COMPREHENSIVE PLAN 2010 UPDATE

Adopted: January 20, 2011

TOWN OF

CHESAPEAKE BEACH

MARYLAND

TABLE OF CONTENTS

SECTION 1. INTRODUCTION 1
1.1 Purpose Of The Comprehensive Plan 1
1.2 Planning Process 1
1.3 Location 2
1.4 Report Organization 3
SECTION 2. EXISTING CONDITIONS 5
2.1 Ongoing Plans and Projects 5
A. Projected Development as of 2010 7
2.2 Demographics And Economics 8
A. Population 8
B. Age 10
C. Households 11
D. Economic Structure 13
E. Employment, Earnings, and Income 14
2.3 Natural Features 15
A. Fishing Creek, Floodplain, Tidal and Non-Tidal Wetlands 15
B. Groundwater 16
C. Soils 16
D. Natural Heritage Area 16
E. Critical Area 18
2.4 Land Use 22
A. Surrounding Area Land Use 22
B. Existing Land Use 24
C. Zoning in Chesapeake Beach 26
2.5 Transportation And Circulation 28
A. Regional Highway Access 28
B. Regional and County Transit Access 29
C. Roads and Highways 29
D. Local Circulation and Safety 30
2.6 Community Facilities And Services 32
A. Public Water Supply 32
B. Public Sanitary Sewer Service 32
C. Schools 36
D. Public Library 38
E. Park and Recreation Facilities 39
F. Chesapeake Beach Railway Right-of-Way: Development Project 39
G. Fishing Creek Park and segment of ROW Trail – Chesapeake Beach: Development Project 40

H. Northeast Sector Park 40
I. Fire and Police Protection 41
J. Hospital and Emergency Facilities 43
SECTION 3. THE MUNICIPAL GROWTH ELEMENT 45
3.1 Changes In Growth: An Historic Overview Of Chesapeake Beach 45
3.2 Changes In Land Use 46
3.3 Issues: Growth Limitations In Chesapeake Beach 46
3.4 Population And Development Projections 47
3.5 Assumptions 48
3.6 Public Safety 50
3.7 Water and Sewer Facilities 50
A. Current Inventory 50
B. Demands From Projected Growth 51
3.8 Stormwater Management Systems 52
3.9 Recreation 53
3.10 Financing Infrastructure Growth 53
3.11 Buffering Growth 54
3.12 Burden On Services And Infrastructure In Areas Close To The Municipal Growth Area 54
3.13 Protection Of Sensitive Areas 55
3.14 The Relationship Of Long-Term Development Policy To Future Character 55
SECTION 4. THE WATER RESOURCES ELEMENT 56
4.1 Introduction 56
4.2 Drinking Water 56
A. Boundary 56
B. Assessments and Methods 57
C. Existing Water Supply 58
D. Quality Of Existing Water Supply 58
E. Individual Drilled Wells 59
F. Future Water Demand 59
G. Future Water Supply 59
H. Recommendations 60
I. Policies And Planning Strategies 60
4.3 Wastewater 61
A. Assessments And Methods 61
B. Existing Septic Systems 61
C. Existing Wastewater System 61
D. Future Wastewater Demand 63
E. Future Wastewater System 65

F. Policies And Planning Strategies 66
4.4 Stormwater Management 68
A. Stormwater Ordinance 68
B. Affected Stream Bodies 69
C. Sources of Nitrogen and Phosphorus Pollution 70
D. Impervious Surface and Tree Cover 73
4.5 POLICIES AND PLANNING STRATEGIES 79
SECTION 5. FUTURE CONDITIONS 80
5.1 Household And Population Growth 80
A. Opportunities 81
B. Constraints 81
C. Waterfront Location 82
D. Regional Location 82
E. Growth Management Policies 83
5.2 Summary 83
SECTION 6. THE COMPREHENSIVE PLAN 84
6.1 Introduction 84
A. Description of the Proposed Zoning Map 86
B. Specific Changes since the 2002 Comprehensive Plan 86
6.2 Development In Balance With Natural Resources 87
A. Background 87
B. Guiding Principles 88
C. Proposition 89
D. Objectives 89
E. Policies and Actions 90
6.3 Development In Balance With Community Character 90
A. Background 90
B. Guiding Principles 90
C. Objectives 91
D. Policies and Actions 91
6.4 Development In Balance With The Pattern Of The Town 92
A. Background 92
B. Guiding Principles 92
C. Proposition 93
D. Objectives 93
E. Policies and Actions 94
6.5 Development In Balance With Community Facilities and Services 97
A. Background 97
B. Guiding Principles 97

C. Proposition 97
D. Objectives 97
E. Policies and Actions 97
6.6 Development In Balance With Regional Planning Policies 98
A. Background 98
B. Principles 98
C. Proposition 99
D. Objectives 99
E. Policies 99
6.7 Implementation 100
A. Funding Mechanisms 100
B. Regulatory Mechanisms 101
C. Continued Planning Program 101
6.8 Conclusion 101
SECTION 7. APPENDIX OF TABLES 103
Table 1 : Population Growth by Decade: Chesapeake Beach and Calvert County 103
Table 2 : Town of Chesapeake Beach Growing 4.6 Percent per Year; 2002 Chesapeake Beach Comprehensive Plan 103
Table 3 : Town of Chesapeake Beach as 4.3% of Calvert County; 2004 Calvert County Comprehensive Plan Projections (MDP) 104
Table 4 : Town of Chesapeake Beach as 50 Percent of TAZ 1153 of TAD 205 (MWCOG) 104
Table 5 : Dwelling Unit Projections per Year 104
Table 6 : Population Projections U.S Census Bureau population projection and Dwelling Unit Projections (2009-2016) 105
Table 7 : Population by Age Group: 2000 105
Table 8 : Household Growth by Decade: Chesapeake Beach and Calvert County 105
Table 9 : Households in Chesapeake Beach: 2000 106
Table 10 : Town of Chesapeake Beach Growth by Past Development 106
Table 11 : Median Household Income By Area 107
Table 12 : Threatened / Endangered Species: Randle Cliffs Natural Heritage Area 107
Table 13 : Acreage in Critical Area Zones: 2010 108
Table 14 : Current Zoning District Descriptions 108
Table 15 : Total Density Calculations 110
Table 16 : Available Developable Land within Town Boundaries 111
Table 17 : Traffic Volumes on MD 260 and 261: 1970 and 2000 111
Table 18 : Chesapeake Beach Water Wells 112

Table 19 : Chesapeake Beach Water Tanks 112
Table 20 : Existing Town Parks and Recreation Facilities 113
Table 21 : Past Population Change (provided by MDP) 114
Table 22 : Town of Chesapeake Beach Growth by Future Planned Development (2009-2016) 115
Table 23 : Proposed Development 2009-2016 116
Table 24 : Chesapeake Beach Sewer and Water Master Plan Planned Development (2006-2020) 117
Table 25 : Planned Development (2009 – 2016) 118
Table 26 : Dwelling Unit Projections per Year 119
Table 27 : Chesapeake Beach WWTP Effluent Performance 119
Table 28 : Chesapeake Beach WWTP ENR Goals 120
Table 29 : Projected Water Demand 120
Table 30 : Opinion of Probable Cost 121
Table 31 : Interjurisdictional Sewage Allocations 121
Table 32 : NPDES Permit Limits 122
Table 33 : Chesapeake Beach WWTP ENR Goals 122
Table 34 : Required Effluent TP for Tier 2 123
Table 35 : ENR Goals for the Chesapeake Beach WWTP 123
Table 36 : Groundwater Pollutants 124
Table 37 : Land Use Descriptions 125
Table 38 Pupil Yields Based Upon Housing Type and Grade 126
Table 39 : Projected Pupil Yields 126
Table 40 Alternate Analysis of Pupil Yield 127
Table 41 : Comparison of Enrollment Projections for Board of Education to Alternate Analysis Pupil Yield 128
Table 42 : Comparison of County & Town Residential Building Permits to Enrollment 129
Table 43 : Wastewater Treatment Capacity Distribution 129
Table 44 : Analysis of Available Sewer Capacity for Town 130
SECTION 8. GLOSSARY 132

INDEX OF FIGURES

Figure 1 Population of Chesapeake Beach 9
Figure 2 Population of Calvert County 10
Figure 3 Housing Unit Occupancy Rate 11
Figure 4 Households in Chesapeake Beach 12

Figure 5 Business Establishments: 1999 14
Figure 6 Land Use/Natural Area Compatibility 89

COMPREHENSIVE PLAN
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SECTION 1.
INTRODUCTION

The meeting of the Chesapeake Bay and the Fishing Creek floodplain together with human activities and structures forms an impressive ecosystem. The Town of Chesapeake Beach has grown to encompass this system, both capitalizing and being constrained by it. Neighborhoods, separated by floodplains, marshlands, and steep slopes have developed into unique communities. The Town is a clustering of neighborhoods nestled among natural features. Comprehensive Planning in Chesapeake Beach takes place in this most basic context.

1.1 PURPOSE OF THE COMPREHENSIVE PLAN

A comprehensive plan sets forth policies governing growth, development and conservation. It is long-range, general, and comprehensive.

Long range: The plan is forward-looking. It provides for future needs.

General: The plan does not focus on matters of detail which can distract from important polices and proposals.

Comprehensive: The plan uncovers relationships between local and regional factors that impact development. It addresses major elements of the natural and built environment.

A Comprehensive Plan expresses basic community goals regarding future development. It does not predict future events. As a guide, a comprehensive plan allows a community to make day-to-day development decisions on the basis of reasoned and adopted policies, rather than on the individual merits of particular proposals.

This 2010 Comprehensive Plan is an update of the 2002 Comprehensive Plan through the addition of the Municipal Growth Element and Water Resources Element. Certain statistical data has been updated, where available, and other editorial updates have been made.

1.2 PLANNING PROCESS

The Town Planning and Zoning Commission prepared this Comprehensive Plan as called for by Article 66B of the Annotated Code of Maryland.

Public participation was accomplished through a series of town and neighborhood meetings held through the summer of 2007 and through open work sessions and public hearings sponsored by the Town Planning and Zoning Commission during 2009 and 2010.

The Planning and Zoning Commission documented residents' concerns and issues through the minutes of its town and neighborhood meetings. The major planning issue centered on how to maintain the "small-town" character in light of growth pressures. Residents expressed long range planning concerns including:

- Impact of new development on existing neighborhoods;

- Compatibility of new development with existing buildings and streets;
- Pedestrian safety and accessibility;
- Impact of new development on the existing road network; and
- Environmental quality.

1.3 LOCATION

The location of Chesapeake Beach may be defined at several levels (see the Regional Location Map on Page 4).

- Washington Metropolitan Area: An area encompassing 4.5 million people and 3.4 million jobs and one of the wealthiest and fastest growing metropolitan areas in the United States. The Town is located within 30 miles of Washington D.C. and 20 miles of Annapolis, Maryland.
- Calvert County: According to the Maryland Department of Planning, Planning Data Services, Calvert County has been among the fastest growing counties in Maryland for decades. County population grew by 45 percent between 1990 and 2000, while Chesapeake Beach grew 32.3%. From April 1, 2000 through July 1, 2008 (most recent available data) the growth for Calvert County slowed to 19 percent and, the Chesapeake Beach population also slowed to 6.9 percent
- Northeastern quadrant of Calvert County: An area that has grown at a rate faster than the County as a whole over recent decades. Chesapeake Beach lies south of and adjacent to North Beach, a town of nearly 1,900 residents.
- On the Chesapeake Bay: Chesapeake Beach is one of only a handful of Maryland municipalities located on the Chesapeake Bay or one of its major tributaries. The Town's shoreline with the Bay extends 2.3 miles.

1.4 REPORT ORGANIZATION

This Comprehensive Plan report is organized into six sections, with appendix of tables and a glossary.

Section 1: Introduction

Section 2: Existing Conditions

Section 3: Municipal Growth

Section 4: Water Resources

Section 5: Future Conditions

Section 6: The Comprehensive Plan

Regional Location
Town of Chesapeake Beach
Kent County
Montgomery County
Anne Arundel County
Queen Annes County
District Of Columbia
Talbot County
Virginia
Prince Georges County
Chesapeake Bay
Calvert County
10 miles
Charles County
20 miles
Dorchester County
St. Mary's County
30 miles
Virginia
Potomac River
Chesapeake Beach
Roads
Prince Frederick
U.S Road
Interstate
State or County Road
SCALE 1" = 9 miles
9 0 9 Miles

SECTION 2.
EXISTING CONDITIONS

The Town is situated in a relatively wealthy county and region. The Chesapeake Bay, Fishing Creek, and associated flood lands, wetlands, and steep slopes are major natural features. Fishing Creek is unique among Maryland's rivers and very sensitive to disturbance in its watershed. Access into Town is limited and recurring congestion is apparent on main roads. Local businesses are generally small and primarily fall within the food services sector. Within Town, commercial uses appear to be slowly moving into some predominately residential areas. The Town continues to improve recreational and pedestrian amenities to service the anticipated demand in the housing and tourism real estate markets. For example, several new residential subdivisions are under development in the Town, and two will be connected to the Town's center upon completion of the Chesapeake Beach Railway Trail. Additionally, expanding the sidewalk network could capitalize on the traditional and compact road network, which is conducive to walking. Generally, a network of public and quasi-public agencies provides community facilities in Chesapeake Beach; however, the main public facilities impacted by growth and changes are well provided for. The Town's population has been growing steadily, with children and seniors making up one-third of the population. Geographic expansion of the Town is complicated by County land preservation policies, such as the large amount of Critical Area within the Town's boundaries, which have removed development potential from properties along the Town's western limits.

2.1 ONGOING PLANS AND PROJECTS

Ongoing public and private projects and plans help define baseline conditions. They also say much about expectations for future growth and development. The list below summarizes major public works projects. Some have firm funding commitments. Others, especially long-range highway projects, are less certain.

Most public works projects require cooperation among various levels and agencies of government and to some extent, the private sector. This being said, the Town's continued leadership will be necessary for implementation. Where it is clear that projects are solely the responsibility of the State of Maryland, it is so designated below. Listing of a project does not denote a recommendation, only that the project is in some stage of planning and/or implementation.

Short Term: 1 – 3 years

- Mallard Properties - Remove Tornado damage from June 2006, re-landscape with Native Species
- Enhanced Nutrient Removal upgrade of Wastewater Treatment Plant
- D Street Sewer replacement
- Public Works Storage Building at Chesapeake Village Water Tower site
- Prioritization of streets for repaving scheduling/budgeting
- Dredge Spoils Site Renovation
- Select and Implement Document Management System

- Wastewater re-use - Install "Purple Pipe" from treatment Plant to Kellam Fields for landscape watering.
- Chesapeake Beach Railway Trail
- Kellam's Ball fields Improvements
- Re-decking the remainder of Bay Front Park Boardwalk
- State Leased Boat Ramps at Rod 'n Reel Marina, West - Replace last boat ramp
- Skate Park
- Water Park - Cosmetic upgrades, expand snack bar, add new major feature
- Security Lighting along Bay Front Park Boardwalk

Intermediate Term: 3 – 10 years

- Maintenance Dredge of Fishing Creek
- Continued evaluation of viability of Wind Turbine/Alternate Energy
- Install 12" water line from Old Bayside Road Water Tower to the 'old' system
- Upon completion of ENR Upgrade, connect previously installed "Purple Pipe" to treatment plant effluent, supply water to Kellam Fields for landscape watering
- Expand recycled effluent for landscape watering to other Town Properties as funding becomes available
- Enhance Street Tree plantings, Clean up "Bottle Dump", phragmites removal, as mitigation funds become available
- Correct an original mistake in the land use designation by rezoning about 4.55 acres± of Resource Conservation Area at Public Works/Treatment Plant to Intensely Developed Area with Modified Buffer Area (MBA)

Long Term: 10 to 20 years and beyond

- Investigate sewer service to about 60 homes on Old Bayside Road, not presently served by sewer.

State Highway Administration

- Lane improvements at Bayside Road and Mears Avenue to create a northbound right turn through lane
- Fishing Creek Bridge replacement

Among private development projects, only major projects are listed.

- Richfield Station residential subdivision – The only project mentioned in the 2002 Comprehensive Plan, still developing.
- Chesapeake Village residential subdivision

A. Projected Development as of 2010

The following Projects have received Preliminary or Final Planning Commission Approval, though no construction has started, to date:

- Richfield Station and Chesapeake Village are two longer-term projects, which are still actively developing. Richfield Station has virtually completed all of the land planned for Single-Family Homes, leaving the land in the Critical Area remaining for primarily Townhouse and Multi-family development. Chesapeake Village has recorded 180+ of the preliminarily approved lots (219) and is still requesting permits for and building new homes.
- The Heritage – A 74 lot Single-Family development at the southwest corner of the intersection of Cox Road and Chesapeake Beach Road. This project has received Preliminary Approval of the Planning Commission.
- Stinnett's Place Condominiums comprises two 16 unit multi-family buildings at Bayside Road and 31st Street. Permits have been issued, though no construction has commenced.
- Rockwell is an 8 unit Townhouse Project on the north side of Cox Road, generally across from Bayview Hills Drive. The Development Plans and the Final Plat are approved.
- The Home Place is a mixed-use residential project on the north side of Cox Road near the eastern end. It is proposed to have 1 new single-family home and 2-12 unit multi-family buildings. All approvals have been obtained and infrastructure permits issued. No construction has started, at this time.
- Harbor Vista North is a single 16 unit multi-family building located at Rod n' Reel Marina, West (the former Fishing Creek Landings Marina) on Gordon Stinnett Avenue. The Development Plan is approved, though no final plats have been submitted to the Planning Commission for Final Approval.

The following are possible projects, which the land owner/developer has had informal discussions with the Zoning Administrator as to permissible density and unit mixes:

- Chesapeake Beach Properties lies to the west of Bayview Hills and is thought to be able to create up to 50 town homes.
- Fishing Creek Condominiums is proposed on the Abner's Marina boatyard. While a concept plan was submitted, it has not progressed any further, at this time.

- Harbor Vista (South and North) – Around 2002, the (then) owner received preliminary approval from the Planning Commission of plans for the remaining undeveloped land at Fishing Creek Landings Marina. The property is now under new ownership and while there have been no formal submittals, it seems that a re-design of the project to scale it back somewhat, is contemplated.
- Sunrise on the Chesapeake is considered to be a 12 unit multi-family, replacing 2 single-family houses on 28th Street

In 2010, the Town's goals include:

- Improving pedestrian safety and accessibility throughout Town.
- Expanding public water and sewer capacity to serve ongoing residential development.
- Expanding recreational amenities.
- Explore the possibility of a performing arts center.
- Support exploration of possibilities to increase environmental awareness.

Intervals of development in the Town will continue to be predicated on the capacity of the wastewater treatment plant, though mostly upon the economy. Additionally, growth in the area will necessitate increasing the Town's groundwater allocation permit.

2.2 DEMOGRAPHICS AND ECONOMICS

This overview compares the Town's population and housing to Calvert County, and where relevant, to the Washington metropolitan area. In so doing, it provides a point of reference so local statistics are seen in a meaningful and broader context.

A. Population[1]

Factors contributing to population growth in Chesapeake Beach since 1960 have included:

- Conversion of summer homes to year-round residences, [2]
- Annexation of Richfield Station, Chesapeake Village and a pocket of land just east of Harrison Boulevard,
- High-density residential zoning provisions, and
- Public water and sewer expansions.

[1] The source of population, age, and housing data in this report is the U.S. Census with analysis, summary, and presentation by Jakubiak & Associates, Inc., updated with data from the MDP Data Center

[2] The conversion of seasonal housing to year-round housing accounted for at least two-thirds of the Town's population growth

Between 1960 and 2008, the Town added nearly 2,670 full time residents, as shown below. The most significant growth occurred during the 1980s, when population grew by 71 percent, or at an average annual rate of 5.49 percent.

Figure 1 Population of Chesapeake Beach

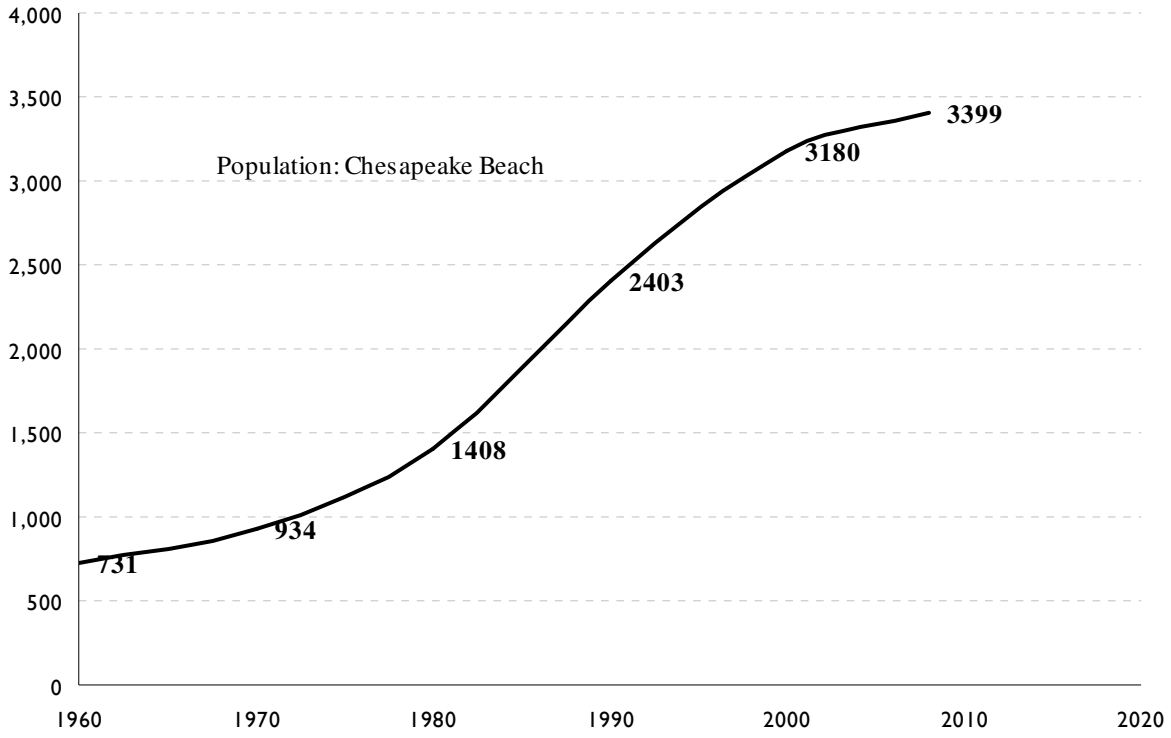
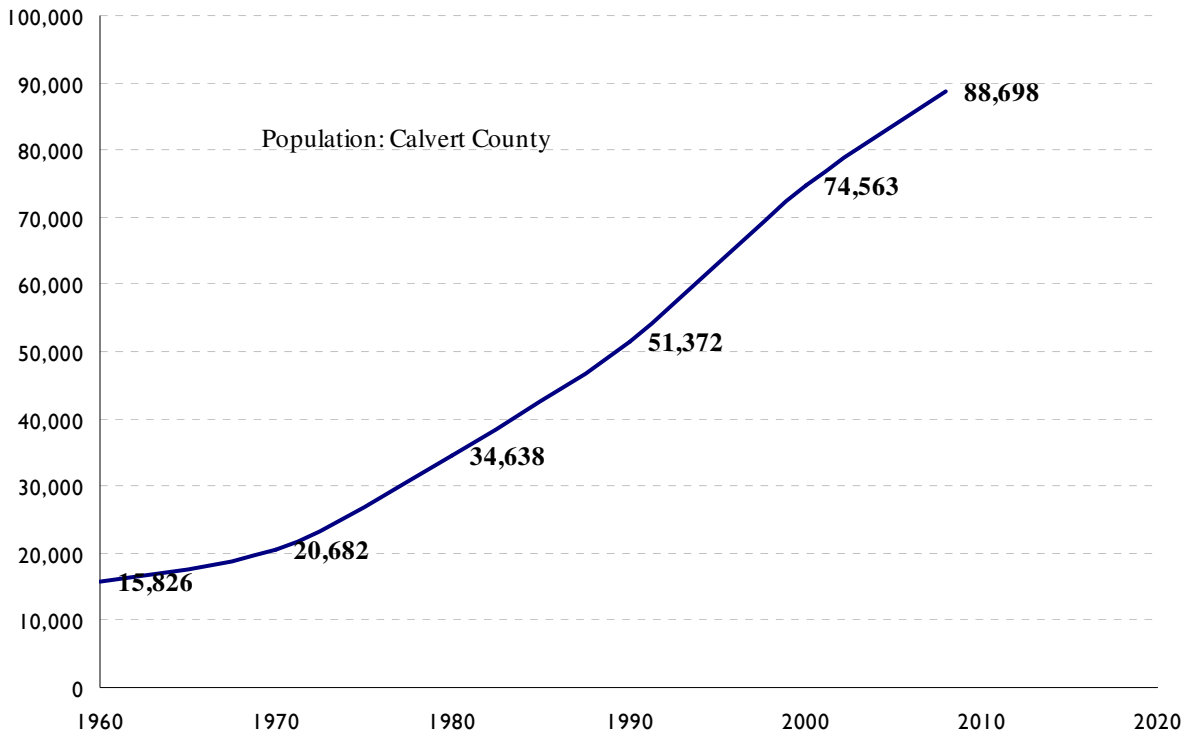


Figure 2 Population of Calvert County



The County has grown significantly, mainly through in-migration. Until 2000, the Town's population has consistently comprised between 4 and 5 percent of Calvert County's population. Between 1960 and 2000, the County grew at an average annual rate of 3.66 percent, somewhat faster than the Town's 3.25%.[3] As seen in Table 1 the annual growth rate peaked in the 1980 – 1990 decade and has slowed since. Table 2 gives a perspective of the anticipated population growth at the time of the adoption of the 2002 Comprehensive Plan. At that time it assumed a growth of 4.6% per year. Comparing the Census estimate dated July 1, 2008, to the then projected growth rate, we see that the Town actually grew at a slowing rate. According to the U.S. Census Bureau population projections, approximately 3,399 people lived in the Town of Chesapeake Beach in the year 2008.

B. Age

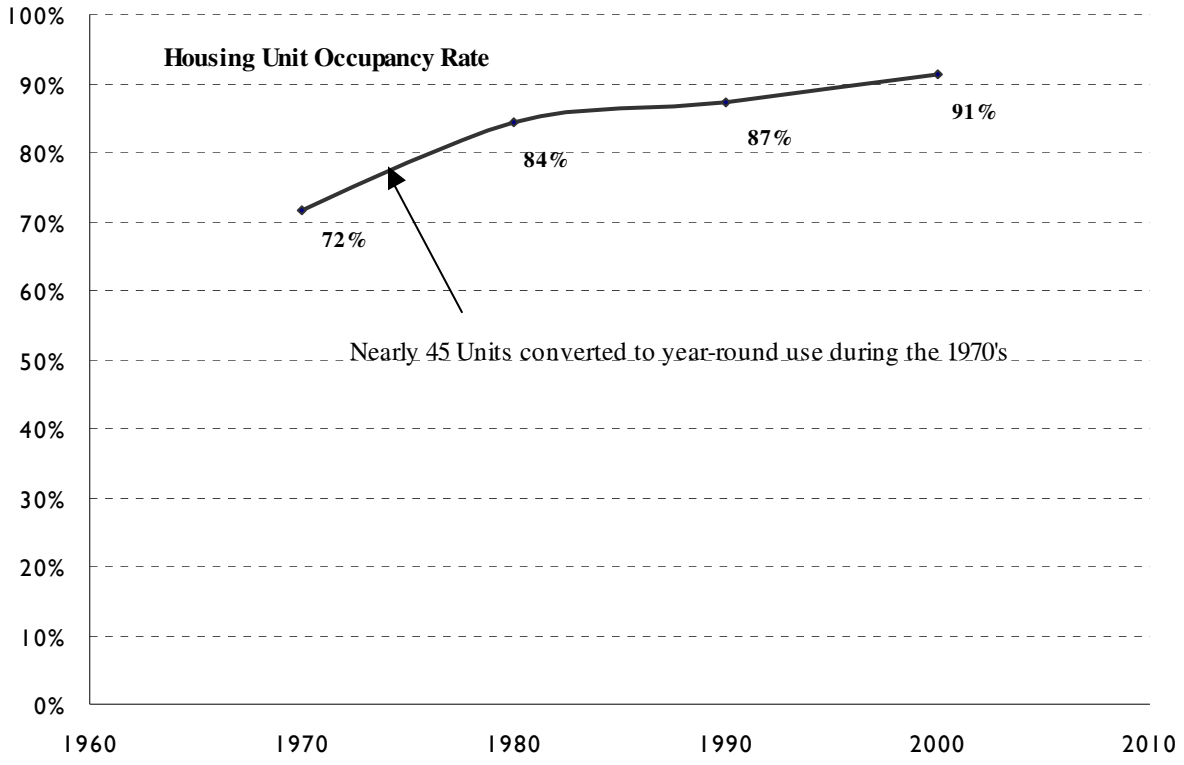
Table 7 shows the composition of population by age, which is an important indication of community character. In 2000, the median age of Town residents equaled that of the County: 35.9 years. The Town's age structure differed only slightly from the County's. One in every three Town residents is a child or senior citizen; compared to about 39 percent countywide. This may be updated after the 2010 Census.

[3] Both Calvert County and Chesapeake Beach grew much faster than the Washington Primary Metropolitan Statistical Area (PMSA), which grew at an average annual rate of 1.33 percent between 1970 and 2000. The Town and County have been recipients of the long-term decentralization of population from more urban locations in the metropolitan area.

C. Households

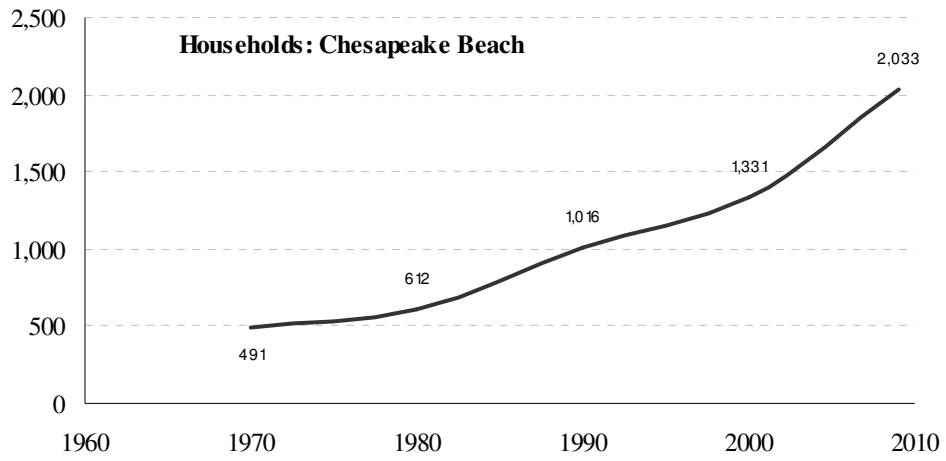
The data presented in this section concern households, which for Chesapeake Beach translate into occupied housing units. The increasing conversion of seasonal housing into year-round housing has caused the vacancy rate in the Town to fall and the occupancy rate to rise; approximately 91 percent of all units were considered occupied in 2000, up from 72 percent in 1970. Housing unit occupancy in the Town now approximates that found throughout Calvert County (about 92 percent).

Figure 3 Housing Unit Occupancy Rate



As can be seen in Figure 4, between 1970 and 2000, the Town added nearly 840 households (occupied housing units). The most significant household growth in the Town occurred during the 1980s when households were added at an average annual rate of 5.57 percent per year. As of 2002, the construction of new households outpaced population growth, due mostly to the long-term reduction in average household size. Between 1970 and 2000, average household size in Chesapeake Beach fell from 3.0 to 2.61 persons per household. Table 8 compares annual growth rates in each decade with the 30-year annual average (4.65 percent). This may be updated after the 2010 Census

Figure 4 Households in Chesapeake Beach



The figure, above, depicts the number of households in Chesapeake Beach. It has been revised since the 2002 Comprehensive Plan, to reflect all households, whether owner or renter occupied, since the Town seems to be gravitating to a larger percentage of owner-occupied households. The 2009 value of 2033 comes from the count of households maintained for purposes of the contract with the trash haulers for the Town. That value was last updated on July 31, 2009. The results of the 2010 Census may warrant returning to only owner-occupied Households being shown.
Table 9 shows that in 2000, approximately 71 percent (863 households) of all households were family-households, meaning they were composed of persons related to the householder by birth, marriage, or adoption. Approximately 29 percent of households in 2000 were considered "non-family households". This may be updated after the 2010 Census.

Other relevant findings from the 2000 Census regarding households include:

- About 40 percent of households had children;
- About 15 percent of households had one or more persons 65 years of age or older;
- About 22 percent of households were one-person households; and
- About 77 percent of households were owner-occupied and 23 percent renter-occupied.

Residential development in the Town of Chesapeake Beach between 2005 and 2009 is documented in Table 10 . During this period, Bayview Hills substantially built out, Richfield Station continued a relatively steady pace, Horizons-on-the-Bay was built and Chesapeake Village started.

D. Economic Structure[4]

A basic analysis of the economic structure can help illuminate land development patterns, such as the composition and character of the commercial land use base. Chesapeake Beach contains 67 private business establishments.

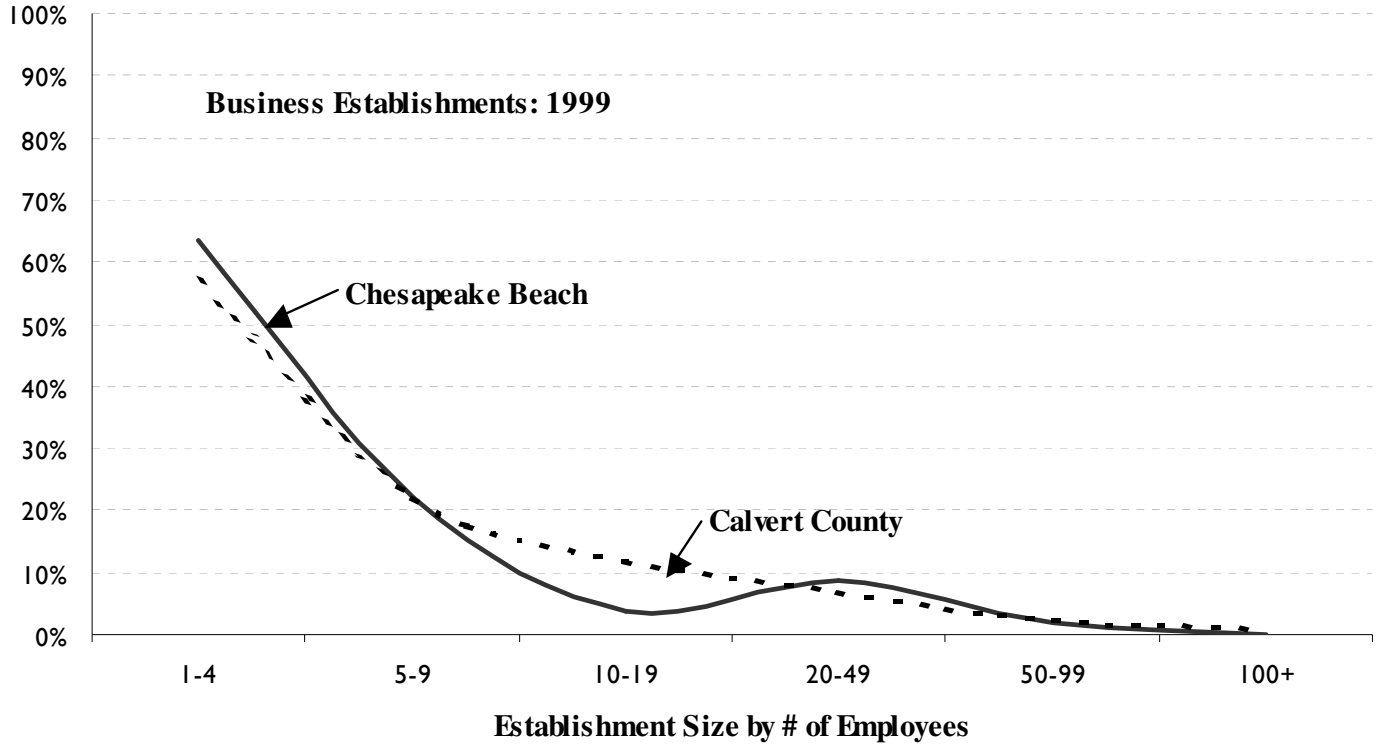
Utilities (1)
Construction (1)
Retail Trade (6)
Transportation, Warehousing (4)
Finance, Insurance (4)
Real Estate (5)
Professional, Scientific, Technical Services (15)
Educational Services (1)
Health Care, Social Assistance (1)
Arts, Entertainment, Recreation (4)
Accommodation, Food Services (19)
Other Services (6)

The following figure shows the distribution of business establishments by employment class (i.e. 1-4 employees, 5-9 employees, etc.) in Chesapeake Beach and the County, as a whole. Overall, Chesapeake Beach's business pattern is dominated by very small businesses, much like the countywide pattern. In fact, 63 percent of all establishments in Chesapeake Beach have fewer than four employees.[5]

[4] The sources of economic data provided herein are the U.S. Bureau of Economic Analysis, U.S. Census, and in particular the Census' County Business Patterns. Analysis, summary, and presentation: Jakubiak & Associates, Inc.

