CHAPTER 2
ISSUES, GOALS AND STRATEGIES

Community planning uses such terms as issues, goals, strategies, plans, and policies. Each of these has a specific meaning within the framework of the Comprehensive Plan. An **issue** is defined as a matter of community concern to the community. It may be based on a community need that is not being met, a specific problem that needs to be addressed, or a new opportunity for improving the community. A **goal** is a statement that expresses the community's intent to deal with an issue. A goal is a broad statement indicating the general direction the community would like to move in order to deal with a specific issue. Goals become informal policy of the local government once they are adopted. A **strategy** deals with how the community plans to proceed in pursuing each goal.

This Comprehensive Plan for Northumberland County also contains a Land Use Plan, a Public Facilities and Services Plan and a Water Quality and Shoreline Protection Plan. The Virginia Statutes establish the broad requirements of a comprehensive plan, that it: (1) be general in nature; (2) relate to physical development or potential for such development; and (3) address the broad (comprehensive) needs of the community.

This section focuses on defining issues upon which the Comprehensive Plan for Northumberland County is based. The issues came from a combination of several areas of analysis, including:

1. Issues deriving from the Land Use Plan, the Public Facilities and Services Plan and the Water Quality and Shoreline Protection Plan that may not have been specifically addressed in those chapters.

2. Issues related to the economics and demographics of the County which were derived from the economic and demographic analysis presented in the report on Economy and Demographics which appears in the Comprehensive Plan as Appendix A.

3. Physical and environmental issues from Chapter 1 Physical and Environmental Conditions.

4. Issues raised during the public hearings and deliberations of the Planning Commission and written and email communications with County citizens.

5. Issues contained in the 2006 Plan which are still relevant today.

The organization and structure of this Chapter is the same as for the 1996 Comprehensive Plan.

PHYSICAL AND ENVIRONMENTAL ISSUES
1. Use and Development of Land

ISSUES	GOALS	STRATEGIES
Existing development, the locations of roads and development along shorelines establish the general land use patterns of Northumberland County. • Residential development appears along both primary and secondary roads. • Commercial development is focused mostly along primary highways but also clustered around several villages. These hubs must continue to define the future business centers of the County. • Newer upscale residential development is located near and on the shorelines while more modest residential developments, including mobile and manufactured units, are found throughout the other rural areas of the County. • Industrial development, mostly marine and seafood-related, is located along the waterfront. Future development will likely continue to follow these same patterns as growth simply extends itself from patterns already established. This presents an opportunity to focus planning strategy on managing development to achieve a balanced community while preserving the rural and environmentally sensitive qualities of the County.	A. To provide a framework for managing future development of the County in a way that promotes opportunity for its citizens while directing growth to areas best able to accommodate growth. B. To provide a framework to manage growth along major highways and along the waterfront that considers the environmental and social constraints.	1. Strengthen the "Village Concept" in the land use plan to encourage clustering of higher intensity land uses, including small businesses and industries, in order to provide public services and utilities more efficiently, to retain the rural nature of the County and better meet the needs of the citizens of the County. 2. Establish development guidelines designed to direct growth to areas with few or no physical constraints while promoting the preservation of croplands, forests and sensitive environmental areas. 3. Establish guidelines to manage the growth along the shoreline to balance the shoreline development and the environmental considerations.
Many forests and croplands located near shorelines are expected to eventually be converted to subdivision development as market demand for more waterfront lots forces prices of land upward. Some farmland has been preserved by using areas immediately next to the shoreline for dwellings while leaving cropland in service. This open space technique is a creative method of continuing the use of productive croplands and forests while making use of the shorelines for residences and water-based activities.	C. To preserve the agricultural and rural characteristics of the County. D. To reduce the adverse impact of development on shorelines and sensitive environmental areas.	1. Establish guidelines that promote land use and development practices designed to preserve the rural character and qualities of the County. 2. Establish site planning guidelines for subdivisions along shorelines including how they interface with agricultural and forestry lands.

PHYSICAL AND ENVIRONMENTAL ISSUES
2. Topographic Conditions that Limit Development

ISSUES	GOALS	STRATEGIES
Topography becomes a planning issue when steep slopes and unstable soils occur together. Steep slopes in and of themselves impact on development costs and for that reason developers are likely to avoid them where possible. Because water runs off steep slopes more rapidly than it does on level land, excessive slopes can increase the erosion rate. In combination with unstable soils, steep slopes cause serious soil erosion. If not mitigated, an increase in sediment and other pollutants may enter public waters. Steep slopes in Northumberland County occur mostly along stream banks where the impact of erosion is of greatest concern. Stormwater run-off can cause erosion and contaminate the County's waterways and the Bay. Methods applicable to other parts of Virginia for stormwater management are not effective.	A. To reduce soil erosion on steep slopes particularly along creek and stream banks. B. Establish a system of storm water control that mimics the pre-development hydrology.	1. Adopt land use policies with incentives and restrictions that encourage developers to avoid building sites located on steep slopes. Through techniques such as cluster development, protective easements or other arrangements, the policies should provide incentives and a mechanism for preserving forests, agricultural activities, dunes and other environmental features. 2. Where development on slopes cannot be avoided, policies may require that mitigating engineering solutions be installed to reduce disturbance of the slopes. The Erosion and Sediment Control Ordinance and Chesapeake Bay Preservation Act Regulations are major tools in implementing this strategy. 3. Use site design techniques that store, infiltrate, evaporate, and detain runoff such as Low Impact Development, LID (where applicable). Retention of natural vegetation on slopes is critical, as the root structures hold the soil in place, thus minimizing land disturbance is recommended.

