economic development strategy.

Figure 3-1

Factors For Ecotourism Planning

Here is a framework and process for the development of plans that will protect natural resources or promote ecotourism potential.

Preliminary Assessment

Investigate whether ecotourism is appropriate.

Create or empower a group to conduct or oversee the planning process.

Evaluate Environmental Resources

Identify and inventory resources (biologic, geologic, etc.).

Identify locations and strategies for resource protection.

Determine the area's physical limitations for handling tourists and wildlife.

Assess potential environmental education opportunities.

Evaluate Cultural Resources

Identify local cultural and social resources.

Inventory local historic sites, structures, or events.

Assess potential cultural education opportunities (anthropological, archeological).

Create Regional Strategy

Establish priority locations and programs for ecotourism.

Relate ecotourism strategies to the existing transportation system and local population base.

Evaluate the potential for logical expansion of local ecotourism areas.

Set Agenda for Local Planning and Programming

Identify those uses and opportunities that most closely relate to the character of the area.

Identify types of recreation and/or activities to be provided.

Identify the type of expected users and visitors.

Relate planning and programmatic goals to existing resources.

Local Participation

Organize local citizens and government officials, and educate them as to planning process and benefits of ecotourism.

Utilize methods to involve public in planning for ecotourism.

Coordinate efforts with existing planning initiatives and local interest groups.

Evaluate opportunities and methods for training local people for ecotourism support services.

Create support for plan through the promotion of benefits resulting from ecotourism.

Create vested interest for local people to protect resource.

Existing and Potential Conflicts

Identify conflicts between the social and cultural character of the region and ecotourism.

Determine potential for degradation of cultural and environmental resources.

Identify conflicts between various ecotourism pursuits.

Identify problems between the existing economic use of resources and ecotourism.

Evaluate changes in local lifestyles and behaviors resulting from ecotourism.

Provide forums within public participation structure to identify conflicts.

Financial Considerations

Identify potential public and private funding sources.

Identify potential funding structures and financing mechanisms.

Identify visitors' willingness to pay for visits to the area.

Develop a multitiered fee structure which differentiates between local people and visitors.

Promote financial self-sufficiency for ecotourism.

Marketing Considerations

Promote interactive relationship between tourism and the environment.

Identify the type of visitor who would best use area.

Relate marketing to provided services and facilities.

Relate marketing and programming to area's carrying capacity.

Determine what visitors are looking for, and their travel patterns.

Management and Protection Strategies

Determine what organization is in control and accountable for ecotourism management.

Provide a clear organizational structure for ongoing management.

Monitor environmental regulations and survey tour groups for compliance.

Survey visitors for opinions on facilities and services.

Provide ongoing communication with local interest groups and government agencies.

Michael Brown

Source: Planning for Ecotourism, Environment & Development, April 1993, American Planning Association.

Strategies:

The county should work with the towns and interested groups and organizations to prepare a comprehensive plan for developing tourism in the county.

The county should seek designation as a Certified Heritage Area in conformance with House Bill 1[1] (Heritage and Tourism Areas).

As of mid-1996 a Dorchester County Heritage Steering Committee had begun meeting to begin developing a heritage tourism plan for the county.

Continue efforts to attract quality accommodations to the county.

Develop zoning regulations to address bed and breakfast uses throughout the county.

BUSINESS, RETAIL AND SERVICE USES

Goal:

Accommodate business, retail and service uses in appropriate locations in the county.

Retail and service uses are accommodated in three land use zoning districts as follows: B-1 Neighborhood Business; B-2 Specialized Business; and B-3 General Business. The B-1 district allows for convenience goods and services. The B-2 district is designed specifically to allow maritime and agriculturally-oriented businesses in rural or residential areas that are unsuitable for general business uses. See Table 3-8 for acres in each zone.

Approximately 60 percent of the land in B-3 districts is located on or close to Route 50 between Cambridge and Route 16. The large shopping centers, such as Dorchester Square, are located within the City of Cambridge. Other areas with general business zoning are scattered in places such as Linkwood and near Route 16 between Route 50 and East New Market.

[1]This Bill was adopted by the Maryland General Assembly in 1996.

Table 3-8 ***Dorchester County Business Zoning Districts.***

Zone	Acres in County
B-1	61
B-2	79
B-3	481
Total	621

Note: Excludes incorporated towns

Overall, there does not appear to be a need for additional business zoned land. Approximately 40 to 50 acres of B-3 zoned land outside Cambridge is undeveloped. Furthermore, the policy of this comprehensive plan is to limit strip development and encourage business uses to locate in the incorporated towns. Therefore, further expansion of business zoning along Route 50 should be discouraged. Indeed, where the location of B-3 land conflicts with other comprehensive plan goals, opportunities to reduce the amount of B-3 zoned land should be considered. A possible candidate is the B-3 zoned area immediately east of Route 16, where access to Route 50 is limited by agreement with the State Highway Administration. The pattern of zoning along Route 50 outside Cambridge should be looked at in the context of a local area plan, as recommended in the Chapter 2. Access to Route 50 from currently undeveloped business-zoned land should be limited so as to minimize traffic impacts.

The county should continue to determine the need for areas of light commercial uses serving local or neighborhood needs on a case by case basis.

Signage

The Dorchester County sign code is administered by the Department of Planning and Zoning. During preparation of the comprehensive plan, residents commented that the county's appearance could be improved if signage were more tightly regulated. Several residents mentioned the confusion and clutter caused by the number of signs on the commercial strip along Route 50 in and around Cambridge. Also mentioned was the frequent need to obtain variances from the sign code, necessitating a hearing before the Board of Appeals.

Signage is important in that it helps set the tone for a community and contributes to the image visitors take away with them. The sign code should be reviewed for consistency with the comprehensive plan goal of improving the county's appearance, whether it is meeting the needs of

business, and can be applied more efficiently. Specific regulations may be needed around Cambridge to coordinate the city and county requirements. The county should also consider sign design guidelines as a tool for improving the appearance of commercial areas.

Strategies:

Encourage business uses to locate in the county's towns.

Discourage further expansion of business zoning and strip commercial development along Route 50.

Limit access to roadways from business developments.

Review the county sign code.

HOME BUSINESSES

Nationally, increasing numbers of people are working from their homes. With increased decentralization of the workplace this trend is expected to increase, and more Dorchester County homes will likely also be used as work places. Although the need for flexibility in permitting home occupations was discussed by the Dorchester Comprehensive Plan Committee, home occupations was not raised as a significant issue during preparation of the plan.

County regulations on home businesses are fairly restrictive, but historically have been interpreted fairly liberally. They can be summarized as follows: (1) certain low impact activities such as tutoring or direct sale product distribution (e.g. Amway, Tupperware) are considered accessory to the principal residential use, and are, effectively, permitted by-right; (2) home occupations and home professional offices are permitted by special exception. Under home occupations only one person can be engaged in the occupation. In a home professional office, no more than two persons can be working. Home-based contractors come under the category of home occupations.

Some other Maryland jurisdictions have more permissive regulations concerning home businesses. Because of the historically liberal interpretation of the regulations in Dorchester County, there are cases of businesses that have grown beyond what was intended as a home business, and which should probably now be located in a business zone.

Because of problems caused by such cases, participants in the comprehensive plan process were generally hesitant to further liberalize the regulations, potentially opening the door to similar problems. The county should monitor home business needs periodically to determine whether the County is losing economic development opportunities by over-regulating (see further discussion under Streamlining in Chapter 8).

CHAPTER 4 HOUSING

In this chapter housing is discussed under three sets of issues: affordability and location; design; and compatibility.

AFFORDABILITY AND LOCATION ISSUES

Goals:

Increase housing affordability in the county.

Increase housing development in and around the towns.

Permit a variety of housing types at a range of price levels.

Key housing affordability and location issues are the following:

- Dorchester County has high housing costs compared to residents' income;
- There is a lack of move-up housing in the county;
- A significant number of homes are in poor physical condition;
- Market demand for "rural subdivisions", coupled with disincentives for housing development in the towns are resulting in increasing housing development in the unincorporated area of the county; and
- The owner occupancy level for housing units in Cambridge has fallen to less than 50 percent.

Findings with respect to these issues are described below.

Findings

- Average house prices overall are lower in Dorchester County compared to surrounding areas, but this does not mean that housing is more affordable. Household incomes are generally lower in Dorchester County than in nearby counties, so that people generally cannot afford to pay as much for housing.

- Compared to surrounding counties the housing stock is older, fewer homes are owner occupied, more households are low and moderate income, and more housing lacks complete plumbing In 1990 the median monthly rent was $330, the lowest on the lower eastern shore (see Table 4-1).

- Inexpensive housing (less than $80,000) is available, particularly in the resale market in Cambridge, but for many buyers, i) such housing may be unsuitable with respect to condition, size, or number of bedrooms and, ii) the geographical location of this housing may not be attractive.

Table 4-1 Selected Housing Data For Maryland And Lower Eastern Shore Counties

	Percent Households or Units				
	Dorchester	Caroline	Talbot	Wicomico	Maryland
Low And Moderate Income Households(1)	**54**	51	48	48	43
Very Low Income Households(1)	**27**	24	22	22	20
Owner Households With A Housing Problem(2)	**22**	20	19	19	20
Renter Households With A Housing Problem(2)	**36**	38	33	39	40
Homes Valued Below $50,000	**27**	20	8	21	9
Owner Occupied Housing Units(3)	**57**	68	59	62	60
Units Built Before 1940	**30**	26	24	18	15
Homes Lacking Complete Plumbing	**4**	2	1	1	1
Median Monthly Rent (dollars)	**$330**	$348	$429	$439	$548

Data are for 1990 unless specified.
(1)Low And Moderate Income = <95% Of Median Income. Very Low Income = <50% Of Median Income
(2)Housing Problem Is Paying Too Much For Housing, Lacking Complete Kitchen Or Plumbing, Or Overcrowding. (3) Cambridge = 45%, Hurlock = 73%
Sources: 1990 Census, MD CHAS 1993-1998, MD DEED, Brief Economic Facts

- At the mid-level price ranges ($90,000 to $120,000), the general consensus is that buyers find better housing values outside Dorchester, especially in Wicomico County.

- At upper levels (waterfront, $200,000 and up range) Dorchester County is relatively inexpensive compared, say, to Talbot County.

- According to some observers, there is a lack of move-up housing ($100,000 to $160,000 range). This can be a problem in attracting middle management persons to locate in the county. The lack of such housing has also been mentioned as deterring businesses from locating in the county, since their employees may not be able find suitable housing nearby.

- There is little turn-key, or production housing, in Dorchester County. Such housing is typically more affordable than small-builder, custom-built housing. The lack of production housing can be attributed to Dorchester's weak housing market which, in turn, is linked to the county's weak employment economy. Thus housing and economic development are inter-connected: if more people were looking to buy houses, production builders would be attracted to the market.

- The cost of subdividing and preparing a finished lot is typically cheaper in Dorchester County than in an incorporated town such as Cambridge or Hurlock (see Table 4-2). The cost of the finished house, however, is similar in both town and county. Because of taxes and public water and sewer charges, annual homeowner costs are typically higher in a town, although these costs should tend to equalize over time, as septic systems need service and replacement. Another disincentive to developing in town compared to the county, is that the approval process tends to be longer and more complex. In part this is because town developments involve more infrastructure (such as water and sewer, sidewalks, streetlights, storm drains).

- A survey of homeowners in recently built subdivisions in North Dorchester revealed that rural environment, large lot and affordability were the three most commonly location factors (see Appendix 8 for complete survey results).

- Affordability is often a particular problem for elderly persons. The number of persons 55 and above is projected to rise from 8,482 in 1990 to 12,421 in 2020, close to a 50 percent increase (see Appendix 9: Dorchester County Projected Population by Age)

- Countywide just over 30 percent of housing units were renter occupied in 1990. The renter rate for the incorporated towns was nearly 50 percent (over 50 percent in Cambridge), but less than 20 percent for the rest of the county, (see Appendix 10: Number of Owner and Renter Units). High renter rates in a community can be a disincentive to homeownership, if potential homeowners perceive they would be purchasing property in a transient area where residents do not have a stake in the community.

Table 4-2 Dorchester County 1995 Prototypical Housing And Development Costs In County Versus Incorporated Towns

	County	Incorporated Town
Subdivision Costs (Per Lot)		
Land	$4,000-5,000	$5,000
Engineering	$3,000	$3,000
Fees, processing	$500	$400
Road improvements	$3,200-$4,000	$5,000
Forest Conservation	$1,000	$1,000
Storm drain	N/A	$1,800
Stormwater Management	$1,000	$1,000
Street trees	N/A	N/A
Lights	N/A	$1,000
Interest (holding cost)	$1,500	$1,600
Profit	$3000-$4,000	$4,000
Legal, Accounting	$1,000	$1,000
Total **Subdivision Costs**	$18,200 - $21,000	$24,800
House Construction (Single Lot)		
Fees, processing	$100	$300-$450
Land (single lot)	$20,000	$25,000
Water	$4,000	$1,700
Sewer	$5,000	$2,500
Driveway	$1,000-3,000	$2,000
House construction	$53,000-$64,000	$53,000-$64,000
Electric	$1,000	$1,000
Interest (holding cost)	$2,000	$2,000
Profit	$10,000	$10,000
Total House Construction	$96,100-109,100	$97,500-$108,650
Annual Costs (Single House)		
Taxes	$1,058	$1,650-$1,800
Water and Sewer	N/A	$180-$360
Total **Annual Costs**	$1,058	$1,830-3,990

Assumptions: Ten lot subdivision, no wetlands or critical area.
County lots: 1.6 acres, 140'x500', 50' front yard. Town lots: Hurlock : 15,000 sq. feet, 90'x170', 30' front yard; Cambridge : 11,250 sq. feet, 90'x125, 30' front yard. Houses are similar size.
County lots have well, septic and drainfield; town lots connect to water and sewer in street.
County road: open section; town road: closed section
Sources: Andrews, Miller & Associates, Inc., Chesapeake Bay Properties, William Ludlow and Associates.

There is no simple answer to these affordability and location issues. Instead the County must pursue strategies on several fronts.

Strategies:

Recognize that housing and economic development are inter-related issues requiring the county's careful attention.

A good housing supply must be recognized as an economic as well as a social asset. As such, well designed housing in appropriate locations is an economic development asset.

Work with the incorporated towns to determine ways to reduce the cost of developing and maintaining new housing in the incorporated towns.

It is the policy of this comprehensive plan to encourage development in the towns. Every effort should be made to reduce development and construction costs, including process and approval time. This area is legitimately within the towns' purview, but since the towns generally have either small or no planning or engineering staff, the county and towns should work together .

Possible approaches include having the county assume control of certain aspects of development review, such as forest conservation, and finding ways to reduce the costs of providing roads, sidewalks, storm drains and streetlights in towns (see also under Streamlining and Interjurisdictional Cooperation in Chapter 8).

Work with the towns to increase municipal water and sewerage capacity.

This will increase the supply of land available for development at higher densities, thereby reducing housing costs (see also under Land Use, and Water and Sewer in Chapters 2 and 6 respectively).

Explore creative ways of rehabilitating currently vacant and substandard housing.

Some of the county's housing is in poor and shoddy condition and this does not present a positive image for the county. Vacant and dilapidated housing in the incorporated towns and in South Dorchester have been cited as examples. Some of these houses may have historic significance and may present affordable housing opportunities.

The desire to accomplish rehabilitation was mentioned several times at public meetings during preparation of the plan. A task force should be set up to explore the extent of the problem and propose possible

solutions. Volunteer and non-profit organizations should be included. A possible model for vacant homes is the Department of Natural Resources' Resident Curatorship Program, whereby houses are rehabilitated by persons living essentially rent free while the rehabilitation work is done.

Adopt subdivision and site development design standards and guidelines which promote property values of new and existing housing, and which decrease or, at a minimum, do not increase housing costs.

Among the techniques the county should consider are:

1) Allowing roads serving new subdivisions with limited or no capacity for further subdivision, to be built to a "rural standard", narrower width of right-of-way, and alternate surface standard than is currently required (see discussion of strip development below under design issues).

2) Explore the feasibility of allowing off-site private sewerage drain fields. By counting the area of an off-site drainfield towards required density, development would still be at a level required for ground water protection but house lot sizes could be reduced, resulting in lower land and development costs.

For example, instead of a five-lot subdivision, each lot being two acres with its own on-site septic drainfield, the subdivision could contain five one-acre lots. The drainfield (possibly shared) would be on another five acres, located on an adjacent property and under a protective easement. In certain circumstances the drainfield could be used, perhaps for farming (see also under ground water in Chapter 7, Environmentally Sensitive Areas).

3) Consider allowing accessory dwellings as a permitted use or special exception use in residential zoning districts. Accessory dwellings are sometimes known as mother-in-law apartments or granny flats. In some counties they are permitted only within the principal structure. In other counties accessory dwellings can be separate, provided they are within a reasonable distance (typically 100 - 150 feet) from the principal house. The property owner must live in either of the two dwellings. Dorchester County currently permits two-family dwellings by special exception granted by the Board of Appeals.

4) Adopt reduced lot size and building setback requirements. To allow more flexibility in subdivision design, minimum setbacks could be

reduced, especially if smaller minimum lot sizes are permitted. Reduced setbacks can also help reduce housing costs by, for example, reducing driveway lengths.

For example, the A-R, M-A-R, R-1 and R-2 zoning districts (85 percent of the county) currently require a minimum 140-foot lot width at the building restriction line and a 50-foot front yard from a county road (100-foot from a state road). These could be reduced to 100-feet of lot width, and 30 to 40 feet of front yard. Note, however, that depending on percolation rates, Health Department Regulations may require that lot width has to exceed what is required by zoning. Provisions should be included to ensure compatibility of new development with existing or recorded development. Consideration might also be given to allowing developers to propose alternate site-specific lot and yard standards for consideration by the planning commission for new subdivisions. Developers would need to present plans and other visual materials in sufficient detail to enable the commission to understand the impacts of the proposed standards.

DESIGN ISSUES

Goals:

Reduce development costs.

Improve the design of development in the County .

Ensure that new development fits appropriately into the county's landscape.

Encourage efficient use of land.

Design issues figured prominently in discussions with citizens during preparation of the plan. Key concerns were strip development (meaning a series of houses along a road each taking direct access from that road), and the need for improved design and performance standards for subdivisions and site development.

Performance standards are regulations and guidelines which must be followed when subdividing or developing land. Required minimum lot sizes and setbacks from roads and lot lines are forms of performance standard. Dorchester County currently has few performance standards. This makes laying out subdivisions a fairly simple design process, but

also can result in the "strip", or "cookie cutter" development which does not blend in well to Dorchester's landscape.

Strip development

Some of county's recent new housing developments that have been stripped along county roads present a jarring visual intrusion into the county's flat and open landscape. Strip development also has other negative consequences. It changes the function of county roads from a primarily traffic-carrying function into a residential street function. This results in reduced safety and traffic speeds due to multiple driveways, and the presence of pedestrians and children. Some of the county's land development regulations actually encourage this kind of development because i) it can be easier to get approval for strip development than for more innovative design, and ii) alternative subdivision designs are more expensive under existing regulations.

There is some evidence that strip subdivisions have lower average lot sale prices compared to subdivisions served by internal roads, even though lot sizes were larger (see Table 4-3) . Other factors such as location, and subdivision amenities would also have influenced the final sale prices. However, the findings reinforce results from other jurisdictions, that well designed projects typically sell faster and result in higher values. (See Appendix 11 for complete data.)

Table 4-3 ***Lot size and sale prices in strip and non-strip subdivisions***

	Average Lot Size (acres)	Average Lot Sale Price
Strip Subdivisions (1)	2.24	$13,886
Non-Strip Subdivisions (2)	2.0	$27,287

(1) Collins Farm, Johnycake, Mt. Zion, Pine Top, Wrights Spring, (2) Indian Grant, Mary Jane French, Meadowbrook.
Source: Dorchester County Planning and Zoning

Strip development is a somewhat complex and controversial issue, but is one the county must face because it is central to several important comprehensive plan goals including: improving development design; maintaining traffic flow on county roads; and keeping housing costs down by reducing development costs.

Current Regulations Affecting Strip Development

The county currently requires that a road serving more than a single lot meet the same design standards as any road being accepted into the county road system. The minimum standards are as follows: 50-foot right-of-way; circular turnaround with a 40-foot radius at the road terminus; and 20-foot wide top surface with two coats tar and chip. The county does not currently require that subdivisions with more than a certain number of lots provide shared road access for those lots.

These regulations serve as a strong disincentive against building an access road to serve a subdivision. It is easier and cheaper for an owner/developer to strip lots with individual driveways along an existing county road, than to serve the lots from a new access road internal to the subdivision. A road takes up land, and is an upfront expense since it must be built to county standards prior to final subdivision plat approval. Many of Dorchester's subdivisions are small and do not justify the expense of building a road to county standards.

Private roads not meeting county standards for acceptance into the county road system were permitted in the county until 1990. The county changed to its current policy because residents on lower standard roads (often not the original lot or house buyers) were petitioning the county to take over their roads, and the county was assuming the expense of bringing these roads up to county standards. Returning to the pre-1990 policy of allowing private roads with lower standards was discussed at length during the comprehensive plan process. After lengthy discussion the weight of opinion was against such a policy change at this time.

Policies in Adjoining Counties

Adjoining counties have differing policies with respect to this issue. Caroline County currently allows up to five lots to be served by a 30-foot wide private right-of-way. Talbot County permits private roads (34-foot right-of-way) to serve up to six lots. Wicomico County does not allow private roads, but does permit narrower public roads. In Wicomico County subdivisions of up to three lots can directly access a county road. More than four lots must be served by a county road. If the road is less than 1,200 feet long, it can have a 36-foot right-of-way plus a 5-foot reservation on either side. If longer than 1,200 feet the right-of-way must be wider.

Strip Development Conclusions

Strip development should be restricted on roads that have an important through-traffic carrying function or, possibly, that serve other important functions (such as scenic or historic roads). Strip development should not be restricted completely. Most subdivisions in Dorchester County are small containing between one and four lots. Stripping a small number of lots along a small, local road, for example, will have little negative impact on safety, traffic flow or the landscape. Restricting strip development will help improve development design, and will increase property values.

To restrict strip development the county must, first, limit access to major county roads, and, second, require that new lots derive access from an internal road serving the subdivision, rather than via a driveway to the main road. These policies will increase development costs, because an owner/developer will now have to set aside additional land and build an internal road. To offset the increase in costs the county should reduce the cost of building access roads by permitting roads serving small subdivisions to be built to "rural" standards; narrower pavement and narrower right-of-way. Roads built to these standards will be more compatible with the county's rural landscape

Strategies:

Restrict strip development.

Limit access to county roads according to the classification system below. The classifications are shown on Figure 5-3 (Roadway Classification Map) and discussed further in Chapter 5.

Limited Access Road (includes only Route 50 from MD 16 North to Vienna): access strictly limited, pursuant to joint Dorchester County and State Highway Administration policies (see Chapter 5).

Major Collector Roads: Lots of record only can have direct access. All new lots must have access on a new public road, pursuant to proposed road standards. Right-of-way dedication may be required for corridor protection (see Chapter 5).

Minor Collector Roads: Lots of record can have direct access. Up to two new lots can have direct access. The third new lot and any additional lots must be served by a public road. Access to the third lot would have to be located and of sufficient potential width that future lots could be served by a public road.

Local Roads: All lots can take direct access.

These access restrictions would apply to all parcels, not previously subdivided as of April 1, 1995.

Permit rural standard public roads for short residential streets.

Amend the existing policy to allow for narrower, rural section, public roads on short roads which will not need to be extended to serve additional lots. For example, for roads serving up to eight or ten lots a 36 to 40-foot right-of-way with 14 to 16 feet of paving would be adequate. At the terminus, to allow for emergency vehicles to turn around, there could be a 30-foot radius bulb or, alternatively, a tee turn around. Adequate off-street parking would have to be provided so that traffic flow would not be impacted. Since most lots being served would be at least one half acre, on street parking should occur rarely if ever.

Other possible cost savings would be to i) not require the final tar and chip surface until a certain number, perhaps 50 percent, of the lots in a subdivision were sold, and ii) allow perhaps a 16 or 18-foot paving width instead of the current 20 feet. These measures would save some of the developer's upfront expense. The first option would create some administrative difficulty since the county would have to track lot sales and might have to hold the developer's performance bond for some time until lots were sold.

Adopt a design manual to guide property owners, land planners, engineers and reviewers in site design issues.

A design manual typically outlines design concepts and guidelines which achieve the objectives of the county's regulatory ordinances. They illustrate what the words in the ordinance really mean. Depending on content and the desired regulatory strength the manual would be adopted by the planning commission or by the county commissioners. The design manual should address residential and non-residential uses.

Encourage or require fixed-area based density zoning (cluster zoning), with required open space within the subdivision.

Cluster Development, also known as fixed-area based density zoning, results in houses grouped on smaller lots on a portion of the subdivision. The remainder of the land is retained for common or

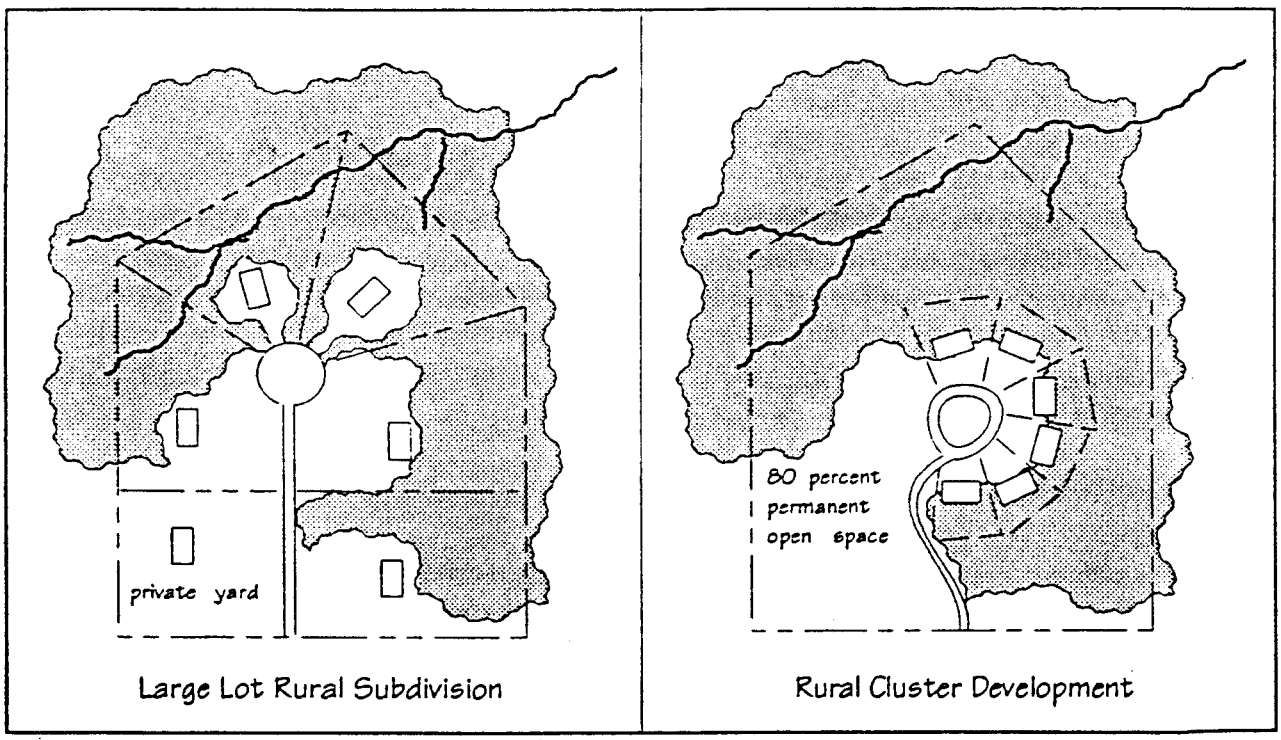
agricultural use, for shared septic facilities, or as protected area. See Figure 4-1 Clustering for Resource Protection.

Cluster subdivision features may include:

- shared sewerage facilities;
- screening/buffering of houses from a road;
- residential development off prime productive soils and in areas that will not affect the productivity of the farm;
- **maximum** lot size requirement (to preserve farmland);
- high open space/preservation requirement;
- buffering between houses and farm residue.

Figure 4-1

Clustering for Resource Protection



Instead of subdividing an entire site (or most of it) into larger, uniformly-sized residential lots, the lots are permitted to be much smaller under clustering. Uniformity of size and regularity of shape are not required. This flexibility enables increased open space and resource protection, while permitting development.

(Source: Maryland Office of Planning; Managing Maryland's Growth, Models and Guidelines)

Review the PUD regulations for wider applicability.

The Dorchester County zoning ordinance allows planned unit developments (PUDs) wherein alternate development standards can be proposed by an owner/developer. To date, no PUDs have been built in the county. For example, the required minimum 100 acres of land is a major disincentive to use of the district, given the small size of Dorchester's subdivisions.

Require landscaping or buffering between lots and certain non-residential uses, or between certain uses and roads .

Dorchester County has a very flat and low landscape. New development can easily be a jarring intrusion into the open landscape. Landscaping or buffering, in concert with forest retention and cluster lot layout, can ensure that new development fits appropriately into the landscape.

Trees required for forest conservation could be used to meet this goal, provided they are planted in sufficient quantities. However, landscaping trees are not typically planted in sufficient quantities to typically qualify as forest. Specific recommendations for forest and landscape buffers, and, possibly, street trees, should be included in a design manual. The design manual should address accommodating forest conservation and drainfield location early in the site design process. Drain fields are commonly sited in front yards. This tends to preclude planting forest buffers in front yards because forests are not permitted on private sewerage drain fields.

Require that when land is subdivided, the entire parcel is included on the submission.

Currently, there is no prohibition on submitting minor (four or fewer lots) subdivisions on a parcel, so that a major subdivision can be created through a series of minor subdivisions. When land is subdivided, the entire parcel should be included on the submission. This will allow a comprehensive review of the planning and design issues on a parcel of land in relation to adjoining parcels. Land not to be subdivided at the time of application should be shown on a preliminary plan, but would not have to be surveyed. On the final plat, land not to be subdivided could be shown as remainder, with notes indicating the remaining available density to the parcel. The Department of Planning and Zoning will create a tracking system for subdivisions to ensure that one minor subdivision only is permitted

on all parcels, not previously subdivided as of April 1, 1995 (effective date of Ordinance 235).

COMPATIBILITY ISSUES

Compatibility issues involve conflicts between adjoining land uses. Key compatibility issues are poorly maintained mobile home sites adjacent to well maintained site-built homes, and residential uses adjacent to agricultural uses.

Goals:

Resolve compatibility concerns over the proliferation of mobile homes in the county.

Reduce the number of older mobile homes which do not meet government standards.

Limit the number of single-wide mobile homes in the county.

Resolve compatibility concerns over the proximity of agricultural and residential land uses.

Mobile homes

In 1990 there were 1,526 mobile homes and trailers in the county, equivalent to about 11 percent of the county's housing stock (including incorporated towns) . The number and percent of these units more than doubled between 1980 and 1990. Approximately one third of all permits issued for new homes between 1980 and 1993 were for mobile homes.

The county recognizes that many manufactured homes today are indistinguishable in appearance and quality from site built homes, and there should not necessarily be a stigma against such homes. The main problem is with old or "junker" mobile homes which can devalue adjoining properties. The most contentious situation is where an investor places an old, "junker" mobile home on a lot next to a well maintained home, and rents it to persons who do not have a stake in maintaining the property in good condition.

Dorchester County's regulations distinguish between mobile homes and modular homes[1]. Both are manufactured off-site, and the key difference is that modular homes are on a permanent foundation, whereas mobile homes can be relocated. Dorchester County has more permissive mobile home regulations compared to adjoining counties, which makes Dorchester County more attractive to mobile home owners. Mobile homes are a permitted use in the A-R and MAR zones (75% of the county). In other residential zones they are allowed by special exception, that is subject to approval by the Board of Appeals.

In Talbot County mobile homes are only permitted as a replacement for a legal nonconforming mobile home, in mobile home parks, and for employees on farms. Caroline County only permits mobile homes meeting HUD or state standards. Caroline County allows mobile homes as a temporary use, under hardship conditions for a family member, in residential zones by special exception. The home must be removed when the person in need of care dies or leaves the property.

The county would like to ultimately not have any homes in the county which do not meet minimum standards and to limit the number of single-wide mobile homes. Therefore, the county should no longer permit mobile homes which do not meet federal (1976) or state standards. Certain areas of Dorchester County contain concentrations of single-wide and older mobile homes. Placing restrictions on existing mobile homes in these areas could cause hardship to people who cannot afford to upgrade their homes. Because of the existing proliferation of mobile homes in these areas, they should be acknowledged as areas where mobile homes will be permitted. However, the county does not want to expand these areas beyond their current limits. Therefore, the areas should be delineated on the county zoning maps, perhaps as an Existing Older

[1]Definitions. A mobile home is a dwelling unit fabricated in an off-site manufacturing facility for installation or assembly at a building site. The term "mobile" home is correctly applied to homes built prior to 1976, the year the Department of Housing and Urban Development (HUD) promulgated standards to implement the Manufactured Housing Construction and Safety Standards Act of 1974. Homes built subsequent to 1976 and complying with the standards are more correctly referred to as "manufactured homes". Some older mobile homes may bear an insignia that they meet standards of the Maryland Department of Economic and Community Development in accordance with the Industrialized Building and Mobile Homes Act of 1971. In Dorchester County the way mobile homes are defined in the zoning regulations does not require that they meet either federal or state standards.

Mobile Home Overlay Zone. Within the overlay zone, mobile homes meeting state standards would be permitted. Upgrades of older mobile homes in these areas should be encouraged. Outside the overlay zone, mobile homes would be permitted only as replacements for existing mobile homes or would have to meet criteria for looking like site-built homes. Criteria would include the following: double-wide; permanent foundation; and minimum roof pitch of 3/12 or 4/12. Exceptions could be made to allow mobile homes as hardship or emergency housing, and on farms for farm labor or tenants.

The county's mobile home parks are generally well run and well kept. Since pads in mobile home parks are clustered on small sites, they are a good example of efficient use of land through clustering with a large amount of common open space. Design standards vary from park to park. It is not clear whether the variation is due to insufficiently high county performance standards, or due to private actions. Double-wide mobile home parks generally have a better appearance and should be encouraged.

Agricultural Uses

Compatibility between agricultural and residential uses appears to be generally less of a problem in Dorchester County than in some of Maryland's more suburban counties such as Carroll and Calvert Counties. In Dorchester County there tend to be fewer complaints about tractor noise in the early hours, dust, animal odors, and crop spraying. However, some specific concerns were raised during preparation of the comprehensive plan. These were noise and smells from chicken houses and manure storage, and the use of farmland for composting. Since North Dorchester contains the county's proposed development district, and is also a prime agricultural area, these concerns may grow.

Under current regulations poultry houses, manure storage buildings and similar uses must be 200 feet from property lines or from public roads. With other property owners' consent the distance can be reduced to 100 feet. Non commercial composting and subsequent use of composted material is a permitted agricultural use. As this plan was being prepared the issue was being considered by the Planning Commission. Guidelines need to be drawn up to distinguish between commercial composting and composting for use on a farm, or accessory to a seafood operation.