[5] Within the Washington Metropolitan Statistical Area, business establishments are much more evenly distributed among the various employment classes, with a lower share of establishments within the smallest employment class of 1-4 employees (53%).

Figure 5 Business Establishments: 1999



The most striking difference in business size occurs in the class of establishments employing 10-19 people where less than 4 percent of business establishments in Chesapeake Beach have 10-19 employees, compared to about 12 percent in Calvert County. The largest employers in Chesapeake Beach are found in the Accommodations and Food Service sector.

E. Employment, Earnings, and Income

A broader view of economic character and change is discerned at the county and regional level. Between 1970 and 2000 the number of jobs in Calvert County increased from 6,200 to well over 20,000 jobs. During the same period, the number of jobs in the metropolitan area increased from 1.65 million to 3.4 million.

The imbalance in population and jobs in Calvert County means that a relatively high percent of residents commute to other locations for employment—most notably to Prince George's County and Washington, DC, and also to Anne Arundel, Charles, and St. Mary's Counties. At least 60 percent of the County's labor force commutes to locations outside of Calvert County.

Since 1970, the structure of the County and regional economy has shifted away from Agriculture toward Retail and Service sectors. In terms of earnings from employment, the largest County industry sectors in

1999 were Services, Transportation and Pubic Utilities, and Government. Within the metropolitan region, Services and Government stand out as the largest industry sectors.

Earnings growth has been strong in Calvert County, relative to the region. Earnings of persons employed in Calvert County increased at an annual average growth rate of 7 percent between 1989 and 1999. This compares to an annual rate of increase within the metropolitan area of 5.4 percent.

County median household income (in inflation adjusted dollars) remained unchanged between 1990 and 1999 at $61,800. This income exceeded the level recorded in the Maryland portion of the Washington PMSA as shown in Table 11 . However, since 1999, earnings of Calvert County residents have increased to $ 108,200. This has fallen slightly below the Washington Metropolitan Statistical Area earnings of $ 114,500.

2.3 NATURAL FEATURES

The Chesapeake Bay and the Fishing Creek floodplain and tidal marshes form the dominant natural system in Chesapeake Beach. Fishing Creek enters the Chesapeake Bay in the Town of Chesapeake Beach. Sea level tidal marshes are surrounded by steeply sloping terrain reaching elevations over 125 feet above sea level in many places. Wildlife habitat, intact wooded uplands, and shoreline cliffs are also present. These and other key natural features and sensitive areas in Chesapeake Beach are documented thoroughly in the Town's Chesapeake Bay Critical Area Program (adopted in 1988).

The Environmental Factors Map included on page 17 shows the general location of steep slopes, the 100-year floodplain, and tidal marshlands and wetlands within, and immediately adjacent to, the Town. These features help define the limits of development potential.

A. Fishing Creek, Floodplain, Tidal and Non-Tidal Wetlands

Fishing Creek is a direct tributary to the Chesapeake Bay. Unlike most Maryland streams its size, Fishing Creek flows directly into the Bay rather than into a larger system of streams or rivers. In this respect, it is among streams unique in Maryland.

The watershed drained by Fishing Creek extends far beyond the Town's borders. See the Fishing Creek Sub-watershed Map on Page 76. It encompasses lands enclosed within familiar ridgelines: notable roads and highways follow these ridgelines such as MD 2 to the west and Dalrymple - Guy Hardesty Roads to the south. On the north, the watershed is formed by Mt. Harmony Road and MD 260 and extends north as far as 5th Street Extended. Human activity, including land development, within this area ultimately impacts Fishing Creek, its harbor in Town, and the Chesapeake Bay far more directly than would be the case if this were a more complicated stream system. This direct connection to the Bay also means that the Creek's aquatic wildlife is far more sensitive to water quality disturbances.

The mouth of Fishing Creek and the shoreline of the Chesapeake Bay (in much of the Town) are under structural control (bulk-heading or stone revetment). The shorelines, within much of the Town, are intensely developed in urban uses with impervious surfaces (parking, driveways, buildings). The area is largely devoid of natural vegetation and does not have large areas of natural riparian environments.

The Fishing Creek floodplain (as defined by the 100-year flood event), within the borders of Chesapeake Beach, encompasses nearly 300 acres. Part of this area is developed as is shown in the Environmental Factors Map. Flooding in this area is a natural potential occurrence, made more severe by existing impervious surfaces.[6]

Most of the floodplain that is not developed is composed of tidal and non-tidal wetlands. These wetlands help attenuate flooding, prevent shoreline erosion, improve water quality, and provide protective habitat for native plants and wildlife.[7] They are critical to the quality and health of existing and future development throughout Chesapeake Beach.

B. Groundwater

The Town of Chesapeake Beach is supplied with water from the Aquia aquifer. For a more thorough discussion of the groundwater for Chesapeake Beach, see the Water Resources Element, starting on Page 56.

C. Soils

The properties (such as depth to bedrock and drainage) of the soils underlying a community can severely limit land development. Soil types are inventoried in the Soil Survey, Calvert County, Maryland and the Chesapeake Beach Critical Area Protection Program. Soil conditions are not limiting factors for development in Chesapeake Beach except with regard to three situations: tidal marsh areas, lands along streams and drainage ways, and steeply sloping terrain with high runoff potential. These soil types correspond to the sensitive natural features highlighted on the Environmental Factors Map on the previous page.

D. Natural Heritage Area

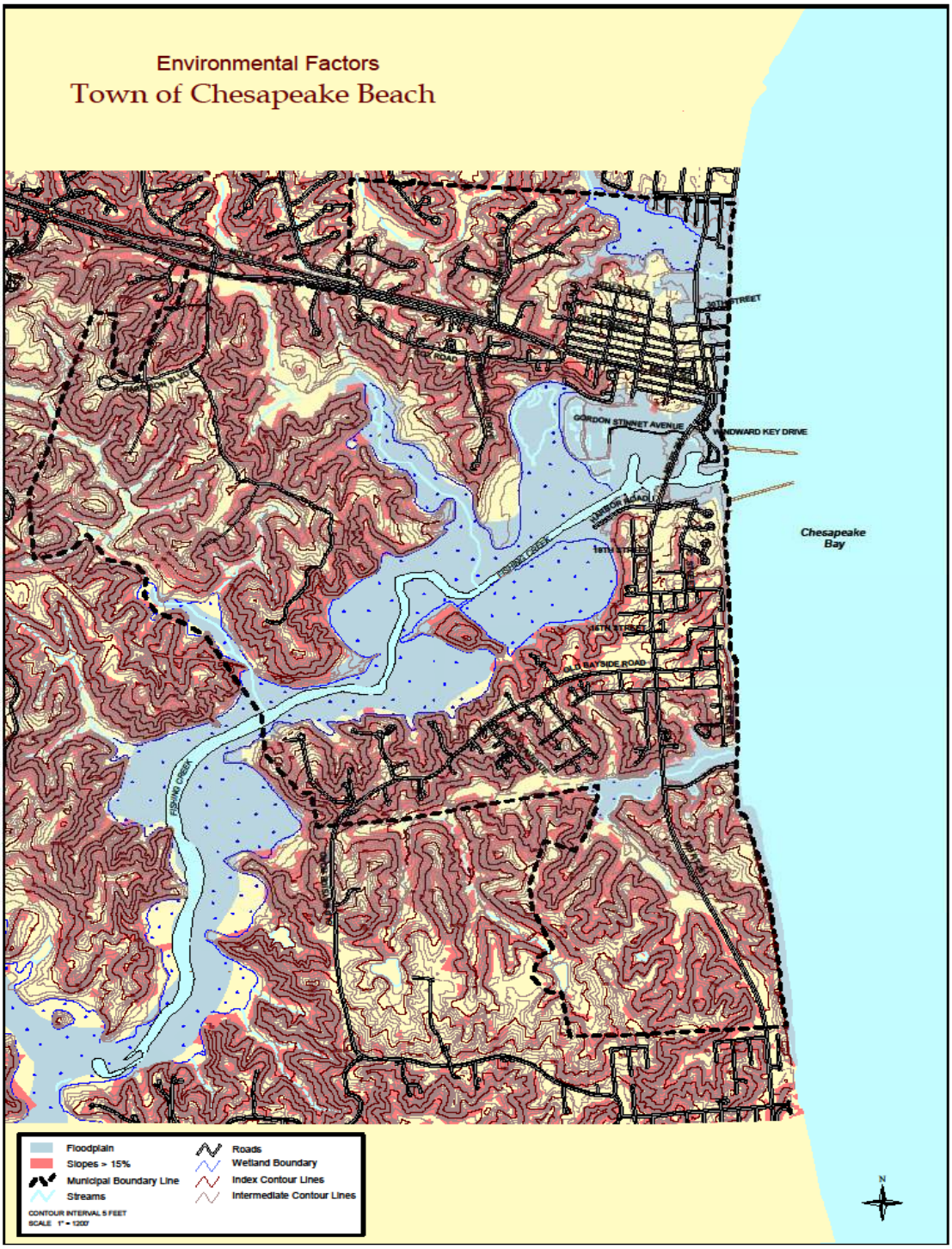
The Maryland Department of Natural Resources has designated most of the southern panhandle of Chesapeake Beach, the Randle Cliffs Area, as a Natural Heritage Area.[8] Its combined geological, hydrological, and biological features are considered among the best in the State of Maryland. Habitat for three threatened / endangered species, as listed in Table 12 , is found in the Randle Cliffs area

---

[6] The Town's Floodplain Ordinance requires that new or substantially improved structures have the bottom of the lowest horizontal structural member supporting the lowest floor be elevated to or above the Flood Protection Elevation. The Town, additionally, requires a minimum 1 foot buffer above the Flood Protection Elevation

[7] The presence of the Fishing Creek tidal and non-tidal wetlands and the role they play in protecting tidal water quality established the justification for the Critical Area "exclusion area" which encompasses the now developing Bayview Hills residential subdivision.

[8] The Secretary of the Maryland Department of Natural Resources made this designation under the Threatened and Endangered Species Regulations. Under Critical Area law special requirements attend to development within a Natural Heritage Area.


Environmental Factors
Town of Chesapeake Beach
GORDON STINNET AVENUE
HOWARD KEY DRIVE
Chesapeake Bay
FISHING CREEK
OLD BAYSIDE ROAD
Floodplain
Slopes > 15%
Municipal Boundary Line
Streams
Roads
Wetland Boundary
Index Contour Lines
Intermediate Contour Lines
CONTOUR INTERVAL 5 FEET
SCALE 1" = 1200'
N

E. Critical Area

Chesapeake Bay Critical Area law regulates development within designated areas in 16 Maryland counties, including Calvert County and, by extension, the Town of Chesapeake Beach. The Critical Area is a ribbon of land, 1,000 feet wide, extending landward from the head of tide of Chesapeake Bay shorelines, wetlands, and tidal tributaries.

In the Town of Chesapeake Beach, the critical area encompasses 1103 acres or about 60.9 percent of the entire Town. The law requires local jurisdictions to designate Critical Area lands as one of three development zones. These zones are shown on the Critical Area Map and the designation criteria summarized below.[9]

- Intensely Developed Area (IDA): Land developed with high-density residential or other high intensity uses including commercial.
- Limited Development Area (LDA): Land developed in low or moderate intensity uses and containing areas of natural plant and wildlife habitat.
- Resource Conservation Area (RCA): Land dominated by features such as wetlands, forests, and farmland.

Critical Area law places restrictions on land development within each development zone. However, it permits lands designated LDA and RCA to be changed to IDA, which allows for greater intensity of use. The uses permitted in each development zone generally reflect the designation criteria.[10] The current size of each zone is shown in Table 13 .

In addition to corrections in the area computations, the areas and attendant percentages have changed since the 2002 Comprehensive Plan. The change is due to 2 Growth Allocation applications being approved. These applications were:

- Richfield Station – 27.74 Acres - granted in May 2005
- The Home Place – 7.42 Acres - granted in July 2006

Designation changes require use of a limited "growth allocation", which in 2001 amounted to 100 acres for Chesapeake Beach. This means that up to 100 acres of land designated LDA or RCA was available to be developed to the intensity permitted under the IDA designation. The Town has 67.54 acres of Growth Allocation remaining.

Along the waterfront is a 100-foot, minimum, buffer. This area is restricted from development to the greatest extent possible, favoring, instead vegetative plantings. When the buffer falls onto slopes in excess of 15%, it must be extended to either the top of the slope or for 4 feet for each 1% of slope.

[9] Elaboration of Critical Area land use designation criteria can be found in the Town's Critical Area Protection Program.

[10] This is the case except in the area of the Bayview Hills subdivision, which while located in the RCA zone, was designated an exclusion area, permitting its current medium density residential development.

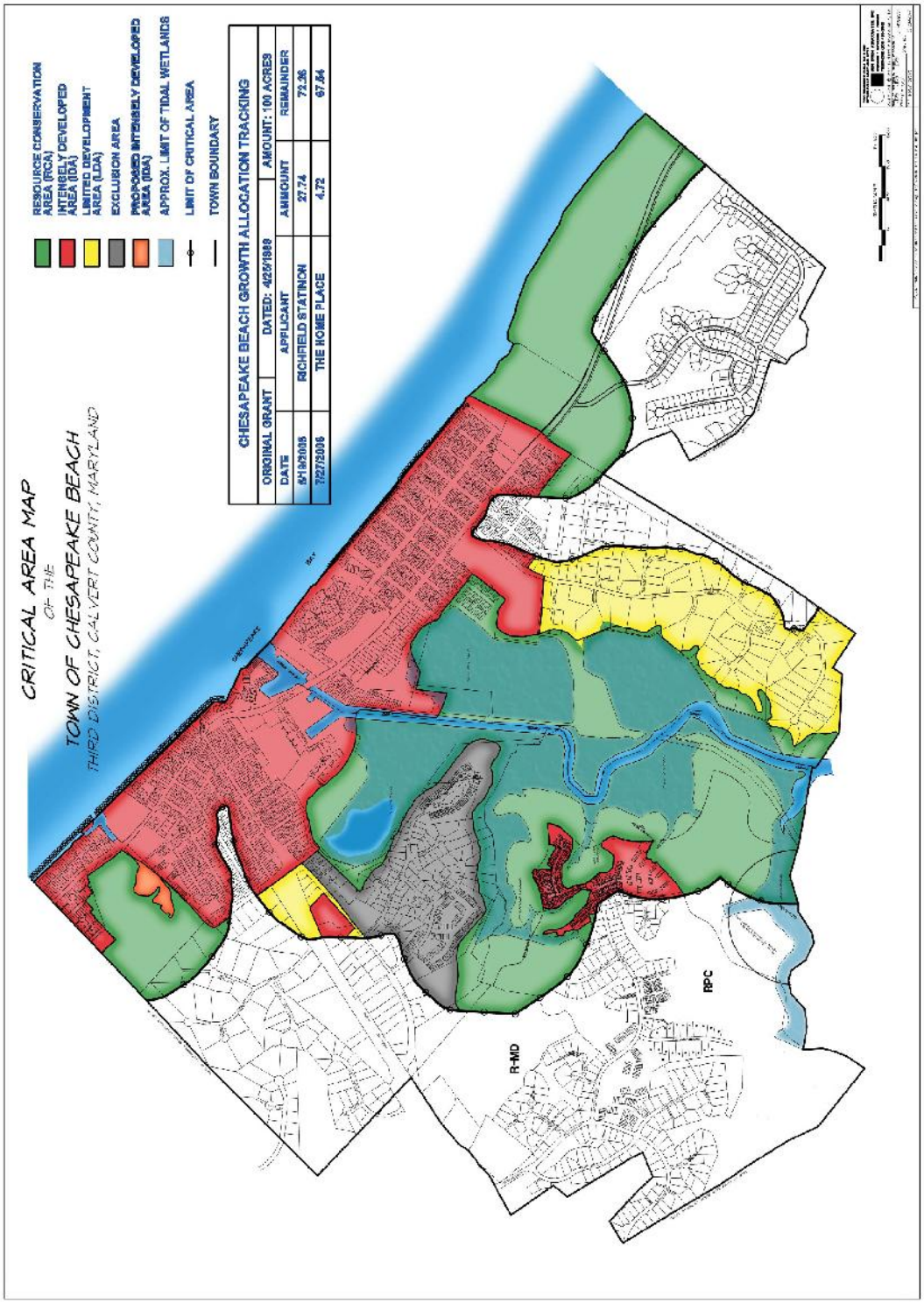
However, much of the buffer has been compromised through previous development and has been approved, by the Critical Area Commission, as a MBA.

Throughout the Intensely Developed Area (IDA), the shoreline of Fishing Creek and the Chesapeake Bay has been developed. Residential and Commercial sites are concentrated in relatively high densities. Impervious surfaces (buildings, parking, driveways) partly occupy the first 100 feet of land extending from the water's edge and/or wetlands—the generally recognized stream buffer. This is the Town's activity center.

Generally, within the IDA, the shorelines are in a MBA. The following areas are MBA:

> The entire waterfront of the Chesapeake Bay, including the former small boat marina located between the Flood Gate and MD 261 and between Seagate and Horizons. The MBA does not cross MD 261.
>
> Fishing Creek
>
> Along the south side, to the western end of Abner's Marina Slips
>
> Along the northern side to the western end of the Rod 'n Reel Marina, West Harbor (Formerly known as Fishing Creek Landings Marina)

Critical Area
Town of Chesapeake Beach
GORDON STINNETT AVENUE
WOODWARD KEYS DRIVE
Chesapeake Bay
OLD BAYSIDE ROAD
FISHING CREEK
Intensely Developed Area
Limited Development Area
Resource Conservation Area
Municipal Boundary Line
Critical Area Line
Streams
Roads
Wetland Boundary
Index Contour Lines
Intermediate Contour Lines
CONTOUR INTERVAL 5 FEET
SCALE 1" = 1200'
N



11

[11] Note that the proposed Critical Area Map included in this Comprehensive Plan is illustrative and does not constitute the Town's official Zoning Map unless and until it is adopted as such by the Town Council.

2.4 LAND USE

The way the land is used impacts the resources important to Chesapeake Beach including roads, community facilities, and the marshlands, streams, and other environmental features. This overview considers land use in areas surrounding Chesapeake Beach and the Zoning in the Town proper. Land use and Zoning maps illustrate how population and economic activities are distributed over the landscape.

A. Surrounding Area Land Use

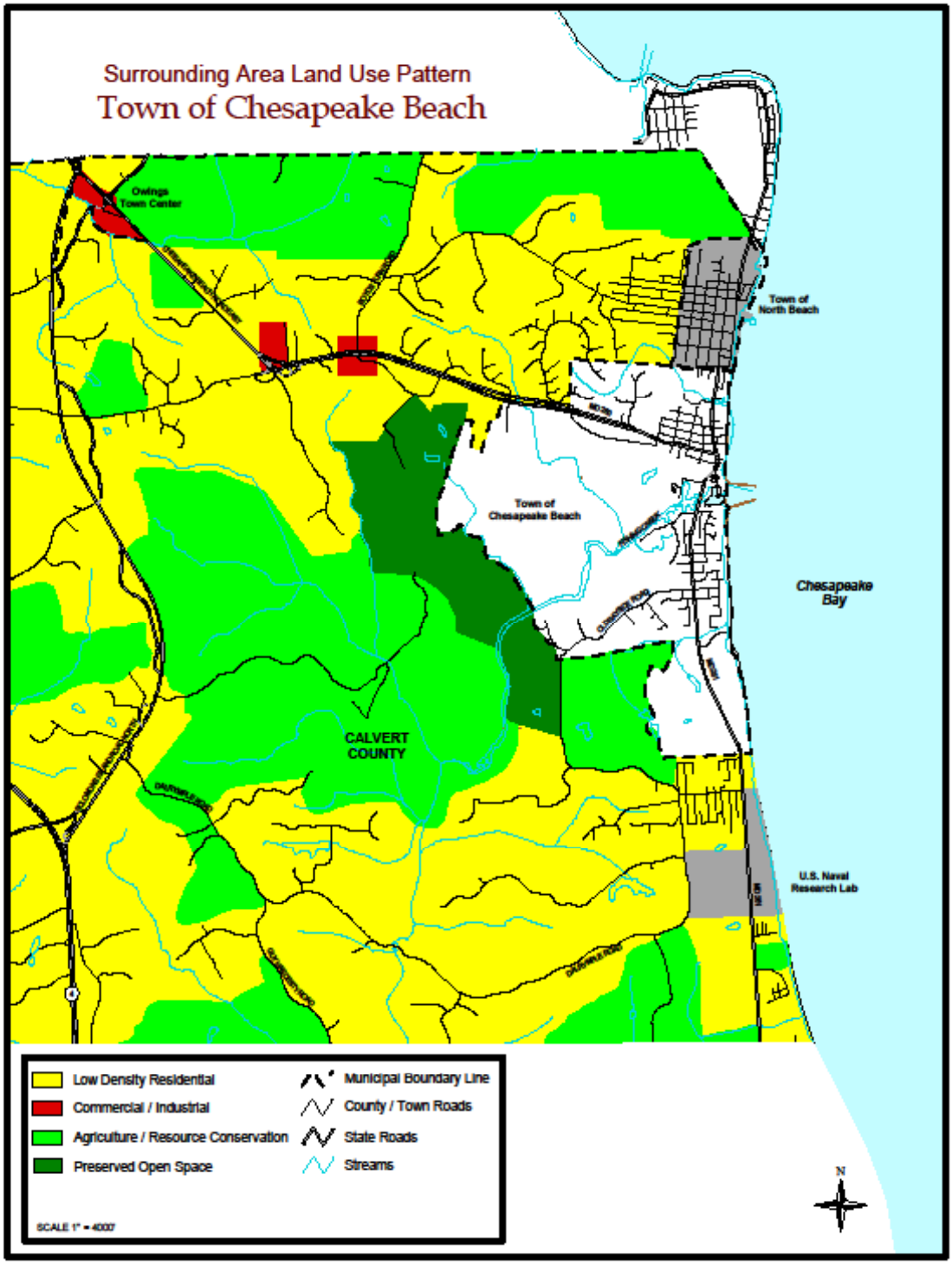
The Surrounding Area Land Use Pattern Map, on the following page, illustrates the general distribution of land uses through the northeastern portion of Calvert County. It should be noted that nearly 30 percent of all housing units in the area shown on the map are located in the Town of Chesapeake Beach. Four observations are most relevant:

Lands permanently preserved through public and/or private land preservation programs form most of the Town's western border.

Residential development, including the Summer City community, largely forms the border on the south and the Town of North Beach forms the border on the north.

Except for very small centers, non-residential development (mostly commercial) is confined to the Towns of Chesapeake Beach and North Beach.

The vast majority of lands outside of the Towns are developed in a very low-density pattern accessible by a network of County roads.


Surrounding Area Land Use Pattern
Town of Chesapeake Beach
Owings Town Center
Town of North Beach
Town of Chesapeake Beach
Chesapeake Bay
CALVERT COUNTY
U.S. Naval Research Lab
Low Density Residential
Commercial / Industrial
Agriculture / Resource Conservation
Preserved Open Space
Municipal Boundary Line
County / Town Roads
State Roads
Streams
SCALE 1" = 4000'
N

B. Existing Land Use

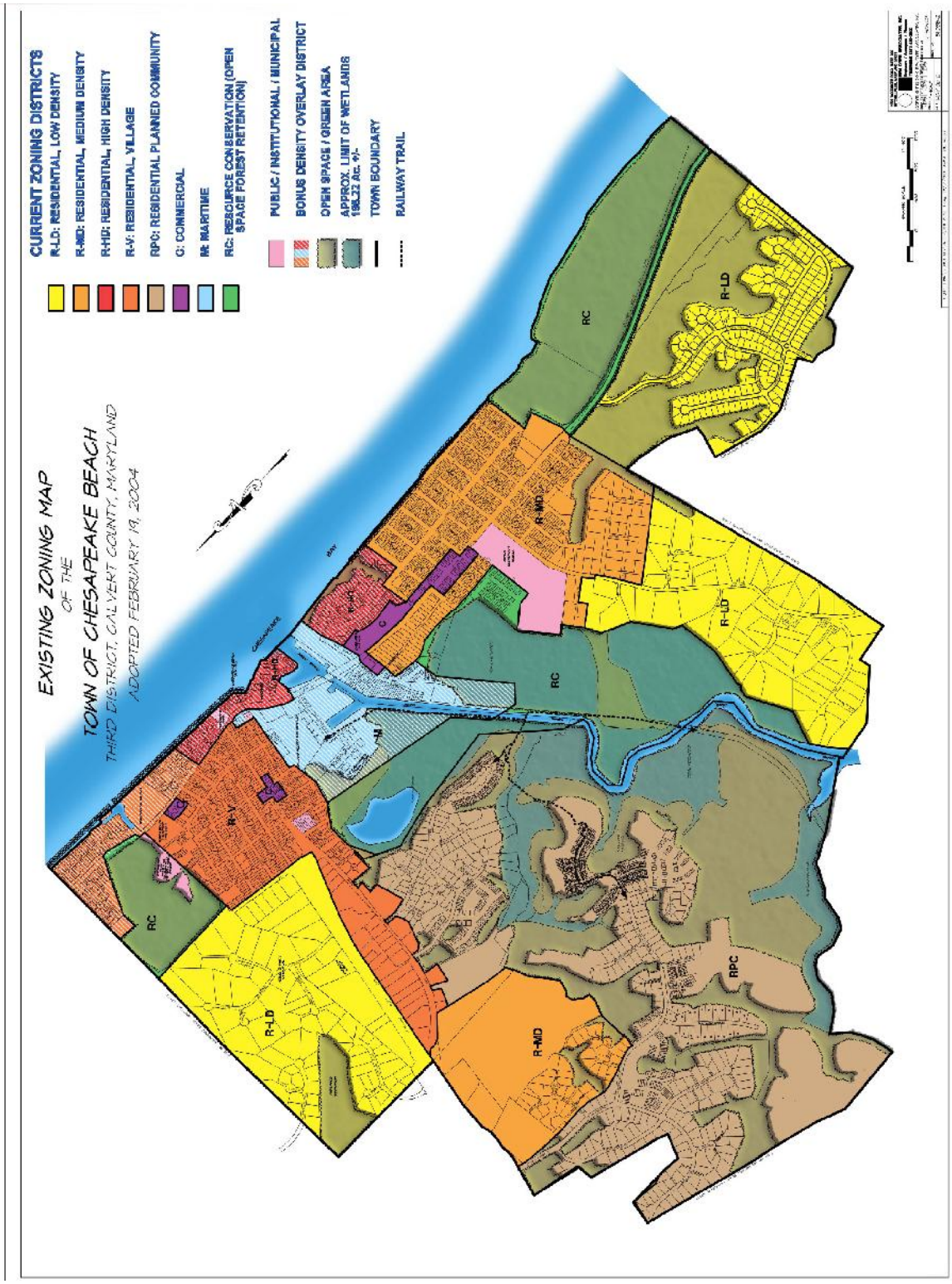
The Existing Zoning Map illustrates the land use pattern and current Zoning Districts. Four observations are most relevant

Environmental features, including floodplains, tidal marshlands, and streams separate residential neighborhoods throughout Town. Development has been constrained by natural features resulting in small residential enclaves.

The most prominent land use is residential. Residential building types and densities vary from high-density (up to 20 units/acre) multi-family structures along the bay front, to low-density (2-4 units/acre) single-family homes along Old Bayside Road.

Commercial uses occupy positions along MD 261. To some extent, such uses are becoming more prevalent in residential neighborhoods north of MD 260. Overall, retail operations (restaurants and convenience shopping) dominate the commercial land use base. Office space is very limited.

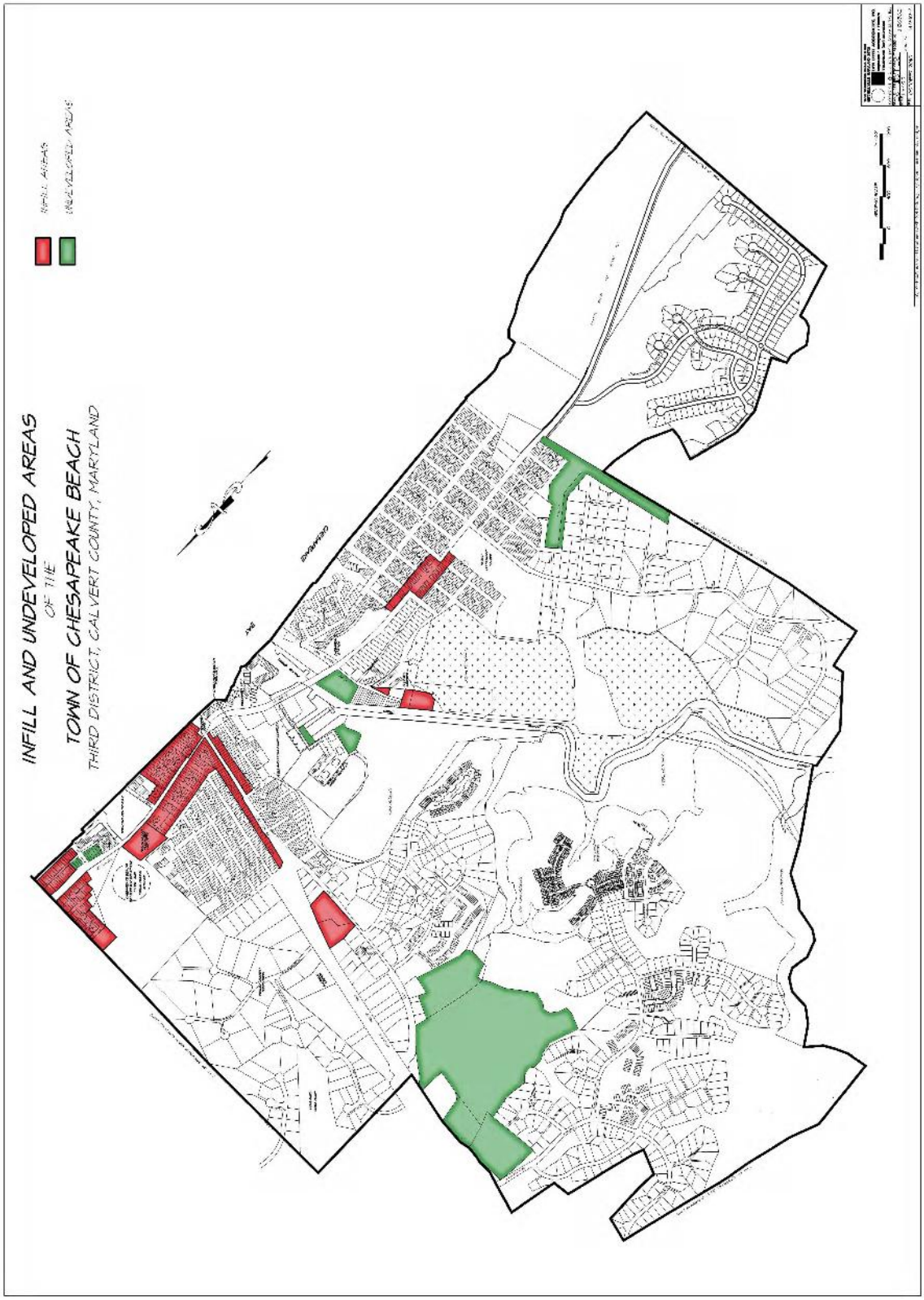
Except for lands with environmental constraints, little undeveloped land remains for development within the center of Town, though many parcels could be more fully developed as market conditions evolve. With the development of Chesapeake Village, the only remaining sizeable tracts of land are in the vicinity of the west end of Cox Road and surrounding Bayside Baptist Church. The largest of these (The Heritage) is presently in the development process, having gained preliminary subdivision approval for 74 lots in 2009.


EXISTING ZONING MAP
OF THE
TOWN OF CHESAPEAKE BEACH
THIRD DISTRICT, CALVERT COUNTY, MARYLAND
ADOPTED FEBRUARY 19, 2004
CURRENT ZONING DISTRICTS
R-LD: RESIDENTIAL, LOW DENSITY
R-MD: RESIDENTIAL, MEDIUM DENSITY
R-HD: RESIDENTIAL, HIGH DENSITY
R-V: RESIDENTIAL, VILLAGE
RPC: RESIDENTIAL PLANNED COMMUNITY
C: COMMERCIAL
M: MARITIME
RC: RESOURCE CONSERVATION (OPEN SPACE FOREST RETENTION)
PUBLIC / INSTITUTIONAL / MUNICIPAL
BONUS DENSITY OVERLAY DISTRICT
OPEN SPACE / GREEN AREA
APPROX. LIMIT OF WETLANDS 198.22 Ac. +/-
TOWN BOUNDARY
RAILWAY TRAIL
RC
R-LD
R-MD
R-V
RPC

C. Zoning in Chesapeake Beach

In order to determine if the population growth will be accommodated in the municipality, it is important to understand the amount of land that can be developed, and the amount of development that can be accommodated on the land. Table 14 lists the present Zoning Districts in Town, along with a description of each district, the minimum lot size and a potential density yield. These calculations determined the amount of available development for each zone by dividing the minimum lot size for each zone into one acre. The number of dwelling units per acre was then multiplied by a factor of 0.75 (as provided by MDP) to calculate the density yield factor. The density yield factor assumes that not every lot will maximize its development potential and will realistically develop about 75% of this potential.

The Total Density Calculations in Table 15 indicate that current zoning for the Town would allow a total of approximately 3,635 dwelling units; however, development projections in this analysis do not indicate that the Town will develop to this capacity. Discussions with Town officials indicate that Chesapeake Beach will be approximately 100% built-out when the approved development discussed in this document, is completed. The Available Developable Land within Town Boundaries - Table 16 - assumes that approximately 213 additional dwelling units and 568 additional people could be accommodated using currently undeveloped land and infill development. It should be noted that infill development and development of undeveloped parcels may have measurable development constraints, including the amount of developable land and the impact of development on the natural environment.