PHYSICAL AND ENVIRONMENTAL ISSUES 3. Soil Suitability for Septic Tanks		
ISSUES	GOALS	STRATEGIES
The suitability of the soil for septic tank drainfields is essential to development in most of Northumberland County. There is a public sewerage system serving the Reedville, North Kilmarnock, and Callao areas. Several other high-impact uses (schools, for example) have on-site wastewater disposal systems. But the ability to develop residential and other less intensive land uses depends upon the ability of the soil to percolate satisfactorily and the adequacy of engineered systems. There is a high concentration of soils of poor quality for septic tanks located in the low-lying area seaward of the Suffolk Scarp (see Figures 1.3 and 1.7). Some poor soils are found in the upland regions of the County but these are mostly along stream beds and banks. Such areas are generally restricted from development by RPA regulations. The County contains a combination of large low-lying areas that have soils unsuited for septic tank fields, and as much, or more, area with acceptable soils for that purpose. While potential future growth should be the primary target for development strategies, much of the existing development in Northumberland County occurred before the Chesapeake Bay Regulations took effect. Because of this, lots that existed prior to those regulations may not have adequate space for an alternate septic tank field.	A. To guide development so that it avoids the problems of building on soils unsuitable for septic tank drain fields.	1. Within areas not served by public sewers, use innovative land planning techniques as incentives to encourage preservation of areas that are otherwise unsuited for development.
	B. To avoid building beyond the capacity of good soils to the detriment of the shallow underground water supply. C. To expand opportunities for sewage disposal for owners of residences and small commercial places in cases where inadequate back-up drain fields are unavailable.	1. Establish through zoning, appropriate density regulations and other planning requirements to ensure that development does not exceed the capacity of the land. 2. To prevent contamination of the shallow aquifers and the ground water, continue to require (subdivision regulations) that each lot be tested for percolation as well as require adequate separation between the disposal field and the water table.
		1. Work with the Health Department to develop alternate acceptable strategies and technologies for sewage disposal systems 2. Continue the policy of providing/expanding public sanitary sewers services to the villages with higher concentrations of residential and business uses where economically viable. 3. Educate citizens to maintain septic systems by reducing water usage, minimizing the use of garbage disposals and pumping the septic tank every five years.

PHYSICAL AND ENVIRONMENTAL ISSUES 4. Structural Qualities of Soils		
ISSUES	GOALS	STRATEGIES
Shrink-swell defines a soil's potential for volume change when subjected to a loss or gain in moisture. Volume changes occur mainly because of the interaction of clay minerals with water. The amount of change varies with the amount and type of clay minerals in the soil. The size of the load and the amount of change in soil moisture content may affect the amount of swelling of soils in place. Overall, most of the County's soils have shrink-swell qualities that are acceptable for most likely building purposes. A few areas have moderate to high shrink-swell characteristics that may require special engineering attention. In the uplands there should be few limitations to building because of shrink-swell although marginal conditions are likely to be present in the drainage valleys and near creek beds.	A. To inform the community of the potential problems that may result from building on certain soils. B. Limit development in areas subject to shrink-swell conditions	1. Advise builders and developers of the need to examine shrink-swell qualities of soils before committing to buildings or roads on a specific site. Make information that is available to the County, such as soil surveys, available to individuals and developers. 2. Include requirements for evaluating shrink-swell soil qualities; water table; soil permeability and other factors in the plan review process. 3. Because most of the areas with shrink-swell problems are in the same area as soils with poor septic tank qualities, additional restrictions should be considered when locating buildings within the sensitive area seaward of the Suffolk Scarp.

PHYSICAL AND ENVIRONMENTAL ISSUES
5. Flood-Prone Areas

ISSUES	GOALS	STRATEGIES
Floodplains are low-lying land areas adjacent to rivers, streams, creeks, and other water bodies that are subject to periodic flooding. The County has experienced major storms and flooding since early settlement of the area. A major storm occurred in November, 1985, when tides five feet above normal destroyed bulkheads, boathouses, and other waterfront structures. Through the National Flood Insurance Program, property owners may purchase federally-backed flood insurance. Flood Insurance Rate maps define areas subject to inundation at 100-year and 500-year intervals. Northumberland County has considerable development located within the 100-year floodplain (Figure 1.9). It includes full time and seasonal dwellings, as well as businesses and industries. Most of this development within the floodplain occurred before the flood zone maps were first prepared. An owner still has the option of building within a floodplain although most owners who finance or refinance must purchase flood insurance. The County's present regulations require that any building constructed within the floodplain have a finished floor elevation two feet above the base flood elevation. Pressure for future development in the County's floodplains is expected to continue as long as undeveloped areas along the shorelines exist. The planning issue that arises is how far should the County try to go in regulating development in these vulnerable areas?	A. To promote maximum safety and to protect life and property from potential storm and flood damages. B. To meet the requirements as well as the intent of the Chesapeake Bay act to prevent contamination of the Bay	1. Provide awareness and instructions to citizens advising of the potential dangers of establishing new buildings within flood-prone areas. 2. In cases where the use of flood-prone areas is acceptable, establish performance guidelines for new development within identified floodplains that limit the types of land uses that may be established in floodplains. 3. Continue to administer the County's Floodplain Management Ordinance and review it from time to time to ensure that it is in conformity with the latest FEMA guidelines. 4. Continue to administer the County's Subdivision Ordinance and Soil and Erosion Control Ordinance to provide, where needed, flood control devices and other improvements necessary to protect property from flooding. 5. Restrict establishing wastewater disposal systems and utilities in or adjacent to areas subject to frequent flooding.