Strategies:

Mobile homes which meet criteria for looking like site-built homes will be permitted in residential districts.

Criteria will include double-wide; permanent foundation; and minimum roof pitch of 3/12 or 4/12.

Mobile homes not meeting federal (1976) or state standards should not be permitted in the county.

This would effectively prohibit homes built prior to the early 1970s.

Single-wide mobile homes will be permitted in residential zoning districts only according to the following criteria:

A. In areas of the county to be designated on the zoning maps.

B. Outside designated areas as follows: i) as replacements for previously existing mobile homes ; ii) on farms as dwellings for farm labor, with a limit of one home per a certain number of acres, and meeting appropriate location criteria; iii) as a hardship mobile home for a family member with appropriate conditions and time limits: and iv) as temporary or emergency housing with appropriate conditions and time limits.

Prohibit more than one mobile home on one residential property except on farms or for family hardship.

Two or more mobile homes on one lot or parcel should be regulated as a mobile home park (the current definition is three or more). To prevent hardships two mobile homes could be permitted by special exception for farm labor or on a temporary basis for a family member.

Review mobile home park regulations to determine causes for the variation in design standards from park to park.

Review regulations affecting poultry houses, manure storage, and commercial and non commercial composting in light of concerns over nearby residential development.

CHAPTER 5 TRANSPORTATION

Goal:

Develop a coordinated transportation system which enables the safe and efficient movement of people and goods.

The Transportation Element focuses on preserving the capacity of the county's primary roads, providing enhanced roads and other transportation services in county growth areas and other areas important for economic development, and protecting existing communities, particularly historically important environmentally sensitive areas.

The Transportation Element also forges a link with land use initiatives. One of the county's land use goals is to limit strip residential and commercial development along county and state roadways. In this chapter, a road classification system is established that applies access management controls based on the classification of the roadway. This land use/transportation relationship supports internal circulation patterns while enhancing mobility along the transportation system.

The Transportation Element is intended to address the mobility needs of county residents for the next twenty five years. It is a guide by which state, regional, county, local and other public and private agencies can base their respective planning and development decisions. It sets no precise timetable for the realization of the transportation goals. Rather, it is an attempt to give rational forethought to the continued development of the county transportation system.

ROADS

System Analysis

The county's existing transportation system's main roadways are US Route 50 and MD 16. US Route 50 is the primary east-west thoroughfare for the County carrying regionally oriented traffic along with some local traffic. US Route 50 is primarily a non-signalized roadway, except where it goes through the City of Cambridge.

MD 16 is divided into two distinct roadways: MD 16 north and MD 16 south. MD 16 north carries traffic, generally locally oriented, from Caroline County to US Route 50. MD 16 north links the Town of Secretary, East New Market and Hurlock with the City of Cambridge and

the southern portion of the County. It provides important access for established and emerging residential and commercial areas and is an important roadway for school bus movement and public transit. MD 16 south is the main roadway used by County residents to the Taylor's Island area from US Route 50. MD 16 north and south are offset. This requires motorists traveling along MD 16 north-south to briefly use US Route 50.

To understand how the existing County Transportation System will be impacted by future population growth in the County and neighboring communities, an assessment of key roadway networks was undertaken during the course of the comprehensive planning process. The assessment was confined to the northern portion of the County, along US Route 50 and MD 16 north. This portion of the County is likely to support the majority of future growth in the County.

Using information prepared by the Maryland State Highway Administration (SHA), traffic volumes for 1993-1994 were identified within the MD 16 north and U. S. Route 50 corridors. These traffic volumes reflect average daily traffic and do not include adjustments for seasonal travel patterns. Figure 5-1 shows the volumes of each analyzed segment.

Level of Service (LOS) is a qualitative measure of how well a roadway operates during a given time period. LOS levels range from A to F, with a LOS A being the best level and LOS F being the worst level. A description of the various levels of service is included as Appendix 12.

Most roadways in the county have level of service of A or B. The levels of service are lower within the two corridors during the summer months when there is a 47% increase in traffic volumes along US Route 50, a 9% increase along MD 16 south and a 21% increase along MD 16 north.

Growth Impacts

Chapter 2 of this Comprehensive Plan proposes three development areas: i) the Cambridge District: the area west and south of Cambridge; ii) the Mount Holly to Secretary District: north side of Route 16 between Mount Holly and Secretary; and iii) the North Dorchester District west of Hurlock: west of Routes 16 and 331, and north and east of Pine Top Road and Cabin Creek Road (see Figures 2 and 4). Approximately 60 percent of projected county growth (equivalent to between 1,500 to 3,000 new dwelling units) by the year 2020 is expected to occur in these areas, which translates to between 14,000 and 29,000 weekday vehicular trips.

Assuming this growth would occur steadily over the horizon time of the Comprehensive Plan (25 years), the impact on the transportation network in the three development areas should not cause roadway levels of service to drop to unacceptable levels. This conclusion assumes that growth and resulting vehicular trips would be spread throughout the roadway network, with MD 16 north being the primary north-south route. Over time, MD 16 north may need to be upgraded to accommodate future growth. For this reason, traffic volumes need to be monitored along MD 16 north from US Route 50 to the county line.

Accident Trends

The Maryland State Highway Administration's Office of Traffic and Safety compiles accident data for state maintained roadways throughout Maryland. Table 5-1 lists the various state roadway segments or intersections studied by the office and the number of accidents that occurred between 1991 - 1993.

The majority of county roadways and intersections studied by SHA have low accident frequencies and low traffic volumes. This condition can result in locations with few accidents during the three year study period having accident rates higher than state-wide average rates. Therefore, locations with few accidents during a three year period are not considered significant.

Of the locations studied by SHA between 1990 and 1994, the following are high accident intersections: MD 16/MD 341 intersection, US Route 50/Bucktown Road intersection, MD 14/MD 392 and the MD 343/Pine Street intersection. The county, in collaboration with the state, should perform a safety evaluation at these intersections.

Existing Roadway Classification

Dorchester's only existing roadway classification is the Federal Highway Functional Classification System (see Appendix 13). This classification system is mostly used by the federal government and state during its funding identification process. Five classifications are used: Interstate, Principal Arterial, Minor Arterial, Major Collector, Minor Collector and Local Roadways. A significant number of the county's roadways fall within the Major Collector category. No interstate roadways or facilities exist in the County and US Route 50 is the only principal arterial roadway.

Table 5-1 Dorchester County Accident Data (1991 To 1993)

	Location	Number of Accidents 1991	1992	1993	Pattern or Trend
1.	MD 16 at Ocean Gateway	3	2	-	Excessive speed and failure to obey stop sign.
2.	MD 14 from MD 16 to MD 313	9	9	3	Most accidents involved fixed objects.
3.	MD 14 at MD 392	-	-	5	No pattern.
4.	MD 16 at Race Street	-	6	-	Failure to yield right-of-way.
5.	US 50 at Bucktown Road	-	6	-	Excessive speed and 67% of accidents occurred on wet surfaces.
6.	MD 307 from MD 331 to Caroline County Line	5	4	3	No pattern
7.	MD 313 from Wicomico County to Caroline County	7	3	6	80% of the accidents occurred at night.
8.	MD 331 from US 50 to Caroline County Line	12	17	10	No pattern.
9.	MD 336 from MD 355 to Andrews Road	1	2	1	75% of accidents occurred at night.
10.	MD 341 from MD 16 to MD 343	1	4	5	No pattern.
11.	MD 343 from US 50 to MD 343	34	28	34	In 1993, 5 accidents involved pedestrians.
12.	MD 750 from Bucktown Road to US 50	0	1	2	No pattern.
13.	US 50 from Talbot County to Wicomico County	116	168	149	This roadway had a higher percentage of fixed object and opposite direction accidents than the statewide average for similar roadways.

Source: Maryland State Highway Administration

State Transportation Planning

Under ISTEA, the Maryland Department of Transportation is required by federal law to prepare a statewide long range transportation plan. It is a vision for facilities and services to meet the state's transportation needs in the 21st century. The only Dorchester County improvement shown in the 1995 Transportation Plan is access control along Route 50. A second Chesapeake Bay Bridge is not included in the plan. The cost and environmental impacts associated with constructing a second bridge preclude such a project at Because the project is so unlikely in the time frame of the comprehensive plan there was little discussion about a

second bridge during development of the comprehensive plan, and the plan does not take a position for or against the project.

The Maryland Department of Transportation's Consolidated Transportation Program identifies transportation projects throughout the State. Projects are identified by the State in consultation with the county for funding in a five year period. The State also prepares a long range Highway Needs Inventory which identifies transportation projects by County jurisdiction. The Consolidated Transportation Program (CTP) is updated annually by the Maryland Department of Transportation and reflects funded projects.

State Highway Needs Inventory

The Highway Needs Inventory is a listing of projects developed by the Maryland Department of Transportation (MDOT) to address transportation needs throughout the state over the long term (20 years). Funding for the majority of projects on this list has not been identified by the state. Typically, projects on this list are eligible for inclusion as part of the Consolidated Transportation Program. The Highway Needs Inventory is also updated by MDOT every 4-6 years.

Dorchester County projects in the Highway Needs Inventory are all road or bridge reconstruction projects; there are no new road projects. The only new project in the CTP is the visitors' center at Sailwinds Park.

Adjoining Counties

Few new transportation projects are planned in counties adjoining Dorchester that will affect Dorchester County's transportation network. There are some projects in southern Caroline County that could improve access to North Dorchester and provide alternate truck routes from Hurlock and Williamsburg. These projects are: repair of the Hunting Creek Bridge; future bypass around Preston; and possible rebuilding of the Backlanding Bridge. The county should cooperate with Caroline County on these projects.

OTHER TRANSPORTATION FACILITIES

Bus Service

The Dorchester Developmental Unit (DDU), Incorporated provides public bus service throughout the County with funding from Maryland Department of Transportation Mass Transit Administration and Federal Grants under the Section 18 Rural Transportation Program. A 55 vehicle

fleet, of which 47 are regularly utilized, provides scheduled transit access to various employment, shopping, and medical centers in the County for the general public as well as the elderly and physically challenged. The fare is $1.00 for the general public and 50 cents for senior citizens. Vehicle No. 1 is designated for two morning and two late afternoon work routes and three mid-morning shopping routes. Vehicle No. 2 follows eight shopping routes throughout the day. Vehicle No. is designated for use by the elderly and physically challenged.

In 1994, approximately 1,150 County residents utilized the DDU's transportation services. This number represents almost 4% of the County's population. Approximately 15,500 individual trips per year are made by County residents not needing specialized transportation. During 1994, the DDU provided 42,615 individual trips for special transportation purposes, including medical trips. Many of the county residents using the transportation services are dependent upon DDU for transportation needs ranging from job-related transportation to transportation to medical services. Without these transportation services, the majority of the users would be mobility restricted and would experience a deteriorating quality of life. The DDU also provides transportation for senior citizens and the mentally and physically challenged who cannot reach established bus stops. A 24-hour advance registration is required to use this service.

Rail Service

Passenger rail transportation is not available in the County. The Maryland-Delaware Railroad Company provides the only freight service with one track running east from Cambridge before turning north to East New Market. The track continues to the north east toward Federalsburg parallel to MD Route 307. Commuter rail service is not recommended for the County at this time because it is not warranted by commuter patterns.

Air Transportation

Dorchester County has one general aviation airport and is near two other general aviation airports in neighboring Wicomico and Talbot Counties. The Cambridge-Dorchester Airport is a general utility airport that accommodates small aircraft having a maximum takeoff weight of 12,500 pounds. The airport maintains one 4,000 foot long and 75 foot wide runway with a 30 foot wide parallel taxi way.

The airport is included in the Federal Aviation Administration's National plan of Integrated systems and in the Maryland Aviation System Plan as a general utility airport. An Airport Advisory Board advises the County commissioners concerning the airport. A master plan of the airport was prepared in 1990, and projected a 1.0% to 2.5% per year increase in airport

operations for the next 20 years. The plan recommended the following improvements:

- lengthening and widening the existing 4,000-foot runway;
- extending the taxiways;
- paving the tiedown area
- construction of a new hangar; and
- relocation of 1,300 feet of Cordtown Road.

The improvements are anticipated for completion by 1997.

Water Transportation

The Port of Cambridge has discontinued commercial barge and tanker traffic. The channel is 25 feet deep and commercial port facilities remain in place.

The largest marinas in the county are located on major roads in the City of Cambridge, or on state roads throughout the county. A complete list of marinas and related services in the county is included in the county's water and sewer master plan. Improved access to other public marinas on local roads could be included in a county capital improvements program, as recommended in Chapter 8. As noted in Chapter 6, under Recreation, access to the Chesapeake Bay and its tributaries is generally good, but enhanced access to the Marshyhope Creek and Nanticoke River is recommended.

SHA Park and Ride

One Park & Ride lot is located at the corner of MD 16 and MD 335. Twelve spaces are available with only a 2.0% utilization rate. An upgrade to this facility is not warranted at this time.

BIKEWAYS AND PEDESTRIAN SYSTEM

The National Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) emphasizes planning for bicyclists and pedestrians at local regional and state levels. Under ISTEA, the Maryland Department of Transportation is required to include a Bicycle/Pedestrian element as part of its long range Transportation Plan. The 1995 Maryland Transportation Plan recommends:

- Designing bicycle and pedestrian friendly roadways,

- Connecting bicycle and pedestrian facilities that link activity centers,
- Assuring bicycle and pedestrian access across highways and bridges and through tunnels and other barriers where feasible,
- Cooperating with local governments to create bicycle and pedestrian access to transit facilities.
- Promoting bicyclist and pedestrian safety and education programs.

Maryland House Bill 1249 effective October 1995, also affects bicyclist and pedestrian access throughout Maryland. This bill requires that:

- provision for bicycle parking must be made when a jurisdiction regulates off-street parking;
- the State Highway Administration (SHA) and a local government can designate bicycle and pedestrian priority areas for which the SHA will develop plans to increase safety, and bicycle and pedestrian access;
- the SHA must provide sidewalks along any new or reconstructed roadway, unless the cost or impact is too great;
- existing major bicycle and pedestrian routes cannot be severed unless alternate routes are provided; and
- sidewalks can be built along existing roads on a shared cost basis between the state and local government.

There is no defined bikeway system in Dorchester County. However, the "Dorchester County Visitors Guide" identifies three informal bicycle routes: the Blackwater Refuge Loop, Vienna-Blackwater Loop, and the Cambridge Loop. The Blackwater Refuge Loop is a 25 mile bicycle route that starts at the visitors' center and traverses around the perimeter of the refuge. The Vienna-Blackwater Loop is a 41 mile route that begins at Vienna and uses New Bridge Road, Ravenwood Road, Decoursey Bridge Road, Greenbriar Road, Key Wallace Drive, Bestpitch Ferry Road, Griffith Neck Road and Steels Neck Road. The third route is the Cambridge Loop which is a 6.3 mile bicycle route through the City. The Dorchester County Tourism Office estimates that these informal routes are used by between 10,000 to 12,000 tourists a year. This extent of bicycle use may justify upgrades to local roads as part of a comprehensive tourism development plan (see under Tourism in Chapter 3).

Two pedestrian links are proposed in this plan and should be reflected in the 1998 update of the Land Preservation and Recreation Plan. The first would link Cambridge and Blackwater Refuge, following an established railroad bed between Egypt Road Regional Park and Key Wallace Drive. The second would connect the Hurlock Recreation Complex, historic East

New Market and Secretary park. Possible extensions would connect with Suicide Bridge Road, Pine Top Road, Wrights Wharf Road, Cabin Creek Road and Cabin Creek Hurlock Road. These facilities would link towns and Development Districts and would be an asset not only to visitors but to residents of the North Dorchester area (see also under Recreation in Chapter 6).

Objectives:

- Maintain US Route 50 as the primary County transportation corridor.
- Encourage transportation alternatives such as public transit, bikeways and pedestrian systems which reduce the dependency on individual automobiles.
- Promote the Cambridge-Dorchester Municipal Airport and encourage the development of related industries.
- Integrate land use and transportation policies to make them mutually supportive.
- Plan improvements to the County roadway network to avoid deterioration of the road network to unacceptable levels.
- Ensure that planning and traffic management efforts, at state and County levels, are properly coordinated to achieve maximum efficiency of the transportation network.
- Assign high priority to improvements located within designated growth areas. Priority should also be given to the maintenance and enhancement of existing roadways as opposed to new construction.
- Continue close coordination between Dorchester County, Maryland State Highway Administration, the Mass Transit Administration and neighboring counties in order to better integrate planning policies and initiatives.
- Protect existing communities and the environment by making improvements compatible with natural surroundings.
- Make improvements to the MD 16 north corridor to enhance the town centers while improving traffic flows.

Strategies:

Adopt a County Road Classification System

As the County grows over the next two decades, the function of certain roadways will change to accommodate the new growth. Typically, roadways are intended to provide access and/or mobility functions. Regionally-oriented roadways like US Route 50 are expected to carry

high volumes of traffic and allow little or no direct access. This roadway serves a mobility function. Roadways such as Beach Haven Road carry low traffic volumes and are expected to serve primarily an access function. Some roadways such as MD 16 north currently provide both an access and mobility function. As traffic volumes increase from new development within the MD 16 north corridor, this roadway will need to provide more of a mobility function and less of an access function.

To address changes in roadway function and to implement land use policies established in this comprehensive plan, a classification system has been developed to help the County plan for the ultimate function of the roadway. Figure 5-2 illustrates the classification system . A large scale version of Figure 5-2, will be maintained by the Dorchester County Department of Planning and Zoning. Use of the classification system in planning will also help avoid expensive or cost prohibitive retrofit future roadway improvements. The purpose of the County classification system is to further the land use policy of controlling strip development the County (see Chapter 4). It is not intended to replace the federal functional classification system used by federal and state agencies.

Four roadway classifications are identified on Figure 5-2: Limited Access, Major Collector, Minor Collector and Local Roadways. The most stringent access controls would be applied to the highest order roadway (limited access), which is intended to serve primarily a mobility function. On the other end of the spectrum are local roads with no access controls. Figure 5-2 shows the road classification system in concept form. Each road segment will be included on a list adopted by the County Commissioners by separate resolution. The list adopted by the Commissioners will be the one used for regulatory purposes.

Limited Access Roads

This classification applies to U. S. Route 50 from MD 16 (north) to the Wicomico County line. The primary function of this roadway is vehicular mobility and is intended to carry the greatest amount of traffic. Access is limited for this roadway by a September 19, 1989 memorandum of understanding between Dorchester County and the Maryland State Highway Administration.

This memorandum states: "For all future subdivisions no more than one future access to and from US Route 50 will be permitted to each parcel bordering US Route 50 which exists as of the date of this agreement, unless a parcel has more than 750 feet of frontage in which case access points would be permitted no more frequently than every 750 feet. If a property is subdivided in no instance would it be limited to fewer entrances than exist as of the date of this agreement. Points of access will be via either a 90 degree connection or a 45 degree directional entrance "Enter Only", and an interior one-way road system fronting commercial, industrial or residential lots, exiting at a 45 degree directional "Exit Only". The limit of access will be noted on all approved subdivision plans. The existing subdivision regulations will be revised to conform with the above provisions and require all developers to obtain access approval from the State Highway Administration before presenting plans to the Dorchester County Planning Office for approval. If a parcel is not subdivided all existing entrances would continue to be permitted."

The County supports the memorandum of understanding as part of this comprehensive planning effort.

Major Collector Roads

Major collector roads carry high to moderate daily volumes of traffic and are intended to serve a primarily mobility function. MD 16 north, MD Route 392, MD Route 307 and MD Route 331 would be classified as major collectors. As the northern portion of the County is expected to accommodate about 60 percent of new growth, these roadways will be important roadway links to U. S. Route 50 and the Cambridge area, which is the economic hub of the County. To help maintain their capacity for future growth, the County (in consultation with the SHA) should apply the access controls and establish an ultimate right-of-way for these roadway corridors. Once an ultimate right-of-way is agreed, the County will need to revise its ordinances to encourage dedication of right-of-way when land is subdivided and to measure setback and other development standards by the ultimate right-of-way rather than the existing right-of-way.

Only lots of record will be permitted to have direct access. All new lots will have to be served by an internal public road. Other access management techniques that should be evaluated for applicability under this classification include:

- channelizing access points;
- relocating access points away from intersections;

- improving parking lot access in the town centers;
- modifying left turn movements; and
- providing deceleration lanes and acceleration tapers.

Minor Collector Roads

Minor collector roads are located throughout the County and are intended to serve both mobility and access needs of County residents. These roadways carry less traffic than major collectors or limited access roadways. Lots of record and up to two new lots will be allowed direct access. The third lot and any additional lots will have to be served by a new public road.

Local Roads

Local roads are the lowest order road and are intended to carry low traffic volumes. These roads are dispersed throughout the County and are expected to carry traffic from residences to the collector network. Access controls would not be applied to development along this classification of roadway.

Pursue transportation facility improvements (see Figure 5-2).

The existing Dorchester County Transportation System functions reasonably well. However, during the summer season, the transportation system is adversely affected by traffic traveling to shore points. The Maryland Department of Transportation estimates that there is an average 21% increase in daily traffic volumes on roadways within the County. The roadways most impacted by these seasonal traffic increases are MD 16 and U. S. Route 50. An additional concern regarding the County's transportation system is truck movement through historic centers such as East New Market and Hurlock. MD 392, MD 16, MD 307 and MD 313 carry truck traffic from the State of Delaware and Caroline County, Maryland to U. S. Route 50.

Recommended improvements to the county transportation system can be placed in the following categories: roadway intersection improvements, bicycle/pedestrian network improvements, and other transportation facility improvements.

Roadway/intersection improvements.

MD 16 North/US Route 50 Intersection Improvement

The SHA , completed a second study of this intersection in September 1993 focusing on the eastbound to northbound left turn movement . This left turn movement operated at a Level of Service "F" during P.M. peak periods in 1993 due to heavy left turn movements. The study concluded that "a traffic signal can be installed at this location without adversely affecting the through traffic, in particular the heavy volumes of beach traffic."

From the County's perspective, it is clear that this intersection must be improved to accommodate existing and future traffic flows. The County supports improving this intersection as a short term solution. However, in the longer term, as development occurs at the airport and surrounding area the feasibility of an interchange at this location should be explored by the state.

Route 16 Extension

As the area surrounding the Cambridge Dorchester Municipal Airport continues to develop, a southern MD 16 extension will be necessary to fully realize the economic development potential of the airport and the industrially zoned property to the west of the airport. A MD 16 extension would also relieve some congestion along US 50 by allowing county residents in Cambridge and South Dorchester to travel north on MD 16 without using US Route 50. The MD 16 extension is envisioned as a two lane roadway with shoulders sufficient to accommodate bicycle travel. The new roadway would begin at the US Route 50/MD 16 north intersection discussed above, and proceed south around the airport tying into Church Creek Road.

MD Route 16/MD Route 343 Connection

This connection would run from MD Route 343 near Jenkins Creek , just west of the Cambridge City line, south to MD Route 16 near Christs Rock, with a possible connection through Chesapeake Drive to Egypt Road. In 1978 a similar connection known as Hambrooks Boulevard Extension was proposed. Even though no action was taken, the proposal still has merit for long range planning, as it would form a complete bypass around Cambridge.

East New Market /Hurlock bypass

East New Market is one of the most historically significant areas of the County, and the entire town is a designated Historic District. To protect the historic character of the town extending existing Lords Crossing north of its present terminus at Cabin Creek Hurlock Road should be considered. The road extension would go east of Mill Pond intersecting with MD 16 south of Old Stagecoach Road. This new route would provide an alternate connection between MD 392 and MD 16 (avoiding MD 14), and also benefit the Town of Hurlock by giving truck traffic that goes through the Town using MD 331 and MD 392 an alternative route. The new extension would likely be a two lane road with shoulders.

Route 331/392 Intersection Improvement

This intersection is within the Town of Hurlock. A traffic signal regulates traffic traveling along Route 392 while traffic traveling on Route 331 is free flow. Based on site observations, traffic volume at this intersection is moderate with a high percentage of truck traffic primarily traveling along Route 392. This intersection also marks the entry into the Town of Hurlock. It is recommended that this intersection be evaluated for full signalization given the existing and projected traffic volumes.

Vienna truck bypass

A considerable number of heavy logging and grain trucks from South Dorchester pass through Vienna to access Route 50 and Route 331. Vienna's narrow streets and tight corners are unsuited for this type of heavy traffic, which is also incompatible with the image and quality of life the County desires for its towns. A bypass for trucks is envisioned that would run from Henry's Crossroad Road north of Steele Neck Road to Route 731 west of Vienna.

Safety evaluations at high accident intersections.

The county should coordinate with the SHA to evaluate the following intersections: US Route 50/Bucktown Road intersection, and the MD 343/Pine Street intersection, and Route 307 and 318 (Federalsburg by-pass).

Bicycle/Pedestrian Improvements

Dorchester County does not have a defined bikeway system. However, the Maryland State Office of Tourism Development has identified potential bike routes (See Figure 5-2).

To encourage bicycle usage and pedestrian travel throughout the County, the following actions are recommended:

- Develop a bikeway network using the potential routing system established by the State to develop a comprehensive bikeway system that links activity centers together. A bicycle network map should be created and incorporated into the development review process.

  The safety of bicyclists on narrow or otherwise dangerous county roads must be considered when developing bicycle routes. The county should not promote or encourage unsafe conditions. Paved shoulders along dangerous road stretches are one way to separate cars and bicycles.

- Identify immediate needs for bicycle/pedestrian improvements. One example is Riverside Drive, Bellevue Avenue and Hambrooks Boulevard just west of Cambridge.

- Develop a County policy for sidewalk and bikeway design standards, construction and maintenance.

- Establish an educational and promotion campaign to encourage biking and walking activities.

- Support the development of an integrated and fully functional sidewalk network in the towns.

Other Transportation Facility Improvements

Improve public access to the Marshyhope Creek and Nanticoke River

Possibilities include a boat ramp at Rhodesdale or, perhaps, at Lewis Landing (see also under Recreation in Chapter 6).

Monitor the Delmarva Power and Light Plant Project

The Delmarva Power Plant project is described in Chapter 3. If the power plant is constructed, it could have significant transportation impacts. Maiden Branch Road and a portion of Maiden Forest Road would be widened from MD 331 to the entrances. Coal would be delivered by rail or by barge. If by rail, Delmarva Power would

improve 5.7 miles of their branch rail line from Hurlock to Vienna for coal deliveries. At full capacity two trains per week would be needed. If by barge, trucks would transport the coal from a barge unloading facility in Vienna to the site. Up to 175 round-trip truck trips per day would be needed, with potentially severe impacts on local roads. Another possibility would be to transport coal by rail from the barge unloading facility. Based on current information, coal delivery by rail would appear to have the least impact on the county's transportation network. However, the county should be actively involved in any additional studies which are conducted.

Evaluate the county's ability to support transit providers such as the Dorchester Developmental Unit in future years.

Federal and state funding for DDU services is expected to decrease in coming years and DDU will need to receive financial support from other sources. Given the important role the DDU plays in helping the County meet the transportation needs of residents, the County will need to evaluate its ability to support the DDU in future years.

Pursue transportation improvements in and around the Cambridge-Dorchester Airport.

The airport is an important element of the county's transportation system and is an important for overall economic development. The recommended Route 16 Extension road improvement would improve the accessibility and visibility of the airport and surrounding lands (see Chapter 3 for discussion of economic development potential around the airport).

Coordinate transportation planning with adjoining jurisdictions.

Dorchester County should work with Caroline County on the road projects which would improve access to and from the North Dorchester Development District, as described in this chapter.

This chapter addresses key issues related to how the county's future growth will affect water and sewer, solid waste, recreation, education, library and information services, police, fire and emergency service and social and human services.

WATER AND SEWER

Goals:

Increase municipal water and sewerage treatment capacity.

Use public water and sewer as a planning tool to direct the location and type of development.

Solving water and sewer issues is key to the implementation of this comprehensive plan. Key comprehensive plan goals requiring changes in past water and sewer policies are:

- Directing growth to towns and Development Areas;
- Reducing sprawl in rural areas;
- Protecting groundwater, and reducing groundwater contamination from failing septic systems;
- Restricting strip development; and
- Permitting and encouraging innovative residential development patterns.

Key Issues

Key issues concerning water and sewerage are as follows:

- Approximately half the county's population is served by municipal water and sewer services, and over 80 percent of these are in the Cambridge area. Other than Cambridge, the only other communities which have a sewerage treatment plant are Hurlock, East New Market/Secretary (shared facility), and Vienna.

- The county does not operate a treatment plant and does not directly supply public water or sewer services. Some areas in the county, outside incorporated towns, are served by municipal water and/or sewer. These areas are Sanitary Districts which are administered by the Dorchester County Sanitary Commission.

- In the past the Towns have generally been unwilling to provide water and sewer services outside town boundaries. The County, for its part, has not played a proactive role in encouraging countywide comprehensively planned development of water and sewer services.

- As of 1995, excess capacity is available only at the Cambridge and Hurlock sewage treatment plants.

- While the Cambridge sewerage treatment plant has considerable available capacity, enough to support more than double the current population, the city has seen little growth.

- In addition to capacity limitations, portions of the East New Market, Secretary and Vienna distribution system are subject to groundwater infiltration.

- Development is increasingly occurring on private well and septic systems in rural parts of North Dorchester where public water and sewer is either unavailable or is constrained.

- Requirements for groundwater protection typically result in larger lots and lower residential densities than permitted under the zoning regulations (see Chapter 7, Environmentally Sensitive Areas).

- A number of rural Dorchester County communities have failing septic systems which threaten shallow wells. Demands for funds to solve these public health concerns of existing communities compete with demands for funds to increase public water and sewer capacity to attract new growth.

- The Dorchester County Water and Sewerage Master Plan (most recently amended in 1994) is more of an inventory of facilities than a plan for directing and controlling the location and type of development.

Strategies:

Encourage and assist in water and sewer capacity increases in East New Market, Secretary, and Vienna.

Capacity increases will allow for additional development at medium to high densities in and around the towns, as envisioned by the land use plan (Chapter 2). Cambridge and Hurlock have large areas of undeveloped land within the current town boundaries so that water and sewer extensions beyond the current municipal boundaries are unlikely in the short term until more of the undeveloped land within these towns is developed. However, East New Market, Secretary, and Vienna have no available sewer capacity to serve new development. The county should consider assisting these towns in funding expansions of their wastewater treatment plants in return for agreement by the towns to provide sewer service to designated growth areas in the county.

To provide joint county/town benefits, work with the towns to extend public water and sewer beyond the current town boundaries into the surrounding areas.

In the past the towns have generally not supported sewer service extensions beyond town boundaries. This philosophy is understandable in that, from the towns perspective, municipal services should be provided to town residents paying town taxes. However, this philosophy needs to be critically reviewed. The county and the towns both wish to attract development to the towns because of the social and economic benefits which would follow such development. Therefore, the county and towns should begin a dialogue, analyze the costs and benefits and carefully review how they could jointly benefit from water and sewer extensions outside town boundaries within designated growth areas. Such extensions would go beyond extensions to areas with failing septic systems to include new development sites in the areas designated on the land use map as growth areas adjoining the towns (see Figure 2-1). Even though such development might initially leap frog over undeveloped land within the towns, in the long run development within the towns would be more likely to occur. Newly served areas would either be annexed into the towns, or remain in the county but pay for public water and sewer service. Appropriate fee structures and other mechanisms would be needed to ensure that the towns receive payment for the services they provide.

These proposed actions will require close coordination and cooperation between the county and the towns with respect to water and sewer issues and growth and development policy. Such coordination would greatly expand on the county's role in water and sewer planning, and could ultimately lead to joint ownership or

operation of water and sewer facilities, including the Cambridge wastewater treatment plant.

Identify funding sources for water and sewer improvements.

Increasing treatment capacity, and fixing and extending sewer lines involve major capital expenditures. State and federal funding for sewer system improvements have decreased considerably in recent years. The limited funding which is available must be allocated between the competing demands of solving existing problems, such as failing systems, versus creating new capacity. The county and towns must find creative ways to fund water and sewer extensions, to offset the high costs.

Ways to assist in individual hook-up costs may also be needed. Even if main water or sewer lines are extended, some households may not have the funds to connect their homes to the main lines.

Explore the feasibility of proactively extending public sewer service to designated growth areas surrounding the towns.

This could involve forward funding of projects by the county and/or town, or cooperative ventures between the county and property owners or developers. In addition, whenever line extensions are proposed to address health and safety issues, such as failing systems, feasibility studies for extensions to designated growth areas should be conducted. Although grant funds can typically only be used to address health and safety issues, a joint project which solved an existing problem, and provided public sewer to designated growth areas would maximize the impact of grant funds. The water and sewer master plan, which is updated every three years, and local area plans are the appropriate vehicles to address which areas should be considered for extensions.

Expand the role of the Dorchester County Sanitary Commission.

The Dorchester County Sanitary Commission currently has water and sewerage responsibilities within established sanitary districts. The role of the Dorchester County Sanitary Commission should be expanded to encompass water and sewer planning for all Dorchester County, with full cooperation and coordination between county and towns. The commission will need paid staff to fulfill this role, and the county should explore ways of funding staff positions. Grant funds may be available.

SOLID WASTE

The Dorchester County Highway Department is responsible for the county's comprehensive solid waste plan. The current plan was approved by the Maryland Department of the Environment in July, 1994. The next update must be submitted to the state by July, 1997.

The Beulah Sanitary landfill was scheduled to be closed in 1993, but is operational as of 1995. The county owns a 290 acre site adjacent to the Beulah landfill. A 27 acre portion of this site is being developed as a new landfill, scheduled to open in late 1995. This portion is estimated to satisfy the county's needs through the year 2015. With the additional adjacent land the county's landfill needs appear assured for the foreseeable future.

The county began a recycling collection program in 1993. The county has been able to meet the state mandated goal to recycle 15 percent of the total solid waste stream.

Composting and dumping are issues of concern to county residents. Of particular concern are the disposal of crab chum and poultry waste. These issues should be looked at in detail in the update of the comprehensive solid waste plan. The Solid Waste Advisory Board should also be reactivated, as called for in the 1993 Solid Waste Plan.

Strategies:

Reactivate the Solid Waste Advisory Board.

Address composting and dumping in the 1997 comprehensive Solid Waste Plan update.

RECREATION

Goal:

Develop Dorchester County's recreation assets for residential use and enjoyment, and for economic development.

Recreation needs

The county's recreation needs and plans are detailed in the Dorchester County Land Preservation and Recreation Plan, approved in 1994. The amount of recreation land needed by a given community varies from location to location depending on circumstances. The State has adopted

guidelines for adequate amounts of land for different kinds of parks per 1,000 population. Dorchester County's existing and future recreational needs, based on those standards are shown in Table 6-1.