INFILL AND UNDEVELOPED AREAS
OF THE
TOWN OF CHESAPEAKE BEACH
THIRD DISTRICT, CALVERT COUNTY, MARYLAND
INFILL AREAS
UNDEVELOPED AREAS

2.5 TRANSPORTATION AND CIRCULATION

This overview considers current highway, transit, and pedestrian facilities throughout Chesapeake Beach. It also considers how the Town's settlement pattern helps and hinders vehicle and pedestrian movements.

A. Regional Highway Access

Major traffic movement in and out of Chesapeake Beach is confined to two highways: MD 260 (Chesapeake Beach Road) and MD 261 (Bayside Road). These highways are also the primary travel routes to the communities along the Bay from points north and south of Town. The Regional Location Map, found on page 4 of this report, illustrates the highway network.

MD 260 connects Chesapeake Beach to Annapolis via MD 2 and Washington DC via MD 4. MD 260 is a four-lane divided highway between Mt. Harmony Road and the Town's limits. The State Highway Administration's (SHA) Highway Needs Inventory includes the reconstruction of MD 260 to four lanes from Mt. Harmony Road to MD 4.[12]

MD 261 is a rural two-lane highway. It parallels the Chesapeake Bay from MD 263 (Plum Point Road) north through the Towns of Chesapeake Beach and North Beach into Anne Arundel County before connecting to MD 2 near the village of Friendship.[13] MD 261 features two lanes plus a continuous left-hand turning lane from Gordon Stinnett Avenue to MD 260. Its capacity is constrained somewhat at the Fishing Creek Bridge and its intersection with Harbor Road.

The SHA constructed their "Streetscape Program" in 2008 & 2009. The work limits were along MD 261 from Beach Elementary School to the boundary with North Beach and MD 260 from MD 261 to G Street. This work consisted of re-surfacing both roads and adding or improving sidewalks/boardwalks. From the school northwards to Mears Avenue, no walk was installed on the east, due to conflicts with utilities, existing development or the very steep slopes adjacent to the highway. MD 260 from MD 261 also had 2 center landscape islands and enhancement of the pedestrian crossing at the signal light. As a part of this project, the prior "security-type" street lights located on the existing electric poles were removed and replaced with the attractive new lights at street level to afford better and more attractive lighting for the pedestrians.

Table 17 shows that SHA traffic counts indicate traffic has more than doubled in Town since 1970, with an annual growth rate of somewhat over 2%.

MD 261 is a Roots and Tides Scenic Byway running from Plum Point Road at MD 4 through the Beaches and Rose Haven, then through the eastern portion of Anne Arundel County along MD 458 to Central Avenue to MD 2 to Annapolis, then on to the Eastern Shore. This is the only scenic byway through Calvert County.

---

[12] The Highway Needs Inventory is SHA's long-range planning tool, with no timeline or funding commitments.

[13] The Calvert County Transportation Plan recognizes MD 261, in combination with Stinnett and Wilson Roads, as an important link between Prince Frederick and Chesapeake Beach.

A Corridor Management Plan is needed to assure the long-term preservation of landscape features and historic sites, as well as guide development of appropriate interpretative programs that will convey the history of the area. Such a management plan will enable funding for technical assistance to property owners and managing the byway as a visitor experience.

B. Regional and County Transit Access

The Maryland Transit Administration provides area residents with express (freeway-flyer) bus service to Washington, DC. The service operates five trips per day beginning in North Beach before proceeding west on MD 260.[14]

Calvert County Public Transportation (CCPT) provides fixed-route transit service in Chesapeake Beach over MD 261 and MD 260 as part of its Route No. 2 service between the Twin Beaches and Prince Frederick. CCPT also operates its Route No. 4 service between Prince Frederick, North Beach, and Dunkirk.[15] It provides door-to-door service to senior citizens traveling to medical appointments and shopping in North Beach and Chesapeake Beach.

C. Roads and Highways

Population and household growth will impact the road and highway system. While it is not possible to predict the exact nature of that impact, some basic inferences may be drawn.

- Between 1970 and 2000, traffic on MD 261 through Chesapeake Beach, grew at an annual rate of 2.6 percent. In 2000, MD 261 carried about 13,650 vehicles per day. In 2008, MD 261 carried 13,991 vehicles per day. The annual rate of growth from 2000 – 2008 slowed to 0.31%. Should traffic continue to grow at about 0.3 percent per year through 2016, MD 261 would carry between 14,000 and 15,000 vehicles per day and likely experience congestion during morning and evening rush hours.
- New development along MD 261, within the limits of Chesapeake Beach and beyond, will contribute to traffic congestion, but to varying degrees. It is critical to acknowledge that normal traffic congestion in Chesapeake Beach is generally limited to morning and evening rush hours and, to some extent, weekends.

Land uses that add large amounts of traffic to area roads during the morning and evening peak travel periods will add to congestion. Those that contribute only small amounts of traffic during peak periods will contribute less to traffic congestion. The land development projects currently in plan approval stages on page 7 Projected Development as of 2010, are a mix of high and low peak-period traffic generators.

[14] The Calvert County Transportation Plan recommends that a new express bus route be added connecting Prince Frederick to Annapolis, when warranted by demand. This service could serve Chesapeake Beach commuters if a park-and-ride lot were located in the Owings area.

[15] Ridership on the County transit system consists almost entirely of residents who do not have access to a private automobile.

- MD 261, between MD 260 and Old Bayside Road is the most vulnerable link in the Town's road system. The capacity of MD 261 with its two travel lanes and continuous left hand turning lane is limited. It cannot be widened further without significant impact to adjacent properties and a new bridge over Fishing Creek.
- Traffic congestion in Chesapeake Beach is seasonal owing to the Town's recreational and tourist attractions. This speaks to the need for better management of parking, signing, and increased pedestrian amenities.
- The single largest component of future growth through 2016 and the largest traffic generator in Chesapeake Beach will be the Richfield Station residential community. Its impact to MD 261 is limited however due to two factors. First, it does not directly access MD 261. Second, because most peak period trips generated by the community are headed to and from Annapolis and points within the Washington metropolitan area, Richfield Station will not impose heavy traffic volumes on MD 261 during peak periods.

The implication: over half of Town's projected households will not impact the most vulnerable link in the Town's road system, MD 261, during times of congestion.

Increased congestion and delay for vehicles will occur at the following intersections:

- MD 260 and MD 261
- Harbor Road and MD 261
- Old Bayside Road and MD 261
- Harrison Boulevard and MD 260

Residential development along MD 261 beyond the borders of Chesapeake Beach will likely contribute to peak period congestion in the center of Town because MD 261 via MD 260 is still the most efficient route to the regional highway system.

In summary, MD 261 is the most vulnerable part of the road system. The actual impact of any new development project will depend on its location and on its trip generation characteristics. Land uses that generate their greatest traffic when the surrounding road system is being underutilized (during non-rush hours) will not significantly degrade the capacity of area roads.

D. Local Circulation and Safety

The original Town road network is based on a grid layout with MD 261 being the main axis. Intersections and multiple driveways to adjacent property have been permitted along MD 260 and MD 261 in Town. The newly completed streetscape project in Town has added new sidewalks and turn lanes to both sides of these major roads. To some extent, driveway connections were eliminated during the streetscape project. This project greatly improved safety and circulation in the older section of Town.

Newer roads, particularly in the Bayview Hills, Richfield Station and Chesapeake Village neighborhoods, follow conventional suburban layout featuring curvilinear streets and cul-de-sacs. While environmental constraints currently restrict these subdivisions from connecting to the original

Town road network, the Chesapeake Beach Railway Trail would connect Richfield Station and Bayview Hills to the Town.

The original Town is currently missing one section of sidewalk on the west side of MD 261 between Old Bayside Road and 13th Street, which was omitted in the recent streetscape project due to the severity of the steep slopes and close proximity of the homes to those slopes of the block. A new look at the feasibility of putting in this missing section of sidewalk is needed along with some type of traffic calming devices on MD 261 entering Town from the south. This would allow safer pedestrian crossing from the east side of MD 261 to the westward side where the sidewalk system is in place.

The Town owns and maintains over 15.22[16] miles of paved roadway. It does not maintain Old Bayside Road (0.99 miles), west of MD 261, which is under County jurisdiction. MD 260 and MD 261 account for 3.412 miles, maintained by the SHA. Traffic signals control traffic at two intersections – MD 260 at MD 261 and MD 261 at Harbor Road. The recent streetscape project greatly improved traffic at the MD 260 at MD 261 intersection, however the intersection of MD 261 and Harbor Road continues to cause congestion during rush hours. A study is needed to expand this intersection and create greater stacking and thru traffic lanes. Along with improving traffic flow at this intersection, pedestrian safety remains an issue and should also be addressed.

Chesapeake Beach is sufficiently compact and generally organized in a way that promotes walking. This is especially the case in the older residential neighborhoods along MD 261. The most intensely developed part of Town lies along a one-half mile section of MD 261. This area also contains a mix of commercial and institutional land uses that complement the residential character of Chesapeake Beach.

It is generally recognized that an average walker can cover one-quarter mile in five-minutes. For context, this ratio puts Beach Elementary School within a ten-minute walk of the Twin Beaches Community Center, in North Beach. The Town Hall, the Chesapeake Station Shopping Center, and other commercial and civic uses are all within a reasonable walking distance of most housing located between 30th Street and Old Bayside Road. Newer residential neighborhoods along MD 260 are farther removed from the center of Town and are less accessible. The proposed Chesapeake Beach Railway Trail would connect some of these outlying areas to the center.

From Memorial Day to Labor Day 2008, the beach trolley provided alternative transportation to almost six thousand satisfied passengers who avoided the hassles of driving, traffic congestion/pollution, and the high costs of gasoline for a twenty-five cent fare and fun to spare. This weekend transit service filled a void where no public transportation existed in the seasonal communities of Chesapeake Beach, North Beach, Deale, Holland Point, and Tracys Landing.

The trolley is well managed by Virginia Regional Transit (VRT) as a well-established nonprofit organization to provide a turnkey transit system that exceeded expectations for efficient management.

[16] Taken from SHA Office of Planning and Preliminary Engineering Highway Information Services Division Recapitulations or Urban and Rural Mileage in Calvert County, Maryland as of December 31, 2008, revised 10/30/2009

From Memorial Day to Labor Day 2010, the BTA is running 3 trolleys and has expanded the route to Dunkirk. This expansion has reduced the time between pick-ups from 2 hours to only one hour. On the opening weekend this year, ridership doubled, based on the figures from 3 previous years. Based on a longstanding premise, "Success breeds success,' the BTA Board is convinced that the best is yet to come.

If the aforementioned problem areas are addressed and resolved the Town can be as pedestrian friendly as any in the State.

2.6 COMMUNITY FACILITIES AND SERVICES

Community facilities and services described here include those elements of infrastructure, which are most impacted by growth and development.[17] Community facilities and services sustain and strengthen towns as population grows, provided that their capacity, quality, and accessibility are looked after. Many jurisdictions and agencies, both public and quasi-public, provide the community facilities that serve Chesapeake Beach.

A. Public Water Supply

The Town of Chesapeake Beach is supplied with water from the Aquia aquifer. The water system consists of two permitted wells, two storage tanks, and a distribution system. A new well and elevated storage tank is presently under construction in Chesapeake Village with completion anticipated in late 2010 or early 2011. Public water serves all developed portions of the Town, except the western end of Old Bayside Road and from G Street westward along Chesapeake Beach Road, both sides. The two wells are located in the southwestern and southeastern areas of the Town. The existing wells have reported pumping rates of 1.44 million gallons per day (mgd). Table 18 and Table 19 show existing well information and water storage tank information, from the Town's 2008 Sewer and Water Master Plan.

The average water use in Chesapeake Beach is 225 gallons per day (gpd) per equivalent dwelling unit (EDU), based on billing records. The current water allocation permit provided by the Maryland Department of the Environment (MDE) allows 0.63 mgd average daily production and a peak of 1.1 mgd for the month of maximum use. The Town's current average daily production based on water withdrawal data is 0.37 mgd, 58% of the allotted amount, while the maximum summer's day usage is estimated to be 0.76 mgd, 69% of the allotted amount. Of that average water use, it is estimated that at least 10 – 12% is used for such things as flushing system pipes, leakage, and watering of Municipal Properties. The remaining water is assumed to be for the individual subscribers.

B. Public Sanitary Sewer Service

Chesapeake Beach's wastewater collection system is comprised of gravity sewers and four major sewage-pumping stations[18]. The Town of Chesapeake Beach operates nine pumping stations associated with its wastewater collection system[19]. Other pumping stations operated by North Beach, Anne

[17] With the exception of transportation facilities, which are discussed on Page 28 Transportation And Circulation

[18] The major sewage pumping stations are: B Street, Mears Avenue, Richfield Station and Bayview Hills.

[19] The remaining pump stations are: E Street, Fishing Creek, Valley View, Water Park and Chesapeake Village

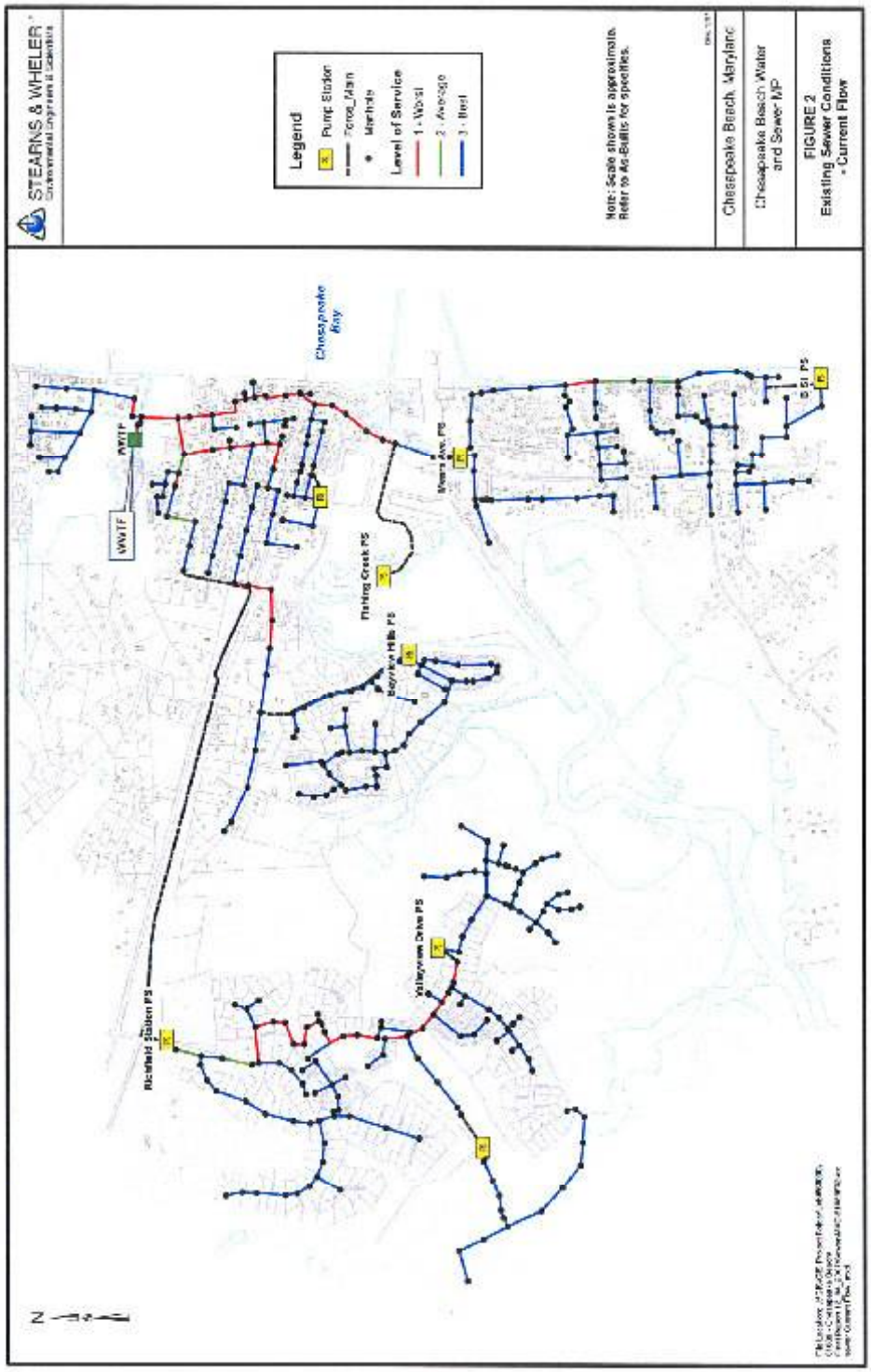
Arundel County and Calvert County are also served by the collection system. Additional information about the pumping stations can be found in the Town's Sewer and Water Master Plan.

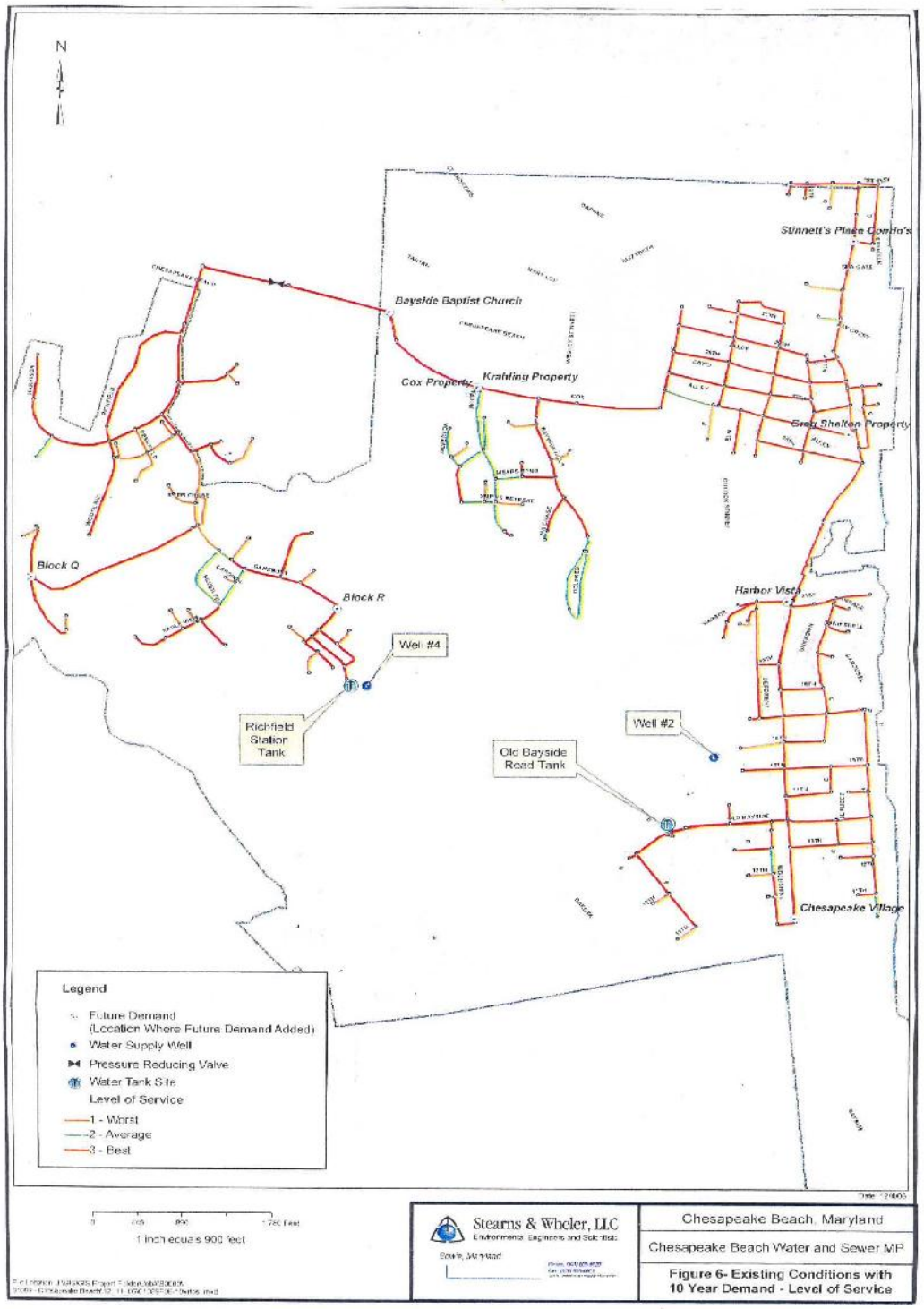
The Chesapeake Beach Wastewater Treatment Plant (WWTP) is owned by the Town of Chesapeake Beach in trust for the Town, Calvert County, and North Beach, pursuant to a First Amended and Restated Interjurisdictional Agreement dated May 29, 1990. The WWTP is currently operated by Calvert County pursuant to a separate 1990 agreement. The plant was constructed through a series of projects including upgrades in 1982, 1991 and 1999. The Chesapeake Beach wastewater treatment facility currently serves the Town of Chesapeake Beach, North Beach, parts of Calvert County and surrounding areas including Rose Haven and Holland Point, which are both located in Anne Arundel County. The plant, having undergone the interim expansion, is currently rated for an average daily flow of 1.32 mgd. The facility has a future planned capacity of 1.5 mgd that is included in the Calvert County Comprehensive Water and Sewer Master Plan. The expansion of the plant's capacity to 1.32 mgd was undertaken exclusively by the Town of Chesapeake Beach, as Calvert County and North Beach elected not to participate.

On the following 2 pages are illustrations of the service areas for Town Water and Sewer Facilities. These illustrations were prepared at a time prior to the beginning of development for Chesapeake Village and certain expansions within Richfield Station. However, water and sewer service is available within Chesapeake Village and Richfield Station.

Otherwise, any areas not presently served will either remain unserved for the foreseeable future or the developer will provide service during project construction.

For a more detailed discussion on the Public Sanitary Sewer Service in Chesapeake Beach, see the Municipal Growth Element Section starting on page 45.


STEARNS & WHELER
Legend
Pump Station
Force_Main
Manhole
Level of Service
1 - Worst
2 - Average
3 - Best
Note: Scale shown is approximate. Refer to As-Builts for specifics.
Chesapeake Beach, Maryland
Chesapeake Beach Water and Sewer MP
FIGURE 2
Existing Sewer Conditions - Current Flow
Chesapeake Bay
WWTF
Richfield Station PS
Valleyview Drive PS
Bayview Hills PS
Fishing Creek PS
Mears Ave. PS
B St PS


N
Sunnett's Place Condo's
Bayside Baptist Church
Cox Property
Krahling Property
Seth Shelton Property
Block Q
Block R
Harbor Vista
Well #4
Richfield Station Tank
Well #2
Old Bayside Road Tank
Chesapeake Village
Legend
Future Demand (Location Where Future Demand Added)
Water Supply Well
Pressure Reducing Valve
Water Tank Site
Level of Service
1 - Worst
2 - Average
3 - Best
1 inch equals 900 feet
Stearns & Wheler, LLC
Environmental Engineers and Scientists
Bowie, Maryland
Chesapeake Beach, Maryland
Chesapeake Beach Water and Sewer MP
Figure 6- Existing Conditions with 10 Year Demand - Level of Service

C. Schools[20]

Currently, children in the Town of Chesapeake Beach attend schools within the Calvert County public schools system, including Beach Elementary, Windy Hill and Northern High Schools. Northern High School is currently overcrowded. The chart below lists certain pertinent data about the schools serving Chesapeake Beach.

School Facilities Serving Chesapeake Beach [21]

School Name & Address	Rated capacity	Enrollment [22]	Acreage	Year(s) Built		Condition	# Teaching Stations
				Date	Sq. Ft.		
Beach Elementary 7900 Old Bayside Road Chesapeake Beach, MD 20732	529	541	21.6	1953 1971 1981 2006	55,341	Superior	25
Windy Hill Middle 9550 Boyds Turn Road Owings, MD 20736	817	731	24.0	1998	101,300	Good	
Northern High 2950 Chaneyville Road Owings, MD 20736	1307	1600	112.9 [23]	1972 1985 1992	178,531	Superior	55

[20] Source of school capacity and enrollment data: Calvert County Board of Education and Calvert County Department of Planning and Zoning.

[21] Information taken from School Facilities Master Plan FY 2011

[22] The Rated Capacity and Enrollment values taken from Calvert County Adequate Public Facilities for Schools, Spring 2010

[23] Shared with Northern Middle

Calvert County Public Schools Capital Improvements Program FY 2011 – 2016 [24] Schools Serving Chesapeake Beach				
School	FY	$ Source(s)	$ Cost	Description of work
Northern High	2011	Local	102,000	Feasibility Study prior to State approval
Northern High	2013	State & Local	5,900,000	Design for renovation to increase SRC to 1,500
Northern High	2014	Local	1,000,000	A/E and LEED Services for 2nd year of construction
Beach Elementary	2015	Local	50,000	A/E Services
Beach Elementary	2015	State & Local	460,000	Stage
Beach Elementary	2015	Local	40,000	Curtains & Risers for stage
Northern High	2015	State & Local	15,000,000	Renovations & Construction
Northern High	2015	Local	400,000	A/E & LEED Services
Northern High	2016	State & Local	19,500,000	2nd Year Construction
Northern High	2016	Local	650,000	A/E & LEED Services for 2nd year construction
Northern High	2016	Local	650,000	A/E & LEED Services for 2nd year construction
Northern High	2016	Local	500,000	Partial funding of furnishings
Various Schools	2016	Local	100,000	ADA & Security Improvements

In 2006, Beach Elementary underwent an expansion to better accommodate the number of kindergarteners at the school. In 2008 Beach Elementary enlarged the northern parking lot.

The Town should continue to work cooperatively with the funding programs administered by Calvert County and State agencies to implement key priorities. Each of these agencies has a long-term interest in promoting the harmonious and prosperous development of Chesapeake Beach.

Within this section, there are two perspectives on projecting student population yield: Board of Education and Town of Chesapeake Beach Table 38 identifies the multiplicative factors used in calculating the pupil yields. Table 39 illustrates the Projected Pupil Yields based on applying the factors in Table 38 to the projected housing types in the development analysis found in Table 5 . Table 40

[24] Dated October 6, 2009

computes the pupil yield from the entire Town, using the project growth in total homes based upon the projections found in Table 25 . Lastly, for a validation of assumptions, Table 41 compares the Pupil Yields for Beach Elementary to those of he Board of Education.

It has not been determined how to break out the projections for students outside of Chesapeake Beach attending the schools, therefore, the Town of Chesapeake Beach analysis in Table 41 is used as a comparison to validate the Board of Education projections. The assumptions for those projections include: the use of the development projections in Table 5 ; pupil yield factors are from the Calvert County Zoning Ordinance (Article 7-1.05D.3.); all housing units to be single family detached (SDF a more conservative estimate). Note that in the first few years, there is an increasing number of condominiums being planned and built in Richfield Station primarily.

Generally the years 2008 through 2010 are ± 2% below Board of Education estimates, then start to exceed by 5-7%. Based, again, on discussions with representatives of the Board of Education their projections were less certain in the Town of Chesapeake Beach. This is due to the fact that Chesapeake Beach does not adhere to the County Adequate Public Facilities Ordinance and that the Board has no indications of future development patterns.

It is recommended that the Planning and Zoning Administrator improve coordination with the Board of Education by sharing copies of all new subdivision applications.

D. Public Library

The Twin Beaches Branch is part of the Calvert Library system. Calvert County and the Town of Chesapeake Beach Branch rent 4,240 square feet of space in Chesapeake Beach in the Captain's Quarters building at the intersection of MD 261 and Harbor Road for the library. The library is welcoming and easily accessible for pedestrians and drivers. The Twin Beaches Branch contains a collection of 42,000 items and provides a range of services, including materials, computers and computer training. Special events include Storytime Classes and programs for older children.

The Calvert County Board of Library Trustees recommends that the library be expanded to 15,000 square feet. The County has not allocated funding to this proposal. A new library in either Chesapeake Beach or North Beach is the second priority of the Calvert County Board of Library Trustees.

Twin Beaches Branch is open 61 hours each week, 9:00 AM to 9:00 PM Monday through Thursday, 12:00 PM to 5:00 PM on Friday, and 9:00 AM to 5:00 PM on Saturday.

The Twin Beaches Branch is part of a three county consortium that enables customers to have a catalog that includes the resources of three counties. The Southern Maryland Regional Library Association (SMRLA) coordinates this. SMRLA serves the library system in Calvert County as well as in Charles and St. Mary's Counties.

Libraries	
Source:	Calvert Library Director
Name:	Calvert Library, Twin Beaches Branch
Size:	4,420 ft^2
Collection:	42,000 Items
Services:	Diversified information services, collections of materials, computers, and computer training.
Service Area:	Northeast quadrant of Calvert County, including North Beach, Chesapeake Beach, part of Owings and part of Huntingtown
Circulation/foot ^{2}	Circulation of materials in FY 2009 was 174,359/4,240, or 41.12

E. Park and Recreation Facilities

Chesapeake Beach is well served by local public park and recreation facilities. These are summarized in Table 20

Chesapeake Beach is an important component of the Calvert County Land Preservation and Recreation Plan. That Plan recommends a three-tier approach to countywide parks and recreation development:

Establish a series of countywide parks along the Bay and Patuxent River that contain the best remaining features of the natural environment.

Establish parks and both active and passive recreational facilities within town centers, including Chesapeake Beach.

Link town centers together through countywide networks of trails and open spaces.

Calvert County provides countywide parks, which are expanded as warranted by demand. The following are development projects and anticipated acquisition projects, located in Chesapeake Beach, for Calvert County Parks and Recreation.

F. Chesapeake Beach Railway Right-of-Way: Development Project

Chesapeake Beach Railway Right-of-Way has the potential of becoming a pedestrian/bicycle/horseback-riding trail that would provide recreation to area residents and promote tourism. The total length of the corridor is approximately 7.7 miles, from its eastern terminus at the Railway Museum, westward to the Patuxent River. The off-road portion of the right-of-way (approximately 3.4 miles) involves 18 separate parcels. Approximately 1,800 feet of the Chesapeake Beach Railroad runs adjacent to Fishing Creek, through the County owned Fishing Creek Park.

This project is supported in the Southern Maryland Heritage Area (SMHA), adopted in April 2003. The SMHA is one of eleven certified by the State of Maryland. Each local jurisdiction in the heritage area went through a lengthy process and several public hearings to officially incorporate the heritage area

Management Plan in their comprehensive plans. Chesapeake Beach did this in 2003, but with this update of the comprehensive plan it is necessary for Chesapeake Beach to re-adopt the Heart of the Southern Maryland Heritage Area Management Plan as part of the updated comprehensive plan. [25]

In May 1998, the County acquired a 104-acre tract that includes a portion of the right-of-way through a combination of Bay Access funds, Critical Area mitigation funds and local side Program Open Space (POS) funds. Program Open Space (POS) funds are given to counties each year by the Maryland Department of Planning and the Department of Natural Resources to assist counties in acquiring and developing recreational open space and facilities. Half of the annual allocation may be used for land acquisition and may fund up to 100% of the acquisition cost, while the other half may be used for either land acquisition or development for up to 75% of the cost. Projects must comply with the goals of the Maryland Land Preservation Plan and be approved by the State; however, counties are given broad discretion in determining their own recreational needs.

G. Fishing Creek Park and segment of ROW Trail – Chesapeake Beach: Development Project
(Development project; conversion of 104 acres of preserved land to usable, programmed parkland in Chesapeake Beach)

Fishing Creek Park contains 104 acres, which includes approximately 1,800 feet of the Chesapeake Beach Railroad. This property presents an opportunity for the public to experience a unique hiking trail that combines the cultural heritage of the area with the natural beauty of Fishing Creek and adjoining tidal marsh. Additional opportunities exist to establish a kayak/canoe launch site and to assist Beach Elementary School to enhance their environmental study area. The Town of Chesapeake Beach was recently awarded a $1.6 million TEA-21 grant to develop a portion of the right-of-way that will connect Bayview Hills and Richfield Station to the center of town. TEA-21 stands for the Transportation Equity Act for the 21st Century, which authorizes Federal surface transportation programs for highways, highway safety, transit and other surface transportation. The program has several sub-categories that are also allocated funding, including programs for bike transportation and pedestrian walkways, and a recreational trails program. At the time of the writing of this update, the Town is anticipating a contract award for the construction of the Railway Trail.

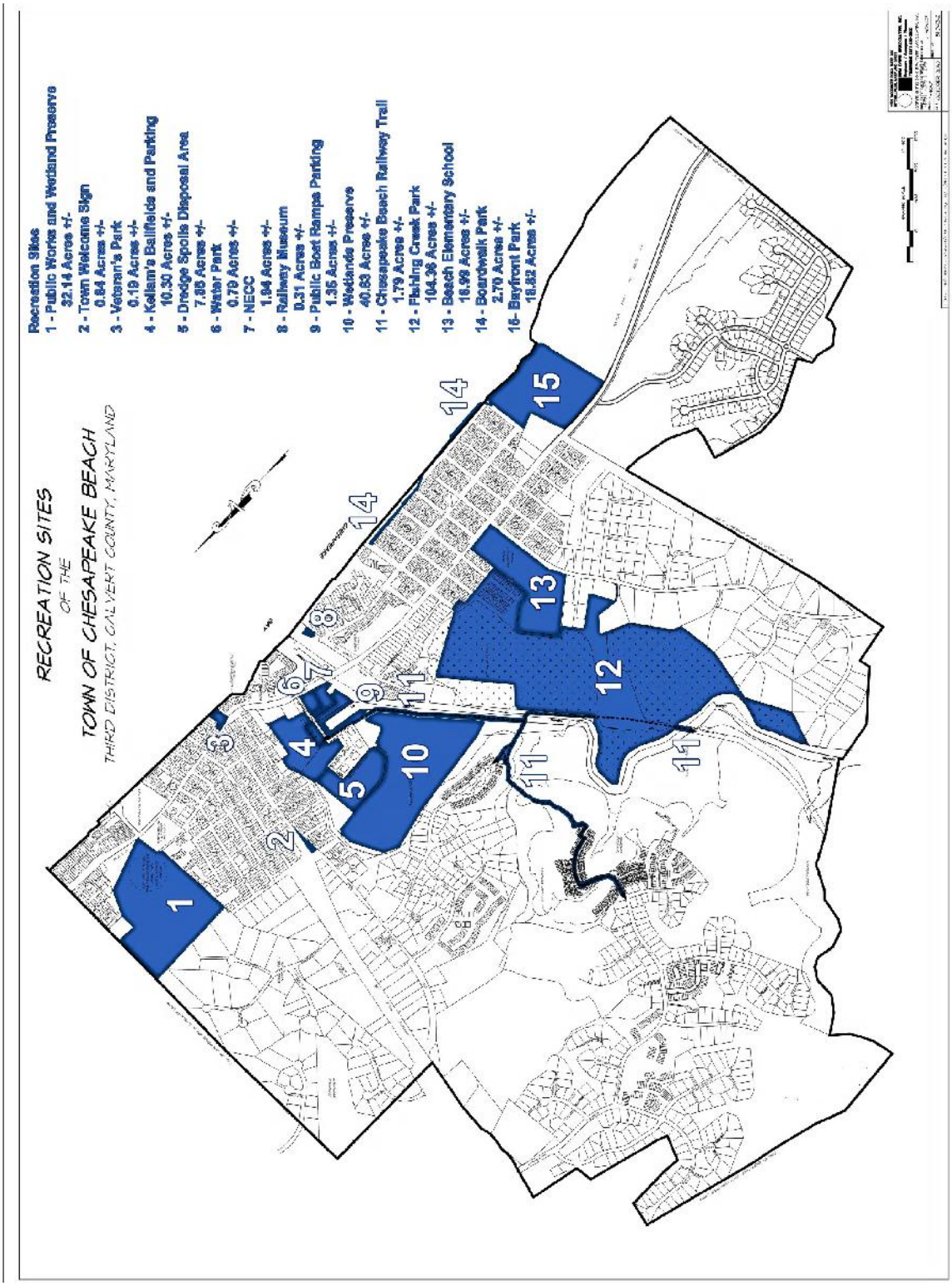
H. Northeast Sector Park

Potential Acquisition - Calvert County is seeking property in the vicinity of North Beach and Chesapeake Beach to build a park that will be similar to the County's existing parks at Dunkirk, Hallowing Point and Cove Point. Proposed facilities will include ball fields, picnic shelters, playgrounds, tennis and basketball courts, hiking trails, restroom and concession facilities, maintenance areas, and other facilities as the property will allow.