PHYSICAL AND ENVIRONMENTAL ISSUES
6. Wetlands and Natural Habitat Areas

ISSUES	GOALS	STRATEGIES
Wetlands are transitional areas between dry uplands and bodies of water. They serve as: (1) a natural water filter for wastes and sediments; (2) a barrier and absorber of floodwaters; (3) a buffer and stabilizer of shoreline from coastal erosion; (4) a recharge area for groundwater; and (5) a breeding and nesting ground for many species of fish, birds and plants. Wetlands may be either tidal or nontidal. Tidal wetlands consist of vegetated marshes, nonvegetated beaches, sandflats, mudflats and the like that are regularly flooded with tidal waters. Nontidal wetlands may be adjacent to, or located beyond, tidal influences. They are classified as "wetlands" because they are saturated with freshwater continually or seasonally. There are 1,640 acres of tidal wetlands in Northumberland County located primarily at the heads of streams (Figure 1.10). In addition, there are about 400 miles of streams above the tidal flow that have contiguous wetlands. Wetlands of both types are protected by federal, state and local laws. Natural Habitat Sites are habitat areas for rare, threatened or endangered species inventoried as part of a natural heritage program. Eighteen sites have been identified most of which are also in marsh or wetland areas. These areas are also protected by federal laws. The planning issue related to both wetlands and habitat areas concerns identification of the areas and coordination of projects to avoid development within them. Site-specific planning should provide data on any protected areas and during reviews the County should determine that approvals of other agencies having jurisdiction are obtained before development plan approvals.	A. To protect official wetlands, natural habitat areas and other sensitive environmental areas and natural resources from loss or degradation by development. B. To meet the requirements as well as the intent of the Chesapeake Bay act to prevent contamination of the Bay.	1. Maintain a current inventory of all Natural Heritage Sites for Zoning Department review when processing development plans. As part of the process, require developers to obtain assurances from other agencies having jurisdiction to the effect that habitat sites will not be disturbed. 2. Continue to administer the Chesapeake Bay Act regulations. Require developers to delineate and protect wetlands and natural habitat areas as part of the submission requirements of development or subdivision plans. 3. Establish incentives to encourage individuals to participate in the preservation of natural habitat areas, the scenic values of the County's shoreline and other environmentally-sensitive areas. 4. Continue to administer the wetlands regulations through the local Wetlands Board. 5. Educate citizens about the importance of maintaining tidal marshes by pruning back overhanging limbs and removing debris so as to maximize light penetration, and remove invasive *Phragmites australis.*

PHYSICAL AND ENVIRONMENTAL ISSUES
7. Historic and Archeological Resources

ISSUES	GOALS	STRATEGIES
With its history dating back to the 17th century, Northumberland County has many buildings and sites that are historically significant. Twenty-six sites are on the National Register of Historic Places (Figure 1.11). The Virginia Dept. of Historic Resources (VDHR) has identified about 120 other sites that have some historic significance according to their criteria. No comprehensive survey to identify all of the historic resources has been performed by VDHR. For this reason, sites carried in their current inventory are incomplete. A complete survey of the County would likely include all buildings more than 50 years old. Also, there could be several hundred additional sites added to the inventory. Two historic districts have been established: at Reedville and at Heathsville. With two historic districts in place and twenty-six places on the National Register, Northumberland County has the basics to establishing an impressive program of historic preservation. To take this program further the County could sponsor a county-wide survey in order to establish a complete inventory of historic resources.	A. To acknowledge the importance of preserving places of known historical and archeological significance by establishing county policies designed to protect designated places from loss or degradation by development. B. To be able to emphasize Historical Resources as a tourist and resident attraction.	1. Identify additional sites that may be eligible for the Federal and State Registers and prepare documentation for nominating them to the registers. 2. Perform a county-wide inventory of historic and archeological sites. A resource for both technical and financial assistance is administered by the Virginia Department of Historic Resources. 3. Identify an appropriate organization as responsible for County-wide historical preservation and planning. 4. Integrate the strategy of historic preservation with the plans to increase tourism

PHYSICAL AND ENVIRONMENTAL ISSUES
8. Chesapeake Bay Protected Areas

ISSUES	GOALS	STRATEGIES
Northumberland County was among the first counties to adopt the model Chesapeake Bay Preservation Ordinance provided by the Department of Environmental Quality (DEQ). That ordinance established a Resource Protection Area (RPA) to include: tidal wetlands; nontidal wetlands connected by surface flow and contiguous to tidal wetlands; tidal shores; and a 100-foot vegetated buffer. The ordinance also established a Resource Management Area (RMA) covering all remaining territory within the County's jurisdiction. Development is allowed in the RMA after meeting performance standards set out in the ordinance. The ordinance was recently updated to reflect recent changes to the Chesapeake Bay Act.	A. To protect the natural resources of the Chesapeake Bay and its tributary streams by managing development and use of the watersheds and shorelines to reduce the quantity of pollutants entering state waters. B. To meet the requirements as well as the intent of the Chesapeake Bay act to prevent contamination of the Bay	1. Continue to administer the performance standards and regulations of the zoning ordinance in the RPA and RMA. 2. Continue to coordinate the efforts of the County with those of DEQ and other State agencies concerned with water quality protection. 3. Continue to monitor and enforce the requirements of the County ordinance related to the Bay Act.