Table 6-1 Dorchester County Existing and Future Recreational Acreage Needs

Type of Park/Facility	Acreage Needs by year 2010*	Existing Park Acres, as of 1993**	Acres Needed to Meet State Standard*
Neighborhood	161	75	86
Community	320	336	0
Countywide	644	253	391
Quasi-Public		906	
Total	1,125	1570	

* State standards are: neighborhood parks 5 acres/1,000 people; community parks 10 acres/1,000 people; countywide parks 20 acres/1,000 people. ** Includes Board of Education properties used by the County under a joint use agreement.
Source: Dorchester County Land Preservation and Recreation Plan

Neighborhood facilities are typically less than 20 acres, located within walking distance of primary users. Community sites are typically 20 to 100 acres and primarily serve residents living within 15 minutes traveling distance, and are often focused towards active recreation. Countywide sites draw visitors from the entire county, and may be designed to attract visitors from outside as well. According to Table 6-1 the County needs to develop additional neighborhood and countywide facilities to meet state standards. Figure 6-1, Existing Recreation Facilities shows the locations of Dorchester County's neighborhood, community and countywide facilities.

Needed Recreation Facilities

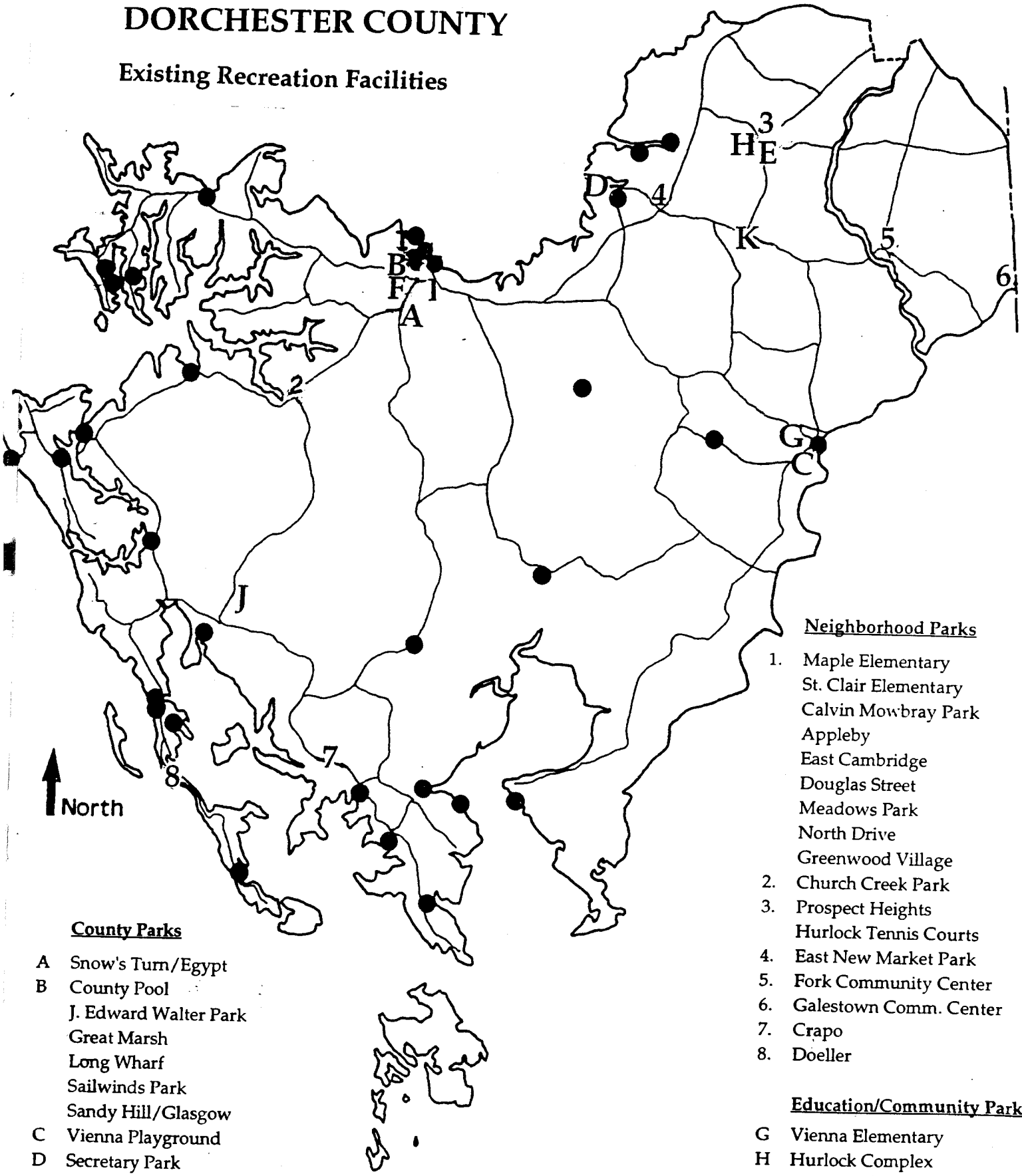
Countywide

The Dorchester County Land Preservation and Recreation Plan contains a full inventory of recreation sites and facilities, including parks, wildlife areas, museums, fishing and hunting clubs, boat ramps and attractions. The plan identifies some potential trails which might ultimately link these facilities, but development of these linkages is vital if the county is to fully develop its assets both for recreation for residents and for the tourism industry. For example, ways should be identified to link major attractions such as Sailwinds Park, Blackwater National Wildlife Refuge and other natural areas such as the Nanticoke River, and historic sites in Cambridge,

Figure 6-1

DORCHESTER COUNTY

Existing Recreation Facilities



County Parks

- A Snow's Turn/Egypt
- B County Pool
  - J. Edward Walter Park
  - Great Marsh
  - Long Wharf
  - Sailwinds Park
  - Sandy Hill/Glasgow
- C Vienna Playground
- D Secretary Park
  - Warwick Elementary
- E Hurlock Primary
- F Christ Rock
- ● Boat Ramps

Neighborhood Parks

1. Maple Elementary
   - St. Clair Elementary
   - Calvin Mowbray Park
   - Appleby
   - East Cambridge
   - Douglas Street
   - Meadows Park
   - North Drive
   - Greenwood Village
2. Church Creek Park
3. Prospect Heights
   - Hurlock Tennis Courts
4. East New Market Park
5. Fork Community Center
6. Galestown Comm. Center
7. Crapo
8. Doeller

Education/Community Parks

- G Vienna Elementary
- H Hurlock Complex
- I Maces Lane Middle
  - Cambridge S. Dorchester
- J South Dorchester K-8
- K North Dorchester HS/MS

East New Market and Vienna. Scenic routes, hiker/biker trails and, possibly, rail lines need to be identified to link the major attractions with other attractions and support facilities including hotels, restaurants, countywide parks, campgrounds, boat ramps, parking areas, and museums . Figure 6-2, Future Recreation Plans and Linkages illustrates some concepts for beginning to develop a countywide network. These include two pedestrian links proposed in Chapter 5. The first would link Cambridge and Blackwater Refuge, and the second would connect the Hurlock Recreation Complex, historic East New Market and Secretary park. Also, included on Figure 6-2 are six potential greenway corridors identified in the 1992 Maryland Greenways Atlas. These are: 1) Cambridge Waterfront; 2) Choptank River Greenway; 3) Fishing Bay; 4) Hurlock Rail Trail; 5) Marshyhope Creek; and 6) Nanticoke River. Bikeways are shown on Figure 5-2.

The need for additional neighborhood parks and facilities to serve local communities should be evaluated in light of the countywide needs identified in Table 6-1. In addition the need and feasibility for a public golf course, in addition to the Cambridge Country Club, should be evaluated.

The Recreation Plan identifies a problem with certain campgrounds which have turned into permanent housing areas. Before additional campgrounds are established appropriate operation and management must be established.

The County Land Preservation and Recreation Plan notes that access to the Chesapeake Bay and its tributaries in the county is generally good: the county has many federal and state lands offering access, and has 998 boat slips and 35 boat ramps, of which 17 are public. The plan does recommend enhanced access to the Marshyhope Creek and Nanticoke River through a boat ramp at Rhodesdale or, perhaps, at Lewis Landing.

North Dorchester

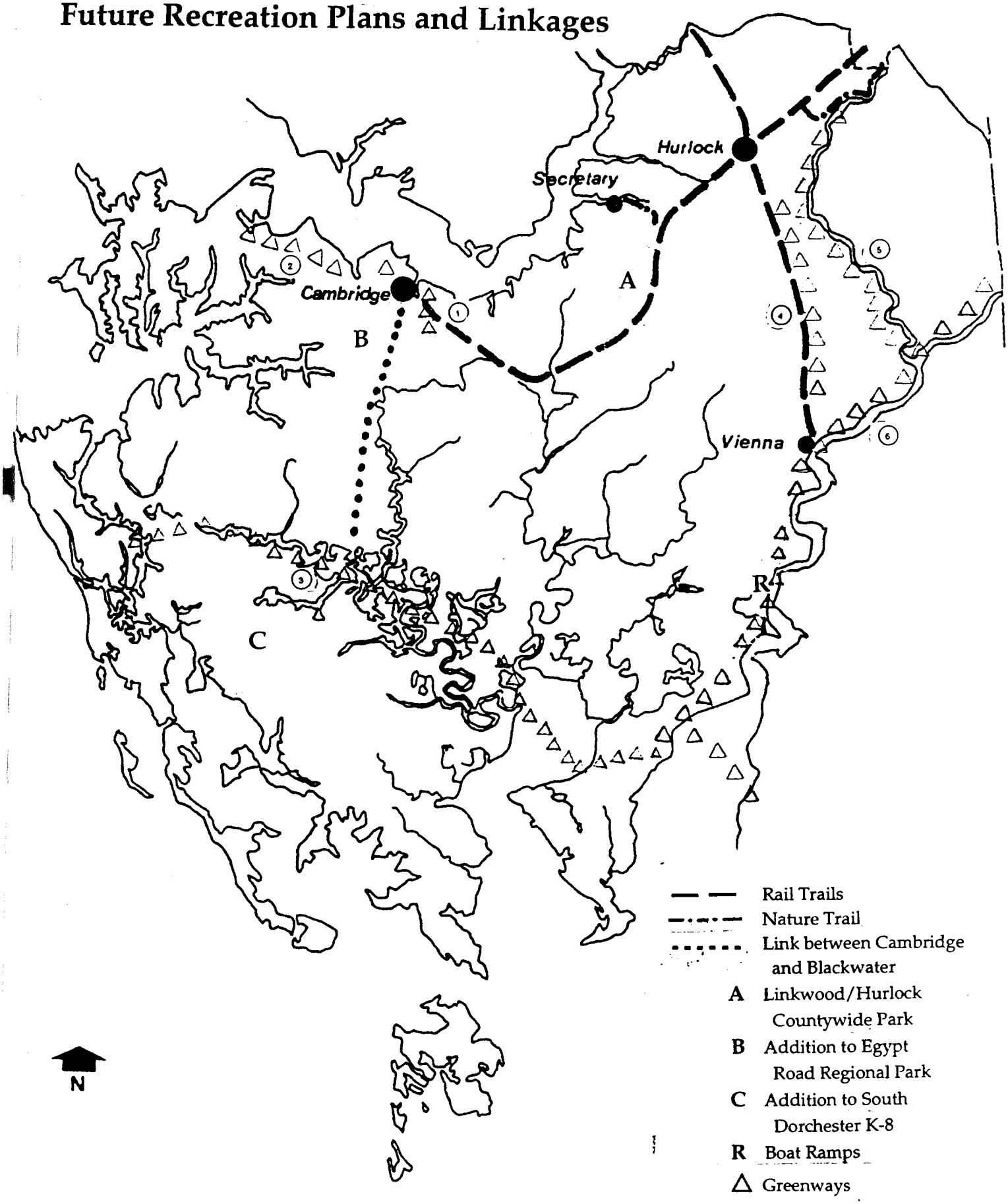
A countywide recreational facility of at least 100 acres is needed to serve the existing population and future growth in this area. This facility should contain play fields and playground equipment and be located in the Hurlock, Linkwood, or East New Market election districts with access to US. 50, MD 16 or MD 331. In addition, the existing Hurlock complex should be completed.

For Vienna, the Land Preservation and Recreation Plan identifies the following needs: repair of the Race Street ramp (accomplished in 1995); upgrading ball fields and playground equipment; and additional land

Figure 6-2

DORCHESTER COUNTY

Future Recreation Plans and Linkages



acquisition. At the Vienna regional comprehensive plan meeting, residents expressed the need for a youth facility.

Cambridge

Needs identified in the Dorchester County Land Preservation and Recreation Plan include a community center in downtown Cambridge to serve local youth; completion of the Egypt Road Regional Park or improvement of the Glasgow school grounds to provide more recreational facilities; and upgrade of J. Edward Walter park.

South Dorchester

Needs identified in the Dorchester County Land Preservation and Recreation Plan include improvements at South Dorchester K-8 and Old Crapo school, development of a picnic and recreation area at Hoopers Island and Taylors Island.

During the comprehensive plan process the issue was raised concerning the undocumented recreational vehicles used as temporary lodging during the hunting season. The zoning regulations permit camping areas, including recreational vehicles, under certain conditions, but the concern is that the conditions are not being met. The extent of the problem should be explored and, whether alternate means of regulation are needed.

Strategies:

Develop a countywide linked network of recreational and tourism related sites and facilities.

Plans for this network should be developed in the 1998 update of the Dorchester County Land Preservation and Recreation Plan. The Dorchester County Departments of Economic Development and Tourism, should be included in this effort along with organizations such as the Chamber of Commerce, Sailwinds, museums and bed and breakfast operators.

Amend the county's subdivision regulations to require dedication of land for trails designated in the Recreation Plan .

The trail/network plans should be reviewed during the subdivision and site development review process. In the event a designated trail is located within or adjacent to a proposed subdivision or site development, a right-of-way, perhaps a 15-foot wide strip, should be

obtained, either deeded to the county or in an easement. Trail construction would not be required of the property owner but would be undertaken through the county as a capital project or through other mechanisms.

Develop a countywide park facility in North Dorchester

Evaluate the need for additional neighborhood parks and facilities in communities around the county.

Develop regulations to better define uses and activities permitted in campgrounds and camping areas.

Problems have arisen with certain campgrounds which have turned into permanent housing areas.

EDUCATION

Goal:

Create an education system that prepares the individual student for the future and contributes to the county's economic development

Public Schools

The public school system in Dorchester County consists of seven elementary schools, (including South Dorchester K-8 and the St. Clair Early Childhood and Special Education Center), 3 middle schools, and three high schools, including the School of Technology.

Enrollment in the public schools has been increasing in spite of the lack of overall population growth in the county. Public school enrollment is projected to increase to nearly 5,500 pupils by the year 2000, see Table 6-2.

New facilities that will be needed to absorb this enrollment include a new elementary school to open in 1997, and additions at Hurlock Elementary and Mace's Lane Middle. A site in Cambridge adjacent to the Maces Lane Middle School has been selected for the elementary school site. The Board of Education also plans to continue systemic renovations at all its facilities.

Approximately 50 percent of the county's budget goes to schools and colleges. In Fiscal Year 1996, for example, the county will contribute $11.3 million towards the Board's $31 million budget. The county will also contribute $0.65 million to Chesapeake Community College. Education is

Table 6-2 Dorchester County Public Schools Enrollment Trends 1970- 2004.

Year	Total Enrollment
1970	6,615
1980	5,423
1990	4,892
1991	4,968
1992	5,036
1993	5,179
1994	5,165
2000*	5,490
2004*	5,208

* = 1994 Projection
Source: Dorchester County Board of Education.

critical to the county's economic development. A good school system is necessary to produce a skilled, educated workforce, and will also attract employers seeking an attractive location for their employees.

Immediate priorities for the Board of Education include the following: providing new educational technology for classrooms; replacing aging textbooks; increasing teacher salaries to make Dorchester County competitive with other Eastern Shore counties; and attracting qualified minority teachers. The Board has also embarked on a major planning effort, called Mission 2000, intended to develop a vision and goals of how to best prepare students for life in the 21st century.

Chesapeake College

The Chesapeake College/Cambridge Center opened in 1994 in a new 25,000 square-foot facility on Race Street. The center replaced a 5,000 square foot facility on Glasgow Street which had been the campus for 15 years. The center is a satellite of Chesapeake Community College headquartered in Wye Mills, Queen Anne's County. Among the goals of the center are to offer full Associate Degree course offerings, as well as courses geared to employee training and retraining. Using distance learning center technology, students in Cambridge can follow classes taking place at the same time in Wye Mills. As of Spring, 1995, 350 students were taking classes at the center.

Center for Environmental and Estuarine Studies (CEES)

The CEES is one of the 13 institutions of the University of Maryland System (see under CEES in Chapter 3).

Strategies:

Assist the Board of Education in planning for growth and development in the North Dorchester Development District.

This comprehensive plan designates North Dorchester as the County's Development District. This area may see up to 2,000 new housing units by 2010. North Dorchester is currently served by Hurlock and Warwick Elementary schools, both of which have attendance above their state rated capacity, and by North Dorchester Middle and High. Hurlock elementary will be at maximum capacity, even with the proposed addition. The Board of Education should review its enrollment projections as necessary to conform with this comprehensive plan so as to plan for any resulting enrollment increases in this part of the county. In planning new facilities the Board is strongly urged to locate new facilities in or near towns, depending on need, population and projected growth, so as to reinforce the towns as the county's preferred development areas. Consolidating new school facilities in this area would also help reduce pupil transportation costs and increase the potential for shared facility use between, for example, schools, recreation and adult education.

Encourage the continued use of school facilities for cultural, recreational and civic activities.

Support the growth and development of the Chesapeake College Cambridge Center for all citizens. Encourage and support links between the Center and County employers.

LIBRARY AND INFORMATION SERVICES

Goal:

Integrate library services into the county's overall development planning.

The county library system consists of the Cambridge central and Hurlock branch libraries. A bookmobile provides service to rural areas and parts of Cambridge four days a week. The library is run by a non-profit

corporation headed by a Board of Trustees. The major sources of operating funds are the County, approximately 60 percent, and State matching funds, approximately 25 percent.

Facility needs are as follows:

- Renovation of the central branch including the following: elevator for access for the disabled; enlarged meeting space; public service area; and storage. In 1989 the project cost was estimated at around $0.36 million.

- Additional meeting room space at the Hurlock branch;

- Expansion of the bookmobile program.

In a large and diverse county such as Dorchester, the library has an important role to play as a comprehensive county information center. The library can provide services to businesses, government, service providers and tourists, as well as to traditional library patrons. The University of Maryland conducted surveys which revealed that Dorchester County residents look to the library as an information source particularly for health, environment, housing and recreation topics.

The library is making strides to improve electronic information services: a local area network has been installed; access to internet resources through the SAILOR system, a network of Maryland libraries, is available; there are plans to link the Cambridge and Hurlock branches through a wide-area-network; and circulation functions will be automated by 1996. A long-term concept is to install information "kiosks" at scattered locations around the county, providing remote access to information and library services. Some futurists also envision remote offices at such locations. Equipped with telecommunications equipment and technology, home-based workers could use such offices to communicate electronically with central offices, avoiding lengthy commuting trips.

Strategies:

Involve the library in the future comprehensive planning for economic development, tourism, social and human services and technology.

Enhance citizen access to library and information services by linking library and county automated systems, expanding material delivery systems, exploring the scattered information kiosk concept and obtaining funding for ADA initiatives.

POLICE

Goal:

Provide the best police service to all citizens of Dorchester County .

The Dorchester County Sheriff's Department provides police service in all Dorchester County, with the exception of Cambridge and Hurlock, which have their own police departments. The State police provides additional support to the Sheriff's office, but by 1997 all of the shared responsibilities are to be shifted to the Sheriff's office.

Dorchester County's crime rate is low compared to the State as a whole. In 1993 there were 5,084 violent and property crimes per 100,000 people, compared to 6,106 crimes per 100,000 people statewide. Dorchester County's countywide crime rate for violent and property crimes increased 34 percent between 1983 and 1993, according to the Department of Maryland State Police. Statewide, during the same period, the crime rate statewide increased 14 percent. The size of the county's police forces is shown below.

Table 6-3 Dorchester County Law Enforcement Employee Data

	Total	Sworn	Civilian
County Sheriff's Dept.	29	21	8
Cambridge Police	52	39	13
Hurlock Police	7	7	0
State Police	4	4	0

Source: 1993 Uniform Crime Report, Dorchester County Sheriff's Office

The Sheriff's office is located in a single office-detention center complex in Cambridge. The 68,000 square foot facility was completed in 1991. The Sheriff's department is finding it increasingly difficult to maintain levels of service with existing staff due to i) the increase in the number of homes dispersed in the unincorporated area of the county; ii) the reduced role of the Maryland State Police (see Maryland State Police, Role and Mission Study, 1992).; and iii) increased court service responsibilities. Currently, at most, two or three deputies are available for patrol at any given time. To maintain adequate service during the next ten to fifteen years, the department foresees the need for additional staff and for two sub-stations, one in North Dorchester, and one in the Golden Hill/Hoopers Island area.

In 1976, the International Association of Chiefs of Police released a report on police service in Dorchester County. The report envisioned the future formation of a single law enforcement agency for the county, but recommended against immediate formation of such an agency. It recommended that the Town of Hurlock disband its force and that there be increased, but not total, reliance on State Police in the county. Changes since the mid-1970s (increased housing development in Dorchester County's rural areas compared to Cambridge; population growth in Hurlock; and a shift in emphasis of the services provided by the State Police) suggest that now may be an opportune time to reevaluate police service in the county.

Strategy:

The county and towns should conduct a study to evaluate how best to provide police services throughout the county.

FIRE AND EMERGENCY SERVICE

Goal:

Improve fire and emergency services in Dorchester County.

Dorchester County's size and scattered population present a challenge to fire and emergency service. Fire service in the county is provided by 15 volunteer companies. The companies work on a mutual aid basis whereby each company assists others in responding to calls. Two groups meet on a regular basis to discuss countywide concerns. A chief's committee, comprising the chiefs of all 15 companies, meets monthly. The Dorchester County Firemen's Association meets every other month.

Fire coverage in the North Dorchester Development District is adequate. Plans for new housing developments are sent to the appropriate fire district. If appropriate, installation of a dry hydrant can be required. As the county grows, the proliferation of repeated or similar sounding road names can inhibit efficient service in the event of an emergency. More private roads may be built in the county, if private road standards are reduced, as recommended in the housing section of the plan. Private roads must have names and signs so that emergency services can locate residences.

Under State law, Dorchester County is responsible for the 911 center's rescue/fire responsibilities. The 911 center is currently located at the Cambridge Police Department. Ambulance service is provided by

volunteer units and the Dorchester Emergency Medical Service. Coordination is needed with respect to payment for ambulance service in Cambridge versus the rest of the county.

Dorchester County Emergency Management (Civil Defense) is located on Gypsy Hill Road in Cambridge. The office is charged with preparing the county for emergencies, including hurricanes and a nuclear accident. Emergency drills are held annually. Six county schools are designated shelters with emergency power supplies. The office distributes literature to help people prepare for a natural disaster. Efforts should be made to increase public awareness of procedures to be followed in the event of an emergency or a disaster.

Strategies:

Fire and emergency procedures should be reviewed to ensure adequate service is provided to all citizens.

Study ways to better coordinate and fund emergency response services throughout the county.

SOCIAL AND HUMAN SERVICES

Goal:

Ensure adequate delivery of human and social services in the county, and make the most efficient use of public expenditures

A number of measures show that social problems are severe in the county and contribute to the labor force problems and lagging incomes discussed in the economy chapter of this plan. Compared to most other counties Dorchester County has a higher proportion of low and moderate income households. In 1990, 14 percent of the population were below the poverty level. A 1995 Economic Assessment report prepared for the Dorchester County Economic Development Office, included the following statistics: (1) in 1991, 1,484 women and children in the county were eligible for food stamps; (2) in the 1990-1991 school year, 2,806 children were eligible for reduced price meals; (3) over 21 percent of births are to teenagers while 346 children under 18-years old were severely mentally ill. The Mid-Shore Council on Children, Youth and Families 1994 Mid-Shore State of the Child report chronicles the present state of children and families in a wide variety of areas including, mental health, alcohol and drug problems, and child abuse.

Indicators are that social needs are likely to increase in the county. For example, the number of persons in the aged 55 and over is projected to increase, from 8,482 in 1990 to 12,421 in 2020, a 46 percent increase.

Social service needs in the county are met by a number of public, private and private non-profit agencies, offices and organizations. No single office or entity coordinates the various providers. Through its operating budget the county contributes directly to the Commission on Aging, Chesapeake Rehabilitation, MAC Inc., the Dorchester Developmental Unit and the Health Department. In addition the County Commissioners are responsible for approving the disbursement of federal and state pass-through funds to various organizations.

In the absence of an overall coordinating body in the county for social and human services, it is difficult to assess the degree of overlap among the providers, and the effectiveness of the use of public funds.

Strategy:

Appointing a commission to produce a comprehensive report on human and social needs and services in the county, and make recommendations for how best to meet those needs.

The 1992 Maryland Planning Act (see Chapter 2) requires that jurisdictions adopt measures to protect environmentally sensitive areas. Under the Planning Act, environmentally sensitive areas include the following: 1) streams and their buffers; 2) 100-year floodplains; 3) habitats of threatened and endangered species; and 4) steep slopes. Following a discussion of watersheds and groundwater, this chapter addresses the four areas cited in the Planning Act, and concludes with a discussion of the forest conservation and Chesapeake Bay Critical Area programs.

Goals:

Support stewardship of the Chesapeake Bay and the land.

Protect the county's groundwater resources, streams and their buffers, floodplains, and habitats of threatened and endangered species.

WATERSHEDS

Located in the Atlantic Coastal Plain, Dorchester County is low lying, with a maximum elevation of 50 feet in the northeastern section of the county. The land north of Route 50 is generally well drained. The land south of Route 50 is generally poorly drained and includes much tidal marsh or fresh swamp land, making up about one quarter of the county's land area.

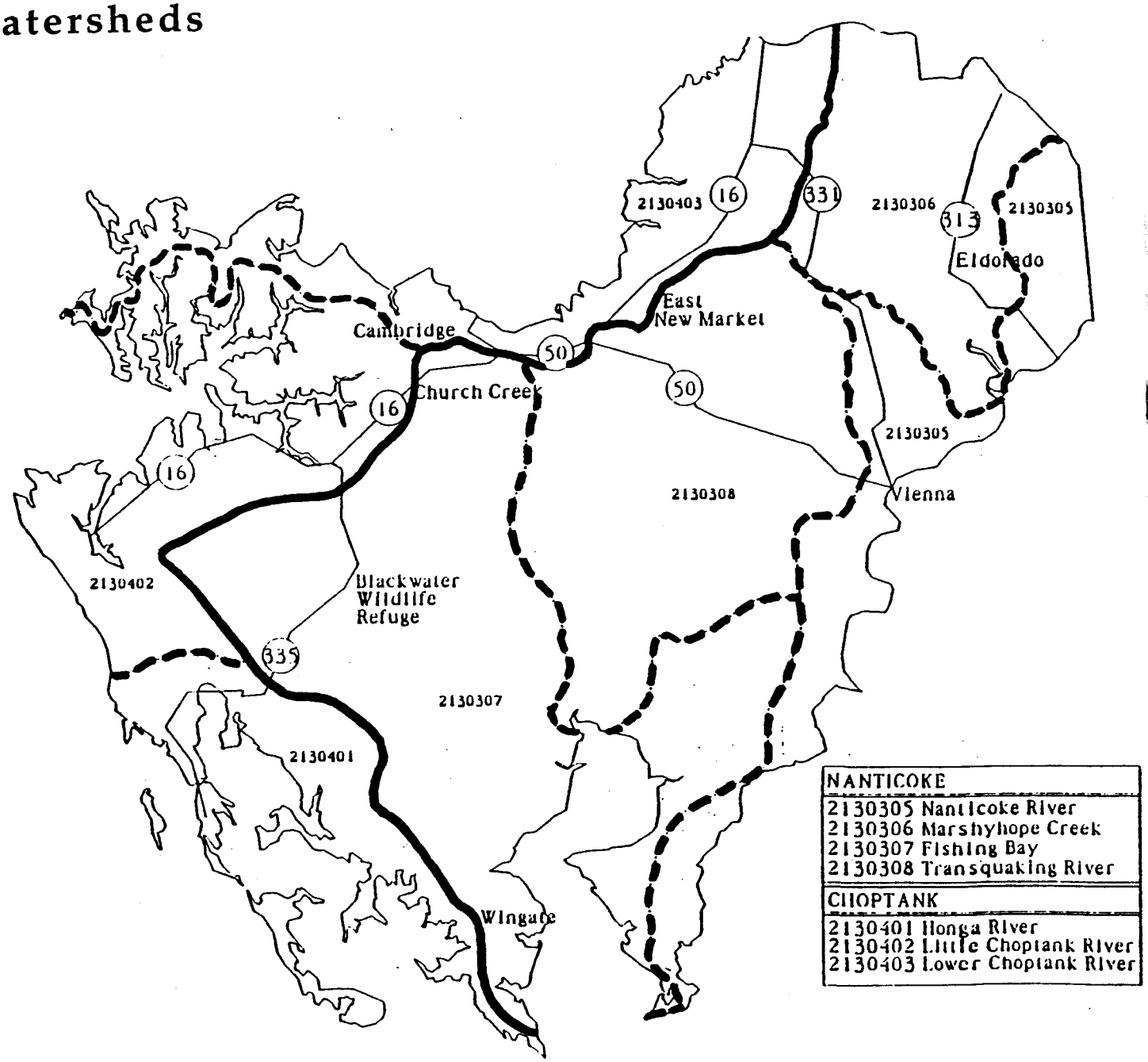
Around two thirds of the county drains into the Nanticoke River watershed (see Figure 7-1). The Nanticoke River has been described as the most pristine, untouched river on the Eastern Shore[1] . The other major watershed is the Choptank River watershed. Most of Dorchester County's rivers and tributaries are subject to tidal influence even near the upper reaches of their watersheds.

[1]See Nanticoke River Watershed: A Summary of Resource Characteristics and Enhancement Activities, Maryland Dept. of Natural Resources Public Lands and Forestry Greenways and Resource Planning, June 1994.

Figure 7-1

DORCHESTER COUNTY

Watersheds



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Roads
Watershed boundaries
Subwatershed boundaries

Tributary Strategies

Tributary Strategies resulted from the 1983 Chesapeake Bay Agreement between the Bay States to restore the Chesapeake Bay. The Tributary Strategies describe ways in which nutrient pollution loads can be reduced by 40 percent in many sub-watersheds that drain into the Bay. According to the 1995 Tributary Strategies, the Choptank shows signs of moderate to severe stress from nutrient over enrichment. In the upper reaches oxygen levels are good, but in the lower reaches oxygen problems can be more severe. In the Lower Eastern Shore Watershed, which includes the Nanticoke, dissolved oxygen levels are sufficient in most places to support fish, shellfish and other animals. Nitrogen levels appear to be declining, but nutrient levels in the Nanticoke River are high. Water clarity is poor, limiting the ability of submerged aquatic vegetation to grow and survive.

According to the draft Tributary Strategies, nutrient reduction goals can be achieved through the following actions: wastewater treatment plant upgrades; full implementation of erosion, sediment control and stormwater management programs; reduction of forest loss; and implementation of other nonpoint source pollution control efforts.

"Tributary Implementation Teams", comprising about 30 members, have been established to facilitate the continued participation of local governments, interest groups and citizens in deciding how best to refine and implement the Strategies. The Strategies are scheduled to be reevaluated in 1997, to assess progress and decide if mid-course corrections are necessary.

Strategies:

Continue active participation in the Tributary Strategies.

Support the efforts of the Nanticoke Watershed Alliance, the Nature Conservancy, the Eastern Shore Land Conservancy and other groups working to protect the county's natural resources.

Develop watershed management plans.

Such plans provide an opportunity to integrate nutrient reduction efforts, habitat restoration, planning and development, agricultural uses, protection of aquifers, solid waste, recreation and other initiatives. An approved watershed plan can facilitate regulatory streamlining, such as for wetland mitigation or reforestation, by allowing regulatory decisions to be made based on the management plan (see also under Streamlining in Chapter 8). Candidates for

watershed planning would be the Lower Choptank River and the Marshyhope Creek sub watersheds which contain most of the development districts proposed in this comprehensive plan.

A new kind of watershed management plan known as a Special Area Management Plan is being developed by the US. Army Corps of Engineers and should be explored.

GROUND WATER

Ground water is a critical natural resource to Dorchester County. It is the sole source of drinking water and essential for industry and agriculture. Because most of the county's surface waters are brackish, ground water is likely to remain Dorchester County's sole water source for the foreseeable future[1].

Surface water covers approximately 16 percent of Dorchester County but this resource is of limited capability for water supplies because of (1) the county's low relief which is a deterrent to economic surface storage; (2) high salinity in major tidal streams; and (3) drainage basins of small fresh-water streams are too small to provide adequate stream flow.

In 1988 the County adopted a Ground Water Protection Report: a management plan to protect ground water resources from contamination by residential waste-water systems. The report divides the county into four management zones (see Figure 7-2).Within zones A and C, the primary sources of drinking water are the shallower Pleistocene and Miocene age aquifers. Area A in particular has many shallow wells. Within zones B1 and B2 the primary sources of water are the deeper Piney Point and Aquia Aquifers.

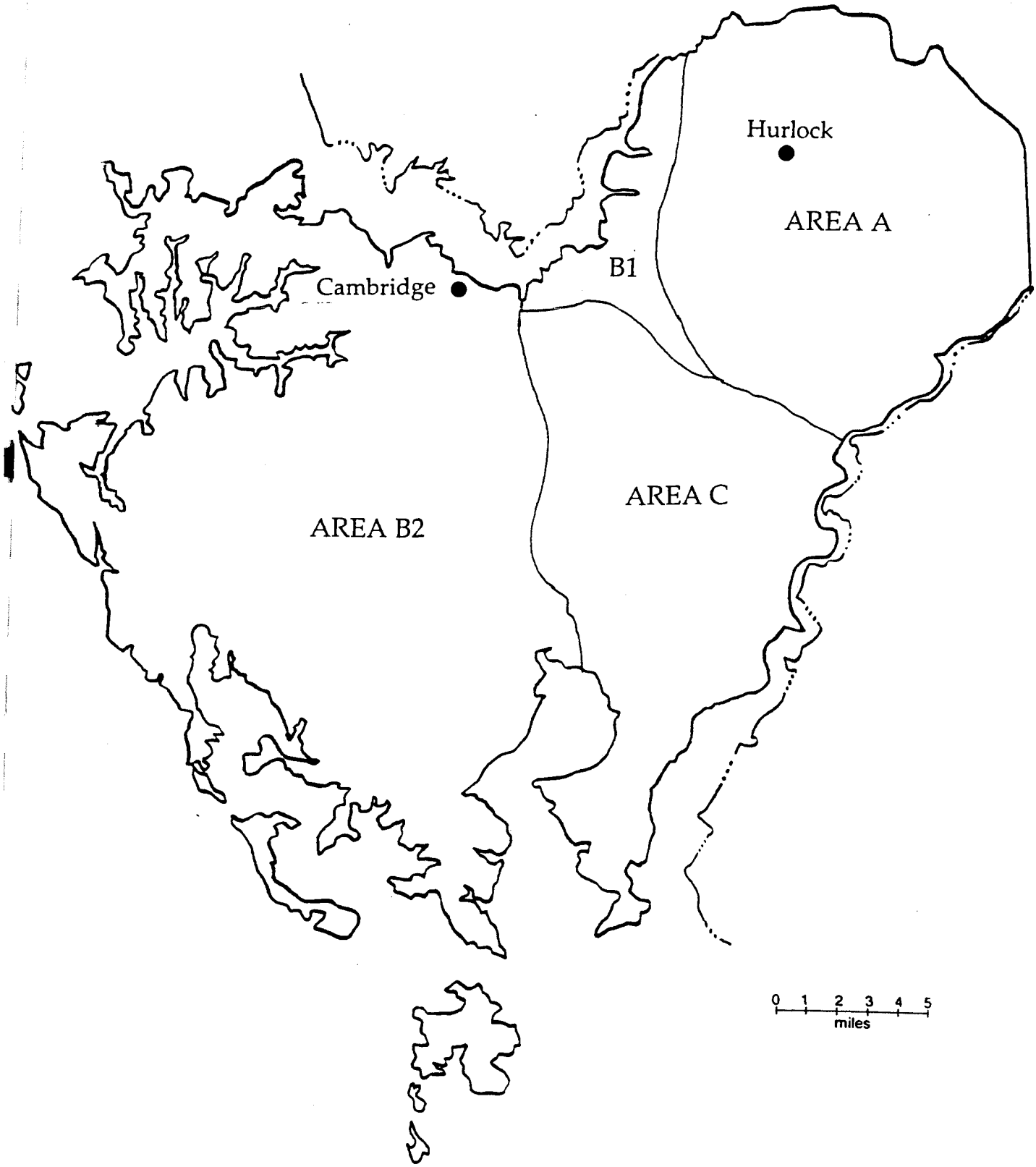
The principal mechanism for protecting ground water resources is to require an adequate "treatment zone" beneath a septic system infiltration trench. The treatment zone consists of at least four feet of soil capable of treating the waste water before it recharges the ground water. The four-foot requirement would severely restrict the use of on-site septic systems in Dorchester County, because (1) many areas, especially Areas B-1 and B-2, have seasonally high water tables and cannot provide the four-foot

[1]Recent studies suggest that there may be excessive pumping of ground water in some locations around the Chesapeake Bay resulting in land around portions of the Chesapeake Bay sinking faster than in other coastal areas (see joint NASA and NOAA Bayonnet Project).