[25] The Southern Maryland Heritage Area Management Plan can be accessed at: http://www.southernmdisfun.com/smhp/entireplan.pdf

I. Fire and Police Protection

The North Beach Volunteer Fire and Rescue Department (Company 1) provides fire protection for the Towns of Chesapeake Beach and North Beach. The service area for the company extends about 20 miles from Chesapeake Beach. The site for the North Beach Volunteer Fire and Rescue Department is 3.65 acres and it is located on MD 261, in the Town of Chesapeake Beach. An addition to the fire department was completed in 2007, which provides additional overnight bunk space and a new meeting room. Company 1 has a mutual aid agreement with fire and rescue companies in Calvert County and in Anne Arundel County, Maryland. The services provided for these counties and for Chesapeake Beach will need to accommodate growth in the Town and surrounding service areas, which will require cooperation among these jurisdictions.


RECREATION SITES
OF THE
TOWN OF CHESAPEAKE BEACH
THIRD DISTRICT, CALVERT COUNTY, MARYLAND
Recreation Sites
1 - Public Works and Wetland Preserve
32.14 Acres +/-
2 - Town Welcome Sign
0.84 Acres +/-
3 - Veteran's Park
0.19 Acres +/-
4 - Kellam's Ballfields and Parking
10.30 Acres +/-
5 - Dredge Spoils Disposal Area
7.85 Acres +/-
6 - Water Park
0.79 Acres +/-
7 - NECC
1.94 Acres +/-
8 - Railway Museum
0.31 Acres +/-
9 - Public Boat Ramps Parking
1.35 Acres +/-
10 - Wetlands Preserve
40.63 Acres +/-
11 - Chesapeake Beach Railway Trail
1.79 Acres +/-
12 - Fishing Creek Park
104.36 Acres +/-
13 - Beach Elementary School
16.98 Acres +/-
14 - Boardwalk Park
2.70 Acres +/-
15- Bayfront Park
18.82 Acres +/-

North Beach Volunteer Fire and Rescue Department (Company 1) has the following:

(8) Fire officers
(4) Rescue officers
(6) Live-in members
(3) Weekend live-in members
(40) Active members:
- 21 Firefighters who are EMTs
- 13 Firefighters
- 5 EMTs
- 1 Medic

(2) Engines
(2) Ambulances
(1) Rescue pumper
(1) Tower
(1) Rescue boat
(1) Fireboat

The ISO standards for in-service engine projections provide the following information:

Number of engines = 0.85 + [0.12 x (Population in 1,000s)]1.49 = 0.85 + [0.12 x (5.325)]

Based on the projected population of 5,325 people in 2016, 1.50 fire engines would be needed. Since the North Beach Volunteer Fire and Rescue Department currently has two in-service fire engines, that station is fully equipped to accommodate future growth in Chesapeake Beach.

The Town of Chesapeake Beach contracts with the County Sheriff's Office under a resident deputy program. The Town of Chesapeake Beach has one resident officer for Chesapeake Beach only, and shares 7 officers with the Town of North Beach. Using the ratio of 1.6 sworn officers per 1000 people, Chesapeake Beach will be adequately served by police officers for its projected population of 5,325.

J. Hospital and Emergency Facilities

The primary medical care facility available to Chesapeake Beach is Calvert Memorial Hospital located in Prince Frederick. The facility is a full service community hospital with 92 licensed beds and 18 transitional care beds. The hospital's primary service area encompasses Calvert County and adjacent communities, including those in Anne Arundel, Charles, and St. Mary's Counties. This area takes in a population of 124,800. Calvert Memorial Hospital provides both emergency and out patient services. Travel time for ambulance service from Chesapeake Beach is estimated to be 15 minutes. The hospital also has urgent care facilities in Dunkirk and Solomons. The Twin Beaches Community Health Center, affiliated with Calvert Memorial Hospital, provides primary and preventative care. Some of the services provided at the Twin Beaches Community Health Center include physicals, immunizations, care for

chronic conditions, educational programs, and free and low-cost screenings. The Twin Beaches facility is located on Chesapeake Avenue in the Town of North Beach.

SECTION 3.
THE MUNICIPAL GROWTH ELEMENT

In 2006, the Maryland State Planning Department issued House Bill 1141 which required that two new elements be included in comprehensive plans. The elements included the Municipal Growth Element (MGE) below, and the Water Resources Element (WRE), which are included in the Comprehensive Plan for the Town of Chesapeake Beach, 2010. The Municipal Growth Element examines past growth trends and patterns to project future population growth and land needs for potential future municipal annexation. The Water Resources Element examines available water resources in relation to growth, and projects whether there is adequate water supply and wastewater capacity to meet current and future needs.

This is the Municipal Growth Element for the Town of Chesapeake Beach, Calvert County, Maryland. This analysis includes calculations and assumptions used to project the impact of increases in population and development on the Town and surrounding areas, from the period of 2006 to 2016, the projected year of build-out. Information for this plan was gathered from conversations with local Town staff, County staff, State planning staff, and a technical briefing for the WRE.

Growth in Chesapeake Beach will include increases in both population and residential development, which will all be contained within its current jurisdictional boundaries. The anticipated future growth of Chesapeake Beach will result in build-out of the Town, which will likely take place around the year 2016. The amount of future development reflected in this Municipal Growth Element mostly includes construction that is currently ongoing; a very small portion of which is still pending approval and has not begun construction. It is expected that all future development identified in this plan will culminate all new development in the Town. Future plans for infill development and redevelopment in the Town will be limited by the large amount of Critical and Sensitive Areas within the Town limits as well as by the upgrade of the wastewater treatment plant, which will accommodate regulated development under phased construction.

Intervals of development in the Town will continue to be predicated on the capacity of the wastewater treatment plant. Additionally, growth in the area will necessitate increasing the Town's water allocation permit.

3.1 CHANGES IN GROWTH: AN HISTORIC OVERVIEW OF CHESAPEAKE BEACH

The Town of Chesapeake Beach began as a beach resort town with the help of the Chesapeake Beach Railway Company and a major resort, which were both completed in June of 1900. Visitors enjoyed games and entertainment on the Town's Boardwalk but, in the late 1930s, the railway closed and the amusements from the Boardwalk were moved to landside sites. Eventually, the amusement park closed and the Town of Chesapeake Beach transitioned from a majority visitor population to a year-around resident population. Table 21 shows the changes in population in Chesapeake Beach over the past four decades.

Population growth in Chesapeake Beach can be attributed to an increase in senior citizens, retirees, and adults who visited the Town as children and are now returning as residents. For many other residents, the Town serves as an appealing residential location, and has become a bedroom community to the Washington, DC metro area.

3.2 CHANGES IN LAND USE

Population and development growth in Chesapeake Beach is largely due to its proximity to Washington, DC and the Chesapeake Bay. Traditionally, many residents have enjoyed smaller and mid-sized homes along the shoreline, while single-family subdivisions and townhouse developments have become an attractive market for new residents. In the 1990s, the Town annexed land for the Richfield Station development and Chesapeake Village.

The Town's 2002 Comprehensive Plan identified most of the planned growth that has occurred, as well as future development projects. Since completion of the 2002 Comprehensive Plan, the Bayview Hills subdivision and the Horizons on-the-Bay multifamily residential developments have been completed. More recent development in the Town is concentrated on Chesapeake Village and Richfield Station. It is expected that Richfield Station will have approximately 800 single-family; townhouse and condominium dwelling units when completed, and that Chesapeake Village will have 219 low-density, single-family units when completed. Approximately 400 of the units in Richfield Station are finished and occupied, but completion of the entire subdivision will include three more phases of townhouse and multifamily development. Completion of Chesapeake Village is dependent on the capacity of the wastewater treatment plant (WWTP). Currently, development in Chesapeake Village is allocated according to the limited WWTP capacity and the assumed number of units the market can accommodate. The schedule for development in Chesapeake Village is based on available sewer taps and the assumed number of units the market can handle. As of the end of 2009, Chesapeake Village has obtained permits for 96 single-family homes and it has recorded all but 32 of the proposed and preliminarily approved lots. This information does not agree with the estimated number of permits anticipated each year in the Updated Planned Development Table (Table 25) in the Appendix; however, discussions with the developer have required adjusting the number of permits, due to the slow economy.

Growth in Chesapeake Beach will include increases in both population and residential development, which will all be contained within its current jurisdictional boundaries. The anticipated growth of Chesapeake Beach will result in most of the presently undeveloped areas in Town being either developed or in the process of development by 2016. The amount of future development reflected in this Comprehensive Plan mostly includes construction that is currently ongoing; a very small portion is still pending approval and has not begun construction. It is expected that all future development identified in this plan will culminate all new development in the Town Future plans for infill development and redevelopment in the Town will be limited by the large amount of Critical and Sensitive Areas within the Town limits as well as by the upgrade of the wastewater treatment plant which will accommodate regulated development under phased construction.

3.3 ISSUES: GROWTH LIMITATIONS IN CHESAPEAKE BEACH

The Town's large amount of Sensitive Natural Area and Critical Area limit development in areas proximate to wetlands and areas of steep slopes. Parts of the Critical Area can be developed with a Growth Allocation permit, which currently allows about 68 acres for development within the Chesapeake Beach Critical Area. The Town has worked around these features to form a pattern of development that respects this area, and future development will need to do the same. Most commercial uses in the Town are locally owned and the current land use pattern provides little potential for additional commercial development. Other factors limiting commercial development are the

requirement that many commercial establishments in the Residential Village district be owner-occupied, and the lack of sufficient parking in the Maritime District

The Town is limited in growth to the north, west and to the south by other municipalities and sensitive lands and to the east by the Chesapeake Bay. Undeveloped and underutilized residentially zoned parcels are spread throughout the Town and may also have natural development constraints.

3.4 POPULATION AND DEVELOPMENT PROJECTIONS

Sources: *Metropolitan Washington Council of Governments Round 7.1 Cooperative Forecasts, January 2008; 2002 Town of Chesapeake Beach Comprehensive Plan; Maryland Department of Planning (MDP)*

Population projections are the driving force in the Municipal Growth Element, as they are used to determine the adequacy of development, community services, and infrastructure needed to serve an influx of residents to a municipality. It must be understood that each projection is based on a set of assumptions, which are based upon past experience. The methods utilized yield varying values for the population growth by 2010 and should be seen as guides in determining what the Town may grow to over the period of this Plan.

These population projections are associated with all subsequent discussions of growth in this element. The Town wanted to understand the impact, not only of population trends on growth, but also, how the projected amount of growth would affect the population. The population projections for Chesapeake Beach include four different analyses; one that assumes the Town's population maintains 4.3% percent of the total Calvert County population (Table 3), a second that assumes the Town's population as a percentage of the TAZ (Table 4), a third that assumes the Town will grow at a rate of 4.6% per year (Table 2) based upon projections made in the 2002 Comprehensive Plan, and a fourth that assumes the Town's population will be dictated by the amount of housing units developed each year (Table 22). As a point of reference, the U.S. Census Bureau estimates that the Town's population in 2008 was 3,399.

Town growth rates calculated by MDP (Table 3) indicate a steady percentage of the County's population; however, conversations with Town officials indicate that this projection may not best reflect the trends of population growth in the Town because the County has slowly limited growth, and the Town has not. Therefore, calculating the Town's growth as a percentage of the County's growth at 4.3% is not favored as the best assumption for the Town's projected population.

The population projection for the Town as a percentage of the TAZ (Table 4) is less than the population projection for the Town as 4.3% of the County. The population projection of the Town as a percentage of the County was dismissed because it was too low, and because the TAZ projection is lower than the first projection, it can also be dismissed.

The 2002 Comprehensive Plan projected that the Town's population would grow at a steady rate of 4.6% per year (Table 2), accumulating 6,243 residents by 2015, and 6,638 by 2016. This growth rate produces the highest population projection for the Town in 2016.
The population projection for the Town, as it relates to planned future growth (Table 22), takes into consideration the amount and type of residential development planned in the Town from 2009 to 2016.

This projection calculated the amount of proposed residential development, by type of unit, assigned an average number of people per unit to each housing type (single-family, multifamily, and townhouse), using Census data, and totaled the amount. Census data from a 2008 sample study on population by housing type determined that approximately 3.22 people live in family households and approximately 1.25 people live in non-family households. It was assumed, for the purpose of this report, that the average amount of people living in family households could serve as the average amount of people living in single-family units (3.22 people), and that the average amount of people living in non-family households could serve as the average amount of people living in multifamily units (1.25 people). An average of the two assumptions (3.22 and 1.25) was used as the assumption for the average amount of people living in townhouse units (approximately 2.24 people). It can be assumed, using these averages per type of proposed development, that future planned residential development will add approximately 1,926 people to the Town of Chesapeake Beach from 2009 to 2016. Adding the projected population growth (1,926 people) associated with residential development between the years 2009 and 2016 (823 households) to the U.S. Census population estimate for the Town in 2008 (3,399), it can be assumed that there will be approximately 5,325 people in the Town in 2016. This Municipal Growth Element projects a total population of 5,325 and approximately 2,600 dwelling units by 2016, for the Town of Chesapeake Beach. These projections assume a steady residential market and continued residential interest in Chesapeake Beach.

Earlier in this plan, we determined the population growth that may be accommodated by the Town. Table 14 shows the analysis of the density potential of each Zoning District and Table 15 calculates the possible density based upon that density potential.

3.5 ASSUMPTIONS

Overall, it is assumed from the data in Table 22 , that approximately 1,926 residents will move to the Town of Chesapeake Beach between 2009 and 2016. It can also be assumed from the development capacity analysis, that development in the Town will adequately serve the increase in population. The majority of new development in the Town of Chesapeake Beach will be contained in the Richfield Station subdivision and the Chesapeake Village subdivision. It can be assumed that proposed and approved development between the years 2009 and 2016 will include the projects listed in Table 23 .

The calculations in Table 16 apply the 2002 Comprehensive Plan projections for average persons per household (2.53 persons/DU), and assume the Town of Chesapeake Beach will be approximately 100% developed. Using this information, it can be assumed that the Town will be built-out upon completion of all development proposed and approved by 2016.

Table 15 indicates that current zoning for the Town would allow a total of approximately 3,635 dwelling units; however, development projections in this analysis do not indicate that the Town will develop to this capacity. Discussions with Town officials indicate that Chesapeake Beach will be approximately 100% built-out when the approved development discussed in this document, is completed. Table 16 assumes that approximately 213 additional dwelling units and 568 additional people could be accommodated using currently undeveloped land, and infill development. It should be noted that infill development and development of undeveloped parcels may have measurable development constraints, including the amount of developable land, the regulatory impact on development and the natural environment.

Planned future development in Chesapeake Beach includes single-family units, townhouses and multifamily condominiums. The majority of development will occur in Richfield Station, Chesapeake Village, Harbor Vista (North, North 2, and South), the Heritage, and other development along Harbor Road. Additional multifamily development will occur in smaller scales and on smaller lots owned by Town residents. Current zoning meets the immediate needs of the Town, but future desire for additional commercial and retail development may necessitate a change in zoning to accommodate denser and more diverse land uses. It can be assumed that more families will be residing in the Town and will generate a demand for the large supply of single-family development. It can also be assumed that retirees and seniors will be looking for year-round residences, and will generate a demand for the large supply of townhouse and multifamily development in the Town.

Using the annual growth rate in households from the 2002 Comprehensive Plan and the estimated dwelling units for proposed developments from the Town's Zoning Administrator, the number of dwelling units for the projected year of 2016 was determined. A table with these development projections can be found in Table 24 **.**

Table 25 shows a revised and updated summary. It has accommodated the recent slowing economic effects on the Real Estate industry.

The 2000 Census indicated that there were 1,217 households in Chesapeake Beach ("households" for Chesapeake Beach mean occupied housing units). The 2002 Comprehensive Plan projected that the annual rate of growth for households would be 5.0% from 2000 to 2010. The Town's Zoning Administrator provided the amount of dwelling units built and proposed in each development project, per year, from 2005 to 2016; therefore, calculating the number of dwelling units in the Town between the years 2000 and 2005 was necessary. The calculation below applies the 5.0% annual household growth rate in the 2002 Comprehensive Plan to the years 2001 through 2005.

DUs = Current DUs x (1 + Growth Rate) ^ (Number of Years)
DUs = (1217) x (1 + .05) ^ (5)
DUs = 1,553

Added to the calculated dwelling unit total for the year 2005 (1,553) was the number of permits for development, per year, from 2005 through 2009, which totaled 284, as shown in Table 10 . The estimated number of total dwelling units in 2009 is 1837.

The total number of estimated dwelling units (Table 26) included in this assessment consists of the proposed development in Chesapeake Village, Stinnett's Place Condos, Richfield Station, The Heritage, Chesapeake Beach Properties, Harbor Vista (North, North 2, and South), The Home Place, Fishing Creek Condos, Sunrise on the Chesapeake, and Rockwell. It is assumed that all projects from 2009 to 2016 have been or will be permitted and built, totaling an estimated 2,600 dwelling units in Chesapeake Beach by 2016. Impacts on water and sewer resources in the MGE and WRE assume a slightly different total dwelling unit projection, as information from the Town's Sewer and Water Master Plan utilized data from 2005 to 2008, which assumed different housing market projections.

3.6 PUBLIC SAFETY

Source: *Chesapeake Beach Comprehensive Plan, 2002*

The North Beach Volunteer Fire and Rescue Department (Company 1) provides fire protection for the Towns of Chesapeake Beach and North Beach. The service area for the company extends about 20 miles from Chesapeake Beach. The site for the North Beach Volunteer Fire and Rescue Department is 3.65 acres and it is located on MD 261, in the Town of Chesapeake Beach. An addition to the fire department was completed in 2007, which provides more overnight bunk space and a new meeting room. Company 1 has a mutual aid agreement with fire and rescue companies in Calvert County and in Anne Arundel County, Maryland. The services provided for these counties and for Chesapeake Beach will need to accommodate growth in the Town and surrounding service areas. This will require cooperation among these jurisdictions.

See Page 41 for additional data relating to Fire and Police Protection

3.7 WATER AND SEWER FACILITIES

Source: *Town of Chesapeake Beach Sewer and Water Master Plan, January 2008*

A. Current Inventory

The Town of Chesapeake Beach is supplied with water from the Aquia aquifer. The water system consists of two permitted wells, two storage tanks, and a distribution system. County-supplied, public water serves all developed portions of the Town. The two wells are located in the southwestern and southeastern areas of the Town. The existing wells have reported pumping rates of 1.44 million gallons per day (mgd). Table 18 and Table 19 , demonstrate existing well information and water storage tank information, from the Town's 2008 Sewer and Water Master Plan.

The average water use in Chesapeake Beach is 225 gallons per day (gpd) per equivalent dwelling unit (EDU), based on billing records. The current water allocation permit provided by the Maryland Department of the Environment (MDE) allows 0.63 mgd average daily production and a peak of 1.1 mgd for the month of maximum use. The Town's current average daily production based on water withdrawal data is 0.37 mgd, 58% of the allotted amount, while the maximum summer's day usage is estimated to be 0.76 mgd, 69% of the allotted amount.

Chesapeake Beach's wastewater collection system is comprised of gravity sewers and four major sewage-pumping stations. The Town of Chesapeake Beach operates nine pumping stations associated with its wastewater collection system. Other pumping stations operated by North Beach, Anne Arundel County and Calvert County are also served by the collection system. Additional information about the pumping stations can be found in the Town's Sewer and Water Master Plan.

The Chesapeake Beach Wastewater Treatment Plant (WWTP) is owned by the Town of Chesapeake Beach in trust for the Town, Calvert County, and North Beach, pursuant to a First Amended and Restated Interjurisdictional Agreement dated May 29, 1990. The WWTP is currently operated by Calvert County pursuant to a separate 1990 agreement. The plant was constructed through a series of projects including upgrades in 1982, 1991 and 1999. The Chesapeake Beach wastewater treatment facility currently serves the Town of Chesapeake Beach, North Beach, parts of Calvert County and

surrounding areas including Rose Haven and Holland Point, which are both located in Anne Arundel County. The plant, having undergone the interim expansion, is currently rated for an average daily flow of 1.32 mgd. The facility has a future planned capacity of 1.5 mgd that is included in the Calvert County Comprehensive Water and Sewer Master Plan. The expansion of the plant's capacity to 1.32 mgd was undertaken exclusively by the Town of Chesapeake Beach, as Calvert County and North Beach elected not to participate.

As part of Maryland's Enhanced Nutrient Removal (ENR) program, the State has asked Chesapeake Beach to voluntarily participate in the Statewide nutrient reduction initiative to reduce the amount of nitrogen and phosphorus discharged into the Chesapeake Bay and its tributaries. Table 27 illustrates the WWTP Effluent Performance of flows and types and amounts of nutrient loads per year from 2001 through and including 2005.

MDE has indicated that the ENR goals established for the planned 1.5 mgd capacity would also apply for the interim capacity of 1.32 mgd. These nutrient goals are located in Table 28. Preliminary discussions with MDE indicated that the ENR goals established above would take effect once the plant exceeds its current design average flow of 1.18 mgd. The plant is currently operating under its capacity of 1.18 mgd (0.77 mgd 2005). Due to the difficulty in maintaining consistent levels of Total Phosphorus less than 0.5 mg/l without filtration, the Town would seek a tiered permit from MDE, in which their current permit levels would be maintained, until their annual average flow exceeds 1.18 mgd. Once this annual average flow is exceeded, the second tier of the permit would take effect.

B. Demands From Projected Growth

The Town's 2008 Sewer and Water Master Plan assumed that the projected build-out of Chesapeake Beach would add 1297 dwelling units from 2006 to 2016, and that each new dwelling unit will use 200 gpd. Using this information, it is assumed in the Sewer and Water Master Plan that there will be an additional demand of 259,400 gpd (0.259 mgd) by 2016. If there were 1642 dwelling units in 2006 (projected using the Town's 2002 Comprehensive Plan household growth rate, applied to the 2000 Census household count, for a period of 6 years), and each used 225 gpd, it can be assumed that approximately 369,625 gpd (0.37 mgd) were being used. Using the Sewer and Water Master Plan projections for future new development, an additional 250,000 gpd will be used by 2016, totaling approximately 0.620 mgd by 2016. The water demand by 2016 would be just under the permitted allocation per day (0.63 mgd); however, due to the increase in development and usage, the Town should consider a Water Supply Capacity Management Plan in 2010 or 2011 to allow for an increase in its water allocation permit. See Table 29 for the projected water demand by 2020.

An inspection of the Old Bayside Road water tank in November 2003 resulted in the recommendation that the interior and exterior be renovated, which has been completed. Recommendations provided in the Sewer and Water Master Plan for the future include: installing a new line from Richfield Station Tank to improve the fire flow to areas of Richfield Station with multi-family housing; installing a new 350,000 gallon water tower in the Chesapeake Village development to increase storage in the system and provide for future demand of additional developments; completing a Water Supply Capacity Management Plan by 2010 or 2011; submitting a Groundwater Appropriation Permit by 2011 or 2012; and considering installing a new well near the proposed Chesapeake Village Water Storage Tank, if

additional water is needed. The Town has submitted this permit, but has yet to be notified of its acceptance.

The wastewater treatment plant expansion from 1.18 mgd to 1.32 mgd included the construction of a shellfish protection tank to comply with storage requirements, the construction of a sequencing batch reactor to provide additional treatment capacity, and modification of influent pumps to provide additional pumping capacity. A detailed design of the ENR Upgrade and Expansion has begun. All infrastructure recommendations made for the Town of Chesapeake Beach, with cost estimates, can be found in the Town's 2008 Water and Sewer Master Plan.

3.8 STORMWATER MANAGEMENT SYSTEMS

Sources: *Zoning Ordinance for the Town of Chesapeake Beach, Calvert County, Maryland, February 2004; Calvert County Stormwater Management Ordinance*

The Town of Chesapeake Beach has adopted the Calvert County Stormwater Management Ordinance, as amended, and that ordinance is applicable within the Town limits. Therefore, all development in the Town must comply with the Calvert County Stormwater Management Ordinance. In addition, the Town regulates stormwater management through its Critical Area Protection Program for Intensely Developed Areas (IDAs) within the Critical Area. Development and redevelopment in an IDA require stormwater management practices to achieve a 10% reduction of predevelopment pollutant loadings and limit stormwater runoff to a lower volume or rate than would have resulted from a 10-year storm. Provision of on-site or off-site offsets will be required if the stormwater management practices do not achieve the 10% reduction in predevelopment pollutant loadings. To the extent possible, development and redevelopment in an IDA should delineate permeable areas of the property that are maintained or permanently established in vegetation. Nonstructural shore erosion control measures should be included where appropriate, on and near portions of the property proposed for development. Structural measures to control shoreline erosion must be constructed if shore erosion control cannot be met using nonstructural measures. To the extent possible, development and redevelopment in an IDA should cluster development to reduce impervious surfaces and maximize areas of natural vegetation. All site plans must include a Stormwater Management Plan that complies with the Stormwater Management Ordinance and includes a Sediment and Erosion Control Plan, a planting plan (as required), and an Environmental Assessment Report that describes how the proposed development addresses the goals and objectives of the Town of Chesapeake Beach Critical Area Protection Program.

According to the 2004 Chesapeake Beach Zoning Ordinance, all "Category 1" Site Plans, including commercial and institutional developments, multifamily dwellings, senior housing projects, and attached dwelling units, must undergo a preliminary approval of stormwater management facilities from the Calvert County Department of Public Works indicating that the proposed development complies with the County's Stormwater Management Ordinance. This approval would include provisions for the adequate disposition of natural water and stormwater, indicating the location, size, type and grade of ditches, catch basins and pipe connections to existing drainage systems, and onsite water retention where deemed appropriate and necessary by Calvert County Stormwater Management Ordinances. All "Category 2" Site Plans, including site plans for single family detached dwellings, bed and breakfast facilities, inns, boarding houses, accessory uses, and rehabilitation projects, if applicable, must undergo provisions for the adequate disposition of natural water and stormwater, indicating the location, size,

type and grade of ditches, catch basins and pipe connections to existing drainage systems, and onsite water retention where deemed appropriate and necessary by the Zoning Administrator.

Stinnett's Place Condominiums, at 31st Street and Bayside Road, is a development of 32 units on the old site of Stinnett's Restaurant. This site was raised 2 feet, commensurate to the 2-foot raise of Bayside Road by the State Highway Administration for their streetscape project, to reduce the impact of floods in the area. Additionally, a stormwater pump system was installed along C Street that empties into the Tidal Basin, which filters into the Chesapeake Bay.

3.9 RECREATION

Source: *Calvert County Land Preservation, Parks and Recreation Plan, December 2006*

The Maryland State standard suggests 30 acres of parkland for every 1,000 persons, of which the Town must own approximately half. According to this standard, the Town of Chesapeake Beach will not need additional parkland to accommodate the increase of approximately 1,926 residents between 2009 and 2016.

However, the Calvert County Land Preservation, Parks and Recreation Plan anticipated that the County, working in conjunction with the Towns of Chesapeake Beach and North Beach, will need to acquire 991 additional acres of parkland by 2020 to meet the County's own 2020 goal of providing 2880 acres of parkland. See Park and Recreation Facilities page 39 for discussion of possible and planned projects for development or acquisition.

3.10 FINANCING INFRASTRUCTURE GROWTH

Sources: *Zoning Ordinance for the Town of Chesapeake Beach, Calvert County, Maryland, February 2004; Comprehensive Plan for the Town of Chesapeake Beach, 2002*

Public sanitary sewer service and water supply in Chesapeake Beach are provided through an enterprise fund, meaning that new system users and not the Town's General Fund finance capacity expansions. The Town maintains a five-year Capital Improvement Program (CIP) to schedule infrastructure priorities with available revenues. It identifies capital projects and revenue sources, which in any given year, may include general obligation bonds, general fund balances, and County, State, or federal payments. As the Town envisions the end of large-scale development of land within its jurisdiction by 2016, the Town has embarked on a program of transitioning the financing of maintenance and repair costs of the water and sewer systems from new users to current users, through a gradual increase in user fees.

Most funding for Town projects comes from state grants, federal TEA-21 grants, and Town sources. Calvert County collects $600/unit for new residential homes in the Town to pay for recreational facilities; however, this fee does not apply to teardown/rebuilt homes. The Town collects $2,000 for each additional new unit in Richfield Station to pay for Town parks and recreation amenities, such as the Chesapeake Beach Railway Trail. Fees are also collected, by the County, from developers who choose to forgo stormwater management measures. These fees-in-lieu include $600/DU for single family residential and $8000/impervious acre for commercial uses.

At the time of the writing of this update, the Town is anticipating approval to award the contract for the construction of the Chesapeake Beach Railway Trail.

The FY 2008 budget identified multiple sources of revenue that include: Treatment Plant revenues from Calvert County, North Beach, Chesapeake Beach and Anne Arundel County that are collected to pay for the new plant and include fixed revenues, Variable revenues, Capital revenues, grants, and other fixed costs; Water Park revenues; Utility revenues; and General Fund revenues. The County also requires an excise tax on all new dwelling units, both inside and outside of the Town, to pay for school system needs.

3.11 BUFFERING GROWTH

Source: *Zoning Ordinance for the Town of Chesapeake Beach, Calvert County, Maryland, February 2004*

The Town was allowed 100 acres of Growth Allocation in the Critical Area in 1989 and has 67.54 acres of Growth Allocation remaining. A series of regulatory requirements has been established to preserve the Critical Area and Sensitive Areas in the Town of Chesapeake Beach. Although the Town is mostly Buffer-exempt, the following Buffer provisions will become increasingly important as a portion of the Critical Area becomes susceptible to development, which will require greater protection of the landscape.

In accordance with the 2004 Zoning Ordinance for the Town of Chesapeake Beach, the Buffer shall be maintained, preserved and established as follows:

> *Tracts of land bordering tidal water, wetlands, or tributary streams in the Critical Area District to be subdivided must have a Buffer of at least 100 feet of natural vegetation (except areas of the Buffer that are planted in native vegetation where necessary to protect, stabilize, or enhance the shoreline). A minimum 25-foot Buffer must be maintained around all non-tidal wetlands. No development including septic systems, impervious surfaces, parking areas, roads, or structures are permitted in the Buffer unless associated with water dependent facilities. Lots that extend to the water, wetlands, or streambed, must have a Buffer included in the required setback distance for building on that lot. The Buffer should extend 10 feet for a building restriction line, unless otherwise established. Buffers that are owned and maintained by a homeowners association or similar organization will have a required setback distance from the property line separating that lot from the designated Buffer. Buffers should be extended in the case of contiguous steep slopes of greater than 15% or more incline and should be expanded 4 feet for every additional 1% of slope, or to the top of the slope, whichever is greater. No natural vegetation shall be removed nor shall the slope of the land surface be altered in the Buffer except as stated in the Zoning Ordinance.*

3.12 BURDEN ON SERVICES AND INFRASTRUCTURE IN AREAS CLOSE TO THE MUNICIPAL GROWTH AREA

New development in Chesapeake Beach and jurisdictions that share the wastewater treatment facility will be limited until the facility can accommodate the increased need for capacity. The shellfish tank has been constructed for interim capacity, but taps for new development will be limited for periods of time until the treatment plant can service additional development. Development in Chesapeake Beach

may place an increased burden on the WWTP's capacity to service other users since the WTTP upgrade addresses a very specific amount of development in its future treatment capacity. Development that is not included in pre-determined capacity needs could be a burden to other areas serviced by the WWTP. Calvert County still has a significant amount of unused capacity in its allocation. Chesapeake Beach is the only jurisdiction sharing the WTTP that has added development and will raise its treatment allocation through plant expansion. Currently, none of the jurisdictions sharing the facility has requested an increase in its share of the facility. In addition, a new water tower is under construction for the Chesapeake Village subdivision. This water tower may increase the dependency on the surrounding jurisdictions for water in emergency situations if access to large amounts of water in Chesapeake Beach is unavailable during construction.

3.13 Protection Of Sensitive Areas

Sources: *2004 Comprehensive Plan, Calvert County, Maryland; Zoning Ordinance for the Town of Chesapeake Beach, Calvert County, Maryland, February 2004; Chesapeake Beach Comprehensive Plan, 2002; Town of Chesapeake Beach Chesapeake Bay Critical Area Protection Program, 1988*

Information regarding Sensitive Areas in the Town of Chesapeake Beach and Calvert County can be found in the *2004 Calvert County Comprehensive Plan* and the *Town of Chesapeake Beach Chesapeake Bay Critical Protection Area Program*. A detailed description of building regulations and preservation regulations in these areas can be found in the *Zoning Ordinance for the Town of Chesapeake Beach*. Approximately 1100 acres of land were designated as the Critical Area in 1988. In it, there are three designations; the Intensely Developed Area, the Limited Development Area, and the Resource Conservation Area. The list of plans below provides an overview of the detailed recommendations in the *Town of Chesapeake Beach Chesapeake Bay Critical Area Protection Program*: Forest Management Plan; Soil Conservation and Water Quality Plan; Buffer Protection Plan; Non-Tidal Wetlands Protection Plan; Water-Dependent Facilities; Shoreline and Erosion Control Plan.

3.14 The Relationship Of Long-Term Development Policy To Future Character

The Town of Chesapeake Beach envisions growing steadily and conscientiously into an attractive location for families and tourists, with services that support existing residential communities, and development that respects the sensitive environment of the Chesapeake Bay. Primarily, the Town would like to remain a residential community with additional services that are appropriate and supportive of the community. To expand and diversify these services, the Town plans to promote commercial development that serves both seasonal and year-round residential communities, and establish initiatives that enhance trail, park, and recreation facilities. It is envisioned that the majority of these services would be encouraged within the Town Center, along Chesapeake Beach Road. The long-term development plan discourages the encroachment of industrial uses into the Town to protect the environmentally-sensitive Chesapeake Bay, and encourages evaluating the environmental sustainability of the existing infrastructure network with regard to its impact on the Chesapeake Bay and reflection of the Town as a steward of "green" development. Long-term development in the Town does not preclude annexation to the south; however, potential for annexation is not being addressed at this time.

See Table 24 for the Future Planned Development taken from the Chesapeake Beach Sewer and Water Master Plan Development (2006 – 2025) and Table 25 for a more recent update, thereof.

SECTION 4.
THE WATER RESOURCES ELEMENT

4.1 INTRODUCTION

The Town of Chesapeake Beach gets its water from the Aquia aquifer, while the County pumps from both the Aquia and the Upper Patapsco aquifer. The Tri-County Council for Southern Maryland and the Maryland Geological Survey (MGS) report, *Simulated Changes in Water Levels of the Aquia Aquifer Using Revised Water-use Projections to 2025 for Calvert, Charles and St. Mary's Counties*[26], determined that the Aquia and Upper Patapsco aquifers serving Calvert County and the Town can provide adequate drinking water through the year 2030, as long as the water supply remains potable.