PHYSICAL AND ENVIRONMENTAL ISSUES 9. Groundwater Supply		
ISSUES	GOALS	STRATEGIES
Groundwater is available from three aquifers. The "surface water aquifer" can provide from five to 20 gallons per minute (7,200 - 28,800 gallons per 24-hour day) from shallow wells. It is a marginally satisfactory source of water for residential and most small business uses. Most water users can obtain good-quality water from deep wells extended into the artesian aquifers located 300 to 900 feet below the surface. However, in the south eastern area of the County, near seawater, the deep aquifer has high sodium content. The increased amount of sodium in the water can also result from the pressure drop caused by very large water withdrawals at a single point. Reduced pressure in the aquifers permit the mixing of sea water with that in the aquifers. Large water users outside the County significantly affect the long term (50 – 70 year) water supply available and should also be monitored. The deep artesian water supplies are unsustainable in the long run and the surficial water aquifer cannot by itself supply sufficient water for the villages and industrial users. Reservoirs can provide a sustainable public water supply for part of the County as well as create waterfront property, enhance recreation in the form of kayaking, canoeing and fresh water fishing, and provide water for irrigation of vegetables, vineyards, nurseries, etc. For the long term, multiple sources of fresh water must be available to serve the County residents and businesses. A study was performed in 1969 for the Northern Neck Planning District Commission to determine feasibility of and location of reservoir sites. Current pressures on the fresh water supply make it incumbent to revisit the conclusions and recommendations of that study.	A. To protect the water supply in the surficial water aquifer from pollution originating in surface uses of the property. B. To assure a sustainable long term fresh water supply for the County. C. To protect the potential reservoir sites from development that would preclude their availability when needed. D. To protect aquifers from hydraulic fracturing (fracking) and its potential impact on the fresh water supply. E. Support regional water supply planning. Also see the Northern Neck Regional Water Supply Plan (July 2010).	1. Monitor septic tanks with emphasis on replacement or repair of failing systems. Enforce the 5-year mandatory pump out of septic tanks when the County sewage disposal system has sufficient capacity. 2. Require sufficient separation between a septic tank field and the water table to protect against aquifer contamination. 3. Cooperate with the Virginia Department of Environmental Quality to locate defective underground storage tanks, replacing them with tanks of approved materials. 4. Establish an Interstate program of conservation, education and regulation to protect the artesian aquifers 5. Develop and implement a long term program to provide reservoirs and other sources of fresh water to reduce dependency upon the existing deep aquifers 6. Ensure that no development takes place in valleys that may be flooded for reservoirs, or that inappropriate development takes place on property that may become reservoir waterfront. 7. Monitor and make comments on fracking requests in the region. 8. Monitor requests of large groundwater users because of the Groundwater Management Area.
Several County water systems have been developed using the deeper aquifers, the largest of which is at Reedville. Public water systems that serve 25 or more persons and have 15 connections for 60 or more days per year are regulated by the Virginia Department of Health. Currently, there are 57 public water systems in Northumberland County.	A. To discourage extremely large withdrawals from the lower aquifers in such amounts as to cause a pressure drop thus allowing sea water to infiltrate into the aquifer.	1. Establish water preservation guidelines and restrictions to cover very large withdrawals from the deep aquifers, particularly those close to the shore.

	B. To prevent pollution of surface aquifers and public water supply sources through a program of wellhead protection.	2. Delineate wellhead protection areas for active public water supply wells. Establish limitations on the types of land uses allowed within the protected area and develop a contingency plan for dealing with accidents.

PHYSICAL AND ENVIRONMENTAL ISSUES 10. Water Pollution Sources		
ISSUES	GOALS	STRATEGIES
Potential sources of pollution include the following: underground storage tanks, landfills, lagoons and holding ponds, sludge application, septic systems, pesticides and fertilizers and hazardous wastes. The Virginia Department of Environmental Quality monitors point and non-point pollution sources through two programs. "Pollution Discharge Elimination System (VPDES) Permits" are required for any "point source" of pollution discharging into state waters. "Point sources" are sources that can be traced to a single point such as an industrial waste or sewage discharge pipe. In 2015, DEQ reported two active industrial VPDES permits and four public permits. In addition, other land uses that do not discharge directly into state waters can contaminate both surface and ground water and are monitored through the "pollution abatement permit program." This program is focused on large operations such as commercial livestock raising, sewage treatment plants, sludge disposal sites, lagoons and the like. Three (3) pollution abatement permits were active in the Spring of 2016. Mining is another source of potential pollution. In 2014, there were nine active mining permits for sand and/or gravel in Northumberland County. Mining has the potential to penetrate the water table, and thereby disrupt the surficial aquifers. Methods and requirements for reclamation of a site upon completion of a mining operation are issues.	A. To protect the underground water, surface water, and runoff from pollution resulting from all sources of pollution. B. To protect surface and underground water from pollution by large commercial or institutional operations.	1. Monitor the application of pesticides and agricultural chemicals through a "nutrient management plan"[1] and Best Management Practices. 2. Continue the County process for handling, storage, transporting and siting of hazardous materials and wastes. This process also provides for disposal of mattresses, refrigerators and other bulk wastes. 3. Establish County policies governing the location, installation and operation of large commercial activities including: animal raising, sludge disposal, lagoons, landfills, and similar activities through zoning permits and other local regulations. 4. Coordinate and cooperate with the Department of Environmental Quality in the administration of pollution abatement permits. 5. Establish polices and guidelines concerning the use and reclamation of land for mining.
Non-point sources of pollution or those that cannot be traced to a single source or point are always threats to both ground and surface water. Non-point pollution may come from a variety of sources such as: agriculture, forestry, and developed areas.	A. See watershed goals	1. See watershed policies