Figure 7-2

DORCHESTER COUNTY

Groundwater Protection Zones



treatment zone, and (2) large portions of Area A have permeable soils with few confining materials to slow down and treat effluent before it reaches ground water.

Because of these difficulties, the Ground Water Protection Report contains management strategies to permit on-site septic systems in areas lacking a four-foot treatment zone. The strategies are based on hydro-geologic conditions, and aquifer water quality and use patterns. The main strategies are (1) to reduce the flow of waste-water by increasing the minimum permitted lot size, thereby reducing residential density; and (2) to require alternative, and typically more expensive, treatment systems such as sand mounds or bermed infiltration ponds.

In Area A, the minimum lot size can increase to two acres, around twice the minimum lot size required by zoning. In Areas B-1 and B-2, direct penetration of groundwater is permitted, but density is reduced to two acres per housing unit in the B-1 and to five acres per unit in the B-2, where bermed infiltration ponds are permitted. In the case of the B-1 and B-2 areas the management strategies were based on the classification of the waste injection zone as a type IV aquifer; an aquifer unsuitable for potable use. Nevertheless, lot density controls were deemed important because of the cumulative impacts of subsurface movement of water to the Chesapeake Bay.

Much of the county's recent growth has been in the rural areas of North Dorchester where there is limited public water and sewer availability. While this comprehensive plan proposes increasing public water and sewer capacity and directing growth to the towns and adjoining areas, market forces dictate that there will be continued pressure to develop in the rural areas of the Development District. A key concern is how to accommodate this growth pressure, including the economic need for affordable and "move up" housing, while protecting ground water resources.

Strategies:

Direct growth to the Towns, Adjoining Areas and Development Districts. Reduce residential densities in other areas of the county.

Continue to coordinate development policy with the requirements for ground water protection.

STREAMS AND THEIR BUFFERS

Rivers and streams are valuable to the county in many ways. For example, streams are used for irrigation and for industrial uses. Streams are important spawning grounds for fish, and help support other kinds of wildlife. Streams also support commercial and recreational fishing and attract outdoor enthusiasts such as hunters, canoeists and bird-watchers.

Stream buffers are areas along the lengths of stream banks, established to protect streams from man made disturbances. Buffers are a "best management technique" that reduce sediment, and nitrogen, phosphorus and other runoff pollutants by acting as a filter, thus minimizing damage to streams. Stream buffers also improve habitat for fish and other stream life.

For managing forest harvest operations, the Maryland Forest Service defines adequate buffer width as at least 50 feet forested on each side of a stream, with an increase of four feet for each percent slope. The Maryland Forest Service Inventory reports that, countywide, Dorchester County's stream buffers are approximately 60 percent inadequate. This is based on a definition of 100 feet forested on each side of a stream (the minimum width that can be picked out from satellite imagery).

The effectiveness of buffers depends on their width and other factors such as steep slopes, soil erodibility and wetlands. Some jurisdictions have developed complex, "systems" approaches to defining adequate stream buffers. Others have adopted a standard buffer width, such as 50 or 75 feet, which they require to remain undisturbed. Within Dorchester County's Chesapeake Bay Critical Area (50 percent of Dorchester County's land area), existing regulations require an undisturbed minimum buffer of 100 feet, although the forest service can allow clear cutting down to 50 feet, as part of a buffer management plan. Dorchester County has few steep slopes, but has extensive non-tidal wetlands. Therefore, Dorchester County's approach to stream buffer protection outside the critical area will be to continue to assist property owners and developers to comply with current state law governing the protection of wetlands. This law requires an undisturbed 25-foot buffer around non-tidal wetlands. Wetlands along streams form a natural buffer, and may be more extensive than a standard buffer width of 50 or 75 feet. Adopting a standard buffer width could mislead property owners into underestimating the buffer width required under state law. Given Dorchester County's flat terrain, a 25-foot buffer from wetlands will adequately protect streams and wetlands. The county should encourage planting trees in the buffer.

Strategies:

Require that streams, wetlands and their buffers be shown on all new preliminary plans, final subdivision plats and site plans outside the Critical Area.

These features would only have to be shown for the area being subdivided or developed.

Continue to use available resources to assist property owners in identifying streams, wetlands and required buffers on their land.

Resources include wetlands guidance maps , hydric soil maps, USGS quad maps etc. Human resources include Dorchester County Environmental Health and the Natural Resources Conservation Service (formerly the Soil Conservation Service).

Prior to issuing a building permit, require that applicants certify by their signature that they understand state and federal requirements for protection of non-tidal wetlands.

Basic information about the requirements should be available at the Department of Planning and Zoning.

To educate homeowners, require a note to final plats and site plans explaining the purpose and use limitations of wetland buffers.

100-YEAR FLOODPLAIN

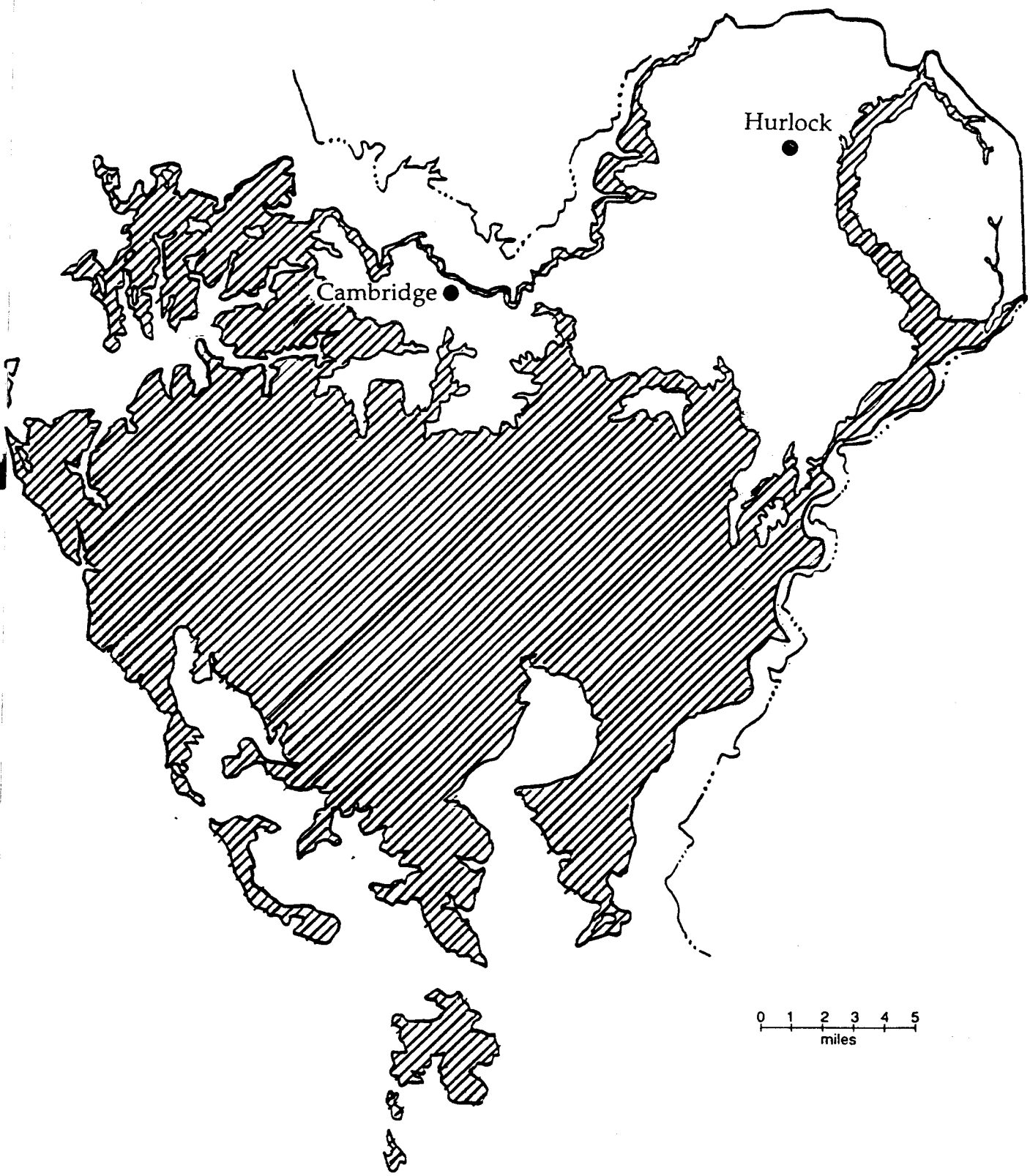
Approximately 60 percent of Dorchester County lies within the 100-year floodplain area (see Figure 7-3). The vast majority of this area is tidal floodplain: areas which are susceptible to flooding by high tides, hurricanes, storms and steady on-shore winds. There are no coastal high hazard areas in the county. The base flood elevation is at five to six feet. Only one area of the county, approximately 300 acres around Higgins Mill Pond on the Transquaking River near Linkwood, is a non-tidal, or riverine, floodplain. As of 1990, some 4,600 people, or 15 percent, of the county's population lived in the 100-year floodplain area. This is fewer people than in 1980.

Dorchester County has participated in the National Flood Insurance Program since 1981. Dorchester County's zoning ordinance contains a supplementary Floodplain District: a zone overlaying the area of the 100-year floodplain as shown on the Flood Insurance Rate Maps. Buildings

Figure 7-3

DORCHESTER COUNTY

100 Year Floodplain



and structures within this zone must be designed to minimize flood damage within the flood prone area. Development within the riverine floodplain is strictly controlled in the ordinance. Regulations for the Floodplain District were updated in 1992.

The land use element of this comprehensive plan designates nearly all of the 100-year floodplain area as natural resource or agricultural area. The plan proposes reductions in potential development densities in this area reducing the risk of flood damage.

Strategy:

The county's existing floodplain protection program is adequate and no changes are envisioned by this comprehensive plan.

HABITATS OF THREATENED AND ENDANGERED SPECIES

Federal and state laws protect habitats of threatened and endangered species. Since much development activity that affects species habitat is processed through the county, the county has an important role to play in helping property owners comply with federal and state laws.

Reasons for protecting animal and plant species

Protecting animal and plant species and their habitats is important for many reasons:

- respecting all life forms is an important ethic which has been adopted by the United States Government;
- animal and plant species contribute to the county's environmental quality, making the County an attractive place to live;
- animal and plant species are a resource, attracting visitors such as fishermen, hunters and bird watchers, who contribute to the local economy; and
- animal and plant species are an actual and potential storehouse for medical, agricultural and other products beneficial to people.

Species in Dorchester County

Lists of rare, threatened and endangered animals and plants, including federally listed species, are maintained by the Natural Heritage Program which is part of the Maryland Department of Natural Resources. Statewide, approximately 300 animals and 900 plants appear on the lists, although not all are listed as threatened or endangered, thereby affording them different levels of legal protection. Within Dorchester County, as of 1995, 22 animals and 70 plants are listed. Of these, five animals and one plant are listed as threatened or endangered by the United States Fish and Wildlife Service (see Table 7-1) . These are the Peregrine Falcon, Bald Eagle, American Burying Beetle, Red-Cockaded Woodpecker, Delmarva Fox Squirrel, and Swamp Pink. The American Burying Beetle and the Red-Cockaded Woodpecker are listed as extirpated in Maryland: no naturally occurring populations are known to exist.

Table 7-1 ***Numbers Of Rare, Threatened And Endangered Animals And Plants in Maryland and Dorchester County***

	Total federal or state listed rare, threatened and endangered animals and plants		Threatened or endangered species in Dorchester County	
	Maryland	Dorchester County	Federally Listed	State Listed
Animals	300	22*	5*	12
Plants	900	70**	1	47

*Two extirpated: .**Nine extirpated
Source: Maryland Natural Heritage Program.

Effect of Listing

For the Chesapeake Bay Critical Area (approximately 50 percent of Dorchester County) the Dorchester County Department of Planning and Zoning maintains maps of endangered species locations. If the Department determines or has questions whether a development project might affect a habitat, the project applicant is referred to the Maryland Natural Heritage Program. The project applicant then works with the Heritage Program or other appropriate agencies to minimize any project impacts on species habitat. Typically this involves project design changes affecting features such as access, lot lay out or storm water management.

For areas outside the Critical Area, the county expects that information on the general locations of documented rare, threatened and endangered

species will be made available in the near future. When the county has this information, it will be able to play a role in identifying development projects which might affect a threatened or endangered species habitat outside the Critical Area. Since the county does not currently have the information, it does not know the extent of documented rare, threatened or endangered species habitat in the county outside the critical area. Based on a review of a map of one portion of the county, it appears likely that most endangered species habitat is either in the Chesapeake Bay Critical Area, or in non-tidal wetland areas.

Strategies:

Maintain current review policy and procedures for projects within the Chesapeake Bay Critical Area.

For areas outside the Critical Area, the county will review development projects for potential impacts to federal and state listed species habitat when mapped habitat information is available.

Dorchester County's approach to the protection of threatened or endangered species habitat outside the critical area will be as follows. When a development in the form of a subdivision or major site development is proposed, the Department of Planning and Zoning will review the habitat maps (when available) to determine whether the development might affect a federal or state listed rare, threatened or endangered species habitat area. In the event a possible impact is identified, as part of the normal inter-agency project review, the Department of Planning and Zoning will forward information about the development to the Maryland Natural Heritage Program. As with any agency comments, before the county takes action on the development application, the proposer of the development will have to respond to any comments received. Comments will have to be received and action taken within normal review time periods, consistent with the county's goals with respect to streamlining of regulations.

STEEP SLOPES

Dorchester County is very flat. According to the Dorchester County Soil Survey (updated from 1982 Soil Survey Interpretations, unpublished as of 1995) the only mapping unit with over 15 percent slopes is the Evesboro Sand in wooded conditions. This unit covers approximately 244 acres of the county, primarily along the Marshyhope River within the Chesapeake Bay Critical Area. Other areas of the unit are small inclusions within other

mapping units. Given Dorchester County's topography, detailed regulations governing protection of steep slopes are not necessary.

Strategy:

Amend the subdivision regulations to require that areas with over 15 percent slopes be clearly identified on preliminary subdivision plats.

The Dorchester County subdivision regulations currently require that topography, on two-foot contours, be shown on preliminary subdivision plats. Currently this information is primarily used to help locate septic reserve areas. To assist the planning commission in its review of subdivision design, areas with over 15 percent slopes should be clearly identified on preliminary subdivision plats.

FOREST CONSERVATION

The county's forest resources are described in Chapter 3. This section discusses the forest conservation program. The county adopted its forest conservation program in 1994, as required by the State. Under the law, a forest conservation plan must be submitted to the county prior to approval of most subdivisions outside the Critical Area, or approval of grading projects clearing more than 40,000 square feet of forest. The forest conservation plan can require afforestation or reforestation[1] . The program allows for off-site planting in certain situations. Forest land within the Critical Area is protected through the county's Critical Area Protection Program.

Goals:

Streamline administration of the forest conservation program.

Achieve maximum environmental benefits from the program.

[1] Afforestation is planting trees where forest cover has been absent, such as a farm field. Reforestation is replacing existing trees.

Strategies:

Seek coordination between the county and towns for administration of forest conservation programs.

Forest conservation plans are reviewed by a forester under contract to the county and administration of the forest conservation program is efficient. Forest conservation plans for development projects in incorporated towns are reviewed by the State. This can be a disincentive to development in towns because of added uncertainty and potential delay. As recommended under housing affordability in Chapter 4, consideration should be given to having the county assume responsibility for reviewing forest conservation plans within towns. This will require legislation at the state level and amendments to town ordinances, because the opportunity to coordinate this program was not taken when the county and towns adopted their forest conservation programs.

Support efforts to standardize administration and enforcement procedures for forest conservation inside and outside the Chesapeake Bay Critical Area.

The forest conservation program and the Critical Area Protection Program have differing standards and administrative requirements, in part because the forest conservation program was adopted more recently. Since the two program's goals are similar, the county should encourage efforts at the state level which would standardize administration and enforcement procedures.

Through watershed planning, identify areas with inadequate riparian forests which could serve as off-site receiving areas for planting required under the forest conservation program.

Sometimes afforestation is required on sites which may be unsuitable or where little benefit may accrue from the trees. This chapter contains a recommendation that the county undertake watershed planning in Lower Choptank and the Marshyhope basins. A watershed plan could identify areas with inadequate riparian forests, and these which could serve as off-site receiving areas for planting required under the forest conservation program, but where the sites are unsuitable.

CHESAPEAKE BAY CRITICAL AREA

The Chesapeake Bay Critical Area Program was enacted in 1984 by the Maryland General Assembly out of concern for the decline in the natural resources of the Chesapeake Bay. Each jurisdiction surrounding the bay adopted its own local critical area program based on criteria promulgated by the Critical Area Commission. Dorchester County adopted its program in 1988, and it is updated on a four year basis. The next update will begin in 1996. Approximately 50 percent of the county's land area, mostly in South Dorchester, is affected by the Critical Area Program (see Table 7-2). In preparation for the Comprehensive Plan the Department of Planning and Zoning reviewed its Critical Area Protection Program and identified a number of policies and objectives to be reviewed during the comprehensive plan process. These are set forth below, together with responses, or references to responses contained in various sections of this comprehensive plan.

Table 7-2 ***Dorchester County Critical Area Designation by Acreage***

	Acres	Percent
Intensely Developed Area (IDA)	102	0.06
Limited Developed Area (LDA)	9,690	6
Resource Conservation Area (RCA)	166,808	94
Total	177,600	100
Total Land in County	350,300	

Note: Residential development is permitted as follows: RCA: 1 dwelling unit per 20 acres; IDA: 4 dwelling units per acre; LDA between 1 dwelling per 5 acres and 4 dwelling units per acre.
Source: Dorchester County Dept. of Planning and Zoning, 1988.

Strategies:

1. Set aside the majority of the county's growth allocation for growth areas.

This policy is adopted in this plan. The portions of the Critical Area adjacent to Development Districts are predesignated for residential growth allocation (see under Natural Resource Areas in Chapter 2). Applications for non-residential growth allocation would continue to be reviewed on a case by case basis.

Growth allocation is a process permitting conversion of land from Resource Conservation Area (RCA) to Intensely Developed Area (IDA) and Limited Development Area (LDA). When the critical area program was established in 1984, the County was assigned 2,900 acres of growth allocation (see Growth Allocation Use table, Appendix 14). As of 1995 only 1,250 acres remain. By pre-designating areas the county will ensure that this finite resource is used in appropriate locations. It will also help streamline the program, since the appropriateness of higher designations will be predetermined. In addition, within designated growth areas, growth allocation should be set aside for projects with the potential for significant economic benefit for the county or projects that meet recognized public need.

2. Adopt base zoning classifications that correspond to the Intensely Developed Area (IDA), Limited Development Area (LDA), and the Resource Conservation Area (RCA) program goals, policies, and standards.

This policy is adopted in this plan under Natural Resource Areas in Chapter 2.

3. Insure that the Dorchester County Critical Area Program achieves the "visions" and sensitive area requirements of the 1992 Maryland Planning Act.

The policies and standards that currently apply to the IDA, LDA, and RCA areas provide for growth in appropriate areas and that resource areas be protected. In addition, specific standards address protection of sensitive areas. The only aspect of the Dorchester County Critical Area program that may need to be revised to be consistent with the Comprehensive Plan are the guidelines for use of Growth Allocation contained in the Dorchester County Critical Area Program and in the subdivision regulations. These recommend that new IDA and LDA areas be located adjacent to existing IDA and LDA areas, whereas this plan is recommending that growth allocation be targeted toward designated growth areas.

4. Encourage public access to Chesapeake Bay and its tributaries.

See under Recreation in Chapter 6.

5. Designate water-dependent facility areas and encourage the continuation of existing facilities.

Designation of facility areas is discussed under maritime based industries in Chapter 3.

6. Enhance shorelines against erosion through construction of stabilization projects.

This plan supports this objective. The county should encourage stabilization of eroding shorelines using vegetative measures or stone rip rap. Technical assistance for shore erosion is available from the state.

7. Insure protection of older communities such as Hoopers Island, Wingate, and Crapo which were designated LDA but are not suitable for higher density development because of soil constraints.

This plan designates these communities as Villages, see Chapter 2.

8. Allow for the conversion of older homes into apartments or bed and breakfast inns and develop regulations for campgrounds.

Conversions are discussed under Natural Resource Areas in Chapter 2. The recreation section in Chapter 6 refers to the need to develop regulations to address problems with campgrounds.

9. Establish standards for development which contribute to the reduction of nutrients in the Bay as required under the 1987 Chesapeake Bay Agreement

See Tributary Strategies discussion above in this chapter.

10. Encourage retrofitting of existing stormwater devices in regards to erosion and flooding.

This was not raised as a key issue during preparation of this plan. Malfunctioning stormwater devices should be identified on a case by case basis and corrected.

11. Promote or support the use of conservation easements and other techniques to protect, conserve, and preserve the Critical Area.

This plan supports this objective, but recommends that resources be targeted to preservation of agricultural areas. See under agriculture in Chapters 2 and 3.

12. Implement development guidelines in the subdivision and zoning regulations for boating and marina issues which serve to protect the water quality of the bay and its tributaries.

Specific development guidelines were not identified during the comprehensive plan process. The county should consider the following: install pump-out stations and oil recycling at public landings with dockage; require all marinas to install pump-out stations and recycle oil and other toxic materials; establish wake limits on county tributaries to prevent shoreline erosion; and encourage community docks instead of individual piers in new development.

This chapter discusses interjurisdictional coordination, and includes a section on streamlining as required by the 1992 Planning Act.

INTERJURISDICTIONAL COORDINATION

Goals:

Increase cooperation and coordination between the county and incorporated towns, and surrounding counties and towns.

Provide government services efficiently and at minimum cost.

Town/county relations

Dorchester County has nine incorporated towns. Of these only five have planning and zoning authority: Cambridge; Hurlock; East New Market; Secretary; and Vienna.

Coordination and cooperation between Town/County/State Agencies was ranked ninth among key issues facing the county to be addressed in the comprehensive plan. Coordination and cooperation is also an important economic issue. For example:

- Lack of coordination, or even the perception of a lack, can influence public or private economic investment decisions, which directly affect the economy;

- Disjointed government can result in disputes, delays, or lack of clear policy decisions and directives;

- Inefficiencies or duplication in the delivery of government services can result in higher costs.

Dorchester County and the incorporated towns already cooperate in many ways. Examples include the following: the county's economic development office seeks to attract jobs anywhere in the county, not only in the unincorporated area; the County Department of Recreation and Parks operates facilities inside the towns; and the County shares revenues with the towns.

Additional coordination and cooperation is needed to address key issues facing the county which have been identified in the comprehensive plan. These are:

- There is little coordinated planning for water and sewer: the county has planning authority but the towns control the facilities.

- The higher cost of new housing in the towns is one of the key reasons encouraging development in the unincorporated areas of the county;

- Changes in growth patterns are resulting in changes in the type and location of needs for government services and the ability of government to fund and otherwise meet these needs;

- With the increasingly dispersed population, county service providers such as police are increasingly stretched to maintain current levels of service;

- Some county/town shared issues have resulted in public disputes which have damaged the county's image. Recent examples include issues over the courthouse expansion, and the location of the 911 center.

- The development and funding of joint town/county facilities which are important to the entire county, such as Sailwinds and the county swimming pool, needs to be carefully coordinated.

As noted in the introduction to this plan, Dorchester County has a small population and limited resources. Its form of government, with its many incorporated towns, has evolved over a long period of history. Residents of the county need to decide whether this, or an alternate form of organization, will serve them best in the future, particularly in a period of reduced revenues and budgetary cutbacks.

A variety of possible models exists for major or minor reorganization. For example, some counties with much larger populatiojns than Dorchester County, such as Baltimore or Howard Counties, have no incorporated towns at all. Some counties, such as Carroll County, have entered into formal agreements with its incorporated towns and have instituted formalized revenue sharing on a per capita basis. Some counties and towns, such as Wicomico and the City of Salisbury, conduct a joint planning program with a shared planning commission and staff. Some cities and counties share police and other services. Dorchester County explored this idea in a 1976 study (see under Police in Chapter 7).

Regional Cooperation

Dorchester County is part of the lower eastern shore regional economy comprising Caroline, Somerset, Sussex, Talbot, Wicomico, and Worcester counties. On some levels, such as for jobs and market share, Dorchester County competes with these other counties. However, in general, Dorchester County will benefit from a strong regional economy, and cooperates with other jurisdictions to that end.

The county already participates in a number of regional initiatives and organizations including the Delmarva Advisory Council and Chesapeake Country. A recent initiative is a $3 million revolving loan fund available to businesses in Dorchester, Somerset, Wicomico and Worcester Counties to expand economic development opportunities[1]. The county needs to explore the extent to which it can benefit from other joint efforts such as joint marketing for tourism.

This comprehensive plan contains a number of land use recommendations designed to reduce some of the disparities between Dorchester County's and other counties' land use regulations, which have had some negative impacts on Dorchester County.

Strategies:

Explore alternate organizational models for the delivery of governmental services in the county and incorporated towns.

Some of Dorchester County's smaller towns should consider disincorporation or allowing the county to perform basic services for them. Such services could include issuing permits, plans review, and inspections. This would provide health, safety and welfare benefits in towns where because of their small population size they are unable to adequately provide these services.

The most important relationship to explore is between the county and the City of Cambridge.

Create a joint county/town commission to recommend ways to improve coordination and cooperation between the county and the incorporated towns.

[1] The Southern Eastern Shore Revolving Loan Fund is administered through the Rural Development Center of the University of Maryland Eastern Shore in Princess Anne.

Explore opportunities for further regional cooperation and coordination.

STREAMLINING REGULATIONS

Goals:

The county's overall goal with respect to streamlining is to minimize the amount and impact of regulation necessary to achieve the county's goals.

Facilitate and encourage growth in development areas through regulatory streamlining.

Promote understanding and appreciation among the general public of land development and environmental regulations.

The 1992 Maryland Growth Act calls for streamlining of regulatory mechanisms to achieve the Act's visions (see Chapter 1). Regulations are a key concern of Dorchester County residents. In recent years the county and its residents have been strongly affected by environmental regulatory programs including:

- Floodplain protection program;
- Chesapeake Bay Critical Area Protection Program;
- Tidal and non-tidal wetlands protection programs;
- Ground water protection program.
- Forest conservation program.

Dorchester County has been affected to a greater degree than most, if not all, other Maryland counties because of the extent of its naturally occurring environmentally sensitive areas. Dorchester County's weak economy places additional burdens on the county and its residents to comply with regulations. Much of the complexity arises from the range of local, state and federal agencies which can be involved in a review process. Indeed, at public meetings held during preparation of the comprehensive plan, concern was expressed generally at the amount of government regulation, without naming specific government entities.

At the same time, however, Dorchester County residents recognize the necessity of regulations in order to (1) protect residents' health, safety and welfare and, (2) to protect the county's beauty, which results, to a great

degree, from the very ecological fragility many regulations are designed to protect.

Streamlining in development areas

In preparing this plan the county reviewed its subdivision and land development review process through interviews with agency heads, surveyors and engineers. The general consensus was that the county's review of projects occurs in a timely manner. Not surprisingly, delays and problems tend to arise with larger, or more complex, projects which involve review by outside state or federal agencies such as the Maryland Department of the Environment, Maryland Department of Natural Resources and the Army Corps of Engineers. Development in incorporated towns can be more complex because of additional or more lengthy review requirements because of municipal water and sewer connections, storm drains and forest conservation. Whether real or perceived, such problems may deter developers from pursuing innovative or creative projects out of concern that a project may be delayed or disapproved. To the extent possible, and where development is consistent with county goals and policies, the county should seek to create a climate where the land owner or developer feels welcome and can expect government to facilitate project approval.

Chapter 2 of this plan contains a proposal that selected areas in the county be designated development areas. County policy would encourage development in these areas through a number of policies including regulatory streamlining.

Strategies:

Streamline subdivision and land development regulations and procedures. Among the streamlining ideas the county should pursue are the following: The first two would apply only in Development Districts, as an encouragement to development, the rest would apply countywide.

1. For all major subdivisions and economic development projects, convene a joint project review group.

This should include all review agencies, so that all issues and concerns can be discussed at the same time. Joint review currently occurs on an ad-hoc basis. The amount of development activity at this time may not warrant institutionalizing such a group on a regular basis. However, the necessary contacts and procedures should be set up so that the group can be convened without delay.

The draft economic development strategic plan recommends that for priority economic development projects service providers, such as water, sewer, electricity and gas be included as a technical review committee.

2. For projects involving wetlands or habitats of threatened or endangered species, involve the Army Corps of Engineers and Maryland Departments of Natural Resources and Environment in the joint project review group.

Including these agencies early in the process will prevent delays and help resolve conflicts between development proposals and natural resources. The county should approach these agencies requesting their cooperation in this procedure. Inter-agency agreements between the state and federal agencies will have to be instituted to accomplish this. Similar agreements to the one proposed here have been instituted in Carroll, Anne Arundel and Charles Counties.

3. Require that when land is subdivided, the entire parcel be included on the submission (see under Design in Chapter 4).

4. Place a time limit between approval of a preliminary plan and submission of a final subdivision plan.

This will simplify administration by reducing the number of active projects, making more projects subject to new regulations as they are adopted, and by reducing the number of projects that would be grandfathered from new regulations.

5. Require that approved final subdivision plans be recorded within six months or else be void.

Currently an approved final plan may be recorded at any time. This complicates planning because the supply of lots is not known, and because the impacts of one development on another cannot be easily ascertained. There may also be a financial cost to the county in that it is foregoing higher property taxes on the subdivided land. Approved plans should be recorded within perhaps six or twelve months, or else lose their approval and not be grandfathered with respect to new regulations.

6. Investigate the possibility for using administrative review, as opposed to planning commission review, for final subdivision plats.

Preliminary plans would still receive planning commission review, but a second meeting before the planning commission would not be

required. This would need an amendment to Article 66B, the State's planning enabling law, but other counties have expressed interest in this option which would improve the likelihood of achieving such an amendment. Minor subdivisions are already reviewed administratively, without planning commission review.

7. **Allow minor variances from the zoning and subdivision regulations to be granted by the Director of Planning and Zoning.**

   This could save applicants time and money. Currently all requests for variances are heard by the County Board of Appeals. One possibility would be for the Director, or a designee, to have authority to grant variances of up to 20 percent. Appropriate public notice and opportunities for public comment would still be required.

8. **Review the sign code for streamlining opportunities.** See under signage in Chapter 3.

9. **Predesignate portions of the critical area for growth allocation** (see under Critical Area Program in Chapter 7).

10. **Work with the towns to streamline the land development process.**

    It may be possible, for example, to have county agencies assume more responsibility for development review in the towns (see under housing affordability in Chapter 4, and under forest conservation in Chapter 7).

11. **Review the Planned Unit Development chapter of the zoning ordinance for wider potential applicability** (see under Design in Chapter 4).

12. **Consider instituting semi-annual meetings between county review agencies and home builders, developers, engineers and surveyors.**

    Such meetings would permit exchange of ideas, opportunities to express concerns about the review process and a means to disseminate information. The Department of Planning and Zoning, as lead agency responsible for development, should coordinate these meetings.

13. **Produce a guide to land development and environmental permits and regulations, written in plain English understandable to the general public.**

    The guide would address the permits or approvals needed for typical activities, include brief descriptions of the applicable regulatory

programs, and direct people to the appropriate agency for what they wish to do. It should include names, addresses and phone numbers. A number of counties have such guides and they have proved popular with the public, by removing some of the confusion over the variety and complexity of regulations and responsible agencies. Consideration should be given to including incorporated towns in this effort.

14. Support efforts to standardize administration and enforcement procedures for forest conservation inside and outside the Chesapeake Bay Critical Area (see also under forest conservation in Chapter 7).

15. Consider amending the county zoning ordinance to include a floating industrial or employment zoning district, or zoning with a site plan.

As discussed under Industrial Land in Chapter 3, the county needs to have the flexibility to respond quickly to a potential employer or economic development opportunity should an opportunity arise. In that discussion it was suggested that, to add flexibility to the zoning laws, the county should consider incorporating floating zones and/or zoning with a site plan.

A floating zone may be applied to a specific property if certain criteria are satisfied. For example, the County could create a floating industrial or employment district which could be applied to any property in the development areas designated on the comprehensive plan map. The property would have to meet specific criteria: for example (1) be a certain minimum size, say, 25 acres; (2) have direct access to a major road; and (3) be compatible with existing and proposed adjoining development. An applicant would submit a development plan for the property and, provided it met the criteria, the zoning could be applied to the applicant's property. The process would be the same as for any rezoning: the planning commission would make a recommendation to the county commissioners who would make the final decision.

Under site plan zoning, the zoning on a parcel of land can be changed but predicated on a specific use and specific site plan for that parcel, approved along with the zoning change. This provides a degree of certainty for the county and concerned property owners that the land will be developed in a certain way. If the use ends the zoning reverts to what it was before the rezoning. This prevents an undesired use from using the property as-of-right. Zoning with a site plan is a variation on a floating zone but with two important differences which make the legal tests for rezoning more difficult to meet. First, whereas a floating zone is presumed to be compatible with the underlying area,

this presumption does not apply to zoning with a site plan. Therefore, a site plan zoning application could be turned down more easily if proposed for an inappropriate location. Second, because the use is not predetermined to be compatible with the underlying area, zoning with a site plan requires a finding that the zoning change meet the judicial standards for rezoning (in Maryland these are change in the character of the neighborhood and/or mistake in existing zoning). In Dorchester County it might be appropriate to limit site plan zoning to employment uses.