Chesapeake Beach's wastewater treatment system is owned by the Town but operated by Calvert County. All of Calvert County's wastewater treatment systems meet, or are on track to meet, all state requirements for compliance with the Chesapeake Bay Tributary Strategy point source caps. Although the Town does release some non-point source pollution into Fishing Creek, most of this pollution goes straight into the Chesapeake Bay. Year-round scientific data does not exist for nitrogen and phosphorus in the freshwater and tidal water sub-watersheds near the mouth of most creeks. In addition, the effectiveness of the many nutrient tools is unknown, which could impact the effectiveness of nutrient load measurements for Chesapeake Beach; therefore, additional research is recommended as part of the action strategy for this Water Resources Element. The Town is fairly certain that the water needs and wastewater treatment needs associated with projected growth outlined in the Sewer and Water Master Plan for Chesapeake Beach will be met.

The Calvert County Water Resources Element assumed in its growth projections that town centers in the County, including Chesapeake Beach, would account for 35 percent of all residential development in one scenario, and 45 percent of all new residential development in another scenario. The County, since implementing growth limits in 1999 and 2003, does not expect to exceed a 20 percent growth in households or a 15 percent growth in population. However, the Town and County acknowledge that nitrogen and phosphorus limits have exceeded the assimilative capacity of the waterways, and both the Town of Chesapeake Beach and Calvert County will be pursuing techniques to reduce these nutrients. The Town's Water Resources Element upholds the recommendations and policies from the Town's 2002 Comprehensive Plan and maintains the same course of action regarding to land use and distribution of future growth. In addition, the Town is proceeding with the recommendations provided in its 2008 Sewer and Water Master Plan.

Until total maximum daily loads (TMDLs) are established, the County government does not know what water bodies are suitable receiving waters. There is insufficient information to make a determination regarding the suitability of receiving waters given the expected land use plan impacts.

4.2 DRINKING WATER

A. Boundary

The boundaries of the area used to provide this assessment are the jurisdictional boundaries of the Town of Chesapeake Beach, MD. The Town is bordered to the east by the Chesapeake Bay, to the west by

[26] Dummond, D.D., "Water-supply Potential of the Coastal Plain aquifers in Calvert, Charles, and St. Mary's Counties, Maryland, with the Emphasis on the Upper Patapsco and Lower Patapsco Aquifers": Maryland Geological Survey Water Resources Basis Data Report No. 76.

Critical Area designations, to the south by Randle Cliffs, and to the north by the Town of North Beach. Land uses to the west and to the south include preserved open space, resource conservation and low-density residential development. Land uses to the north include mostly low-density residential. The Town is considered a Priority Funding Area by the state of Maryland, but due to limited developable land, much of the Town is already developed. It is expected that the Town of Chesapeake Beach will reach build-out in 2016.

The Town of Chesapeake Beach is located on the west side of the Chesapeake Bay, and is part of the Fishing Creek sub-watershed and the West Chesapeake Bay watershed, within the Lower Western Shore Tributary Basin. The West Chesapeake Bay watershed is listed on the 303(d) list.

The sewer and water planning area for this section includes only the Town of Chesapeake Beach, although the Town's wastewater treatment plant serves North Beach, portions of Calvert County, and portions of Anne Arundel County.

B. Assessments and Methods

Much of the information in the Water Resources Element was provided by the *Sewer and Water Master Plan for the Town of Chesapeake Beach, January 2008* by Stearns & Wheler, Environmental Engineers and Scientists, the *2002 Comprehensive Plan for the Town of Chesapeake Beach* by Jakubiak & Associates, Inc., and the Tri-County Council for Southern Maryland and the MGS report, *Simulated Changes in Water Levels of the Aquia Aquifer Using Revised Water-use Projections to 2025 for Calvert, Charles and St. Mary's Counties*[27].

Based on 2005 and 2006 well production data, the average daily water use in the Town is approximately 0.37 million gallons per day (mgd). In 2010, the Town implemented a Supervisory Control and Data Acquisition system for all pumps, wells and storage systems. However, the system has not had time to generate sufficient data for all wells and storage structures; therefore, a peaking factor of 2 was used to estimate the maximum daily flow. The use of this peaking factor is standard engineering practice for flow estimation in towns similar in size to Chesapeake Beach. Commercial and residential customers are metered. Water usage was determined from billing records and well records. Average daily demand was determined by averaging the billing records for each account. Average commercial demands were distributed to the closest node to their addresses, while average residential demands were distributed evenly along their streets. Some commercial billing information did not include street addresses. For this commercial demand, the sum was divided among nodes in the commercial area, with an equal demand for each node. For Bayview Hills and Richfield Station, demand at a node was estimated by counting the number of equivalent dwelling units (EDU's) nearby and assuming 225 gallons per day (gpd) as the average demand for each EDU. Maximum day demands were assumed to be twice the average demand. In the case of the Water Park, which only operates in warm months, the maximum day's demand was estimated as twice the average summer day's demand. Thus, the maximum summer's day demand is slightly more than twice the average day demand over the course of a year.

[27] Dummond, D.D., "Water-supply Potential of the Coastal Plain aquifers in Calvert, Charles, and St. Mary's Counties, Maryland, with the Emphasis on the Upper Patapsco and Lower Patapsco Aquifers": Maryland Geological Survey Water Resources Basis Data Report No. 76.

C. Existing Water Supply

Town-supplied, public water serves all developed portions of the Town, except lands along both sides of Chesapeake Beach Road, west of G Street and west of G Street on the north side of Old Bayside Road and west of Dakota Avenue on the south side of Old Bayside Road. The Town's wells are located in the southwestern and southeastern areas of the Town. Each supply is fed CP-33 (a polyphosphate solution for iron sequestration) and sodium hypochlorite and sent directly to the distribution system without any specific contact time. The existing wells are reported to have a total pumping rate of 1.44 mgd. See Table 18 for the Chesapeake Beach Water Well information.

The Town currently holds a water allocation permit issued by the Maryland Department of Environment for 0.63 mgd average daily production and a peak of 1.1 mgd for the month of maximum use. The Town's average daily production based on water withdrawal data is 0.37 mgd, 58 percent of the allotted amount, while the maximum summer's day usage is estimated to be 0.76 mgd, 69 percent of the allotted amount. However, this usage is projected to increase in the future. When future water demand approaches the water allocation permit levels, the Town should make plans for a new well. At the time of this writing, a well has been drilled at Chesapeake Village.

The Town has two storage tanks; the Old Bayside Road tank and the Richfield Station tank. The Old Bayside Road Tank was constructed in 1982, and the Richfield Station Tank was constructed in 2003. Necessary storage typically requires 1000 gallons per minute (gpm) for 2 hours for fire flow plus 75 percent of the maximum summer day's demand (0.76 mgd). Under current conditions this would amount to 690,000 gallons; however, the Town currently has approximately 500,000 gallons of storage. It is recommended that the Town increase the storage in the system. See Table 19 for the Chesapeake Beach Water Tanks information. A third tank is presently under construction in the Chesapeake Village Subdivision.

D. Quality Of Existing Water Supply

Groundwater in the Aquia aquifer is generally of good quality. Published water quality data in the vicinity of the Town's well site indicates that the groundwater tends to be neutral to slightly basic and moderately to very hard. Arsenic concentrations in parts of the Aquia aquifer exceed the U.S. Environmental Protection Agency Maximum Contaminant Level (MCL) of 10 micrograms per liter (µg/L) for public water supplies. Due to this concern, water-supply managers in Calvert County are looking into shifting some ground-water usage from the Aquia aquifer to the deeper (Upper) Patapsco aquifer. This shift of pumpage from the Aquia should reduce water-level declines, and ameliorate problems for domestic-well users. Water quality in the Upper Patapsco aquifer is generally good. The pH in water from most wells ranges from 7.0 to 8.5. Water tests of the Upper Patapsco aquifer indicate that MCLs were not exceeded (although not all regulated constituents were tested), but Secondary Maximum Contaminant Levels (SMCLs) were exceeded for iron and manganese (MSGS 2007).

Two parameters that the Town should continue to monitor are arsenic and lead levels. The Town has not violated the new arsenic MCL, but arsenic levels of 2 parts per billion (ppb) have been recorded. Higher levels of arsenic tend to be more common in groundwater as opposed to surface water sources of drinking water. The demand on groundwater from municipal systems and private drinking water wells may cause water levels to drop and release arsenic from rock formations. The Town also has not violated the MCL for lead (standard of 15 ppb), but values of 10 and 11 ppb have been reported in

recent years. Lead is rarely found in source water, but enters tap water through corrosion of plumbing materials. Homes built before 1986 are more likely to have lead pipes, fixtures and solder, but new homes are also at risk: even legally "lead-free" plumbing may contain up to 8 percent lead. The most common problem is with brass or chrome-plated brass faucets and fixtures, which can leach significant amounts of lead into the water, especially hot water. An inspection of the Old Bayside Road water tank in November 2003 resulted in the renovation of the tank's interior and exterior to remove potential lead-based paint.

The Town of Chesapeake Beach is subject to a Schedule 4 Initial Distribution System Evaluation (IDSE) requirement based on its size and its use of chlorine as a disinfectant. Schedule 4 requires that the Town submit an ISDE consisting of a standard monitoring plan, system specific study plan, or a 40/30 certification by April 1, 2008.

E. Individual Drilled Wells

There are small pockets of homes, primarily along both sides of Old Bayside Road and MD 260 west of G Street, which are served by individual drilled welds. There are no known failures or shallow wells in Town.

F. Future Water Demand

Assuming that the build-out projections from the Town's Sewer and Water Master Plan are correct, Chesapeake Beach will accommodate an additional 1297 dwelling units from 2006 to 2016, and each new dwelling unit will use 200 gpd on an average day (as projected in Table 24 from the Sewer and Water Master Plan). This projection assumes an additional demand of 259,400 gpd (0.259 mgd) by 2016. If there were 1642 dwelling units in 2006 (projected using the Town's 2002 Comprehensive Plan household growth rate, applied to the 2000 Census household count, for a period of 6 years), and each used 225 gpd, it can be assumed that approximately 369,625 gpd (0.37 mgd) were being used. Using the Sewer and Water Master Plan projections for future new development, an additional 250,000 gpd will be used by 2016, totaling approximately 0.620 mgd by 2016. The water demand by 2016 would be just under the permitted allocation per day (0.63 mgd); however, due to the increase in development and usage, the Town should consider a Water Supply Capacity Management Plan in 2010 or 2011 to allow for an increase in its water allocation permit. It should be noted that information from the Town's zoning administrator projects that approximately only 823 additional DUs will be constructed between 2009 and 2016, and that there will be a total of 2,600 households in Chesapeake Beach in 2016. Table 29 demonstrates the projected Water Demand through 2020.

G. Future Water Supply

A 2004 hydrogeologic evaluation conducted by Earth Data Incorporated concluded that sustained withdrawal of groundwater from the Town's wells would lower the potentiometric surface in the Aquia aquifer in the vicinity of the site. The drawdown from these wells does not threaten the nearly 140 feet of available drawdown capacity, meaning there should be no adverse impact on the water resources of the area. Evaluation of short-term impacts on the potentiometric surface based on a sustained pumping rate of 620,000 gpd for 30 days concluded that the estimated drawdown of 3.02 feet is not significant when compared to the 140 feet of drawdown capacity.

The MGS report showed that the Aquia aquifer contains approximately 140-150 feet of available drawdown for Chesapeake Beach. The study also showed that the Upper Patapsco aquifer, which could be used to supply water to Calvert County, contains approximately 500-550 feet of available drawdown for Chesapeake Beach. The study indicated that Calvert County can supply ground water for its projected population growth through 2030 by increasing pumpage from the Aquia aquifer, or shifting as much as 50 percent pumpage from the Aquia aquifer to the Patapsco aquifer. The study also indicated that increasing pumpage in the Upper and Lower Patapsco aquifers would contribute minimally to draw downs near the outcrop area in Charles County (MSGS 2007).

Calvert County's projected groundwater demand for the projected population increase of 24 percent by 2030 could be met without shifting withdrawals from the Aquia aquifer to deeper aquifers; even a 20 percent increase above the projected increase in groundwater withdrawals would not cause draw downs to exceed 80 percent management levels. The projected groundwater demand for Calvert County indicated that the deepest simulated head for 2030 would be about 200 feet below sea level near Solomons, and the lowest available remaining drawdown would be approximately 141 feet at Prince Frederick (both in the Aquia aquifer). Shifting 25 percent of the public-supply withdrawals from the Aquia aquifer to the Upper Patapsco aquifer increases the remaining available drawdown at Prince Frederick to 157 feet, and shifting 50 percent increases the remaining available drawdown at Prince Frederick to 173 feet (MSGS 2007).

H. Recommendations

Below are recommendations from the Town's 2008 Sewer and Water Master Plan regarding infrastructure improvements to provide a more efficient water supply:

Improvement 2: Replacement of all galvanized steel and cast iron pipe, as discovered.

I. Policies And Planning Strategies

The MGS report did not identify any impediments to further development in Chesapeake Beach due to an insufficient water supply. The Town of Chesapeake Beach is estimated to be built out by 2016; however, there are many factors that could limit potential future development in the Town, including the amount of Critical Area surrounding the jurisdiction and the proximity to the Chesapeake Bay.

Thirty-six taps in the Town of Chesapeake Beach are owned and controlled by Calvert County. The County has confirmed that they have no plans to develop the taps they own within Town limits, in an effort to limit additional development within sensitive land areas in the county. Additionally, the surface water source for the Aquia aquifer is not located in Calvert County. In an effort to protect their source of water, the Town and County will implement water conservation methods to reduce the impact on water resources, included in the County's building codes, which require that all new and replacement plumbing fixtures be water-conserving devices. In addition to Calvert County's recommendations for securing the water supply, below is a list of suggested planning strategies the Town could implement to better manage the water supply:

- Use the Town Zoning Ordinance and Subdivision Regulations to ensure that, where possible, new development avoids areas near stream buffers or provides enhancements to existing buffers.

- Mandate sealing all wells that are not being used for potable water, except for agricultural uses, to protect groundwater sources.
- Review site plans for proposed development to ensure that all reasonable measures are taken to protect sensitive areas both during and after development.
- Acknowledge the role and functions that buffers play in new development and, to the extent possible, plant buffers in natural and/or landscaped vegetation to improve water quality. Encourage the reduction of impervious surfaces within the floodplain and 100-foot buffer of Fishing Creek by mandating permeable pavers, rain gardens, green roofs, and other sustainable measures to filtrate and reduce stormwater runoff.
- Encourage cluster development if residential development is expected in the area. Rely on overall dwelling unit density rather than rigid minimum lot sizes to determine the number of homes that may be built.
- Institute an urban forestry program aimed at substantially increasing the number of trees in the developed portion of the floodplain, like streetscapes, to reduce the amount of stormwater runoff from impermeable surfaces.
- Provide landscaping guidelines that discourage water-intensive plantings that require irrigation.

4.3 WASTEWATER

A. Assessments And Methods

To understand the distribution and quantity of flow in the wastewater collection system, a model was developed that used inputs of flow per EDU, which were estimated to be 225 gpd (a conservative value used for design purposes for pumps and piping), based on billing information from the Town. The number of EDUs added to each manhole was based on the number of houses nearby (based on house counts conducted by Stearns & Wheler). Commercial demands were added individually based on billing information. The flow was estimated to be 90 percent of the water demand and a peaking factor of 2.5 was used (typical commercial peaking factor).

B. Existing Septic Systems

Septic systems presently serve approximately 60 homes; primarily on the western end of Old Bayside Road and Stinnett Subdivision. The lots served by these systems are mostly larger lots than required for that Zoning District, which is Residential – Low Density. There are no known failures at this time. In the long term, the Town should look towards providing service to this area.

C. Existing Wastewater System

The Chesapeake Beach Wastewater Treatment Plant (WWTP) land and equipment is owned by the Town of Chesapeake Beach and the facility is operated by the Calvert County Division of Water and Sewerage. The capacity of the facility is jointly-owned by the Town of Chesapeake Beach, the Town of North Beach, and Calvert County. The *Chesapeake Beach Interjurisdictional Agreement* was finalized in 1980 and amended in 1989 and 1996. The WWTP services all portions of the Towns of Chesapeake Beach and North Beach, part of Calvert County outside the municipalities, and portions of Anne Arundel County (Rose Haven and Holland Point). All fixed expenses (non-variable), including capital

project costs, incurred in the operation and maintenance of the Chesapeake Beach WWTP are proportionally shared by the respective parties in the interjurisdictional agreement. Each jurisdiction received a fixed allocation (or percentage) of the total treatment plant design capacity of 1.18 MGD based on each jurisdiction's then-agreed-upon required capacity for anticipated ultimate flow contribution, referred to as "taps", whereby one tap is equal to 190 GPD.

According to this agreement, the flow allocation breakdown is as shown in Table 31 . As a result of the expansion to 1.32 mgd by Chesapeake Beach, the Town now has additional capacity as demonstrated in Table 43 .

Initially built in 1969, the WWTP has been modified through a series of projects in 1982, 1991 and 1999. This plant was upgraded to 1.0 million gallons per day (MGD) in 1991 and tertiary treatment was implemented. In 1999, the WWTP was approved for expansion up to 1.5 million gallons per day. In 1999, as part of the Biological Nutrient Removal (BNR) upgrades, the Chesapeake Beach WWTP increased its capacity to 1.180 MGD. In 2006, the plant was treating an average daily flow of 0.76 million gallons per day (mgd), but it is rated for an average daily flow (ADF) of 1.18 mgd. An interim expansion of the plant in 2008 expanded its capacity to 1.32 mgd. The facility has a future planned capacity of 1.5 mgd that is included in the Calvert County Comprehensive Water and Sewer Master Plan. Expansion of the plant to 1.5 mgd will also include the implementation of enhanced nutrient removal (ENR). Table 43 also illustrates the future available taps upon the expansion to the approved capacity of 1.5 mgd.

Municipal wastewater is conveyed to the plant through a network of sewers and pump stations. The Town of Chesapeake Beach operates seven pumping stations associated with its wastewater collection system. Four other pumping stations, three operated by North Beach and one operated by Calvert County, serve the collection system. Solids treatment consists of sludge stabilization using aerobic digesters followed by sludge dewatering with a belt filter press. The resulting dewatered sludge is transported from the Chesapeake Beach WWTP to the Appeal Landfill for collection, where it is loaded into a sludge trailer for transportation to dispose at the King George Landfill in Virginia, and is reported to be beneficially used as supplemental landfill cover.

Liquid treatment consists of influent screening, grit removal, and secondary biological treatment consisting of an activated sludge process with nitrification/denitrification, final clarification, disinfection, dechlorination and post aeration. The plant currently uses an "oxidation ditch" to perform biological nitrogen removal. Sodium aluminate is added to the wastewater treatment process for phosphorus removal and caustic soda is added for pH adjustment when necessary. The facility has stand-by ethanol feed in case the denitrification process requires additional carbon. The facility is designed to meet a 7-milligram per liter total nitrogen limit during the spring, summer and fall months. Treated effluent is discharged into the Chesapeake Bay by means of a 30-inch gravity pipeline that extends into the Chesapeake Bay to a point approximately 200 feet from the seawall. An analysis of I/I (Infiltration and Inflow) upgrades can be found in the *Town of Chesapeake Beach 2008 Sewer and Water Master Plan*.

The Town of Chesapeake Beach does not have an industrial pretreatment program. There are no significant industrial users discharging to the collection system; however, the Town's Water and Sewer

Use Ordinance does regulate discharges into the system. The ordinance prohibits certain types of discharges and discharges of substances higher than identified threshold concentrations. Section 4.18 of the Town's Water and Sewer Use Ordinance identifies prohibited substances to the collection system.

The current National Pollutant Discharge Elimination System (NPDES) permit (MD0020281) for the Chesapeake Beach WWTP became effective November 1, 2000 and expired on October 31, 2005. That permit allowed a capacity of 1.5 mgd. The updated permit was issued on Nov. 1, 2007. Note that the current permit limits are calculated for a flow rate of 1.18 mgd. Given the new expansion to 1.32 mgd, an evaluation of current nitrogen and phosphorus levels was completed to assess the system's ability to meet the new permit limits. Table 32 lists the current NPDES Permit Limits.

The plant was rated for an average daily flow of 1.18 mgd with a peak flow of 3.67 mgd in 2007, and in 2008, an additional 0.14 mgd of treatment capacity was made available. The current average daily capacity of the plant is 1.32 mgd and is rated for a peak flow of 3.95 mgd. As part of Maryland's Enhanced Nutrient Removal (ENR) program, the State has asked Chesapeake Beach to voluntarily participate in the statewide nutrient reduction initiative to reduce the amount of nitrogen and phosphorus discharged into the Chesapeake Bay and its tributaries. The Maryland Department of the Environment (MDE) has indicated that the ENR goals established for the planned 1.5 mgd capacity would also apply for the interim capacity of 1.32 mgd. Those goals are shown in Table 33

An evaluation of plant data shows that despite the increase in wastewater strength, the plant is operating well below the requirements of its current NPDES permit at the current flows. The facility is achieving very low concentrations of effluent nitrogen and phosphorus that far exceed its current requirements of 10 mg/L TN/TKN and 2.0 mg/L TP. The five-year (2001–2005) average effluent TN and TP concentrations are 3.6 mg/L and 0.9 mg/L, respectively. It should be noted that the plant was able to achieve an annual average effluent Total Nitrogen (TN) concentration of 3.6 mg/l for the years 2002 through 2005. This annual average effluent TN level is slightly higher than the annual average effluent TN goal of 3.0 mg/l, outlined in MDE's Draft Strategy for Enhanced Nutrient Removal; however, this assumes a flow rate of 1.18 mgd. Increases in the plant flow would likely cause the effluent TN concentration to increase, due to the decrease in hydraulic retention time in the aeration basins. Data for the years 2002 through 2005 also show that with chemical addition, the plant was able to achieve an annual average effluent Total Phosphorus (TP) concentration of 0.85 mg/l, which is lower than the NPDES limit of 2.0 mg/l. However, in order to achieve the 0.3 mg/l goal outlined in MDE's Draft Strategy for Enhanced Nutrient Removal, it would be necessary to provide chemical addition followed by effluent filtration. Due to the Town's difficulty in maintaining consistent levels of TP less than 0.5 mg/l without filtration, the Town would seek a tiered permit from MDE, in which their current permit levels would be maintained, until their annual average flow exceeds 1.18 mgd. Once this annual average flow is exceeded, the second tier of the permit would take effect. Table 27 shows the WWTP Effluent Performance data for the years 2001 through 2005.

D. Future Wastewater Demand

The majority of the Town's plans for future development include residential uses, totaling approximately 1297 additional DUs by 2016, according to the Town's Sewer and Water Master Plan. The Plan estimates that each EDU currently produces approximately 225 gpd and that the additional 1297 units will produce the same amount of wastewater. Therefore, approximately 1297 units using 200

gpd and producing approximately 225 gpd will add approximately 0.29 mgd of wastewater. An additional 0.29 mgd to the average treatment of 0.76 mgd, as of 2006, would total approximately 1.05 mgd by 2016, which is lower than the current rated capacity of 1.32 mgd.

The most current average yearly pollutant impacts from existing development in the Town can be found in Table 27 . The current yearly average TP (0.9 mg/L) and TN (3.6 mg/L) pollutant amounts, displayed in Table 27 , were multiplied by the conversion of 1.06 million gallons into 4012536 liters, to estimate the future pollutant impacts (in pounds) from proposed development in the Town. The calculation estimated the future TP pollutant impact to be approximately 8.0 lbs/day, and the future TN pollutant impact to be approximately 31.8 lbs/day. The estimated annual totals for these pollutant impacts are approximately 2,920 lbs/year (TP) and approximately 11,607 lbs/year (TN). The estimated annual TN fits within the Chesapeake Beach ENR mass-loading goal of an annual average of 18,273 lbs/year, but the annual TP load of 2,920, does not.

Currently, there is no available data for the water body assimilative capacity of the receiving waters of the Chesapeake Bay. As this information becomes available, it will be important for the Town to recalculate the pollutant loads from new development that has taken place, compare the loads with the water body assimilative capacity of the Bay, and revisit their Comprehensive Plan to determine if the pattern of new development and associated land use plan should be altered to lessen the impact of pollutant loads on the receiving water body.

The presence of a TMDL is a sign that pollution control efforts must outweigh additional pollution impacts from future land use change and the WWTP flows to prevent further degradation of the water body. For the receiving waters in the Town of Chesapeake Beach without a nutrient TMDL, a determination of the suitability of receiving waters cannot be made. However, for waterbodies with nutrient TMDLs, a preliminary assessment can be made. Pollution forecasts, although capable of comparing the relative benefits of different land use plans, are not precise enough to allow for a direct comparison to nutrient TMDLs. The Town of Chesapeake Beach recognizes, though, that waterbodies with nutrient TMDLs can only be considered suitable receiving waters if future nutrient impacts are offset. The Chesapeake Beach WRE includes recommendations for pollution control efforts to help achieve that goal. In addition, the Town of Chesapeake Beach recommends refining the pollution forecast in the future to allow for direct comparison to nutrient TMDLs as information becomes available.

Presently, the wastewater treatment plant is constructed to a capacity of 1.32 MGD. Based upon

Table 42 , the Town's share of the constructed capacity is 3314 taps. Per the Calvert County Water and Sewer Master Plan, Page 36, the treatment plant is approved for expansion to 1.5 MGD. The NPDES permit also approved the discharge of 1.5 MGD at the time of the outfall replacement.

Based on analysis of Town of Chesapeake Beach's available capacity, there are many taps as yet unassigned, i.e., they have been purchased for future uses on the respective projects. Richfield Station has reserved 200 rights to buy taps in the future. In February 2002, the developer of Richfield Station reserved 200 taps to be available exclusively to Richfield Station by paying a premium.

While there are adequate taps available to allow all commitments of reservations and unassigned taps to be honored, the approved 1.5 MGD capacity will be required to accommodate some of the development projected in this plan. Based on projected D.U.'s/yr in Table 5 and the currently available 694 taps, it is likely that in or around 2013, the available capacity will have been utilized. This coincides with the now-projected completion of the ENR upgrade and expansion.

E. Future Wastewater System

The wastewater plant expansion from 1.18 mgd to 1.32 mgd is currently complete and a detailed design of the ENR Upgrade and Expansion has commenced. The interim project included the construction of a shellfish protection tank to comply with storage requirements, a sequencing batch reactor (SBR) to provide additional treatment capacity and modifications to the influent pumps to provide additional pumping capacity. As per State regulations the ENR treatment process must be online and operational by 2011. The project will consist of the conversion of the existing nutrient removal process from BNR standards to ENR standards.

At a flow rate of 0.14 mgd, the Sequencing Batch Reactor (SBR) will be capable of achieving effluent characteristics of 10/10/4/1 Biochemical Oxygen Demand/Total Suspended Solids/Total Nitrogen/Total Phosphorus (BOD/TSS/TN/TP). Actual effluent quality will depend on operational control of the process. While denitrification filters would be recommended to consistently meet ENR-level TN standards following an SBR system, with good solids separation, the SBR alone is capable of approaching this level of treatment until the long-term ENR Upgrade and Expansion project is completed. The unit will have a constant feed rate at all times (through a supplemental treatment process) and will have an automatic Dissolved Oxygen (DO) control system, helping to optimize effluent performance during the interim operation period until the long-term improvements can be constructed.

It is estimated that the new SBR will be able to biologically achieve an average effluent TP concentration of 1.0 mg/L. While chemical addition is not required to meet this concentration at design loads, provisions would be made for the addition of chemicals to accommodate for the fluctuations in phosphorus and organic loadings. Table 34 shows the goals set by MDE, the ENR loading goals for the facility at 1.32 mgd requires an effluent TP concentration of approximately 0.34 mg/L. The existing biological process produces an average effluent TP concentration of 0.9 mg/L (per 2005 data) but would have to produce an effluent TP of 0.26 mg/L to meet the ENR goals as shown in Table 35 . In order to achieve these low levels of TP, chemical addition would be required followed by effluent filtration.

Since effluent filters are planned for the ENR Upgrade and Expansion, the plant will rely on chemical phosphorus removal during the interim expansion.

The following projects and related costs of implementing the WWTP upgrade can be found in the 2008 Calvert County Water and Sewer Plan:

- *The Chesapeake Beach Wastewater Treatment Plant Outfall Project* replaced the outfall for the Chesapeake Beach WWTP. The cost share was divided based on ownership of the plant, as shared by the partners, which are the Towns of North and Chesapeake Beach, and Anne Arundel County.
- *Chesapeake Beach Wastewater Treatment Plant Screw Pump / Emergency Holding Tank Project* included the replacement of the influent screw pumps at the Chesapeake Beach WWTP, and created an emergency holding tank for the facility. A total of 35 percent of the project, in which Calvert County did not participate, expanded the plant capacity. The cost share was divided based on ownership percentage of the plant, as shared by the partners, which are the Towns of North and Chesapeake Beach, and Anne Arundel County.
- *The Chesapeake Beach Wastewater Treatment Plant Reconstruction and ENR Upgrade Project* will replace equipment at the Chesapeake Beach WWTP, which has reached the end of its useful life. Concurrently with this replacement the plant will be modified for Enhanced Nutrient Removal. A portion of the project, which Calvert County will not participate in, will also expand the plant capacity. A grant from the state Bay Restoration Funds is expected to cover 40 percent of eligible project costs. The balance will come from a Maryland Department of the Environment loan. Construction is set to begin in the first quarter of FY11 and is expected to be completed in FY12-FY13.

In summary, the WWTP will have limited ability to reduce TP loads to meet the ENR goals until the expansion is complete. As the WWTP goes through its expansion, it will be important for the Town to continue to do what they can to keep the levels of TP and TN as low as possible. An additional limitation will be completing the impact analysis of the Town's pollutant loads on the Chesapeake Bay until the data on the Chesapeake Bay's water body assimilative capacity becomes available.

F. Policies And Planning Strategies

The Land Use element of Calvert County's 2004 Comprehensive Plan outlines Priority Funding Areas and Priority Preservation Areas in Calvert County, which are contained in Chesapeake Beach Community sewerage systems, such as the system in Chesapeake Beach, are permitted in all town centers, as long as they meet criteria, which the Town's does. The County's 2008 Water and Sewerage Master Plan prohibits new sewer service areas from being designated in Priority Preservation Areas, which the Town respects and upholds. It also limits new sewer service in the Rural Community Districts, which the Town also observes.

The Public Facilities and General Services chapter of the Calvert County Comprehensive Plan calls for the County to "be proactive in the development of infrastructure in town centers, as called for in town center master plans." Since the Town of Chesapeake Beach is a designated town center, Chesapeake Beach's sewer system will have to be consistent with the Public Facilities and General Services chapter

of the County's Comprehensive Plan and their Capital Improvements Program. Included in the County's Water and Sewerage Master Plan are the following recommendations:

1. Require new sewerage treatment systems to be land application systems and explore other beneficial ways of reusing wastewater.
2. Continue the policy of restricting new sewerage services areas for multiple users to Priority Funding Areas, except for connection to septic failure areas, which, in those cases, should only connect to existing developed lots.
3. Develop and/or update wastewater capacity management plans for all county-owned or operated community sewerage systems.
4. Estimate the approximate quantity of additional households and the associated commercial and industrial development and approximate quantity of additional wastewater capacity needed to support projected growth in the priority funding areas for the 2009 update to the County Water and Sewerage Master Plan.

The Town of Chesapeake Beach will need to work with County planning staff by providing the County with information as the actions begin to take form, as well as identify methods of implementation and evaluation to ensure that these goals are met. The Town will also need to work with the County to evaluate the ability of the new wastewater treatment plant expansion to transition to a land application system.

The following recommendations for wastewater in Chesapeake Beach can be found in the Town's Sewer and Water Master Plan:

- Ensure the safe and environmentally sound disposal of solid waste, wastewater, and hazardous waste generated in Chesapeake Beach.
- Reduce nutrient pollution from sewage treatment facilities.
- Provide chemical addition followed by effluent filtration to achieve the 0.3 mg/L goal for TP outlined in MDE's Draft Strategy for Enhanced Nutrient Removal.
    - Address ways to treat increases in the effluent TN concentration from additional development before the Town reaches build-out.
    - Identify the impacts of the Town's pollutant loads on the water body assimilative capacity, when the data becomes available.
    - Encourage reassessment of the Future Land Use Concept and pattern of new development in the Town's Comprehensive Plan when the pollutant load impact on the water body assimilative capacity is completed.
    - Ensure that the Town seeks a tiered permit from MDE to maintain consistent levels of TP less than 0.5 mg/l without filtration.
- Promote conservation of resources; e.g., solid waste source reduction, reuse and recycling of waste, and water conservation.
- Investigate efficiency and effectiveness of regional approaches to waste management.

- Identify and require correction of malfunctioning septic systems.

4.4 STORMWATER MANAGEMENT

Streams and creeks in Calvert County suffered from sedimentation from extensive farming in the County and surrounding areas. Two major factors that affected water quality in the 1960s were the use of inexpensive chemical fertilizers, which generated excess nitrogen and phosphorus, and sprawling residential development, which generated an increase in septic effluent, the construction and use of treatment plants, and the use of lawn fertilizer.

A. Stormwater Ordinance

The state adopted a stormwater management ordinance in 1982, which required localities to enact supporting stormwater legislation. Calvert County created a Stormwater Management Ordinance in July of 1984, which was updated in 1996 and again in 2001, in response to the 2000 Maryland Stormwater Design Manual. In 2000, the EPA also approved a plan by the Chesapeake Bay Program to improve water quality by 2010. The Town of Chesapeake Beach has adopted the Calvert County Stormwater Management Ordinance, as amended. The County ordinance is applicable within the Town limits and is enforced through a stormwater management permit process by Calvert County. Therefore, all development in the Town must comply with the Calvert County Stormwater Management Ordinance.

In addition, the Town regulates stormwater management through its Critical Area Protection Program for Intensely Developed Areas (IDAs) within the Critical Area. Development and redevelopment in an IDA requires stormwater management practices to achieve a 10 percent reduction of predevelopment pollutant loadings and limit stormwater runoff to a lower volume or rate than would have resulted from a 10-year storm (This is commonly know as the 10% Rule). Provision of on-site or off-site offsets will be required if the stormwater management practices do not achieve the 10 percent reduction in predevelopment pollutant loadings. To the extent possible, development and redevelopment in an IDA should delineate permeable areas of the property that are maintained or permanently established in vegetation. Nonstructural shore erosion control measures should be included where appropriate, on and near portions of the property proposed for development. Structural measures to control shoreline erosion must be constructed if shore erosion control cannot be met using nonstructural measures. To the extent possible, development and redevelopment in an IDA should cluster development to reduce impervious surfaces and maximize areas of natural vegetation.

All site plans must include a Stormwater Management Plan that complies with the Stormwater Management Ordinance and includes a Sediment and Erosion Control Plan, a planting plan (as required), and an Environmental Assessment Report that describes how the proposed development addresses the goals and objectives of the Town of Chesapeake Beach Critical Area Protection Program.

Should any additional stormwater regulations be enforced through the Calvert County Stormwater Ordinance to modify local building codes and/or planning/zoning requirements as deemed necessary to minimize impediments to the use of nonstructural Best Management Practices, the Town of Chesapeake Beach could adopt those policies.

B. Affected Stream Bodies

As stated in the Chesapeake Beach 2002 Comprehensive Plan, Fishing Creek is a direct tributary to the Chesapeake Bay. The watershed drained by Fishing Creek extends far beyond the Town's boundaries, encompassing land bounded by MD 2 to the west and Dalrymple-Guy Hardesty Roads to the south. To the north, the watershed follows Mt. Harmony Road and MD 260, and extends north as far as 5th Street extended. Fishing Creek is directly impacted by development within this area, and the Chesapeake Bay is more directly impacted than would be the case if Fishing Creek were a more complicated stream system.