[1]Oversight by the U. S. Soil Conservation Service .

PHYSICAL AND ENVIRONMENTAL ISSUES
11. Watersheds

ISSUES	GOALS	STRATEGIES
Watersheds determine how stormwater (any precipitation) moves on the surface, at what rate it is absorbed into the ground, where the runoff enters major rivers and, eventually, the Chesapeake Bay. Along with surface water, pollutants may be infiltrated into the groundwater supply while excess runoff carries them to the rivers and Bay. While many specific points of pollution can be identified and regulated (previous topic), there are numerous sources of pollution which cannot be identified by specific sites. It comes from roads, croplands, construction sites, overflowing septic tanks and, in short, any locations used by people. These "non-point" sources are of major concern in the protection of both ground water and the Chesapeake Bay. Consequently, the management of watersheds is an important element in the protection of the water supply and also the Bay. In Chapter 1, eight major watersheds were identified which range in area from seven to 63 square miles. All but two (which drain directly into the Chesapeake Bay) define the drainage area of major rivers or creeks. Within each watershed numerous smaller watersheds may be defined. The planning issues related to watersheds concern the level of pollutants that could enter the water supply or the Bay with surface water as their carrier. The focus of issues and the strategy for dealing with them must therefore address methods of reducing not only the amount of runoff but its quality as well. Because all of Northumberland County's territory has been included in either the Chesapeake Bay RPA or RMA, the approach to managing the watersheds can be linked to the same performance standards used in the Resource Management Area. Timber cutting, particularly clear cutting, and reforestation has an impact on erosion because of the large amount of land that is disturbed during cutting and removal. Silvicultural activities are exempt from the Chesapeake Bay Preservation regulations and Best Management Practices have been carried out only as a voluntary program.	A. Achieve a significant reduction in the amount of impurities reaching the County's underground water supply from surface water. B. Achieve a reduction in the amount of runoff from stormwater and a significant reduction in the impurities that the stormwater carries to state waters. C. To eliminate soil erosion and incremental runoff resulting from silvicultural activities. D. Achieve a reduction in the amounts of nutrients, nitrate and phosphate that discharge into waterways via the groundwater by increasing the number of deep-rooted trees in the RPA.	1. Apply performance standards of the RMA and strengthen them for individual watersheds if necessary to deal with special conditions in more intensely-developed areas. 2. Support the State Water Control Board in their efforts to improve the quality of waters of the Bay. 3. Require the use of Low Impact Development techniques where applicable to control the runoff from storm water. 4. Make use of the Best Management Practices as established by the Department of Environmental Quality 5. Establish review standards and requirements for all major developments, including activities which require state-issued Pollution Abatement Permits, for eliminating the impact of such uses on the water quality. 6. Coordinate County policies with the Department of Agriculture's Nutrient Management Program to encourage NMPs to be established on all farms. 7. Require the use of Forestry Best Management Practices for Water Quality in Virginia (Va. Dept of Forestry, 1989) in connection with timber harvesting and removal from forest stands within the County. 8. Ensure compliance with the RPA requirements of the Chesapeake Bay Act.

PHYSICAL AND ENVIRONMENTAL ISSUES
12. Soil Conditions

ISSUES	GOALS	STRATEGIES
The water table in the areas of the County lying seaward of the "Suffolk Scarp" is quite close to the surface (Figures 1.3 and 1.15). In these areas the water table is less than 24 inches from the surface. In the remainder of the County, the water table should not present a limitation to development because the areas affected are mostly along stream beds and banks. A high water table exposes the surficial aquifer to potential pollution from surface seepage, failing septic tanks and other pollutants that enter the soil. When combined with soils that have a high permeability there is a particular problem with undigested sewage entering the underground water system even when septic tanks are working normally. The increasing use of engineered systems in areas otherwise unsuitable for normal drain fields creates additional problems when the systems are not properly maintained. Soils with high erodibility also contribute to river and bay pollution when soil particles containing impurities are carried by stormwater runoff into public waters. Construction sites are the source of potential soil erosion but any activity that disturbs the natural surface vegetation, including farming, is a potential source of soil erosion. Erosion is particularly a problem when slopes are steep where the soil is unstable. A simple break in the natural vegetation or dune may initiate erosion that continues indefinitely. The planning issues regarding soils cover a wide range of space, but generally the issues are focused on the need to avoid extensive ground disturbance and poorly designed structures in areas where soils are extremely sensitive to erosion. And when such soils are disturbed, there is a great need to protect the site with erosion and sedimentation prevention devices.	A. To protect the underground water quality through the management of development. B. To protect state waters from pollution resulting from avoidable soil erosion. C. To reduce the amount of development on highly erodible soils, particularly where slopes are excessive.	1. Manage development so as to minimize the use of land with high water tables and poor soils for septic tanks use. 2. Establish development policies that limit development on slopes greater than 15 percent and prevent development where slopes are 20 percent or greater. 3. Establish zoning and subdivision policies to provide incentives that encourage the use of innovative land planning techniques. The incentives should be designed to discourage development of areas with poor soils, high water tables, steep slopes or areas with other environmental constraints. 4. 5. Require erosion and sedimentation prevention devices where river or bay pollution from development are likely