The legal sufficiency of such a zoning category for Dorchester County must be reviewed before it is adopted.

16. Reserve for future consideration changes to policies on home businesses.

In the discussion of Home Business in Chapter 3, no changes to existing policies were recommended because of hesitance to further liberalize the regulations. The following guidelines can be used if, in the future, it is determined that the County is losing economic development opportunities by over-regulating home businesses. They would add flexibility to the regulations and streamline the approval process, by reducing the categories of uses requiring a special exception:

- adopt a definition of "home-based business" under the zoning code. This definition should include minimum performance thresholds which would distinguish among levels of businesses which are: 1) so innocuous that they can be allowed by right; 2) may have some impact on the neighborhood and should, therefore, be permitted by special exception; and 3) are clearly beyond the intent of the home-based business concept and should only be permitted in commercial areas.

- permit home occupations by-right as an accessory use up to a certain size, perhaps 800 square feet, in certain zoning districts;

- adopt specific standards for home-based contractors;

- permit more than one employee in a home professional office. The number of employees could vary depending on the size of the property; and

- permit one non-resident to work in a home occupation together with the resident.

17. Consider establishing a capital improvements programming process.

This is also recommended in the draft economic development strategic plan. Such a process would prioritize public infrastructure and other relatively expensive projects, estimate the demands they will place on public funds, and identify the amounts and prospective sources of funds to pay for them.

Goal:

Implement the Comprehensive Plan

A key concern among members of the Comprehensive Plan Advisory Committee is that this comprehensive plan be implemented. The last 1974 Comprehensive Plan contained a number of strategies that are recommended in this plan but, as noted in Chapter 1, most of the 1974 plan's recommendations were not adopted. The Committee does not want the same thing to happen to the 1996 plan.

To facilitate and encourage implementation, this 1996 plan incorporated a thorough public participation process (see Introduction) resulting in broad consensus of the plan's major concepts. Further, the plan goes beyond the 1974 plan in detailing how measures should be implemented. This should give clear guidance to those responsible for implementation as to how to proceed, while still allowing room to change details if warranted by new information or changed conditions.

To further encourage implementation, this section contains a summary of the key strategies, listed by which governmental body or office is primarily responsible for its implementation. The comprehensive plan is primarily land use and development oriented, so the longest list falls under the aegis of the Planning Commission and the Department of Planning and Zoning. However, other strategies fall directly under the responsibility of the County Commissioners or other county offices.

Strategy:

Give overall responsibility for informing the County Commissioners regarding implementation of the comprehensive plan to the Planning Commission.

Since the comprehensive plan is prepared by the Department of Planning and Zoning and is recommended to the County Commissioners by the Planning Commission, this plan recommends that overall responsibility for encouraging implementation of the comprehensive plan lie with the Planning Commission. Under state law (Article 66B) the Planning Commission must file an annual report of changes in development patterns with the county commissioners, sending a copy to the Maryland Office of Planning. This plan recommends that the annual report be expanded to include a section

dealing with progress on implementing the comprehensive plan. Armed with this information on a regular basis, the County Commissioners would be in a better position to direct relevant offices and departments to further action. Each year the Planning Commission should review the strategy list, inform the County Commissioners what action has been taken and recommend what action, if any, the County Commissioners should take. The list is long and it is expected that several will take a number of years to implement.

List of Implementation Strategies

The strategies are listed under the office or agency primarily responsible for implementation. The list contains the key action strategies only. Strategies whose purpose is to state or explore policy positions are not included. For explanatory detail the reader should refer to the strategy in the relevant chapter which is listed after each strategy. In many cases the County Commissioners have ultimate authority to adopt legislation or require implementation. Offices and departments would be responsible for researching, preparing and enabling the Commissioners to take relevant action.

County Commissioners

Give overall responsibility to the Planning Commission to inform the County Commissioners regarding the status of implementation of the comprehensive plan (Chapter 8).

Work with the towns to increase water and sewer capacity in and around the towns (Chapter 6).

Encourage and assist in water and sewer capacity increases in East New Market, Secretary, and Vienna (Chapter 6).

Pursue public investment decisions and other strategies to make the towns attractive places to live (Chapter 2).

Work with the towns to reduce the cost of developing new housing in and around the towns (Chapter 4).

Encourage employment uses in Villages through means such as zoning and public investments (Chapter 2).

Create a countywide preservation alliance to help coordinate and promote preservation efforts (Chapter 2).

Consider adopting a formal capital improvements program (Chapter 3).

Create a broad ranging, interdisciplinary and interjurisdictional committee to study the county's image and make specific recommendations for ways to make improvements (Chapter 3).

Discourage further expansion of business zoning and strip commercial development along Route 50 (Chapter 2).

Permit rural standard public roads for short residential streets (Chapter 4).

Evaluate the county's ability to support transit providers such as the Dorchester Developmental Unit in future years (Chapter 5).

Expand the role of the Dorchester County Sanitary Commission (Chapter 6).

Reactivate the Solid Waste Advisory Board (Chapter 6).

Involve the library in the future planning for economic development, tourism, social and human services and technology (Chapter 6).

Conduct a study to evaluate how best to provide police services throughout the county (Chapter 6).

Appoint a commission to produce a comprehensive report on human and social needs and services in the county (Chapter 6).

Explore alternate organizational models for the delivery of governmental services in the county and incorporated towns (Chapter 8).

Create a joint county/town commission to recommend ways to improve coordination and cooperation between the county and the incorporated towns (Chapter 8).

Explore opportunities for further regional cooperation and coordination (Chapter 8).

Department of Planning and Zoning/Planning Commission.

Amend zoning maps, zoning and subdivision regulations, and other regulations, and procedures in accordance with the strategies contained in this plan (All chapters).

Prepare local area plans for (1) the East New Market-Secretary area and (2) the area east of Cambridge between the City and the Route 50/Route 16 north intersection (Chapter 2).

Institute joint county/town project review for projects adjacent to town boundaries (Chapter 2).

Direct and encourage development in Development Areas through regulatory streamlining (Chapters 2, 8).

Adopt a design manual to guide property owners, land planners, engineers and reviewers in site design issues (Chapter 4).

Restrict strip residential development (Chapters 4,5).

Explore ways to reduce the inventory of recorded undeveloped lots (Chapter 2).

Review performance standards for non-residential development in agricultural areas (Chapter 2).

Adopt base zoning classifications that correspond to the Chesapeake Bay Critical Area designations (Chapter 2).

Predesignate areas of the Critical Area adjacent to Development Districts for Growth Allocation (Chapter 2).

Examine the appropriateness of zoning and Chesapeake Bay Critical Area designations for proposed Villages and make necessary changes (Chapter 2).

Update the county's listing of historic sites and map all sites (Chapter 2).

Incorporate a screening process into the subdivision process that identifies potential adverse impacts on historic resources (Chapter 2).

Increase awareness of financial and other programs that offer incentives for preservation and/or protection of historic resources (Chapter 2).

Encourage adaptive reuse of historic structures for uses that are compatible with the surrounding neighborhood (Chapter 2).

Explore opportunities to expand permitted non-residential uses within the Natural Resource Area (Chapter 2).

Inventory dilapidated buildings and properties which detract from the appearance of the community. Work with the owners to clean up such sites (Chapter 3).

Periodically review the county's inventory of industrially zoned land (Chapter 3).

Consider amending the county zoning ordinance to include a floating industrial or employment zoning district (Chapters 3, 8).

Minimize negative impacts associated with the Delmarva Power and Light power plant (Chapter 3).

Review performance standards for non-residential uses as part of a design manual (Chapter 3).

Develop zoning regulations to address bed and breakfast uses throughout the county (Chapter 3).

Limit access to roadways from business developments (Chapter 3).

Review the county sign code (Chapter 3).

Explore creative ways of rehabilitating currently vacant and substandard housing (Chapter 4).

Review the PUD regulations for wider applicability (Chapter 4).

Amend county regulations affecting mobile homes and mobile home parks (Chapter 3).

Review regulations affecting poultry houses, manure storage, and commercial and non commercial composting in light of concerns over nearby residential development.

Pursue Bicycle/Pedestrian Improvements (Chapter 5)

Amend the county's subdivision regulations to require dedication of land for trails designated in the Recreation Plan (Chapter 6).

Develop regulations to better define uses and activities permitted in campgrounds and camping areas (Chapter 6).

Continue active participation in the Tributary Strategies (Chapter 7).

Develop watershed management plans (Chapter 7).

Require that streams, wetlands and their buffers be shown on all new preliminary plans, final subdivision plats and site plans outside the Critical Area (Chapter 7).

Review development projects for potential impacts to federal and state listed species habitats (Chapter 7).

Seek coordination between the county and towns for administration of forest conservation programs (Chapter 7).

Seek standardization of administration and enforcement procedures for forest conservation inside and outside the Chesapeake Bay Critical Area (Chapter 7).

Pursue the streamlining ideas outlined in Chapter 8 of this plan.

Produce a guide to land development and environmental permits and regulations, written in plain English understandable to the general public (Chapter 8).

Board of Education

Plan for growth and development in the North Dorchester Development District (Chapters 2, 6).

Continue use of school facilities for cultural, recreational and civic activities (Chapter 6).

Dorchester County Environmental Health

Identify funding sources for water and sewer improvements (Chapter 6).

Participate in land use planning, water and sewer and streamlining initiatives (all chapters).

Dorchester County Recreation and Parks

Develop a countywide park facility in North Dorchester (Chapter 6).

Develop a countywide linked network of recreational and tourism related sites and facilities (Chapter 6).

Highway Department

Pursue transportation facility, roadway, and intersection improvements listed in this plan (Chapter 5).

Perform a safety evaluation at high accident intersections in collaboration with the state (Chapter 5).

Pursue transportation improvements in and around the Cambridge-Dorchester Airport (Chapters 3, 5).

Address composting and dumping in the 1997 comprehensive solid waste plan update (Chapter 6).

Economic Development Office

Complete an economic analysis of the county to assist the county in making investment decisions (Chapter 3).

Pursue the strategies of the economic development strategic plan towards creating new jobs (Chapter 3).

Link maritime industries into the county's overall economic development program including boating and tourism (Chapter 3).

Explore ways to maximize the potential economic development impact of the Center for Environmental and Estuarine Studies (Chapter 3).

Explore ways to link forest and forest-based industries into the county's overall economic development program including tourism (Chapter 3).

Support the growth and development of the Chesapeake College Cambridge Center for all citizens. Encourage and support links between the Center and County employers (Chapter 3).

Tourism Office

Work with the towns and interested groups and organizations to prepare a comprehensive plan for developing tourism in the county (Chapter 3).

Continue efforts to attract quality accommodations to the county (Chapter 3).

Farm Bureau/Agricultural Preservation Board

Prepare right-to-farm legislation, establishing agriculture and agribusiness as preferred, protected uses in agricultural areas (Chapters 2, 3).

Explore potential for transfer of development rights (TDR) program as a potential long term strategy for Dorchester (Chapters 2, 3).

Focus the efforts of the Agricultural Land Preservation Program in the agricultural district (Chapters 2, 3).

Expand and encourage use of conservation easements in support of agricultural preservation (Chapter 3).

Library Board

Enhance citizen access to library and information services by linking library and county automated systems, expanding material delivery systems, exploring the scattered information kiosk concept and obtaining funding for ADA initiatives (Chapter 6).

APPENDICES

Appendix 1

Total Rankings of Comprehensive Plan Issues from Community Meetings				RANKINGS		
Example: The top ranked issue at the 1/21/95 meeting was issue #19, Lack of ability to keep industry.			COMP PLAN	VISIONING	SOUTH	
		TOTAL ALL	COMMITTEE	WORKSHOP	DORCHESTER	VIENNA
		MEETINGS	12/1/94	1/21/95	3/15/95	3/16/95
ISSUE #						
1	Strip Residential Development in Rural Areas	7	8	2	11	9
2	Lack of Public Water/Sewer Availability	2	1	2	8	1
3	Improve County Revenue Base	3	1	8	2	17
4	Rehabilitation Existing Industrial Building Stock	18		18	12	13
5	Coordination Between Town/County/State Agencies	9	3	8	7	23
6	Need for Home-Rule Government	13	17	13	9	23
7	Decline of Incorporated Towns (Population/Tax Base/ Facilities)	10	12	12	14	4
8	Loss of Farmland	11	12	10	16	13
9	Redevelopment/ Infill of Areas Served with Public Facilities	20		15		20
10	Young People Leaving the County Because Lack of Opportunities	4	16	5	4	2
11	Lack of Development of Tourism Potential	8	8	7	3	13
12	Lack of Promotion of Telecommunication Job Opportunities	29		25		
13	Lack of Adequate Medical Facilities	22		27		6
14	Lack of Educational Training	15	6	16	19	20
15	Need to Address Social Problems (Teenage Pregnancies, Etc.)	18	12	21	19	11
16	County Lacks a Positive Image	5	6	5	5	4
17	Lack of Safe Access for Bicyclists/Pedestrians	27			17	
18	Abundance of Undevelopable Land	16	8	16	12	
19	Lack of Ability to Attract/Keep Industry	1	5	1	1	3
20	Lack of Subdivision Design Standards	12	17	11	10	20
21	Loss of Historic Resources	17	11	18	14	9
22	Loss of Rural Village Character	14	12	14	17	17
23	Need for More Diversified Economy	6	4	4	6	6
24	Lack of Adequate Transportation	21		22		6
25*	Lack of Govt. Control Over Regulations	23		18		
26*	Need to Enforce Existing Zoning Regulations	27		22		
27*	Need to Streamline Regulatory Programs	23		22		17
28*	Alternative Truck Routes to By-pass Villages and Towns	29		25		
29*	Need for recreation facilities	26				16
30*	Need to upgrade housing	23				11
31*	Need for government block grants	31				23
*Issue raised at regional meeting.						

Appendix 2 Dorchester County Population Change By Election District 1970 - 1990

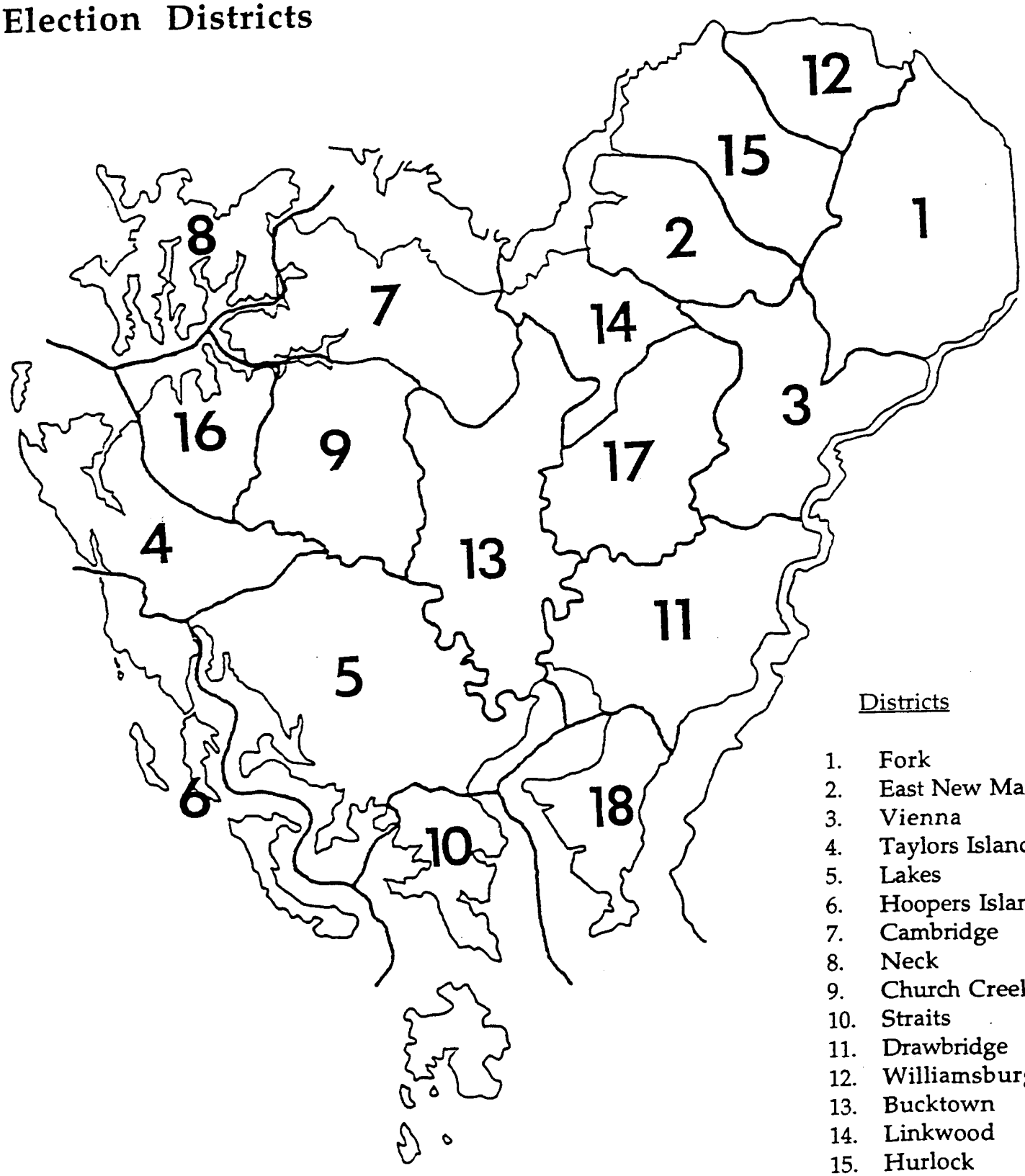
Election District	1970	1980	1990	Change 1970-1990	Percent change
1. Fork	1,548	1,833	1,825	277	18%
2. East New Market	1,753	1,983	2,023	270	15%
3. Vienna	1,300	1,089	929	-371	-29%
4. Taylors Island	285	293	269	-16	-6%
5. Lakes	606	530	478	-128	-21%
6. Hoopers Island	712	759	640	-72	-10%
7. Cambridge	13,863	14,147	13,913	50	0%
8. Neck	806	833	916	110	14%
9. Church Creek	635	635	567	-68	-11%
10. Straits	754	647	521	-233	-31%
11. Drawbridge	108	91	82	-26	-24%
12. Williamsburg	1,027	1,048	1,026	-1	0%
13. Bucktown	592	603	482	-110	-19%
14. Linkwood	2,086	2,106	2,591	505	24%
15. Hurlock	2,532	3,207	3,272	740	29%
16. Madison	357	423	401	44	12%
17. Salem	325	299	222	-103	-32%
18.Elliott	116	97	79	-37	-32%
Total	29,405	30,623	30,236	831	3%

Source: US Census

Appendix 3

DORCHESTER COUNTY

Election Districts



Districts

1. Fork
2. East New Mar
3. Vienna
4. Taylors Island
5. Lakes
6. Hoopers Island
7. Cambridge
8. Neck
9. Church Creek
10. Straits
11. Drawbridge
12. Williamsburg
13. Bucktown
14. Linkwood
15. Hurlock
16. Madison
17. Salem
18. Elliott

Appendix 4 Dorchester County Housing Unit Change By Election District 1970-1990

Election District	Housing Units 1970	1980	1990	Change 1970-1990	Percent Change
1. Fork	576	708	769	193	34%
2. East New Market	644	812	922	278	43%
3. Vienna	431	457	454	23	5%
4. Taylors Island	188	193	217	29	15%
5. Lakes	244	263	273	29	12%
6. Hoopers Island	370	407	418	48	13%
7. Cambridge	5,241	5,709	6,332	1,091	21%
8. Neck	418	501	572	154	37%
9. Church Creek	227	266	310	83	37%
10. Straits	360	370	382	22	6%
11. Drawbridge	49	47	63	14	29%
12. Williamsburg	298	350	393	95	32%
13. Bucktown	185	231	213	28	15%
14. Linkwood	561	833	1,132	571	102%
15. Hurlock	855	1,161	1,326	471	55%
16. Madison	180	229	275	95	53%
17. Salem	105	112	123	18	17%
18.Elliott	76	85	95	19	25%
Total	11,008	12,734	14,269	3261	30%

Source: US Census

Appendix 5 Labor Force Trends, Dorchester County, 1990-1993

	1990	1991	1992	1993	1990-1993 Change Number	Percent
Employment	15,171	15,113	15,068	15,241	70	0.5
Unemployment Number	1,253	1,529	1,890	1,652	399	31.8
Unemployment Percent	7.6	9.2	11.1	9.8		
Labor Force	16,424	16,642	16,958	16,893	469	2.9

Source: Maryland Department of Economic and Employment Development, Dorchester County Economic Development Office.

Appendix 6 Labor Force Occupation Trends, Dorchester County, 1980-1990

Occupation	1980	1990	1980-1990 Change Number	Percent
Managerial and Professional	1,999	2,622	623	31.2%
Technical, Sales, and Administrative	3,195	3,434	239	7.5%
Services	1,634	2,039	405	24.8%
Farming, Forestry, and Fishing	945	818	-127	-13.4%
Precision Production, Crafts, and repair	1,686	2,182	496	29.4%
Operators, fabricators, and laborers	3,911	3,284	-627	-16.0%
Total	13,370	14,379	1,009	7.6%

Source: Bureau of the Census, U.S. Dept. of Commerce, Dorchester County Economic Development Office.

Appendix 7 At-Place Employment Trends, Dorchester County Area, 1971-1992

County	1971	1980	1990	1992	1971-1992 Change Number	Percent
Caroline	3,700	4,058	6,180	6,224	2,524	68.2%
	10%	9%	10%	10%	11%	
Dorchester	7,755	8,859	10,266	9,466	1,711	22.1%
	20%	19%	16%	15%	7%	
Talbot	7,082	9,995	15,152	14,105	7,023	99.2%
	19%	21%	24%	23%	30%	
Wicomico	19,388	23,559	31,396	31,523	12,135	62.6%
	51%	51%	50%	52%	52%	
Total Share of Area	37,925	46,471	61,318	61,318	23,393	61.7%
	100%	100%	100%	100%	100%	

Note: excludes government employment.
Source: Bureau of the Census, U.S. Department of Commerce, Dorchester County Economic Development Office.

Appendix 8 Survey of Homeowners in Recently Built North Dorchester Subdivisions

Question 1: Are you a first-time homeowner?

a.	Yes	41%
b.	No	59%

Question 2: Location of Employment

a.	Dorchester County	19%
b.	Out of Dorchester County	56%
c.	Not Employed	25%

Question 3: Commute time to work.

a.	Less than 10 minutes	5%
b.	10-20 minutes	25%
c.	21-30 minutes	37%
d.	More than 30 minutes	33%

Question 4: Type of previous dwelling.

a.	Single family dwelling	82%
b.	Townhouse	8%
c.	Apartment	5%
d.	Mobile home	5%

Question 5: Important reasons for moving to this location.
(May select more than one.)

a.	Rural environment	58%
b.	Large lot	56%
c.	More affordable than homes in town	44%
d.	Less crime	27%
e.	Convenient to work	15%
f.	Preferred school district	6%
g.	Lower taxes	19%

Question 6: Other opinions regarding living in a rural subdivision.

a.	Would prefer a smaller lot	7%
b.	Not conducive to sense of "neighborhood"	7%
c.	Would prefer town water and sewer	10%
d.	Would prefer a non-strip subdivision	7%
e.	Would prefer no more residential development	46%
f.	Would prefer to live closer to work	22%
g.	Farming and other land uses interfere with property rights	20%

Question 7: Number of years planning to stay at present location

a.	Less than 5	7%
b.	5-10	19%
c.	11-30 1	6%
d.	Lifetime	39%
e.	Unknown	19%

Note: Results are based on 51 responses received.
Source: Dorchester County Department of Planning and Zoning, 1995.

Appendix 9 Dorchester County Projected Population By Age

Age Group	1990	2020
0-4	2,071	1,812
5-9	1,998	1,936
10-16	1,847	1,895
15-19	1,799	1,693
20-24	1,832	1,643
25-29	2.291	1,949
30-34	2,426	1,926
35-39	2,213	1,817
40-44	2,028	1,671
45-49	1,745	1,881
50-54	1,504	2,053
55-59	1,567	2,632
60-64	1,732	2,739
65-69	1,687	2,373
70-74	1,323	1,890
75-79	976	1,244
80-84	692	803
85+	505	740
Total	30,236	32,697

Source: Maryland Office of Planning

Appendix 10 Number Of Owner Versus Renter Housing Units Dorchester County And Incorporated Towns, 1990

	Occupied Units	Owner Occupied	Renter Occupied	Percent Renter
Brookview	23	21	2	9%
Cambridge	4,737	2,125	2,612	55%
Church Creek	46	42	4	9%
E. New Market	59	40	19	32%
Eldorado	22	16	6	27%
Galestown	46	41	5	11%
Hurlock	609	445	164	27%
Secretary	196	154	42	21%
Vienna	121	101	20	17%
Total Towns	5,859	2,985	2,874	49%
Total Dorchester County	12,117	8,193	3,924	32%
County Minus Towns	6,258	5,208	1,050	17%

Source: US Census

Appendix 11 Lot Size And Sale Prices In Selected Dorchester County Strip And Non-Strip Subdivisions

Subdivision	Number of Lots	First Recorded	Average Lot Size (acres)	Lots Sold (through 5/95)	Average Lot Sale Price
Strip Subdivisions					
Collins Farm	19	1989	4.9	16	$15,656
Johnycake	12	1989	1.77	5	$29,800
Mount Zion	12	1987	2.18	11	$8,636
Pine Top	49	1985	1.39	32	$11,937
Wright's Spring	14	1992	2.06	2	$20,000
Total	106		2.24	66	$13,886
Non-strip Subdivisions					
Indian Grant	26	1990	2.2	16	$28,906
Mary Jane French	12	1990	2.57	8	$29,574
Meadowbrook	13	1989	1.09	13	$23,877
Total	51		2.0	37	$27,287

Source: Dorchester County Planning and Zoning

Appendix 12

LEVELS OF SERVICE

- LOS A represents free flow. Individual users are unaffected by the presence of others in the traffic stream. Freedom to select desired speeds and to maneuver within the traffic stream is extremely high. The general level of comfort and convenience provided to the motorist, passenger, or pedestrian is excellent.

- LOS B is in the range of stable flow, but the presence of others in the traffic stream begins to be noticeable. Freedom to select desired speeds is relatively unaffected, but there is a slight decline in the freedom to maneuver within the traffic stream from LOS A. The level of comfort and convenience provided is somewhat less than at LOS A, because the presence of others in the traffic stream begins to affect individual behavior.

- LOS C is in the range of stable flow, but marks the beginning of the range of flow in which the operation of individual users becomes significantly affected by interactions with others in the traffic stream. The selection of speed is now affected by the presence of others, and maneuvering within the traffic stream requires substantial vigilance on the part of the user. The general level of comfort and convenience declines noticeably at this level.

- LOS D represents high density, but stable flow. Speed and freedom to maneuver are severely restricted, and the driver and pedestrian experiences a generally poor level of comfort and convenience. Small increases in traffic flow will generally cause operational problems at this level.

- LOS E represents operating conditions at or near capacity level. All speeds are reduced to a low but relatively uniform value. Freedom to maneuver within the traffic stream is extremely difficult, and it is generally accomplished by forcing a vehicle or pedestrian to "give way" to accommodate such maneuvers. Comfort and convenience levels are extremely poor, and driver and pedestrian frustration is generally high. Operations at this level are usually unstable, because small increases in flow or minor perturbations within the traffic stream will cause breakdowns.

- LOS F is used to define forced or breakdown flow. This condition exists wherever the amount of traffic approaching a point exceeds the amount which can traverse the point. Queue form behind such locations. Operations within the queue are characterized by stop-and-go waves, and they are extremely unstable. Vehicles may progress at reasonable speeds for several hundred feet or more, then be required to stop in a cyclic fashion. LOS F is used to describe the operating conditions within the queue, as well as the point of breakdown.

SOURCE: Highway Capacity Manual, Special Report 209, Transportation Research Board, 1994.

Appendix 14 Chesapeake Bay Critical Area, Growth Allocation Use as of July 1995

	Acres
Growth Allocation* Beginning	2,900
Subdivisions approved between 12/01/85 and program adoption (1988)	267
Interim subdivisions which have been granted growth allocation.	700
Subdivisions approved after program adoption which had growth allocation reserved.	78
Subdivisions receiving growth allocation after program adoption.	106
Total growth allocation used.	1,151
Growth Allocation Not Used:	
Reserved for Municipalities	300
Reserved for Commercial/Industrial	200
Other Remaining	1,248

Source: Dorchester County Department of Planning & Zoning

* Growth Allocation is a process permitting conversion of land from Resource Conservation Area (RCA) to Intensely Developed Area (IDA) and Limited Development Area (LDA). The 2,900 acre total is finite. Once it is used up, land may only be developed based on its current designation: RCA: 1 dwelling unit per 20 acres; IDA: 4 dwelling units per acre; and LDA: between 1 dwelling per 5 acres and 4 dwelling units per acre.

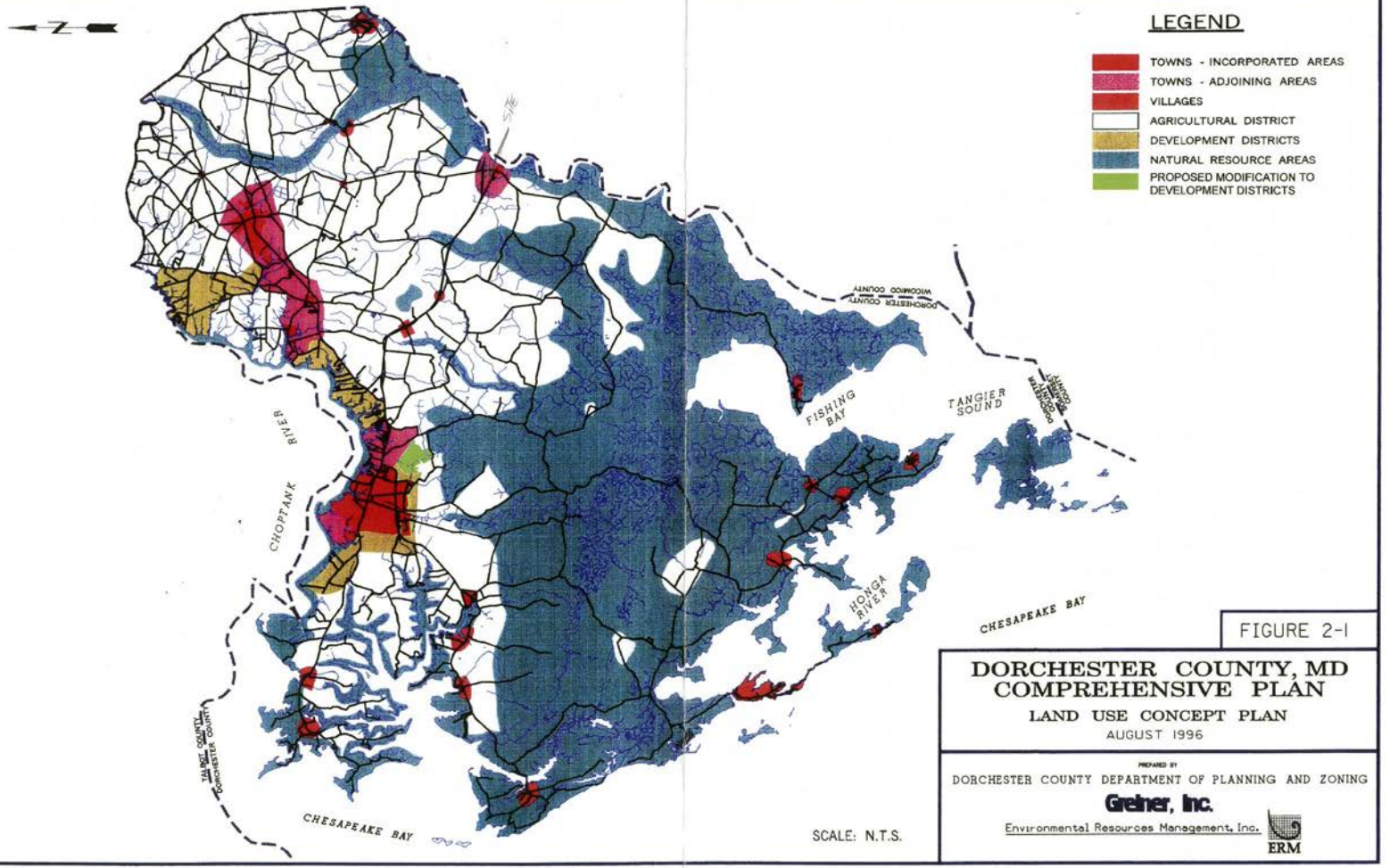


FIGURE 2-1

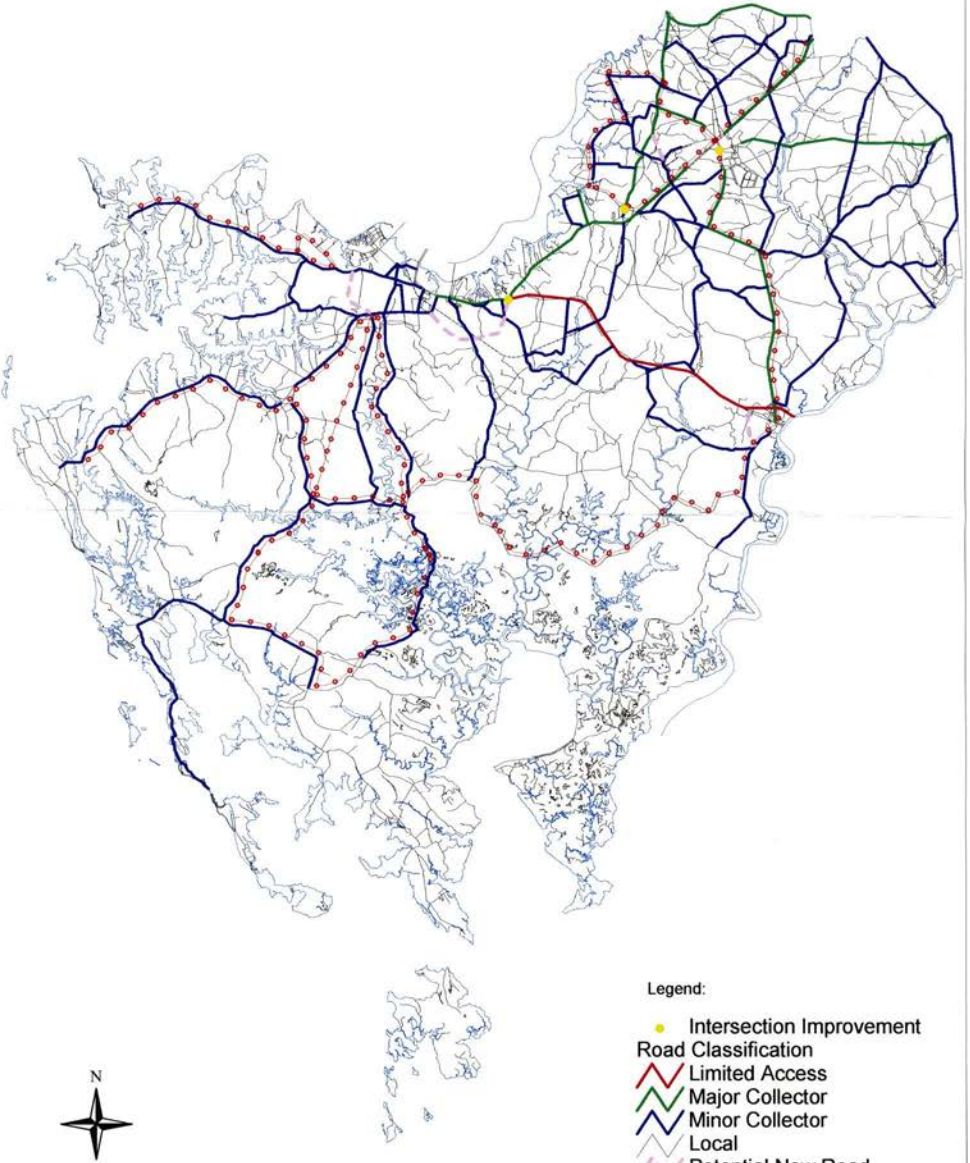
DORCHESTER COUNTY, MD COMPREHENSIVE PLAN

LAND USE CONCEPT PLAN

AUGUST 1996

PREPARED BY
DORCHESTER COUNTY DEPARTMENT OF PLANNING AND ZONING
Greiner, Inc.
Environmental Resources Management, Inc.
ERM