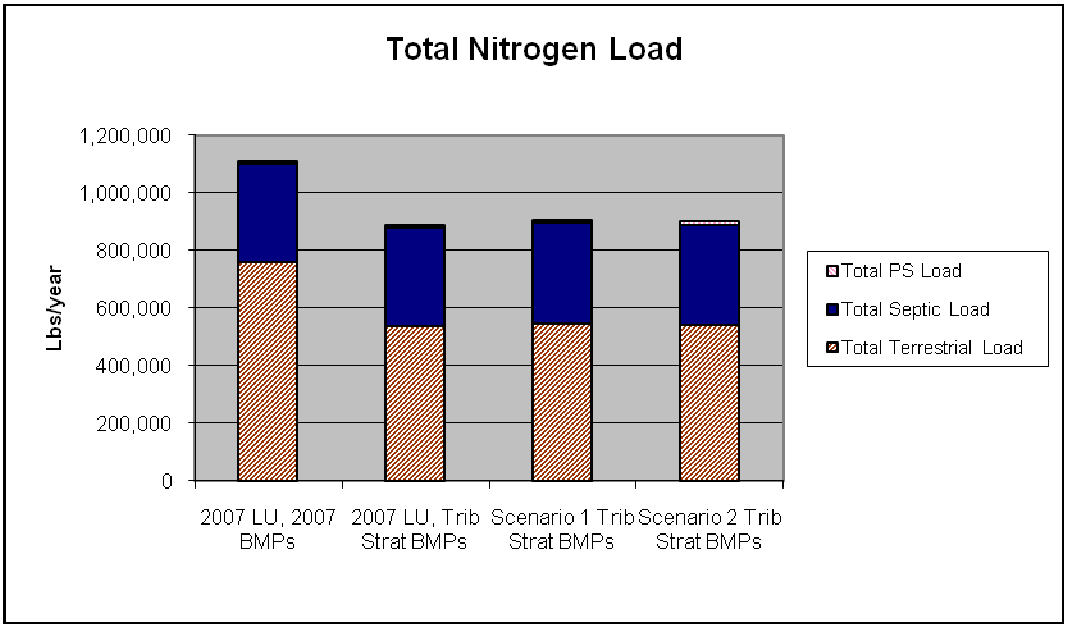
The mouth of Fishing Creek and the shoreline of the Bay (in much of the Town) are under structural control, using bulk heading or revetment. The shorelines in most of the Town are intensely developed with impervious surfaces, much of the area is largely devoid of natural vegetation, and natural riparian environments are not well supported. The Fishing Creek floodplain, as defined by the 100-year floodplain, within the borders of the Chesapeake Bay, encompasses approximately 300 acres. Part of this area is developed and flooding in this area is a natural potential occurrence made worse by existing impervious surfaces. Most of the floodplain that is undeveloped comprises tidal and non-tidal wetlands, which help attenuate flooding, prevent shoreline erosion, improve water quality and provide protective habitat for native plants and wildlife.

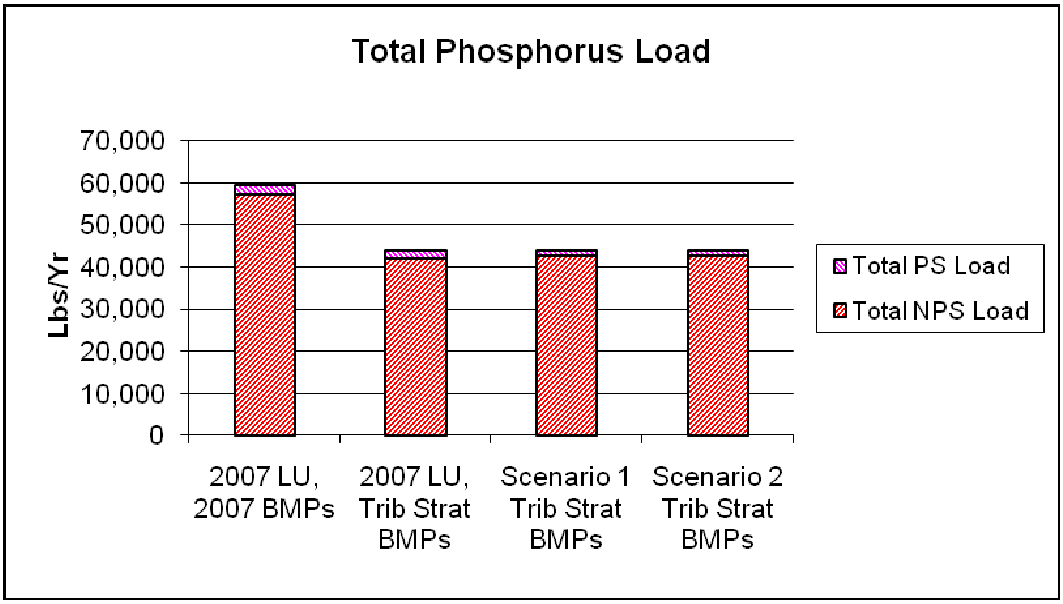
Much of Calvert County's soil is highly erodible, due to the use of previously-forested areas for cropland, and a significant amount of erosion has occurred, filling wetlands and scouring stream banks and beds. Most sedimentation in Calvert County's streams has been the product of stream bank erosion caused by the lack of stormwater management. The Maryland Biological Stream Survey found that 44 percent of stream miles in the County had eroded banks, and that 77 percent of stream miles in Calvert County had extensive or moderate in-stream sand bars; however, no streams were without sandbars. Eroded bands and bar formation have significantly impaired the physical habitat index for benthic communities.

Currently, no comprehensive assessment of nitrogen in Calvert County streams has been completed. The County has identified the need to pursue a systematic study of nitrogen in County streams, which would include Fishing Creek in the Town of Chesapeake Beach. Until this study is done, the County has encouraged reducing nitrogen levels in new development, septic systems, farmland and lawns.

Quoting from the Calvery County Approved Comprehensive Plan: "Utilizing the Chesapeake Bay Model formulas provided by the Maryland Department of the Environment, staff estimated nutrient loads for nitrogen and phosphorus for 2030 (the approximate buildout limit based on current zoning). The first bars in both charts (next page) represent the nutrient loads based upon 2007 land uses (LU). The second bars represent the estimated nutrient loads assuming "best management practices" (BMPs) based upon the tributary strategy. The initial numeric reductions in nutrients between the 2007 land uses (the first bar) and the second bar are mainly attributable to anticipated tributary strategy "best management practices" implementation. The third bars, Scenario 1, represent Calvert County's buildout, if 35% of all future residential growth is located in the Town Centers with community sewer. The fourth bars, Scenario 2, represent County buildout if 45% of all future residential growth is located in the Town Centers with community sewer. The negligible increases in nutrients, with both scenarios, are a result of

the County's stewardship mentality and its growth management strategy. Whether or not the reductions from the 2007 nutrient loads will result in good water quality will be determined through water testing.



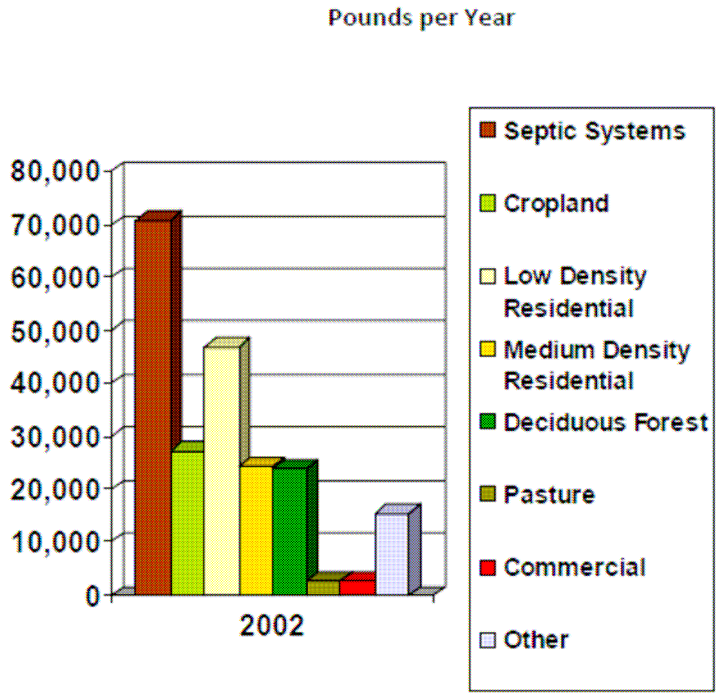


C. Sources of Nitrogen and Phosphorus Pollution

The Chesapeake Bay side of Calvert County, which includes Chesapeake Beach, contains many septic systems. Septic systems in Chesapeake Beach remain the largest contributor of nitrogen pollution to the

Bay; the second highest sources being low-density residential development and cropland, and the third-highest sources being medium-density residential development and deciduous forests.

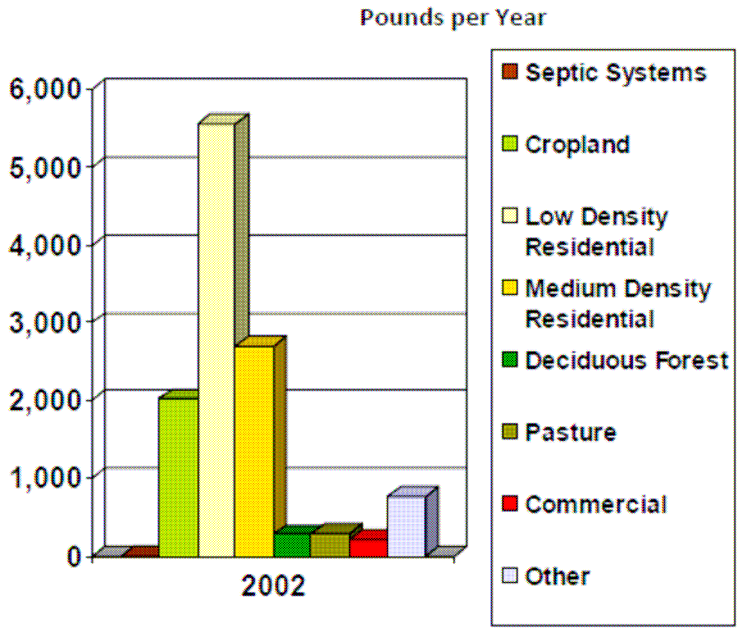
Nitrogen Sources on the Bay Side Watershed According to the Bay Model



A Sustainable Strategy for Calvert's Aquifers and Watersheds

Phosphorus helps plants grow and is a more stable nutrient than nitrogen, which is a soluble nutrient. Phosphorus deposits on the Chesapeake Bay side of Calvert County predominantly come from fertilizer on lawns and fields, and sediment erosion into waterways. Calvert County has had success controlling phosphorus levels by using land application systems at the major sewage treatment plants, which are also leading contributors of phosphorus pollution.

Phosphorus Sources on the Bay Side Watershed According to the Bay Model



A Sustainable Strategy for Calvert's Aquifers and Watersheds

D. Impervious Surface and Tree Cover

Most studies show a strong correlation between good water quality and the amounts of forest cover and impervious surfaces on land. Because the benefits of forest cover significantly improve water quality, a general rule of thumb for healthy sub-watersheds is to maintain about 60 percent forest cover on land. In urban sub-watersheds, smart growth and other planning techniques may impede reaching a 60 percent forest cover, but the American Forests recommend an overall 40 percent urban canopy goal, a 50 percent canopy goal in suburban residential areas, a 25 percent canopy goal in urban residential areas, and a 15 percent canopy goal in commercial areas. The overall tree canopy in Calvert County is 56 percent. According to the Tree Coverage and Impervious Surface Map, Chesapeake Beach was covered by approximately 13.11 percent of impervious surfaces, including a portion of North Beach, and contained 30 percent tree cover in 2003. Maryland has (statistically) added the unnamed waterway, which discharges into the Chesapeake Bay at Seagate, as part of the South Creek sub-watershed. South Creek is the historical name of the stream at the northern side of North Beach, which discharges in the Chesapeake Bay. (See the map entitled North Beach Sub-Watershed Boundary on the next page) Chesapeake Beach contributes to one of two watersheds in the County that exceed 10 percent impervious surfaces. In an effort to avoid the long-term harmful effects of stormwater, this sub-watershed should be treated the same as urban sub-watersheds

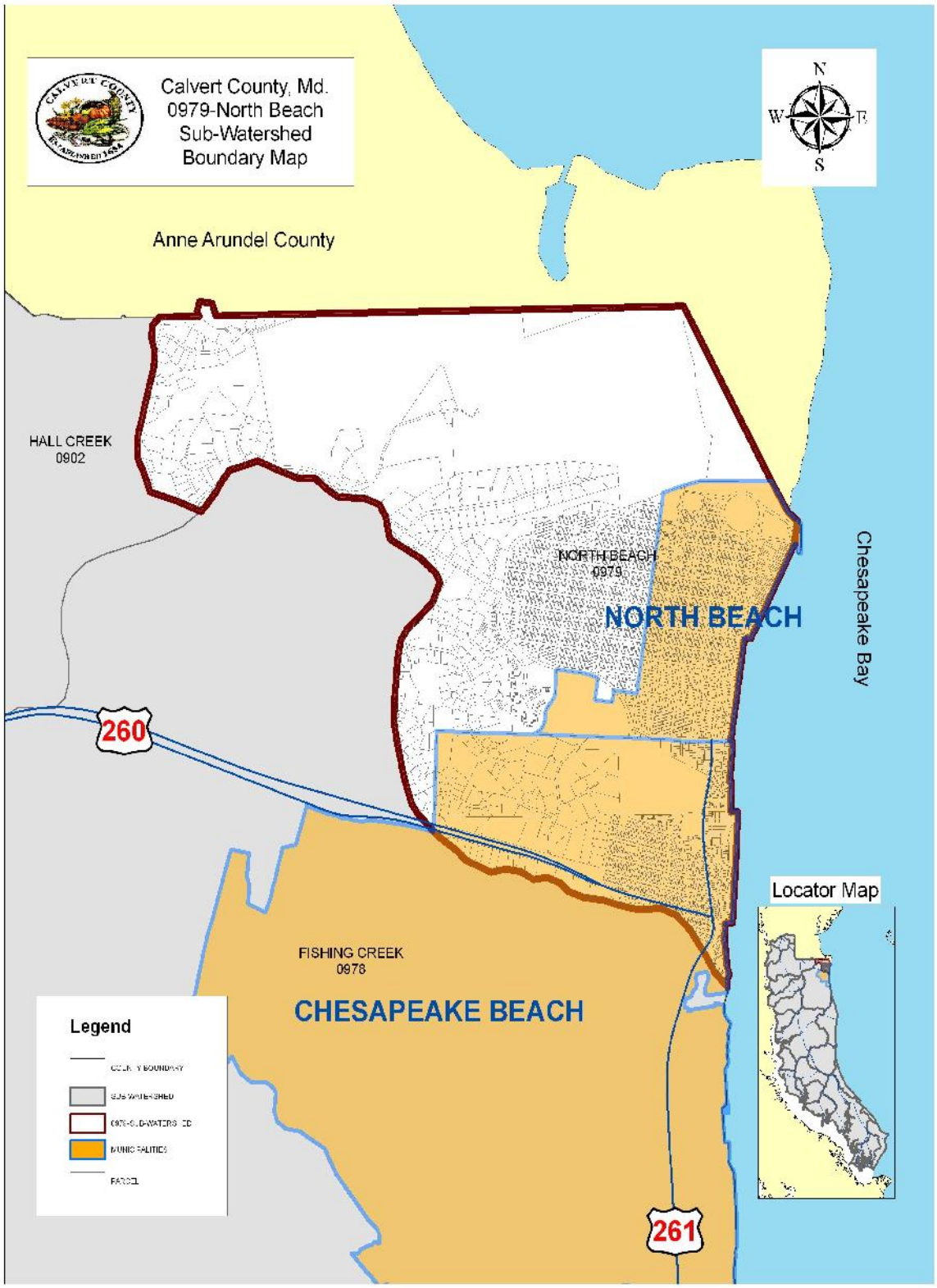
According to the Center for Watershed Protection, watersheds with less than 10 percent impervious surface are identified as "sensitive" with the potential to have good water quality, while sub-watersheds with 10-25 percent impervious surfaces are categorized as "impacted" and "urban"; however, it is important not to hold urban watersheds to the same standards as rural watersheds. The Center for Watershed Protection suggests that urban watersheds with 10-25 percent impervious surfaces (such as Chesapeake Beach) can achieve certain goals, such as "swimmable/fishable," but not stricter standards,

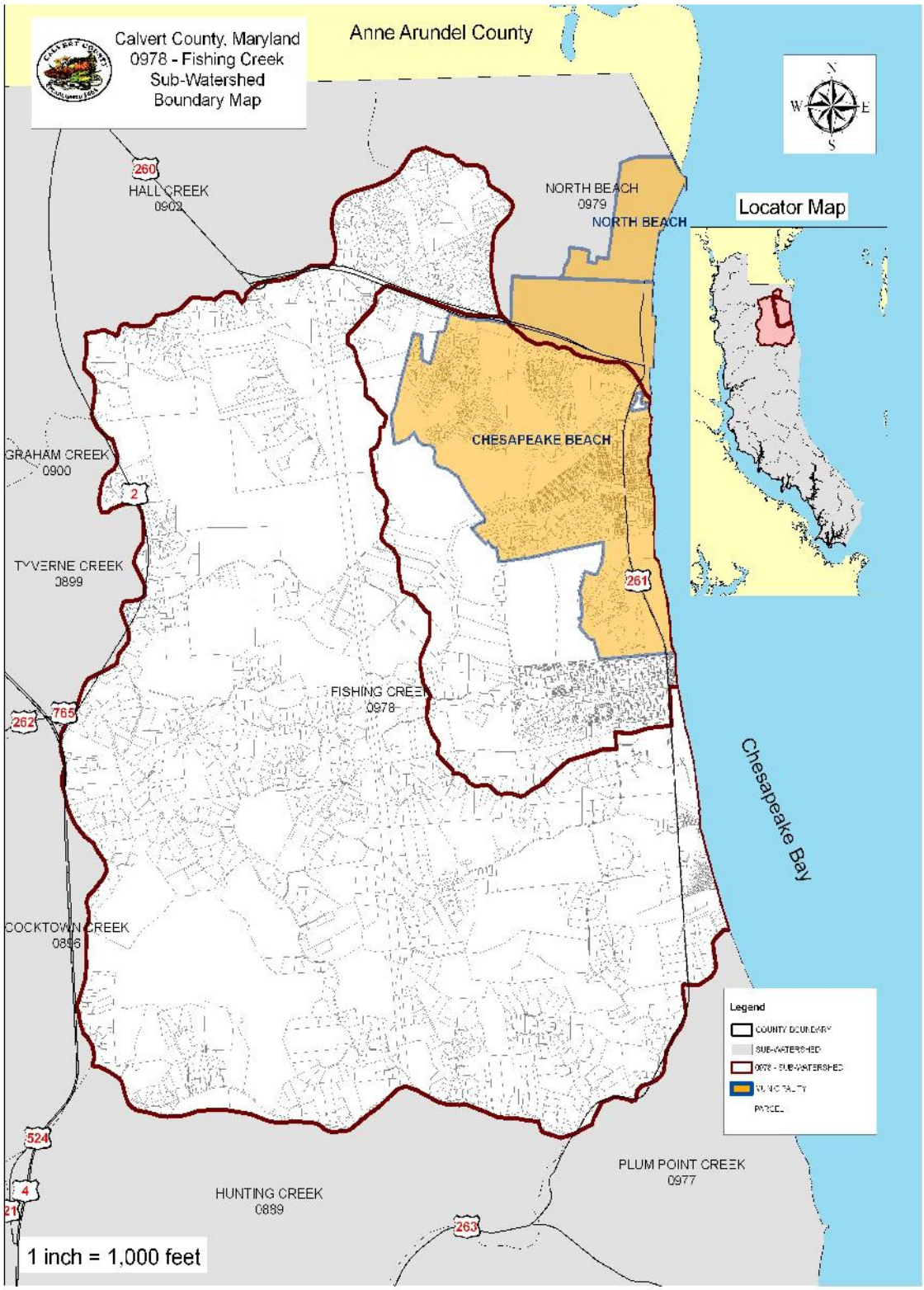
such as "keep shellfish beds open." Calvert County has stated that none of its sub-watersheds should exceed 25 percent impervious surfaces and that nutrient loads should be held to levels that will preclude algal blooms. Calvert County has established the following goals to recognize the roles of urban watersheds:

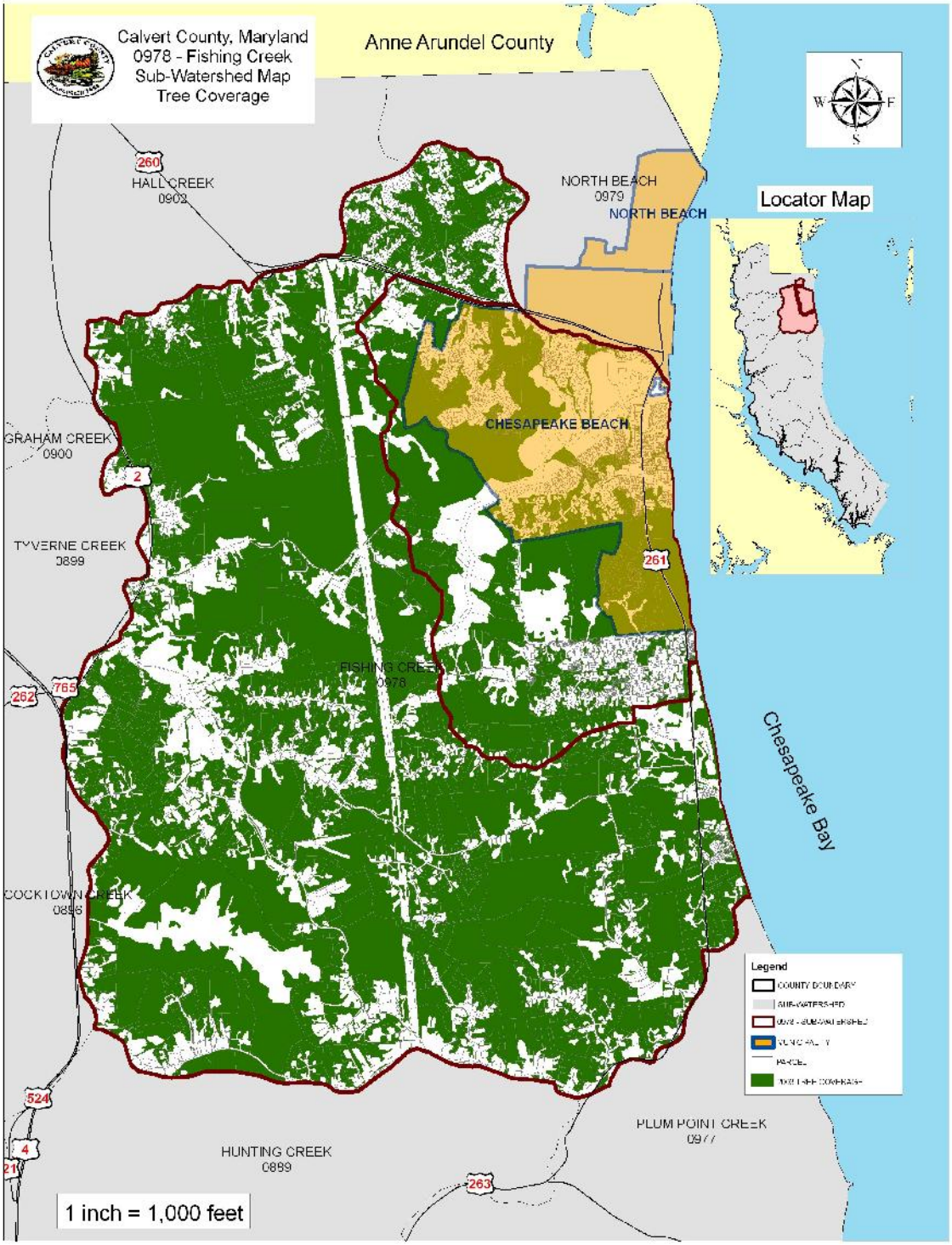
- Identify urban watersheds and set water quality goals for both types of watersheds
- Limit urban sub-watersheds to less than 25 percent impervious surfaces and establish a goal of at least a 40 percent tree canopy for urban sub-watersheds (Chesapeake Beach)

Additionally, Chesapeake Beach can also work closely with Calvert County in refining the analyses based upon projections in this Comprehensive Plan;

- continue to implement pollution reducing techniques such as:
- tree planting and forest conservation;
- implementation of stormwater management techniques as described in the 10% rule;
- participate in pilot projects such as oyster cultivation along the 2300 ± linear feet of the Chesapeake Beach railway trail


Calvert County, Md.
0979-North Beach
Sub-Watershed
Boundary Map
N
W
E
S
Anne Arundel County
HALL CREEK
0902
NORTH BEACH
0979
NORTH BEACH
Chesapeake Bay
260
Locator Map
FISHING CREEK
0978
CHESAPEAKE BEACH
Legend
261


Calvert County, Maryland
0978 - Fishing Creek
Sub-Watershed
Boundary Map
Anne Arundel County
Locator Map
HALL CREEK
0903
NORTH BEACH
0979
NORTH BEACH
CHESAPEAKE BEACH
GRAHAM CREEK
0900
TYVERNE CREEK
0899
FISHING CREEK
0978
COCKTOWN CREEK
0896
HUNTING CREEK
0899
PLUM POINT CREEK
0977
Chesapeake Bay
Legend
1 inch = 1,000 feet


Calvert County, Maryland
0978 - Fishing Creek
Sub-Watershed Map
Tree Coverage
Anne Arundel County
Locator Map
HALL CREEK
0902
NORTH BEACH
0979
NORTH BEACH
CHESAPEAKE BEACH
GRAHAM CREEK
0900
TYVERNE CREEK
0899
FISHING CREEK
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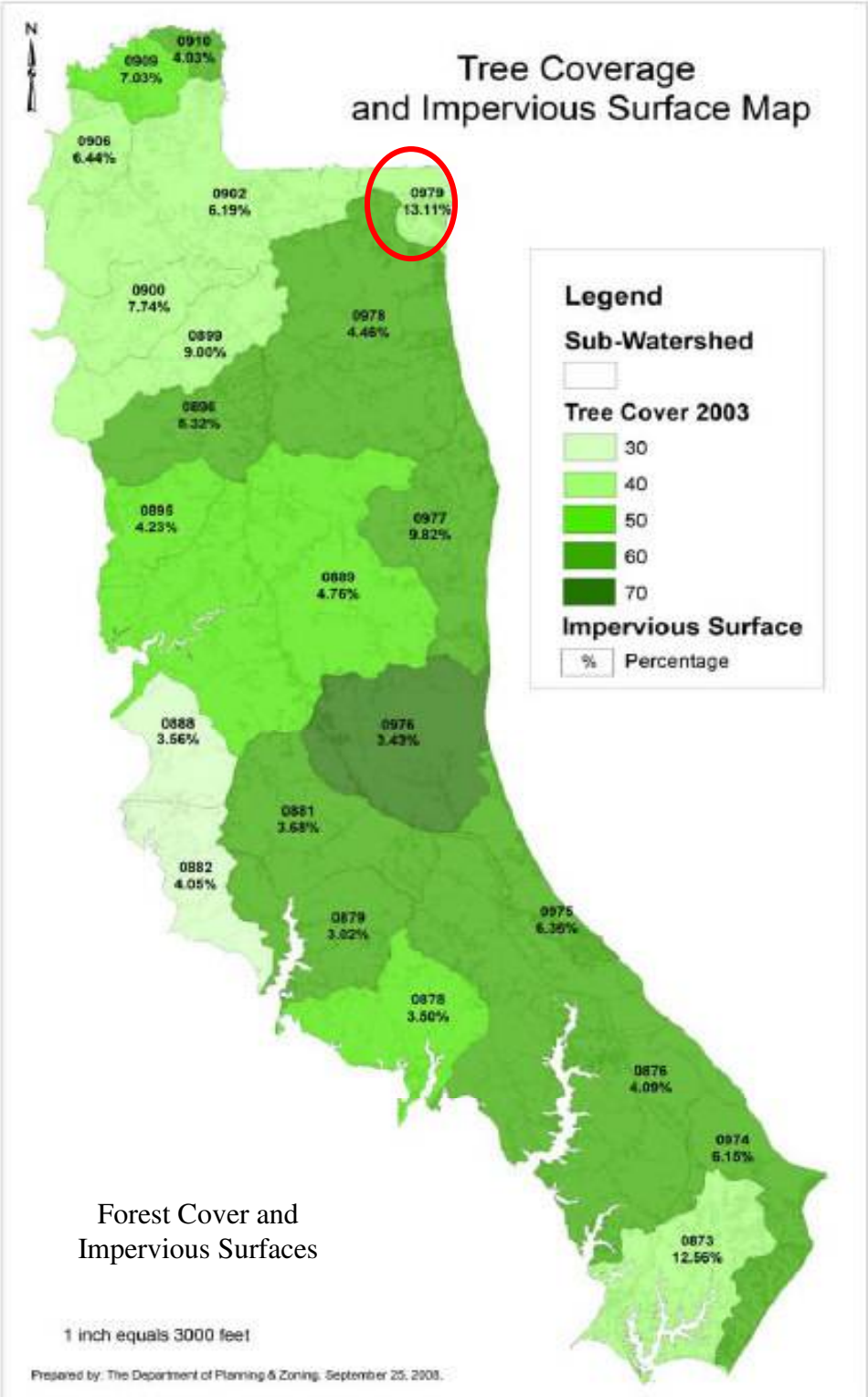
COCKTOWN CREEK
0896
HUNTING CREEK
0899
PLUM POINT CREEK
Chesapeake Bay
Legend
1 inch = 1,000 feet



A Sustainable Strategy for Calvert's Aquifers and Watersheds

4.5 POLICIES AND PLANNING STRATEGIES

In order to accommodate growth in the County and lower pollutant loads, the County has identified possible solutions that will be needed as the Town and County look at the sub-watersheds and prepare specific goals and action strategies for each. These possible solutions are shown in Table 36 Groundwater Pollutants

Other stormwater recommendations to improve water quality in the Town:

1. Establish the following goals for urban watersheds (>10 percent impervious surfaces):
    - Maintain fishable/swimmable status
    - Improve water clarity
    - Improve aquatic diversity in freshwater streams
2. Within the rural sub-watersheds (<10 percent impervious surfaces), achieve the goals above, plus the following:
    - Maintain or create anadromous fish spawning streams
    - Develop and maintain shellfish beds, with the goal of making them open to harvesting
3. Cooperate with Calvert County in the preparation of a watershed plan for Fishing and South Creeks, using the tools suggested in the Table 36 Groundwater Pollutants to help reduce pollutants.
4. Continue to monitor water quality:
    - Expand baseline studies of freshwater and tidal creeks.
    - Monitor effectiveness of wetland mitigation, rain gardens, rain barrels, nitrogen removing septic systems, and nitrogen barriers.
    - Evaluate water quality goals as progress is made
5. Evaluate the Landscape ordinance, with tree canopy goals in all large-scale projects.

SECTION 5.
FUTURE CONDITIONS

5.1 HOUSEHOLD AND POPULATION GROWTH

Table 24 shows the total number of estimated dwelling units included in this assessment. It consists of the proposed development in Chesapeake Village, Stinnett's Place Condos, Richfield Station, The Heritage, Chesapeake Beach Properties, Harbor Vista (North, North 2, and South), The Home Place, Fishing Creek Condos, Sunrise on the Chesapeake, and Rockwell. It is assumed that all projects from 2009 to 2016 have been or will be permitted and built, totaling an estimated 2,600 dwelling units in Chesapeake Beach by 2016 (See Table 26 for unit projections). Impacts on water and sewer resources in the Municipal Growth Element (MGE) and Water Resources Element (WRE) assume a different total dwelling unit projection, as information from the Town's Sewer and Water Master Plan utilized data from 2005 to 2008, which assumed different housing market projections.

Based upon the projections in Table 23 and Table 26 , it can be estimated that the Town population will grow by 1926 people by 2010, Table 22 demonstrates this.

Impact On Community Facilities And Services

New development in Chesapeake Beach and jurisdictions that share the wastewater treatment facility will be limited until the facility can accommodate the increased need for capacity. The shellfish tank has been constructed for interim capacity, but taps for new development will be limited for periods of time until the treatment plant can service additional development. Development in Chesapeake Beach may place an increased burden on the WWTP's capacity to service other users since the WTTP upgrade addresses a very specific amount of development in its future treatment capacity. Development that is not included in pre-determined capacity needs could be a burden to other areas serviced by the WWTP. Calvert County still has a significant amount of unused capacity in its allocation. Chesapeake Beach is the only jurisdiction sharing the WTTP that has added development and will raise its treatment allocation through plant expansion. In late 2004, North Beach approved and construction is ongoing for a new townhouse project – Townhouses at San Francisco on the Bay, which proposes 135 townhouses. This project still leaves a reasonable capacity for more growth in North Beach. Currently, none of the jurisdictions sharing the facility has requested an increase in its share of the facility. In addition, a new water tower is under construction for the Chesapeake Village subdivision. This water tower may increase the dependency on the surrounding jurisdictions for water in emergency situations if access to large amounts of water in Chesapeake Beach is unavailable during construction.

It is expected that fire and police service for the Town will be adequate to handle the anticipated population growth.

Development Opportunities And Constraints

A comprehensive plan must acknowledge the opportunities for sound development and the factors that constrain development. The following list is drawn from this and the foregoing sections of this report.

A. Opportunities

Compact Nature of the Town

The compact nature of Chesapeake Beach can promote accessibility, convenience, and community cohesiveness. Most commercial and institutional activities are within walking distance of most residents. Compactness is a prerequisite for a healthy and vibrant town.

Infill Potential

While large unused parcels are rare in Town, many smaller parcels are unused or underutilized. It is possible for the Town to accommodate commercial and residential growth at these locations.

Marina Development

Potential exists for vibrant and economically sustaining development within the marina areas along Fishing Creek. Space exists for a sizable increase in the intensity of marina and related tourism-oriented development. Through the use of good urban design, additional development may become an attractive asset within the Town's center.

Connecting Neighborhoods

Great opportunities exist for connecting the neighborhoods of Chesapeake Beach together and for connecting the neighborhoods to the Town's center. The Chesapeake Beach Railway Trail will "bridge" the sensitive resource areas and provide for alternative means of travel throughout Chesapeake Beach. Sidewalks along MD 260 and MD 261 were built.

Open Spaces on Western Edge

Calvert County, through its land preservation programs has permanently preserved large tracts of land on the western edge of the Town. These lands are very close to Fishing Creek and their preservation helps protect water quality, wildlife habitat, environmental health, and recreational opportunities.

Sensitive Natural Areas

Opportunities exist for preserving natural resource lands and sensitive sites for the benefit of future generations. The Town abounds in natural and sensitive environmental resources. As mentioned above, they provide opportunities for recreation. Also very importantly, these features will sustain Chesapeake Beach as it continues to grow from within. This is especially the case with respect to the large wetland areas, which help attenuate flooding, purify water, and support wildlife. As density increases, the importance of these natural features will grow.

B. Constraints

Sensitive Natural Areas

Marshlands, floodlands, and steep slopes limit the location of future development. The Town has largely conformed itself to these features as it has developed over time and will need to continue to recognize these constraints.

Geographic Expansion Limited

The geographic growth of the Town is limited. The Town borders North Beach on the north, permanently preserved lands on the west, the Summer City residential community, Randle Cliffs, and U.S. Naval Research Lab on the south, and the Chesapeake Bay on the east. The Town does not intend to expand current Town borders through annexation.

Transportation Capacity

MD 261 will become more congested over time. It is the only north/south route for the Town; serving both as a Main Street and a regional highway link. The capacity of MD 261 is limited and the highway cannot be widened further without significant impact to adjacent properties and a new wider bridge over Fishing Creek

Limited Developable Land

Most developable lands within Town are in some form of developed use already. The lack of developable lands may give rise to an increasing number of development disputes, as potentially conflicting land uses are pressed closer together. In future years, demand for new development will need to be accommodated through thoughtful and well-designed infill.