PHYSICAL AND ENVIRONMENTAL ISSUES
13. Shoreline Conditions

ISSUES	GOALS	STRATEGIES
The shoreline conditions report (Northumberland County, VIMS, 2014) identified 509 miles of shoreline[2] in Northumberland County which were distributed as follows: • Agriculture 81 miles • Bare 3 miles • Commercial 8 miles • Forest 124 miles • Grass 21 miles • Industrial 0 miles • Paved 7 miles • Residential 245 miles • Scrub-shrub 19 miles Shoreline erosion is evident along the entire (exposed) portion of the shoreline (Figure 1.19) where VIMS reported erosion was occurring at rates of two feet per year or more. Erosion is unquestionably greater in the shorelines exposed directly to northeaster storms. The major issue raised by shoreline erosion and alterations of shorelines is that these actions increase the amount of sediment being deposited into the Chesapeake Bay. Little can be done to change the natural storm patterns and to a large extent the community must live with this natural change in its boundaries over time. Conservation measures, however, may help delay the damage from natural causes and County intervention should prevent damage from non-natural causes. A major defense to slow the rate of shoreline erosion is actions that protect existing marshes and promote their extension.	A. To reduce the causes of shoreline erosion. B. To promote the growth of marshes and other natural barriers to erosion. C. To protect the shorelines which are vulnerable to extensive erosion from future buildings and construction. D. Verify the VIMS shoreline data and determine the likely impact of further possible development.	1. Preparation of guidelines or restrictions in the Subdivision Ordinance to improve the shoreline resistance to erosion. 2. Review existing shoreline conditions and potential protection measures. One source to check is the VIMS Comprehensive Coastal Resource Management Portal (CCRMP). See Ch. 5 for more information on CCRMP. 3. Establish standards for construction which modifies the shoreline, such as: bulkheads, piers and boat houses. 4. Continue to administer and improve enforcement of requirements of the Chesapeake Bay RPA regulations to preserve marshlands, wetlands and other sensitive environmental features from erosion or destruction. 5. Educate citizens about the importance of maintaining tidal marshes by pruning back overhanging limbs and removing debris so as to maximize light penetration, and remove invasive *Phragmites australis*. 6. Perform a “build-out” analysis of the shoreline to determine the potential impact of development following current regulations.

[2]This figure is derived from summing individual page totals of the Shoreline Inventory report.

PHYSICAL AND ENVIRONMENTAL ISSUES
14. Access to Public Waters

ISSUES	GOALS	STRATEGIES
Access to the Chesapeake Bay and to the numerous rivers and creeks that form the 509 mile shoreline of Northumberland County is one of the County's major resources for both residents and visitors. Existing access is provided from the major rivers (see Figure 1.20) and includes: bank and pier fishing, boat launching ramps, commercial marinas, private community marinas and public beaches. The need to improve public access to state waters is one of the major goals of the Chesapeake Bay Program. That program emphasizes the desire to improve access for boat-related activities, swimming, crabbing and fishing and access to natural wildlife areas. The Public Access Plan (Chesapeake Bay Program) emphasizes a need to increase public access and to upgrade public boat ramps. Marshes and wetlands are resources to extend opportunities for the public to enjoy the shorelines and waterfront areas. There is an ongoing desire for improved access to the waterfront for local citizens as well as for extended facilities to support tourism.	A. Improve existing public boat ramps and increase the number of access points for general public and visitor use. B. Increase the use of shorelines to promote the growth of compatible economic development and tourism. C. Increase public water access to take the pressure off shoreline development and encourage attractive, affordable housing inland. D. Improve water access by adding or upgrading appropriate facilities	1. Continue the County program to develop additional public boat ramps and more fishing piers. Existing facilities should also be upgraded with better boat-handling facilities, piers and ample boat trailer parking. 2. Identify areas and appropriate zoning where the shoreline could be developed with facilities for economic use and tourism, including resort motels/boatels and similar enterprises. 3. Identify places where visitors may access public waters for swimming, fishing and boating. Improve beach facilities. 4. Establish waterfront “parks” with picnic tables, sanitary facilities and boat ramps and piers. Land Conservation organizations should be encouraged to actively pursue this strategy through conservation easements and other tax incentives. 5. Establish a sufficient number of canoe/kayak launching facilities so that a “trail” would be created, allowing individuals not only to launch and return to a variety of sites, but to “tour” the County by water.” 6. Continue to work with and support goals of the Northern Neck Chesapeake Bay Public Access Authority.