DORCHESTER COUNTY ROAD CLASSIFICATION MAP



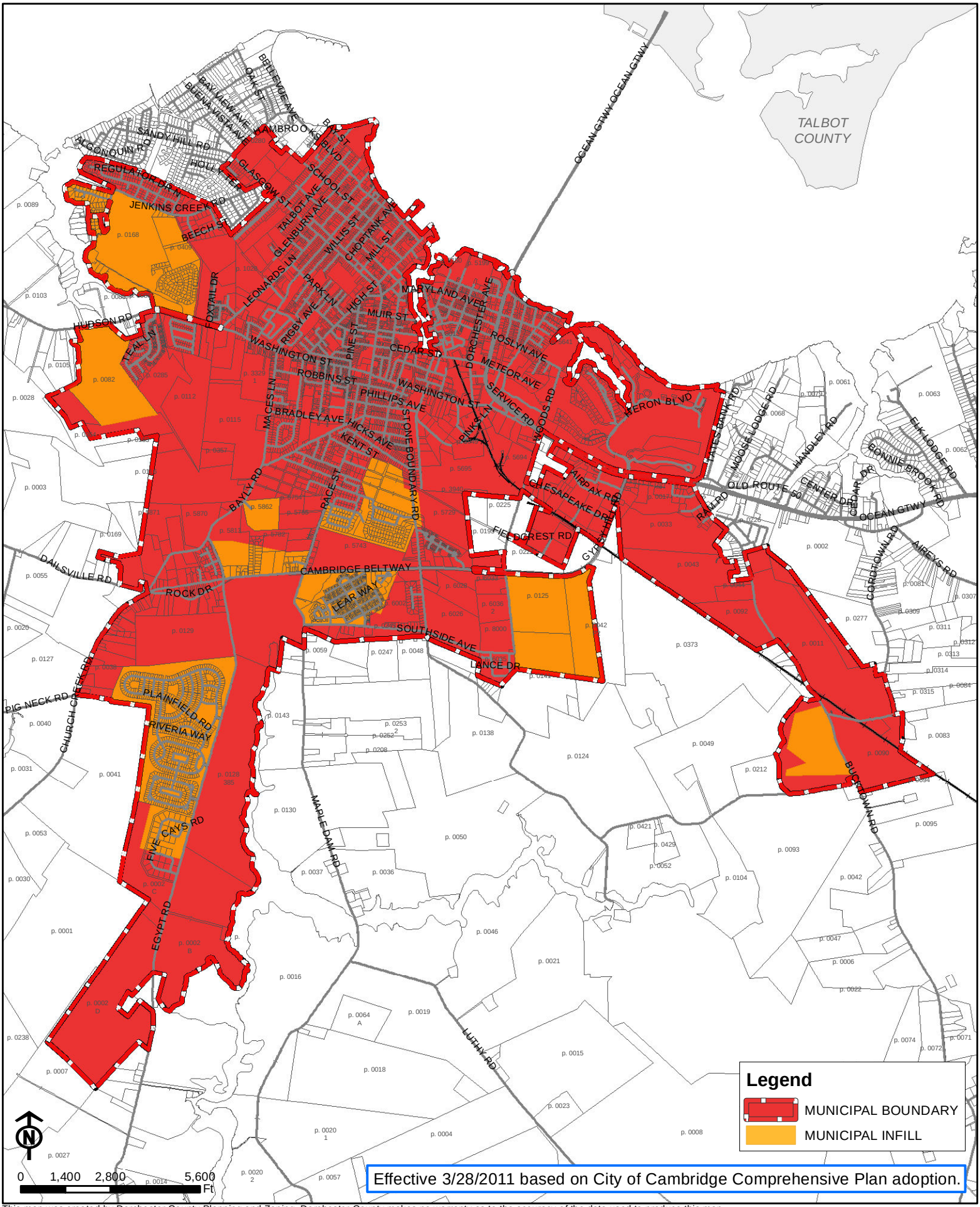
Source: MD Property View 2004 and Dorchester County Planning and Zoning, April 2005.

Comprehensive Plan Amendment - Municipalities Growth Maps

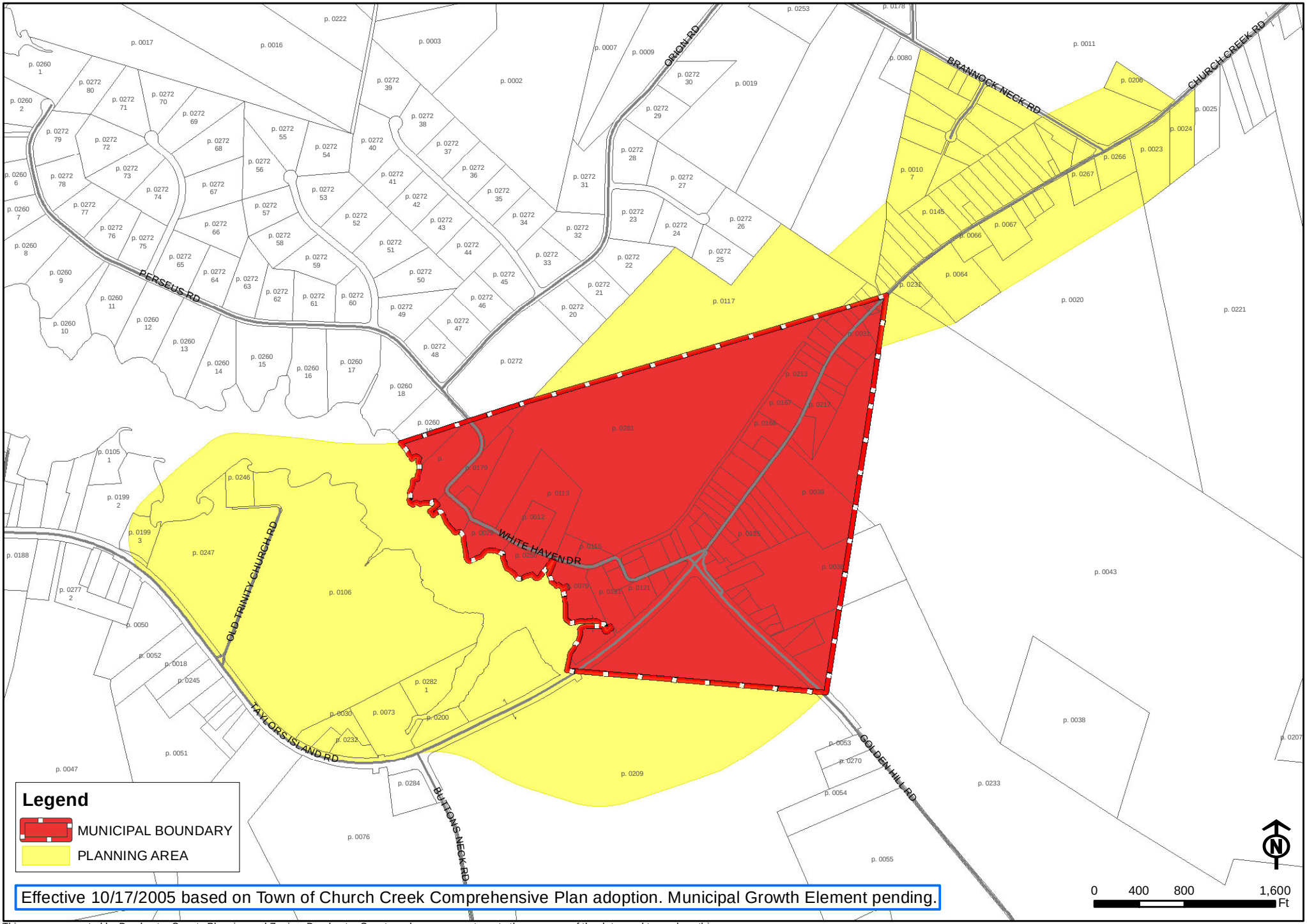
Amend Chapter 2, Land Use, Land Use Plan (Section title), Page 2-2

Map exhibits 2-1A through 2-1F identify future growth areas for the City of Cambridge and the incorporated Towns of Hurlock, East New Market, Secretary, Vienna, and Church Creek. The maps do not amend but rather are supportive of Figure 2-1 which is the Dorchester County Comprehensive Plan Land Use Concept Plan. They act as and are intended to provide more detail to the growth and development area known as “areas adjoining the towns”. The maps detail these municipalities priorities for future growth and development, and if a discrepancy or inconsistency of Figure 2-1 arises, the detail of map exhibits 2-1A through 2-1F shall prevail. The mapped information is based on and taken from each municipality’s adopted Comprehensive Plan.

City of Cambridge Growth Area - Figure 2-1A

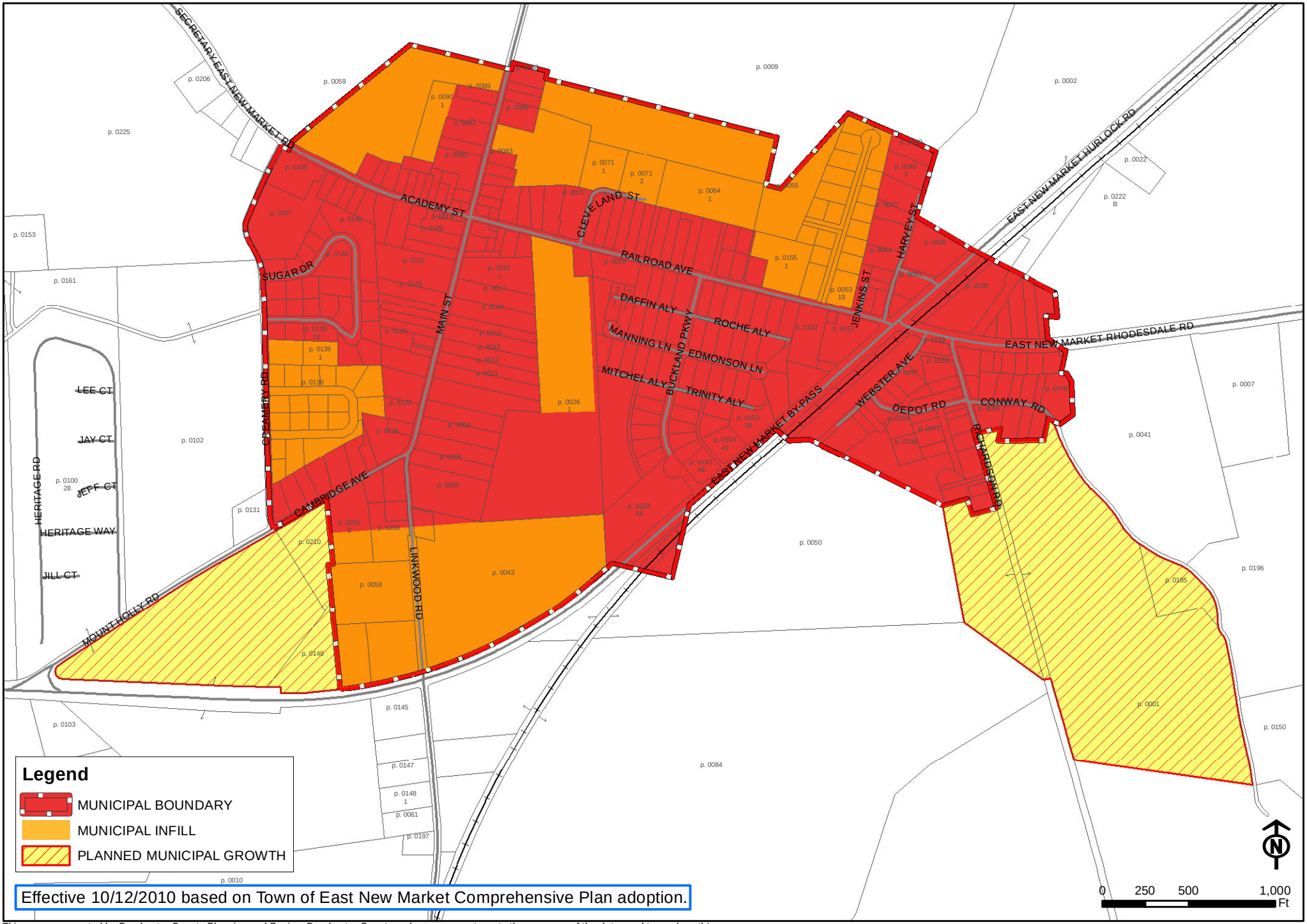


Town of Church Creek Growth Area - Figure 2-1B



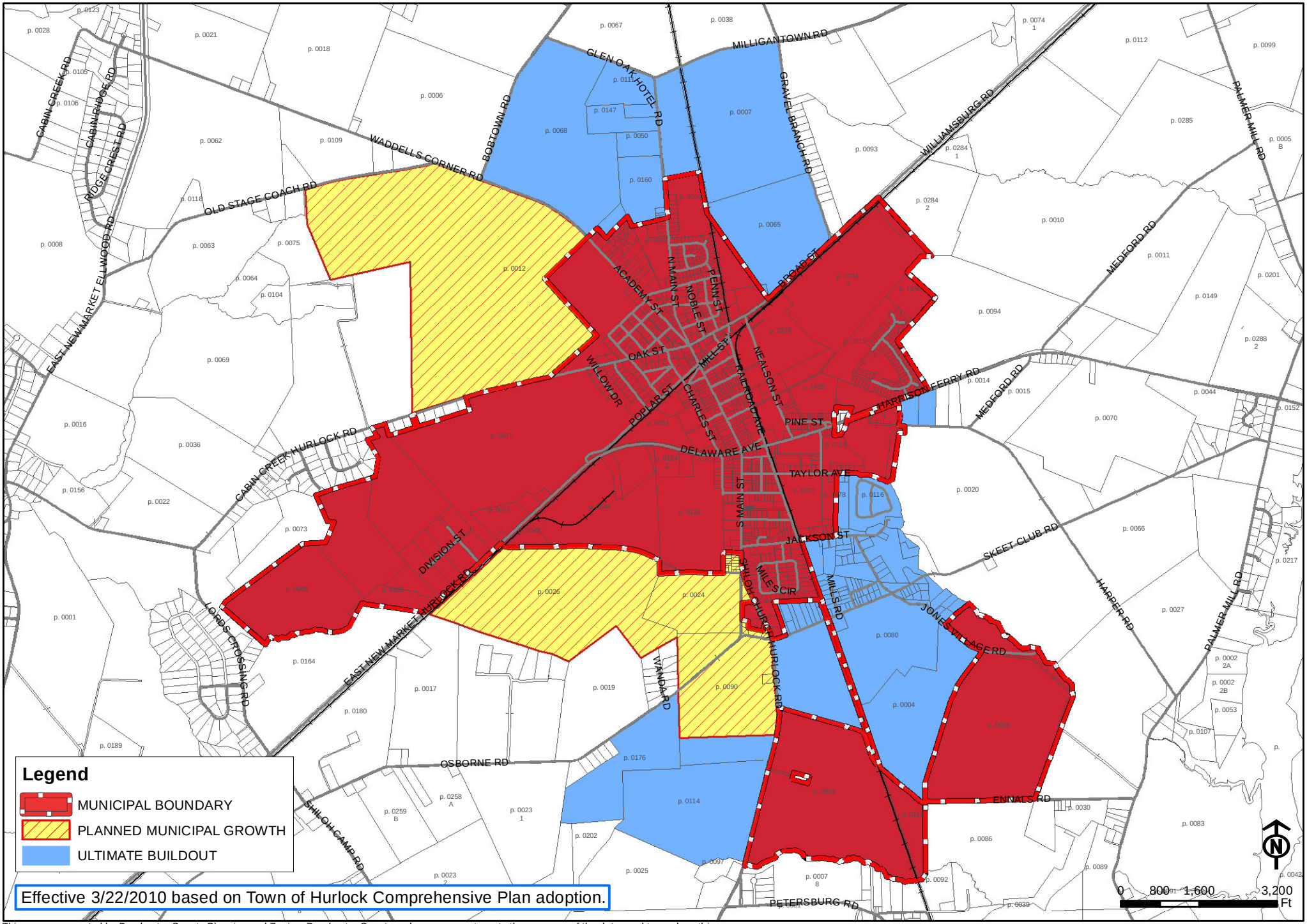
This map was created by Dorchester County Planning and Zoning. Dorchester County makes no warranty as to the accuracy of the data used to produce this map.

Town of East New Market Growth Area - Figure 2-1C



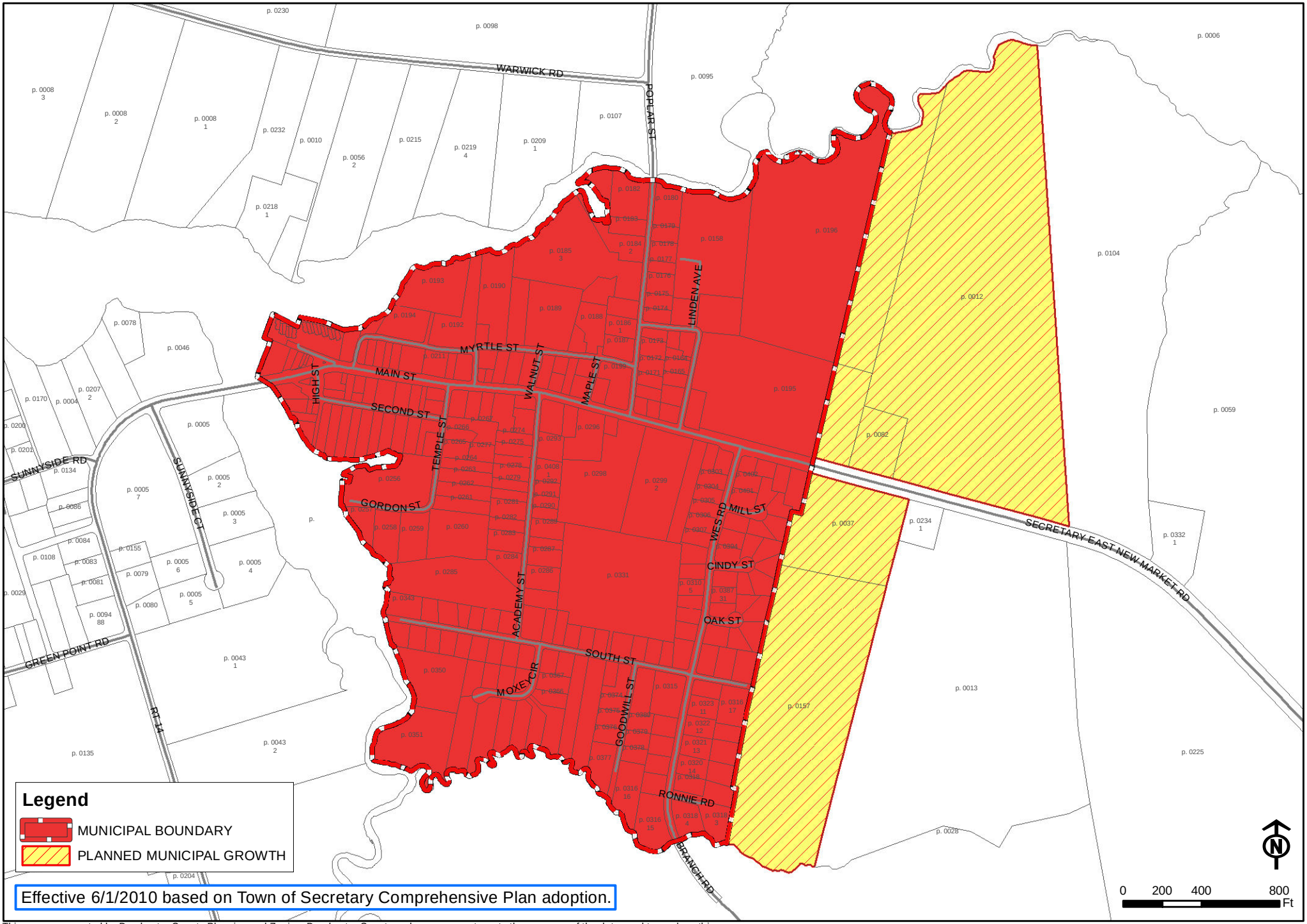
This map was created by Dorchester County Planning and Zoning. Dorchester County makes no warranty as to the accuracy of the data used to produce this map.

Town of Hurlock Growth Area - Figure 2-1D

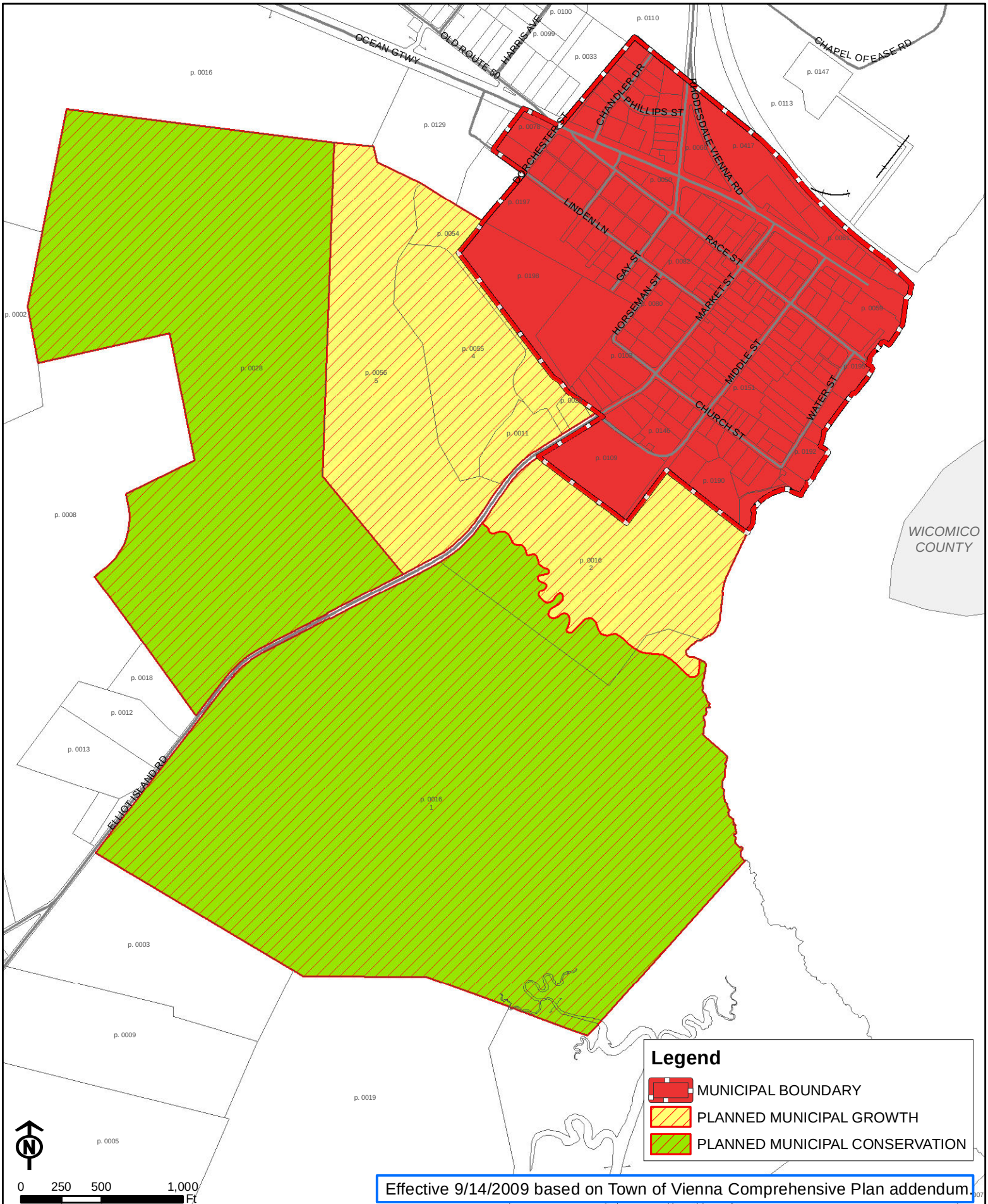


This map was created by Dorchester County Planning and Zoning. Dorchester County makes no warranty as to the accuracy of the data used to produce this map.

Town of Secretary Growth Area - Figure 2-1E



Town of Vienna Growth Area - Figure 2-1F



Dorchester County, Maryland

Comprehensive Plan

Water Resources Element

Adopted

October 6, 2009

(Revised December 9, 2009)

This project has been supported by the financial assistance provided by the Coastal Zone Management Act of 1972, as amended, administered by the office of Ocean and Coastal Resource Management, National Oceanic and Atmospheric Administration.

Water Resources Element

The Water Resources Element of the Dorchester County Comprehensive Plan creates a policy framework for sustaining public drinking water supplies and protecting the County's waterways and riparian ecosystems by effectively managing point and nonpoint source water pollution. It complies with the requirements of Article 66B of the Annotated Code of Maryland—as modified by Maryland House Bill 1141, passed in 2006. This element amends the 1996 Comprehensive Plan, the current plan of record. As of the adoption of this element, the County was in the process of preparing a revision of the 1996 Plan.

The Water Resources Element identifies opportunities to manage existing water supplies, wastewater effluent, and stormwater runoff, in a way that balances the needs of the natural environment with the County's projected growth, including the growth projected for the County's municipalities. In this way, this Water Resources Element helps to protect the local and regional ecosystem while ensuring clean drinking water for future generations of Dorchester County residents.

Interjurisdictional Coordination

There are nine incorporated municipalities in Dorchester County. Residents and businesses of six of these communities (Cambridge, Church Creek, East New Market, Hurlock, Secretary, and Vienna) receive public water and/or sewer service. These municipalities own and operate almost all of the County's public water systems, all wastewater treatment plants and most wastewater collection systems.

The municipalities are preparing their own Water Resources Elements. However, the County recognizes the importance of interjurisdictional water resources planning. This Countywide Water Resources Element compiles, to the greatest degree possible, up-to-date data from the municipalities—including completed Municipal Growth Elements (MGE), where available—in order to coordinate water resources, growth, and land use planning. As of August 2009, no municipality had completed and submitted a MGE to the County for review. Where possible, the County has also obtained data and information on water resources from adjoining Counties, in order to paint the fullest possible picture of future impacts to the Choptank, Nanticoke, and other rivers and streams that form Dorchester County's northern and southern boundaries.

1. Goals

In cooperation with the County's municipalities, maintain safe and adequate drinking water supplies and adequate wastewater treatment capacity in public systems.

Take steps to meet regulatory requirements by protecting and restoring water quality in the County's rivers and streams.

Use water resources planning as a tool to direct the location and type of development in Dorchester County.

This goal relates to the following other goals of the 1996 Comprehensive Plan and its forthcoming update:

- Direct growth to towns and Development Areas;
- Reduce sprawl;
- Protect groundwater, and reduce groundwater contamination from failing septic systems;
- Restrict strip development;
- Permit and encourage innovative residential development patterns; and
- Conserve the County's natural resources.

2. County Projections and Scenarios

This section describes the population and housing projections and future growth scenarios used in the Water Resources Element. All projections and scenarios in this section were developed to support the analyses in the Water Resources Element and are intended for use in this Element only. The County's official population projections will be updated as part of a full revision to the 1996 Comprehensive Plan.

Watersheds

This Element takes a watershed-based approach in analyzing the impact of future growth on Dorchester County's water resources—particularly in relation to nutrients discharged to the County's streams. Land in Dorchester County drains to one of eight major watersheds (or "8-digit watersheds," referring to the numeric classification system used by the Maryland Department of the Environment). These watersheds, shown on Map 1, are: the Lower Choptank River, Little Choptank River, Honga River, Fishing Bay, Transquaking River, Nanticoke River, Marshyhope Creek, and a small portion of the Lower Chesapeake Bay 8-digit watershed.

Population Projections

Table 1 shows the countywide population projections developed for the Water Resources Element. These projections indicate that County population will reach approximately 42,050 by the year 2030, an annual increase of approximately 1.2 percent per year, or 32 percent overall between 2007 and 2030. These projections differ from those prepared by the Maryland Department of Planning (MDP) in 2008. Based on past rates of housing permits and other measures of development interest, it is the County's position that it will experience higher population growth than is forecast by the state, even considering the recession that existed in 2008-9.[1]

Table 1. Population Projections for the Water Resources Element

							Change, 2007-2030		
Year	**2007**	**2010**	**2015**	**2020**	**2025**	**2030**	**Number**	**Percent**	**Annual Increase**
Population	31,846[1]	33,200[2]	35,400[2]	37,600[2]	39,900[2]	42,050[2]	10,204	32%	1.2%

1: Source: MDP, 2007 Estimates for Maryland's Jurisdictions

2:Source: Dorchester County and ERM

Scenarios

To gauge the impacts of alternative land use and water resources policies, this Water Resources Element uses three scenarios for the distribution of future growth. These scenarios are:

- **Trends:** Continues past trends whereby approximately half of all new residential and non-residential growth is directed to existing Priority Funding Areas (PFAs), or to areas identified for future public water and sewer service by the County's Water and Sewer Master Plan. Remaining development would occur in areas outside of public water and sewer service. This scenario represents the County's 1996 Comprehensive Plan, as implemented through zoning.

[1] The population projections developed prior to the recession for the Draft 2006 Comprehensive Plan (which has not been adopted) indicated a population of 42,050 by the year 2025. These WRE projections assume the same amount of development, extended over a longer period of time.

Dorchester County Water Resources Element

Watersheds

Watersheds

Municipalities

0 1 2 3 4 5

Miles

N

MAP 1

- **PFA Focus:** All new growth would be directed to existing PFAs, or to areas identified for future public water and sewer service by the County's Water and Sewer Master Plan. A negligible amount of new development would occur in areas outside of public water and sewer service.

- **Hybrid:** This scenario is a middle ground between the Trends and PFA Focus scenarios. Approximately three-quarters of new development would be directed to existing PFAs, or to areas identified for future public water and sewer service by the County's Water and Sewer Master Plan. Remaining development would occur in areas outside of public water and sewer service.

Because water and sewer service is often measured in terms of Equivalent Dwelling Units, or EDU,[2] the Water Resources Element uses housing units as the basis for its water, sewer, and nonpoint source pollution analyses. Table 2 shows the projected watershed-level distribution of housing units in each of the three scenarios described above. The projected increase of 6,153 housing units represents an annual increase of approximately 1.5 percent per year between 2007-2030, or 40 percent overall. The rate of housing growth outpaces population growth due to projected declines in household size through 2030.

A more detailed account of how these projections were developed is included in the Water Resources Element Appendix.

3. Drinking Water Assessment

This section describes existing conditions and projected future demand for drinking water in Dorchester County.

Public Water Systems

All public and private drinking water in Dorchester County is obtained from groundwater. Table 3 summarizes water sources, treatment technology, and other characteristics of the County's public drinking water systems. Map 2 shows the location of these water service areas as of 2008 (the most recent year for which mapping is available), as well as the areas that are expected to be served within five years. A more detailed description of the aquifers used by these public systems is included in the Appendix of this Water Resources Element. More detailed information on existing and proposed future water service areas can be found in the County's Water and Sewer Master Plan.

Approximately 7,900 dwelling units in Dorchester County (approximately half of all dwelling units in the County) and a considerable share of businesses receive drinking water from public water systems. This includes all dwelling units and businesses within the corporate limits of Cambridge, Church Creek, East New Market, Hurlock, Secretary, and Vienna. Dorchester County operates two small public water systems. Sanitary Commission District #2, serves the Bonnie Brook subdivision east of Cambridge, while District #6 serves the Lodgecliff neighborhood, west of Cambridge. Only District 2 relies on County-operated wells. All other public water systems are supplied by wells owned and operated by the five municipalities listed in Table 3.

Table 4 shows existing drinking water demand and system capacity, while Table 5 shows the projected water supplies, demands, surpluses and deficits for these water systems under each of the three scenarios described above.

[2] An EDU represents the average amount of water used by one household, and is also used to calculate residential and non-residential (e.g., businesses) water demand. In Dorchester County, one EDU equals to 250 gpd. Note that this differs from the 220 gpd used for the Draft WRE that the County submitted for state agency review. The lower figure was based on initial research, and has been updated based on input from County staff.

Table 2. Housing Unit Projections by Watershed

Watersheds	2007 Existing[4]	2030 Scenarios					
		Comp Plan/Trends (50% of growth to PFA)		PFA (100% of Growth to PFAs)		Hybrid (75% of Growth To PFAs)	
		Increment	Total	Increment	Total	Increment	Total
Lower Choptank River							
Secretary[1]	328	120	448	237	565	179	507
East New Market[1]	187	68	255	135	322	102	289
Cambridge (partial) [1,2]	5,488	2,000	7,488	3,967	9,455	2,999	8,487
Hurlock (partial) [1,2]	217	79	296	157	374	119	336
Remainder of Lower Choptank	2,186	960	3,146	-	2,186	472	2,658
Little Choptank River							
Church Creek [1]	86	31	117	62	148	47	133
Cambridge (partial) [1,2]	136	50	186	98	234	74	210
Remainder of Little Choptank	1,377	605	1,982	-	1,377	297	1,674
Honga River	668	293	961	-	668	144	812
Fishing Bay							
Cambridge (partial) [1,2]	955	348	1,303	690	1,645	522	1,477
Remainder of Fishing Bay	581	255	836	-	581	126	707
Transquaking River	754	331	1,085	-	754	163	917
Nanticoke River							
Vienna[1]	213	78	291	154	367	116	329
Galestown[3]	60	21	81	21	81	21	81
Remainder of Nanticoke	409	180	589	-	409	88	497
Marshyhope Creek							
Hurlock (partial) [1,2]	834	304	1,138	603	1,437	456	1,290
Eldorado[3]	27	15	42	15	42	15	42
Brookview[3]	27	14	41	14	41	14	41
Remainder of Marshyhope Creek	914	402	1,316	-	914	197	1,111
Total	**15,447**	**6,153**	**21,600**	**6,153**	**21,600**	**6,153**	**21,600**

Notes:

1: Includes the existing PFA, as well as areas designated for future public water and/or sewer service by the Dorchester County Water and Sewer Master Plan.