Factors Impacting Long-Term Development

Three important and interrelated factors are helping to ensure that Chesapeake Beach remains an attractive location for new residents. The implication is that growth pressures should remain strong in Chesapeake Beach.

C. Waterfront Location

Chesapeake Beach is one of only a handful of Maryland municipalities located on the Chesapeake Bay. The Town's shoreline with the Bay extends 2.3 miles. It offers a very scenic location with quality waterfront recreational opportunities.

D. Regional Location

Chesapeake Beach is located within the Washington Primary Metropolitan Statistical Area (PMSA), one of the wealthiest and fastest growing metropolitan areas in the United States. It encompasses about 4.5 million people and 3.4 million jobs. By 2020, the Washington PMSA will have added about 1.3 million residents.

Chesapeake Beach is located within 30 miles of Washington D.C. and may continue to be seen as an attractive option in the following residential real estate market segments: second and/or seasonal homes, retirement, and single-family attached and detached.

E. Growth Management Policies

County and State growth management polices seek to direct new residential and commercial development to planned and designated growth areas. These areas, known under Maryland growth management policy, as primary funding areas, include municipalities such as Chesapeake Beach.

The State of Maryland, largely through its funding of infrastructure, seeks to support capital projects that promote development within primary funding areas and to discourage projects that promote dispersion of population and employment.

In addition, Calvert County's Zoning Ordinance limits most commercial and high density housing to designated growth areas known as Town Centers. This policy may have the effect of directing some development into Chesapeake Beach that would otherwise locate outside of Town.

Also, the Calvert County Adequate Public Facilities Ordinance, which restricts approval of residential subdivisions until adequate school capacity is found to be available, does not apply to the incorporated municipalities of Chesapeake Beach and North Beach. Thus residential development in the Town is not constrained by area school capacity. However, County school impact fees, which fund new school construction, are collected for all new homes permitted in the Town.

5.2 SUMMARY

In summary, Chesapeake Beach can expect to grow from 3,399 residents in 2008, to approximately 5,325 residents in 2016. The Town can also expect to accommodate approximately 823 households by 2016, in addition to the approximately 1,777 households in the Town today. This Comprehensive Plan assumes that Chesapeake Beach will be built out in 2016 with a total of 2,600 households.

The current public sewer system expansion will accommodate projected (2016) household growth. Public water supply will also be adequate through the foreseeable future. MD 261 and MD 260 will continue to experience congestion under projected conditions and key intersections will need to be monitored to ensure they handle future traffic safely.

SECTION 6.
THE COMPREHENSIVE PLAN

The Comprehensive Plan focuses development and conservation policy on the issues facing Chesapeake Beach through the foreseeable future. The Plan is long-range, general, and comprehensive. It also implements the "visions" set forth in Article 66B of the Maryland Annotated Code.

- Development is concentrated in suitable areas;
- Sensitive (natural) areas are protected;
- Stewardship of the Chesapeake Bay and the land is a universal ethic;
- Conservation of resources, including a reduction in resource consumption is practiced;
- Economic growth is encouraged and regulatory mechanisms are streamlined;
- Adequate public facilities and infrastructure are available or planned in areas where growth is to occur;
- Funding mechanisms are addressed.

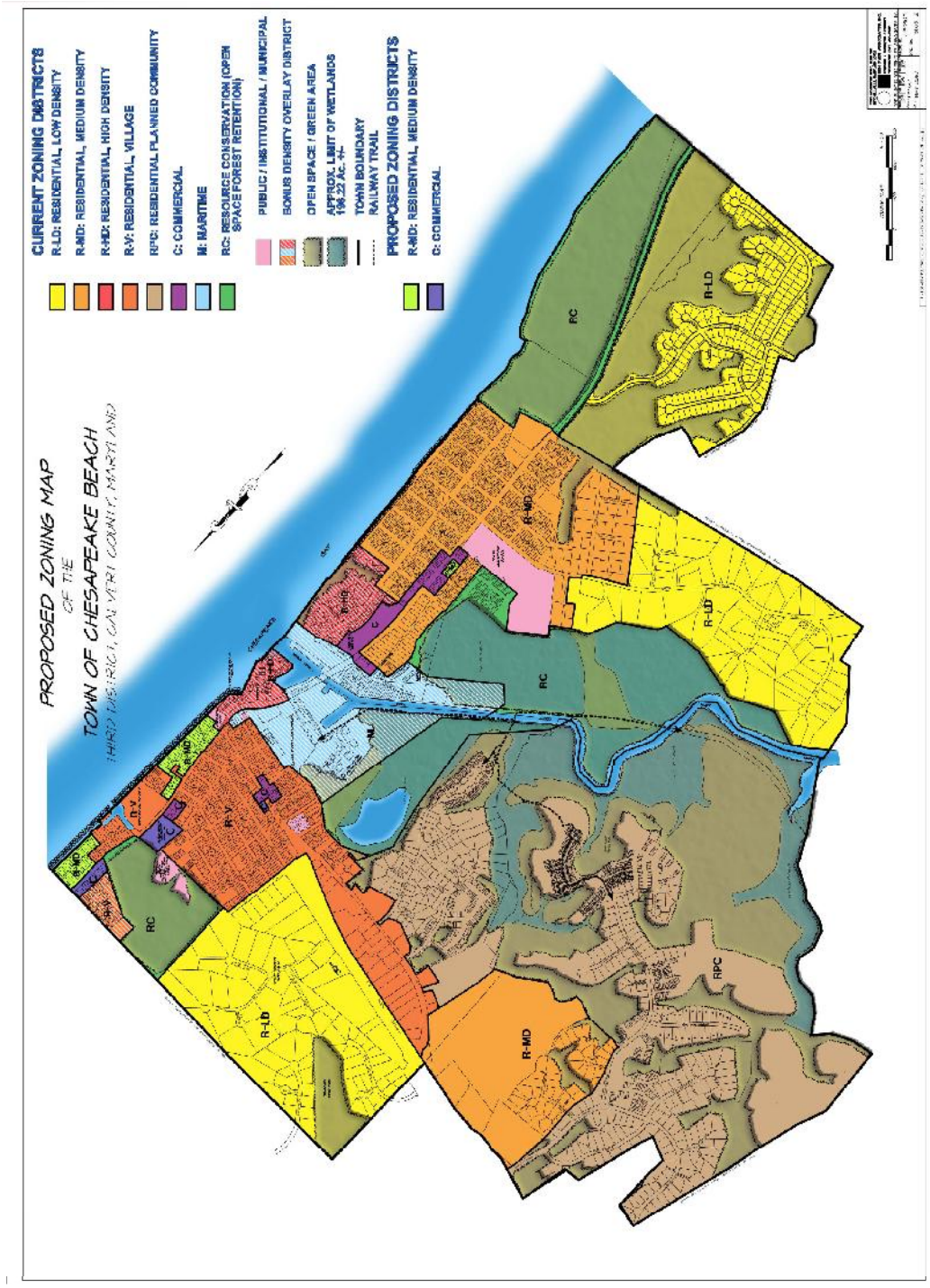
The objectives and policies set forth below are drawn from public input and the research and analyses presented in Sections 1 through 5 of this report. The Comprehensive Plan integrates the elements required by State planning law under five themes.[28]

- Development in Balance with Natural Resource Systems
- Development in Balance with Community Character
- Development in Balance With The Pattern of the Town
- Development in Balance with Community Facilities and Services
- Development in Balance with Regional Planning Policies

6.1 INTRODUCTION

As described throughout this report, Chesapeake Beach is a small town in a remarkable and sensitive natural setting. It is a collection of residential neighborhoods and commercial districts on the shoreline of the Chesapeake Bay and the banks of Fishing Creek. Its lands rise from sea level to elevations over 125 feet allowing breathtaking views of the Chesapeake Bay. Along the bay front south of Fishing Creek, bluffs rising to 30 feet in height dominate the shoreline topography. Houses, stores, and institutions are arranged throughout Town on lands divided by floodplains, tidal marshlands, and steeply sloping upland forests.

[28] The Town Planning and Zoning Commission prepared this Comprehensive Plan as called for by Article 66B of the Annotated Code of Maryland. Article 66B requires that a Town Comprehensive Plan contain the following: a statement of goals, a land use element, a transportation element, a community facilities element, a municipal growth element, and water resources element that contains the Commission's recommendations for land development regulations to implement the plan, and a sensitive areas element.



29

[29] Note that the proposed zoning map included in this Comprehensive Plan is illustrative and does not constitute the Town's official Zoning Map unless and until it is adopted as such by the Town Council.

Chesapeake Beach is a mostly compact town with multiple land uses in close proximity to each other. In this way, it represents the very model of town development that urban planners seek to replicate elsewhere. The core of the Town is its activity center. Civic buildings and retail shops are within walking distance of nearly half of the Town's households. This area is characterized by a historic pattern of waterfront development, which includes fishing, marina, and recreational uses. It is now developed in water-related commercial and residential uses and marina activities. Within the region, Chesapeake Beach is a desirable place for multiple types of housing. It is a tourist destination. It is located within one of the most prosperous metropolitan areas in the United States and, over the next decade, this region will continue to grow at a slower pace than in prior years.

A. Description of the Proposed Zoning Map

The residential categories in the Proposed Zoning Map are subdivided into three levels of density; low, medium, and high. The Comprehensive Plan recommends that residential development be the primary use in each of these areas and that the density of the housing reflects the category and designation. Additionally, the Residential Village district provides for a mixture of residential on lot sizes between those in the Low and Medium designations, mixed with low impact owner occupied commercial uses.

Residential Medium Density is suggested along the east side of Bayside Road from Windward Key to the North Beach boundary, skipping the wetlands, with exceptions to the following properties/projects: Crooked I, Bay Crest, Horizons, Sea Gate, and the projects that have received Preliminary or Final Planning Commission approval (under the Proposed Development of 2010 section on page 7)

There are 3 areas proposed for Commercial:

The west side of Bayside Road in the last block prior to entering North Beach

The North Beach Volunteer Fire Department Site

A small add-on to the west of A-1 Antiques on the north side of Chesapeake Beach Road

A small section of commercial is proposed to change to Residential – Medium Density. It is located on the west side of Bayside Road between 15th and 16th Streets.

The remainder of the Town will maintain the same land uses as are currently designated.

B. Specific Changes since the 2002 Comprehensive Plan

- The framing of Gordon Stinnett Avenue by mixed-use development. Framing means pulling new development (buildings) up to the street to create a more pedestrian-oriented environment. The buildings would be separated from the road by a wide sidewalk and adequate landscaped area.

The Proposed Zoning Map comprises the land use categories and corresponding suggested development: illustrated in Table 37 *Land Use Descriptions*

This Comprehensive Plan seeks to guide projected growth and development in a way that:

- Respects the current settlement pattern and town character, and
- Improves the quality and sustaining benefits of natural resource systems.

This is a long-term endeavor, extending generations into the future, but it is an endeavor, which recognizes that unique and vital ecological relationships exist in Chesapeake Beach. The Town has adopted a Critical Area Protection Plan that establishes policies and regulations for the protection of sensitive natural areas. In 2006, the Town adopted a Critical Area Commission approved "Forest & Developed Woodland Mitigation Program". The Town has incorporated those regulations into its Zoning Ordinance and Subdivision Regulations. The importance of the underlying natural resource systems will continue to grow over time as development occurs.

Citizen committees have achieved great accomplishments for Chesapeake Beach, including the boardwalk along the bay front, Veterans Park, and gateway landscaping along MD 260. Citizen committees have worked to improve the streetscape along MD 261 and to build the Chesapeake Beach Railway trail. County and State representatives are also contributing to these efforts.

This Comprehensive Plan builds on these and other accomplishments. It acknowledges key environmental constraints and aims to protect sensitive areas. It seeks to protect and sustain residential neighborhoods. It seeks to improve safety and convenience for pedestrians and minimize future traffic congestion. It promotes community health, safety, economic development, resource conservation, and a high level of aesthetic design. It advances the sound planning initiatives adopted by neighboring jurisdictions and is consistent with statewide growth management and conservation policy and planning legislation.

The principles, objectives, and polices of the Chesapeake Beach Comprehensive Plan are descriptive. To the extent possible, they relate directly to the built and natural environments. This is very important. Future generations will judge the lasting worth of our vision by observing the Town and the physical changes that will have occurred under guidance of this Plan.

6.2 DEVELOPMENT IN BALANCE WITH NATURAL RESOURCES

A. Background

Regulations and procedures regarding natural resources and sensitive areas are embodied in the Town's adopted Chesapeake Bay Critical Area Protection Program and incorporated into the Zoning Ordinance and Subdivision Regulations. The Critical Area encompasses 65 percent of the Town. The adopted Critical Area Protection Program is, by reference, made part of this Comprehensive Plan.

Per Article 66B, this Comprehensive Plan establishes policies to protect sensitive areas[30]:

- Land areas with slopes of 15 percent or greater;

[30] These are described and mapped in SECTION 2 EXISTING CONDITIONS of this report.

- Streams and their buffers;
- The 100–year floodplain; and
- Threatened and endangered species habitats.

This Plan reaffirms the protective measures set forth in the Town's zoning and subdivision regulations.

B. Guiding Principles

- Sensitive natural areas play significant roles in the quality and health of Chesapeake Beach. Marshlands and wetlands help attenuate flooding, prevent shoreline erosion, improve water quality, and provide protective habitat for native plants and wildlife. Steep slopes left in natural conditions help minimize flooding, soil erosion, and pollutant runoff. They also provide wildlife and plant habitat. Floodplains convey and store floodwaters. Buffers along streams help maintain water quality and support aquatic plant and wildlife.
- Natural areas also provide form to urban development. They define the edges of intensely developed areas and they provide wide, open spaces. Together these resources add to scenic beauty. Natural areas can link residential communities together and in so doing can become useful elements in town planning; they become environmental corridors.
- The underlying qualities of the land help determine which land uses are viable. Certain uses are incompatible with natural conditions and can cause irreparable harm for future generations. The Land Use / Natural Area Compatibility Table shows the theoretical relationship between intensities of development and the underlying resource base. It provides a guide, in principle, to sound development and conservation.
- When an historic settlement pattern prevents certain underlying sensitive areas from fulfilling their natural functions, it is often preferable to continue that development pattern. This is especially the case when it is clear that public health and safety can be ensured, adverse impacts to other resource areas can be minimized, other important public needs or objectives must be met, and importantly, over the long-term, improvements can be made to those underlying sensitive areas.[31]
- Growing in balance with natural resources for Chesapeake Beach means building upon its historic settlement pattern while seeking to improve the functions of the underlying natural systems.

[31] These areas have thus been exempted by state review agencies from the strict application of critical areas regulations.

Figure 6 Land Use/Natural Area Compatibility

Land Use / Natural Area Compatibility

Land Uses	Sensitive Natural Resource Areas: 100-Year Floodplain	Stream & Wetland buffers	Marshlands / wetlands	Habitats of Threatened / Endangered Species	Steep Slopes >15%)	Remaining Intact Woodlands	Bay Shoreline and Buffers
Urban	●	●	●	●	●	●	●
Low Density Residential	○	●	●	●	○	●	○
Marina Uses	●	●	●	○	●	●	●
Recreation							
Passive	●	●	●	○	●	●	●
Active	●	●	○	○	○	●	●
Resource Conservation	●	●	●	●	●	●	●

Key: ● Incompatible; ○ Low Compatibility; ● Medium Compatibility; ● Full Compatibility

The design of the Land Use / Natural Area Compatibility matrix was influenced by the work of Ian McHarg. See Design with Nature, 1969.

C. Proposition

As a result of ongoing legislation pertaining to the Critical Areas, it is reasonable to conclude that as development or redevelopment occurs, Chesapeake Beach will benefit from acknowledging the natural resources that are present and from systematically promoting the re-emergence of elements of the natural environment especially in the 100-foot buffer along Fishing Creek and the floodplain.

D. Objectives

- The remaining natural environmental features and sensitive areas, and the key roles each play in sustaining life and property in and around Chesapeake Beach, are protected.
- A community of landscaped and natural spaces is developed over time, which knits together Chesapeake Beach as it grows.

- Key natural functions of the floodplain, such as habitat area, native vegetation and water quality, and 100-foot buffer of Fishing Creek reemerge as property in these areas is developed and redeveloped. In compliance with the latest standards

E. Policies and Actions

1. Use the Town Zoning Ordinance and Subdivision Regulations to ensure that, where possible, new development avoids sensitive areas and areas near stream buffers.
2. Review site plans for proposed development to ensure that all reasonable measures are taken to protect sensitive areas both during and after development.
3. Acknowledge the role and functions that buffers play in new development and, to the extent possible, plant buffers in natural and/or landscape vegetation to improve water quality.
4. Protect the Randle Cliffs Natural Heritage Area from development and use the land only for resource conservation activities including low impact recreational, educational, or institutional activities[32].
5. Encourage cluster development on undeveloped lands planned for residential development. Rely on the overall dwelling unit density rather than rigid minimum lot sizes to determine the number of homes that may be built to reduce individual lots sizes and avoid unnecessary impacts to natural resource areas.
6. Institute an urban forestry program aimed at substantially increasing the number of trees in the developed portion of the floodplain and preserving standing wooded areas throughout Chesapeake Beach, particularly those wooded areas that can connect to other natural areas to form environmental corridors.
7. Encourage the reduction of impervious surface within the floodplain and 100 ft. buffer of Fishing Creek by mandating permeable pavers, rain gardens, green roofs, and other sustainable measures to reduce stormwater runoff.
8. Mandate the sealing off of all wells that are not being used for potable water, except for agricultural uses, to protect groundwater.
9. Utilize the Zoning Map, Future Land Use Table and the Land Use Compatibility table, to guide zoning and land use decisions regarding the impacts of proposed uses and densities on existing, surrounding uses.

6.3 DEVELOPMENT IN BALANCE WITH COMMUNITY CHARACTER

A. Background

The strong demand for housing in the region and the shrinking supply of available land within Calvert County continue to make Chesapeake Beach a center of growth and development. Much of this development will take the form of infill—that is, the use or reuse of vacant or underutilized parcels of land.

B. Guiding Principles

- Safe, quiet, and peaceful neighborhoods are a vital resource.

[32] As described on Page 16, the Randle Cliffs Natural Heritage Area encompasses threatened and endangered species habitat.

- The "performance" of land uses is vitally important. The potential impact to surrounding properties (noise, traffic, visual blight, parking demand, etc.) is the basis of conflict between land uses. The Land Use / Natural Area Compatibility Chart on page 89 illustrates the relative compatibility among land uses.
- Infill development and/or redevelopment can occur in a manner that respects the size, scale, and use of existing neighborhoods. Successful infill maintains and/or restores spatial continuity to streetscapes; strengthens neighborhoods; respects historic preservation, existing vistas, and natural resources; and introduces compatible uses that complement existing community attributes and needs.
- Growing in balance with community character for Chesapeake Beach means accommodating new development opportunities in a way that reinforces the small town character of neighborhoods, streets, and buildings.
- Context Sensitive Site Design Guidelines for new development, redevelopment and renovations along MD. 261 stress maintaining context sensitive harmony and continuity throughout all older traditional areas of the town, and along all primary roadway corridors through the town. The guidelines act to maintain a consistent streetscape theme that visually consolidates the town and unifies its identity as being a town with a rich heritage and historic past; and address existing and future development at the fringes of town to insure they become extensions of the town fabric rather than independent suburban clusters.
- Proposition

It is reasonable to conclude that as new development or redevelopment occurs, Chesapeake Beach will benefit from pursuing thoughtful infill development strategies that respect community character--neighborhoods, building styles, and architecture.

C. Objectives

- Safe, quiet, and peaceful neighborhoods where new land uses are compatible in performance, appearance, and scale with residential properties.
- High standards of design and aesthetics guide property development and redevelopment within Chesapeake Beach.
- The major vistas of the Chesapeake Bay remain open and available for future generations to enjoy.

D. Policies and Actions

1. For those neighborhoods where commercial uses have been permitted under current zoning, redefine the Zoning Ordinance to permit only the mix of low-intensity uses, which is compatible with residential character.
2. Insist on excellence in site design and architecture throughout Chesapeake Beach. Minimize automobile oriented site planning, which includes drive-through service windows and large roadway setbacks.

3. Keep the architecture of new buildings basically consistent in style, materials, size, and scale with neighboring properties.
4. Insist on strict enforcement of current appearance and building codes to uphold and improve, as needed, the appearance and quality of existing development and buildings.
5. Protect the remaining public vistas of the Chesapeake Bay, the locations of which are illustrated on the Pathways and Vistas Map. The Town should protect public vistas through the use of zoning and development plan review. In cases where bay front development or redevelopment is planned, the developer should provide for public vistas of the Bay from points outside of the project.
6. Treat landscaping as an integral part of site planning and design to accentuate public and private spaces, contribute to community identity, prevent visual blight, buffer incompatible land uses, and improve the function of the natural environment.

6.4 DEVELOPMENT IN BALANCE WITH THE PATTERN OF THE TOWN

A. Background

Chesapeake Beach grew along the road that is now MD 261 with neighborhoods fronting the Bay and recreational and marina uses along Fishing Creek. It is largely a compact town with multiple land uses in close proximity to each other. Sensitive natural resource areas separate its neighborhoods from each other.

Now MD 261 must provide for regional traffic and serve as the Town's "Main Street." The capacity of the highway is limited and expanding capacity by widening the highway or by building a Town bypass route does not appear possible or desirable.[33]

The Town's historic activity center—the area around Fishing Creek, which encompasses the marina--has great potential for vibrant and economically sustaining water-related and mixed-use development. Space exists there for a sizable increase in the intensity of real estate development. In recent years, the private sector has acknowledged this potential and the Town and SHA have constructed streetscape improvements and pedestrian amenities.

B. Guiding Principles

- Just as quiet and peaceful neighborhoods are a resource to protect and promote, so too are vibrant mixed-use activity centers, especially when they capitalize on a community's unique historic and natural settings.
- When a town is compact and accessible, residents and visitors can easily access activity centers and the opportunities within them. In small towns, institutional uses such as libraries, community centers, government and civic buildings should remain in or near the center of town in a mixed-use setting.

[33] Also, it is not likely that either alternative would further the long-term economic development interests of Chesapeake Beach, not to mention the protection of town character and environmental quality.

- Small towns can capitalize on their compact nature by building pathways along existing roads, between existing roads, and through natural resource areas. Sidewalks and bike paths provide an alternative to vehicles for many trips made within a town that is interconnected.
- With proper operation and management, highways that pass through small towns can serve a dual function (regional highway and "Main Street"). Good management of parking and driveways, efficient intersection control, and separating pedestrians from vehicles support mobility as towns develop into pedestrian oriented activity centers.
- Certain land uses contribute high traffic volumes to local streets during the peak (rush) hours. Other uses contribute far less traffic during these times. In balancing development pressures in the face of limited highway capacity, a community can consider the trip generation characteristics of land use development.
- Growing in balance with the Pattern of the Town for Chesapeake Beach means directing new development opportunities into arrangements that optimize connectivity and accessibility and minimize the need for travel by vehicle within the Town.

C. Proposition

It is reasonable to conclude that as new development or redevelopment occurs, Chesapeake Beach will benefit from promoting mixed-use development in a way that protects neighborhoods, provides for commercial development opportunities, and creates a vibrant activity center surrounding the Fishing Creek Bridge where a combination of natural resources, the historic settlement pattern, and the views of the Bay and Fishing Creek make for a unique and visually pleasing setting. Chesapeake Beach will benefit as it optimizes connectivity and accessibility throughout Town and beyond. The Town can benefit from pursuing polices that elevate the importance of pedestrian convenience and safety.

D. Objectives

- A land use development pattern that is built on the underlying network of roads, streets, and environmental corridors and promotes connectivity among neighborhoods, centers, and land uses.
- The Roots and Tides Scenic Byway resources are leveraged to make roads safer for pedestrians and cyclists as well as cars, trucks and farm machinery and seeks funding for technical assistance to property owners and marketing the byway as a visitor experience.
- The Town's center becomes a vibrant marina and activity center where land is developed and redeveloped in a compatible mixed-use pattern. A combination of water-dependent, water-related, and non-water-related uses would reflect the role that this area has as an important activity center for Chesapeake Beach.[34] It also reflects the Town's interest in year-round economic development.

[34] Water-dependent uses include those uses that require a waterfront location such as marina and moorage areas. Water-related uses include those that may be helped by a waterfront location but do not necessarily have to be on the water such as seafood processing, aquariums, parks, and restaurants.

- Gradually, the built environment along MD 261 through Town is intensified as new buildings are built on underutilized parcels and are situated closer to the street and closer to each other.
- A commercial base that is balanced to the needs of those living in and around Chesapeake Beach and supports tourism.
- Long-term transportation access and circulation throughout Chesapeake Beach is protected.
- Pedestrian and bicycle safety is increased with priority given to local pedestrian movements through the center of Town even at the cost of slowing vehicle travel speeds and increasing travel times along MD 261.

E. Policies and Actions

1. Revise the Zoning Ordinance, as needed, to keep it in conformance with the Comprehensive Plan.
2. Revise the Zoning Ordinance to reflect the needs and requirements of sound infill development practices. Encourage infill on vacant, abandoned, or underutilized parcels of land.
3. Within the center of Town, permit a mix of commercial, office/employment, civic, and residential uses in close proximity to each other and within the same buildings.
4. Pursue the enhancement and economic development of the marina areas, permitting flexibility in the regulation of development and redevelopment to promote environmentally sensitive and economically vibrant activities.
5. Replace the Fishing Creek Bridge with a new structure that provides more vehicular and pedestrian capacity especially at the Harbor Road intersection and is tall enough to permit larger boats to pass under, which is in keeping with this Plan's aim to develop the marina to its potential
6. Along MD 261, south of MD 260, give preference to land uses that do not generate their peak demands during normal rush hours. Such uses include hotels, senior housing, retirement communities, churches, medical and dental office buildings, hardware stores, restaurants, furniture stores, banks and financial institutions.[35]
7. Promote the development of new office space along MD 261 north of MD 260. The Town should promote new office space through the use of zoning, detailed planning for shared parking, streetscape infrastructure, and cooperation with state and county economic development officials and programs.
8. Develop a system of sidewalks and bikeways that connect all neighborhoods to each other and to the center of Town (see the Pathways and Vistas Map). Complete the pedestrian path and/or bikeway over the Fishing Creek marshlands to provide a pedestrian route to the center of Town for residents of the Bayview Hills and Richfield Station subdivisions.[36]

[35] Land uses that generate peak demands during the normal rush hours and thus could contribute disproportionately to congestion on MD 261 include: business offices, shopping centers, automobile care centers, gasoline service stations, single-family housing, apartments, and multi-family housing.

[36] The use of this trail system is estimated to be high for both residents and visitors.

9. In the design and development of the marina and other locations throughout Town, locate future bus stops and/or transit shelters for the Beach Trolley.
10. Continue to support the use of the Beach Trolley service in cooperation with North Beach to provide an alternative means of travel throughout the Twin Beaches, especially during peak seasonal periods.
11. As properties redevelop along MD 261 and MD 260 coordinate and/or consolidate driveways so as to minimize future congestion and improve traffic and pedestrian safety.
12. Continue to evaluate the streetscape along MD 261 though the center of Town to improve pedestrian safety and accessibility and overall street aesthetics.
13. Monitor conditions at the key intersections in Town and evaluate options to improve safety and reduce congestion over time.
14. Develop a coordinated approach to minimize seasonal traffic congestion through Town.

Pathways and Vistas
Town of Chesapeake Beach
Town Activity Center
Chesapeake Bay
Main Pathway
Vista
Recreation
Municipal Boundary Line
Streams
Wetland Boundary
Roads
Index Contour Lines
Intermediate Contour Lines
CONTOUR INTERVAL 5 FEET
SCALE 1" = 1200'
N

6.5 DEVELOPMENT IN BALANCE WITH COMMUNITY FACILITIES AND SERVICES

A. Background

Many of the community facilities and services on which residents and business rely will need to be expanded to accommodate anticipated residential growth. Some needs have already been recognized: the Twin Beaches branch library expansion, Fishing Creek Park, and public water and sewer services. Many jurisdictions and agencies provide the community facilities and services that serve Chesapeake Beach.

B. Guiding Principles

- Community facilities and services sustain and strengthen towns as population grows, provided their capacity, quality and accessibility are looked after.
- Community and civic facilities are best when they are highly accessible to the resident populations they are intended to serve and expanded, as warranted by demand.
- The programming of capital facilities through a Capital Improvement Program provides both public and private development sectors the intelligence needed to make sound real estate investments.
- Growing in balance with community facilities and services for Chesapeake Beach means recognizing capacity constraints where they exist and ensuring that adequate and accessible services are provided in a cost effective manner.

C. Proposition

It is reasonable to conclude that as new development or redevelopment occurs, Chesapeake Beach will benefit from programming the expansion of community facilities and services to correspond to demand and ability to pay.

D. Objectives

- Water and sewer services are expanded, as needed, to serve planned development.
- A sense of community identity throughout Chesapeake Beach is enhanced through the quality and accessibility of community facilities and services.
- Existing facilities and services are maintained, improved, and optimized as the Town grows.

E. Policies and Actions

1. Locate new and/or redeveloped civic buildings in the Town's center along pedestrian ways.
2. Develop a signing program that directs pedestrians and motorists to civic and recreational uses in Town.
3. Begin to identify an acceptable location for the planned expansion/relocation of the Twin Beaches branch library. As with other civic building, it should be located in the Town's center.
4. Continue to improve the Town's public water and sewer systems.
5. Expand public water supply and wastewater treatment capacity and infrastructure to serve anticipated development as warranted by demand.

6. Continue to monitor growth and development and work cooperatively with police and fire agencies to ensure that current levels of service are maintained over time.
7. Cooperate with the County on school issues to ensure that the schools attended by the Town's children retain their quality and accessibility.
8. Continue to program the maintenance of roads, sidewalks, and storm water management infrastructure.

6.6 DEVELOPMENT IN BALANCE WITH REGIONAL PLANNING POLICIES

A. Background

County and State growth management policies seek to direct new residential and commercial development to planned and designated growth areas. These areas, which have become known as primary funding areas, include Chesapeake Beach.

Because of State and County growth management policies, Chesapeake Beach is a target for new housing and non-residential development. The inherent conflict in this must be acknowledged: one of the most sensitive and unique environmental areas will accommodate a larger and larger share of the regional housing burden. This speaks to a need for long-term cooperation on the part of the State and County with Chesapeake Beach.

Currently, the schools and library in the Town are operated by Calvert County and two main roads are State-owned. The Maryland Departments of the Environment and Natural Resources, including the Critical Area Commission, also figure heavily in regulations concerning land conservation and development.

The sanitary sewer treatment plant is operated by Calvert County with capacity at the plant being shared among the County, North Beach, Chesapeake Beach, and nearby communities in Anne Arundel County.

B. Principles

- Implementation of a town's priorities and plans can be advanced when a town coordinates the planning of local projects with the broader policy goals of other jurisdictions and agencies of government.
- Cooperation among jurisdictions is important for long-term plan implementation because it:
  - Clarifies varying goals and the roles of stakeholders in development decisions.
  - Recognizes the sources and directs the uses of political and technical input and support.
  - Helps define priorities and guide the allocation of resources by eliminating conflicts and linking previously unrelated efforts.
  - Helps to yield structures and response systems, which can link the Town with non-local public and private resources.
- Growing in balance with regional planning polices for Chesapeake Beach means working with other units and agencies of government to help shape and implement policies to address issues of mutual concern.

C. Proposition

It is reasonable to conclude that as new development or redevelopment occurs, Chesapeake Beach will benefit from continued cooperation with the State agencies of government, Calvert County, the Town of North Beach, and other concerned levels and units of government.

D. Objectives

Coordination with neighboring jurisdictions and other governmental units and agencies contribute to sound and responsible regional growth and development policies.

E. Policies

1. Continue to work with the State and Calvert County to replace the bridge at Fishing Creek, and to achieve other projects that meet shared objectives.
2. Cooperate with the County and Town of North Beach to ensure that public transit services are expanded as needed to serve commercial and residential areas.
3. Work with County and State community and economic development officials to promote the development of office space in Chesapeake Beach.
4. Concerning the wastewater treatment, continue to work with Calvert County and the other jurisdictional partners to ensure that capacity is available to Chesapeake Beach as it accommodates a larger share of County growth and development.
5. Continue to cooperate with the State Highway Administration in the improvement of intersection control at key locations.
6. Cooperate with Calvert County in the review of land development and conservation projects located outside of Chesapeake Beach when such projects may impact Town interests, including the quality of Fishing Creek, the development of countywide recreational amenities, and the capacity of area roads.
7. Cooperate with the Town of North Beach and the Calvert County library system to ensure that the proposed 15,000 square foot library meets the needs of residents.
8. Utilize the non-mandatory guidance resources of the Southern Maryland Heritage Area Tourism management Plan (the "Heritage Plan") for those persons or bodies considering planning issues within the town, as the Town Council has affirmed the broad policy goals of the Heritage Plan. The specific policy recommendations included within the Heritage Plan shall not be used as a basis for granting, denying or interpreting applications for subdivisions, variances, special exceptions, zoning permits, zoning interpretation appeals, preliminary or final site plan approvals, or zoning text amendments. The plan shall be used as a resource for informing planners about the broad goals of regional public policy as adopted by the Town and other Southern Maryland local jurisdictions participating in the Heritage Plan.
9. Utilize the non-mandatory State Highway Administration's Scenic Byways CSS Guidelines for technical assistance in addressing all road improvements that occur along or in proximity to the scenic byway (MD261). [37]

[37] To download a copy of the Guidelines please go to http://www.sha.state.md.us/ExploreMD/oed/scenicByways/CSS-3.pdf.

10. Leverage State and National promotion of Scenic Byways and Heritage Areas, which have a significant impact on economic development through heritage tourism. There is a relationship between strong planning policies to preserve, protect and enhance character defining resources along Scenic Byways and within Heritage Area which has a positive effect on economic development activity within Chesapeake Beach that is compatible with and supports enhancing its historic past.

6.7 IMPLEMENTATION

Implementation brings people together so that their interactions produce successful outcomes. The Town of Chesapeake has an excellent record of proven success with implementation. While maintaining a small and efficient government, the Town has successfully directed the energies of interested and concerned citizens to achieve positive results.

Examples include Veterans Park and the Bayfront Boardwalk, MD 261 Streetscape Plan and the Fishing Creek Park and Chesapeake Beach Railway Trail Plan. In each case, through its citizen volunteers, the Town has cooperated with outside units and agencies of government. Citizen involvement and leadership should continue to be an element of plan implementation with professional assistance provided where needed.

A. Funding Mechanisms

Public sanitary sewer service and water supply in Chesapeake Beach are provided through an enterprise fund, meaning that capacity expansions are financed by new system users and not the Town's General Fund. The Town maintains a five-year Capital Improvement Program (CIP) to schedule infrastructure priorities with available revenues. It identifies capital projects and revenue sources which, in any given year, may include general obligation bonds, general fund balances, and County, State, or federal payments. As the Town envisions the end of large-scale development of land within its jurisdiction by 2016, the Town has embarked on a program of transitioning the financing of maintenance and repair costs of the water and sewer systems from new users to current users, through a gradual increase in user fees.

Most funding for Town projects comes from state grants, federal TEA-21 grants, and Town sources. Calvert County collects $600/unit for new residential homes in the Town to pay for recreational facilities; however, this fee does not apply to teardown/rebuilt homes. The Town collects $2,000 for each additional new unit in Richfield Station to pay for Town parks and recreation amenities, such as the Chesapeake Beach Railway Trail. Fees are also collected from developers who choose to forgo stormwater management measures. These fees-in-lieu include $600/DU for single family residential and $8000/impervious acre for commercial uses. Due to the large percentage of land within Town, which is in the Critical Area or has restrictive environmental limitations, there is limited opportunity for the collection of these fees.