COMMUNITY DEVELOPMENT ISSUES
1. Demographics, Economics and Housing

ISSUES	GOALS	STRATEGIES
The year-round population of Northumberland County increased slowly between 2000 and 2010 with the dominant increase in the 65 plus age group. The County's young population is leaving the County while the older, retired population is growing. There are limited provisions and services for the truly elderly and persons with disabilities including health services. There are no hospitals or nursing homes in the County and few clinics. During the summer months, the population peaks as seasonal residents and week-end visitors come to the County. This adds to the economy as well as increases the services required of local government. Among the issues that relate to the demographic trends are the types of jobs available to residents. Seasonal jobs no longer dominate the local economy although some employment peaks during the summer and fall and slacks off during winter and spring. Many workers commute to surrounding counties. The economy could be improved by the addition of more year-round jobs. There is an apparent market for more retail establishments, since the County is lagging other counties significantly in retail sales. The demand is even greater during the peak tourist days and months. The County has many natural recreational and cultural assets that can be used to improve the job market and reverse or reduce the out-migration of workers. Many of these are addressed in materials published by the County Economic Development Commission and the web page of the Northern Neck Tourism Council. The County has a number of sites included in the state-designated Enterprise Zones. This inclusion affords certain tax and other incentives to eligible businesses Some small growth is being experienced in and near the villages, particularly at Callao, Heathsville and Burgess. But there are limitations to the type of business or industry that can be accommodated in Heathsville or Burgess because neither of these villages has a sewer system. There is ample sewer capacity at Reedville, but there is little indication that new businesses are attracted to that area. The Callao sewer project has been completed, and may assist in attracting businesses to that area. The major growth has been in waterfront property. The attractiveness of the County's shoreline property has resulted in a surge of shoreline subdivision development since 1995 and in new homes along the waterways of the	A. Provide necessary health and social services for the elderly and disabled persons with those with special needs. B. To increase efforts to promote economic development to bring new businesses and jobs to the County C. To increase tourism and thereby increase jobs and income to the County D. For statement on villages, see Issue No. 1 under Physical and Environmental Issues.	1. Promote provision of transportation, education, recreation, and medical services by both public and private sources. Continue expansion of the Public Library services. 2. Recognize that the primary population growth and source of income to the County is from the retired community and emphasize growth to reflect this demographic component. 3. Evaluate the locations of Enterprise Zones to be compatible with the “Village” strategy. Focus on Callao with the new sewer system. 4. Promote and attract jobs in occupations that are active during the winter and spring to increase year-round employment, especially jobs related to tourism, and support to the retired community in order to retain the workforce in the County. 5. Establishing a "waterfront development and conservation district" where the focus will be on developing combination residential/ commercial/ recreational enterprises in selected areas compatible with the environment. 7. Support the efforts of the EDC and the NNTC to bring business and tourists to the County. 8. Continue the enforcement of building and safety codes. 9. Pursue programs through the Northern Neck Planning District Commission to

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County. Because of this development, higher property values may influence the conversion of farms and forests to waterfront subdivisions. This is likely to increase the cost of housing county-wide as demand for construction services increases. In other matters related to housing, there are very few rental housing units for full-time residents and new housing is oriented toward waterfront communities. Some housing units still lack complete plumbing and other basic equipment and are marginally acceptable as shelter. Approximately a third of the housing units in the County are over 40 years old.	E. To ensure that older housing units and mobile units comply with modern health and safety standards. F. Provide affordable housing for the younger aged families.	provide plumbing for housing units without this service. 10. Investigate programs to aid in providing multi-family affordable housing. .

COMMUNITY DEVELOPMENT ISSUES 2. Transportation and Recreation		
ISSUES	GOALS	STRATEGIES
HIGHWAYS: Except for a few roads that are in private ownership, highways in Virginia counties are owned and maintained by the State. The amount of traffic on any given road determines the priority given by VDOT for improving the road, whether primary or secondary. Primary roads are planned and funded through a VDOT Division while secondary roads (those numbered 600 or higher) are handled within a Region. Primaries serving the County include U.S. 360, and State Routes 200, 201 and 202. Of these U.S. 360 provides circulation through a central corridor running the entire distance of the County. Route 200 extends this corridor south from Burgess to Kilmarnock and Route 202 extends it to the northwest from Callao. Transportation issues focus on: a need to continue the improvement of U.S. 360 to four-lane status for its entire distance through the County; maintain the quality of Routes 200, 201 and 202; and to establish a network of feeder roads sufficient to provide good circulation throughout all parts of the County. The NNPDC in 2003 sponsored the development of a Transportation Corridor Protection Plan to address issues of public health, safety and welfare along the major roadway corridors. This Plan recommended certain corridor protection policies and provided a model Highway Corridor Overlay District.	A. Maintain a network of public roads consisting of corridor routes which carry most of the traffic; feeder (secondary) roads which move traffic from the corridors to different parts of the County and; service (secondary) roads to provide access to subdivisions and individual properties; and bikeways. B. Develop and implement a process whereby the County is proactive in defining secondary road improvements	1. Designate U.S. 360; and VA Route 200 as the primary corridor routes. 2. Improve U.S. 360 to four lanes from Heathsville to Burgess and from Lilian to Reedville. 3. Implement the Potomac Heritage National Scenic Trail as the designated system of regional bike trails to support this mode of transportation and recreation. 4. Ensure subdivision roads are built to VDOT standards. 5. Consider traffic flow and impacts in the review of new subdivision requests.
RECREATIONAL AREAS AND FACILITIES Recreation in Northumberland County comes from a combination of natural, public and private sources. Water, as was noted in Chapter 1, offers a primary source of recreation. Along more structured lines, a mixture of recreational opportunities is offered through County and private resources. Major facilities include recreational sites at all of the public schools, water-related activities including marinas, boat launching areas, swimming and fishing areas, charter boat operators and ferry operators to areas in the Bay and tributaries. There are three major conservation areas owned by the State which have potential for development for limited recreational use (see Table 4.2 and associated discussion). There is a need for more public access to the recreational opportunities	A. Expand the opportunities for active and passive recreation throughout the County.	1. Establish an ongoing program for the identification, acquisition, and implementation of existing and potential recreational areas and facilities. 2. Provide additional boat ramps and piers including upgrading of some existing ramps and piers to improve access the Chesapeake Bay for fishing and other water sports. 3. Expand fresh and tidal water fishing opportunities; including those fresh water fishing opportunities associated with the