2: Indicates projections for the portions of these PFA/service areas that fall within the designated watershed. For a more detailed description of housing unit projections, please see the Water Resources Element Appendix.

3: Projections from MDP's Detailed Population Projections spreadsheet, provided to Dorchester County in October 2008.

4: Source: Maryland Property View 2007

Table 3. Public Drinking Water System Characteristics

Water System	Source Aquifer (number of wells)	Planned/Potential System Upgrades or Expansions	Source Concerns / System Issues
SD #2	Pleistocene/Surficial		
SD #6	Purchased from Cambridge Municipal Utilities Commission		
Cambridge	Magothy (1); Patapsco: (2)		
East New Market	Piney Point (1) (closed); Choptank (1)	Replace Piney Point well, increase capacity to 224,000 gpd	High arsenic levels in the Piney Point aquifer
Secretary	Piney Point (3)	Two new wells in a new aquifer to address arsenic issues.	High arsenic levels.
Hurlock	Pleistocene/Surficial (3), Piney Point (1)		
Vienna	Calvert (2)	Drill 1-2 new wells, water system upgrades	High iron content (treated with greensand filters)
Source: 2004 Dorchester County Water and Sewer Master Plan; Municipalities			

Table 4. Public Drinking Water System Demand and Capacity, 2007

		Sanitary District #2	Cambridge (Includes SD #6)	East New Market	Secretary	Hurlock	Vienna
Existing Water Production[1]	MGD[2]	0.08	4.02	0.10	0.34	0.42	0.12
	EDU[3]	320	16,080	400	1,324	1,680	480
Demand, 2007[4]	MGD	0.04	2.10	0.04	0.04	0.35	0.08
	EDU	156	8,400	180	176	1,400	308
Net Available Capacity, 2007	MGD	0.04	1.92	0.06	0.29	0.07	0.04
	EDU	164	7,680	220	1,168	280	172

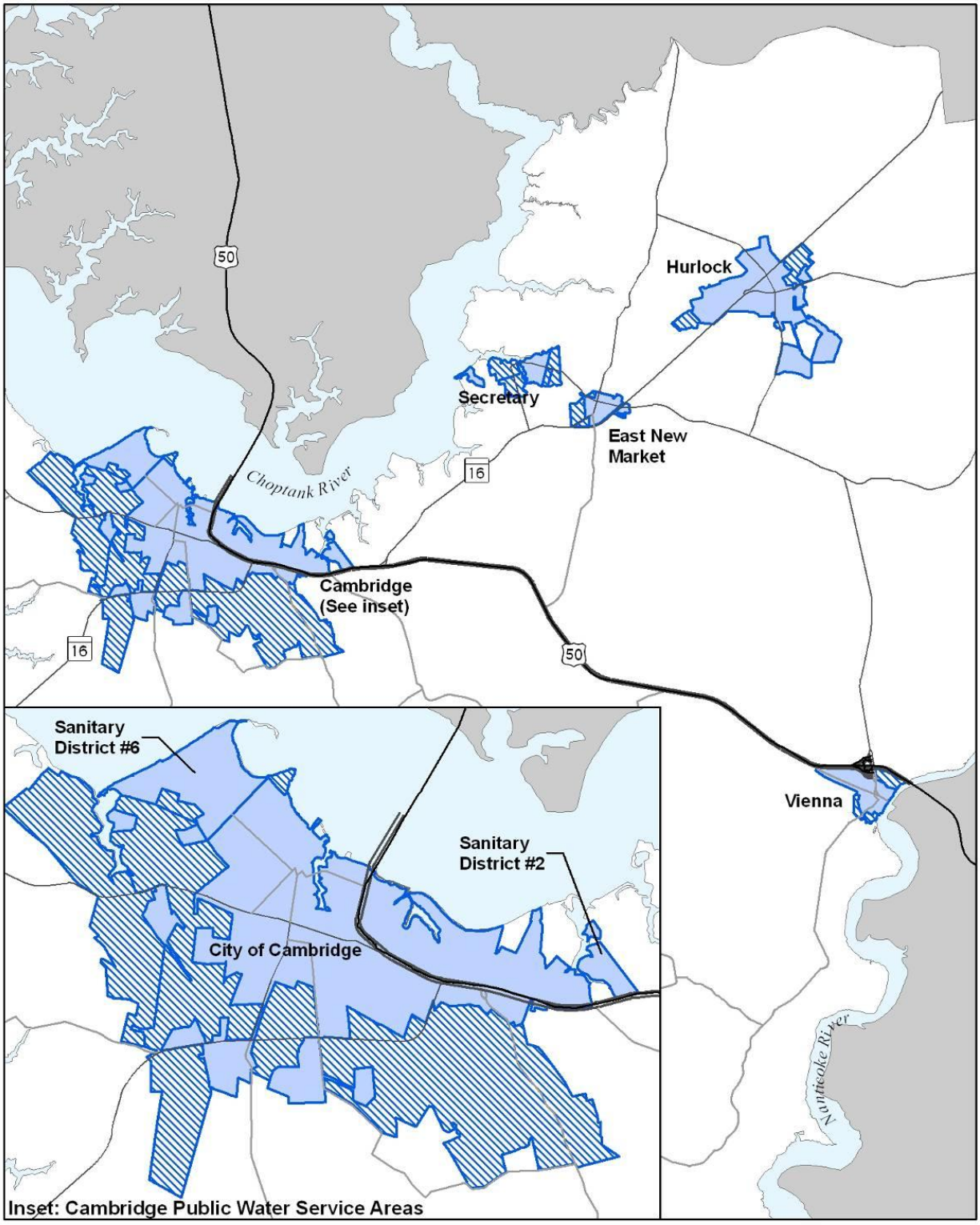
1: Indicates the more restrictive of either MDE's groundwater appropriations permit or the system's design capacity.

2: MGD = Million Gallons per Day

3: EDU = An Equivalent Dwelling Unit (EDU), equal to 250 gpd. This figure represents the average amount of water used by one household, and is also used to calculate residential and non-residential (e.g., businesses) water demand.

4: Includes residential and nonresidential demand.

Source: 2004 Dorchester County Water and Sewer Master Plan; municipalities


50
Hurlock
Secretary
East New Market
16
Choptank River
Cambridge (See inset)
16
50
Sanitary District #6
Sanitary District #2
City of Cambridge
Vienna
Nanticoke River
Inset: Cambridge Public Water Service Areas
Dorchester County Water Resources Element
Legend
Public Water Service Areas, 2008
Planned Public Water Service Areas
N
1 0.5 0 1
Miles

MAP 2

Table 5. Public Water System Demand and Capacity, 2030

Scenario		Sanitary District #2	Cambridge (Includes SD #6)			East New Market			Secretary			Hurlock			Vienna		
			Trend	PFA	Hybrid	Trend	PFA	Hybrid	Trend	PFA	Hybrid	Trend	PFA	Hybrid	Trend	PFA	Hybrid
System Capacity, 2030[1]	MGD	0.08			4.02			0.22			0.34			0.42			0.12
	EDU	320			16,080			896			1,344			1,680			480
Demand, 2007 (From Table 4)	MGD	0.04			2.10			0.04			0.04			0.35			0.08
	EDU	156			8,400			180			176			1,400			308
Projected New Residential Demand, 2008-2030	MGD	0.01	0.59	1.18	0.89	0.02	0.03	0.03	0.03	0.06	0.04	0.10	0.19	0.14	0.02	0.04	0.03
	EDU	26	2,371	4,729	3,570	68	135	102	120	237	179	383	760	574	78	154	116
Demand added from System Extensions[2]	MGD	0	0.12	0.12	0.12	0.00	0.00	0.00	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00
	EDU	0	463	463	463	4	4	4	60	60	60	1	1	1	0	0	0
Projected Non-Residential Demand, 2008-2030[3]	MGD	0	0.20	0.39	0.30	0.01	0.01	0.01	0.01	0.02	0.01	0.03	0.06	0.05	0.01	0.01	0.01
	EDU	0	790	1,576	1,190	23	45	34	40	79	60	128	253	191	26	51	39
Total Projected New Demand, 2008-2030	MGD	0.01	0.91	1.69	1.31	0.02	0.05	0.04	0.05	0.09	0.07	0.13	0.25	0.19	0.03	0.05	0.04
	EDU	26	3,624	6,768	5,222	95	184	140	219	376	299	512	1,014	767	103	205	155
Net Available Capacity, 2030	**MGD**	**0.03**	**1.01**	**0.23**	**0.61**	**0.16**	**0.13**	**0.14**	**0.24**	**0.20**	**0.22**	**(0.06)**	**(0.18)**	**(0.12)**	**0.02**	**(0.01)**	**0.00**
	EDU	**138**	**4,056**	**912**	**2,458**	**622**	**532**	**576**	**949**	**792**	**869**	**(232)**	**(734)**	**(487)**	**69**	**(33)**	**17**

Sources: Maryland Property View 2007, Dorchester County Water and Sewer Master Plan, 2009 Draft Cambridge Comprehensive Plan (WRE), 2007 Twin Cities (Secretary and East New Market) MGE and WRE document..

1: Incorporates all ongoing or planned capacity upgrades.

2: Estimated using Maryland Property View.

3: Estimated. Assumes that new non-residential demand is approximately 25% of total projected new demand, based on existing relationships between residential and non-residential demand in the County's water service areas..

All of the County's major public water systems have available capacity to support some additional growth and development, and all of these systems except for Hurlock can support projected growth through 2030. Vienna would exceed its capacity under the PFA scenario by 2030, while the Cambridge, East New Market (after completion of the system's planned upgrades, for which a specific date has not been identified), and Secretary Systems have considerable available capacity beyond 2030. The WRE section entitled "Potential Water Supplies" lists some options for securing the drinking water resources necessary to ensure an adequate future water supply.

Other Water Use

All residential units and businesses in Dorchester County outside of public water systems rely on individual or community wells. These wells are drilled in a variety of water-bearing formations, including the Aquia, Piney Point, Choptank, and Pleistocene, or surficial aquifer (sometimes referred to as the Columbia formation).

Table 6 shows the distribution of Countywide water use in 2000. Although not a precise representation of current water use, Table 6 does highlight the County's major water users: public systems, private residential users, and agricultural irrigation. The remainder of this section discusses those major categories of non-public water users in greater detail.

Table 6. Freshwater Withdrawals in Dorchester County, 2000

Type of Withdrawal	Total Withdrawals (MGD)	Percent of County Withdrawals
Commercial	0.34	2.5%
Industrial	0.99	7.1%
Mining	0.02	0.1%
Livestock Watering	0.33	2.4%
Aquaculture	0.03	0.2%
Irrigation	8.71	62.9%
Thermoelectric Power	0.02	0.1%
Residential self-supplied	0.94	6.8%
Public Supply	2.47	17.8%
Total	**13.85**	**100%**

Source: USGS MD-DE-DE Water Science Center
http://md.water.usgs.gov/freshwater/withdrawals/

Private Residential Wells

Approximately 8,200 residential units in Dorchester County rely on individual wells (or, in a few cases such as mobile home parks, community wells) for drinking water supply, as do most businesses in rural portions of the County. These residential and small commercial uses accounted for approximately 1.2 MGD of groundwater withdrawal in 2004, as described in the County's Water and Sewer Master Plan. Approximately 40 percent of private residential and small commercial wells draw water from the Piney Point aquifer, another one/third of private wells draw from the Pleistocene aquifer, while the remaining private well users draw from the Aquia or other aquifers.

In addition to the arsenic concerns described above, some wells in the Pleistocene (the unconfined surficial aquifer) experience elevated nitrate levels. The sources of this contamination are not known, but could include cross-contamination from failing or inadequate septic systems, or agricultural fertilizer.

Major Commercial and Industrial Users

Most of the County's commercial business districts are concentrated in Cambridge or other towns, and are served by public water systems. Several large industrial water users are located outside of public systems. These include Allen Family Foods outside of Hurlock, seafood processing plants on Hooper's Island, other agribusiness related industries. The 2004 Water and Sewer Master Plan identified approximately 0.78 MGD of water use from such large facilities. Major seafood industry users, which accounted for less than 0.06 MGD in 2004, draw from the Piney Point aquifer, while other major commercial/industrial water users draw from the surficial aquifer.

Agricultural Water Users

As shown in Table 5, agricultural irrigation is the largest user of fresh water in Dorchester County, and is a critical component of agricultural activities in many parts of the state and the Eastern Shore. Agriculture is present in nearly every major watershed in Dorchester County, although it is concentrated in the northern and eastern portions of the County (particularly the Lower Choptank River, Transquaking River, and Marshyhope Creek watersheds). Surface water, specifically from the Chicamicomico River in eastern Dorchester County, provides small amount of this irrigation. However, the vast majority of water used for agricultural irrigation is drawn from surficial aquifers, which are recharged directly through absorbed rainwater. These aquifers do not supply the drinking water for public water systems in Dorchester County, and are only used as drinking water sources by a small proportion of the County's private wells. Thus, while agricultural water use is substantial in Dorchester County, it does not directly compete or threaten the quality of drinking water supplies.

Additional Issues – Drinking Water

Water Recharge

The limited drinking water capacity of the confined aquifers that serve Dorchester County is increasingly strained by new development throughout the Delmarva Peninsula. The US Geological Society (USGS) reports that "withdrawals from Maryland Coastal Plain aquifers have caused ground-water levels in confined aquifers to decline by tens to hundreds of feet from their original levels. Continued water-level declines could affect the long-term sustainability of ground-water resources in agricultural areas of the Eastern Shore."[3] Saltwater intrusion into freshwater aquifers is also a concern on the Eastern Shore, particularly in coastal areas such as Kent Island, in Queen Anne's County.

Groundwater and surface water resources are also linked. Water from surficial aquifers can comprise a significant amount of the base flow of streams and rivers. While groundwater withdrawn through wells is typically returned to the ground or surface via point source discharges, septic systems, and absorption of runoff from outdoor water uses (such as watering of lawns), large withdrawals can potentially impact the quality and quantity of flows in nearby surface water bodies.

There exists no comprehensive study of the water-bearing formations used by Dorchester County residents and businesses, and the Water Balance methodology recommended by Models and Guidelines #26 (the state's official guidance for preparation of the Water Resources Element) is not applicable for the Coastal Plain. MDE, the Maryland Geological Survey (MGS), and the US Geological Society (USGS) have begun work on a Coastal Plain Aquifer Study, but that study remains incomplete.

[3] Source: USGS. 2006. Sustainability of the Ground Water Resources in the Atlantic Coastal Plain of Maryland. USGS Fact Sheet 2006-3009

In most cases, the recharge areas for the County's major aquifers (particularly the Piney Point and Aquia), are not necessarily found on the Eastern Shore. The County should use the data and recommendations of the Coastal Plain Aquifer Study (once completed) to shape its own water use policies and ordinances. However, the County also recognizes the need for and supports the development of broader regional water policies to protect already scarce resources.

For purposes of this Water Resources Element (and lacking specific evidence to the contrary), this Water Resources Element presumes that the MDE groundwater permit issued for each public drinking water system reflects the maximum safe yield of the aquifer(s) used by that system.

Arsenic

The primary drinking water quality concern in Dorchester County (for both public and private systems) is the presence of naturally-occurring elevated arsenic levels in some portions of the Aquia and Piney Point aquifers. The Dorchester County Health Department has identified two particular areas of concern: the Neck, Madison and Taylor's Island districts (Aquia and a portion of Piney Point), and the portion of the Piney Point that supplies the water systems in Secretary and East New Market. In particular, arsenic levels in the Secretary water system exceed federal standards. The Town is in the process of drilling two new wells into a different aquifer to address this problem. For other systems and individual wells, treatment technology for arsenic removal is not widely tested, and alternative aquifers should be explored. The County Health Department should also work with MDE to ensure that arsenic levels in private wells do not exceed health standards.

Groundwater Protection

The County's Ground-Water Protection Report (1988) is a management plan for the protection of the County's groundwater resources, particularly the surficial aquifer, and particularly in areas with seasonal high water tables. The Report's key findings are presented in the form of tables and supporting text that identify and describe the type of septic system (including specific construction techniques) that should be permitted in each of four zones (identified based on soil characteristics, water table, and other features) in the County. It also recommends minimum well depths, well construction techniques, and other factors to further reduce the possibility of contamination. The Ground-Water Protection Report is adopted by reference into the County's Water and Sewer Master Plan.

MDE has also prepared source water assessments for each of the public water systems in Dorchester County. The County should work with its municipalities to implement any action items identified in those assessments.

Potential New Water Supplies

While the County acknowledges the scarce nature of its primary confined aquifers (the Aquia and Piney Point), the County's land use and economic policies continue to encourage growth in appropriate locations. To accommodate this growth without straining existing water resources beyond their capacities, the County and particularly its municipalities should begin to investigate the feasibility of other sources of drinking water, including different aquifers and surface water bodies.

A number of other aquifers may be present under Dorchester County, and may be able to provide groundwater for Dorchester County, including the Matawan, Magothy, Patapsco, and Patuxent formations.[4] More detailed investigation is necessary to determine whether the water in these aquifers is of sufficient quality (particularly with relation to hardness, dissolved solids, and iron) and can be

[4] Source: Dorchester County. 1988. Ground-Water Protection Report Table 6

produced in sufficient quantity for human consumption. The aquifers listed above also occur at significantly greater depths than the Aquia and Piney Point, adding to the cost of wells for new development (or new wells to serve existing systems).

Surface water impoundments are not currently used for drinking water in Dorchester County. Although surface water is plentiful in Dorchester County, preparing that water for public consumption can also be costly and difficult. Many of the County's major rivers, including the Choptank and Nanticoke, are impaired by a variety of pollutants, including biological material (typically fecal coliform), nutrients, and bacteria. Surface water cannot be ruled out as a potential new source of drinking water, and should be included in any comprehensive study of new drinking water sources. However, the County acknowledges that surface water will not likely be the preferred new source.

Linking Water Supply to Development

The provision of public services such as drinking water can be a major tool in guiding future development and redevelopment. However, this tool is not fully available to Dorchester County. The County maintains only two public drinking water systems (Sanitary Commission Districts #2 and #6), only one of which supplies its own water. Both are in the greater Cambridge area, and neither district contains significant undeveloped land. Cambridge and other municipalities in Dorchester County have historically extended public water service outside of existing municipal boundaries only for annexations, or to address public health emergencies.

As a result, the County has only limited ability to use water resources to guide land use and development. At the same time, new development is increasingly occurring on private well and septic systems in the northern portion of the County, where public water service is unavailable or constrained. The County's requirements for groundwater protection may exacerbate this problem, by requiring larger lots and lower residential densities than permitted under existing zoning regulations. This can consume more land than is desirable and generate higher levels of nonpoint source pollution.

Given the resulting low-density nature of unincorporated portions of Dorchester County, establishment of a new County-operated water system is a difficult proposition. However, to the degree that there are relatively concentrated areas—such as an emerging village center or road corridor—where development ought to be concentrated, the County may wish to investigate the establishment of a public water system. Such a system would be particularly well suited to areas where failing or marginal septic systems threaten or potentially threaten existing private wells. Updates to the Water and Sewer Master Plan should identify such areas and discuss the feasibility of a new County-operated public water system.

In addition, HB1141 requires all municipalities in Maryland with zoning authority to prepare a Municipal Growth Element (MGE). As part of that element, the municipality must consult with its county and come to an agreement regarding growth and development. As MGEs are prepared, Dorchester County should use the mandatory consultation period to address the appropriateness of proposed expansions of municipal water (and sewer) systems.

4. Wastewater Assessment

This section describes existing conditions and projected future demand for public wastewater treatment capacity in Dorchester County.

Public Sewer Systems

Approximately 7,900 dwelling units in Dorchester County (approximately half of all dwelling units in the County) and a considerable share of businesses discharge wastewater to one of the four municipally-owned and operated public wastewater treatment plants (WWTP) listed in Table 7. This includes all dwelling units and businesses within the corporate limits of Cambridge, Church Creek (wastewater pumped to Cambridge), East New Market, Hurlock, Secretary, and Vienna.

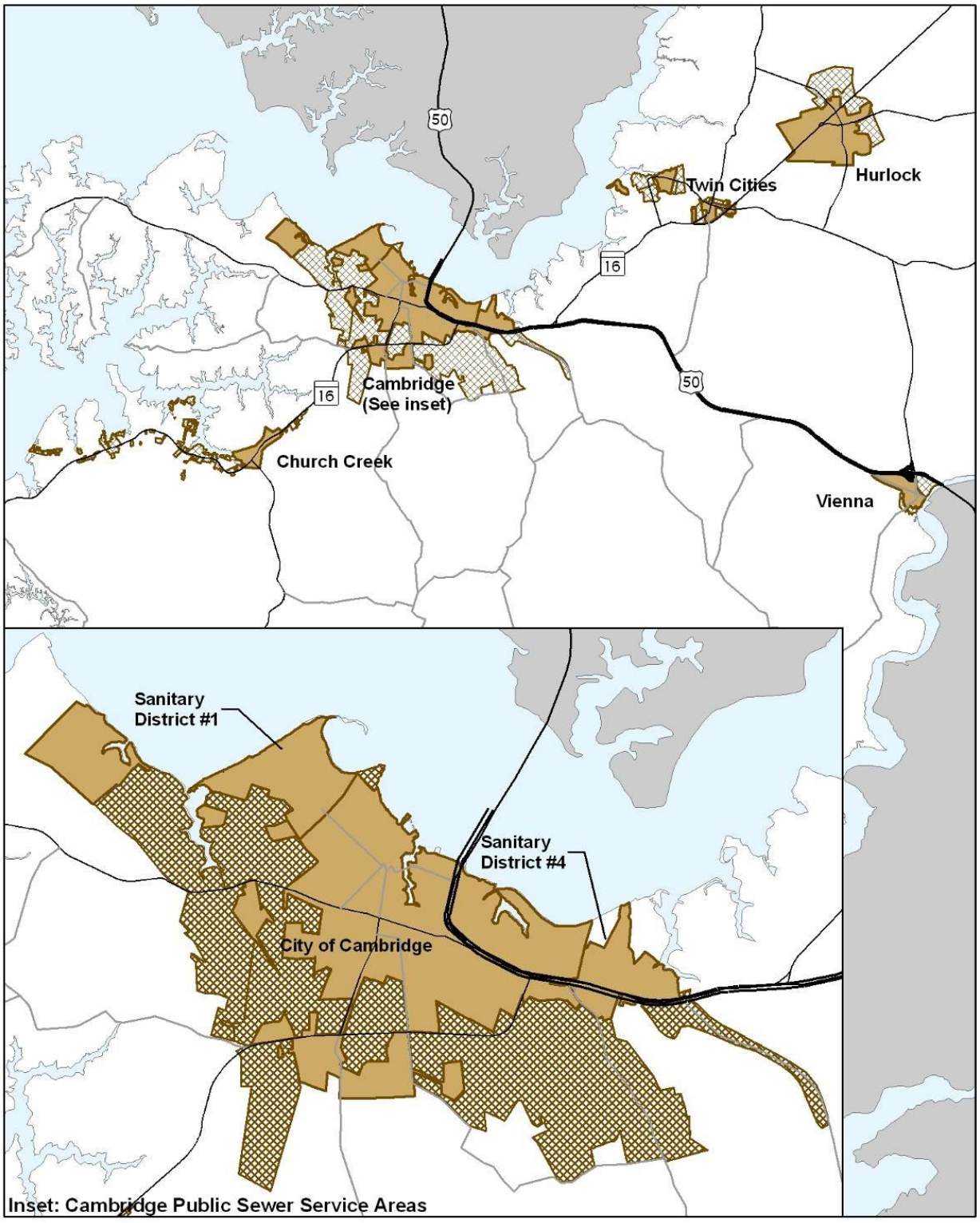
Table 7. Public Sewer System Characteristics

Wastewater Treatment Plant	Discharge Location	Existing Treatment Technology	Planned/Potential Upgrades or Expansions
Lower Choptank Watershed			
City of Cambridge *(includes SD#1, SD#4, and Church Creek)*	Choptank River	Biological Nutrient Removal (BNR)	Enhanced Nutrient Removal (ENR) Upgrade Planned
Twin Cities	Warwick River	Aerated lagoon	Upgrade/expansion to 0.4 MGD BNR; Inflow/Infiltration (I/I) reduction.[1] Nutrient reductions also needed to meet likely nutrient caps.
Marshyhope Creek Watershed			
Hurlock	Wrights Branch	ENR and spray irrigation	None
Nanticoke River Watershed			
Vienna	Nanticoke River	Extended aeration/ activated sludge	Upgrade/Expansion to 0.275 MGD, BNR or ENR

1: Inflow is water from storm events entering the system through roof drains sump pumps, and similar sources. Infiltration is groundwater entering the system through leaking pipes, manholes, and other elements. I/I takes up sewer capacity that should be reserved only for wastewater, effectively limiting the system's overall capacity.

Source: 2004 Dorchester County Water and Sewer Master Plan; Municipalities

Dorchester County does not own or operate a public WWTP. The Dorchester County Sanitary Commission has written agreements with the City of Cambridge to provide system maintenance, updating and billing to two Sanitary Districts (District 1 on Cambridge's western boundary, and District 4, or Jacktown, on Cambridge's eastern boundary), serving approximately 750 dwelling units. Wastewater from these Sanitary Districts flows to the Cambridge WWTP. Within the district boundaries, the Sanitary Commission controls the extension of municipal sewer services, provided that such extensions do not exceed the flow limit set by the agreement with the City.


50
Twin Cities
Hurlock
16
Cambridge
(See inset)
16
50
Church Creek
Vienna
Sanitary
District #1
Sanitary
District #4
City of Cambridge
Inset: Cambridge Public Sewer Service Areas
Dorchester County Water Resources Element
Sewer Service Areas
Public Sewer Service Areas, 2008
Planned Public Sewer Service Areas
N
2 1 0 2
Miles

MAP 3

In addition, approximately 250 residential units outside of a municipality or a Sanitary District discharge wastewater to municipal sewer systems. These units are generally located in West Vienna, Depot, Green Point, and outside of Hurlock. These are existing communities which, due to failing systems, were extended community sewer services by the nearest public system. Several of these areas also receive public water service. Map 3 shows the location of public sewer service areas as of 2008 (the most recent year for which mapping is available), as well as the areas that are expected to be served within five years.

Table 8 shows existing public sewer demand and system capacity, while Table 9 shows the projected supplies, demands, surpluses and deficits for these sewer systems under each of the three scenarios described in this Element.

All of the County's major public sewer systems have available capacity to support some additional growth and development, assuming implementation of the upgrades and expansions to the Twin Cities and Vienna WWTPs. The Cambridge and Hurlock systems could have considerable available capacity beyond 2030.

Table 8. Public Sewer System Demand and Capacity, 2007

		Cambridge (Includes SD #1, #4, and Church Creek)	**Twin Cities** (Includes East New Market and Secretary)	**Hurlock**	**Vienna**
Existing Treatment Capacity[1]	MGD	8.10	0.28	1.70	0.14
	EDU	32,400	1,124	6,800	550
Average Daily Flow, 2007[2]	MGD	3.50	0.19	1.10	0.07
	EDU	14,000	764	4,400	281
Net Available Capacity, 2007	MGD	4.60	0.09	0.60	0.07
	EDU	18,400	360	2,400	269

Notes:

1: Indicates the more restrictive of either MDE's discharge permit or the system's design capacity.

2: Includes all residential and non-residential flow.

Source: 2004 Dorchester County Water and Sewer Master Plan; municipalities

Nutrient Discharges and Assimilative Capacity

Nitrogen and phosphorus (more generally referred to as "nutrients") from WWTPs and from stormwater and other "non-point sources" are the primary contributors to degraded water quality in the Chesapeake Bay and its tributaries. As a result of Maryland's participation in the Chesapeake Bay 2000 Agreement, and resulting state policies designed to help restore the Bay, water and sewer planning must take into account the "assimilative capacity" of a receiving body of water—the mass of nutrients that the stream can receive while still maintaining acceptable water quality. This section describes the key limits on assimilative capacity as they apply to the County's WWTPs.

TMDL

Another measure of assimilative capacity is the Total Maximum Daily Load (TMDL), a series of calculations required by the Clean Water Act. A TMDL is the maximum amount of pollutant that a water body, such as a river or a lake, can receive without impairing water quality.

Table 9. Public Sewer System Demand and Capacity, 2030

		Cambridge (Includes SD #1, #4, and Church Creek)			Twin Cities (Includes East New Market and Secretary)			Hurlock			Vienna		
Scenario		**Trend**	**PFA**	**Hybrid**	**Trend**	**PFA**	**Hybrid**	**Trend**	**PFA**	**Hybrid**	**Trend**	**PFA**	**Hybrid**
System Capacity, 2030[1]	MGD			8.10			0.28			1.70			0.14
	EDU			32,400			1,124			6,800			550
Average Daily Flow, 2007	MGD			3.50			0.19			1.10			0.07
	EDU			14,000			764			4,400			281
Projected New Residential Demand, 2030	MGD	0.59	1.18	0.89	0.05	0.09	0.07	0.10	0.19	0.14	0.02	0.04	0.03
	EDU	2,371	4,729	3,570	188	372	281	383	760	574	78	154	116
Demand added from System Extensions[2]	MGD	0.23	0.23	0.23	0.02	0.02	0.02	0.02	0.02	0.02	0.00	0.00	0.00
	EDU	923	923	923	76	76	76	84	84	84	0	0	0
Projected New Non-Residential Demand, 2030[3]	MGD	0.20	0.39	0.30	0.02	0.03	0.02	0.03	0.06	0.05	0.01	0.01	0.01
	EDU	790	1,576	1,190	63	124	94	128	253	191	26	51	39
Total Projected New Demand, 2008-2030	MGD	0.79	1.58	1.19	0.06	0.12	0.09	0.13	0.25	0.19	0.03	0.05	0.04
	EDU	3,161	6,305	4,759	250	496	375	511	1,013	766	103	205	155
Grand Total Projected Demand, 2030	**MGD**	**4.29**	**5.08**	**4.69**	**0.25**	**0.32**	**0.28**	**1.23**	**1.35**	**1.29**	**0.10**	**0.12**	**0.11**
	EDU	**17,161**	**20,305**	**18,759**	**1,014**	**1,260**	**1,139**	**4,911**	**5,413**	**5,166**	**385**	**486**	**436**
Net Available Capacity, 2030	**MGD**	**3.81**	**3.02**	**3.41**	**0.15**	**0.08**	**0.12**	**0.47**	**0.35**	**0.41**	**0.18**	**0.15**	**0.17**
	EDU	**15,239**	**12,095**	**13,641**	**586**	**340**	**461**	**1,889**	**1,387**	**1,634**	**715**	**614**	**664**

Sources: Maryland Property View 2007, Dorchester County Water and Sewer Master Plan, 2009 Draft Cambridge Comprehensive Plan (WRE), 2007 Twin Cities (Secretary and East New Market) MGE and WRE document.

1: Incorporates all ongoing or planned capacity upgrades, as well as Inflow and Infiltration (I/I), although specific I/I volumes are not known.

2: Estimated using Maryland Property View.

3: Estimated. Assumes that new non-residential demand is approximately 25% of total projected new demand (see Note in Table 5).

Water bodies are classified as "impaired" when they are too polluted or otherwise degraded to support their designated and existing uses. The TMDL is typically expressed as separate discharge limits from point sources such as WWTPs, as well as non-point sources such as stormwater or agricultural runoff.

The impaired waters list is called the 303(d) list, named after the section in the Act that establishes TMDLs (Center for Watershed Protection, 2005). In Dorchester County, all 8-digit watersheds except the Fishing Bay and Nanticoke River watersheds are impaired by nutrients. TMDLs have been prepared for the Transquaking River watershed (nitrogen and phosphorus), the Chicamacomico River (a tributary of the Transquaking), and the Marshyhope Creek watershed (phosphorus only, May 1 through October 31). Marshyhope Creek is the receiving body for discharges from the Hurlock WWTP. The phosphorus TMDL for the Hurlock WWTP is incorporated into the plant's National Pollution Discharge Elimination System (NPDES) permit, and is expressed in its point source cap (see below).

Nutrient TMDLs have not been completed for the Lower Choptank, Little Choptank, and Honga River watersheds. The completion of these studies, particularly for the Lower Choptank, will have tremendous impact on how the County and its municipalities manage wastewater, stormwater, and other sources of nitrogen, phosphorus, and other pollutants.

Point Source Caps

To address nutrient loads from point sources such as WWTPs, the state has established Chesapeake Bay Tributary Strategy point source caps. These caps are numerical limits on the amount of nitrogen and phosphorus that WWTPs can discharge to the Bay and its tributaries (expressed as pounds per year of nitrogen and phosphorus). Point source caps have been established for the Cambridge and Hurlock WWTPs. Table 10 lists these nutrient caps, as well as existing and projected future nutrient discharges under each future land use scenario.

This Water Resources Element assumes that by 2030 ENR upgrades will be complete at the Cambridge WWTP, and that the Twin Cities and Vienna WWTPs will use BNR treatment technology (which is being investigated for both plants). Given these assumptions, as well as assumptions about the nitrogen and phosphorus concentrations in future discharges (see Note 4 on table 10), the Cambridge and Hurlock WWTPs will not exceed their nutrient caps under any Year 2030 growth scenario.

The Hurlock facility combines an ENR point-source discharge with the Town's previously existing lagoon and spray irrigation system. According to the Town, approximately 95 percent of treated wastewater effluent from the Hurlock sewer service area is discharged through the WWTP's point source outfall, with the remaining five percent discharged through the lagoon/spray system. The spray system also currently handles the waste-activated sludge from the ENR facility. It is not known whether the Hurlock spray irrigation system could discharge higher volumes of treated wastewater. Accordingly, the Estimated Nutrient Discharges (2030) in Table 10 reflect nutrient loading from 95 percent of Hurlock's projected 2030 ADF.

The Vienna WWTP would exceed its phosphorus cap by 2030 under all scenarios, and the Twin Cities WWTP would exceed its nitrogen and phosphorus caps by a wide margin under all scenarios. Accordingly, these two systems should consider ENR upgrades or other methods of accommodating projected growth without violating water quality standards.