The FY 2008 budget identified multiple sources of revenue that include: Treatment Plant revenues from Calvert County, North Beach, Chesapeake Beach and Anne Arundel County that are collected to pay for the new plant and include fixed revenues, Variable revenues, Capital revenues, grants, and other fixed costs; Water Park revenues; Utility revenues; and General Fund revenues. The County also requires an

excise tax on all new dwelling units, both inside and outside of the Town, to pay for school system needs.

B. Regulatory Mechanisms

Zoning regulates the use of land and the intensity and character of development and redevelopment. It is perhaps the most effective tool in guiding a Town's physical development. As previously discussed, changes may need to be made to the Zoning Ordinance and Map so that they conform the Comprehensive Plan.

Chesapeake Beach should adopt specific zoning guidelines to promote compatible infill development and good urban design.

Subdivision Regulations establish the requirements and standards for the subdivision of land and the construction of infrastructure to serve new development. In addition they establish the requirements and standards for ensuring that adequate public facilities such as street capacity and public water and sewer services are maintained. Developers of all significant projects should continue to be required to submit a study of their impacts on the Town's public facilities and services. The Town should continue to follow its Chesapeake Bay Critical Area Protection Program and update it as required by law and/or changing conditions, making the requisite changes to zoning and subdivision regulations.

C. Continued Planning Program

Town planning is a continuous process. The monitoring and review of public and private development projects is an essential task. This Comprehensive Plan provides a guide to the Town as it considers new projects and programs.

Chesapeake Beach should formally re-evaluate and update this interim updated Comprehensive once the 2010 Census is completed. A six year cycle is required by Article 66B of the Annotated Code of Maryland.

The Town's Planning and Zoning Commission should conduct a yearly assessment of growth and development in conjunction with their Annual Report responsibilities per Article 66B. The annual report should be made available to town residents and neighboring jurisdictions.

All proposed capital projects in Chesapeake Beach that affect physical growth and development should be referred to the Planning and Zoning Commission for review per Article 66B of the Annotated Code of Maryland.

6.8 CONCLUSION

The Town of Chesapeake Beach envisions growing steadily and conscientiously into an attractive location for families and tourists, with services that support existing residential communities, and development that respects the sensitive environment of the Chesapeake Bay. Primarily, the Town would like to remain a residential community with additional services that are appropriate and supportive of the community. To expand and diversify these services, the Town plans to promote commercial development that serves both seasonal and year-round residential communities, and establish initiatives

that enhance trail, park, and recreation facilities. It is envisioned that the majority of these services would be encouraged within the Town Center, along Chesapeake Beach Road. The long-term development plan discourages the encroachment of industrial uses into the Town to protect the environmentally-sensitive Chesapeake Bay, and encourages evaluating the environmental sustainability of the existing infrastructure network with regard to its impact on the Chesapeake Bay and reflection of the Town as a steward of "green" development.

SECTION 7.
APPENDIX OF TABLES

Table 1 : Population Growth by Decade: Chesapeake Beach and Calvert County

	1960-1970	1970-1980	1980-1990	1990-2000	2000-2008 (est) [38]	1960 -2008
Chesapeake Beach						
Percent Change	27.8	50.7	70.7	32.3	6.9	364.98
Annual Rate of Growth (%)	2.48	4.19	5.49	2.84	0.84	3.25
Calvert County						
Percent Change	30.7	67.5	48.3	45.1	19.0	460.46
Annual Rate of Growth (%)	2.71	5.29	4.02	3.8	2.19	3.66

Table 2 : Town of Chesapeake Beach Growing 4.6 Percent per Year; 2002 Chesapeake Beach Comprehensive Plan

Year	*2000*	*2005*	*2010*	*2015*	*2016*	*2020*
Population	3,180	3,982	4,986	6,243	6,638	7,817

[38] Updated data taken from the MDP Data Center "Population Estimates for Incorporated Places within Maryland for Jurisdictions" to July 1, 2008.

Table 3 : Town of Chesapeake Beach as 4.3% of Calvert County; 2004 Calvert County Comprehensive Plan Projections (MDP)

Year	*2000*	*2005*	*2010*	*2015*	*2020*
County	74563	83133	91000	93530	96000
Growth Rate		2000 to 2010 2.20%/yr		2010 to 2020 0.55%/yr	
Town as 4.3% of County	3,180	3,575	3,913	4,022	4,128

Table 4 : Town of Chesapeake Beach as 50 Percent of TAZ 1153 of TAD 205 (MWCOG)

Year	*2000*	*2005*	*2010*	*2015*	*2020*
TAZ 1153		6,411	7,140	7,306	7,469
Town as Percent of TAZ		50%	50%	50%	50%
Chesapeake Beach Population	3,180	3,201	3,570	3,653	3,735

Table 5 : Dwelling Unit Projections per Year

Year	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Estimated Dwelling Units		72	58	129	206	141	107	80	30
Total Dwelling Units	1,767	1,839	1,897	2,026	2,232	2,373	2,480	2,560	2,590

Table 6 : Population Projections U.S Census Bureau population projection and Dwelling Unit Projections (2009-2016)

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016
Population	3399	3608	3781	4095	4515	4855	5093	5245	5325

NOTE: This table starts the population projection with the U.S. Census Bureau value for the Town as estimated in 2008 and adds the calculated yearly values for the proposed new residences in Table 26

Table 7 : Population by Age Group: 2000

Years of Age	**Chesapeake Beach**	**Calvert County**
Under 18	27.2%	29.6%
Over 65	7.0%	8.9%

Table 8 : Household Growth by Decade: Chesapeake Beach and Calvert County

	1970-1980	**1980-1990**	**1990-2000**
Chesapeake Beach			
Percent Change	46.6	71.9	37.2
Percent Rate of Growth	3.90	5.57	3.21
Calvert County			
Percent Change	93.7	58.3	49.8
Percent Rate of Growth	6.83	4.70	4.12

Table 9 : Households in Chesapeake Beach: 2000

Households	Children in Household		Sum	% of Total Households
	Yes	No		
Family Households				
Married Couple Families	307	334	641	52.7
Male Householder, no wife	45	20	65	5.3
Female Householder, no husband	111	46	157	12.9
subtotal	463	400	863	70.9
Non-Family Households	14	340	354	29.1
Total Households	477	740	1,217	100.0

Table 10 : Town of Chesapeake Beach Growth by Past Development

Year	2005	2006	2007	2008	2009
Type and Amount of Development **(284)**	Single-Family (14)	Single-Family (16) Townhouse (13)	Single-Family (27) Multifamily (56) Townhouse (19)	Single-Family (33) Multifamily (30) Townhouse (6)	Single-Family (40) Multifamily (24) Townhouse (6

Table 11 : Median Household Income By Area

Area	Annual Income ($) 1999	2008
Washington PMSA – MD	60,500	114,500
Calvert County	61,800	108,200
Charles County	59,700	94,800
Frederick County	61,400	108,100
Montgomery County	68,500	139,850
Prince Georges County	55,000	87,000

Note: 2008 Data taken from MDP "Median Household Income for Maryland Jurisdictions"

Table 12 : Threatened / Endangered Species: Randle Cliffs Natural Heritage Area

Species	Habitat
Puritan Beetle	Intertidal zone, beach, cliff face, and upland forest along Bay shoreline
Plant: Red Turtle Head	Floodplain / non-tidal wetland areas to the west of MD 261
Plant: Glade Fern	Northeast-facing ravines and contiguous uplands between and above the ravines in the southwestern corner of the panhandle

Table 13 : Acreage in Critical Area Zones: 2010

Zone	Acres[39]	% of Town
Intensely Developed Area (IDA)	345	19.0
Limited Development Area (LDA)	121	6.7
Resource Conservation Area (RCA)	563 [40]	31.1
Excluded Area	77	4.3
Total area in Critical Area	1103 [41]	60.9

Table 14 : Current Zoning District Descriptions

Zoning District	Description	Minimum Lot Size	Allowable Density (DU/acre)	Density Yield (Allowable Density x .75)
R-Low Density	Preserve and protect a single family detached residential character by discouraging land uses that are incompatible with single family neighborhoods, and conserving physical qualities of the landscape that attract people to the Town.	10,000	4.36	3.27
R-Medium Density	Allow houses on small lots with public water and sewer; help ensure that new infill development or redevelopment is compatible with existing residential activities; and integrate new development with the character of the Town through use of natural features to provide pedestrian and visual linkages.	7,500	5.8	4.35
R-High Density	Encourage a variety of housing types, attached and multifamily, at higher densities, to promote residential uses in proximity to the waterfront, cluster home sites, and preserve and conserve natural features and recreational potential.	5,000	8.7	6.5
R-Village	Encourage residential neighborhoods with a variety of housing types and densities with nonresidential uses that are compatible with residential character, and encourage redevelopment and infill that is compatible in use, scale, impact, residential use, and the existing pattern of buildings, streets and blocks.	6,000	7.3	5.5
Commercial	Provide locations for commercial and other nonresidential uses that are compatible in scale and impact with nearby residential neighborhoods, and protect and provide a safe and attractive environment for shopping, entertainment and community gathering.	5,000	8.7	6.5

[39] Areas are rounded to the nearest acre.

[40] There are approximately 197.6 acres of tidal wetlands adjacent to Fishing Creek, located primarily within the RCA.

[41] During the 2010 update review, certain computational errors were discovered. The values for the areas in the various Critical Area Land Use Designations are now consistent with the Official Zoning Map.

Zoning District	Description	Minimum Lot Size	Allowable Density (DU/acre)	Density Yield (Allowable Density x .75)
Maritime	Promote a variety of land uses that are water related and/or benefit from locations near the water, encourage reemergence of natural systems near the water, and protect the commercial marine activities that have become the Town's waterfront heritage.	5,000	8.7	6.5
Resource Conservation	Protect and maintain wetlands, surface water, forest, and barren lands identified in the Town's Chesapeake Bay Critical Area Protection Program and other environmentally sensitive areas; provide locations for parkland, recreational activities, and access to the water and Bay; avoid intense development on lands not suitable for development; and allow a regulated mixture of residential, recreational and marine commercial activities through the Town's growth allocation method.	43,560	1	.75
Residential Planned Development	Provide flexibility in planned community areas to assure effective control over the location, type and arrangement of uses appropriate to the planned communities to protect land uses in neighboring districts; provide open space and innovative spacing of dwellings; and provide the opportunity to protect environmentally sensitive and critical habitat areas. Each residential planned community shall have an area of at least (30) buildable, contiguous acres.	No more than 5% of RPC can be office, retail, service; no more than (50%) of RPC can be single family attached, townhouses, and multiple dwellings.	8.25 acres*	6.188 acres*

RPC Density Yield Calculations for minimum 30 acres

Total RPC =	30 acres or 1306800 ft^2
1306800 x 0.05 =	65340 ft2 and 1306800 x 0.5 = 653400 ft^2
65340 + 653400 =	718740 ft^2
718740/2 =	359370 average allowable ft^2
359370/43560 =	8.25 average allowable acres
8.25 x .75 =	6.188 density yield (in acres)

Table 15 : Total Density Calculations

Zoning	Density Yield	Acreage	Dwelling Units
Low Density residential (R-LD)	3.27	456.07	1491
Medium Density Residential (R-MD)	4.35	115	500
High Density Residential (R-HD)	6.5	36.79	239
Residential Village (RV)	5.5	141	776
Commercial (C)	6.5	14.87	97
Maritime (M)	6.5	13.18	86
Resource Conservation (RC)	0.75	320.02	conditional
Residential Planned Community (RPC)	6.188 x (30 acres)	580.12	185
Institutional	n/a	90.86	---------
Undeveloped and Underutilized Land	4.35	39.25	171
TOTAL DWELLING UNITS			3635

Table 16 : Available Developable Land within Town Boundaries

Zoning	DU/acre	Acreage	DU	Population (DU x 2.53)
R-LD	3.27			
undeveloped R-MD	4.35	39	169	429
R-HD	6.5			
infill R-V	5.5 x .5 = 2.75	20	55	139
C	6.5			
M	6.5			
RC	.75			
RPC	6.188			
TOTAL		59	213	568

Table 17 : Traffic Volumes on MD 260 and 261: 1970 and 2000

Section of Highway	**1970**	**2000**	**2008** [42]	**Annual Rate of Growth 1970 -2008**
MD 260 West of MD 261	5,500	11,450	13,160	2.32%
MD 261 North of MD 260	3,700	8,725	8,431	2.19%
MD 261 South of MD 260	5,275	13,650	13,991	2.60%

[42] 2008 Traffic data taken from a "Volume Control Report" dated 10/08/2008 From the SHA

Table 18 : Chesapeake Beach Water Wells

Well Name	Location	Production Rate (mgd)
Well #2	Harbor Road	0.72
Well #4	Greenspring Drive	0.72
Chesapeake Village	Dark Star Lane	0.72 [43]
Total		2.16

Table 19 : Chesapeake Beach Water Tanks

Tank Name	Storage (gallons)
Old Bayside Road	150,000
Richfield Station	350,000
Chesapeake Village	350,000 [44]
Total	850,000

[43] This is an assumed value. The proposed well is assumed to yield approximately the same production rate as Well #4. No test well has been drilled, at this time and no approval has been granted on the requested Groundwater Appropriation Permit request.

[44] This tank is presently under construction with an anticipated completion date of late 2010 to early 2011.

Table 20 : Existing Town Parks and Recreation Facilities

Park/Facility	Location	Intended Use	Area
Veterans' Memorial Park	MD 261 @ MD 260	Passive recreation, memorial	0.19 Acres ±
Lynwood T. Kellam Memorial Recreation Park (Kellam Field)	West side of MD 261 between 26th and Gordon Stinnett Ave.	Athletic fields, community use, Tot lot (playground)	10.30 Acres ± (7.25 County Owned)
Water Park	West side of MD 261 between 26th and Gordon Ave.	Outdoor swimming, countywide use	0.95 Acres ±
Bayfront Park	MD 261, south of 10 St.	Community-scale beach, not for regional use	18.82 Acres ±
Bayfront Timber Walkway	From 17th St. south to Bayfront Park	Exercise trail, pedestrian circulation	2.7 Acres±
Northeast Community Center	MD 261	Indoor recreation, meetings	1.94 Acres ±
Town Hall	MD 261	Public meetings, Town business	1.90 Acres ±
Beach Elementary School	MD 261 @ Old Bayside Road	Community open space, athletics fields, tennis courts	16.99 Acres±
Fishing Creek Park	End of Harbor Drive	Community open space, part of Chesapeake Beach Railway Trail,	104.36 Acres ±
Dredge Spoils Area & Wetlands	West end of Gordon Stinnett Avenue	Dredge spoils site, wetlands preserve	40.63 Acres ±
North Beach Volunteer Fire Department	8536 Bayside Road	Meetings, activities in support of fund raising for NBVFD,	3.12 Acres ±
Public Works Area	8550 Bayside Road	Wastewater Treatment Plant, Public Works Facility, wetlands preserve	32.14 Acres ±
Boat Ramps	Fishing Creek at Rod 'n Reel Marina, West	Public boat launching and parking	2.19 Acres ±
Chesapeake Beach Railway Trail	Fishing Creek	Public Access to Fishing Creek, Exercise trail, pedestrian circulation	1.79 Acres±
Welcome Sign	MD 260 at east end of Cox Road	Passive recreation, Town Welcome Sign	0.84 Acres ±
Railway Museum	4155 Mears Avenue	Heritage of Railway, Public concerts, information	0.31 Acres ±

Table 21 : Past Population Change (provided by MDP)

Year	1970 Census	1980 Census	1990 Census	2000 Census	7/1/2008 (est)[45]
Calvert County	20,682	34,638	51,372	74,563	88,698
Chesapeake Beach	934	1408	2,403	3,180	5,268
Percent of County	4.5%	4.1%	4.7%	4.3%	5.9%

[45] Data Source – MDP - Population Estimates for Incorporated Places in Maryland within Jurisdictions

Table 22 : Town of Chesapeake Beach Growth by Future Planned Development (2009-2016)

Project	# of Units	Unit Type	Population Growth
Chesapeake Village	160	Single Family	515
Fishing Creek Condos	52	Multifamily	65
Harbor Vista North	80	Multifamily	100
Harbor Vista North 2	16	Multifamily	20
Harbor Vista South	75	Multifamily	94
Chesapeake Beach Properties	50	Townhouse	112
Richfield Station	239	100 Single Family / 139 Townhouse	322 + 311 = 633
Rockwell	8	Townhouse	18
Stinnett's Place Condos	32	Multifamily	40
Sunrise on the Chesapeake	12	Multifamily	15
The Heritage	74	Single Family	283
The Home Place	25	Multifamily	31
TOTAL	823		1926

Table 23 : Proposed Development 2009-2016

Development	DU	Acreage	Stage[46]	Land Use	Zoning
Chesapeake Village	160	175.61	Under construction	low-density residential	R-LD
Fishing Creek Condos	52	7.45	Concept	Medium-density residential	M
Harbor Vista North	80	[47]	Sketch	high-density residential	M
Harbor Vista North 2	16	[48]	Approved	high-density residential	M
Harbor Vista South	75	2.90	Sketch	high-density residential	M
Chesapeake Beach Properties	50	8.33	Sketch	medium-density residential	RPC
Richfield Station	239	263.26	Under construction	medium- and high-density residential	RPC
Rockwell	8	0.944	Approved	medium-density residential	R-V
Stinnett's Place Condos	32	1.292	Permitted	high-density residential	R-V
Sunrise on the Chesapeake	12	0.344	Sketch	medium-density residential	R-HD
The Heritage	74	47.88	Preliminary	medium-density residential	R-MD
The Homeplace	25	5.20	Approved	medium-density residential	R-V
TOTAL	823	540.02			

[46] The Stages are defined as follows: Sketch – The developer/owner has engaged in discussion of potential yield with the Zoning Administrator, Concept – The developer/owner has submitted a concept plan for Planning Commission input, Preliminary/Approved – The project has received at least Planning Commission Preliminary Approval, Permitted – The necessary Zoning Permits have been issued though no construction has commenced.

[47] Part of the Rod 'n Reel Marina Complex. No parcels have been created, as yet, to accommodate this development.

[48] Part of the Rod 'n Reel Marina Complex. No parcels have been created, as yet, to accommodate this development.

Table 24 : Chesapeake Beach Sewer and Water Master Plan Planned Development (2006-2020)

Property Description	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Bank & Restaurant				24												24
Bayside Baptist Church					5											5
Chesapeake Beach Properties			10	10	10	10	10									50
Chesapeake Village	30	10	30	30	30	30	30	32								222
Fishing Creek Condos						50	50	50	50	50	50					300
Harbor Vista South	3		16	25	25	25	15									109
Harbor Vista South					50											50
Miscellaneous Future											12	12	12	12	12	12
Richfield Station		32	32	32	32	32	32	32	33	33	33					323
Rockwell				10	9											19
Stinnett's Place Condo		16	16													32
Sunrise on the Chesapeake						10										10
The Heritage			20	30	50	40										140
The Home Place			24													24
Total	0	56	146	159	209	195	135	112	80	80	92	12	12	12	12	
Cumulative	33	89	235	394	603	798	933	1045	1125	1205	1297	1309	1321	1333	1345	

Table 25 : Planned Development (2009 – 2016)

Project	Pre-2009 *	2009	2010	2011	2012	2013	2014	2015	2016	Total
Chesapeake Beach Properties				10	10	10	10	10		50
Chesapeake Village	59	33	20	25	30	25	27			160
Fishing Creek Condos					52					52
Harbor Vista North					40		40			80
Harbor Vista North 2				16						16
Harbor Vista South						35		40		75
Richfield Station	390	39	20	30	30	30	30	30	30	239
Rockwell			8							8
Stinnett's Place Condos				16		16				32
Sunrise on the Chesapeake	2				12					12
The Heritage			10	20	20	24				74
The Home Place	1			12	12	1				25
Total Per Year	452	72**	58	129	206	141	107	80	30	823

* Pre-2009 Development was not included in the Total development category from 2009-2016

** As of June 30, 2009, 49 of the 72 units identified in 2009, were permitted. Of the 49, 25 were allocated to Chesapeake Village and 24 were allocated to Richfield Station.

Table 26 : Dwelling Unit Projections per Year

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimated Dwelling Units		72	58	129	206	141	107	80	30
Total Dwelling Units	1,767	1,839	1,897	2,026	2,232	2,373	2,480	2,560	2,590

Table 27 : Chesapeake Beach WWTP Effluent Performance

Year	Flow (mgd)	BOD5 (mg/L)	TSS (mg/L)	NH3-N (mg/L)	Nox (mg/L)	TN (mg/l)	TP (mg/L)
2001	0.64	4	4	0.4	2.5	4.3	1.0
2002	0.67	6	3	0.4	1.1	2.4	0.7
2003	0.84	8	3	0.5	2.8	4.5	0.9
2004	0.74	7	3	0.8	1.2	3.3	0.9
2005	0.77	6	3(2)	0.9	0.6	3.4	0.9
Ave. Month	0.73	6	3	0.6	1.6	3.6	0.9
Max. Month	1.00	10	9	2.6	6.0	8.0	1.6
Min, Month	0.53	1	1	.01	0.2	1.5	0.4

Notes:

1. Annual average data shown for each year.
2. May 2005 TSS outlier not included.

Table 28 : Chesapeake Beach WWTP ENR Goals

Parameter	Mass Loading Goal	Concentration Goal[1]
	Annual Average	Annual Average
Total Nitrogen	18,273 lbs/yr	4.5 mg/L
Total Phosphorus	1,371 lbs/yr	0.34 mg/L

Note:

1. A flow rate of 1.32 mgd was used to generate the corresponding concentration flow.

Table 29 : Projected Water Demand

	Year			
	2006	2011	2016	2020
Avg Day (mgd)	0.37	0.49	0.62	0.64
Max Day (mgd)	0.76	1.00	1.25	1.31

Based on an average day usage of 200 gpd/EDU for new developments

Table 30 : Opinion of Probable Cost

Project	Construction	Contingency	Engineering	Total Cost	Suggested Execution Year
Improvement 4– Bayside Road[49]	$420,000	$85,000	$150,000	$655,000	2011
Improvement 4– New Water Tower at Chesapeake Village[50]	$1,000,000	$200,000	$335,000	$1,550,000	2011

Table 31 : Interjurisdictional Sewage Allocations

Jurisdiction	Allocation Flow (GPD)	Number of Taps	Percentage
Calvert County	302,325	1,512 Taps	25.6 percent
North Beach	250,200	1,251 Taps	21.2 percent
Chesapeake Beach	489,975	2,450 Taps	41.5 percent
Anne Arundel	137,500	550 Taps	11.7 percent
Total	*1,180,000*	*5,763 Taps*	*100.0 percent*

[49] Distribution system cost only.

[50] Does not include cost of well or piping from the well to the tank.

Table 32 : NPDES Permit Limits

Parameter	Monthly Average	Weekly Average
BOD_5		
(May 1 to Oct 31)	15 mg/L	23 mg/L
(Nov 1 to April 30)	30 mg/L	45 mg/l
TSS	30 mg/L	45 mg/L
TKN	10mg/l	15mg/l
(May 1 to Oct 31)	10 mg/L	15 mg/L
TN (1)		
(May 1 to Oct 31)	10 mg/l	15 mg/l
TP	2.0 mg/L	3.0 mg/L
Fecal Coliform	14 MPN/100 mL (mean value)	n/a
Residual Chlorine	0.1 mg/L max.	n/a
pH	6.5 to 8.5 range (at all times)	N/a
D.O.	5.0 mg/l min	n/a

Table 33 : Chesapeake Beach WWTP ENR Goals

Parameter	Mass Loading Goal	Concentration Goal (1)
	Annual Average	Annual Average
Total Nitrogen	18,273 lbs/yr	4.5mg/L
Total Phosphorus	1,371 lbs/yr	0.34 mg/L

Note:

1. A flow rate of 1.32 mgd was used to generate the corresponding concentration goal

Table 34 : Required Effluent TP for Tier 2

Parameter	Flow Rate (mgd)	Total Phosphorus (lbs)	Total Phosphorus (mg/L)
Permit requirements	1.32	1,371	0.34
SBR Effluent	0.14	426	1.0
Main Plant Effluent (Required Amount)	1.18	945	0.26

Table 35 : ENR Goals for the Chesapeake Beach WWTP

Parameter	Mass Loading Goal (1)	Concentration Goal (1)
	Annual Average	Annual Average
Total Nitrogen	18,265 lbs/yr (2)	4.0 mg/L (2)
Total Phosphorus	1,370lbs/yr	0.34 mg/L

Note:

1. A flow rate of 1.5 mgd was used to generate all loading based goals.
2. The permit goal for annual average total nitrogen is stated above, however, the facility must be designed to meet an annual average total nitrogen goal of 3.0 mg/Lo

Table 36 : Groundwater Pollutants

SOURCE	POLLUTANT	SOLUTIONS
Septic Systems	Nitrogen	• Continuing to proactively pursue state grants for installing nitrogen removing septic systems or reactive barriers, connecting to community systems, and directing new growth to community systems • Explore methods to remove 60 + septic systems within the Town boundaries and expand infrastructure to link these homes to the Town's WWTP
Farms	Sediment, Nitrogen, Phosphorus	• Working with the state to help farmers plant cover crops, maintain Soil Conservation District farm plans, promote wetland creation in farming areas, and implement best management practices
Old Residential & Commercial Developments	Stormwater, Nitrogen, Phosphorus	• Promoting rain gardens, rain barrels, pervious concrete for driveways, and providing education on land fertilization, etc.
Stream bank Erosion	Sediment and Phosphorus	• Reducing stormwater entering streams and retrofitting impacted streams and using grants when available
Roads	Oils, Sediment	• Installing coastal plain outfalls and requiring open section roads, encouraging the use of pervious pavement and non-structural stormwater management
New Urban Development	Sediment, Nitrogen and Phosphorus	• Establishing tree canopy goals, and requiring non-structural stormwater management (bio-retention, grass swales, sand filters, greenroofs, etc.)
Tidal Waters	Nitrogen, Phosphorus and Sediment	• Promoting oyster projects, living shorelines, planting SAV's and tidal marshes

A Sustainable Strategy for Calvert's Aquifers and Watersheds

Table 37 : Land Use Descriptions

Category	Uses	Character and Purpose	Example Uses
Open Space	Conservation; active use	Promote active and passive open space, and preserve undeveloped areas	Dedicated open space in developments, extended park space, programmed park space
Institutional	Social and public uses	Promote social and public uses, provided by churches, schools, the Town, and Calvert County	Beach Elementary School, Town Hall, the Railway Museum, the WWTP, and the Water Park
Low Density Residential	Living	Promote development within a quiet residential setting on larger lots	Single-family detached residential units
Medium Density Residential	Living	Promote development within a quiet residential setting on smaller lots	Single-family attached/detached residential units
High Density Residential	Living	Promote compact development within a quiet residential setting	Single-family detached/attached, and multi-family residential units
Residential Village	Living, low impact non-residential	Encourage residential neighborhoods with a variety of housing types and densities with nonresidential uses that are compatible with residential character, and encourage redevelopment and infill that is compatible in use, scale, impact, residential use, and the existing pattern of buildings, streets and blocks	Single-family detached/attached, and multi-family residential units and owner occupied offices
Residential Planned Community	Living, open space	Promote compact, residential development while enhancing and conserving open space	Single family attached/detached residential units, open space
Commercial	Commerce, office	Promote opportunities for stores and offices	Stores, offices, employment
Connections	Walkability	Combined pedestrian and vehicular connections (streets with sidewalks)	Streetscape enhancements, bike lanes, multi-use trails

Table 38 Pupil Yields Based Upon Housing Type and Grade

Pupil Yields Based Upon Housing Type and Grade[51]			
Housing Type	Grade		
	K-5[52]	6 - 8	9 - 12
SFD	.291	.13	.176
SF A	.194	.084	.118
Condominium	.097	.043	.059

SFD - Single Family Dwelling - Detached
SFA - Single Family Dwelling – Attached

Table 39 : Projected Pupil Yields

Projected Pupil Yields						
Year	Unit Type	# D.U's	Grade			Total Units[53]
			K-5	6-8	9-12	
2009	SFD	33	10	4	6	72
	SFA	0	0	0	0	
	Condo	39	4	2	2	
2010	SFD	30	9	4	5	58
	SFA	8	2	1	1	
	Condo	20	2	1	1	
2011	SFD	45	13	6	8	129
	SFA	10	2	1	1	
	Condo	74	7	3	4	
2012	SFD	10	3	1	2	206
	SFA	146	28	12	17	
	Condo	50	5	2	3	
2013	SFD	50	15	7	9	141
	SFA	10	2	1	1	
	Condo	81	8	3	5	
2014	SFD	27	8	4	5	107

[51] Taken from Table 7-1 of the Calvert County Zoning Ordinance – Article 7-1.05D.3.

[52] For the 3 grade groupings, the values shown represent the anticipated pupil yield.

[53] Total Projected Units from Table 25, herein

Projected Pupil Yields						
			Grade			
	SFA	10	2	1	1	
	Condo	70	7	3	4	
2015	SFD	0				80
	SFA	80	16	7	9	
	Condo	0				
2016	SFD	0				30
	SFA	30	6	3	4	
	Condo	0				

Table 40 Alternate Analysis of Pupil Yield

Alternate Analysis of Pupil Yield				
Year	# Homes [54]	K - 5	6 - 8	9 – 12
2008	1767	514	230	90
2009	1839	535	239	94
2010	1897	552	247	97
2011	2026	590	263	104
2012	2232	650	290	114
2013	2373	691	308	122
2014	2480	722	322	127
2015	2560	745	333	131
2016	2590	754	337	133

NOTE: It is assumed that all homes are Single-Family Detached for this analysis, as there is little data available for the breakdown of the unit mix. The multiplicative factor for SFD is the largest and thereby presumed more conservative.

[54] Taken from Table 5 – Dwelling Unit Projections per Year

Table 41 : Comparison of Enrollment Projections for Board of Education to Alternate Analysis Pupil Yield

Comparison of Enrollment Projections for Board of Education to Alternate Analysis Pupil Yield		
Year	Beach Elementary [55]	Alternate[56]
2008	523 [57]	514
2009	545 [58]	535
2010	581	552
2011	610	590
2012	645	650
2013	654	691
2014	673	722
2015		745
2016		754

[55] Source – Full Time Enrollment Projections by grade for the year in consideration Educational Facilities Master Plan – Calvert County Board of Education

[56] This is only being performed for Beach Elementary as it is the only school serving Chesapeake Beach where all of the students are from Chesapeake Beach

[57] Source – 2011 Educational Facilities Master Plan – Calvert County Board of Education

[58] Source – 2012 Educational Facilities Master Plan – Calvert County Board of Education

Table 42 : Comparison of County & Town Residential Building Permits to Enrollment

Comparison of County & Town Residential Building Permits to Enrollment[59]						
	Permits		Enrollment[60]			
Year	County	Town	County[61]	Beach Elem.	Windy Hill Mid.	Northern High
2004	727	24	17101	N/A	N/A	N/A
2005	586	14	17107			
2006	273	29	17474			
2007	294	102	17225			
2008	223	69	16974	523	757	1543
2009	253	70	17004	545	721	1613
2010[62]		58	N/A	581	721	1628
2011		129		610	704	1641
2012		206		645	710	1643
2013		141		654	720	1632
2014		107		673	735	1631
2015		80		N/A	N/A	N/A
2016		30				

Table 43 : Wastewater Treatment Capacity Distribution

Wastewater Treatment Capacity Distribution				
Plant Capacity		Town Share	Gallons	Taps @ 190 gpd
1,180,000		41.5%	489,700	2,577
140,000[63]		100%	140,000	737
180,000 (Future)		TBD	TBD	947
TOTALS	1.5 MGD			4,261

[59] Source: Calvert County Board of Education 2012 Facilities Plan – Table I

[60] Source: Calvert County Board of Education 2012 Facilities Plan – FTE Enrollments by Grade –For Pertinent School serving Chesapeake Beach

[61] Source: Calvert County Board of Education 2012 Facilities Plan – Table III

[62] Projections from Table 25, herein

[63] The Town expanded the plant capacity, solely. No other partners participated.

Table 44 : Analysis of Available Sewer Capacity for Town

Analysis of Available Sewer Capacity	
Taps in Use [64]	# Taps
Bills issued Apr – June 2009	2062
Existing Condominiums	86
Existing Commercial	273
Chesapeake Village	
Purchased – 120	
Unassigned	40
The Home Place	
Purchased – 25	
Unassigned	24
Rod 'n Reel Marina West	
Purchased - 28	
Unassigned	28
Stinnett's Place Condominiums	
Purchased & Unassigned	32
1 existing house	1
i) Sub-total	2546
Purchased 6/30/2009 – 9/2010	
Richfield Station	25
Chesapeake Village	39
Envision Builders	1
Wesley Donovan	1
Rockwell	8
Sub-total	74
TOTAL TAPS Assigned or in use	2620
Remaining Available Taps	694

[64] As of 6/30/2009

Table 45 Future Planned Taps

Future Planned Taps	
Project	Required Taps
Chesapeake Village	60
Richfield Station	352
The Heritage	74
Chesapeake Beach Properties	50
Fishing Creek Condominiums	52
Harbor Vista South	75
Harbor Vista North	52 [65]
Harbor Vista North - 2	16
Sunrise on the Chesapeake	10
Infill	120
Future Commercial [66]	24
Bayside Baptist Church	5
TOTAL	890

[65] This value represents the planned 80 units less the previously purchased 28 taps.

[66] During infill development for purposes of taps, it is assumed that the existing residential use will credit the future commercial with 1 tap, per converted household.

SECTION 8.
GLOSSARY

Abbreviation	Definition
BNR	Biological Nutrient Removal
BOD	Biological Oxygen Demand
CCPT	Calvert County Public Transportation
CIP	Capital Improvement Program
DU	Dwelling Units
EDU	Equivalent Dwelling Units
ENR	Enhanced Nutrient Removal
GPM	Gallons per Minute
IDA	Intensely Developed Area
IDSE	Initial Distribution Evaluation System
ISO	International Organization for Standardization
LDA	Limited Development Area
MBA	Modified Buffer Area
MCL	Maximum Contaminant Level
MDE	Maryland Department of the Environment
MDP	Maryland Department of Planning
MGD	Million Gallons per day
MGE	Municipal Growth Element
MGS	Maryland Geological Survey
MWCOG	Metropolitan Washington Council of Governments

Abbreviation	Definition
NH3-N	Ammonia Nitrogen
NOx	Nitrogen Oxide
NPDES	National Pollutant Discharge Elimination System
PMSA	Primary Metropolitan Statistical Area
RCA	Resource Conservation Area
SAV	Submerged Aquatic Vegetation
SBR	Sequencing Batch Reactor
SCADA	Supervisory Control and Data Acquisition
SCML	Secondary Maximum Contaminant Levels
SHA	State Highway Administration
SMHA	Southern Maryland Heritage Area
SMLA	Southern Maryland Library Association
TAD[67]	Traffic Analysis District
TAZ[68]	Traffic Analysis Zone
TEA	Transportation Equity Act
TKN	Total Kjeldahl Nitrogen
TMDL	Total Maximum Daily Load
TN	Total Nitrogen
TPTotal	Phosphorous
TSSTotal	Suspended Solids

[67] A TAD is a transportation analysis district, which is another way to break down an area into smaller geographic areas.

[68] A TAZ can be used to calculate the number of people in an area by breaking up a large area into smaller areas

Abbreviation	Definition
WRE	Water Resources Element
WWTP	Waste Water Treatment Plant