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offered by the Chesapeake Bay and its tributary rivers and streams. This observation comes from studies of the Chesapeake Bay access resources and from comments of community leaders and citizens. Access for fishing - both for boat launching and pier/bank fishing - and beaches for swimming are cited as major needs.	B. Expand public access to the Chesapeake Bay, to tidal waters and to non-tidal waters.	development of reservoirs for potable/irrigation water. 4. Encourage and support charter boat operators, ferries and other users of the Bay in the attraction of visitors to the County. 5. Continue working with the Northern Neck Chesapeake Bay Public Access Authority to maintain and expand recreational areas.

COMMUNITY DEVELOPMENT ISSUES 3. Public Facilities		
ISSUES	GOALS	STRATEGIES
WATER AND SEWER The potable water supply for the County is provided by wells, both the shallow and deep aquifers, and there does not appear to be any shortages projected for the next decade or two, although a problem exists in later decades. (This is addressed in Chapters 1, 2, 4, and 5). Areas where development activity is expected to be concentrated should generally be considered for a community water system. This applies particularly to large-scale residential developments and major business or industrial uses. The public sewerage system located in Reedville was recently expanded to include Fleeton. A new system has been installed in Callao to solve the problems of poor soils which limited future development and was causing problems with existing systems. There is also a sewer system in Kilmarnock that serves a portion of Northumberland County residents. New development during recent years has clustered either near the villages or along the shorelines. When public sewers can be shown to be financially feasible, commercial development of Heathsville, Burgess and other villages would be greatly assisted by their addition.	A. To assure an adequate long term water supply for all County users including large-scale developments, sites for economic development, and existing villages. B. To safeguard against over-use of water supply in the aquifers by any one user. C. To provide sewer facilities to villages and areas where economically feasible.	1. Establish requirements in the subdivision ordinances for developers to provide adequate water supply and sewer facilities for any large-scale development. 2. Avoid the establishment of industries that use such large quantities of water that the loss of pressure in the aquifer threatens salt infiltration or other contaminants unless those industries can be sustainably supplied with water from other sources. 3. Continue to evaluate the feasibility of providing sewer to villages with greatest growth potential. Continue to monitor availability of grants from state and/or federal sources for projects that meet their criteria.
HEALTH, HOUSING AND SOCIAL SERVICES The County has unmet needs in the area of Health, Housing and Social Services: • The County has a number of residents who are at or below federal poverty levels and/or unemployed, are disabled and a disproportionate number of the population who are over sixty-five and are a burden on the local health care system. Currently approximately 33% of the population is over 65 years of age and by 2030 the number is expected to be close to 40%. • Housing is a major issue in the County. There is a shortage of safe, healthy living places for low income persons in our area. There are still a large number of homes in the County without indoor plumbing and a number of homes where the houses are literally falling down around the people living in them. While not all are in poor repair, over a third of the 8,000 houses in the	A. Identify resources, services, and gaps in services. to determine the community's relative health and welfare. Identify what additional or reinforced services are needed, what should be the priorities and a plan of action to improve the situation. B. Community health, housing and social services should be planned and implemented in a manner that reflects a community-based, comprehensive approach that best meets the needs of citizens.	1. Plan and implement a comprehensive planning process which represents a collaborative approach involving people from all sectors of the community. All forms of diversity should be represented and the process should be a very public, deliberative one.

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County are over 40 years old. • The County has a large number of under-funded social programs supported by a combination of paid and volunteer staff.		
OTHER SERVICES Emergency services are provided by volunteer agencies. Over the last couple of years, it has become increasingly difficult to recruit and retain volunteer rescue squad members. Rescue Squads recognized this fact and asked the Board of Supervisors for help. In 2014, Northumberland hired a Chief of Emergency Services to support the volunteer squads. In 2015, Northumberland hired career full time rescue squad staff, and now have coverage 24 hours a day, 7 days a week. Refuse disposal is provided under contract and the level of resources required may need to be increases as the population continues to increase. It is important that the County have the communications and Internet services comparable to that available elsewhere in Virginia. This is essential to attract and retain business and to provide essential personal emergency services. At present large areas of the County are without Internet broadband due to the lack of infrastructure and have marginal cell phone services.	A. Assure the present level and quality of services is maintained as the County grows and the demographics change B. Provide 100% coverage of the County area for reliable cell phone service. C. Make high speed broadband internet service available to all residents of the County	1. Evaluate the ability of the volunteer organizations to maintain their current level of service over the next 5-10 years. 2. Improve the Emergency Response capability of the County. 3. Encourage and facilitate increases in cell phone coverage. 4. Encourage and facilitate wireless broadband systems in the County.