Table 10. Projected Point Source Nutrient Discharges, 2030

		Cambridge *(Lower Choptank River)*			Twin Cities *(Lower Choptank River)*			Hurlock[5] *(Marshyhope Creek)*			Vienna *(Nanticoke River)*		
		Trends	**PFA**	**Hybrid**	**Trends**	**PFA**	**Hybrid**	**Trends**	**PFA**	**Hybrid**	**Trends**	**PFA**	**Hybrid**
Projected Capacity, 2030	MGD			8.10			0.40			1.70			0.28
Estimated Existing Nutrient Loads, 2007[2]	TN[1]			40,000			15,386			5,000			4,000
	TP[1]			5,000			3,846			1,000			1,300
Likely Nutrient Caps, 2030[3]	TN			98,676			6,100			20,101			3,223
	TP			7,401			457			1,508			457
Projected ADF, 2030	MGD	4.29	5.08	4.69	0.25	0.32	0.28	1.23	1.35	1.29	0.10	0.12	0.11
Assumed Treatment Technology, 2030		ENR			BNR			ENR			BNR		
Estimated Nutrient Discharges, 2030[4]	TN	39,152	46,325	42,798	6,169	7,667	6,930	10,643	11,732	11,196	2,340	2,959	2,654
	TP	3,915	4,633	4,280	1,542	1,917	1,733	1,064	1,173	1,120	585	740	664
Remaining Discharge Capacity	TN	59,524	52,351	55,878	(69)	(1,567)	(830)	9,458	8,369	8,905	883	264	569
	TP	3,486	2,768	3,121	(1,085)	(1,460)	(1,276)	444	335	388	(128)	(283)	(207)

1: TN = Total Nitrogen (lbs/year); TP = Total Phosphorus (lbs/year)

2: Sources:
Cambridge, Hurlock: estimates from MDE's ENR Fact Sheets for Cambridge and Hurlock WWTPs (http://www.mde.state.md.us/Water/CBWRF/pop_up/enr_status_map.asp; Twin Cities Water Resources Element (August 28, 2007); Vienna existing discharges estimated based on 2007 ADF at 18 mg/L TN, and 6 mg/L TP.

3: Sources:

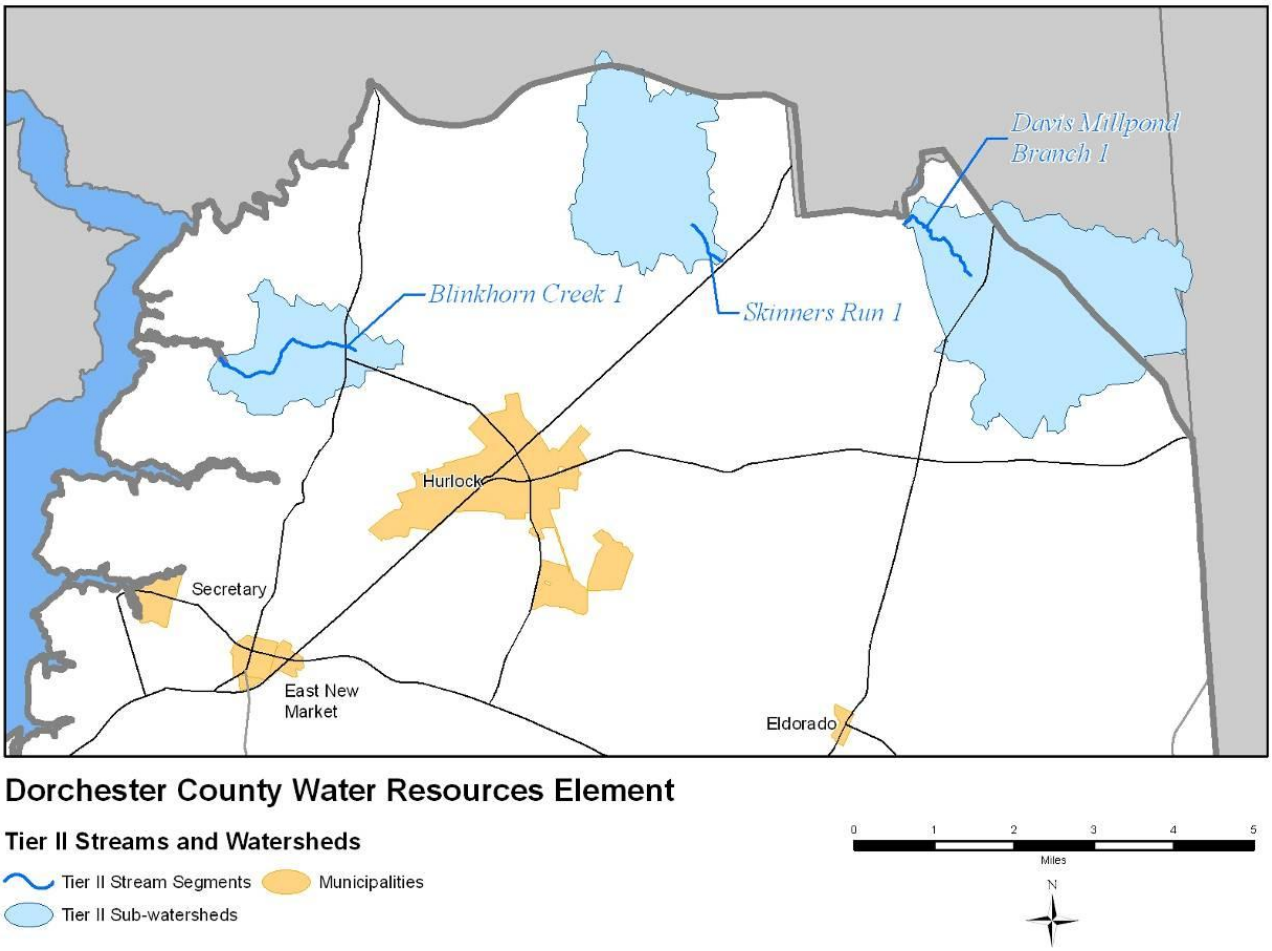
Cambridge, Hurlock: MDE's ENR Fact Sheets for Cambridge and Hurlock (http://www.mde.state.md.us/Water/CBWRF/pop_up/enr_status_map.asp), reflecting the caps applicable to these facilities upon completion of ENR upgrade; Vienna: Town of Vienna Physical Infrastructure Impact Study; Twin Cities: Cap estimated based on MDE's baseline for minor WWTPs, as calculated in MDE's "Point Source Nutrient Loading Cap and WWTP Capacity Planning," presentation, prepared by Dr. Y. Chang.

4: Assumes discharge concentrations of 3mg/L TN and 0.3 mg/L TP for ENR; 8 mg/L TN and 2 mg/L TP for BNR

5: According to the Hurlock Department of Public Works, approximately five percent of the Town's treated wastewater is discharged via its spray irrigation system. The data in this table therefore reflect nutrient loading from 95 percent of the Town's projected ADF.

Antidegradation

Maryland's antidegradation policy significantly limits new discharge permits (and expansions of existing permits) that would degrade water quality in Tier II (high quality) waters, as defined by the US Environmental Protection Agency (EPA) (MDE 2008). In these areas, new nutrient discharges can be permitted, as long as they do not degrade existing water quality. Maryland does not have any waters designated for Tier III, but Dorchester County has three stream segments designated as Tier II waters and shown on Map 4: Blinkhorn Creek, Skinners Run, and Davis Millpond Brach. None of the County's public WWTPs discharge to Tier II waters.



MAP 4

Source: MDE, http://www.mde.state.md.us/assets/document/hb1141/dorchester/Dorchester_County.pdf

Alternative Wastewater Disposal Options

A number of other opportunities exist to protect and improve water quality while still accommodating projected growth and development. This section summarizes key concepts that the County and its municipalities may wish to consider.

Continue System Repairs

Considerable capacity is taken up by I/I in the Twin Cities collection system, a problem that East New Market and Secretary are both addressing. Repairing these problems (which is not reflected in the data in

tables 9-10) will give the system additional capacity, and may avert the need for ENR upgrade. Other municipalities should continue to test their sewer systems for I/I and address problems as they arise.

Land Application of Treated Wastewater

The application of treated wastewater effluent directly to the soil can allow pollutants to be absorbed before the effluent reaches receiving streams. Spray irrigation is the most common form of land application, although other options (such as drip irrigation or subsurface discharge) can also be considered. Although Dorchester County's land area is larger than that of all but three Maryland counties, much of that land area is covered by wetlands or is subject to seasonal high water tables. This limits the role that land application can play in meeting the County's wastewater needs.

The Preliminary Spray Irrigation Site Capacity Estimate tool provided in *Models and Guidelines #26*, the state's guidance document for the preparation of the Water Resources Element, was used to analyze opportunities for spray irrigation in Dorchester County. Based on this analysis, more than 53,000 acres of land in Dorchester County may be suitable for land application, subject to more detailed investigation. Factors such as slope, soil depth and granularity, water table behavior, and buffers from streams and developed areas are important in determining true suitability.[5]

Other important considerations for land application include storage and seasonal restrictions. Land application systems typically require large storage lagoons capable of holding several months' worth of effluent. Land application may not be permitted during winter months, when frozen soil cannot accept effluent, or during other months when water tables rise. Any future land application system would likely be paired with the nearby surface discharge to maximize system capacity without exceeding nutrient caps or TMDLs.

Those caveats notwithstanding, there does appear to be an opportunity for public wastewater systems to utilize land application as an alternative or enhancement to surface water discharge. Much of the potentially suitable land is within a reasonable distance of the Vienna and Twin Cities WWTPs, the facilities that could reach or exceed their nutrient caps by 2030.

Tertiary Treatment Wetlands

In this system, effluent is treated at a WWTP (either BNR or ENR) and then discharged into a series of constructed, vegetated (typically, forested) wetlands. These wetlands purify the effluent to the point where the eventual discharge is essentially free of nutrients and other pollutants. The best-known application of this technology occurs in Clayton County, Georgia. In this system (which treats 9.3 million gallons of wastewater per day on a 4,000 acre site), the wetland-treated effluent is pure enough to be used for drinking water.[6]

Other smaller applications of tertiary treatment wetlands can be found throughout Maryland. These facilities are typically used at schools and other institutional uses. Implementation of such a facility would depend heavily on soil characteristics and other conditions.

Wastewater Reuse

In some cases, treated wastewater effluent can be used to recharge groundwater aquifers. As with tertiary treatment wetlands, effluent is treated to potable (or better) standards before being injected into the aquifer. One such large-scale system is in place in Orange County, California.[7] In that system, treated

[5] Please see the Water Resources Element Appendix for further detail on this calculation.

[6] For more information, see http://www.ccwa1.com/operations/water.reclamation.aspx

[7] For more information, see http://www.gwrsystem.com/

effluent is used not only to recharge the aquifer (and to provide some drinking water as a result), but also to halt and even reverse saltwater intrusion from the Pacific Ocean into the aquifer. Given the documented drops in aquifer levels on the Eastern Shore, and the presence of saltwater intrusion in some areas (notably the Aquia aquifer on Kent Island), this approach may have merit in Dorchester County. The County should work with MDE to investigate the feasibility of such a system.

Nutrient Trading

Under the state's Policy for Nutrient Cap Management and Trading,[8] one of the County's WWTPs could agree to forego a certain amount of development in exchange for payment, and then send or "trade" that excess treatment capacity to another WWTP on the Eastern Shore in need of capacity. The receiving WWTP would then be allowed to expand beyond its current permitted capacity, provided that such expansion does not exacerbate existing water quality impairments or violate TMDL requirements.

With a large existing and projected capacity surplus, the Cambridge WWTP is most likely to take advantage of this system (upon completion of its ENR upgrade), although the Hurlock WWTP may also choose to trade some of its available capacity. The County should work with the municipalities to ensure that any such nutrient trading approaches fall within the County's overall land use and growth management approach.

WWTPs with ENR technology may also be able to expand their facilities by connecting septic systems to public sewer systems. The County Health Department has identified a number of rural communities whose failing septic systems threaten water quality in older, shallow wells. Many of these areas along MD 16 west of Cambridge are expected to be connected to the Cambridge WWTP in the next five to ten years. In addition, MDE and the Maryland Department of Agriculture (MDA) are developing guidelines that would allow trades between nonpoint sources (such as agriculture) and point sources. The County should work with the municipalities to identify and prioritize areas of failing septic systems and other nonpoint source pollution "hot spots" for potential inclusion in any trading system.

Additional Issues – Wastewater

Linking Sewer Supply to Development

The County does not operate a wastewater treatment plant (WWTP) and does not directly supply public sewer services. The County provides public water service to limited areas in the Cambridge vicinity. Thus, the County cannot use the provision of public sewer as a tool in guiding future development and redevelopment.

As with public water systems, the low-density nature of unincorporated portions of Dorchester County makes the construction and establishment of a new County-operated wastewater system a difficult proposition. Indeed, state regulations mandate that any new WWTP cannot discharge any nitrogen or phosphorus to surface waters. Thus, any County-operated WWTP would have to rely on land application or some other wastewater reuse technique. If the County were to implement such a system, it could potentially generate wastewater credits, which could be sold to other systems on the Eastern Shore.

To the degree that there are relatively concentrated areas of failing septic systems, the County may wish to study the feasibility of a new small-scale WWTP and collection system, tied to land application or a similar alternative form of discharge. Such an approach may be especially viable in locations where connection to an existing WWTP would be excessively expensive or technically challenging. Updates to

[8] Information available at: http://www.mde.state.md.us/Water/nutrientcap.asp

the Water and Sewer Master Plan should identify such areas and discuss the feasibility of a new County-operated public wastewater treatment plant and collection system.

As Municipal Growth Elements are prepared, Dorchester County should use the mandatory consultation period to address the appropriateness of proposed expansions of municipal water (and sewer) systems.

5. Programmatic Assessment of Nonpoint Source Policies

Nonpoint sources of nutrient pollution include agricultural run off, erosion and sediment from development, stormwater runoff from roads, atmospheric deposition, and any other source other than an outfall pipe. These sources are called nonpoint because they involve widely dispersed activities, and hence are difficult to measure. All non-point sources of pollution eventually reach the waters of the Chesapeake Bay unless filtered or retained by some structural or nonstructural technique.

Various technologies reduce nutrients from agricultural and developed lands. Nutrient reduction technologies for nonpoint source pollution are generally referred to as "Best Management Practices" (BMPs). Examples of these technologies include animal waste storage, agricultural nutrient management planning, stormwater settling ponds, and erosion controls. Natural controls or "low-impact development techniques are extremely effective in reducing the amount of pollutants that reach waterways. Woodlands and wetlands release fewer nutrients into the Bay than any other land use. For these reasons, forests, grasslands, and wetlands are critical to restoring and maintaining the health of the aquatic environment.

This section characterizes the policies and procedures in place to manage nonpoint source pollution in Dorchester County.

Maryland Stormwater Design Manual

The 2000 Maryland Stormwater Design Manual, Volumes I & II is incorporated by reference into the Dorchester County Code, and serves as the official guide for stormwater principles, methods, and practices. In addition, the County requires that all redevelopment projects reduce on-site impervious surface by 20 percent. The County encourages non-structural stormwater management techniques such as natural area conservation, sheet flow to buffers, and disconnection of rooftop runoff.

The 2007 Maryland Stormwater Management Act, passed by the General Assembly, mandates substantial revision of the Stormwater Design Manual. The most notable provision of the 2007 Act is the requirement that new development use Environmentally Sensitive Design (ESD) techniques, which are intended to "maintain pre-development runoff characteristics" on the site.[9] ESD techniques are based on the premise that stormwater management should not be seen as stormwater disposal. Instead of conveying and treating stormwater in large, costly end-of-pipe facilities located at the bottom of drainage areas, ESD addresses stormwater through the use of small, cost-effective landscape features that are frequently located onsite. It is an effective means of managing both stormwater quality and quantity.

As of early 2009, the revised Maryland Stormwater Design Manual and accompanying model regulations are available in draft form. The County should revise its Stormwater Management Ordinance to incorporate the forthcoming revision of the Maryland Stormwater Design Manual and other enhanced stormwater management policies recommended by MDE, pursuant to the Stormwater Management Act of 2007.

[9] Source: MDE. http://www.mde.state.md.us/assets/document/act%20-%20a%20state%20perspective.pdf

Land Preservation, Parks, and Recreation Plan

Dorchester County's 2005 Land Preservation, Parks, and Recreation Plan (LPPRP) was adopted as an amendment to the 1996 Comprehensive Plan, and contains numerous goals, policies, and implementation actions, many of which address issues similar to those analyzed as part of this WRE. Key implementation strategies that support the policies in this WRE are listed below.

- Develop a Transfer of Development Rights and Purchas of Development Rights program, if feasible.
- Look at measures to decrease development in agricultural areas, such as payment to the County to preserve land [equivalent to the amount being developed].
- The County must consider stronger agricultural zoning or consider other methods to ensure that development does not exceed land protection.
- Encourage all farms to have Soil Conservation and Water Quality Plans.
- Continue to establish and build upon greenways along the waterfront

In addition, the LPPRP contains a map of Priority Focus Areas—portions of the County where the purchase of agricultural easements by the Maryland Agricultural Land Preservation Foundation (MALPF), Maryland Environmental Trust (MET), and other entities should be concentrated. The Priority Preservation Areas include large portions of the Lower Choptank, Little Choptank, Marshyhope Creek, and Transquaking River watersheds. As will be discussed in Section 6, these watersheds are heavily impacted by nutrients. Easement purchases in these watersheds can help to reduce nutrient loading.

Other Nonpoint Source Management Policies and Considerations

Failing Septic Systems. A number of areas have been identified as either type 1 or type 2 septic system problem areas in the Water and Sewer Master Plan. Type 1 areas are areas with concentrated development where a sanitary survey has found and documented a high incidence of failing septic systems and the soil conditions and lot sizes make continued septic system correction impractical. Type 2 areas are areas with concentrated development where safe and reliable septic system operation is presumed to be difficult due to poor soil conditions and/or small lot size, however no sanitary survey has been conducted to document and define the problem.

The County should work with the municipalities to evaluate ways to address these areas of failing septic systems, either by connection to public sewer systems, or through the alternative wastewater disposal options discussed above. As described in Section 4, the County could also consider new wastewater collection and treatment systems, tied to land application (or another alternative disposal method) to address failing septic systems.

Septic Denitrification. The County does not currently require denitrification units for new or existing septic systems. The County should consider requiring the use of septic denitrification units in new construction outside of public wastewater systems, and encouraging denitrification retrofits for existing septic systems. The nonpoint source analysis in this WRE assumes that, under all three scenarios, half of all new rural (i.e., not connected to a public sewer system) residential and commercial development will utilize denitrification units, and that one-quarter of all existing units will be retrofitted with denitrifying units. Although not explicitly a goal of the 1996 Comprehensive Plan, this level of implementation is reasonably foreseeable in the next two decades.

Agriculture. Agriculture is important to the aesthetic and economic value of the County, but runoff from cropland, feedlots and other livestock operations carries nutrients and pollutants from manure, fertilizers, ammonia, pesticides, soil and sediment into waterways. Agriculture is a large contributor of nitrogen and

phosphorus to the Bay and its tributaries in Dorchester County. However, this impact can be reduced through the application of agricultural Best Management Practices (BMPs) such as planting cover crops, judicious use of fertilizer (especially animal manure), and maintaining appropriate buffers along rivers and streams. All farms in Dorchester County must already prepare and follow Nutrient Management Plans, and many farms also prepare Soil Conservation Plans.[10] The County should continue to work with the agricultural community to implement agricultural BMPs to the greatest degree feasible.

Sedimentation and Erosion. Sedimentation and other impacts resulting from construction activity, and increased stormwater flows to streams and rivers from development are also a potential threat to water quality. Most new non-agricultural development in Dorchester County requires a sedimentation and erosion control plan that is approved by the Dorchester County Soil Conservation District.

Open Section Roads. Outside of towns and populated areas where pedestrian facilities are a priority, new roads in the County should continue to be developed with open sections, to better disperse stormwater.

Stormwater Retrofits. Stormwater retrofits can help to reduce nonpoint source pollution, particularly in more densely developed areas. The County should identify locations where such retrofits could address concentrations of nonpoint source pollution ("hot spots"), or where retrofits can help to protect environmentally sensitive areas. Future retrofit funds and implementation activities should be targeted to these priority areas.

6. Total Nutrient Loads and Assimilative Capacity

Nutrient loads from point sources (WWTPs), stormwater, and other nonpoint sources are major contributors to degraded water quality in the Chesapeake Bay and its tributaries. This section evaluates existing and projected point and nonpoint source pollution loads.

Nonpoint Source Loading

Table 11 shows the estimated existing and future nonpoint source loading (nitrogen and phosphorus) in each 8-digit watershed under each of the three scenarios. Nonpoint source nutrient loads (including septic systems) were estimated using methodology developed by the Maryland Department of the Environment, as modified by the County to reflect revised nutrient loading rates. More detail on the nonpoint source evaluation methodology is presented in the Water Resources Element Appendix. Table 12 shows the total nutrient discharges, including nonpoint and point sources, as well as nutrient caps set by the Transquaking River TMDL (the only completed full-year nutrient TMDL). Both Tables 11 and 12 include nutrient discharges from the County's municipalities. The loadings described in Tables 11 and 12 represent estimates only, and intended only to facilitate comparison between scenarios.

All three scenarios would result in decreased nutrient loadings in all watersheds, compared to 2007 levels. This is due largely to the nonpoint source analysis assumption that nutrient-reducing Best Management Practices (BMPs) for urban stormwater and agricultural runoff would be more widely implemented by 2030. All three scenarios would produce comparable levels of nonpoint source nitrogen and phosphorus discharges (the highest and lowest scenarios are separated by less than 14,000 lbs/day of TN, about one half of one percent of the 2007 loading), although the PFA Focus scenario would have the lowest nonpoint source nutrient discharge.

[10] Source: Dorchester County Soil Conservation District. 2009. Testimony at Planning Commission Public Hearing, July 1.

Table 11. Nonpoint Source Nutrient Loading, By Land Use Scenario[1]

(all data in lbs/year)	Existing		Trends Scenario		PFA Focus Scenario		Hybrid Scenario	
Watershed	**TN**	**TP**	**TN**	**TP**	**TN**	**TP**	**TN**	**TP**
Lower Choptank River	498,298	37,211	333,515	25,141	329,735	25,227	331,589	25,184
Little Choptank River	364,675	24,822	254,453	16,932	251,154	16,769	252,727	16,850
Lower Chesapeake Bay	216,887	3,082	209,711	2,691	209,711	2,691	209,711	2,691
Honga River	135,525	5,683	115,337	4,077	113,387	4,012	114,346	4,044
Fishing Bay	444,510	23,685	336,298	16,421	334,230	16,298	335,246	16,358
Transquaking River	583,122	43,242	365,446	29,062	364,034	29,046	364,728	29,054
Nanticoke River	288,370	19,986	188,792	13,480	188,368	13,474	188,580	13,478
Marshyhope Creek	374,816	29,051	231,831	19,359	231,382	19,441	231,603	19,401
Total Nonpoint Source	**2,906,203**	**186,762**	**2,035,383**	**127,163**	**2,022,001**	**126,958**	**2,028,530**	**127,060**

Notes:

1: Includes septic systems. Septic assumptions for all future scenarios: 50% of new residential and nonresidential development uses nitrogen removal technology, 25% of existing (2007) residential and nonresidential development is retrofitted with nitrogen removal technology.

Total Nutrient Loading

Table 12 shows the total combined point and nonpoint source discharge in each 8-digit watershed under each of the three scenarios. This table combines the information in Tables 10 and 11. As with the nonpoint source loadings alone, all three scenarios would considerably reduce nutrient loading compared to existing levels, and all three scenarios would result in comparable levels of nonpoint source nitrogen and phosphorus discharges. The PFA Focus scenario would again have the lowest nutrient discharge, but only by a narrow margin compared to the other three scenarios. All three scenarios would achieve the nitrogen and phosphorus reductions required by the nutrient TMDLs for the Transquaking River watershed.

Impervious Surface

Impervious surfaces are primarily human-made surfaces that do not allow rainwater to enter the ground. Impervious cover creates runoff that causes stream bank erosion, sediment deposition into stream channels, increases in stream temperatures, and degradation of water quality and aquatic life. The amount of impervious surface in a watershed is a key indicator of water quality. Water quality in streams tends to decline as watersheds approach ten percent impervious coverage, and drops sharply when the watershed approaches 25 percent impervious coverage. Table 13 summarizes existing and potential impervious coverage in Dorchester County by watershed. Table A-9 in the WRE Appendix repeats these impervious surface calculations while excluding wetlands.

Countywide, 2.5 percent of all land (excluding open water within the County's boundaries) is impervious. Impervious surface coverage is moderately high in the Lower Choptank River watershed, where much of the County's developed land is found. However, impervious coverage in most other watersheds is relatively low—typically under three percent.

Table 12. Total Loading, By Land Use Scenario												
(all data in lbs/year)			**Lower Choptank River**	**Little Choptank River**	**Lower Chesapeake Bay**	**Honga River**	**Fishing Bay**	**Transquaking River**	**Nanticoke River**	**Marshyhope Creek**	**Total**
Existing (2007)	Nonpoint	TN	498,298	364,675	216,887	135,525	444,510	583,122	288,370	374,816	**2,906,203**
		TP	37,211	24,822	3,082	5,683	23,685	43,242	19,986	29,051	**186,762**
	Point	TN	55,386	0	0	0	0	0	4,000	5,000	**64,386**
		TP	8,846	0	0	0	0	0	1,283	1,000	**11,129**
	Total	**TN**	**553,684**	**364,675**	**216,887**	**135,525**	**444,510**	**583,122**	**292,370**	**379,816**	**2,970,589**
		TP	**46,057**	**24,822**	**3,082**	**5,683**	**23,685**	**43,242**	**21,269**	**30,051**	**197,891**
	Nutrient TMDL	TN						410,729			
		TP						29,298		*See Note*	
	Overage vs. TMDL	**TN**						172,393			
		TP						13,944			
Trends Scenario	Nonpoint	TN	333,515	254,453	209,711	115,337	336,298	365,446	188,792	231,831	**2,035,383**
		TP	25,141	16,932	2,691	4,077	16,421	29,062	13,480	19,359	**127,163**
	Point	TN	45,322	0	0	0	0	0	2,340	10,643	**58,305**
		TP	5,458	0	0	0	0	0	585	1,064	**7,107**
	Total	**TN**	**378,837**	**254,453**	**209,711**	**115,337**	**336,298**	**365,446**	**191,132**	**242,474**	**2,093,688**
		TP	**30,599**	**16,932**	**2,691**	**4,077**	**16,421**	**29,062**	**14,065**	**20,423**	**134,270**
	Overage vs. TMDL	**TN**						(45,283)			
		TP						(236)			
PFA Focus Scenario	Nonpoint	TN	329,735	251,154	209,711	113,387	334,230	364,034	188,368	231,382	**2,022,001**
		TP	25,227	16,769	2,691	4,012	16,298	29,046	13,474	19,441	**126,958**
	Point	TN	53,992	0	0	0	0	0	2,959	11,732	**68,683**
		TP	6,549	0	0	0	0	0	740	1,173	**8,462**
	Total	**TN**	**383,727**	**251,154**	**209,711**	**113,387**	**334,230**	**364,034**	**191,327**	**243,114**	**2,090,684**
		TP	**31,776**	**16,769**	**2,691**	**4,012**	**16,298**	**29,046**	**14,214**	**20,614**	**135,420**
	Overage vs. TMDL	**TN**						(46,695)			
		TP						(252)			
Hybrid Scenario	Nonpoint	TN	331,589	252,727	209,711	114,346	335,246	364,728	188,580	231,603	**2,028,530**
		TP	25,184	16,850	2,691	4,044	16,358	29,054	13,478	19,401	**127,060**
	Point	TN	49,728	0	0	0	0	0	2,654	11,196	**63,578**
		TP	6,012	0	0	0	0	0	664	1,120	**7,796**
	Total	**TN**	**381,317**	**252,727**	**209,711**	**114,346**	**335,246**	**364,728**	**191,234**	**242,799**	**2,092,108**
		TP	**31,196**	**16,850**	**2,691**	**4,044**	**16,358**	**29,054**	**14,142**	**20,521**	**134,856**
	Overage vs. TMDL	**TN**						(46,001)			
		TP						(244)			

Note for Table 12

The phosphorus TMDL for the entire Marshyhope Creek (including areas in Dorchester and Caroline Counties) is defined as 767 lbs/month. This includes 415 lbs/month for point sources and 249 lbs/month for nonpoint sources, only from May 1 through October 31. No phosphorus TMDL was established for the remainder of the year, and no subdivision of the TMDL exists specifically for Dorchester County.

The TMDL shown for the Transquaking River is for the nonpoint source nutrients. There is also a point source TMDL of 14,954 lbs per year TN and 1,496 lbs per year TP. The only point source in the watershed is the Darling International, Inc. rendering facility.

Table 13. Impervious Coverage

Watershed	Total Acreage[1]	Impervious Surface							
		Existing		Trends		PFA Focus		Hybrid	
		Acres	*Percent*	*Acres*	*Percent*	*Acres*	*Percent*	*Acres*	*Percent*
Lower Choptank River	37,954	2,892	7.6%	4,330	11.4%	3,277	8.6%	3,794	10.0%
Little Choptank River	47,382	1,696	3.6%	2,719	5.7%	1,705	3.6%	2,204	4.7%
Lower Chesapeake	5,143	1	0%	1	0%	1	0%	1	0%
Honga River	23,246	676	2.9%	949	4.1%	676	2.9%	811	3.5%
Fishing Bay	98,049	1,094	1.1%	1,627	1.7%	1,220	1.2%	1,419	1.4%
Transquaking River	69,209	733	1.1%	1,289	1.9%	733	1.1%	1,006	1.5%
Nanticoke River	36,435	481	1.3%	886	2.6%	493	1.5%	686	2.0%
Marshyhope Creek	37,829	1,140	3.0%	2,071	5.7%	1,167	3.2%	1,612	4.5%
Dorchester County	**355,247**	**8,713**	**2.5%**	**13,872**	**3.9%**	**9,273**	**2.6%**	**11,534**	**3.2%**

Notes:

1: Excludes open water within County boundaries.

Countywide impervious coverage would increase under all scenarios for all watersheds. The PFA Focus scenario would result in the smallest increase in impervious surface coverage, while the Trends scenario would push Countywide impervious surface close to four percent, and would increase the impervious surface share above 11 percent in the Lower Choptank Watershed. They Hybrid scenario would result in a moderate increase in Countywide impervious surface, and would bring the Lower Choptank watershed to approximately 10 percent impervious coverage.

Choice of Land Use Plan

A major goal of the Water Resources Element is to more closely link land use and development to water quality. Ideally, the Water Resources Element should use measures of assimilative capacity, such as completed TMDLs for nutrients, to guide direction of growth and land use patterns within the County. Because TMDLs have not been completed for the County's impaired 8-digit waterways, particularly the Choptank River, it is difficult for the County to clearly identify "appropriate" receiving waters for its point and nonpoint source nutrient loads, or to direct future growth toward those appropriate receiving waters.

Lacking this specific data, the Water Resources Element's broader goal of improving water quality should guide the County's choice of future land use plan. The preferred land use plan should minimize future

nutrient loads and impervious surface in all watersheds. While all three scenarios would produce similar nutrient loads, the PFA Focus scenario has consistently lower nutrient loads, and substantially lower impervious surface than other scenarios—it is the only scenario in which the Lower Choptank watershed does not approach the ten percent "tipping point."

However, the PFA Focus scenario—in which essentially *no* new development occurs outside of PFAs—could not be easily implemented in Dorchester County, even with strong growth controls outside of PFAs. While also ambitious, the Hybrid Scenario represents a more feasible approach. It would acknowledge the likelihood of some development in rural areas, while focusing the majority of growth (significantly more than past trends) into PFAs, where sewer and stormwater management infrastructure can help to minimize impacts on the County's waters.

Relationship to Local Land Use Goals

In 2009, the Senate Bill 276 was signed into law. The new law amends Article 66B, requiring the establishment of a statewide goal for increasing the amount of development within PFAs and decreasing development outside of PFAs. As part of this law, jurisdictions must also establish (beginning in 2011) local land use goals that increase development inside of PFAs. Each of the three scenarios evaluated in this Element would impact Dorchester County's ability to address these state and local goals.

The Trends scenario would essentially continue existing trends, in which approximately half of all new development occurs outside of PFAs. The Hybrid and PFA scenarios significantly increase the amount of development directed toward PFAs. Adoption of the PFA scenario as the County's preferred land use plan would result in the quickest progress toward the statewide (and eventually the local) land use goals. However, the Hybrid scenario, which directs 75 percent of new development to PFAs, is a distinct departure from current trends, and therefore strongly supports the state land use goal.

This Water Resources Element will be adopted as a stand-alone amendment to the County's 1996 Comprehensive Plan. In revising the full Comprehensive Plan, the County should take into account the findings of this section, and should choose a future land use plan that resembles the Hybrid Scenario. Upon completion of nutrient TMDLs for the County's impaired waterways, the County should adjust its future land use plan in subsequent Comprehensive Plan updates to direct future growth to the most appropriate locations.

7. Policies and Strategies

This section describes policies and implementation strategies that the County should pursue in order to achieve the goals of this Water Resources Element.

1. Work with MDE, MGS, and USGS to complete the Coastal Plain Aquifer Study, and use the results of this study to guide future decisions regarding groundwater withdrawals.
2. Work with MDE to identify new sources of drinking water, specifically by evaluating the quality and quantity of water in the County's deeper and less frequently used aquifers.
3. Update the County's building and land development codes to require water-conserving fixtures and appliances for all new development and retrofits.
4. Work with MDE, the Dorchester County Health Department to establish procedures for ensuring that new wells are drilled in locations (or into aquifers) where arsenic does not pose a health concern. In addition, develop a program to notify property owners in areas where arsenic contamination may be a problem and assist affected property owners with the installation of treatment equipment, or the drilling of a new well.

5. In cooperation with the County's municipalities, consider developing a joint Water Conservation Plan.
6. Update the County's Water and Sewer Master Plan to reflect revised population and public water/sewer system data, and to address the following WRE recommendations:
    - Identify unincorporated areas in the County where a new County-operated public water system, to replace existing individual wells, might be appropriate.
    - Identify unincorporated areas in the County where a new County-operated public sewer system, to replace existing individual septic systems, might be appropriate and feasible—taking into consideration the inability to create a new surface water discharge point from such a system.
7. Use the Municipal Growth Element coordination process to help guide expansion of municipal water and sewer service.
8. Work with municipalities to extend public sewer service to existing communities identified as failing septic areas in the County's Comprehensive Water and Sewer Plan.
9. Work with municipalities to identify and implement alternative wastewater disposal methods, such as land application of treated wastewater, tertiary treatment wetlands, wastewater reuse, and nutrient trading.
10. Consider requiring all new development outside of public sewer service areas to use septic denitrification systems.
11. Work with MDE and the Department of Natural Resources (DNR) to encourage retrofit of existing septic systems with denitrification units.
12. Amend the County's Stormwater Management ordinance to incorporate by reference the Maryland Stormwater Design manual, as revised by MDE to reflect provisions of the Stormwater Management Act of 2007—including the required use of ESD for new development.
13. Work with MDE, DNR, and the Maryland Department of Agriculture (MDA) to assist farmers in adopting best management practices, to reduce nonpoint source loads of nutrients and other pollutants.
14. Continue to support land preservation activities such as MALPF, Rural Legacy, the Maryland Environmental Trust, and other public and private entities, specifically encouraging such activities on land that drains to Tier II waterways, and in sub-watersheds where impervious coverage approaches or exceeds 10 percent.
15. As part of the ongoing Comprehensive Plan update, adopt a future land use plan and growth management strategies (such as Transfer of Development Rights, zoning requirements, and other approaches) that resembles the Hybrid model described in this WRE.
16. As part of future Comprehensive Plan updates, re-run the nonpoint source loading analysis, incorporating up-to-date land use and any changes to the state's default model.
17. In conjunction with MDE and Talbot, Caroline, Wicomico, and Sussex (DE) Counties, consider establishing a regional water resources committee whose purpose would be to coordinate decisions involving groundwater, surface water discharges, and growth and development.